



SUPERCENTER
GENERAL REMODEL

UNISPEC II - STORE PLANNING

Store #5175
Algood, TN

Architect's Project Number: 08-456.25

Perkowitz + Ruth Architects

Architecture/ Planning/ Store Design

Regional Office: 3300 Market Street, Suite 230

Rogers, AR 72758-8197

Corporate Office: 111 W. Ocean Boulevard, 21st Floor

Long Beach, CA 90802

DOCUMENT 00007 – SEALS PAGE

PROJECT:

Name:	Walmart GR
Location:	Algood, TN
Project Number:	08-456.25
Store Number:	5175

ARCHITECT OF RECORD

Steven J. Ruth
Perkowitz + Ruth Architects
111 W. Ocean Blvd., 21st Floor
Long Beach, CA 90802

Architect of Record

Date

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STRUCTURAL ENGINEER OF RECORD

Carrie J. Johnson, P.E.
Wallace Engineering Structural Consultants, Inc.
200 East Brady Street
Tulsa, OK 74103

Structural Engineer of Record

Date

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MECHANICAL ENGINEER OF RECORD

Duane S. Henderson
Henderson Engineers Inc.
8325 Lenexa Drive, Suite 400
Lenexa, KS 66214

Mechanical Engineer of Record

Date

ELECTRICAL ENGINEER OF RECORD

David D. Haake
Henderson Engineers Inc.
8325 Lenexa Drive, Suite 400
Lenexa, KS 66214

Electrical Engineer of Record

Date

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FIRE PROTECTION ENGINEER OF RECORD

Darrel E. Stein
Fire Dynamics
Henderson Engineers Inc.
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Lenexa, KS 66214

_____ Fire Protection Engineer of Record	_____ Date
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SECTION 00010 – TABLE OF CONTENTS**INTRODUCTORY INFORMATION**

00001	Project Title Page
00007	Seals Page
00010	Table of Contents

BIDDING REQUIREMENTS

Bidding Requirements (including Invitation to Bids, Instructions to Bidders, and Bid Forms) are issued by the Owner (Wal-Mart) under separate cover and are not included in the Project Manual.

CONTRACTING REQUIREMENTS

00700	General Conditions
00800	Supplementary Conditions

Other Contracting Requirements (including Agreement, Bond, and Certificate Forms) are issued by the Owner (Wal-Mart) under separate cover and are not included in the Project Manual.

DIVISION 1 - GENERAL REQUIREMENTS

01100	Summary
01131	Alterations Project Procedures
01255	Request For Information
01310	Construction Management and Coordination
01311	Project Meetings
01320	Construction Progress Documentation
01330	Submittal Procedures
01455	Mechanical Equipment Testing, Adjusting, and Balancing
01458	Testing Laboratory Services
01459	Neutralization Enclosure Quality Control
01500	Temporary Facilities and Controls
01600	Product Requirements
01640	Owner Furnished Products
01700	Execution Requirements
01731	Cutting and Patching
01740	Cleaning
01742	Construction/Demolition Waste Management and Disposal
01770	Contract Closeout

DIVISION 2 - SITE CONSTRUCTION

02023	Selective Site Demolition (Non-Civil)
02251	Shoring
02320	Excavating, Backfilling and Compacting (Non-Civil)
02765	Pavement Markings
02821	Chain Link Fences and Gates (Building Related)
02890	Traffic Signs and Signals

DIVISION 2.1 - CIVIL SITE CONSTRUCTION (*By Civil Engineer of Record*)

The Sections within this Division and other Divisions listed within the Sitework Specifications Table of Contents page are the responsibility of the Civil Engineer. The Engineering Consultant, the seal and license number of the Professional Engineer registered in the State where the project is located, are also shown on the Sitework Specifications Table of Contents page.

DIVISION 3 - CONCRETE

03300 Cast-in-Place Concrete

DIVISION 4 - MASONRY

04060 Masonry Mortar

04220 Concrete Masonry Units

DIVISION 5 - METALS

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05300 Metal Deck

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05500 Metal Fabrications

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06100 Rough Carpentry

06165 Fiberboard Panels

06200 Finish Carpentry

06400 Architectural Woodwork

06610 Glass Fiber Reinforced Plastic

06620 Solid Surfacing

DIVISION 7 - THERMAL AND MOISTURE PROTECTION

07210 Building Insulation

07412 Metal Roof Panels

07530 Elastomeric Membrane Roofing (TPO)

07611 Sheet Metal Soffit

07620 Sheet Metal Flashing and Trim

07711 Gutters and Downspouts

07721 Manufactured Curbs

07815 Mineral Fiber Fireproofing

07840 Firestopping

07900 Joint Sealers

DIVISION 8 - DOORS AND WINDOWS

08110 Steel Doors and Frames

08311 Access Doors and Frames

08332 Overhead Rolling Closure

08337 Coiling Counter Shutters

08360 Sectional Overhead Doors

08381 Flexible Strip Doors

08383 Flexible Traffic Doors

08411 Aluminum Framed Storefronts

08462 Automatic Sliding Entrance Doors

08631 Metal Framed Fixed and Venting Skylights

08710 Door Hardware

08800 Glazing

DIVISION 9 - FINISHES

09250	Gypsum Board
09310	Ceramic Tile
09330	Quarry Tile
09511	Acoustical Panel Ceilings
09650	Resilient Flooring
09655	Resilient Base and Accessories
09680	Carpet
09900	Paints and Coatings

DIVISION 10 - SPECIALTIES

10160	Metal Toilet Compartments
10200	Vents and Louvers
10260	Wall and Corner Guards
10440	Signage
10810	Toilet Accessories
10990	Miscellaneous Specialties

DIVISION 11 - EQUIPMENT

11025	Lock Boxes
11140	Vehicle Service Equipment
Appendix A EDRR Report	
11160	Loading Dock Equipment

DIVISION 12 - FURNISHINGS

NOT APPLICABLE

DIVISION 13 - SPECIAL CONSTRUCTION

13121	Fabric Structures
13123	Glazed Structures
13810	Energy Management Systems (EMS)

DIVISION 13.1 - FIRE PROTECTION (By Fire Protection Engineer of Record)

The Sections within this Division are the responsibility of the Fire Protection Engineer. The Engineering Consultant, the seal and license number of the Professional Engineer registered in the State where the project is located, are also shown on the Seals Page.

13900	Fire Suppression
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DIVISION 14 - CONVEYING SYSTEMS

NOT APPLICABLE

DIVISION 15 - MECHANICAL (By M.E.P. Engineer of Record)

The Sections within this Division are the responsibility of the Mechanical Engineer. The Engineering Consultant, the seal and license number of the Professional Engineer registered in the State where the project is located, are also shown on the Seals Page.

15050	Basic Mechanical Materials and Methods
15100	Building Services Piping
15190	Fuel Gas Piping
15410	Plumbing Fixtures
15480	Domestic Water Heaters
15600	Refrigeration Equipment
15700	Heating, Ventilating, and Air Conditioning Equipment
15800	Air Distribution

DIVISION 16 - ELECTRICAL (By M.E.P. Engineer of Record)

The Sections within this Division are the responsibility of the Electrical Engineer. The Engineering Consultant, the seal and license number of the Professional Engineer registered in the State where the project is located, are also shown on the Seals Page.

16050	Basic Electrical Materials and Methods
16100	Wiring Methods
16135	Cable Trays
16265	Static Uninterrupted Power Supply
16402	Low Voltage Service and Distribution
16410	Enclosed Switches and Circuit Breakers
16442	Branch Circuit Panel Board
16452	Track Busway Systems
16500	Lighting
16700	Communications

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DOCUMENT 00700 – GENERAL CONDITIONS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Conditions of the Contract: General Conditions.
- B. Related Documents:
 - 1. AIA Document A201-1997.
 - 2. Document 00800 - Supplementary Conditions.

1.2 GENERAL CONDITIONS

- A. AIA Document A201-1997 - General Conditions of the Contract for Construction, are the General Conditions of the Agreement as identified in the Contract. Document A201-1997 is hereby made a part of these Contract Documents by reference.
- B. Document AIA A201 may be obtained through the publisher, American Institute of Architects, or through one of its document distributors. Contact (800) 242-3837 or go to www.aia.org

1.3 SUPPLEMENTARY CONDITIONS

- A. Supplements which modify, change, delete from or add to the General Conditions are included in Document 00800 - Supplementary Conditions included herein.

PART 2 - PRODUCTS

Not Used.

PART 3 - EXECUTION

Not Used.

END OF DOCUMENT

SECTION 00800 – SUPPLEMENTARY CONDITIONS

The following supplements modify, change, delete from or add to the General Conditions of The Contract for Construction, AIA Document A201 - Fifteenth Edition, 1997. Where any Article of the General Conditions is modified or any Paragraph, Subparagraph or Clause thereof is modified or deleted by these Supplementary Conditions, the unaltered provisions of that Article, Paragraph, Subparagraph or Clause shall remain in effect.

ARTICLE 1 - GENERAL PROVISIONS**1.1 BASIC DEFINITIONS**

1.1.1 Delete the first sentence of Subparagraph 1.1.1.

1.1.1 Add the following at the end of Subparagraph 1.1.1:

All references in the General Conditions to the Agreement shall be deemed to refer to the Contract.

1.1.2 Delete the first sentence of Subparagraph 1.1.2.

1.1.3 Delete Subparagraph 1.1.3 in its entirety and replace with the following:

1.1.3 The Work is defined in the Contract.

1.2 CORRELATION AND INTENT OF THE CONTRACT DOCUMENTS

1.2 Add the following Subparagraph to 1.2:

1.2.4 REFERENCE STANDARDS

Reference to the standards of any technical society, organization or association, or to codes of local and state authorities, shall mean the latest standard, code, specification or tentative specification adopted and published as of the date of commencement of the Work as established in the Contract, unless specifically stated otherwise.

1.5.2 Delete Subparagraph 1.5.2 and replace with the following:

1.5.2 The Contractor shall thoroughly examine all factors reasonably available to it, including but not limited to the Drawings, Specifications, soils report, site boundary and topography, site conditions, site history, local information, and seasonal weather conditions in the preparation of the Contract Sum. Soil report data shall not be deemed to be accurate or complete, and it is the Contractor's responsibility to further investigate site conditions as it determines necessary. The Contractor shall be totally responsible for acceptance of the Work site and preparation of the Work site to the proper grade and compaction requirements as indicated by the Drawings and Specifications. Any Work performed by the Contractor on the Project will constitute acceptance of the Work site. Any Work performed by the Contractor on a building pad prepared by others will constitute acceptance of the pad by the Contractor.

ARTICLE 2 - OWNER**2.1 GENERAL**

2.1.1 Add the following Clauses (.1, .2, and .3) to Subparagraph 2.1.1:

.1 The Owner is Wal-Mart and is identified in the Contract as Wal-Mart Stores, Inc., Bentonville, Arkansas.

- .2 The term Wal-Mart is used throughout the Contract Documents where various set-up and installation crews will be interfacing with the Work of the Contractor or occupying substantially completed areas of the Work for the installation of Wal-Mart-owned systems and equipment, as well as for the conduct of grand opening preparations.
- .3 The Owner's authorized representative is defined as the Wal-Mart Construction Manager.

2.1.2 Add the following Clause to Subparagraph 2.1.2:

- .1 Neither Owner's rights nor Contractor's indemnification obligations under the Contract Documents shall be impaired or affected in any way by the failure of Owner to provide Contractor with a copy of a notice to Owner, notice of lien, mechanics lien, or other information requested by Contractor. Contractor shall require this language in all contracts with its Subcontractors and any contracts between Subcontractors and Sub-subcontractors.

2.2 INFORMATION AND SERVICES REQUIRED OF THE OWNER

2.2.1 Delete Subparagraph 2.2.1 in its entirety.

2.2.3 Modify the first sentence of Subparagraph 2.2.3 as follows:

Replace "limitations and utility locations" with "limitations and approximate utility locations".

2.2.3 Modify Subparagraph 2.2.3 as follows:

Delete the following sentence:

The Contractor shall be entitled to rely on the accuracy of information furnished by the Owner but shall exercise proper precautions relating to the safe performance of the work.

2.2.3 Add the following Clause to Subparagraph 2.2.3:

- .1 A soil investigation report has been made for this Project and a log of borings has been prepared. The report and log were obtained solely for use by the Architect/ Engineer in design and are not a part of the Contract Documents. The soil investigation report and log of borings are being furnished to the Contractor as general information only, and are not, and shall not be deemed to constitute, a representation or warranty of subsurface conditions. Neither the Owner nor the Architect/Engineer assume responsibility for the accuracy or completeness of this report or the log of borings.

2.2.4 Modify Subparagraph 2.2.4 as follows:

Delete the following sentence:

Any other information or services relevant to the Contractor's performance of the Work under the Owner's control shall be furnished by the Owner after receipt from the Contractor of a written request for such information or services.

2.2.5 Delete Subparagraph 2.2.5 in its entirety and substitute the following:

2.2.5 The Contractor will be furnished, free of charge, 1 vellum and 1 Project Manual for the building and site at award of said project.

2.3 OWNER'S RIGHT TO STOP THE WORK

2.3.1 Modify Subparagraph 2.3.1 as follows:

Delete "persistently" in the first sentence.

Insert the following at the end of Subparagraph 2.3.1:

“The rights of Owner set forth in this paragraph shall be in addition to, and not in limitation of, any other rights or remedies available to Owner under the Contract Documents, at law or in equity.”

2.4 OWNER’S RIGHT TO CARRY OUT THE WORK

2.4.1 Delete Subparagraph 2.4.1 in its entirety and substitute the following:

2.4.1 If the Contractor defaults, neglects, or fails to perform the Work in accordance with the Contract Documents, Owner shall notify Contractor of said default, neglect or failure and may withhold payment of all or any portion of the Contract Sum (unless otherwise required pursuant to applicable law). In such an event, Owner may elect, without prejudice to any other right or remedy that Owner may have under the Contract Documents, at law or in equity, to (i) accept such defective Work, in which case the Contract Sum payable to Contractor under the Contract Documents will be reduced in a manner acceptable to Owner (unless otherwise required pursuant to applicable law), or (ii) provide Contractor with ten (10) days notice to correct such defects at Contractor’s sole expense. If Owner provides Contractor with the opportunity to correct such defects and Contractor fails to do so to Owner’s satisfaction within the time specified above, Owner shall have the right, without prejudice to any other right or remedy that Owner may have under the Contract Documents, at law or in equity, to (x) correct the defects at Contractor’s expense and to deduct the cost thereof from any amount owed to Contractor by Owner or (y) without taking over the Work, furnish or cause to be furnished the necessary supplies or equipment and/or employ or cause to be employed the necessary workmen to remedy the defects at the expense of Contractor. Contractor shall, within twenty (20) days from receipt of an invoice therefor, reimburse Owner for any and all costs and expenses incurred in correcting such defects, including, without limitation, the cost of any additional services of Architect incurred as a result thereof. In addition to the other remedies provided in this Subparagraph, if the Work is not performed in accordance with the Contract Documents, Owner may, in its sole discretion, terminate this Contract immediately.

ARTICLE 3 - CONTRACTOR

3.1 GENERAL

3.1 Add the following Subparagraph to Paragraph 3.1:

3.1.4 The Contractor shall be licensed in the State in which the Project is located, whether or not Contractor is a resident of, or has a place of business in, that State, and shall have and maintain at all times during which Work is being performed all necessary and appropriate certificates of licensure from all federal, state, and local agencies and authorities having jurisdiction over the Project, including the State in which the Project is located.

3.2 REVIEW OF CONTRACT DOCUMENTS AND FIELD CONDITIONS BY CONTRACTOR

3.2.1 Add the following Clauses, (.1, .2, and .3) to Subparagraph 3.2.1:

.1 The Contractor shall be responsible for the accuracy of all measurements, elevations, lines, and grades of the Work. Contractor shall not scale the Drawings. If the Contractor chooses to measure distances by scaling from the Drawings, Contractor shall do so at its own risk and Contractor acknowledges and agrees that such scaling shall not be deemed by Owner to be an accurate measurement. The Contractor shall do field work necessary to lay out and maintain the Work. Contractor shall not receive any additional compensation or fees as a result of or due to scaling from the Drawings or differences between actual dimensions and the measurements indicated on the Drawings. Any such differences which are discovered shall be submitted to the Owner for its consideration before Contractor proceeds with the Work.

- .2 The Contractor shall be responsible for determining the conditions of the existing site, including all existing improvements, paving, utilities, and construction, and shall have accounted for such conditions in the preparation of its bid and shall not be entitled to additional compensation as the result of not being familiar with the existing site conditions. If Contractor encounters Unforeseen Conditions, Contractor may submit a PCOB to Owner in accordance with Section 3.3 of the Contract.
- .3 The Contractor is responsible for having a thorough knowledge of the Drawings, Specifications, General Conditions, Supplementary Conditions, Special Conditions, and all other Contract Documents. The failure of Contractor to have such knowledge shall not relieve Contractor of any responsibility for performing the Work in a manner acceptable to the Owner. Contractor shall not be entitled to additional compensation due to conditions that occur as a result of the failure of the Contractor or its employees to have such knowledge.

3.2.3 Delete Subparagraph 3.2.3 in its entirety and replace with the following:

3.2.3 Contractor shall coordinate performance of the Work with Owner so as to minimize the disruption to, and interference with, Owner's operations and business that may arise due to the performance of the Work. Time for performance, whether established by progress schedule or any other provision of the Contract Documents, shall be of the essence. Contractor agrees to undertake the Work subject to all conditions as they now exist or may arise. If Contractor fails to perform and complete the Work in accordance with the Contract Documents, as may be determined in Owner's sole discretion, within the time period set forth in the Contract Documents or if Owner determines, in its sole discretion, that Contractor is behind schedule to such an extent that it is unlikely that Contractor will complete the Work on time, then, subject to the provisions of Section 4.2 of the Contract, Owner will have the right, to the maximum extent permitted by applicable law, to terminate this Contract immediately upon notice to Contractor. In such event, Owner shall have the right to complete the Work or to contract with a third party to complete the Work, or a combination of both, and Contractor shall promptly reimburse Owner for all fees, costs and expenses incurred by Owner as a result thereof. The foregoing rights of Owner are in addition to any other rights or remedies that Owner may have at law or in equity by reason of any failure by Contractor to perform according to the terms of the Contract Documents. Contractor shall indemnify, defend and hold Owner harmless from any and all damages caused by delays of Contractor and shall reimburse Owner for any such damage pursuant to Article 13 of the Contract.

3.3 SUPERVISION AND CONSTRUCTION PROCEDURES

3.3.1 Modify the last sentence of Subparagraph 3.3.1 as follows:

Replace "If the Contractor is then instructed to proceed with" with "If the Contractor is then instructed by Owner in writing to proceed with".

3.3.3 Modify Subparagraph 3.3.3 as follows:

Replace the phrase "already performed to determine," with "already performed (including, but not limited to the building pad) to determine".

3.3 Add the following Subparagraph to the end of Paragraph 3.3:

3.3.4 The Contractor shall provide Work that meets the requirements of the Owner's property insurance carrier.

3.4 LABOR AND MATERIALS

3.4.2 Delete Subparagraph 3.4.2 in its entirety.

3.5 WARRANTY

3.5.1 Add the following Clauses (.1, .2, and .3) to Subparagraph 3.5.1:

1. The Contractor shall provide a "Contractor's Statement of Warranty" as part of the closeout documents specified in Specification Section 01770. The "Contractor's Statement of Warranty" shall be on the Contractor's letterhead, signed by an officer of Contractor and shall state that the Work performed complies with Paragraph 3.5.1 of the General Conditions (as modified by the Supplementary Conditions) and the warranty period extends one (1) year beyond the actual date of Substantial Completion as defined in Paragraph 9.8 below.
- .2 The Contractor shall provide a 12 month warranty on workmanship and Contractor furnished materials. The Contractor agrees to correct any defects during construction and during the one (1) year period after the actual date of Substantial Completion. The Contractor shall make all necessary repairs, and shall supply all necessary materials and labor, at no expense to the Owner. The Contractor also agrees to repair, at his own expense, any Work that it may disturb when correcting such defects. The Contractor shall provide similar guarantees from those who furnish material and equipment. When correcting defects, the Contractor must obtain Owner's approval, in writing, before replacing defective materials with materials that are different from those originally required to be installed. All such defects and repairs shall be corrected with ten (10) days following notification by Owner to Contractor. If Contractor fails to correct such defects or deficiencies to Owner's satisfaction (which is determined in Owner's sole discretion) within such 10-day period, Owner shall have the right, without prejudice to any other right or remedy that Owner may have under the Contract Documents, at law or in equity, to (x) correct the defects at Contractor's expense or (y) furnish or cause to be furnished the necessary supplies or equipment and/or employ or cause to be employed the necessary workmen to remedy the defects at the expense of Contractor. Contractor shall, within ten (10) days after receipt of an invoice therefore, reimburse Owner for any and all costs and expenses incurred in correcting such defects. Contractor shall assign to Owner all manufacturer warranties relating to the Work as Owner may request.
- .3 During the warranty period, the Contractor shall return for replacement both Contractor- and Owner-furnished defective or failed parts under warranty to the manufacturer. The Contractor shall record unit model and serial numbers in writing and forward to Wal-Mart.

3.6 TAXES

3.6 Add the following Subparagraph to Paragraph 3.6:

- 3.6.2 In the event that any applicable federal, state, or local laws, statutes, codes, ordinances, rules, or regulations require income tax to be withheld from any payments to be made in connection with the Contract Documents, the Contractor shall comply with such requirements in a manner that will absolve the Owner of any withholding liability.

3.7 PERMITS, FEES, AND NOTICES

3.7.1 Add the following Clauses (.1 and .2) to Subparagraph 3.7.1:

- .1 In addition to all other Work wheresoever described, Contractor shall be responsible for the completion and submittal of all necessary applications, and for obtaining (solely to the extent Contractor may so obtain), all permits, licenses, and approvals (including, without limitation, impact documents and temporary easements) relating to, necessary for, and/or necessitated by (a) the Work hereunder (whether performed by Contractor or by any Subcontractor or Sub-subcontractor) or (b) the proper operation or use by Owner after the completion of the Work of all machinery, equipment and fixtures to be installed by Contractor or any Subcontractor or Sub-subcontractor in connection with the performance of the Work, in each case with said submittals to, and obtaining from, the proper authorities responsible for issuing said permits, licenses, and approvals for the Project. Contractor shall be responsible for advancing payment of all fees and issuance of all letters of credit and/or bonds associated with all permits, licenses, and approvals (and applications therefor), including, without limitation, impact fees, building permit fees, special utility extension fees, meter installation fees, entrance permit fees, special development fees, impact document fees, and temporary easement fees. The Contractor shall provide Owner with proper verification of the actual cost thereof, and following receipt by Owner of proper verifications and Owner's approval thereof, the Contractor will be reimbursed by Owner for the actual cost of the advances, without markup. Neither the "Contractor Fee" nor any other fee or charge will apply to these items. Contractor shall diligently prosecute all such applications, and shall coordinate with Owner and any applicable contractor(s) with respect to obtaining all such permits, licenses, and approvals.
- .2 Contractor covenants to provide Owner with a comprehensive list of: (a) the permits, licenses, and approvals described in the preceding paragraph; (b) all permits, licenses, and approvals related to the Work or the product of said Work required in order for Owner to operate its store and overall development of the Project in accordance with Owner's intended use thereof; and (c) all applicable permits relating to environmental regulations or controls required for regulatory compliance (to the extent not set forth in (a) or (b) above) of the Project or Owner's store or development. Said comprehensive list (the "Permit List") shall include the other information set forth on Exhibit C to the Supplementary Conditions, and shall be in substantially the same form as said exhibit, including without limitation, all information related to requirements for ongoing monitoring, testing and termination or renewal of said permits, licenses, and approvals. Contractor shall provide the Permit List to Owner within ten (10) calendar days after Contractor's execution of this Contract, and Contractor covenants to provide Owner with updates of the Permit List on an ongoing basis as Contractor obtains permits, licenses, and approvals (with a notation thereon as to which permits, licenses, and approvals have been obtained and the date obtained, as well as the status of application for all pending permits, licenses, and approvals) and/or becomes aware of additional permits, licenses or approvals relating to, necessary for, and/or necessitated by Contractor's Work or otherwise relating to Owner's operations of the store or development; provided, however, that Contractor covenants to deliver an update of the Permit List no less frequently than once every thirty (30) calendar days. Should Owner determine, in Owner's sole discretion, that the Permit List omits any permit, license or approval for which Contractor should be responsible (whether for application for, or obtaining of, the same), Owner shall have the right to notify Contractor, in writing, of Owner's determination whereupon Contractor shall add said permit, license or approval to the Permit List and shall thereafter be responsible for applying for and/or obtaining the same, as applicable. In the event that any delay is incurred in obtaining any permit, license or approval beyond the date estimated therefor on the Permit List, Contractor shall notify Owner, in writing, of the reason(s) for said delay. Notwithstanding any provision to the contrary herein, Contractor shall have the right to designate other persons or entities to obtain any permit, license or approval set forth on the Permit List, provided, however, that any such designation shall not relieve Contractor of any liability to Owner as a result of any failure to obtain any such permit, license or approval.

3.7.4 Modify Subparagraph 3.7.4 as follows:

Delete “appropriate”.

3.8 ALLOWANCES

3.8 Delete Paragraph 3.8 in its entirety.

3.9 SUPERINTENDENT

3.9.1 Modify Subparagraph 3.9.1 as follows:

Delete “employ a competent superintendent” and replace with “employ competent superintendents”. Unless otherwise set forth herein, all references to Superintendent in the General Conditions shall be deemed to refer to any and all of the Superintendents named under the Contract Documents.

3.9 Add the following Subparagraph to Paragraph 3.9:

3.9.2 The superintendent(s) identified by Contractor in Contractor’s bid package (each a “Superintendent”) shall be approved by the Owner before the Contract will be prepared for execution. Each Superintendent shall devote total and full time and attention to the requirements of the Contract Documents and shall not work on any other project or construction matter until final completion of the Work hereunder.

3.9.3 It is hereby agreed between Owner and the Contractor that the Contractor will perform any work that is directed by the Wal-Mart Construction Manager to meet the Contract Substantial Completion Date and will maintain the original management and supervisory team to continue their office and job site duties on a full-time basis through the Contract completion date and/or any other time the Contractor has any Work being performed on the Project regardless of the date or condition of Project completion.

3.10 CONTRACTOR’S CONSTRUCTION SCHEDULE

3.10 Delete Paragraph 3.10 in its entirety and replace with the following:

3.10 CONTRACTOR’S CONSTRUCTION SCHEDULE

3.10.1 Milestone dates, if any, and the Contract Substantial Completion Date shall be as set forth in the Contract Documents and the construction period section of the Bid Form.

3.12 SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

3.12.4 Add the following sentence to Subparagraph 3.12.4:

The provisions of Specifications Section 01330 - Submittal Procedures shall supplement the provisions of this Subparagraph 3.12.4.

3.12.6 Add the following sentence to Subparagraph 3.12.6:

Shop Drawings and submittal data are considered “Not Approved” unless specifically stamped approved in accordance with Specifications Section 01330 - Submittal Procedures.

3.12.8 Modify Subparagraph 3.12.8 as follows:

Delete “(1) the Architect has given written approval to the specific deviation as a minor change in the Work, or (2)”. Delete “a Change Order or Construction Change Directive” and replace with “a Change Order, Construction Change Directive, or minor change in the Work pursuant to Article 7.4 of the General Conditions and Supplementary Conditions”.

3.12.8 Add the following Clause to Subparagraph 3.12.8:

- .1 The Contractor may not make substitutions except with the written consent of the Owner, after evaluation by the Architect and in accordance with a Change Order.

3.15 CLEANING UP

3.15.1 Modify Subparagraph 3.15.1 as follows:

Replace “construction equipment, machinery and surplus materials” with “construction equipment, machinery and surplus materials, and shall leave the Project site broom clean”.

3.18 INDEMNIFICATION

3.18 Delete Paragraph 3.18. in its entirety.

ARTICLE 4- ADMINISTRATION OF THE CONTRACT

4.1 ARCHITECT

4.1.1 Add the following Clause to Subparagraph 4.1.1:

- .1 Except for subparagraphs 1.1.2, 1.6.1, 2.1.1, 2.2.3, 2.4.1, 3.12.4, 3.12.5, 3.12.7, 3.12.8, 3.12.8.1, 3.12.9, 3.12.10, 4.1.1, 4.1.2, 4.1.3, 4.2.7, 12.2.1.1 (“Architect’s services and expenses”), 12.2.1.2 and 14.2.4 (“Architect’s services”) in the General Conditions, wherever the term Architect is used in the General Conditions, it shall be replaced with and shall mean the Owner as described in Article 2 of the General Conditions.

4.2 ARCHITECT’S ADMINISTRATION OF THE CONTRACT

4.2.1 Add the following Clause to Subparagraph 4.2.1:

- .1 The Owner will inform the Contractor of the member of the Owner’s organization who is authorized to make changes in the Work previously authorized or give such directions and approvals on the Owner’s behalf as may be required under this Contract. The person so designated shall be identified as the Owner’s Representative and such designation of authority may be supplemented or changed in writing only by either the Wal-Mart Construction Manager or the Wal-Mart Project Director.

4.2.5 Delete Subparagraph 4.2.5 in its entirety.

4.2.8 Delete Subparagraph 4.2.8 in its entirety.

4.2.9 Delete Subparagraph 4.2.9 in its entirety.

4.2.12 Delete Subparagraph 4.2.12 in its entirety.

4.3 CLAIMS AND DISPUTES

4.3.1 Insert the following at the end of Subparagraph 4.3.1:

Notwithstanding the foregoing, the term “Claim” shall not apply to (a) the failure of Owner to make payment on an Application for Payment, which payment is properly due and payable in accordance with the Contract Documents, within the time set forth in the Contract Documents, which shall be governed by the provisions of Subparagraph 14.1 of these Supplementary Conditions, and (b) Unforeseen Conditions, which shall be governed by the provisions of Section 3.3 of the Contract and Article 7 of the General Conditions and these Supplementary Conditions.

4.3.2 Delete Subparagraph 4.3.2 in its entirety and substitute the following:

4.3.2 Time Limits on Claims. Except to the extent otherwise required by applicable law, notice of Claims by Contractor shall be made within five (5) days after the occurrence of the event giving rise to such Claim. Any notice by Contractor of a Claim for an amount in excess of \$20,000 shall be made by written notice to the Wal-Mart Contract Administration Department. Contractor shall provide Owner in writing all particulars of the Claim including all supporting documentation within twenty (20) days after the notice of Claim is delivered unless Owner agrees in writing to an extension of time. Failure to submit all particulars of the Claim, including all supporting documentation, within the time provided shall absolve Owner of all obligations therefor to the maximum extent permitted by applicable law. Any additional Claim made after the initial Claim is submitted to Owner and which is based upon or arises out of the same event as the initial Claim will not be considered and is deemed waived.

4.3.3 Modify Subparagraph 4.3.3 as follows:

Delete “or as provided in” and replace with “or as provided by applicable law or in”.

4.3.4 Delete Subparagraph 4.3.4 in its entirety and replace with the following:

4.3.4. If the Contractor encounters concealed or unknown conditions that constitute Unforeseen Conditions, Contractor may submit a PCOB to Owner in accordance with Section 3.3 of the Contract and Article 7 of the General Conditions and these Supplementary Conditions.

In the event “Rock Excavation” is required in the construction of this Project, the following criteria shall apply:

- .1 “Rock Excavation” is described as igneous, metamorphic or sedimentary rock that cannot be removed by rippers or other mechanical methods and, therefore, requires drilling and blasting.
- .2 The excavation and disposal of all “Rock Excavation” that is indicated by the soils report shall be considered unclassified excavation and shall be included with site work grading as part of the lump sum base bid.
- .3 If “Rock Excavation” is required that is not indicated by the soils report and constitutes an Unforeseen Condition, Contractor may submit a PCOB to Owner in accordance with Section 3.3 of the Contract and Article 7 of the General Conditions and these Supplementary Conditions.

4.3.6 Modify Subparagraph 4.3.6 as follows:

Insert “other than the failure to pay an Application for Payment” at the end of clause (4).

4.3.7.2 Delete Clause 4.3.7.2 in its entirety and replace with the following:

4.3.7.2 Claims for additional time due to adverse weather conditions will not be considered.

4.3.8 Delete Subparagraph 4.3.8 in its entirety.

4.3.9 Delete Subparagraph 4.3.9 in its entirety.

4.3.10 Delete Subparagraph 4.3.10 in its entirety.

4.4 RESOLUTION OF CLAIMS AND DISPUTES

4.4 Delete Paragraph 4.4 in its entirety.

4.5 MEDIATION

4.5 Delete Paragraph 4.5 in its entirety and replace with the following:

4.5 MEDIATION

4.5.1 References to mediation in Paragraph 4.5 or any other paragraph of the General Conditions are hereby deleted and rendered null and void, of no force or effect and not a part of the Contract.

4.6 ARBITRATION

4.6 Delete Paragraph 4.6 in its entirety and replace with the following:

4.6 ARBITRATION

4.6.1 References to arbitration in Paragraph 4.6 or any other paragraph of the General Conditions are hereby deleted and rendered null and void, of no force or effect and not a part of the Contract.

ARTICLE 5- SUBCONTRACTORS

5.1 DEFINITIONS

5.1 Add the following Subparagraph to Paragraph 5.1:

5.1.3 The terms Subcontractor and Sub-subcontractor shall include material and equipment suppliers unless otherwise expressly set forth in the Contract Documents.

5.2 AWARD OF SUBCONTRACTS AND OTHER CONTRACTS FOR PORTIONS OF THE WORK

5.2.1 Modify Subparagraph 5.2.1 as follows:

In the second to last sentence, delete the word “reasonable” and change the words “person or entity” to “Subcontractor or Sub-subcontractor”.

Delete the last sentence of Subparagraph 5.2.1.

5.2.1 Add the following Clauses (.1 and .2) to Subparagraph 5.2.1:

- .1 The Contractor and all Subcontractors are hereby notified that all Subcontractors, Sub-subcontractors and suppliers are subject to the prior written approval of the Owner (which may be granted or withheld in Owner’s sole discretion) prior to execution of this Contract.
- .2 The Contractor is hereby notified that any Subcontractor, Sub-subcontractor or supplier, including their principals or associated companies, that has previously been designated by Wal-Mart as unacceptable will be subject to approval by Wal-Mart prior to execution of this Contract.

5.2.2 Modify Subparagraph 5.2.2. as follows:

In the first sentence, delete the words “reasonable and” and change the words “person or entity” to “Subcontractor or Sub-subcontractor.”

5.2.3 Delete Subparagraph 5.2.3 in its entirety and replace with the following:

5.2.3 If the Owner has objection to a person or entity proposed by the Contractor, the Contractor shall propose another to whom the Owner has no objection. If Owner’s objection to a person or entity proposed by the Contractor is not reasonable, Owner will reimburse Contractor for the costs incurred by the

Contractor, if any, as a result of such unreasonable objection, provided that Contractor promptly submits to Owner for review and approval reasonably sufficient documentation evidencing such costs.

5.2.4 Modify Subparagraph 5.2.4 as follows:

Delete the word “reasonable”. This paragraph shall extend to changing Sub-subcontractors.

5.3 SUBCONTRACTUAL RELATIONS

5.3.1 Delete Subparagraph 5.3.1 in its entirety and replace with the following:

5.3.1 By appropriate written agreement, the Contractor shall require each Subcontractor, to the extent of the Work to be performed by the Subcontractor, to be bound to the Contractor by the terms of the Contract Documents, and to assume toward the Contractor all the obligations and responsibilities, including the responsibility for safety of the Subcontractor’s Work, which the Contractor, by these Contract Documents, assumes toward the Owner. Each subcontract agreement shall preserve and protect the rights of the Owner under the Contract Documents with respect to the Work to be performed by the Subcontractor so that subcontracting thereof will not prejudice such rights, and shall allow to the Subcontractor, unless specifically provided otherwise in the subcontract agreement, the benefit of all rights, remedies and redress against the Contractor that the Contractor, by the Contract Documents, has against the Owner. Where appropriate, the Contractor shall require each Subcontractor to enter into similar agreements with Sub-subcontractors. The Contractor shall make available to each proposed Subcontractor, prior to the execution of the subcontract agreement, copies of the Contract Documents to which the Subcontractor will be bound, and, upon written request of the Subcontractor, identify to the Subcontractor terms and conditions of the proposed subcontract agreement which may be at variance with the Contract Documents. Subcontractors will similarly make copies of applicable portions of such documents available to their respective proposed Sub-subcontractors.

5.4 CONTINGENT ASSIGNMENT OF SUBCONTRACTS

5.4.1.1 Modify Subparagraph 5.4.1.1 as follows:

Delete the clause “for cause pursuant to Paragraph 14.2”.

5.4.2 Delete Subparagraph 5.4.2 in its entirety.

ARTICLE 6- CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS

6.1 OWNER’S RIGHT TO PERFORM CONSTRUCTION AND TO AWARD SEPARATE CONTRACTS

6.1.1 Delete Subparagraph 6.1.1 in its entirety and replace with the following:

6.1.1 The Owner reserves the right to perform construction or operations related to the Project with the Owner’s own forces, and to award separate contracts in connection with other portions of the Project or other construction or operations on the Project site.

6.1.2 Modify Subparagraph 6.1.2 as follows:

Replace “Owner-Contractor Agreement” with “agreement with Owner”.

6.1.2 Add the following Clauses (.1, .2, .3, and .4) to Subparagraph 6.1.2:

- .1 The Owner will award a separate contract for work defined as “Energy Management System.”
- .2 The Energy Management System contractor will be bound by the conditions and terms of Wal-Mart Document #8017-01.
- .3 The Owner will award a separate contract for work defined as “Refrigeration.”

- .4 The Refrigeration contractor will be bound by the conditions and terms of Wal-Mart Document #8716-01.

6.1.3 Add the following Clause to Subparagraph 6.1.3:

- .1 Contractor covenants and agrees to diligently prosecute the Work to completion within the time limitations set forth in the Contract Documents and to efficiently coordinate the Work with any work being performed by Owner or any other contractor so as not to interfere with, disrupt or delay any work required to be performed by any of said persons and, in any event, so as not to interfere with, disrupt or delay the progress required to conform to the Contract Substantial Completion Date designated in the Contract Documents. If Contractor falls behind schedule, as determined by Owner in its sole discretion, the Contractor shall, at its expense and without any right to additional compensation and to the maximum extent permitted by applicable law, work extra hours and/or weekends in order to catch up and maintain its schedule. Any materials to be furnished by Contractor shall be furnished in sufficient time to enable Contractor to perform and complete its Work within the time provided therein and Contractor will furnish to Owner, upon request, proof of materials order placement sufficient to assure delivery in a timely manner.

6.1.4 Delete Subparagraph 6.1.4 in its entirety and replace with the following:

6.1.4 With respect to separate contractors:

- .1 Contractors performing work under separate contracts shall be responsible for relating problems and anticipated problems which may impede the progress of the Work and shall cooperate with Contractor. Contractors performing work under separate contracts shall abide by the site cleanliness and safety regulation policies of the Contractor and shall not interfere with Contractor's ability to comply with applicable laws, statutes, codes, rules and regulations.
- .2 Contractor will receive a copy of specifications and drawings for work performed under separate contracts for the Project for coordination purposes.
- .3 Coordination of Energy Management System activities shall be through Wal-Mart Energy Management Department, (479) 273-8670.
- .4 Coordination of all Refrigeration activities shall be through Wal-Mart's Regional Refrigeration Coordinator. The Contractor shall contact the Contract Administrator/Technical Services at (479) 273-8524 for the coordination contact person.

6.2 MUTUAL RESPONSIBILITY

6.2.1 Add the following Clause to Subparagraph 6.2.1:

- .1 Material and equipment provided by the Owner shall be received, stored, and protected in accordance with Paragraph 10.2.1.2 of the General Conditions. Incurred costs for receiving, storage, and liability for such material and equipment, and for warranty labor relating to the installation of such material and equipment, shall be included in the Contract Sum.

6.2.2 Modify Subparagraph 6.2.2 as follows:

Insert the following at the end of the last sentence: "through the exercise of due diligence by the Contractor".

6.2.3 Modify Subparagraph 6.2.3 as follows:

Delete the last sentence and replace with the following

Contractor shall not be responsible for damage to the Work or defective construction of a separate contractor, provided that Contractor must promptly notify Owner in writing of such damage or defective construction and must prove, to Owner's reasonable satisfaction, that the separate contractor caused such damage to the Work or is responsible for such defective construction.

ARTICLE 7- CHANGES IN THE WORK

7.2 CHANGE ORDERS

7.2 Add the following Subparagraphs to Paragraph 7.2:

7.2.3 The Contractor is provided with Change Order forms as part of the Contract Documents package. In the event a Change Order is necessary, the form shall indicate the cost of the Work and the cost of the Change Order fee. Fee includes all overhead, profit and operational items such as taxes, bonds and insurance. No other itemized costs will be acceptable on the form provided.

7.2.4 The Contractor shall include a written provision in contracts with the Subcontractors requiring the Subcontractors and Sub-subcontractors to submit any changes in cost to adjust the subcontract amount using written Change Orders. No adjustments will be accepted by the Contractor nor Wal-Mart from any Subcontractor or Sub-subcontractor except for those submitted on a written Change Order.

7.3 CONSTRUCTION CHANGE DIRECTIVES

7.3.1 Modify Subparagraph 7.3.1 as follows:

Delete “prepared by the Architect and signed by the Owner and Architect” and replace with “issued by Owner or Owner’s design consultant”. Insert the following at the end of Subparagraph 7.3.1:

Contractor and Owner shall follow the procedures set forth in Section 3.3 of the Contract with respect to Construction Change Directives.

7.3.3.4 Delete Clause 7.3.3.4 in its entirety.

7.3.4 Delete Subparagraph 7.3.4 in its entirety.

7.3.5 Delete Subparagraph 7.3.5 in its entirety.

7.3.6 Delete Subparagraph 7.3.6 in its entirety and replace with the following:

7.3.6 Additional costs of supervision and field office personnel directly attributable to the change shall be applicable only to Change Orders that change the Contract Time of the Project.

7.3.7 Modify Subparagraph 7.3.7 as follows:

Delete the last sentence thereof.

7.3.8 Delete Subparagraph 7.3.8 in its entirety.

7.3.9 Delete Subparagraph 7.3.9 in its entirety.

ARTICLE 8- TIME

8.1 DEFINITIONS

8.1.3 Delete Subparagraph 8.1.3 in its entirety and replace with the following:

8.1.3 The Contract Substantial Completion Date and Contract Completion Date are defined in the Contract Documents.

8.3 DELAYS AND EXTENSIONS OF TIME

8.3 Delete Paragraph 8.3 in its entirety.

ARTICLE 9- PAYMENTS AND COMPLETION

9.1 CONTRACT SUM

9.1.1 Delete Subparagraph 9.1.1 in its entirety and replace with the following:

9.1.1 The Contract Sum is set forth in the Contract.

9.2 SCHEDULE OF VALUES

9.2 Delete Paragraph 9.2 in its entirety and replace with the following:

9.2 SCHEDULE OF VALUES

9.2.1 Within twenty-four (24) hours following the Notice of Award, the Contractor shall submit to the Owner a schedule of values, along with other required documents, allocated to various portions of the Work. This schedule shall be used as a basis for reviewing the Contractor's Applications for Payment.

9.2.2 The Owner will furnish to the Contractor an "Accounting Package", and other required documents, which must be received by the Owner before the Contract will be executed.

9.3 APPLICATIONS FOR PAYMENT

9.3.1 Modify Subparagraph 9.3.1 as follows:

Delete the clause "At least ten days before the date established for each progress payment, the Contractor shall submit" and replace with "The Contractor shall, on or before the time designated in the Contract Documents, submit".

9.3.1.1 Delete Clause 9.3.1.1 in its entirety.

9.3.1 Add the following Clauses (.3 and .4) to Subparagraph 9.3.1:

- .3 To the maximum extent permitted by law, the Owner shall determine the amount, less retainage required to be withheld pursuant to the Contract, of each Application for Payment that is properly due and will issue payment for such amount in accordance with the Contract Documents.
- .4 To the maximum extent permitted by applicable law, Contractor hereby waives its rights, pursuant to statute or otherwise, to require the deposit of the retainage in a separate escrow or other account in a bank or other entity and authorizes and directs Owner to hold and release the retainage in accordance with the terms of the Contract.

9.3.3 Modify Subparagraph 9.3.3 as follows:

Delete ", to the best of the Contractor's knowledge, information and belief," from the second sentence thereof. In the second sentence, delete "making a claim" and replace with "having the right to make a claim".

9.3.3 Add the following Clauses (.1 and .2) to Subparagraph 9.3.3:

- .1 Notwithstanding the foregoing Subparagraph 9.3.3, in the event that any such lien, claim, security interest or encumbrance is registered or otherwise recorded against title to all or any part of the Work or the premises on which the Work is being performed, Contractor covenants to cause the same to be removed or bonded over within five (5) days of notice thereof. If Contractor receives information that a lien, claim, security interest or encumbrance may be so registered or recorded, Contractor shall immediately resolve the issue to the sole satisfaction of the Owner.

- .2 It is hereby agreed between the Owner and the Contractor that each properly executed Application for Payment (Form C-1200 or Form C-1210) is a valid lien release, as stated on the form, and the Contractor thereby agrees to defend and indemnify Wal-Mart against any and all claims resulting from any lien, security interest, claim or encumbrance in favor of any person or entity making a claim by reason of having provided labor, materials, or equipment relating to the Work.

9.4 CERTIFICATES FOR PAYMENT

- 9.4 Delete Paragraph 9.4 in its entirety.

9.5 DECISIONS TO WITHHOLD CERTIFICATION

- 9.5 Delete Paragraph 9.5 in its entirety.

9.6 PROGRESS PAYMENTS

- 9.6.1 Delete Paragraph 9.6.1 in its entirety and replace with the following:

9.6.1 After all of the conditions and requirements set forth in the Contract Documents relating to the payment of progress payments have been met, the Owner shall make payment in the manner and within the time period set forth in the Contract Documents.

- 9.6.2 Delete Paragraph 9.6.2 in its entirety and replace with the following:

9.6.2 The Contractor shall promptly pay each Subcontractor for such portion of the Work that such Subcontractor is entitled. The Contractor shall, by appropriate agreement with each Subcontractor, require each Subcontractor to make payments to Sub-subcontractors in similar manner.

- .1 Contractor agrees not to use "Pay When Paid" contracts with Subcontractors and suppliers of equipment, material or services. Contractor shall require a similar provision in all Subcontractor and Sub-subcontractor contracts.

- 9.6.4 Add the following Clause to Subparagraph 9.6.4:

- .1 At the Owner's sole discretion, the Owner may require all sums due under the Contract Documents to be paid pursuant to a joint check arrangement or through an escrow account for payment to the Contractor, Subcontractors, Sub-subcontractors, or material suppliers. The Contractor agrees to sign such additional documents and take such action as the Owner shall deem necessary to carry out the intent of this subparagraph 9.6.4.1.

- 9.6.6 Modify Subparagraph 9.6.6 as follows:

Replace "A Certificate for Payment" with "Except to the extent otherwise required by applicable law, a Certificate for Payment".

- 9.6.7 Delete Subparagraph 9.6.7 in its entirety.

9.7 FAILURE OF PAYMENT

- 9.7 Delete Paragraph 9.7 in its entirety.

9.8 SUBSTANTIAL COMPLETION

9.8.1 Add the following sentences and Clauses (1., .2, & .3) to Subparagraph 9.8.1:

Except to the extent otherwise required by applicable law, Substantial Completion is further defined as the date when all construction indicated in the Contract Documents is 100% complete, including the final punchlist, with the exception of Owner furnished and/or installed items which must be connected or installed by the Contractor, for the purpose of installing fixtures, equipment and stocking merchandise. The Contract Substantial Completion Date is indicated in the Contract Documents.

- .1 A final punchlist inspection will be performed by Owner upon receipt from Contractor of written notice that Contractor considers the Work to be Substantially Complete. Said inspection should be performed no less than five (5) business days before the Contract Substantial Completion Date set forth in Section 4.1 of the Contract.
- .2 Except as may otherwise be required by applicable law and agreed upon by Owner and Contractor, no reduction in retainage will be considered by Owner.
- .3 For purposes of determining a completion bonus, Contractor will give Owner written notice of the date which it proposes as the actual date of Substantial Completion within five (5) business days of completion of all final punchlist inspection items. The actual date of Substantial Completion shall be determined by Owner and Contractor pursuant to the terms and conditions set forth in Section 4.2.3 of the Contract.

9.8.2 Modify Subparagraph 9.8.2 as follows:

In the first sentence, delete “a comprehensive list of items to be completed or corrected prior to final payment” and replace with “the notice required pursuant to Clause 9.8.1.1”. Delete the second sentence of this Subparagraph.

9.8.3 Delete Subparagraph 9.8.3 in its entirety and replace with the following:

9.8.3 Upon receipt of the Contractor’s notice, Owner will perform a final punchlist inspection as set forth in Clause 9.8.1.1. If the Owner’s inspection discloses any item which is not complete in accordance with the Contract Documents, the Contractor shall complete or correct such item to Owner’s satisfaction in its sole discretion before the Contract Completion Date agreed upon by Owner and Contractor pursuant to the Contract.

9.8.4 Delete Subparagraph 9.8.4 in its entirety and replace with the following:

9.8.4 A Certificate of Substantial Completion may be prepared that is satisfactory to Owner and Contractor upon Substantial Completion of the Contract in accordance with the Contract Documents. If necessary, the Certificate of Substantial Completion or such other documentation or agreements as Owner and Contractor shall agree upon shall set forth the responsibilities of the Owner and Contractor for security, maintenance, heat, utilities, damage to the Work and insurance. Warranties required by the Contract Documents shall commence on the actual date of Substantial Completion of the Work or designated portion thereof unless otherwise provided in the Contract Documents or agreed upon by Owner and Contractor.

9.8.5 Delete Subparagraph 9.8.5 in its entirety and replace with the following:

9.8.5 A “Consent of Surety for Reduction in Retainage” is required to be submitted with the Application for Payment that reduces the retainage.

9.9 PARTIAL OCCUPANCY OR USE

Supplement in accordance with provisions of Specifications Section 01100.

9.10 FINAL COMPLETION AND FINAL PAYMENT

9.10.1 Delete Subparagraph 9.10.1 in its entirety.

9.10.2 Modify Subparagraph 9.10.2 as follows:

Delete “Neither final payment nor any remaining retained percentage shall become due” and replace with “Except as may otherwise be required pursuant to applicable law and in addition to any other requirements set forth in the Contract Documents, neither final payment nor any remaining retained percentage shall become due”.

9.10.2 Modify clause (1) of Subparagraph 9.10.2 as follows:

Replace “an affidavit that” with “an affidavit and, if required by Owner, evidence in a form satisfactory to Owner, that”.

9.10.2 Modify clause (5) of Subparagraph 9.10.2 as follows:

Replace “receipts, releases and waivers of liens, claims, security interests or encumbrances arising out of the Contract” with “receipts and unconditional Lien Releases (as defined in the Contract)”.

9.10.2 Add the following sentence and Clause to Subparagraph 9.10.2:

Contractor’s obligations in this paragraph to furnish a bond and refund payments are in addition to, and not in limitation of, Contractor’s indemnification obligations under the Contract Documents.

.1 A Consent of Surety to Final Payment is required to be submitted in the Closeout Document Book (reference Specifications Section 01770).

9.10.3 Modify Subparagraph 9.10.3 as follows:

In the first sentence, replace “Owner shall” with “Owner may, in its discretion and subject to applicable law”.

9.10.4 Delete Subparagraph 9.10.4 in its entirety.

9.11 CONTRACT CLOSEOUT

See provisions of Specifications Sections 01740 and 01770.

ARTICLE 10- PROTECTION OF PERSONS AND PROPERTY

10.2 SAFETY OF PERSONS AND PROPERTY

10.2.1 Inserting the following at the beginning of Subparagraph 10.2.1:

Contractor shall train the individuals who perform Work under the Contract Documents on the use of supplies and equipment and shall, upon Owner’s request, with respect to any individual performing any of the Work under the Contract Documents, obtain from said employee, and submit to Owner, a certification verifying that the individual has not been convicted of any felony or misdemeanor involving dishonesty.

10.2.1. Insert the following at the end of Subparagraph 10.2.1:

Contractor shall supervise its Subcontractors and Sub-subcontractors to confirm that they comply with their respective safety plans.

10.2.2 Add the following sentences to 10.2.2:

Contractor's obligations hereunder shall include, but are not limited to, complying with the latest federal Occupational Safety and Health Administration (OSHA) safety standards. Costs related thereto shall be included in the Contract Sum.

10.2.3 Add the following Clause to Subparagraph 10.2.3:

10.2.3.1 The Contractor shall at all times protect all activities of its construction, excavations, fill areas, embankments, trenches, structures, or building from damage resulting from rainwater, spring water, ground water, backing up of drains, sewers and all other water encountered during its operations. The Contractor shall provide pumps, equipment and enclosures, etc. necessary to provide adequate protection.

10.2.5 Delete Subparagraph 10.2.5 in its entirety and replace with the following:

10.2.5 The Contractor shall promptly remedy damage and loss to property referred to in Clauses 10.2.1.2 and 10.2.1.3 caused in whole or in part by the Contractor, a Subcontractor, a Sub-subcontractor, or anyone directly or indirectly employed by any of them, or by anyone for whose acts they may be liable and for which the Contractor is responsible. The foregoing obligations of Contractor are in addition to the Contractor's indemnification obligations under the Contract.

10.3 HAZARDOUS MATERIALS

10.3.2 Delete Subparagraph 10.3.2 in its entirety and replace with the following:

10.3.2 The Owner shall obtain the services of a licensed laboratory to verify the presence or absence of the material or substance reported by the Contractor and, in the event such material or substance is found to be present, to verify that it has been rendered harmless. When the material or substance has been rendered harmless, Work in the affected area shall resume. The Contract Time and the Contract Sum may be adjusted appropriately as provided in Article 7.

10.3.3 Delete Subparagraph 10.3.3 in its entirety.

10.5 Delete Subparagraph 10.5 in its entirety and replace with the following:

10.5 In addition to, and not in limitation of, Contractor's obligations under Subparagraph 10.3.1, if Contractor encounters Unforeseen Conditions that involve materials or substances that are or may be Hazardous Materials, Contractor shall immediately notify Owner in writing and shall comply with all applicable laws, statutes, codes, rules, and regulations, including, without limitation, all applicable Environmental Laws. If Contractor fails to comply with either of the aforementioned requirements, Contractor shall be liable to Owner for all damages incurred by reason of such failure. If Contractor encounters Unforeseen Conditions involving Hazardous Materials and complies with the aforementioned requirements and if Contractor is held liable for the cost of remediation of such Hazardous Materials solely by reason of performing Work as required by the Contract Documents, Owner will indemnify Contractor for such remediation cost only to the extent that such remediation cost is not caused by the Contractor's actions or omissions.

ARTICLE 11- INSURANCE AND BONDS

11.1 CONTRACTOR'S LIABILITY INSURANCE

11.1.1 Modify Subparagraph 11.1.1 as follows:

In the first full paragraph, add "and Owner" immediately following "protect the Contractor". Also, in this paragraph, add "or by a Sub-subcontractor" immediately after "by the Contractor or by a Subcontractor".

11.1.2 Add the following Clauses (.1, .2, .3, .4 and .5) to Subparagraph 11.1.2:

- .1 Contractor shall carry the insurance coverage as specified below with the minimum limits set forth herein. Contractor shall require Subcontractors and Sub-subcontractors to carry insurance coverage of such types and with such minimum limits as may be necessary or appropriate in light of the Work being performed by each such Subcontractor and Sub-subcontractor and as may be required by all applicable laws, statutes, rules and regulations; provided, however, that Subcontractors and Sub-subcontractors must, in all cases, provide Workers' Compensation Insurance with statutory limits. Such insurance required herein must be carried with insurance companies that are financially sound and acceptable to Owner, and Contractor and, as applicable, each Subcontractor and Sub-subcontractor shall maintain such insurance, at their sole cost and expense, in full force and effect until this Contract has been fully performed, all equipment, implements and machinery of Contractor and such Subcontractor and Sub-subcontractor have been removed from, and all employees, agents, representatives, Subcontractors and Sub-subcontractors of Contractor have left, Owner's premises, and final payment of the Contract Sum is made, unless any such coverage is required pursuant to the terms of the Contract Documents to be maintained after all of the foregoing items have been completed. Subject to the foregoing provisions of this Paragraph regarding the determination of the types and minimum limits of insurance coverage to be carried by Subcontractors and Sub-subcontractors, Contractor shall require its Subcontractors and all Sub-subcontractors to comply with all insurance requirements set forth in the Contract Documents.

Contractor shall require each insurance company, including those of Subcontractors and Sub-subcontractors, (i) to issue the insurance on an occurrence basis, (ii) to provide defense coverage for liability insurance policies as an additional benefit and not within the limits of liability, (iii) to issue an endorsement to all policies stating that the policies are primary and that Owner's policies are excess, secondary and noncontributing, (iv) to issue an endorsement to all policies to provide a waiver of subrogation in favor of Owner, (v) to issue an endorsement to all policies, except the workers' compensation and employer's liability insurance policies, to include Owner and its subsidiaries, affiliates, officers, directors, employees, and agents as "additional insureds," (vi) with respect to workers' compensation and employer's liability insurance, to obtain stop gap coverage, by endorsement or otherwise, for monopolistic states, and (vii) to include in each insurance policy a provision that the insurance company or companies shall not cancel, non-renew, or change coverage from the requirements of the Contract Documents without providing at least 30 days' advance written notice to Owner. The insurance company or companies shall not exclude from coverage allegations of the negligence, strict liability, or gross negligence, whether sole or otherwise, of the "additional insureds", but coverage may be excluded if there has been a final judicial decision from which there is no further right to appeal of the negligence, strict liability or gross negligence of the "additional insureds". Additionally, the insurance company or companies shall not include any Third Party Beneficiary Exclusion in the policies required herein. Contractor releases Owner and its subsidiaries, affiliates, officers, directors, employees, and agents from any liability covered by the insurance for which subrogation is waived; the release applies to any liabilities, no matter how caused, not just to insurance proceeds actually received. Contractor shall provide to Owner at least 30 days' advance written notice of any contemplated cancellation, non-renewal, or change in insurance coverage. Upon request, Contractor shall provide to Owner a certified copy of any and all insurance policies and any and all insurance policy information for those policies required in this Contract.

- .2 Insurance coverage required to be carried by Contractor pursuant to Subparagraph 11.1.1 and as specified below shall be written for not less than the following limits, or greater if required by law:
- (i) Workers' Compensation insurance with statutory limits or if no statutory limits exist, with minimum limits of \$1,000,000 per occurrence.
 - (ii) Employer's Liability insurance with minimum limits of \$1,000,000 for each employee for bodily injury by accident and for each employee for bodily injury by disease.

- (iii) Commercial General Liability insurance, including liability for the Project and blanket coverage, Personal and Advertising Injury, Products-Completed Operations (which shall remain in effect for two (2) years after final acceptance of the Work by Owner), Medical Payments, Bodily Injury, and Property Damage, with minimum limits of \$2,000,000 per occurrence, \$3,000,000 general aggregate and completed operations aggregate, \$500,000 personal and advertising injury per occurrence, and \$5,000 medical expense. Contractor and, as applicable, Subcontractors and Sub-subcontractors shall obtain an endorsement to each insurance policy to provide fresh per occurrence and aggregate limits for each location and to provide express coverage for punitive damages where permitted by law. Contractor and, as applicable, Subcontractors and Sub-subcontractors shall cause each insurance company issuing completed operations insurance coverage as required herein to include Owner and its subsidiaries, affiliates, officers, directors, employees and agents as “additional insureds” with respect to such completed operations coverage. Such Commercial General Liability insurance shall also contain contractual liability coverage with the same limits and aggregates specified above, insuring all liability assumed by Contractor pursuant to this Contract. This insurance shall not be self-funded, collateralized or based on any type of fronting arrangement, or issued through a captive insurance company.
- (iv) Business Automobile Liability insurance, including personal injury and property damage, with minimum combined single limits of \$2,000,000. Contractor shall cause each insurance company to provide coverage for liability arising out of the operation of owned, hired, and non-owned vehicles.
- (v) Builder’s Risk Insurance, also known as Course of Construction Insurance, with minimum limits and coverage grants as specified in Paragraph 11.4.
- (vi) Umbrella/Excess Liability Insurance with minimum limits of \$5,000,000. Contractor shall cause each insurance company to provide the insurance on an umbrella basis in excess of and no less broad than the liability coverages required in this Contract, and with coverage that “drops down” for exhausted aggregate limits under liability coverages and contractual liability coverages as required in this Contract and with an endorsement to provide new per occurrence and aggregate limits for each location. This insurance shall not be self-funded, collateralized or based on any type of fronting arrangement, or issued through a captive insurance company. If one or more claims or losses are reported to any insurance company providing Umbrella/Excess Liability Insurance to Contractor that, individually or in the aggregate, could potentially equal at least \$500,000 (as determined in the reasonable discretion of the insurance company or, if such information is not available from the insurance company, then in the reasonable discretion of the Contractor) (the “Claim Threshold”), whether or not any of such claims or losses relate to the Project or the Work or relate to services or work performed for another person or entity or at another site, then (1) Contractor shall promptly notify Owner in writing thereof, describing such claim(s) or loss(es) with reasonable particularity, and (2) Owner may, in its sole discretion, require Contractor to obtain additional Umbrella/Excess Liability Insurance with such minimum limits as Owner may designate and that otherwise complies with the requirements of the Contract Documents. If Contractor subsequently experiences one or more claims or losses that, individually or in the aggregate, meet or exceed the Claim Threshold, thereafter Contractor shall again comply with the requirements of the foregoing sentence, whether or not any of such claims or losses relate to the Project or the Work or relate to services or work performed for another person or entity or at another site.
- (vii) The Contractor shall purchase and maintain insurance covering the Owner’s contingent liability for claims which may arise from operations under the Contract. This coverage can be afforded by adding Owner as additional insured on general liability insurance coverage.

- .3 Contractor shall provide to Wal-Mart before the Work is started (and within twenty-four (24) hours of award of the Contract), and at least 30 days prior to the expiration of a policy or policies of insurance in effect during the term of this Contract, a certificate or certificates of insurance evidencing all required insurance in the Contract Documents which are acceptable to Wal-Mart. Contractor shall retain copies of all certificates of insurance provided by Subcontractors and Sub-subcontractors and, if requested by Wal-Mart, shall promptly provide such certificates of insurance to Wal-Mart. All certificates, among other things, shall:
- (i) Show Wal-Mart Stores, Inc., its subsidiaries and affiliates as a certificate holder and Wal-Mart's address as 2001 S.E. 10th Street, Bentonville, Arkansas 72716.
 - (ii) Show Contractor, Subcontractors or Sub-subcontractors as the Named Insured.
 - (iii) Show the names of the insurance companies providing each coverage, their addresses, the policy numbers of each coverage, and policy dates of each coverage.
 - (iv) Show the name of the person providing the certificate and that person's address and telephone number.
 - (v) Contain the signature of an authorized representative of the person providing the certificate.
 - (vi) Show that each insurance company named Wal-Mart and its subsidiaries, affiliates, officers, directors, employees, and agents as additional insureds in each insurance policy.
 - (vii) Confirm waivers of subrogation.
 - (viii) Show the amounts of all deductibles and self-insured retentions.
 - (ix) Show the primary status of each insurance policy with respect to all other insurance purchased by Owner and the existence of new per-occurrence and aggregate limits for each location.
 - (x) Have attached executed and signed copies of all required endorsements to each insurance policy, which shall include the commitment that each insurance company shall issue each insurance policy to the Named and additional insureds, and that each policy is in full force and effect, and that each insurance company shall give to Wal-Mart at least thirty (30) days' advance written notice, by certified mail, return receipt requested, in the event of cancellation, non-renewal, or change in coverage of any insurance policy. Accordingly, with respect to obligations owed by the insurers to the Named and additional insureds under the policies required herein, such endorsements shall not contain the phrases "endeavor to" and "but failure to mail such notice will impose no obligation or liability of any kind upon Company, its agents or representatives," or similar phrases.
 - (xi) Contain the following express provision: "This is to certify that the policies of insurance described herein have been issued to the Insured for whom this certificate is executed and are in force at this time. In the event of cancellation, non-renewal, or material reduction in coverage affecting the certificate holder, thirty (30) days' prior written notice will be given to the certificate holder by certified mail or registered mail, return receipt requested."
 - (xii) Have any and all disclaimers deleted from the certificate to the extent that such disclaimers conflict with the above requirements.
- .4 Contractor shall not procure an insurance policy or policies with deductibles or self-insured retentions in excess of \$25,000. Contractor shall pay all deductibles or self-insured retentions applicable to the insurance policy or policies that Contractor is required to provide under the Contract Documents.
- .5 Contractor's failure to procure and maintain the required insurance shall constitute a material breach of, and default under, this Contract. If Contractor fails to remedy the breach within ten (10) days after notice from Owner, Owner may, in addition to any other remedy available to it, at its option, purchase the insurance, at Contractor's expense, or immediately terminate this Contract. Contractor shall indemnify and defend Owner Indemnified Parties from and against any Damages or other losses (including, but not limited to, prosecution of claims for coverage against any insurer) arising from Contractor's failure to procure and/or maintain the insurance.

11.1.2 Delete the second sentence of Subparagraph 11.1.2.

11.1.3 Delete Subparagraph 11.1.3 in its entirety and replace with the following:

The Contractor's Certificates of Insurance, as provided for in Subparagraph 11.1.2.3, must be received by the Wal-Mart Contracts Administration Department before Owner will execute the Contract. Information concerning reduction of coverage on account of revised limits or claims paid under the General Aggregate coverage, or both, shall be promptly furnished by Contractor to Owner.

11.2 OWNER'S LIABILITY INSURANCE

11.2.1 Add the following sentence to the end of Subparagraph 11.2.1:

Provided, however, that such insurance shall in all cases be excess to that insurance required by Contractor, Subcontractors and Sub-subcontractors under Paragraph 11.1.

11.3 PROJECT MANAGEMENT PROTECTIVE LIABILITY INSURANCE

11.3 Delete Paragraph 11.3 in its entirety.

11.4 PROPERTY INSURANCE

11.4.1 Modify the first sentence of Subparagraph 11.4.1 as follows:

Delete "Unless otherwise provided, the Owner" and substitute "The Contractor."

In the first sentence, delete "without optional deductibles" and add the following sentences immediately thereafter:

"Contractor shall not procure a property insurance policy or policies with deductibles or self-insured retentions in excess of \$25,000. Contractor shall pay all deductibles or self-insured retentions applicable to the insurance policy or policies that Contractor is required to procure pursuant to this Paragraph 11.4."

11.4.1 Add the following sentences to the end of Subparagraph 11.4.1:

The form of policy for this coverage shall be "Completed Value". If the Owner is damaged by the failure of the Contractor to maintain such insurance, then the Contractor shall bear all reasonable costs properly attributable thereto. The Owner may, if deemed to be in its best interest, obtain this coverage separately and receive a credit from the Contractor for the insurance cost of such coverage.

11.4.1.1 Add the following sentence to the end of Subparagraph 11.4.1.1:

The property insurance required herein shall also include coverage for all losses related to business interruption to Owner, Contractor, Subcontractors and Sub-subcontractors on account of the damages detailed above.

11.4.1.2 Delete Clause 11.4.1.2 in its entirety.

11.4.1.3 Delete Clause 11.4.1.3 in its entirety.

11.4.2 Modify Subparagraph 11.4.2 as follows:

Delete "The Owner shall purchase" and substitute "The Contractor shall purchase".

11.4.3 Delete Subparagraph 11.4.3 in its entirety.

11.4.4 Delete Subparagraph 11.4.4 in its entirety.

11.4.5 Delete Subparagraph 11.4.5 in its entirety.

11.4.6 Delete Subparagraph 11.4.6 in its entirety. See Subparagraph 11.1.3 for instructions for proof of insurance coverage.

11.4.7 Delete Subparagraph 11.4.7 in its entirety and replace with the following:

The Owner and Contractor agree to waive all rights against each other and against Subcontractors and Sub-subcontractors with respect to any losses to the extent that such losses are fully covered by the property and business interruption insurance obtained pursuant to this Paragraph 11.4. The Owner or Contractor, as appropriate, shall require of Subcontractors and Sub-subcontractors, by appropriate agreements, written where legally required for validity, similar waivers each in favor of the other parties identified herein. The insurance policies specified in this Paragraph 11.4 shall also provide and contain waivers of subrogation by endorsement or otherwise. A waiver of subrogation shall be effective as to a person or entity even though that person or entity would otherwise have a duty of indemnification, contractual or otherwise, did not pay the insurance premium directly or indirectly, and whether or not the person or entity has an insurable interest in the property damaged.

11.4.8 Modify Subparagraph 11.4.8 as follows:

Substitute and insert the word “Contractor” for “Owner” in the phrase, “Owner as fiduciary”; except that the first reference to “Owner’s” in the first sentence should be deleted.

11.4.8 Modify Subparagraph 11.4.8 as follows:

In the first sentence, add “required herein” immediately after “property insurance”.

11.4.9 Modify Subparagraph 11.4.9 as follows:

Substitute “Contractor” for “Owner” each time the latter word appears except in the last sentence.

11.4.10 Delete Subparagraph 11.4.10 in its entirety and replace with the following:

The Contractor as fiduciary shall have the power to adjust and settle a loss with insurers, subject to the prior written approval of Owner which may be withheld in Owner’s sole discretion. In the event Owner withholds the power of Contractor to adjust and settle losses, Owner shall have the right to adjust, settle, and litigate such losses with the applicable insurers.

11.5 PERFORMANCE BOND AND PAYMENT BOND

11.5.1 Add the following Clauses (.1, .2, .3, .4, and .5) to Subparagraph 11.5.1:

- .1 The Contractor shall provide Owner with an acceptable Performance Bond substantially in the form attached to these Supplementary Conditions as Exhibit “A”, and an acceptable Labor and Material Payment Bond substantially in the form attached to these Supplementary Conditions as Exhibit “B”, (or such other forms as may be required by applicable law), in each case that complies with all federal, state and local statutory and administrative requirements of the jurisdiction where the Project is located. Unless otherwise required by applicable law, the Performance Bond shall stay in force for the two years after Substantial Completion. Unless otherwise required by applicable law, the Labor and Material Payment Bond shall stay in force for one year after Substantial Completion.
- .2 The Bonds described in paragraph 11.5.1.1 above shall each be for an amount not less than one hundred percent (100%) of the Contract Sum.
- .3 Contractor shall provide a “copy” of the Bonds described in Paragraph 11.5.1.1 above to the Wal-Mart Contract Administration Department before Contractor mobilization.

- .4 The Bonds described in paragraph 11.5.1.1 above shall each be filed prior to commencement of construction by the Contractor with the recorder of deeds or similar government office in the county in which the Project is located. The original receipt from the Recorder of Deeds (setting forth the date, time, amount, and description of document recorded), a copy of the Bonds, and other required documents shall be submitted by the Contractor to Wal-Mart before the Contract will be executed by Wal-Mart. The recorded Bonds with the recordation/filing stamp affixed shall be submitted by the Contractor to Wal-Mart promptly after the Contractor receives the Bonds from the Recorder of Deeds.
- .5 Contractor shall promptly pay to Wal-Mart all dividends, rebates, or return of payments in any form of premiums paid for the Bonds. Payment shall be made in the form of a Cashier's or Certified Check.

11.6 INSURANCE AND BOND ISSUERS

11.6 Add the following Paragraph 11.6 to Article 11:

11.6 INSURANCE AND BOND ISSUERS

11.6.1 All insurance policies, Performance Bonds and Labor and Material Payment Bonds must be issued by a company (1) licensed to issue the type of insurance or bond by the insurance commissioner or comparable state agency in the state in which the Project is located and (2) acceptable to Owner, in its sole discretion. The issuer of Bonds must be listed in the Federal Register.

ARTICLE 12- UNCOVERING AND CORRECTION OF WORK

12.1 UNCOVERING OF WORK

12.1.2 Modify Subparagraph 12.1.2 as follows:

Replace "unless the condition was caused by the Owner or a separate contractor" with "unless the condition was caused by Owner or by a separate contractor who is not the Contractor, a Subcontractor, a Sub-subcontractor, or any employee or agent of any of the foregoing".

12.2 CORRECTION OF WORK

12.2.1 Add the following Clauses (.2 and .3) to Subparagraph 12.2.1:

- .2 Compensation for the Architect's services associated with correction of Work rejected or failing to conform to the requirements of the Contract Documents will be based on the additional service hourly rate established in the Master Agreement for Professional Consulting Services between Architect and Owner.
- .3 Adjustment in the Contract Sum will be made by Change Order as provided in Paragraph 7.2 for costs incurred by the Owner as a result of Work rejected or failing to conform to the requirements of the Contract Documents.

12.2.2.1 Modify Subparagraph 12.2.2.1 as follows:

Replace "unless the Owner has previously given the Contractor written acceptance of such condition" with " and, in any event, within the period of time set forth in Paragraph 3.5". Delete the last two sentences of this Subparagraph.

12.2.2.2 Delete Subparagraph 12.2.2.2 in its entirety.

12.3 ACCEPTANCE OF NON-CONFORMING WORK

12.3.1 Modify Subparagraph 12.3.1 as follows:

Delete “will be reduced as appropriate and equitable” with “will be reduced as appropriate and equitable and in accordance with the requirements of applicable law”.

ARTICLE 13- MISCELLANEOUS PROVISIONS

13.1 GOVERNING LAW

13.1 Delete Paragraph 13.1 in its entirety.

13.2 SUCCESSORS AND ASSIGNS

13.2.1 Modify the second sentence of Subparagraph 13.2.1 as follows:

Revise “Except as provided in Subparagraph 13.2.2, neither...” to “Except as provided in Subparagraph 13.2.2 or 13.2.3, neither...”

13.2.2 Modify Subparagraph 13.2.2 as follows:

At the end of second sentence add “as provided in such assignment.”

13.2.3 Add the following Subparagraph 13.2.3:

13.2.3 Owner may assign the Contract to an entity which controls, is controlled by, or is under common control with Owner.

13.3 WRITTEN NOTICE

13.3 Delete Paragraph 13.3 in its entirety.

13.5 TESTS AND INSPECTIONS

13.5 Supplement Paragraph 13.5 in accordance with provisions of Specifications Section 01458.

13.5.1 Delete the last sentence of Subparagraph 13.5.1.

13.5.2 Modify Subparagraph 13.5.2 as follows:

Delete the last sentence and replace with the following:

Such costs shall be at the Contractor’s expense.

13.5.3 Delete Subparagraph 13.5.3 in its entirety.

13.6 INTEREST

13.6 Delete Paragraph 13.6 in its entirety.

13.7 COMMENCEMENT OF STATUTORY LIMITATION PERIOD

13.7.1 Modify Subparagraph 13.7.1 as follows:

Delete “As between Owner and Contractor:” and replace with “Except as otherwise set forth in the Contract Documents and as may otherwise be required pursuant to applicable law, as between Owner and Contractor:”

13.8 HARMONY CLAUSE

13.8 Add the following Paragraph 13.8 to ARTICLE 13:

13.8 HARMONY CLAUSE

13.8.1 The Contractor agrees, and shall require all Subcontractors and Sub-subcontractors to agree, that no labor dispute of any kind involving Contractor or any Subcontractor or Sub-subcontractor, or their employees or agents shall be permitted to occur or be manifested on the Project, and the Contractor agrees, and shall require all Subcontractors and Sub-subcontractors to agree, to that end to only employ persons on the Work who will work at all times in harmony with other persons employed on the Project.

13.8.2 The Contractor agrees, and shall require each Subcontractor and Sub-subcontractor to agree, that its employees shall not participate in or accede to any work stoppage, slow down or any type of interference with the performance of work by other persons on the Project which may occur as a result of any labor dispute involving its employees.

13.8.3 Should there be a work stoppage, slow down or any type of interference with the performance of Work on the Project involving the Contractor or his employees or a Subcontractor, Sub-subcontractor or any of their employees resulting from a labor dispute and which, in the judgment of Owner, will cause, or threatens to cause, delay in the progress of construction, then upon twenty-four (24) hours written notice (or such longer notice period as may be required pursuant to applicable law), Owner shall have the right to declare the Contractor in default under this Contract and take such steps as are necessary to finish the uncompleted portion of the Work. In such event and to the extent permitted by applicable law, Owner shall have the right to take possession of and use all of the Contractor’s materials and equipment intended for use on the Work. The cost of completion, including all expenses, attorney’s fees and costs incurred in resolving the labor dispute, shall be charged against the Contractor’s remaining interest in the Contract Sum (unless otherwise required by applicable law).

13.8.4 Should the Contractor and/or any Subcontractors or Sub-subcontractors become involved in a labor dispute resulting in a work stoppage, slow down or any type of interference with the progress of construction and resulting in an increase in interest charges to Owner, the Contractor shall be liable to Owner for this increased cost (unless otherwise required pursuant to applicable law). If the Contractor’s remaining interest in the Contract Sum is less than the cost of completion, the Contractor shall pay Owner such deficit within thirty (30) days after written demand for such excess has been made upon it by Owner (or such longer period as may be required by applicable law).

13.8.5 Harmony clause provisions similar to the provisions of the immediately preceding paragraphs shall be included in any of the Contractor’s and/or Subcontractor’s subcontracts relating to the Work.

13.9 CRANE SERVICE

13.9 Add the following Paragraph 13.9 to ARTICLE 13

13.9 CRANE SERVICE

13.9.1 It is the Contractor’s responsibility to provide crane service and/or coordinate crane operations to make best use of crane service and not delay operations of Subcontractors or Sub-subcontractors requiring crane service.

ARTICLE 14- TERMINATION OR SUSPENSION OF THE CONTRACT

14.1 TERMINATION BY THE CONTRACTOR

14.1.1 Delete Subparagraph 14.1.1 (including all Clauses therein) in its entirety and replace with the following:

14.1.1 The Contractor may terminate the Contract upon written notice in accordance with Subparagraph 14.1.3 for any of the following reasons if not the result of any act or omission of the Contractor or any Subcontractor, Sub-subcontractor, or any of their agents or employees or any other persons or entities performing portions of the Work under direct or indirect contracts with the Contractor:

- .1 if the Work is stopped for a period of 30 consecutive days as a result of the issuance of an order of a court or other public authority having jurisdiction which requires all Work to be stopped, and such order is not vacated or modified to permit performance of all or a portion of the Work within 30 days after the issuance thereof; or
- .2 if the Work is stopped for a period of 30 consecutive days as a result of the issuance of an act of government, such as a declaration of national emergency, which requires all Work to be stopped, and such act is not modified or rescinded to permit performance of all or a portion of the Work within 30 days after the issuance thereof; or
- .3 Owner fails to make payment on an Application for Payment, which payment is properly due and payable in accordance with the Contract Documents, within the time set forth in the Contract Documents, and Owner fails to cure such failure within 30 days after receipt of written notice from Contractor of such failure (unless a shorter notice period is otherwise required by applicable law).

14.1.3 Delete Subparagraph 14.1.3 in its entirety and replace with the following:

14.1.3 If one of the reasons set forth in Subparagraphs 14.1.1 or 14.1.2 exists, the Contractor may, upon thirty days written notice to the Owner (or such shorter notice period as may be required pursuant to applicable law), terminate the Contract and recover from the Owner payment for Work executed and such other damages that may be available at law or in equity, subject to the limitations set forth in Article 17 of the Contract.

14.1.4 Modify Subparagraph 14.1.4 as follows:

Delete “seven additional days’ written notice” and replace with “thirty days’ written notice (or such shorter notice period as may be required pursuant to applicable law)”.

14.2 TERMINATION BY THE OWNER

14.2.1 Delete Subparagraph 14.2.1 in its entirety and replace with the following:

14.2.1 In addition to any right of Owner set forth in the Contract Documents to terminate this Contract and unless otherwise required by applicable law, Owner shall have the right to terminate this Contract immediately in whole or in part upon written notice to Contractor upon the occurrence of any one or more of the following events: (a) If Contractor shall fail to complete within the time specified in the Contract Documents the whole or any portion of the Work (subject to the provisions of Section 4.2 of the Contract); (b) If, in the opinion of Owner, Contractor is not making sufficient progress with the Work, either because of lack of sufficient material, personnel or for any other reason, as to assure completion of all or any portion thereof within the time specified for completion thereof; (c) If, in the opinion of Owner, Contractor fails to perform the Work in accordance with the Contract Documents; (d) If Owner or any other contractor of Owner shall be unable to proceed with work because of any action or omission of Contractor, any Subcontractor or Sub-subcontractor, or any of their respective employees or agents; (e) If Contractor is granted the opportunity to remedy any defect of material or workmanship furnished by it and the Contractor shall fail to do so as set forth in the Contract Documents or, if no time to remedy is so set forth therein, when and as reasonably required by Owner; (f) If Contractor shall violate or breach any provision of the Contract Documents; or (g) if Contractor shall be unable to pay its debts as they mature, shall be insolvent or shall make any assignment for the benefit of creditors or if any bankruptcy petition is filed by, on behalf of or against Contractor. Any references herein to Owner's right to terminate the Contract shall be deemed to provide Owner with such complete or partial termination right.

14.2.2 Delete Subparagraph 14.2.2 in its entirety and replace with the following:

14.2.2 In the event of any termination of this Contract by Owner pursuant to Subparagraph 14.2.1 or any other provision of the Contract Documents, Owner may, at its option and without further notice to Contractor (unless otherwise required pursuant to applicable law) and in addition to any other rights and remedies that may be available under the Contract Documents, at law or in equity:

- .1 Either through its own employees or through any contractor of its choice, complete the portion of the Work terminated or remedy such defect of material or workmanship at Contractor's expense. If Owner, through its own employees or through any such contractor of its choice, completes the Work pursuant to the provisions of this paragraph, except to the extent otherwise required pursuant to applicable law, it may use or permit any such contractor to use all materials and equipment of Contractor on the site on the date of giving such notice. Contractor shall, within ten (10) days from receipt of an invoice therefor, reimburse Owner for any and all costs incurred in correcting such defects or completing such portion of the Work that was terminated;
- .2 Take possession of the Project site and, to the maximum extent permitted by applicable law, all materials, equipment, tools and construction equipment and machinery thereon owned by Contractor; and
- .3 Accept assignment of subcontracts pursuant to Paragraph 5.4.

14.2.3 Modify Subparagraph 14.2.3 as follows:

Delete "further payment until the Work is finished" and replace with "further payment until the Work is finished unless otherwise required pursuant to applicable law".

14.2.4 Delete Subparagraph 14.2.4 in its entirety and replace with the following:

14.2.4 If the unpaid balance of the portion of the Contract Sum payable for work performed prior to termination exceeds the cost of finishing the Work, including compensation for the Architect's services and expenses, the fees and expenses of a replacement contractor, other costs and expenses made necessary thereby, and other damages incurred by Owner and not expressly waived, such excess shall be promptly paid to the Contractor. If such costs, expenses and damages exceed such unpaid balance for work performed prior to termination, then Contractor shall promptly pay the difference to Owner within ten (10) days after receiving Owner's invoice therefor. This obligation for payment shall survive the termination of the Contract. In no event shall Owner be liable for payment of more than the unpaid balance of the Contract Sum payable for work performed by Contractor prior to termination or for any portion of the Contract Sum relating to Work not performed by the Contractor.

14.3 SUSPENSION BY THE OWNER FOR CONVENIENCE

14.3.2 Modify Subparagraph 14.3.2 as follows:

Delete the second sentence thereof in its entirety and replace with the following:

Adjustment of the Contract Sum may include reasonable overhead and profit, provided that Contractor submits to Owner for review and approval reasonably sufficient documentation evidencing such overhead and profit.

14.4 TERMINATION BY THE OWNER FOR CONVENIENCE

14.4.1 Modify Subparagraph 14.4.1 as follows:

Replace "terminate the Contract" with "terminate the Contract in whole or in part".

14.4.2.3 Modify Subparagraph 14.4.2.3 as follows:

Replace "terminate all existing subcontracts" with "terminate or, upon written request of Owner, assign to Owner". Insert the following at the end of this Subparagraph: "relating to the Work so terminated".

14.4.3 Modify Subparagraph 14.4.3 as follows:

Delete "and costs incurred by reason of such termination, along with reasonable overhead and profit on the Work not executed" and replace with "and reasonable costs incurred by reason of such termination, along with reasonable overhead and profit on the Work not executed; provided, that Contractor submits to Owner for review and approval reasonably sufficient documentation evidencing such costs, overhead and profit".

END OF DOCUMENT

PERFORMANCE BOND

Exhibit "A" to Supplementary Conditions

KNOW ALL MEN BY THESE PRESENTS, That _____

(hereinafter called the "Principal"), as Principal and

a corporation, duly authorized to do business in _____ (project state) (hereinafter called the "Surety"),
are held and firmly bound unto WAL-MART STORES, INC. (hereinafter called the "Obligee"), and its representatives,
successors and assigns, in the sum of

_____ Dollars (\$_____)
for the payment of which sum well and truly to be made the said Principal and Surety bind themselves, and their respective
heirs, administrators, executors, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has been awarded a contract with Obligee for _____

(hereinafter called the "Contract") and which Contract is hereby referred to and incorporated by express reference as if fully
set forth herein.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH, that if the above bound Principal shall well
and truly perform all the work, undertakings, covenants, terms, conditions, and agreements of said Contract within the time
provided therein and any extensions thereof that may be granted by Obligee, and during the life of any maintenance
obligation, guaranty or warranty required under said Contract, and shall also well and truly perform all the undertakings,
covenants, terms, conditions, and agreements of any and all modifications of said Contract that may hereafter be made, and
shall indemnify and save harmless said Obligee of and from any and all loss, damage, and expense, including costs and
attorneys' fees, which the said Obligee may sustain by reason of Principal's failure to do so, then this obligation shall be null
and void; otherwise it shall remain in full force and effect.

The said Surety agrees that no change, extension of time, alteration, addition, omission, waiver, or other modification of the
terms of either the said Contract or in the said work to be performed, or in the specifications, or in the plans, or in the
Contract documents, or any forbearance on the part of either the Obligee or Surety to the other, shall in any way affect said
Surety's obligation on this Bond, and said Surety does hereby waive notice of any such changes, extensions of time,
alterations, additions, omissions, waivers, or other modifications.

The parties executing this Bond on behalf of Principal and Surety represent and warrant that they are duly authorized to bind
the Principal and Surety respectively.

IN WITNESS WHEREOF, the above bound parties have executed this instrument under their several seals this _____ day
of _____, 20____ the name and corporate seal of each corporate party being hereto affixed and these
presents duly signed by its undersigned representative, pursuant to authority of its governing body.

PRINCIPAL: _____

By: _____

Title: _____

(Principal's Address)

Witness:

Or Secretary's Attest

[SEAL]

SURETY: _____

By: _____

Title: _____

(Surety's Address)

Witness:

Or Secretary's Attest

[SEAL]

Attach Power of Attorney if executed by
attorney-in-fact on behalf of Surety

PAYMENT BOND

Exhibit "B" to Supplementary Conditions

KNOW ALL MEN BY THESE PRESENTS, That _____

(hereinafter called the "Principal"), as Principal and

a corporation, duly authorized to do business in _____ (project state) (hereinafter called the "Surety"),
are held and firmly bound unto WAL-MART STORES, INC. (hereinafter called the "Obligee"), and its representatives,
successors and assigns, in the sum of

_____ Dollars (\$_____)
for the payment of which sum well and truly to be made the said Principal and Surety bind themselves, and their respective
heirs, administrators, executors, successors and assigns jointly and severally, firmly by these presents.

WHEREAS, the Principal has been awarded a contract with Obligee for _____

(hereinafter called the "Contract") and which Contract is hereby referred to and incorporated by express reference as if fully
set forth herein.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH, that if the Principal shall promptly make
payment in full to all persons or entities supplying labor, material, supplies, services, utilities and equipment in the
prosecution of the work provided for in said Contract and any and all modifications of said Contract that may hereafter be
made, and shall indemnify and save harmless said Obligee of and from any and all loss, damage, and expense, including costs
and attorneys' fees, which the said Obligee may sustain by reason of Principal's failure to do so, then this obligation shall be
null and void; otherwise it shall remain in full force and effect.

The said Surety agrees that no change, extension of time, alteration, addition, omission, waiver, or other modification of the
terms of either the said Contract or in the said work to be performed, or in the specifications, or in the plans, or in the
Contract documents, or any forbearance on the part of either the Obligee or Principal to the other, shall in any way affect its
obligation on this Bond, and Surety does hereby waive notice of any such changes, extensions of time, alterations, additions,
omissions, waivers, or other modifications.

The said Principal and the said Surety agree that this Bond shall inure to the benefit of all persons or entities as supplying
labor, material, supplies, services, utilities and equipment in the prosecution of the work provided for in said Contract, as well
as to the Obligee, and that any of such persons or entities may maintain independent actions upon this Bond in the name of
the person or entities bringing any such action.

The parties executing this Bond on behalf of Principal and Surety represent and warrant that they are duly authorized to bind
the Principal and Surety respectively.

IN WITNESS WHEREOF, the above parties have executed this instrument under their several seals this _____ day of _____, 20____ the name and corporate seal of each corporate seal of each corporate party being hereto affixed and these presents duly signed by its undersigned representative, pursuant to authority of its governing body.

PRINCIPAL: _____

By: _____

Title: _____

(Principal's Address)

Witness:

Or Secretary's Attest

[SEAL]

SURETY: _____

By: _____

Title: _____

(Surety's Address)

Witness:

Or Secretary's Attest

[SEAL]

Attach Power of Attorney if executed by
attorney-in-fact on behalf of Surety

Exhibit "C" to Supplementary Conditions

[illegible]

SECTION 01100 – SUMMARY

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Definitions.
 - 2. Work covered by Contract Documents.
 - 3. Work by Wal-Mart or Separate Contractors.
 - 4. Contractor use of site and premises.
 - 5. Coordination with occupants.
 - 6. Partial occupancy.

1.2 DEFINITIONS

- A. Furnish: Purchase and deliver to project site, ready for installation.
- B. Install: Unpack, assemble, set in final position, fasten in place, make final connections, clean, adjust, and leave ready for use.
- C. Provide: Furnish and install.
- D. Receive: Accepting a delivery (Entity responsible for accepting a delivery).
- E. Final Connections: Complete plumbing, mechanical, and electrical connections as required and recommended by manufacturer for optimum operation of equipment.

1.3 WORK COVERED BY CONTRACT DOCUMENTS

- A. Work of this Contract comprises the general construction required for a Wal-Mart Supercenter Remodel.
- B. The Work may include, but is not limited to, selective demolition, concrete work, construction of new and patching existing masonry walls, structural steel and joists, manufactured curbs, steel deck, canopy deck, roof system, unit skylights, flashing, gutters and downspouts, doors (hollow metal, storefront and automatic sliding bi-parting doors, finish hardware), general Tenant Improvement work, interior finishes (painting, sealed concrete, gypsum board, acoustical ceilings, ceramic tile, resilient flooring and base), Garden Center work, shade cloth, and glazed structure, chain link fencing system, exterior sitework (bollards, signage, paving/paving repair), plumbing, mechanical, fire protection and electrical work for Wal★Mart Stores, Inc.
- C. Refer to Drawings for full scope of Work.

1.4 WORK BY WAL-MART OR SEPARATE CONTRACTORS

- A. Wal-Mart has its own forces who will perform certain Work on the project, items noted 'NIC' (Not In Contract) which will commence as indicated on the Construction Schedule.
- B. Wal-Mart may award separate contracts for work at the Site, which will be executed concurrent with work of this Contract. Consult and cooperate with Separate Contractors to the full extent provided for in the Conditions of the Contract.
- C. Building Components or Trades (Separate Contractors):
 - 1. Carpet (Except at Pharmacy).
 - 2. Signage.
 - 3. Fire Extinguishers.

4. Balers and Compactors.
5. Branded Foods.
6. Bakery Equipment (Supercenter Projects).
7. Meat/Deli Equipment (Supercenter Projects).
8. Optical Counters and Equipment.
9. Photo Lab (One Hour) Equipment.
10. Auto Center Equipment.
11. Energy Management System (EMS).
12. Refrigeration and Refrigeration Equipment.
13. Cooler/Freezer cases and bunker cart rails.
14. Telecommunications/Data Systems.
15. Fire and Security Alarm System.
16. Door Security Sensor System - Electronic Article Surveillance (EAS).
17. Aluminum Entrances and Storefront Systems.
 - a. Vision Center aluminum storefront doors (interior and exterior) shall be furnished and installed by the General Contractor.
18. Automatic Sliding Entrance Door Systems.

- D. During setup of equipment by the Owner or separate contractors, make crane service available to hoist equipment directly from trucks to final position. Coordinate schedule with Wal-Mart's Construction Manager.

1.5 CONTRACTOR USE OF SITE AND PREMISES

- A. Limit use of site to allow for:
 1. Wal-Mart occupancy.
 2. Work by separate contractors and by Wal-Mart.
 3. Use of site and premises by the public.
- B. Confine operations at site to areas permitted by Law, Ordinances, Permits and to Limits of Contract as shown on Contract Documents. Verify with Wal-Mart Construction Manager acceptable locations where operations may occur so as not to disturb Owner operations or customer traffic.
- C. Do not unreasonably encumber site with materials or equipment.
- D. Do not load structure with weight that will endanger structure. DO NOT STORE ROOFING MATERIALS ON THE EXISTING ROOF.
- E. Assume full responsibility for protection and safekeeping of all products stored on premises whether purchased by Contractor or Owner. Move stored products, which interfere with operations of Owner or customer traffic.
- F. Carefully coordinate sequence of construction activity and operations with Wal-Mart Construction Manager.
- G. Maintain the following conditions at all times during the construction period until possession by Wal-Mart.
 1. Maintain building weathertight and secure.
 2. Maintain building security and fire alarm systems in operation (In the event both systems should fail, the Fire Alarm System shall have priority over the Security System).
 - a. Contract with local alarm company to maintain service, and repair existing systems as required due to work relating to this Contract.
 - b. Alarm Company:
 - 1) Visit site and be familiar with existing conditions.
 - 2) Respond to service calls within 24 hours.
 - c. Provide on-site guard services in the event the existing system is disabled for 8 hours or more.
 - d. Coordinate security alarm with Section 01500 - Temporary Facilities and Controls.
 - e. Contact Wal-Mart Alarm Central Control at (479) 273-4600 for additional information and coordination relating to work associated with existing alarm systems.
 3. Maintain access and egress from the building.

1.6 COORDINATION WITH OCCUPANTS

- A. Owner will occupy premises during entire period of construction for the conduct of Owner's normal, daily operations. Cooperate with Wal-Mart Construction Manager in construction operations to minimize delays, inconvenience, or conflict to Owner's daily business operations and customer traffic. The Contractor shall obtain permission from the Owner for interruptions of utility services to the building. Accidental interruptions shall be restored immediately.
 - 1. Any Contractor work operations that may disrupt or interfere with Wal-Mart or building operation or function shall be reviewed and approved by Wal-Mart Construction Manager.
 - 2. Submit written request for approval to Wal-Mart Construction Manager 14 calendar days in advance of date Contractor work operations are required to begin.

1.7 PARTIAL OCCUPANCY

- A. Wal-Mart will occupy any completed or partially completed portions of the Work.
- B. Cooperate with Wal-Mart to minimize conflict, and schedule the Work to facilitate Wal-Mart's operations.
- C. Prior to Wal-Mart occupancy in areas of new work, the following provisions shall be in place:
 - 1. Illuminated exit signs are operational.
 - 2. Exit doors, including required panic hardware, are operational.
 - 3. Lighted, enclosed walkways and other temporary safety measures are in place if required by authorities having jurisdiction.
 - 4. Fire sprinkler system is operational.
 - 5. Doors required for Wal-Mart's security purposes are operational.
- D. After Wal-Mart occupancy:
 - 1. Keep exit routes and exit doors free from obstructions.
 - 2. Maintain exit signs and fire sprinkler system in operational condition.
 - 3. Provide security for Wal-Mart's products, equipment, and operations.
 - 4. Do not permit smoking in the building.

PART 2 - PRODUCTS

Not Used.

PART 3 - EXECUTION

Not Used.

END OF SECTION

SECTION 01131 – ALTERATIONS PROJECT PROCEDURES

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Summary: The procedures and administrative requirements of this Section apply to all of the following Sections of the Specification, which are involved in alterations to the existing building.

1.2 RELATED REQUIREMENTS

- A. Section 01500 - Temporary Facilities and Controls.
- B. Section 01731 - Cutting and Patching.
- C. Section 02023 - Selective Site Demolition.
- D. Section 02251 - Shoring.

1.3 SCHEDULING, ACCESS AND SECURITY

- A. Work Sequence:
1. The existing premises will be occupied during the construction process. Coordinate sequence of work with Wal★Mart Construction Manager and Store Manager on site in order that Wal★Mart's operations may continue.
 2. The Wal★Mart Construction Manager will require a job start meeting prior to any Work activity.
 3. The Construction Schedule is limited to a time frame established by Wal★Mart. Contact Wal★Mart Construction Manager immediately if, at any time, construction schedule is not being met or if delays are foreseen.
 4. The Contractor shall develop a schedule of Work, which will be reviewed and approved by the Wal★Mart Construction Manager, describing the starting and completion dates of the different phases of this Project. Wal★Mart reserves the right to revise this schedule to best meet the needs for the Store's operations. Revisions to the Construction Schedule shall be made by the Contractor at no additional cost to Wal★Mart. As the construction progresses, the Contractor shall give an update of the construction schedule to the Store Manager and Wal★Mart Construction Manager on a weekly basis.
- B. Security is specified in Section 01500.
- C. Maintenance of Access and Operations:
1. During period of construction, Wal★Mart will continue to perform normal activities in existing building. Maintain proper and safe Customer and Associates access to operational areas at all times.
 2. Schedule demolition and remodeling operations with Wal★Mart Construction Manager and/or Store Manager in such a manner as to allow Wal★Mart operations to continue with approved interruptions.
 3. During period of construction, do not obstruct in any manner existing exitways unless additional exitways are provided. Prior to removal of existing exitways (stairs, corridors, doors) as part of new Work, provide and maintain new exitways so as to maintain same number of exitways. Maintain existing fire doors in a operable condition. Obtain approval from Authorities Having Jurisdiction (AHJ) for all temporary modifications to the existing system.
- D. Maintenance of Existing Services:
1. Maintain environmental control in existing building, especially temperature, humidity and dust control.
 2. Provide temporary power, services and connections as required to maintain existing mechanical and electrical services in building.

3. Notify Wal★Mart Store Manager and Construction Manager a minimum of three (3) days prior to each required interruption of mechanical or electrical services in building. Such interruptions shall be only at such times and for lengths of time as approved by the Wal★Mart Construction Manager and/or Store Manager. In no event shall interruption occur without prior approval of the Wal★Mart Construction Manager and/or Store Manager.

E. Building Access/Construction Personnel Control:

1. Access to construction areas within building shall be as directed by Wal★Mart Construction Manager.
2. Restrict construction traffic to areas specifically designated by Wal★Mart Construction Manager.
3. All Contractors and any Subcontractors or Separate Contractors shall supply their employees with identification badges. All workers on the Project must wear company-specific identification badges or work shirts with company logo and name identification at all times while working on the Project or will be required to leave the premises. All company-specific badges shall be approved and acceptable to Wal★Mart.

PART 2 - PRODUCTS

Not Used.

PART 3 - EXECUTION

Not Used.

END OF SECTION

SECTION 01255 – REQUEST FOR INFORMATION

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Requests for Information (RFI) procedures.

1.2 DEFINITION

- A. Requests for Information: A formal online process used during the construction phase to facilitate communication between the Contractor, the Wal-Mart Construction Manager, and the Professional of Record (POR) with regard to requests for additional information and clarification of the intent of the Contract Documents (Drawings and Specifications).
- B. Professional of Record (POR): The Architect of Record (AOR) or the Civil Engineering Consultant (CEC).
- C. Architect of Record (AOR): The prime consultant in charge of overall design and coordination of the project. The AOR will be the administrator for all construction RFI's classified as "BLDG".

1.3 REQUEST FOR INFORMATION SUBMITTAL

- A. Submit requests for information for conditions requiring clarification of the Contract Documents on Wal-Mart Construction RFI website as designated by Wal-Mart (www.bldgportal.com, enter username and password, select Construction RFI). POR will not respond to requests for information unless this format is utilized and all appropriate information is provided. Faxed or e-mailed RFI's will not be reviewed.
- B. Do not use Request for Information process during bidding phase. For questions during bidding phase, refer to Invitation to Bid issued by Wal-Mart Contract Administrator.
- C. Submit in accordance with procedure as follows: (See Process Flow Chart at the end of this Section)
 - 1. Subcontractors, manufacturers, and suppliers shall submit request for additional information and clarification to Contractor.
 - 2. Contractor shall contact Wal-Mart Construction Manager with requests for additional information or clarification. Wal-Mart Construction Manager will not accept requests for information or clarification submitted directly from subcontractors, manufacturers, or suppliers.
 - 3. Wal-Mart Construction Manager will provide response to Contractor or will direct Contractor to submit a formal Request for Information.
 - a. Submit a formal RFI only if authorized by the Wal-Mart Construction Manager. Submittal to Construction RFI website signifies authorization has been given.
 - b. Generate Requests for Information by one source per project.
 - c. Submit one request for information per website entry.
 - 4. POR will review formal requests from Contractor and provide response within 3 working days.
 - 5. POR's response shall not be considered as a Change Order or Change Directive, nor does it authorize changes in the Contract Sum or Contract Time.
- D. Scheduling, Costing, and Owner Provided Equipment Coordination: Direct to the Owner's Construction Manager.

1.4 PENALTY FOR FAILURE TO FOLLOW PROCEDURE

- A. A \$250 administrative cost will be assessed to the Contractor for each Request for Information submitted which does not follow the procedure specified above.

1.5 REIMBURSEMENT FOR ARCHITECTURAL AND ENGINEERING FEES

- A. The Contractor shall be responsible for any and all administrative costs and professional fees incurred by Wal-Mart for additional Architectural and Engineering services associated with the correction of completed Work which is not in accordance with the Contract Documents. See Article 12 of Document 00700 - General Conditions of the Contract for Construction and Document 00800 - Supplementary Conditions, for provisions relating to correction of Work.

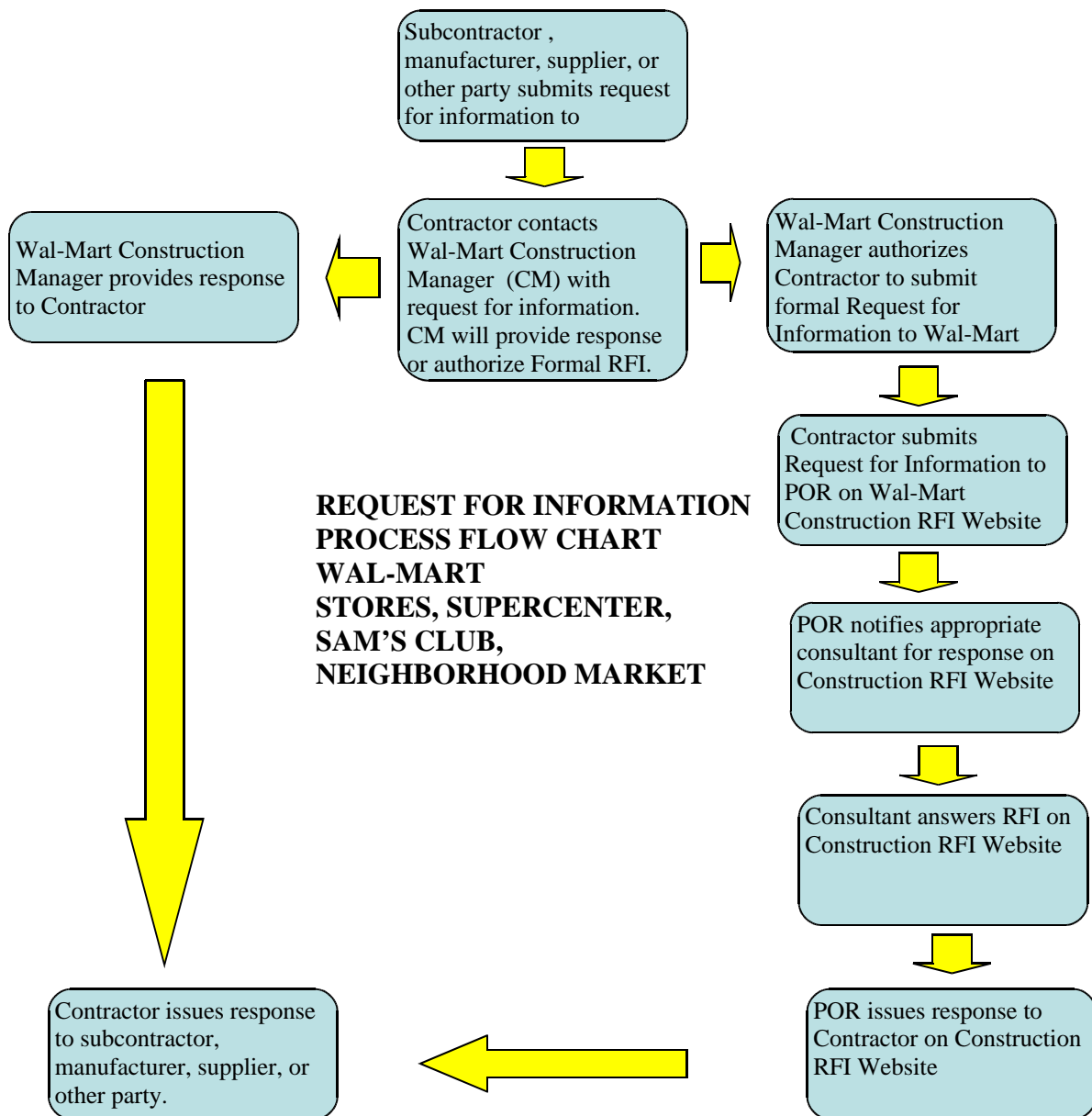
PART 2 - PRODUCTS

Not Used.

PART 3 - EXECUTION

Not Used.

END OF SECTION



SECTION 01310 – CONSTRUCTION MANAGEMENT AND COORDINATION

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Project Management and Coordination:
 - a. Definitions.
 - b. Construction Manager.
 - c. Project Coordination.

1.2 DEFINITIONS

- a. Remodel General Contractor: Responsible contractor, who constructs, coordinates, and supervises the construction of the total Remodel. Also referred to as the General Contractor.
- b. Separate Contractor: A contractor (either subcontractor, specialty contractor or vendor) hired separately by Wal★Mart and outside of General Contractor's Construction Contract.
- c. Wal★Mart Construction Manager: The Wal★Mart (Owner's) representative in all matters relating to the Work of the Project. The person responsible for all approvals with the Remodel General Contractor. This person also coordinates with the Separate Contractors and the Wal★Mart Store Planning Floor Project Manager.
- d. Wal★Mart Store Planning Field Project Manager: Wal★Mart-designated personnel who represents Wal★Mart during the Store Remodel. This person coordinates receipt of Wal★Mart-furnished items, coordinates moves of set up team, and assists in prioritizing work of Wal★Mart forces at the site.

1.3 WAL-MART CONSTRUCTION MANAGER

- a. Wal-Mart will assign this project to a staff Wal-Mart Construction Manager. The Wal-Mart Construction Manager is the Owner's representative in all matters relating to the Work.
- b. Cooperate with the Wal-Mart Construction Manager in all matters relating to the Work on this project.
- c. During construction, coordinate use of site and facilities through the Wal-Mart Construction Manager.
- d. Comply with Wal-Mart Construction Manager's procedures for project communications, reports and records, and coordination with drawings, and comply with recommendations and resolution of ambiguities and conflicts.
- e. Comply with instructions of the Wal-Mart Construction Manager for use of temporary utilities and construction facilities.
- f. Coordinate use of site during Wal-Mart fixture setup work under instructions of the Wal-Mart Construction Manager.

1.4 COORDINATION BETWEEN DIFFERENT CONSTRUCTION CONTRACTS

- a. This Project will include a Store Remodel.

- b. REMODEL PROJECTS: A General Contractor will be selected to construct and coordinate the Remodel. Wal★Mart will furnish some materials to be installed by the General Contractor or by Wal★Mart's Separate Contractors. The General Contractor will act in supervisory capacity for the coordination of the Separate Contractors hired directly by Wal★Mart. Refer to Sections 01100 and 01640.

1.5 RESPONSIBILITIES OF REMODEL GENERAL CONTRACTOR AND SEPARATE CONTRACTORS

- a. The Remodel General Contractor and Separate Contractors will provide a Construction Schedule to the Wal★Mart Construction Manager for review and approval. The Contractors shall immediately contact the Wal★Mart Construction Manager if the Work does not progress as scheduled. It is imperative that the Contractors keep close communication with the Wal★Mart Construction Manager regarding the progress of the Project.
- b. At the commencement of construction, the Wal★Mart Construction Manager, Wal★Mart Store Manager, Remodel General Contractor, Separate Contractors and the Store Planning Floor Project Manager will review the Construction Schedule. The Construction Schedule is set up on a weekly basis and must be followed unless deviations are authorized by the Wal★Mart Construction Manager (Refer to Section 01500 for posting of schedule).
- c. The Remodel General Contractor and Separate Contractors shall communicate at all times with the Store Manager, other Subcontractors and the Store Planning Floor Project Manager to facilitate the construction and ensure it is completed within the approved time schedule.
- d. Upon completion of a portion of the Work (Item, Trade, etc.), that portion of the Work must be 100% complete prior to proceeding to the next phase or portion of Work.
- e. The Remodel General Contractor shall be responsible for the coordination of the Remodel work of all Separate Contractors with the Wal★Mart Construction Manager and the Wal★Mart Store Manager.
- f. The Construction Manager will determine what work shall be done during normal operating hours (store hours) and during "closing" hours.
- g. The Remodel General Contractor will coordinate with the Store Planning Floor Project Manager the delivery of Wal★Mart-furnished items.
- h. The Remodel General Contractor shall also be responsible for coordinating the location of storage trailers/containers for Contractor-supplied materials and equipment (Refer to Section 01500). The Remodel General Contractor shall be responsible for permits required for temporary storage facilities (trailers/containers).
- i. Wal★Mart will not be responsible for the loss of any tools or equipment. Wal★Mart will also not be responsible for the cost of any rental tools. This is each Contractor's responsibility and should be included in his price proposal.
- j. Contractors shall not open any type of charge account within the Store and store markdowns will not be allowed. All items purchased in the Store shall be paid for at the time of purchase. Contractors should not receive any discounts for any items purchased within the Store. The use of Wal★Mart's name will not be allowed on any accounts.
- k. Contractors shall comply with Wal★Mart policy regarding gratuities. No Contractor may receive any gratuities from any company providing services or materials for any Wal★Mart Projects. Contractors are not entitled to receive any employee benefits from Wal★Mart.
- l. The Remodel General Contractor shall be responsible for timely removal of the construction trailer as directed by the Wal★Mart Construction Manager.
- m. Wal★Mart may provide Store Associates as required to assist the Remodel General Contractor and Separate Contractors in the remodeling. The Wal★Mart Store Planning Floor Project Manager will determine the

number of Store Associates that will be provided on a job basis. Wal★Mart Store Associates shall not be allowed to operate power equipment, be used as carpenters, or perform work from scaffolds, ladders or hoists.

- n. The Remodel General Contractor and Separate Contractors are responsible for obtaining a final inspection from the appropriate Building Official or Authority Having Jurisdiction (AHJ). If a Certificate of Occupancy is required, obtain it from the proper authorities. A copy of all final inspection documentation or Certificates of Occupancy shall be included in the final Closeout Documents (Maintenance Book/Closeout Book).

1.6 RESPONSIBILITIES OF WAL★MART

- a. Wal★Mart Store Planning Floor Project Manager shall coordinate with the Remodel General Contractor the delivery of all Wal★Mart-furnished items to the job site.
- b. The Wal★Mart Store Planning Floor Project Manager shall be responsible for the following construction coordination items:
 - 1) Supervision and coordination of Store Associates assisting with construction.
 - 2) Unloading of fixture trucks and the organization of the off site warehouse.
 - 3) Transportation of certain Wal★Mart-provided materials required for construction from the warehouse to the Store.
 - 4) Supervise the movement of Store merchandise and fixtures as required for the painting, flooring, ceiling, carpentry and Wal★Mart Separate Contractors.

1.7 PROJECT COORDINATION

- a. Coordinate scheduling, submittals, and work of the various Sections of specifications to ensure efficient and orderly sequence of installation of interdependent construction elements, with provisions for accommodating items installed at a later date and under separate contracts.
- b. Obtain necessary drawings, manufacturer's product data, and other necessary data to provide a complete and proper installation.
 - 1) Check field dimensions prior to installing equipment and furnishings. Verify necessary clearances and means of access from equipment storage to final position.
 - 2) Make shop drawings and manufacturer's rough-in requirements available to trades involved.
- c. Verify that utility requirements of operating equipment are compatible with building utilities. Coordinate work of various specification Sections for installation and final connection of equipment.
 - 1) Verify that mechanical, plumbing, and electrical rough-ins have been properly located.
- d. Coordinate space requirements and installation of mechanical and electrical Work which are indicated diagrammatically on Drawings. Follow routing shown for pipes, ducts, and conduits as closely as practicable. Make runs parallel with lines of building. Utilize spaces efficiently to maximize accessibility for other installations, for maintenance, and for repairs.
- e. In finished areas, conceal pipes, ducts, and wiring in the construction. Coordinate locations of fixtures and outlets with finish elements.
- f. Coordinate completion and clean up of work of separate Sections in preparation for Substantial Completion and for portions of Work designated for Owners partial occupancy after possession.
- g. After Owner occupancy of premises, coordinate access to site for correction of defective work and work not in accordance with Contract Documents, to minimize disruption of Owner's activities.

PART 2 - PRODUCTS

Not Used.

PART 3 - EXECUTION

Not Used.

END OF SECTION

SECTION 01311 – PROJECT MEETINGS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Preconstruction conference.
 - 2. Preinstallation conferences.
 - 3. Progress and quality control meetings.

1.2 PROJECT MEETINGS

- A. Conduct project meetings, as a part of the overall project coordination effort, to coordinate construction activities and Work.

1.3 ATTENDEES' AUTHORITY

- A. Persons designated by Contractor, subcontractors, and suppliers to attend project meetings: Possess authority to commit entities they represent to items agreed upon in project meetings.

1.4 PRECONSTRUCTION CONFERENCE

- A. Schedule a pre-construction conference at project site or other designated location after execution of the Contract and one week prior to start of Work.
- B. Attendance: Wal-Mart Construction Manager, Store Manager, Owner's Representative, Contractor Project Coordination Administrator, Contractor Quality Control Representative, Contractor Project Field Superintendent, roofing, mechanical, plumbing, fire protection, and electrical subcontractor field supervisory personnel.
 - 1. Additional Wal-Mart personnel (including Wal-Mart Construction Manager) may attend by telephone.
- C. Minimum Agenda:
 - 1. Organizational arrangement of Contractor's forces and personnel, and those of subcontractors, material suppliers and Wal-Mart Construction Manager.
 - 2. Contractor certificates of insurance.
 - 3. Status of Contractor-required submittals; list of subcontractors, schedule of values, etc.
 - 4. Approved Progress Schedule. Work hours. Work outside of normal working hours.
 - 5. Specific building regulations for Work within and adjacent to existing building.
 - 6. Critical work sequencing.
 - 7. Procedures for processing field decisions; Request for Information procedures.
 - 8. Change order process and procedures for processing change orders.
 - 9. Procedures for processing applications for payment. Contract closeout procedures.
 - 10. Wal-Mart furnished equipment and materials process, procedures, and coordination.
 - 11. Wal-Mart installed equipment and materials process, procedures, and coordination.
 - 12. Wal-Mart separate vendor process, procedures, and coordination.
 - 13. Submittal process, procedures, and coordination.
 - 14. Temporary facilities and controls by Owner.
 - 15. Temporary utilities provided by Owner.
 - 16. Procedures for preparation and maintenance of Project Record Documents.
 - 17. Contractor office, work, storage, and parking areas.
 - 18. Work area security requirements.
 - 19. Safety procedures, first aid, and occupational safety and health requirements.
 - 20. Housekeeping, cleanliness, noise and dust control of work areas.
 - 21. Quality of workmanship required.
 - 22. Wal-Mart furnished testing and inspection services.

23. Contractor's quality control procedures and requirements, inspection, testing, and documentation.

- D. Documentation: Record minutes of conference and distribute copies to Wal-Mart Construction Manager, participants, and those affected by decisions made, 2 working days after conference date. Recording, producing, and distributing by Contractor.

1.5 PREINSTALLATION CONFERENCES

- A. When required in individual specification Section, conduct a Preinstallation Conference at project site prior to start of Work of Section or related sections.
- B. Notify Wal-Mart Construction Manager 14 working days in advance of meeting date.
- C. Attendance Required: Wal-Mart Construction Manager, Store Manager, Owner's Representative, Contractor Project Coordination Administrator, Contractor Quality Control Representative, Contractor Project Field Superintendent, Separate Contractor, any subcontractor, supplier, or installer directly affecting, or affected by, Work of specific Section.
- D. Minimum Agenda: Review conditions of installation, progress of other construction activities, and preparations for Work of Section or related Sections, including requirements for:
1. Contract documents.
 2. Related change orders.
 3. Equipment and material deliveries.
 4. Shop drawings and product data.
 5. Possible conflicts and compatibility problems.
 6. Weather limitations.
 7. Time schedules.
 8. Manufacturer's instructions and recommendations.
 9. Compatibility of materials.
 10. Acceptability of substrates.
 11. Temporary facilities required.
 12. Space and access limitations.
 13. Governing codes and regulations.
 14. Inspection and testing requirements.
 15. Required performance results.
- E. Documentation: Record minutes of conference and distribute copies to Wal-Mart Construction Manager, participants, and those affected by decisions made, 2 working days after conference date. Recording, producing, and distributing by Contractor.

1.6 PROGRESS AND QUALITY CONTROL MEETINGS

- A. Schedule and conduct progress meetings throughout the progress of the Work at intervals determined by the Wal-Mart Construction Manager.
- B. Attendance Required: Wal-Mart Construction Manager, Owner's Representative, Contractor Project Coordination Administrator, Contractor Quality Control Representative, and Contractor Project Field Superintendent.
- C. Minimum Agenda: Review items of significance that may affect project progress, including the following:
1. Minutes of previous meetings.
 2. Work progress in relation to Contractor's construction schedule.
 3. Status of required submittals.
 4. Payment request status. Documentation of information for payment requests.
 5. Field observations, Requests for Information, discussions of problems, and agreement on solutions.
 6. Quality of materials and workmanship.
 7. Corrective measures to regain quality of materials and workmanship; status of products, assemblies, or systems requiring replacement.

8. Status of change orders.
 9. Corrective measures to regain projected schedules.
 10. Planned progress for period prior to next scheduled Progress Meeting.
 11. Effect of proposed project changes (if any) on construction schedule and coordination.
 12. Temporary facilities and services.
 13. Jobsite housekeeping and cleanliness.
- D. Documentation: Record minutes of conference and distribute copies to Wal-Mart Construction Manager, participants, and those affected by decisions made, 2 working days after conference date. Recording, producing, and distributing by Contractor.
- E. Construction Schedule Update: Revise construction schedule after each progress meeting where schedule revisions have been made or recognized. Issue updated schedule concurrently with report of meeting.

PART 2 - PRODUCTS

Not Used.

PART 3 - EXECUTION

Not Used.

END OF SECTION

SECTION 01320 – CONSTRUCTION PROGRESS DOCUMENTATION

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Progress Schedules and Reports.

1.2 CONSTRUCTION PROGRESS CHART

- A. Progress of the Project will be monitored using bar charts. Requirements herein provide for planning and execution of the Work and are to assist the Wal-Mart Construction Manager in evaluating progress of the Work economically and chronologically.
- B. The Contractor shall be familiar, in detail, with the milestones listed in the Invitation to Bid. By submitting his bid, the Contractor acknowledges that the Construction milestones are feasible, reasonable, and are a workable schedule for the Work.
- C. Delivery times for Wal-Mart Furnished Items are specified in Section 01640. Coordinate delivery of these items with progress of the Work.
- D. Prior to construction, the Contractor may request reasonable changes to the Construction Progress Bar Chart, provided delivery dates specified in Section 01640 and the contract completion date are not changed. The Wal-Mart Construction Manager will review requested changes. Upon approval by Wal-Mart, Bar Chart shall become the "Approved Construction Progress Chart" by which the Contractor shall plan, organize, direct, coordinate, and execute the Work, and the basis of evaluating progress of the Work.
- E. If, in the opinion of the Wal-Mart Construction Manager, any of the dates specified in Section 01640 are not completed by the Contractor on or before the stated time period and after 48 hours written notice to the Contractor, Wal-Mart may proceed to carry out the work in accordance with Paragraph 2.4 of the General Conditions except that both 7 day notices do not apply in this particular situation.
- F. The Contractor shall perform work directed by the Wal-Mart Construction Manager to meet the Wal-Mart contract completion date and shall maintain the original management and supervision team to continue their office and job site duties on a full-time basis through final completion and/or any other time the Contractor has any work being performed on the project regardless of the date or condition of project completion.

1.3 CONSTRUCTION SCHEDULE

- A. Using the milestones listed in the Invitation for Bids; the Contractor shall develop a detailed Construction Schedule with activity time duration in calendar days further describing his method for performing the Work. This schedule shall be similar in appearance to the example Construction Progress Bar Chart with enough detail to clearly represent workflow and areas to be completed. The Contractor shall review the Contractor's schedule with the Wal-Mart Construction Manager within 3 weeks from award of Contract, or at the Pre-Construction Meeting, whichever is first. Failure of the Contractor to have a construction schedule approved by the Wal-Mart Construction Manager will be considered cause to withhold progress payments.
 - 1. The milestones listed in the Invitation for Bids shall not be construed as an indication by the Owner as to means, methods, or techniques of construction to be employed by the Contractor.
 - 2. Critical path activities shall be indicated on the Contractor's detailed construction schedule.

1.4 SCHEDULE UPDATES

- A. The Contractor shall provide to the Wal-Mart Construction Manager regular updated reports on the Construction Schedule as determined by the Wal-Mart Construction Manager. The Contractor shall maintain a current weekly updated detailed construction schedule in the site construction field office.
 - 1. Construction Schedule Updating: Progress information to be included in schedule updates includes actual start and finish dates, percentage complete, remaining duration or projected finish dates for all activities in progress during reporting period. Schedule updates may also include approved added activity descriptions. Updates to the schedule shall not change any milestone dates or the contract completion date.
- B. Periodically, at times to be determined by Wal-Mart, the Wal-Mart Construction Manager will visit the job site for a meeting with the Contractor's Project Manager and Superintendent. This meeting is to review progress to date, and to project upcoming work.

1.5 RECOVERY PLAN

- A. Should the updated approved Construction Schedule show the Contractor to be behind schedule, the Contractor shall immediately devise a plan for recovery of lost time within one week and submit it to the Wal-Mart Construction Manager for approval. Once approved by the Wal-Mart Construction Manager, the Contractor shall immediately put the recovery plan into action.
- B. During the period covered by the recovery plan, the Contractor's progress will continue to be monitored against the Approved Construction Progress Chart. If the Contractor does not recover from delay as detailed in the recovery plan, Wal-Mart may exercise the option to carry out the work as specified above.
- C. The Contractor shall bear all costs and expenses related to recovery from the Contractor's delays, including costs, expenses, and lost sales incurred by Wal-Mart.

PART 2 - PRODUCTS

Not Used.

PART 3 - EXECUTION

Not Used.

END OF SECTION

SECTION 01330 – SUBMITTAL PROCEDURES

PART 1 - GENERAL

a. SUMMARY

A. Section Includes:

1. Submittal procedures prior to and during construction.

B. Related Sections:

1. Section 01458 - Testing Laboratory Services: Submittals required for tests and inspections
2. Section 01600 - Product Requirements: Requirements for product selection and product options.
3. Section 01640 - Owner Furnished Products. General procedures related to Owner furnished products.
4. Section 01770 - Contract Closeout: Closeout submittals.

b. PROCESS AND RESPONSIBILITIES

a. Contractor Responsibilities:

5. Comply with submittal requirements defined within individual Sections. Submittals procedures described herein shall apply unless otherwise stated in individual Sections.
6. Package each submittal appropriately for transmittal and handling.
7. Identify Project, Contractor, subcontractor or supplier, pertinent Drawing sheet and detail numbers, and Specification Section number, as applicable.
8. Assemble, coordinate, and review submittals of subcontractors, suppliers, and manufacturers.
9. Review submittal for verification of products required, field dimensions, adjacent construction, and coordination of information.
10. Apply Contractor's Submittal Review stamp, signed or initialed and dated, certifying compliance with Contract Documents.
11. Forward executed copy of Submittal Review Form to supplier within 5 days after receipt of submittal with copies to Architect and Wal-Mart's Construction Manager.
12. Schedule submittals to expedite the Work. Coordinate submission of related items into single submittal.
13. Submit submittals items required within an individual Specification Section into a single submittal.
14. Identify variations from Contract Documents and limitations of product and system, which may be detrimental to successful performance of the completed Work.
15. Provide space on submittal for Contractor, Architect, and Architect's Consultant review stamps.
16. Allow 10 working days for review.
17. Revise and resubmit submittals when required. Identify changes made since previous submittal.
18. Notify Vendor or Subcontractor of approval by Authority Having Jurisdiction of Deferred Submittal package.
19. Distribute copies of reviewed submittals to concerned parties and to Record Documents file. Instruct parties to promptly report inability to comply with provisions.

C. Supplier Responsibilities - Wal-Mart (Owner) Furnished Products:

1. Subcontractors, vendors, and suppliers (including suppliers of Wal-Mart (Owner) furnished products) shall forward copies of submittals to the Contractor.
2. Prepare submittals in accordance with requirements in individual Specification Sections and Contractor responsibilities specified herein.

D. Architect Responsibilities: Review submittals and take appropriate action as follows.

1. Shop Drawings and Product Data: Architect will mark submittals to indicate appropriate action.
2. Return Architect reviewed Submittals to Contractor by mail carrier service providing delivery tracking.
3. Submittals for Information: Architect will not return submittals sent for information only.

E. Unrequested Submittals: Submittals transmitted to Architect or Architect's Consultants that are not indicated or requested will not be reviewed. Architect will dispose of unrequested submittal items.

c. TRANSMITTAL

- a. Transmit each submittal using a transmittal form. Submit to Architect.
 2. Transmit submittals to be reviewed by Architect to:
Architect of Record
P+R ARCHITECTS
3300 Market Street, Suite 230
Rogers, AR 72758
FAX (479) 271-8091
Attn: SUBMITTAL REVIEWER
 3. Transmit submittals to be reviewed by Structural Engineer of Record to:
Structural Consultant
Wallace Engineering
200 East Brady Street
Tulsa, Oklahoma 74103
(918) 584-5858
Attn: SUBMITTAL REVIEWER
 4. Transmit 3 copies of fire protection submittals to the Wal-Mart's Fire Protection Consultant listed below within 21 day of prime contract award. Send one copy of the submittal transmittal to the Architect listed above.
Fire Protection Engineer of Record
Henderson Engineers Inc.
8325 Lenexa Drive, Suite 400
Lenexa, KS 66214
(913) 742-5300
Attn: SUBMITTAL REVIEWER

d. DEFERRED SUBMITTALS (As required)

- a. Definition: Deferred Submittal are submittals required by the AHJ for code compliance but which, rather than being submitted at the time of permit application, have been allowed by the AHJ to be deferred until after Contract award to enable the successful Contractor, Subcontractor, or Supplier to submit the applicable submittals.
- F. Submit the deferred submittals to the extent indicated on the Deferred Submittal Table located on the Drawing Cover Sheet.
- G. Process:
 1. Immediately after award of the Contract, the Contractor shall contact the AHJ to coordinate and determine the AHJ requirements for deferred submittals. Information obtained shall include such requirements as number of copies; extent of detail of information to be submitted; review, if required, by Professional of Record (Architect or Engineer); and other necessary process and procedural requirements.
 2. The Contractor, or other entity, responsible for the submittal shall submit, track, and report submittal status to the Wal-Mart Construction Manager through final approval and issue of permit.
 3. Communicate with vendors, suppliers, and Subcontractors the AHJ requirements for deferred submittals. Receive, review, and stamp submittals in accordance with submittal requirements herein.
 4. Transmit deferred submittals directly to AHJ unless otherwise requested by AHJ to obtain prior review and approval by Professional of Record.
 5. Upon approval by AHJ, obtain permits and pay permit fees and other fees required by the AHJ.
 6. Attach approved deferred submittals to the approved "Permit Set" documents at the project site.
 7. Do not install deferred submittals until corresponding submittal documents have been approved by the AHJ.

e. SUBMITTAL REQUIREMENTS

a. Shop Drawings:

8. Submit Drawings with graphic information at accurate scale. Show dimensions and note which dimensions are based on field measurement. Identify materials and products in Work shown. Indicate compliance with specified standards and special coordination requirements. Do not use reproductions of Contract Drawings as Shop Drawings.
9. Include on each Shop Drawing the drawing title, number, original issue date, and revision numbers and dates, in addition to other required identifying information.
10. Identify details by reference to sheet, detail, schedule, or room names shown on the Contract Drawings.
11. Identify numerical values in English units.
12. Size: Not less than 8-1/2 by 11 inches nor more than 30 by 42 inches.
 - a. For Shop Drawings submitted on sheets larger than 8-1/2 x 11 inches, submit reproducible transparency and blueline or blackline reproduction.
 - b. For Shop Drawings submitted on sheets 8-1/2 x 11 inches, conform to requirements for Product Data and submit as a bound volume for submittal required.
13. Number of Copies Required: Submit one reproducible transparency and one blueline or blackline reproduction. Submit additional copies to AHJ for approval if required. Comply with requirements of AHJ with regard to signing and sealing of submittals by Registered Professional licensed in the State in which project is located.
 - a. One copy will be returned to the Contractor.

H. Product Data:

1. Manufacturer's standard schematic drawings and diagrams:
 - a. Clearly mark to identify pertinent products.
 - b. Show performance characteristics and capacities.
 - c. Show dimensions and clearances required.
 - d. Show wiring or piping diagrams and controls.
 - e. Modify drawings and diagrams to delete information not applicable to this work.
 - f. Supplement standard drawings and diagrams to provide complete information applicable to this work.
2. Mark each copy to identify applicable products, models, options, and other data. Supplement Product Data with material prepared for the Work to satisfy submittal requirements for which Product Data does not exist. Note that the material is developed specifically for this Contract.
3. Submit Product Data for each Section as a complete, bound volume. Include table of contents listing page and catalog item numbers for Product Data.
4. Indicate, by prominent contrasting color notation on each product being submitted, the Specifications Section and paragraph numbers to which it pertains.
5. Where printed Product Data includes information on several products, some of which are not required, mark copies to indicate information applicable to Work and clearly cross out other information not applicable to Work. Include the following information:
 - a. Manufacturer's printed recommendations or instructions.
 - b. Compliance with referenced standards.
 - c. Application of testing agency labels and seals.
 - d. Notation of dimensions verified by field measurement.
 - e. Notation of coordination requirements.
6. Product Data For Information: Written information not requiring action by Wal-Mart Construction Manager or Architect; for verification of compliance with requirement. Submittal not complying with requirements will be rejected.
7. Number of Copies Required: Four.

I. Engineering Calculations:

1. Submit calculations signed and sealed by a Registered Professional Engineer licensed in the State where project is located. Comply with requirements of Authority Having Jurisdiction with regard to signing and sealing of submittals.

J. Certifications:

1. Certify manufacturer or installer's qualifications, compliance with tests or specified criteria, or other factors as required in individual Specification Sections.
2. Submit supporting reference data, affidavits, and certifications as required.

PART 2 - PRODUCTS

Not Used.

PART 3 - EXECUTION

Not Used.

END OF SECTION

SECTION 01455 – MECHANICAL EQUIPMENT TESTING, ADJUSTING, AND BALANCING

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Administrative and procedural requirements for test and balance services for mechanical equipment.
- B. Related Sections:
 - 1. Section 01458 - Testing Laboratory Services: Owner procurement of testing laboratory services for site and building testing and inspection.
 - 2. Section 13810 - Energy Management System (EMS).
 - 3. Section 15700 - Heating, Ventilating, and Air Conditioning Equipment: HVAC system equipment.
 - 4. Section 15800 - Air Distribution: HVAC system ductwork and diffusers.

1.2 SELECTION AND PAYMENT

- A. Employment and payment for services of an Independent Test and Balance Agency (ITBA) to perform specified testing and balancing of environmental systems will be by Wal-Mart.

1.3 RESPONSIBILITIES

- A. Wal-Mart Responsibilities:
 - 1. Wal-Mart will obtain the services of an Independent Test and Balance Agency (ITBA) certified by National Environmental Balancing Bureau (NEBB) or Associated Air Balance Council (AABC).
 - 2. Upon completion of system Test and Balance, a copy of ITBA report will be forwarded to the Contractor. If HVAC system deficiencies exist, a letter listing those deficiencies will also be forwarded to the Contractor for correction. If the Contractor fails to respond and correct these deficiencies within seven days upon receipt of letter, the Owner will authorize repairs as judged necessary and take necessary contractual action to recover adequate compensation for repair expenses.
 - 3. As a result of HVAC system performance or operational deficiencies, a return trip by ITBA to complete Test and Balance will be authorized when deemed necessary by Wal-Mart Construction Department. This return trip will be costed at \$55.00 per hour plus mileage and expenses. Wal-Mart shall be reimbursed for ITBA expenses.
- B. Contractor Responsibilities:
 - 1. Provide balancing dampers as specified and shown on the Drawings for proper balancing of systems.
 - 2. Prepare system for test and balance as follows:
 - a. Install, start up, check out, and adjust HVAC systems per Drawings and Specifications and have fully operational with deficiencies corrected on or before Wal-Mart's Substantial Completion Date.
 - b. One day prior to starting test and balance procedure, provide new filters equal in quality to factory installed filters. Filters: Class 1, 30 percent efficiency, radial pleat design with 15 pleats per linear foot.
 - c. Verify that duct work is clean and sealed tight against leaks.
 - d. Verify that controls, dampers, and actuators are installed, adjusted, and calibrated.
 - e. To maintain schedules and prevent return trips, have experienced personnel available to correct HVAC system deficiencies while ITBA is scheduled on site.
 - f. Secure control dampers after test and balance as directed by ITBA.
 - 3. Notify Wal-Mart Construction Department when HVAC systems are ready for test and balance. If Contractor fails to notify Wal-Mart Construction Department of status, ITBA will be scheduled into store during week following Contract Substantial Completion Date.

1.4 TESTING, ADJUSTING, AND BALANCING BY ITBA

- A. Testing and balancing shall be supervised by a Registered Professional Engineer. Personnel involved in execution of the work for ITBA shall be technicians experienced and trained specifically in testing and balancing of mechanical systems. Instruments used by ITBA shall be recently and accurately calibrated and maintained in good working order. Verification of calibration shall be submitted in final test report if so requested by Wal-Mart. Test, adjust, and balance specified equipment in accordance with governing NEBB or AABC Procedural Standards.
- B. Procedures:
1. Make preliminary system check on HVAC, control and Energy Management systems and equipment to be tested to determine that equipment, duct work, etc. is installed and will operate. Deficiencies shall be immediately reported to Contractor's job site superintendent and the Wal-Mart General Offices.
 2. Inspect and test Novar Controls electronic thermostat modules using ETM Interface Analyzer for the following control functions:
 - a. Fan control.
 - b. Stage 1 cooling control.
 - c. Stage 1 heating control.
 - d. Stage 2 cooling control.
 - e. Stage 2 heating control.
 - f. Economizer control.
 - g. Unit shut down upon fan operation loss, and alarm received at offices (Novar, Wal-Mart Maint. Dept., Wal-Mart EMS). Verify with Wal-Mart Support Service. Contact: Wal-Mart Support Service, Novar Controls Corporation, 114 South College Ave. Suite-D, P.O. Box 3345, Fayetteville, AR 72702, (479) 521-7795.
 3. Record readings and testing data for inclusion into final report.
 4. Perform the following testing and balancing. Record readings for inclusion into final report:
 - a. Test and adjust fan speeds to deliver design CFM and record rpm and full load amperes at design CFM. Record voltage at each unit.
 - b. Test and adjust system for design CFM outside air.
 - c. Test and record suction and discharge external static pressures at respective plenums. Seal access holes with rubber or metal snap-in plugs. The use of duct tape to seal access holes will not be permitted.
 - d. Test and record entering air temperatures (Dry Bulb heating and cooling; Wet Bulb cooling).
 - e. Test and record leaving air temperature (Dry Bulb heating and cooling; Wet Bulb cooling).
 - f. Test and record outside air Dry Bulb and Wet Bulb temperatures.
 - g. Test and adjust the volume dampers in the main duct runs to each diffuser, grille, and register to provide $\pm 10\%$ of design CFM requirements.
 - h. Identify each diffuser, grille, and register to location and area.
 - i. Record Unit Data and Motor Data for each air system tested per appropriate NEBB or AABC test report.
 5. Test and record voltage and amperage measurements and calculate KW rating per appropriate NEBB or AABC procedure for each electric heater or electric coil heating section.
 6. Verify and record proper operation of all stages of gas heating sections or gas radiant heaters.
 7. Verify and record proper operation of ceiling fans.
- C. Reports:
1. If any air system or outlet is not within ± 10 percent of design capacity at design rpm, determine the reason. Check duct work and plenums for leaks; coils, filter, for excessive pressure drop, etc.; and list on HVAC Deficiency Report.
 2. Using data obtained during test, determine if cooling side of roof top unit is performing in accordance with published data. One representative unit's record data for each size RTU shall be plotted on a psychometric chart for comparison to manufacturer's published literature. These psychometric charts shall be part of the final test report. Any deficiencies shall be listed on the HVAC Deficiency Report.
 3. Before leaving job site, provide Contractor's representative a neat, legible deficiency list of all remaining HVAC system deficiencies for correction. The content of this HVAC Deficiency Report shall be provided to Wal-Mart by phone before leaving job site.

4. Submit three bound copies of final testing and balancing report. Record data on applicable NEBB or AABC certified reporting forms. Report shall include start-up data provided by Contractor; summary sheet of deficiencies with status (corrected or not corrected at time of report) and recommendations. Submit report within 14 days after final test and balance.

D. Guarantee:

1. Test and balance for period of ninety days from date of final acceptance of the Test and Balance Report. During this period, ITBA shall correct deficiencies at no cost to Wal-Mart.

PART 2 - PRODUCTS

Not Used.

PART 3 - EXECUTION

Not Used.

END OF SECTION

SECTION 01458 – TESTING LABORATORY SERVICES

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Administrative and procedural requirements for testing and inspection services.
- B. Related Documents and Sections:
 - 1. Document 00700 - General Conditions: Inspections, testing, and approvals required by public authorities.
 - 2. Section 01455 - Testing, Adjusting, and Balancing: Wal-Mart procurement of test and balance for heating, ventilating, and air conditioning systems.
 - 3. Section 01640 - Owner Furnished Products: General procedures related to Owner furnished work and Work of other Contractors.
 - 4. Section 01770 - Contract Closeout: Project Record Documents.
 - 5. Section 13900 - Fire Suppression: Fire Sprinkler Site Observation and Acceptance Test (FPAT).

1.2 REFERENCES

- A. The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.
- B. ASTM International (ASTM):
 - 1. ASTM C 1077 - Laboratories Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Laboratory Evaluation.
 - 2. ASTM C 1093 - Accreditation of Testing Agencies for Unit Masonry.
 - 3. ASTM D 3740 – Minimum Requirements for Agencies Engaged in Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction.
 - 4. ASTM D 4561 - Quality Control Systems for Organizations Producing and Applying Bituminous Paving Materials.
 - 5. ASTM E 329 - Agencies Engaged In The Testing And/Or Inspection Of Materials Used In Construction.
 - 6. ASTM E 543 - Agencies Performing Nondestructive Testing.
 - 7. ASTM E 699 - Criteria for Evaluation of Agencies Involved in Testing, Quality Assurance, and Evaluating Building Components in Accordance with Test Methods Promulgated by ASTM Committee E-6.

1.3 DEFINITIONS

- A. Testing: Evaluation of systems, primarily requiring physical manipulation and analysis of materials, in accordance with approved standards.
- B. Inspection: Evaluation of systems primarily requiring observation and engineering judgment.
- C. Architect of Record (AOR): The prime consultant in charge of overall design and coordination of the project.
- D. Engineer of Record (EOR): The Registered Engineer and the firm employing such engineer issuing Contract Documents for an engineering discipline on the Project.
- E. Structural Engineer of Record (SER): The Registered Engineer in responsible charge of the structural design for the project.
- F. Civil Engineering Consultant (CEC): The Registered Engineer in responsible charge of the civil design for the project.

- G. Structural Services Incorporated (SSI): The prime slab consultant in charge of integrity of slab surface.
- H. Independent Testing Laboratory (ITL): The independent testing and inspection agency employed by the Owner:
- I. Special Inspector (SI): The special inspector shall be under the direct supervision of a registered civil/structural engineer regularly engaged in inspection, and is experienced with the type of work requiring related testing and inspection. The ITL must notify the Wal-Mart Construction Manager if an engineer will be sent to the jobsite. The categories of special inspector are:
 - 1. Technical I (TI): A Technician who is an employee of a qualified and approved testing laboratory. Lab work shall be performed in a qualified testing laboratory.
 - 2. Technical II (TII): A Technician with a minimum of 2 years experience, or a graduate engineer, and is an employee of a qualified and approved testing laboratory.
 - 3. Technical III (TIII): An engineer regularly engaged in related work with a minimum of 4 years of experience, licensed in the State in which the project is located, and is an employee of a qualified and approved testing laboratory. This licensed engineer shall review and approve all final field reports.
 - 4. Structural I (SI): A graduate civil/structural engineer, or other personnel acceptable to the SER, with experience in the design of related structural systems.
 - 5. Structural II (SII): A civil/structural engineer regularly engaged in related work with a minimum of 4 years of experience, licensed in the State in which the project is located. The licensed engineer shall review and approve all inspection reports.
 - 6. Independent Roofing Inspector: A technician with a minimum of 5 yrs. experience, employed by the ITL. This technician shall review and approve field reports, installation, and remedial repairs in the field.
 - 7. Unique special inspector requirements, for specific materials and system, are noted in related technical specification sections.
- J. Building Official: The Officer or his duly authorized representative charged with the administration and enforcement of the local building code.
- K. Continuous Inspection: The full-time observation of work requiring special inspection by an approved special inspector who is present in the area where the work is being performed.
- L. Periodic Inspection: The part-time or intermittent observation of work requiring special inspection by an approved special inspector who is present in the area where the work has been or is being performed and at the completion of the work.

1.4 SELECTION AND PAYMENT

- A. Owner Responsibilities: Employment and payment for services of an Independent Testing Laboratory (ITL) and/or Special Inspector (SI) to perform specified testing and inspecting will be by the Owner under separate contract except for specified testing required to be selected and paid for by the Contractor as may be required by individual specification sections.
- B. Contractor (Building) Responsibilities:
 - 1. Neither Owner employment of ITL or SI services nor observation of construction by the Architect of Record and Engineer of Record shall relieve the Contractor of obligation to perform work in accordance with contract requirements.
 - 2. Requirements for Contractor to provide quality control services as specified or required by the Owner or authorities having jurisdiction are not limited by provisions of this Section.
 - 3. The Contractor shall not employ any entity engaged by the Owner, unless otherwise agreed in writing with the Owner.
 - 4. The Contractor shall provide inspecting and testing including testing laboratory services as may be required by individual specification sections and which are not otherwise provided by the ITL/SI services.

1.5 INDEPENDENT TESTING LABORATORY (ITL) QUALITY ASSURANCE

- A. Testing agency will comply with requirements of ASTM C 1077, ASTM C 1093, ASTM D 3740, ASTM D 4561, ASTM E 329 ASTM E 543, and ASTM E 699.
- B. Laboratory: Authorized to operate in state in which Project is located.
- C. Testing Equipment: Calibrated at reasonable intervals with devices of an accuracy traceable to either National Bureau of Standards (NBS) Standards or accepted values of natural physical constants.

1.6 SUBMITTALS

- A. Laboratory Quality Assurance: Submit the following.
 - 1. Testing laboratory name, address, and telephone number, and names of full time Registered Engineer and responsible officer.
 - 2. Copy of report of laboratory facilities inspection made by Materials Reference Laboratory of National Bureau of Standards during most recent inspection, with memorandum of remedies of any deficiencies reported by the inspection.
 - 3. List of each individual test and inspection to be performed.
 - 4. Submit to:
 - a. Wal-Mart Construction Manager.
 - b. Sitework Civil Engineering Consultant.
 - c. Contractor.
 - d. Building Official (when required by the local authority having jurisdiction).
 - e. Architect of Record.
 - f. Structural Engineer of Record.
- B. Test and Inspection Reports:
 - 1. Site Work Testing and Inspection: After each inspection or test, distribute report within three calendar days of time services were performed as follows:
 - a. Wal-Mart Construction Manager: 1 copy.
 - b. Architect of Record: 1 copy.
 - c. Contractor: 2 Copies (1 copy put in jobsite binder prior to leaving jobsite).
 - d. Building Official: Quantities as required.
 - 2. Building Testing and Inspection: After each inspection or test, distribute report within three calendar days of time services were performed as follows:
 - a. Wal-Mart Construction Manager: 1 copy.
 - b. Structural Engineer of Record (SER): 1 copy.
 - c. Contractor: 2 Copies (1 copy put in jobsite binder prior to leaving jobsite).
 - d. Building Official: Quantities as required.
 - e. Architect of Record: 1 Copy.
 - 3. Tests and inspections indicating non conformance to the Contract Documents shall be stamped with a red stamp indicating "Non-Conformance" and distributed to the Wal-Mart Construction Manager and Contractor within 24 hours of discovery.

1.7 INDEPENDENT TESTING LABORATORY AND SPECIAL INSPECTOR REPORTS

- A. Submit reports as required herein and conduct and interpret tests and inspections.
- B. Complete and sign the Testing and Inspection Program Summary Schedule. The Schedule shall be submitted to the Wal-Mart Construction Manager for approval prior to the start of construction. The completed Program includes the following:
 - 1. A specific listing of the items requiring inspection and testing.
 - 2. The associated Project Manual sections that define the applicable standards by which to judge conformance with the approved plans and specifications and the applicable building code.

3. The frequency of reporting, i.e., weekly, monthly, per test/inspection, per floor, etc.
4. The required acknowledgments by each designated party.

- C. Laboratory and Inspection Report: Submit laboratory and inspection reports including the following information:
1. Date issued.
 2. Project title and number.
 3. Store number.
 4. Firm name and address.
 5. Name and signature of tester or inspector.
 6. Name and seal of registered engineer in responsible charge (as applicable).
 7. Date and time of sampling.
 8. Date of test or inspection.
 9. Identification of product and specification section.
 10. Location in project, including elevations, grid location and detail.
 11. Type of test or inspections.
 12. Results of tests or inspections and interpretation of same.
 13. Observations regarding compliance with Contract Documents or deviations therefrom.
- D. Reports for testing and inspection, shall be submitted in timely manner to the parties specified in Paragraph: Submittals above.
- E. Submit a separate final signed report stating whether the work requiring inspection is, to the best of the inspector's knowledge, in conformance with the approved plans, specifications, and the applicable workmanship provisions of the building code.
- F. Submit a final signed Wal-Mart Inspection Checklist showing specific items that have been inspected.
- G. Reports shall be made on 8-1/2 by 11 white paper, suitable for photocopying and binding in booklet form. Sheets shall have the ITL letterhead (including phone number and address). Larger sheets shall be folded and bound into the booklet.
- H. Report non-conformance in materials or construction to the Contract Documents to the Wal-Mart Construction Manager and Contractor immediately by verbal means and within 24 hours of discovery by written, photographic, and verbal means. Include statement of probable cause and provide recommendation for corrective action as an attachment to the report. Stamp report in red letters indicating "Non-Conformance".
- I. The Wal-Mart Construction Manager in conjunction with the ITL and/or SI will determine when to involve the AOR for remedial action.
- J. Contractor shall send an RFI to the Architect of Record the same day of non-conformance notification.
- K. Deviations from the Contract Documents shall be logged into the Wal-Mart Deviation Log by the ITL/SI representative on site (www.bldgportal.com, enter username and password, select Deviation Log).

1.8 INDEPENDENT TESTING LABORATORY AND SPECIAL INSPECTOR RESPONSIBILITIES

- A. The ITL/SI representative shall attend a pre-construction meeting one week prior to actual start of the Project. Except for the roofing inspection, the ITL/SI representative shall be the Registered Professional Engineer assigned to the project.
- B. Maintain a copy of Contract Drawings and Specifications with all Addenda and Change Orders. Use the Contract Documents supplemented by the approved shop drawings and applicable material and workmanship provisions of the Code for testing and inspection of the work.
- C. Provide qualified personnel at site to comply with schedule and submit reports for each test and inspection as defined in Part 3 of this Section. Testing and inspection, except roofing inspection, shall be under supervision of

the Registered Professional Engineer (P.E.) in the state where Project is located.

- D. Perform specified inspection, sampling, and testing of products in accordance with specified standards.
- E. Ascertain compliance of materials and mixes with requirements of Contract Documents.
- F. Perform testing and inspection in a timely manner to avoid delay of work.
- G. Notify Wal-Mart Construction Manager, Sitework Engineering Consultant, Architect of Record, and Contractor of observed non-conformance of Work or Products. The ITL/SI will also log the non-conforming Work or Product into Wal-Mart's Deviation Log which resides on Wal-Mart's Building Portal website. If observed deviations from the Contract Drawings, Specifications, or building code will be probable cause of subsequent rejection of work or material, notify Contractor, the Wal-Mart Construction Manager, Sitework Engineering Consultant, and Architect of Record, sufficiently in advance for determination to continue operations or take corrective measures before continuing. If uncorrected after a reasonable period of time, to the attention of the Structural Engineer of Record, the Building Official, and to the Architect.
- H. Track resolutions and remedial repairs to deviations and notify the EORs and AOR of subsequent conformance to the Contract Documents.
- I. Report any observed life safety issue immediately to the Contractor and the Wal-Mart Construction Manager. After notification is given to the Contractor and the Wal-Mart Construction Manager, the ITL/SI shall also log the life safety issue into Wal-Mart's Deviation Log which resides on Wal-Mart's Building Portal Website.
- J. Perform retesting due to non-conformance with the Contract Documents. Costs will be deducted from the Sum due the Contractor.
- K. Provide a final conformance letter to Wal-Mart, the SER and the AOR. An example is attached at the end of this section.
- L. Submit test and inspection reports to the Contractor, the Structural Engineer of Record, the Architect of Record and other designated persons in accordance with the Testing and Inspection Summary Schedule. Submit test and inspection reports to the Building Official as required.
- M. Testing and inspection by the Building Official do not preclude the normal field involvement and site observations by Architect or Structural Engineer of Record, nor shall it relieve the Contractor of any responsibility to complete the work in accordance with the approved drawings and specifications.

1.9 INDEPENDENT TESTING LABORATORY AND SPECIAL INSPECTOR LIMITS ON AUTHORITY

- A. The ITL may not:
 - 1. Release, revoke, alter, or enlarge on requirements of Contract Documents.
 - 2. Approve or accept any portion of the Work.
 - 3. Assume any duties of Contractor.
 - 4. Stop the Work.

1.10 CONTRACTOR RESPONSIBILITIES

- A. Contractor shall pay for:
 - 1. Tests and inspections at the source or prior to incorporation into the Work of materials, products, or equipment to certify compliance with Contract Documents.
 - 2. Additional tests, samples, inspection, or engineering services the Contractor determines appropriate for performance of Work or for Contractor's convenience.
 - 3. Additional tests and inspections when initial tests or inspections indicate Work does not comply with Contract Documents.
 - 4. Tests and inspections required or conducted by public authorities as part of permits or inspection fees.

5. Other tests and inspections indicated to be "by Contractor".
- B. Cooperate with ITL/SI personnel, and provide access to the Work and to manufacturers' facilities.
- C. Provide incidental labor and facilities to provide access to Work to be tested, to obtain and handle samples at the site or at source of products to be tested, to facilitate tests and inspections, and to provide storage and curing of test samples. Provide lift equipment as required for inspection personnel of the Owner or the Owner's representatives.
- D. Provide ITL 24 hour notice prior to expected time for operations requiring inspecting and testing services.
- E. Notify in writing the Wal-Mart Construction Manager three calendar days prior to expected time for operations requiring inspecting and testing services.
- F. Repair and protect the work regardless of assignment of responsibility for inspection, testing, or similar services.
 1. Protect work exposed by or for quality assurance and quality control service activities.
 2. Upon completion of inspection , testing, sample-taking, and similar services, restore constructed areas to conform to Contract Documents.
- G. Costs of retesting and re-inspections will be deducted from the sum due the Contractor.
- H. Costs, including without limitation additional professional fees and expenses, of any required redesign or re-engineering required by non-conforming tests and inspections will be deducted from the sum due the Contractor.
- I. Provide a Letter of Conformance at the completion of the Project to the Wal-Mart Construction Manager, with copy to the AOR, stipulating that the Project has been built per the Contract Documents.
- J. Provide the ITL/SI with access to the internet for the purpose of logging deviations into the Wal-Mart Deviation Log on the Wal-Mart Building Portal website.

1.11 ARCHITECT OF RECORD AND ENGINEER OF RECORD RESPONSIBILITIES

- A. Perform site observations as agreed to with the Owner as listed below or as otherwise requested by the Authority Having Jurisdiction or Wal-Mart Construction Manager to check a sample of the constructed Work for general conformance with the Contract Documents. Perform the following:
 1. Architectural:
 - a. Observations as required by the Authority Having Jurisdiction or as directed by Wal-Mart.
 2. Structural - One or more observations.
 - a. Observations as required by the Authority Having Jurisdiction.
 - b. Observations for new masonry openings as directed by the Wal-Mart Construction Manager.
 - c. Observations for modified masonry openings as directed by the Wal-Mart Construction Manager.
 3. Fire Suppression: Refer to Section 13900.
- B. The observations listed above are the minimum number of observations to be performed. Should there be outstanding non-compliance or life safety issues of the Contract Documents that warrant additional site observations to be performed by the AOR/EORs, the AOR/EOR shall receive approval from Wal-Mart prior to performing an additional site observation.
- C. Architect of Record and Engineer of Record shall not have control over or responsibility for construction means, techniques, sequences of operations or for safety programs and procedures in connection with the construction work.
- D. The Architect of Record and Civil Engineer of Record shall provide a final conformance letter to Wal-Mart if required by the Authority Having Jurisdiction. An example is attached at the end of this section.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

3.1 PRODUCTION TESTING

A. General Requirements:

1. Testing shall be conducted as specified in the individual specification sections.
2. Tests and inspections shall, as a minimum, be performed by Technical I (TI) inspector if not otherwise specified in the individual section.
3. If inspection of fabricators work is required, the Owner's representative may require testing and inspection of the work at the plant, before shipment. Owner, Architect, and Structural Engineer of Record (SER) reserve the right to reject material not complying with the contract documents.
4. Testing and inspection shall be performed in accordance with the industry standard used as the reference for the specific material or procedure unless other criteria are specified. In the absence of a referenced standard, tests shall be accomplished in accordance with generally accepted industry standards.
5. Work shall be checked as it progresses, but failure to detect any defective work or materials shall in no way prevent later rejection if defective work or materials are discovered, nor shall it obligate Owner to accept such work.
6. Neither the authority of the Architect of Record or Engineer of Record to reject work or recommend additional testing, nor a decision made in good faith to exercise or not exercise this authority shall give rise to a duty or responsibility to the Contractor, Subcontractors, material and equipment suppliers, or other persons or entities performing the Work.

B. Applicable Sections: Testing by the Owner's Independent Testing Laboratory is included in the following sections as applicable:

1. Division 2 - Sitework.
 - a. Section 02320 - Excavating, Backfilling, and Compacting.
2. Division 3 - Concrete.
 - a. Section 03300 - Cast-In-Place Concrete.
3. Division 4 - Masonry.
 - a. Section 04060 - Masonry Mortar.
 - b. Section 04220 - Concrete Masonry Units.
4. Division 5 - Metals.
 - a. Section 05120 - Structural Steel.
 - b. Section 05210 - Steel Joists.
 - c. Section 05300 - Metal Deck.
 - d. Section 05400 - Cold Formed Metal Framing.
5. Division 7 - Thermal and Moisture Protection.
 - a. Section 07530 - Elastomeric Membrane Roofing.
6. Division 9 - Finishes.
 - a. Section 09650 - Resilient Flooring.

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ITL Testing and Inspection Program Summary Schedule

Project Name _____ Project No. _____

Location: _____

Permit No. _____ (To be provided by the Building Official)

Section & Title	Description of Test or Observation	Type of Inspector	Report Frequency
02320 - Excavating, Backfilling, and Compacting	Tests: Classification of Materials, Laboratory Testing, Field Density Tests Observation: Subgrades/excavation bases, bearing capacity, presence of groundwater.	TI, TII, or TIII as specified	Per test/observation
03300 - Cast-In-Place Concrete	Testing: Lab Test, Field Tests Inspection: Forms, Slabs, Reinforcement, Conc. mix, placement, curing, embedded items	TI, TII, or SI as specified	Daily
04060 - Masonry Grout	Testing: Mortar and Grout Verification of mixes.	TI	Per Test
04220 - Concrete Masonry Units	Testing: Strength tests Inspection: Placement, bond beams, openings, pilasters, reinforcement, grouting	TII or SI	Daily
05120 - Structural Steel	Testing: Bolting, Shop & Field Welding Inspection: Welding, fasteners, submittals, detail compatibility	TII or SI	Per observation
05210 - Steel Joists	Testing: Bolting, Shop & Field Welding Inspection: Welding, fasteners, materials, submittals, detail compatibility	TII or SI	Per observation
05300 - Metal Deck	Inspection: Welding, fasteners, materials, submittals, detail compatibility	TII or SI	Per observation
05400 - Cold Formed Metal Framing	Inspection: Welding, fasteners, materials, submittals, detail compatibility	TII or SI	Per observation
07530 - Elastomeric Membrane Roofing	Full time inspection of roofing installation.	Wal-Mart Independent Roofing Inspector (IRI)	Completion of Roofing
09650 - Resilient Flooring	Testing: Moisture Test of concrete slab	T1	Per Test

ACKNOWLEDGEMENTS

Each appropriate representative (as applicable) shall sign below:

Owner: _____	Firm: _____	Date: _____
Contractor: _____	Firm: _____	Date: _____
AOR: _____	Firm: _____	Date: _____
CEC: _____	Firm: _____	Date: _____
SER: _____	Firm: _____	Date: _____
SI-S: _____	Firm: _____	Date: _____
SI-T: _____	Firm: _____	Date: _____
ITL: _____	Firm: _____	Date: _____
F: _____	Firm: _____	Date: _____

If requested by engineer/architect of record or building official, the individual names of all prospective special inspectors and the work they intend to observe shall be identified.

Legend: AOR = Architect of Record
 SER = Structural Engineer of Record
 CEC = Civil Engineering Consultant
 SI-S = Special Inspector - Structural
 SI-T = Special Inspector - Technical
 ITL = Independent Testing Laboratory. (Testing Agency)
 F = Fabricator

END OF SECTION

[Example Conformance Letter Architect and Civil Engineer – note all items in parentheses are notes or items to be edited for each individual project]

[Date]

[Mr. Construction Manager]

Wal-Mart Construction
Sam M. Walton Development Complex
2001 S. E. 10th Street
Bentonville, Arkansas 72716

[Re: Supercenter (Store #xxx) – City, State]

[Dear Construction Manager:]

The purpose of this letter is to state to Wal-Mart Stores, Inc. that, to the best of our knowledge, the construction on the above referenced project has been completed in substantial conformance with the approved Contract Documents as required by the Authority Having Jurisdiction and with the provisions of the applicable building code. The owner's testing and inspection agency, [Testing and Inspection Agency], provided us with periodic reports as well as a final report. Those reports state that [Testing and Inspection Agency] performed all of the on-site special inspection and testing. The testing agency reported that the work requiring special inspection was, to the best of the inspector's knowledge, in conformance [subject to the exceptions listed below,] with the approved plans, specifications, and applicable workmanship provisions of the code.

We performed construction observation visits as required by the Authority Having Jurisdiction and we reviewed the reports by [Testing and Inspection Agency]. To our knowledge, based on reports by [Testing and Inspection Agency] and our construction observations, no outstanding items exist [the only outstanding items are: xxx].

Sincerely,

ARCHITECTURAL FIRM [CIVIL ENGINEERING FIRM]

[Include a seal, signature and date of signature]

Architect of Record [CIVIL ENGINEER OF RECORD]

cc: File

[Example Conformance Letter Testing and Inspection Agency – note all items in parentheses are notes or items to be edited for each individual project]

[Mr. Construction Manager]

Wal-Mart Construction
Sam M. Walton Development Complex
2001 S. E. 10th Street
Bentonville, Arkansas 72716

[Re: Supercenter (Store #xxx) – City, State]

[Dear Construction Manager:]

The purpose of this letter is to state to Wal-Mart, the Architect of Record and the Engineer of Record that, to the best of our knowledge, the construction on the above referenced project has been completed in substantial conformance with the approved Contract Documents and with the provisions of the applicable building code. In the capacity of owner's testing and inspecting agency, [Testing and Inspection Agency] issued periodic reports as well as a final report. Those reports state that [Testing and Inspection Agency] performed all of the on-site special inspection and testing. [Testing and Inspection Agency] reported that the work requiring special inspection was, to the best of the inspector's knowledge, in conformance [subject to the exceptions listed below,] with the approved plans, specifications, and applicable workmanship provisions of the code. This Conformance Letter confirms the content and conclusions of the periodic and final report issued by [Testing and Inspection Agency].

To our knowledge no outstanding items exist [the only outstanding items are: xxx].

Sincerely,

[Testing and Inspection Agency]

[Include a seal, signature and date of signature]

cc: [ARCHITECT OF RECORD]
[ENGINEER OF RECORD]

SECTION 01459 – NEUTRALIZATION ENCLOSURE QUALITY CONTROL

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Neutralization Enclosure.
- B. Related Sections:
 - 1. Section 15700 - Heating, Ventilating, And Air Conditioning Equipment. Air Curtains.

1.2 NEUTRALIZATION ENCLOSURE

- A. The entire area of the Sales floor plus additional areas as indicated which have open access to the vestibule air entrance system is defined as a "positive" air pressurization area for the purpose of maintaining a constant internal air pressure.
- B. Contractor shall provide an air tight enclosure defining the neutralization area as indicated including, but not be limited to, the following:
 - 1. Perimeter wall construction.
 - 2. Internal wall construction.
 - 3. Penetrations of walls defining the area.
- C. Upon completion of neutralization perimeter wall and penetrations, the air curtain manufacturer specified in Section 15700 shall have complete access to the construction areas for the purpose of determining the acceptance level of the neutralization enclosure.
- D. Contractor shall cooperate with and assist manufacturer's representative and correct deviations.

1.3 SUBMITTALS

- A. Closeout Submittals: Upon completion of construction but prior to final acceptance, complete, sign, and submit Certification of Project Quality Assurance in accordance with requirements of Section 01770. Certification form is included at the end of this section.

1.4 QUALITY ASSURANCE

- A. Monitor quality of construction provided by Contractor, subcontractors, suppliers, manufacture's, including products, services, site conditions, and workmanship.
- B. Comply with manufacturer's instructions and specifications, including each step in sequence of installation.
 - 1. Should manufacturer's instructions conflict with Contract Documents, request clarification from Architect before proceeding.
- C. Comply with specified standards as a minimum level of quality for the Work except where more stringent tolerances, codes, local governing officials, or specified requirements indicate higher standards or more precise workmanship.
- D. Perform Work by persons who are thoroughly qualified and trained in their respective trade to produce workmanship of specified quality.
- E. Secure products in-place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion, or disfigurement.

1.5 PRE-CONSTRUCTION MEETING

- A. Contractor shall schedule a pre-construction meeting in advance of Work defining the construction of the neutralization wall. Contractor, Air Curtain Manufacturer's Representative (Section 15700), and primary subcontractors shall attend meeting.
 - 1. Notify the Wal-Mart Construction Manager 7 days in advance of scheduled meeting date.
- B. Contractor shall be responsible for preparing and distributing a meeting agenda at least two 2 days before the scheduled meeting. The agenda shall, as a minimum, address the following issues.
 - 1. Discuss the purpose of the neutralization construction as defined herein. Review in detail the scope of Work relating to construction of wall.
 - 2. Coordination of construction efforts between trades in building the perimeter walls of neutralization area.
 - 3. Responsibilities for sealing penetrations of neutralization wall.
 - 4. Determination of acceptable neutralization wall construction.
 - 5. Review details and specifications regarding Air Curtain construction and equipment and submit information.
- C. Contractor shall record the proceeding of the meeting and prepare minutes reflecting the conversations and discussions. Copy each attendee in addition to the Wal-Mart Construction Manager.

PART 2 - PRODUCTS

Not Used.

PART 3 - EXECUTION

3.1 CONTRACTOR FIELD INSPECTION AND TESTING

- A. Inspect Work provided under this Contract to ensure Work is in compliance with Contract requirements.
- B. Examination Of Work: Performed prior to beginning Work and prior to beginning each segment of Work and includes:
 - 1. Review of Contract requirements.
 - 2. Review of shop drawings and other submittal data after return and approval.
 - 3. Examination to assure materials and equipment conform to Contract requirements.
 - 4. Examination to assure required preliminary or preparatory Work is complete.
- C. Initial Inspection: Performed when representative portion of each segment of Work is completed and includes:
 - 1. Performance of required tests.
 - 2. Quality of workmanship.
 - 3. Review for omissions or dimensional errors.
 - 4. Examination of products used, connections and supports.
 - 5. Approval or rejection of inspected segment of Work.
- D. Follow-Up Inspections: Performed daily and more frequently as necessary to assure noncomplying Work has been corrected.
- E. No components of the neutralization wall shall be covered or concealed within construction before Work is examined and found acceptable with respect to neutralization wall construction.

END OF SECTION

**NEUTRALIZATION ENCLOSURE
CERTIFICATION OF PROJECT QUALITY ASSURANCE**

Project Location: _____ Date: _____

(City)

(State)

Project Number: _____ Store Number: _____

The following project items have been completed in accordance with the Contract Documents and found acceptable by the undersigned based on material tests and field inspections.

PROJECT ITEM

- ☐ Exterior perimeter construction of neutralization wall.
- ☐ Penetrations of exterior perimeter walls which define neutralization area.
- ☐ Perimeter seal between roof edge and exterior wall defining neutralization wall.
- ☐ Continuous seal between interior neutralization wall roof construction.
- ☐ Penetrations of interior walls which define neutralization area.
- ☐ Installation of air curtains.
- ☐ Continuous RTU Sales Floor Fan Operation (pressurization / neutralization) during store operation hours.
- ☐ Construction detailing including, but not limited to, the following:

ARCHITECTURAL DRAWINGS

- ☐ Neutralization Wall as indicated on Floor Plan and per Floor Plan General Note indicating Neutralization Wall requirements, Sheet A-1.
- ☐ Wall Section between Stockroom and Sales Area, Sheet _____, Detail _____.
- ☐ Wall Section between Stockroom and Corridor, Sheet _____, Detail _____.

PLUMBING DRAWINGS

- ☐ Piping/Conduit Penetration at Neutralization Wall, Sheet _____, Detail _____.

SPECIFICATIONS

- ☐ Expanding Foam Sealant installed at penetrations as specified in Section 07900 - Joint Sealants.
- ☐ Airtight Firestopping Sealant installed at Fire Rated penetrations as specified in Section 07840 - Firestopping.

Statement of Conformance:

This Certification is provided as a Record Document. The undersigned hereby declares and certifies that the aforementioned items of construction have been completed in accordance with Contract Documents and the structure is considered ready for its intended use.

CONTRACTOR:

(Contact name of Contractor)

(Contractor signature and Title of Signatory)

END OF FORM

SECTION 01500 – TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Temporary Utilities: Electricity, lighting, heat, ventilation, telephone service, water, and sanitary facilities.
 - 2. Temporary Controls: Barriers, enclosures and fencing, signage protection of the Work, and water control.
 - 3. Construction Facilities: All-weather access roads, parking, progress cleaning, temporary buildings, and staging areas.

1.2 TEMPORARY ELECTRICITY

- A. Connect to existing power service. Owner will pay cost of electricity used. Power consumption shall not disrupt Owner's need for continuous service. Exercise measures to conserve energy.
- B. Provide adequate distribution equipment, wiring, and outlets to provide single-phase branch circuits for power and lighting. Provide temporary feeders to limit voltage loss to 5% overall from local utility power lines to provide electric requirements for project during construction.

1.3 TEMPORARY LIGHTING

- A. Provide and maintain lighting for construction operations. Provide minimum of 20 footcandles illumination for work areas.
- B. Permanent building lighting may be utilized during construction.

1.4 TEMPORARY HEAT

- A. Provide and pay for heat devices and heat as required to maintain specified conditions for construction operations.
- B. Prior to operation of permanent equipment for temporary heating purposes, verify that installation is approved for operation, equipment is lubricated and filters are in place. Provide and pay for operation, maintenance, and regular replacement of filters and worn or consumed parts.
- C. Maintain minimum ambient temperature of 50 degrees F in areas where construction is in progress, unless indicated otherwise in specifications.

1.5 TEMPORARY VENTILATION

- A. Ventilate enclosed areas to assist cure of materials, to dissipate humidity, and to prevent accumulation of dust, fumes, vapors, or gases.

1.6 TELEPHONE SERVICE

- A. Provide, maintain and pay for telephone service to field office.

1.7 TEMPORARY WATER SERVICE

- A. Connect to existing water source. Owner will pay cost of water used. Exercise measures to conserve water.

1.8 TEMPORARY SANITARY FACILITIES

- A. Provide and maintain required chemical toilet facilities.
- B. Locate as directed by Wal-Mart Construction Manager. Maintain facilities clean and serviced as necessary and in compliance with local health code requirements.
- C. Existing facilities shall not be used.

1.9 TEMPORARY STORAGE CONTAINER

- A. Provide temporary storage container for storage of used tires only.
 - 1. If required by Authority Having Jurisdiction, obtain all permits necessary for usage and placement of temporary storage container.
 - 2. Provide temporary storage container of approximately 1,000 cubic feet.
 - 3. Provide temporary storage container for full duration of exterior enclosure scope of work shown on Sheet AC1.
 - 4. Coordinate with Store Manager to locate temporary storage container as approved by Authority Having Jurisdiction, when applicable.
 - 5. Coordinate with Store Manager and Construction Manager for temporary storage of batteries. Do not store batteries in temporary storage container.

1.10 BARRIERS AND CONSTRUCTION TRAFFIC SAFETY

- A. Protect non-owned vehicular traffic, stored materials, site and structures from damage.
- B. Provide barriers to prevent unauthorized entry to construction areas to allow for Owner's use of site, and to protect existing facilities and adjacent properties from damage from construction operations.
- C. Provide barricades and covered walkways required by governing authorities for public rights-of-way, to allow for Owner's use of site, and for public access to existing building.
 - 1. Erect barricades using 1/2" plywood on 2 x 4 framing. Supports shall be as required to uphold barricade. Verify requirements with Wal-Mart Construction Manager.
 - 2. Construct 8'-0" high unless otherwise directed by owner.
 - 3. Shopping carts shall not be used as barricades.
- D. When operating any motorized construction equipment in areas where customers or Wal-Mart Associates are present, provide a spotter (or signal person) whose sole job responsibility shall be to ensure safe operation, including directing traffic and keeping area of traffic clear of people.

1.11 WATER CONTROL

- A. Grade site to drain. Maintain excavations free of water. Provide, operate, and maintain pumping equipment.
- B. Protect site from puddling or running water. Provide water barriers as required to protect site from soil erosion.
- C. The Contractor shall at all times protect all activities of his construction, excavations, fill areas, embankments, trenches structures or building from damage from rainwater, spring water, ground water, backing up of drains, sewers and all other water encountered during his operations. He shall provide all pumps, equipment and enclosures necessary to provide adequate protection.

1.12 EXTERIOR ENCLOSURES

- A. Provide temporary weather-tight closure of exterior openings to provide acceptable working conditions and protection for Products, to allow for temporary heating and maintenance of required ambient temperatures identified in individual specification Sections, and to prevent entry of unauthorized persons.
- B. Provide access doors with self-closing hardware and locks.

1.13 INTERIOR ENCLOSURES

- A. Provide temporary partitions as required to separate work areas from Owner occupied areas, to prevent penetration of dust and moisture into Owner occupied areas, and to prevent damage to existing materials and equipment.
- B. Framing and plywood sheet materials with closed joints and sealed edges at intersections with existing surfaces.
- C. Temporary Dust Partitions: Installation and removal of temporary dust partitions shall be scheduled with a minimum of 3 days prior notification to Wal★Mart Construction Manager and/or Store Manager. Maintain temporary dust partitions to seal openings to Wal★Mart -occupied areas. These shall be scheduled, installed, and removed as required and directed by Wal★Mart Construction Manager and may not be indicated on the Drawings. Install partitions prior to demolition of existing walls and maintain in dust tight condition until the completion of the new construction. It is the Contractor's responsibility to prohibit dust and debris from entering the Sales area or any Wal★Mart-occupied areas and to obtain approval from AHJ for materials/construction configuration and phasing of temporary enclosures.
 - 1. Dust Drapes:
 - a. Covering: 6 mil. clear poly sheeting (if allowed by the Authority Having Jurisdiction); otherwise use Griffolyn type 55 ASFR, anti-static, fire retardant sheeting. Overlap sheeting at joints a minimum 2'-0" and continuously tape joints. Attach sheeting from ceiling to finish floor for dustproof condition. If attachment to ceiling is impossible, light framing shall be installed with sheeting attached all around to prohibit dust penetration.
 - 2. Type A Partitions:
 - a. Framing: Light gauge metal framing (refer Section 05400) or framing material approved by Authorities Having Jurisdiction (AHJ). Provide continuous 2x4 top and bottom plates and continuous bridging and bracing. Continue top plate to bottom side of roof deck.
 - 1) Walls up to 14'-0" may use 3-5/8" - 22 gauge metal studs at 24" o.c. or 2x4's at 16" o.c.
 - 2) Walls higher than 14'-0" may use 6" - 20 gauge metal studs at 24" o.c. or 2x6's at 16" o.c.
 - b. Covering: Install continuous 6 mil clear poly sheets (if allowed by the Authority Having Jurisdiction); otherwise use Griffolyn type 55 ASFR, anti-static, fire retardant sheeting. Install from finish floor to roof deck. Tape all joints. Install 1/2" C-D plywood over 6 mil poly. Install 4'x8' sheets horizontally from finish floor to bottom of roof deck. Insure that blocking is provided behind each joint. Provide sealant at bottom of plywood at finish floor and continuous sealant against plate on other side.
 - 3. Type B Partitions:
 - a. Framing: (same as Type A above).
 - b. Covering: Install continuous 6 mil clear poly sheets (if allowed by the Authority Having Jurisdiction); otherwise use Griffolyn type 55 ASFR, anti-static, fire retardant sheeting. Install from finish floor to roof deck. Tape all joints. Install 1/2" C-D plywood over 6 mil poly. Install 4'x8' sheets horizontally to bottom of finish ceiling. Extend 6 mil poly to bottom of roof deck. Insure that blocking is provided behind each joint. Provide sealant at bottom of plywood at finish floor and continuous sealant against plate on other side.
 - 4. Type D Partitions:
 - a. Framing: (same as Type A above).
 - b. Covering: At interior face of partition, install continuous 6 mil clear poly sheets (if allowed by the Authority Having Jurisdiction); otherwise use Griffolyn type 55 ASFR, anti-static, fire retardant sheeting. Install from finish floor to roof deck. Tape all joints. Install 1/2" C-D plywood over 6 mil poly. Install 4'x8' sheets horizontally to bottom of roof deck. Insure that blocking is provided behind each joint. At exterior face of partition, install 30 gauge, 24" wide corrugated metal panels as shown on the Drawings. Fill wall cavities with R-13 batt insulation. Provide sealant at bottom of plywood at finish floor and continuous sealant against plate on other side.
 - 5. Doors:
 - a. Single acting doors, opening out, with sturdy closer, closing against gasketed stops on frame to reduce passage of dust.

6. Sealing:
 - a. Seal perimeter of partitions and doors to prevent passage of dust. At Type A and B partitions, tape fastener depressions, joints between panels and joints between panels and floors, ceiling and columns with 2 in. wide pressure sensitive tape.
7. Mats:
 - a. Provide mats at doors to reduce tracking of dust. Replace or clean daily.

1.14 FIELD OFFICES AND SHEDS

- A. Contractor's Office:
 1. Size as required for Contractor's use and to provide space for project meetings.
 2. Adequate electrical power, lighting, heating, and cooling to maintain human comfort.
 3. Office space with desk and chair, layout table, plan rack, and facilities for storage of Project Record Documents.
 4. Furnishings in meeting area:
 - a. Conference table and chairs for at least eight persons.
 - b. Racks and files for Project Record Documents in, or adjacent to, the meeting area.
 - c. Other furnishings: Contractor's option.
 5. Contractor's office and sheds not to be used as living accommodations.
- B. Storage Sheds: Structurally sound, weathertight, on proper foundations, with floors raised above ground.
- C. Locate office and sheds minimum 30 feet from structures.

1.15 CONSTRUCTION AIDS

- A. Provide construction aids required to facilitate execution of Work, including stairs, ladders, ramps, staging, platforms, railings, cranes, scaffolds, hoists, chutes, runways, and other required facilities and equipment.
- B. Such apparatus, equipment and construction shall meet requirements of applicable OSHA (Federal), State and Local Safety and Labor Laws.
- C. Store employees shall not be allowed access to scaffolds, ladders, and hoists.
- D. Coordinate crane service required for erection of structural steel, installation of HVAC Rooftop Units, and other crane services as required to accommodate Wal-Mart's needs.

1.16 PROTECTION OF EXISTING WORK

- A. The existing building shall be protected from moisture, dust and debris. Install dust partitions or drapes as shown or as required to keep dust and moisture from the building premises.
- B. Damage to existing property (including merchandise), which occurs during the process of construction shall be repaired or replaced at no additional cost to the Owner. Contractor shall pay costs for damaged incurred.
- C. Provide suitable temporary watertight coverings over openings as required to protect interior work from inclement weather and related/adjacent construction areas.
- D. Maintain benchmarks, monuments and other reference point. If disturbed or destroyed, replace as directed.
- E. Protect existing adjacent streets, sidewalks, curbs, buildings and property, including trees, lawns and plants.

1.17 PROTECTION OF INSTALLED WORK

- A. Protect installed Work; provide special protection where specified in individual specification Sections.

- B. Provide temporary and removable protection for installed Products. Control activity in immediate work area to minimize damage.
- C. Provide protective coverings at walls, projections, jambs, sills, and soffits of openings.
- D. Protect finished floors, stairs, and other surfaces from traffic, dirt, wear, damage, or movement of heavy objects, by protecting with durable sheet materials.
- E. Minimize traffic and storage on roofed surfaces. If traffic or storage is necessary, obtain recommendations for protection from roofing material manufacturer.
- F. Do not operate cranes or other heavy equipment on concrete floor slabs if damage could result from such operations.
- G. Prohibit traffic from landscaped areas.

1.18 SECURITY

- A. Maintain the integrity of the existing building security and security systems at all times. Provide security and facilities to protect Work and Owner's operations from unauthorized entry, vandalism, and theft.
- B. Obtain permission and coordinate with Owner's security program through Wal-Mart Construction Manager at least 12 hours prior to the modification of any existing security system.
- C. Provide continuous security at openings cut into existing exterior walls and roofs.

1.19 ACCESS ROADS AND PARKING

- A. Construct and maintain temporary all weather roads accessing public thoroughfares to serve building pad and construction staging area.
- B. Extend and relocate as Work progress requires. Provide detours necessary for unimpeded traffic flow.
- C. Provide and maintain access to fire hydrants, free of obstructions.
- D. Provide temporary parking areas to accommodate construction personnel.
- E. When site space is not adequate, provide additional off- site parking.
- F. Provide 100' x 100' all weather material staging area exclusive of building pad.

1.20 NOISE CONTROL

- A. Demolition and other Work that disturbs surrounding Wal-Mart Store areas shall only be allowed in the following categories and time restrictions:
 - 1. Low Level Noise: Assembling trades such as electricians, ceiling installers, painters, tapers, etc.. Excludes all hammering and impact drilling. Low-level noise operations are allowed during Wal-Mart Store operational hours.
 - 2. Moderate Level Noise: Trades include gypsum board installers, stud partition installers, duct installers, etc. Includes occasional and intermittent hammering, screw drilling, etc. Excludes impact drilling and concrete sawing. Moderate level noise operations may be allowed during Wal-Mart Store operational hours upon approval of Wal-Mart Construction Manager or Store Manager.
 - 3. High Level Noise: Constant loud and high pitched noise produced by impact drilling, concrete sawcutting, hammering of ductwork, and all demolition work. High-level noise operations shall be restricted to Wal-Mart Store non-operational hours.

1.21 PROGRESS CLEANING

- A. Maintain areas free of waste materials, debris, and rubbish. Maintain site in a clean and orderly condition.
- B. Remove debris and rubbish from pipe chases, plenums, attics, crawl spaces, and other closed or remote spaces, prior to enclosing the space.
- C. Broom and vacuum clean interior areas prior to start of surface finishing, and continue cleaning to eliminate dust.
- D. Remove waste materials, debris, and rubbish from site weekly and dispose off-site.

1.22 SIGNAGE

- A. Temporary Construction Signage: Provide temporary signage for identification as required due to obscurity caused by construction. Provide signage for traffic control and safety information. Provide temporary pavement striping for traffic control and pedestrian safety. Provide temporary handicap parking spaces if existing spaces are at a non-accessible location to the building entrance.

1.23 INFORMATION/SAFETY BOARD

- A. Provide 4'x8'x3/4" C/D exterior glue plywood to be attached on the existing exterior wall at a location designated by the Wal-Mart Construction Manager.
- B. Information/Safety Board shall be used to communicate safety, state & federal, hiring, OSHA and EPA requirements, bulletins and other information required for the construction of this Project.
- C. The board shall contain but not be limited to the following:
 - 1. OSHA Safety Requirements.
 - 2. Federal and State Hiring Regulations.
 - 3. Pertinent State, Local, and Federal Employment Regulations.
 - 4. Building Permits.
 - 5. Emergency telephone numbers.
 - 6. Job Site Safety Meeting notifications.
 - 7. EPA Permits or Notification regarding Asbestos or other Toxic or Hazardous Materials.
 - 8. Other information required to comply with applicable OSHA, EPA and Federal safety laws.
- D. Protect posted information with either plastic sleeves stapled to the board or 6 mil clear plastic sheathing over entire board providing access for posting of additional information.

1.24 POSTED CONSTRUCTION SCHEDULE

- A. Post construction schedule and Phasing Plans (Floor Tile, Paint) in back office area for clear viewing by all trades and workmen. Provide names/telephone numbers of Wal★Mart Construction Manager, General Contractor Project Manager, Superintendent and Phase I Supervisor. Maintain most recent and updated version of schedule.

1.25 STORAGE OF CONSTRUCTION MATERIALS

- A. The Work area may be used to store materials and equipment as approved by the Wal★Mart Construction Manager. Provide storage trailers as required for storage of other materials. The Contractor shall not use Wal★Mart trailers or storage warehouses for materials/equipment storage.
- B. The Contractor may not store materials on site except for what is in use for the current work.
- C. Storage of flammable/volatile liquid and paint materials within building is prohibited. Remove flammable materials, volatile liquids and paint daily from store.

- D. Cover and protect material in transit.
- E. Stored materials shall be available for inspection by Owner at all times.
- F. Wal★Mart is NOT responsible for the loss of any construction materials or the Contractors' loss of equipment or tools.

1.26 TEMPORARY FIRE PROTECTION

- A. Contractors and sub-contractors and their agents and employees shall comply with local fire protection codes and OSHA Regulations.
 - 1. Provide a minimum of one U.L. listed 2A:20BC dry chemical fire extinguisher, or one standard U.L. listed 2-1/2 ga. Water (E-10) and one U.L. listed 10BC carbon dioxide fire extinguisher mounted together, in each of the following areas:
 - a. Each 3000 sq. ft. of work area or fraction thereof with minimum of two extinguishers.
 - 2. Contractor's superintendent, or other assistant superintendents, shall be appointed as project fire warden for entire construction period.
 - 3. Train workmen in proper use of each type fire extinguisher.
 - 4. Post telephone number of fire department, specific information on location of on-site fire fighting equipment and procedure to be followed in event of fire.
 - 5. Maintain free access at all times to fire extinguisher equipment, street fire hydrants, and outside connections for standpipe hose systems.
- B. Maintain exit facilities and access thereto free of material and other obstructions. If any exits are rendered inoperative during remodeling, provide the same number of temporary exits and maintain a sufficient number of required exits and exit width as required by the adopted building code and AHJ.

1.27 NON-SMOKING POLICY

- A. Smoking will not be allowed within the building or customer/associate traffic areas at any time.

1.28 REMOVAL OF UTILITIES, FACILITIES, AND CONTROLS

- A. Remove temporary above grade or buried utilities, equipment, facilities, materials, prior to Final Walk-Thru inspection.
- B. Clean and repair damage caused by installation or use of temporary work.
- C. Restore existing facilities used during construction to original condition. Restore permanent facilities used during construction to specified condition.
- D. At completion of construction, remove fencing, guardrails, barricades, temporary signage and temporary coverings.

PART 2 - PRODUCTS

Not Used.

PART 3 - EXECUTION

Not Used.

END OF SECTION

SECTION 01600 – PRODUCT REQUIREMENTS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Basic Product Requirements.
 - 2. Product Options.
 - 3. Product Substitution Requirements.
 - 4. Direct Purchase Products.
 - 5. Product Delivery Requirements.
 - 6. Product Storage and Handling Requirements.
- B. Related Sections:
 - 1. Section 01640 - Owner Furnished Products: Requirements related to Owner and Wal-Mart furnished products.

1.2 DEFINITIONS

- A. Products: Defined as new material, machinery, components, equipment, fixtures, and systems forming the Work. Does not include machinery and equipment used for preparation, fabrication, conveying and erection of the Work. Products may also include existing materials or components required for reuse.

1.3 BASIC PRODUCT REQUIREMENTS

- A. For products or workmanship specified by association, trade, or other consensus standards, comply with requirements of the standard, except when more rigid requirements are specified or are required by applicable codes.
- B. Conform to reference standard by date of issue current on date of Contract Documents.
- C. Obtain copies of standards when required by Contract Documents.
- D. Should specified reference standards conflict with Contract Documents, request clarification from Architect before proceeding.
- E. The contractual relationship, duties, and responsibilities of the parties to the Contract shall not be altered from the Contract Documents by mention or inference otherwise in any reference document.

1.4 PRODUCT OPTIONS

- A. Products Specified by Naming a Single Manufacturer and/or Model Number: Provide specified product only.
- B. Products Specified by Naming Two or More Manufacturers: Provide specified products of manufacturers and models named only, meeting specifications and specified requirements.
- C. Products Specified by Reference Standards or by Description Only: Provide any product meeting specified reference standard or description.

1.5 PRODUCT SUBSTITUTION REQUIREMENTS

- A. No substitutions permitted. Provide specified products only.

1.6 DIRECT PURCHASE PRODUCTS

- A. Direct purchase products shall be purchased directly by the General Contractor from the Manufacturer or the Pre-Negotiated Supplier as specified in the individual Specifications Sections. Direct purchased products shall not be purchased by any subcontractor regardless of the discipline or subcontract involved in the installation.
- B. See individual Specifications Sections for requirements regarding items to be purchased direct. Direct purchase products include the following as applicable:
 - 1. Fiberglass Reinforced Plastic Panels (FRP): Section 06610.
 - 2. Flexible Plastic Traffic Doors: Section 08383.
 - 3. Ceramic Tile: Section 09310.
 - 4. Toilet Partitions: Section 10160: Stainless Steel Compartments and Screens.
 - 5. Toilet Accessories: Section 10810: All Contractor provided toilet accessories.
 - 6. Modular Multiple Lavatory System: Section 15410.
 - 7. Plumbing Fixtures: Section 15410: All plumbing fixtures, trim and accessories, including hose bibb, as applicable to toilets as shown on the Mechanical Drawings and Plumbing Fixture Schedules.
 - 8. Air Curtains: Section 15700.

1.7 PRODUCT DELIVERY REQUIREMENTS

- A. Transport and handle products in accordance with manufacturer's instructions. Deliver materials and equipment at such stages of work in order to expedite the Work and minimize storage requirements.
- B. Schedule delivery for Wal-Mart and Owner furnished and installed equipment such that upon delivery of equipment to the site, sufficient equipment provisions are in place ready for installation and hook-up.
- C. Promptly inspect shipments to assure that products comply with requirements, quantities are correct, and products are undamaged.
- D. Provide equipment and personnel to handle products by methods to prevent soiling, disfigurement, and damage. Do not use damaged materials and equipment.

1.8 PRODUCT STORAGE AND HANDLING REQUIREMENTS

- A. Provide safe storage of products.
- B. Store and protect products in accordance with manufacturer's instructions, with seals and labels intact and legible. Store sensitive products in weather-tight, climate controlled enclosures.
- C. For exterior storage of fabricated products, place on sloped supports, above ground.
- D. Provide off-site storage and protection when site does not permit on-site storage or protection.
- E. Cover products subject to deterioration with impervious sheet covering. Provide ventilation to prevent condensation.
- F. Store loose granular materials on solid flat surfaces in a well-drained area. Prevent mixing with foreign matter.
- G. Provide equipment and personnel to store products by methods to prevent soiling, disfigurement, or damage.
- H. Arrange storage of products to permit access for inspection. Periodically inspect to assure products are undamaged and are maintained under specified conditions.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Provide interchangeable components of the same manufacturer, for components being replaced.
- B. Do not use materials and equipment removed from existing premises, except as specifically permitted by the Contract Documents.

PART 3 - EXECUTION

Not Used.

END OF SECTION

SECTION 01640 – OWNER FURNISHED PRODUCTS

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Wal-Mart Furnished Products.
- B. Related Sections:
 - 1. Section 01600 - Product Requirements: General product requirements related to all products.

1.2 DEFINITIONS

- A. Owner: Defined in Document 00800 - Supplementary Conditions.
- B. Wal-Mart Furnished Products: Products furnished to the site and paid for by Wal-Mart as specified hereinafter as Wal-Mart furnished.

1.3 RESPONSIBILITIES FOR WAL-MART FURNISHED PRODUCTS

- A. Product Delivery: Product supplier will deliver products to jobsite for Contractor to receive on delivery date established by Contractor. Supplier will contact Contractor after Award of Contract to establish a product delivery and installation date, quantities of materials, and a coordination procedure. In the event Supplier contact cannot be made, contact Wal-Mart Store Planning at (479) 277-2633 or (479) 204-0173.
- B. Wal-Mart Responsibilities:
 - 1. Responsibilities by Wal-Mart shall correspond to the party furnishing the product as specified hereinafter.
 - 2. Arrange for delivery of supplier furnished shop drawings, product data, samples, and installation instructions to Contractor.
 - 3. Arrange and pay for product delivery to site, in accordance with agreed upon construction management plan in Section 01320.
- C. Contractor Responsibilities:
 - 1. Review supplier furnished shop drawings, product data, and samples under provisions of Section 01330. Submit to supplier with notification to Architect and Wal-Mart's Construction Department of any discrepancies or problems anticipated in the use the products.
 - 2. Receive and unload products at the Site when specified.
 - 3. Verify quantity of products furnished with shop drawings, Final Field Use Drawings, or Bills of Lading as applicable.
 - 4. Promptly inspect products upon receipt for shortages, damaged, or defective items; report to Wal-Mart's Construction Department. Upon notification, Wal-Mart will arrange for delivery of replacement products.
 - 5. Handle products at site, including uncrating, storage, and protection unless otherwise specified.
 - 6. Install products when specified.
 - 7. Provide for installation and hook-up at time of delivery of Wal-Mart installed equipment.
 - 8. Protect installed products from damage.
 - 9. Replace items damaged by Contractor.
 - 10. Remove trash, debris, and rubbish.
 - 11. Manufacturing Defects: Report suspected product manufacturing defects to Wal-Mart Construction Manager and Product Supplier. Upon notification, Wal-Mart will arrange for repair of product manufacturing defects.

1.4 CONTRACTOR INSTALLATION OF WAL-MART FURNISHED PRODUCTS

- A. Install in accordance with manufacturer's instructions.

- B. Unpack and set in place, plumb, level, and secure.
- C. Connect to mechanical, plumbing, and electrical systems as required.
- D. Remove packaging and clean products.
- E. Test and adjust as required.

PART 2 PRODUCTS

NOT USED

PART 3 EXECUTION

3.1 PRODUCTS FURNISHED BY OTHERS

- A. Equipment may be furnished by Wal-Mart for installation by either the Contractor or by others as specified in the Products Furnished by Others Schedule included hereinafter.
- B. The Products Furnished by Others Schedule includes a listing of Owner furnished products as required in the listed specifications sections or drawings. Refer to the applicable drawings or individual sections for specific details regarding Owner furnished products therein. The Schedule provides summary information only and does not preclude or supersede requirements contained in the individual sections. Contact Wal-Mart Contracts Administration for resolution of discrepancy between Schedule and Drawings or individual Sections.
- C. Coordinate installation of Wal-Mart installed products and equipment. Work in harmony with all subcontractors, suppliers and manufacturers. Unless otherwise specified, Contractor shall coordinate delivery date of Wal-Mart furnished equipment. If significant order lead times are required for a specific product, lead time shall be as specified for that product.
- D. Meat Market equipment, fixtures, and cases shall be set in place by the Equipment Manufacturer in the locations shown on the Drawings. If discrepancy occurs or locations are in question, contact the Wal-Mart Construction Manager for clarification and directive prior to proceeding with the Work.

3.2 CONTACTS

- A. Contact information for vendors of Wal-Mart Furnished Equipment will be made available to the Contractor at the Pre-Construction Conference or upon request by the Contractor to the Construction Manager. A limited list of contacts are as follows:
 - 1. Floral Cases:
 - a. Börgen, 1901 Bell Avenue, Suite 2, Des Moines, IA 50315. Attn: Jolene Phelps (479) 936-1027.
 - b. Structural Concepts, 888 Porter Rd., Muskegon, MI 49441.
 - 2. Vision Center Millwork/Counters:
 - a. QualServ (Air Systems), 7400 South 28th, Fort Smith, AR 72908. Attn: Bill Steelman (800) 643-2980.
 - 3. 18" x 12" Cart Corral Signs "Return Flatbeds & Carts Here" (Part No. 9022):
 - a. Wal-Mart Sign Shop, Fax (479) 204-0005. Attn: Vinyl Room, (479) 204-7065, (479) 204-7063, Email Steve.Herndon@wal-mart.com
 - 4. Pharmacy Automated Product Machine:
 - a. Parata Systems, 2600 Meridian Parkway, Durham, NC 27713, (888) 727-2821.

PRODUCTS FURNISHED BY OTHERS SCHEDULE

03/06/09

Specification Section	Description	Furnished By	Received By	Installed By	Order Date*	Delivery Date*
05210	Steel Joists and Joist Girders	Wal-Mart	Contractor	Contractor		Contractor to Schedule
05300	Metal Roof Decking	Wal-Mart	Contractor	Contractor		Contractor to Schedule
Architectural Drawings	Cart Corrals with Signs	Wal-Mart	Contractor	Contractor		
Architectural Drawings	Cart Rails (Tubing)	Wal-Mart	Contractor	Contractor		
05500	Roof Parapet Camera Support Assembly	Wal-Mart	Separate Contractor	Separate Contractor		Contractor to Schedule
Drawings	Interior Stainless Steel Pipe Bollards	Wal-Mart	Contractor	Wal-Mart		Wal-Mart to schedule
Drawings	Stainless Steel Floor Mounted Railing	Wal-Mart	Contractor	Wal-Mart		Wal-Mart to schedule
Drawings	Stainless Steel Angled Corner Guards	Wal-Mart	Contractor	Wal-Mart		Wal-Mart to schedule
Drawings	Interior Galvanized Steel Pipe Bollards (Except Contractor-provided core drilled bollards)	Wal-Mart	Contractor	Wal-Mart		Wal-Mart to schedule
Architectural Drawings	Wall Standards	Wal-Mart	Contractor	Contractor		Contractor to Schedule
Architectural Drawings	Wood Furring Strips for Wall Standards at Masonry Walls	Wal-Mart	Contractor	Contractor		Contractor to Schedule
Architectural Drawings	Courtesy Desk (Stand-alone type)	Wal-Mart	Contractor	Contractor		
Grocery Drawings	Deli Knee Board	Wal-Mart	Wal-Mart	Wal-Mart		
Architectural Drawings	Paper Towel Dispensers in Sales Area	Wal-Mart	Contractor	Contractor		
Architectural Drawings	Prefabricated Cash Wraps	Wal-Mart	Contractor	Contractor		
Architectural Drawings	Fitting Rooms	Wal-Mart	Contractor	Contractor		Contractor to Schedule
Architectural Drawings	Jewelry Cases	Wal-Mart	Contractor	Contractor		Contractor to Schedule
Architectural Drawings	Sporting Goods Cases	Wal-Mart	Contractor	Contractor		Contractor to Schedule
Architectural Drawings	Paint Booth Counter	Wal-Mart	Contractor	Contractor		Contractor to Schedule
Architectural Drawings	Ceiling Fan Cloud	Wal-Mart	Contractor	Contractor		Contractor to Schedule
Architectural Drawings	Missing Children Board	Wal-Mart	Contractor	Contractor		Contractor to Schedule
Architectural Drawings	Locking Schedule Board	Wal-Mart	Contractor	Contractor		Contractor to Schedule
Architectural Drawings	Recall Schedule Board	Wal-Mart	Contractor	Contractor		Contractor to Schedule
Architectural Drawings	Dry Erase Board	Wal-Mart	Contractor	Contractor		Contractor to Schedule
Architectural Drawings	Gift Registry Kiosk	Wal-Mart	Contractor	Contractor		Contractor to schedule
07721	Structural Roof Curbs	Wal-Mart	Contractor	Contractor		Contractor to

Specification Section	Description	Furnished By	Received By	Installed By	Order Date*	Delivery Date*
						Schedule
07721	Structural Roof Curb Adaptors	Wal-Mart	Contractor	Contractor		Contractor to Schedule
08411	Aluminum Storefront Doors (except interior and exterior – as applicable - manual swing entrance doors at Vision Center, which are provided by General Contractor)	Wal-Mart	Separate Contractor	Separate Contractor		Contractor to Schedule
08462	Aluminum Automatic Sliding Doors	Wal-Mart	Separate Contractor	Separate Contractor		Contractor to Schedule
08631	Fixed and Venting Skylights	Owner	Contractor	Contractor		Contractor to schedule
09650	Floor Tile, Tile Adhesive	Wal-Mart	Contractor	Contractor		Contractor to Schedule
09650	PVC Plank Flooring	Wal-Mart	Contractor	Contractor		Contractor to Schedule
09680	Carpet C-1 (Pharmacy)	Wal-Mart	Contractor	Contractor		Contractor to Schedule
09900	Paints and Primers (Limited Quantities)	Wal-Mart	Contractor	Contractor		Contractor to schedule
10440	Signage	Wal-Mart	Contractor	Separate Contractor		Contractor to Schedule w/Sign Dept.
10810	Soap Dispensers	Wal-Mart	Contractor	Contractor		Contractor to Schedule
10990	Floor Safe	Wal-Mart	Contractor	Contractor		
10990	Vision Center Entrance Canopy	Wal-Mart	Contractor	Contractor		
11140	Auto Service Equipment	Refer to Architectural Drawings for Schedule of Equipment				Contractor coordinate with equipment supplier
13810	Energy Management System	Separate Contractor	Separate Contractor	Separate Contractor		Contractor to Schedule
15600	Refrigeration and Refrigeration Equipment including Compressor Houses, Condenser/Evaporators, Cooler/Freezers	Separate Contractor	Separate Contractor	Separate Contractor		Contractor to coordinate w/ Refrigeration Dept.
Grocery Drawings	Refrigerated Cases	Wal-Mart	Separate Contractor	Separate Contractor		Contractor to Schedule
15700	Rooftop Air Conditioning Units	Wal-Mart	Contractor	Contractor		Contractor to Schedule
15700 (01455)	HVAC Test and Balance	Wal-Mart	Wal-Mart	Wal-Mart		Contractor to Schedule
15700	Vent Hood, Exhaust Fan, and Fire Suppression System	Wal-Mart	Contractor	Contractor		Contractor to Schedule
15700	Sales Area Air Handling Units	Wal-Mart	Contractor	Contractor		Contractor to Schedule
Grocery Drawings	R.O. Water Filtration System	Wal-Mart	Contractor	Contractor		Contractor to Schedule

Specification Section	Description	Furnished By	Received By	Installed By	Order Date*	Delivery Date*
15800	Drop Box Diffusers	Wal-Mart	Contractor	Contractor		Contractor to Schedule
16452	Track Busway System	Wal-Mart	Contractor	Contractor		Contractor to schedule delivery
16500	Specialty Lighting (Electronics, Produce)	Wal-Mart	Contractor	Contractor		Contractor to schedule delivery
Pharmacy Drawings	Pill Bays	Wal-Mart	Wal-Mart	Wal-Mart		Contractor to Schedule
Pharmacy Drawings	Wall Standards	Wal-Mart	Wal-Mart	Wal-Mart		Contractor to Schedule
Pharmacy Drawings	12" Convex Mirror	Wal-Mart	Contractor	Contractor		Contractor to Schedule
Architectural Drawings	Photo Lab Equipment	Wal-Mart	Wal-Mart	Wal-Mart (Contr. Hook-Up)		After Possession Date
Architectural Drawings	Modular Photo Lab (Casework)	Wal-Mart	Contractor	Contractor		Contractor to Schedule
Architectural Drawings	Rack Anchorages	Wal-Mart	Contractor	Contractor		After Racks installed
Architectural Drawings	High Stock Fixed Racks/Lockable Storage Rack Systems	Wal-Mart	Wal-Mart	Wal-Mart		Contractor to Schedule
Architectural Drawings	Stockroom Motorized Racks	Wal-Mart	Wal-Mart	Wal-Mart		Contractor to Schedule
Architectural Drawings	Bike Racks	Wal-Mart	Contractor	Contractor		Contractor to Schedule
16700	Telephone Service Installed	Wal-Mart	Wal-Mart	Wal-Mart		Contractor to Schedule
Electrical Drawings	Fire Alarm System	Separate Contractor	Separate Contractor	Separate Contractor		Contractor to Schedule
Architectural Drawings	Fire Extinguishers	Wal-Mart	Wal-Mart	Wal-Mart		Contractor to Schedule
Architectural Drawings	Balers/Compactors	Wal-Mart	Separate Contractor	Separate Contractor		Contractor to Schedule
Electrical Drawings	Power Poles for Cash Registers	Wal-Mart	Contractor	Contractor		Week of possession
Electrical Drawings	Pre-wired Power Poles	Wal-Mart	Contractor	Contractor		Contractor to Schedule
Drawings	Cash Registers	Wal-Mart	Wal-Mart	Separate Contractor		Week of possession
Drawings	Alarm Systems	Separate Contractor	Separate Contractor	Separate Contractor		Contractor to Schedule
Architectural Drawings	Vision Center Equipment/Casework	Wal-Mart	Wal-Mart	Wal-Mart Contr. Hook-Up		Contractor to Schedule
Drawings	Cooler/Freezer Case Bunker Cart Rails	Wal-Mart	Separate Contractor	Separate Contractor		Contractor to Schedule

Specification Section	Description	Furnished By	Received By	Installed By	Order Date*	Delivery Date*
16700	Telecommunications/Data Systems	Wal-Mart	Wal-Mart	Wal-Mart		Contractor to Schedule
Electrical Drawings	Electronic Article Surveillance (EAS) including pedestals, enunciators/ alarms, deactivators/scanners, rapid pads power supply for system	Separate Contractor	Separate Contractor	Separate Contractor		Separate Contractor
Pharmacy Drawings	Pharmacy Automated Product Machine (APM)	Wal-Mart	Wal-Mart	Wal-Mart		Contractor to schedule

* Dates are based on number of weeks prior to possession (unless noted otherwise).

END OF SCHEDULE

SECTION 01700 – EXECUTION REQUIREMENTS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
1. General Construction Requirements.
 2. Verification of Existing Conditions.
 3. Work Within and Adjacent to Existing Building Area.

1.2 GENERAL CONSTRUCTION REQUIREMENTS

- A. General Requirements:
1. All Work shall be done in a safe and workmanlike manner and in strict accordance with the local and/or State (if applicable) Building Codes, National Electric Code, ADA-ADAAGS and other Adopted Accessibility Standards, OSHA, and all applicable codes, regulations, ordinances and Authorities Having Jurisdiction.
 2. Each Subcontractor is responsible for having a thorough knowledge of all drawings and specifications in their related field. The failure to acquaint himself with this knowledge does not relieve him of any responsibility for performing his work properly. No additional compensation shall be allowed because of conditions that occur due to failure to familiarize workers with this knowledge.
 3. The existing building shall be protected from moisture, dust and debris. Install dust partitions or drapes as required and/or as directed by Wal★Mart Construction Manager to keep dust and moisture from the operating areas of the store.
 4. Any damage to Wal★Mart's property, which occurs during the process of construction shall be repaired/replaced at no additional cost to Wal★Mart; this includes all merchandise. Contractor shall pay the cost for all damaged merchandise.
 5. The Contractor shall maintain the integrity of the existing building security at all times. This includes keeping the building secure from persons, environmental elements or hazards. The Contractor shall be responsible to maintain the integrity of all existing security systems. The Contractor shall obtain permission from the Store Manager prior to the modification of any existing security system for the opening (demolition) of any exterior wall.
 6. The Contractor shall keep the work area clean and free of debris and remove all trash and debris from the construction area daily. No flammable materials or liquids may be stored in the existing building or in any new addition.
 7. Remove any existing items, services, finishes or surfaces as required for the installation of new construction. Provide furring for conduits and piping, shown or not, and finish out furring to match adjacent existing finishes.
 8. Repair, re-route, and extend all services, piping, conduit of existing items and equipment as required during the construction process for the complete installation and operations of new equipment. This includes all items shown or not shown on the Drawings. Reset existing equipment or related items as required for proper operation.
 9. Where existing finishes are to remain, clean, repair, patch and repaint as necessary to blend in with adjacent work. Coordinate with Wal★Mart Construction Manager.
 10. The Contractor shall be responsible for the timely ordering of materials to prohibit delays of the construction schedule of this Project. It is the responsibility of the Contractor to coordinate delivery of materials in a timely manner.
 11. It is imperative that the roof framing, decking and roofing system be completed immediately upon the demolition of the exterior wall to eliminate potential water damage or moisture infiltration. The Contractor shall keep the building watertight at all times.
 12. The General Contractor shall respond to all requirements of the Structural Engineer/Architect for verifications, responses, and submissions.

B. Site Verification Requirements:

1. The Architect has made a scope visit with measurements and photographs of existing conditions and the Drawings indicate existing conditions verified in the field. It, however, remains the responsibility of the Contractor to verify all existing conditions prior to the submission of his bid and to the commencement of any Work. No additional compensation will be paid due to the Contractor's failure to acquaint himself with existing site conditions which include, but are not limited to, grades, extent of paving, or utilities.
2. Any discrepancy with the existing site conditions and/or the Drawings shall be brought to the attention of the Architect for clarification and instruction. These Construction Documents have been designed and drawn assuming existing building conditions match the Original Drawings. The General Contractor, immediately upon arrival at the site, shall verify all existing structural column dimensions, structural bearing heights, existing dimensions, top of masonry elevations, roofing conditions (including parapets, scuppers and roof drains), and joist bearing elevations prior to the fabrication of any structural items. If discrepancies are found between what is shown on the Drawings and existing field conditions, contact the Wal★Mart Construction Manager and the Architect immediately to determine what action should be taken to match existing conditions. The beginning of structural steel fabrication by the General Contractor, steel fabricator, or joist manufacturer means acceptance of the existing conditions.
3. All utility locations shown are approximate. The Contractor shall field verify the exact location of all existing utilities (whether shown or not) prior to the submission of his bid or the commencement of construction. The Contractor shall notify the Wal★Mart Construction Manager of the discovery of existing utilities not shown or noted on Drawings.
4. The Contractor shall verify and maintain (repair if damaged) existing irrigation systems affected by the construction of this Addition.
5. The Contractor shall field locate and verify all property lines, easements, setbacks and restrictions. A registered surveyor shall establish all property lines and setbacks prior to the commencement of construction and clearly flag property lines and setbacks. It remains the responsibility of the General Contractor to determine exact location of all said boundaries.
6. The Contractor shall verify exact locations and depths of underground utility services prior to any excavation.
7. The Contractor shall verify all grades and proposed final grades. If ramps, stoops, stairs, sidewalks, flatwork or paving are installed, verify final grades surrounding the new construction and adjust stair risers, ramp lengths, limits of paving, etc., to accommodate the required ramp slope, riser heights or paving areas. All ramps and stairs shall meet ADA-ADAAGS (or Adopted Handicap Accessibility Requirements). If there is a conflict in field conditions, notify Wal★Mart Construction Manager and the Architect prior to the construction or ordering of materials.
8. The Contractor shall verify the existing finish floor elevation at all new openings of the existing building prior to establishing the finish floor elevation. To verify floor elevation, the Contractor shall remove a small portion of the block wall at the proposed opening between the existing store and the addition.
9. The Contractor shall verify existing footing depths and match at new Addition to insure proper block coursing. Any discrepancy shall be reported to the Wal★Mart Construction Manager prior to construction.
10. The Contractor shall core the roof insulation to determine its thickness after Contract award. It is the Contractor's responsibility to match existing roof insulation thickness on the Addition unless directed otherwise to install 3" insulation in separated and isolated roof conditions. Refer to Roofing Specification Section.
11. Report any discrepancies found in the field immediately to Wal★Mart and the Architect prior to making any structural modifications or ordering of any materials.

C. Demolition Requirements:

1. All demolition shall be carried out in a safe manner and in strict accordance with OSHA regulations.
2. The Contractor shall field verify the extent of demolition. The Work includes, but is not limited to, the demolition and removal of walls, doors, fixtures, plumbing, paving, mechanical and electrical items including conduits and ductwork as shown on Drawing or as required for the installation of the new Work for a complete job.
3. When utilities are removed, cap and seal a minimum of 8" below finish floor or a minimum of 6" above finish ceiling.

4. When removing existing structural items, it is the Contractor's responsibility to provide adequate shoring, bracing and support systems to keep the existing structure intact and in a safe condition. Refer to Sections 02023 and 02251.
5. The Contractor may not remove the block wall in a proposed opening prior to the roofing system over the new addition being made watertight. Coordinate with the Wal★Mart Construction Manager and the Store Manager to schedule for demolition for this new opening.
6. The Contractor shall remove any building signage that interferes with the Building Addition. Wal★Mart will reinstall signage or add new signage at completion of Addition.

PART 2 - PRODUCTS

Not Used.

PART 3 - EXECUTION

Not Used.

END OF SECTION

SECTION 01731 – CUTTING AND PATCHING

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Requirements and limitations for cutting and patching Work.
 - 2. Products for patching and extending Work.
 - 3. Transitions and adjustments.
 - 4. Repair of damaged surfaces, finishes and cleaning.
- B. Related Sections:
 - 1. Section 01500 - Temporary Facilities and Controls: Temporary barriers.
 - 2. Section 02023 - Selective Site Demolition: Procedures for removing existing materials and equipment.

1.2 PERFORMANCE REQUIREMENTS

- A. Cutting and patching includes cutting into existing construction to provide for installation or performance of other work and subsequent fitting and patching required to restore surfaces to their original condition.
- B. Cut into or partially remove portions of the existing building as required for new construction. Include such work as:
 - 1. Cutting, moving or removal of items shown to be cut, moved or removed.
 - 2. Cutting, moving or removal of items not shown to be cut, moved, or removed, but which must be cut, moved, or removed to allow for new construction. Work or items which are to remain in the finished work shall be patched or reinstalled after cutting, moving, or removal, and joints and finishes shall match adjacent or similar work.
 - 3. Removal of existing surface finishes as needed to install new work and finishes.
 - 4. Removal of abandoned items and removal of items serving no useful purpose; such as abandoned piping and electrical conduits to nearest J-boxes.
 - 5. Repair or removal of dangerous or unsanitary conditions resulting from alterations work.
- C. Structural Work:
 - 1. Do not cut and patch structural work in manner resulting in reduction of load-carrying capacity or load and deflection ratio.
 - 2. Submit proposal for cutting and patching of structural work and obtain Wal-Mart Construction Manager's approval prior to the structural alterations.
- D. Operational Limitations:
 - 1. Do not cut and patch in manner resulting in decreased performance, shortened useful life, or increased maintenance.
 - 2. Submit proposals for cutting and patching operational elements and safety components and obtain Wal-Mart Construction Manager's acceptance prior to the work.
- E. Quality Limitations: Do not cut and patch work exposed to view (exterior and interior) in manner resulting in noticeable reduction of aesthetic qualities and similar qualities, as determined by the Wal-Mart Construction Manager.
- F. Limitation on Acceptance: Wal-Mart Construction Manager's acceptance to proceed with cutting and patching shall not waive right to later require removal or replacement of work found to be cut and patched in unsatisfactory manner as determined by Wal-Mart Construction Manager.

- G. Obtain all required inspections and approvals from authorities having jurisdiction for Temporary Certificate of Occupancy for Offices and Stockroom at least seven calendar days prior to Wal-Mart scheduled move into new Office and Stockroom areas.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Use materials for cutting and patching that are identical to existing materials. If identical materials are not available or cannot be used, use materials that match existing adjacent surfaces to fullest extent possible with regard to visual effect. Use materials for cutting and patching that will result in equal or better performance characteristics.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine surfaces to be cut and patched and conditions under which work is to be performed before cutting. Take corrective action before proceeding with work if unsafe or otherwise unsatisfactory conditions are encountered.

3.2 PREPARATION

- A. Temporary Support: Provide temporary support of work to be cut to prevent failure.
- B. Protection:
 - 1. Protect other work during cutting and patching to prevent damage.
 - 2. Provide protection from adverse weather conditions for that part of project that may be exposed during cutting and patching operations.
 - 3. Avoid interference with use of adjoining areas or interruption of free passage to adjoining areas.
 - 4. Take precautions not to cut existing pipe, conduit, or duct serving building but scheduled to be relocated until provisions have been made to bypass them.

3.3 ALTERATIONS, CUTTING AND PROTECTION

- A. Extent:
 - 1. Cutting and removal work shall be performed so as not to cut or remove more than is necessary and so as not to damage adjacent work.
 - 2. Conduct work in such a manner as to minimize noise and to minimize accumulation and spread of dirt and dust.
 - 3. Perform cutting for ductwork and other rectangular openings with carborundum saw with approved dust arrestor.
 - 4. Drill holes for conduit and piping using core drills.
 - 5. Use wet saw to saw cut interior building slabs or masonry/concrete walls. Saw cut and remove small sections by hand. Air (pneumatic) or electric jackhammers will not be allowed unless previously approved by Wal★Mart Construction Manager and/or General Contractor. Ensure dust protection is provided (Refer Temporary Dust Partitions).
 - 6. Saw cut & remove slab for sloped floors to floor drains (Refer Section 02023).
 - 7. All demolition material, as a result of slab/concrete masonry removal, must be immediately removed (at least at completion of daily work).
- B. Shoring, Bracing and Capping: Provide shores, needling, and bracing as needed to keep building structurally secure and free of deflection in all its parts, and as needed for installation of new structural members (Refer Section 02251).

C. Responsibility and Assignment to Trades:

1. The General Contractor shall assign the work of moving, removal, cutting, patching and repair to trades under his supervision so as to cause the least damage to each type of work encountered, and so as to return the building as much as possible to the appearance of new work.
2. Patching of finish materials shall be assigned to mechanics skilled in the work of the finish trade involved.

D. Protection:

1. Protect remaining finishes, equipment, and adjacent work from damage caused by cutting, moving, removal and patching operations. Protect surfaces, which will remain a part of the finished work.
2. Protect existing facilities and features, within designated construction limits and along corridor access route to construction area.
3. Cover existing wall and floor finishes (if it remains) in work areas, in adjacent areas and along corridor access route to prevent damage from product delivery and construction operations.
4. During demolition, cutting and construction, provide positive dust control by wetting dust debris and by completely sealing openings to Wal★Mart occupied and customer traffic areas with temporary partitions, so as to prevent spread of dust and dirt to adjacent areas.
5. After materials, equipment and machinery are installed, properly protect Work until final acceptance.
6. Any damage to the existing building resulting from construction operations shall be repaired by the Contractor without cost to the Wal★Mart.

E. Debris:

1. Remove debris promptly from Building each day as a minimum. Removed material, except that listed or marked by the Wal★Mart Construction Manager for retention, becomes the responsibility of the General Contractor. Load removed material directly on trucks for removal from site. Do not allow debris to enter sewers.
2. Do not allow stacked or piled material to endanger structure or the operation of the Store.
3. Wal★Mart shopping carts shall not be used to haul debris.
4. Wal★Mart-provided trash containers or dumpsters are not for use of the General Contractor. The Contractor shall supply trash containers or dumpsters for construction debris.

3.4 PATCHING, EXTENDING AND MATCHING

A. Skill:

1. Patch and extend existing work using skilled mechanics capable of matching the existing quality of workmanship. The quality of patched or extended work shall not be less than that specified in the Sections of the Specifications, which follow these general requirements.

B. Patching:

1. In areas where any portion of an existing finished surface is damaged, soiled, stained, or otherwise made or found to be imperfect, patch or replace the imperfect portion of the surface with matching material.
2. Provide adequate support or substrate for patching of finishes.
3. If the imperfect surface was a painted or coated one, repaint or recoat the patched portion in such a way that uniform color and texture over the entire surface results.
4. If the surrounding surface cannot be matched, repaint or recoat the entire surface to nearest corner or transition point.
5. At locations in existing areas where partitions are removed, patch the floors, walls and ceilings with finish materials to match new finishes.
6. Where plumbing is removed and capped below finish floor, core drill or remove concrete floor as required and cap a minimum of 8" below floor. Patch new concrete to match existing concrete substrate.

C. Quality:

1. In the Sections of the Specifications, which follow these General Requirements, no concerted attempt has been made to describe each of the various existing products that must be used to patch, match, extend or replace existing work. Obtain all such products in time to complete the Work on schedule. Such products shall be provided in quality, which is in no way inferior to the existing products.

2. Where a product or type of construction occurs in the existing building, and it is not specified as a part of the new work, provide such products or types of construction as needed to patch, extend or match the existing work.
3. These Specifications will generally not describe existing products or standards of execution, nor will they enumerate products, which are not a part of the new construction. The existing product is its own specification.
4. The presence of any product or type of construction in the old work shall cause its patching, extending, or matching to be performed as necessary to make the work complete and consistent, to identical standards of quality.

D. Transitions:

1. Where new work abuts or finishes flush with existing work, make the transition as smooth and workmanlike as possible. Patched work shall match existing adjacent work in texture and appearance so as to match new construction standards.
2. Where masonry or other finished surface is cut in such a way that a smooth transition with new work is not possible, terminate the existing surface in a neat fashion along a straight line at a natural line of division.
3. Where two or more spaces are indicated to become one space, rework ceilings so that horizontal planes, without breaks, steps or bulkheads result.
4. In cases of extreme change of ceiling or floor, obtain instructions from Wal★Mart Construction Manager as to method of making transition.

E. Matching:

1. Restore existing work that is damaged during construction to a condition equal to its condition at the time of the start of the Work.

END OF SECTION

SECTION 01740 – CLEANING

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Cleaning and maintenance of site premises.
- B. Related Sections:
 - 1. Section 01742 - Construction/Demolition Waste Management And Disposal: Disposal and removal of non-hazardous construction and demolition waste.

1.2 GENERAL

- A. Maintain premises free from accumulations of waste, debris and rubbish caused by construction operations.
- B. At completion of Work, remove waste materials, rubbish, tools, equipment, machinery and surplus materials; and clean all sight-exposed surfaces. Leave project clean and ready for occupancy.

1.3 REQUIREMENTS OF REGULATORY AGENCIES

- A. Codes and Standards:
 - 1. Comply with applicable Federal, State and Local codes and regulations relative to environmental safety regulations.
- B. Hazards Controls:
 - 1. Store volatile waste in covered metal containers and remove from premises daily. Prevent accumulation of wastes, which create hazardous conditions.
- C. Pollution Control:
 - 1. Burning or burying of rubbish and waste materials on the project site is prohibited.
 - 2. Disposal of volatile fluid wastes (such as mineral spirits, oil or paint thinner) in storm or sanitary sewer systems or into streams or waterways is prohibited.
 - 3. Disposal of any toxic chemicals in storm or sanitary sewer systems is prohibited. Comply with EPA requirements regarding disposal.

PART 2 - PRODUCTS

2.1 CLEANING MATERIALS

- A. Use only cleaning materials recommended by manufacturer of surface to be cleaned.
- B. Use cleaning materials only on surfaces recommended by cleaning material manufacturer.
- C. Cleaning materials shall be clearly labeled and safely stored when not in use. Maintain control of cleaning materials while in use. Do not leave unattended. No flammable materials or liquids may be stored in the existing building or in the new addition.

PART 3 - EXECUTION

3.1 CLEANING REQUIREMENTS

- A. Oversee cleaning and ensure that building and grounds are maintained free from accumulations of waste materials and rubbish.

- B. In exterior work, sprinkle dusty debris with fine water mist to control accumulation of dust. Avoid puddling.
- C. Vacuum clean interior building areas when ready to receive finish painting and continue vacuum cleaning on an as-needed basis until building is ready for acceptance or occupancy.
- D. Schedule cleaning operations so that dust and other contaminants resulting from cleaning process will not fall on wet, newly-painted surfaces.
- E. Clean exterior premises daily. Do not let debris enter customer areas.

3.2 ACOUSTICAL PANEL CEILING AND EXPOSED OVERHEAD STRUCTURE CLEANING

- A. Clean existing exposed surfaces of acoustical panel ceilings in all areas including non-customer areas such as break rooms, offices, Pharmacy, etc. Clean existing exposed overhead structure within the sales floor area. Surfaces to be cleaned include the following:
 - 1. Acoustical tile ceilings to remain in place including trim, edge moldings, suspension system members, diffusers, speakers, and camera mounts.
 - 2. Exposed overhead structure to remain in place including, but not limited to, structural steel, steel joists, metal deck, drop boxes, ductwork, and bracing members.
- B. Qualifications: Cleaning shall be done by a reputable firm regularly engaged in cleaning of acoustical tile ceilings and overhead structure and shall have been in business for a continuous period of not less than 2 years. Firm shall be experienced in work of the nature and scale similar to this project.
- C. Products and Procedure:
 - 1. Cleaning Products: Accomplish cleaning using solutions and products specifically formulated and recommended for cleaning the surfaces involved. Products shall be non-toxic and non-caustic to metal or acoustic surfaces. Products shall be enzyme based or of such ingredients to effectively clean, whiten, and dissolve nicotine tar, cooking oils and grease, soiling, soot, smoke, mildew, and dirt films. Products containing bleach will not be allowed. Products shall be by a manufacturer regularly engaged in the production of such products.
 - 2. Procedure: Cleaning procedure shall be as follows:
 - a. Cover entirely with drop cloths, all merchandise, furniture, equipment, and floors in areas to be cleaned.
 - b. Dust or vacuum tiles and tile suspension system and structural members to remove loose dirt and dust.
 - c. Apply cleaning solutions by spray or mist at a rate recommended by product instructions depending on type and porosity of surface to be cleaned.
 - d. Allow sufficient time as recommended by product instructions for solutions to react.
 - e. Remove solutions with sponges and wipe dry.
 - f. Follow written instructions of product manufacturer where such instructions vary from, or are in addition to, the foregoing procedures.
- D. Coordination and Scheduling: Perform cleaning during periods when store is closed or during low traffic periods, typically between 10:00 PM and 6:00 AM. Coordinate cleaning schedule with store manager. Submit to the store manager, a mutually agreed upon cleaning schedule at least 7 days prior to commencement of cleaning operations.
- E. Cleaning shall be completed within 45 days of possession of area cleaned. Schedule with Wal-Mart Construction Manager.
- F. Dispose of ceiling tile, which cannot be cleaned and must be replaced as specified in section 02023.

3.3 TRASH REMOVAL

- A. On a daily basis, clean work areas and access, and dispose of waste materials, rubbish and debris.

- B. Disposal of non-hazardous demolished materials shall be by Owner's Waste Management Vendor as specified in Section 01742 and in accordance with agreement between Waste Management Vendor and Contractor.
- C. Deposit waste materials, rubbish, and debris in waste containers as provided by the Waste Management Vendor as specified in Section 01742. Perform segregation of waste materials into the various classification and segregated materials as established and agreed to between Waste Vendor and Contractor.
- D. Do not allow waste materials, rubbish and debris to accumulate and become an unsightly or hazardous condition.
- E. Notify the Owner's Waste Management Vendor when containers are ready for pickup and disposal.
- F. Keep streets and access to site free of rubbish and debris.

3.4 FINAL CLEANING

- A. Execute final cleaning prior to final inspection as follows.
 1. Clean Project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.
 2. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.
 3. Rake grounds that are neither planted nor paved to a smooth, even-textured surface.
 4. Remove tools, construction equipment, machinery, and surplus material from Project site.
 5. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.
 6. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.
 7. Clean debris from roofs, gutters, downspouts, and drainage systems.
 8. Vacuum carpet and similar soft surfaces, removing debris and excess nap; shampoo if visible soil or stains remain.
 9. Vacuum clean all interior floor surfaces.
 10. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compounds and other noticeable, vision-obscuring materials. Replace chipped or broken glass and other damaged transparent materials. Polish mirrors and glass, taking care not to scratch surfaces.
 11. Remove labels that are not permanent.
 12. Touch up and otherwise repair and restore marred, exposed finishes and surfaces. Replace finishes and surfaces that cannot be satisfactorily repaired or restored or that already show evidence of repair or restoration.
 13. Wipe surfaces of mechanical and electrical equipment and similar equipment. Remove excess lubrication, paint, and mortar droppings, and other foreign substances.
 14. Clean plumbing fixtures to a sanitary condition, free of stains, including stains resulting from water exposure.
 15. Replace disposable air filters and clean permanent air filters of equipment operated during construction. Clean exposed surfaces of diffusers, registers, and grills.
 16. Clean ducts, blowers, and coils if units were operated without filters during construction.
 17. Clean light fixtures, lamps, globes, and reflectors to function with full efficiency. Replace burned-out bulbs, and those noticeably dimmed by hours of use, and defective and noisy starters in fluorescent and mercury vapor fixtures.
 18. Leave Project clean and ready for occupancy.
- B. Cleaning of Restrooms Prior to Possession:
 1. Immediately prior to possession, thoroughly clean restrooms, including walls, floors, plumbing fixtures, toilet partitions, and accessories, as directed herein or in the individual specifications sections.
 2. Clean entire wall and floor surfaces using cleaning solutions approved by the substrate manufacturer and wipe dry to prevent surface film or residue.
 3. Clean water closets and lavatories with scrubbing cleansers approved by fixture manufacturer to remove stains and deposits.

4. Clean and polish stainless steel accessories and toilet partitions to a spotless luster using soap, ammonia, or mild detergent and water as recommended by the accessory or partition manufacturer. Alternatively, use a commercial stainless steel cleaner and polish as directed.
 5. Clean mirror surfaces using glass cleaner.
- C. Employ skilled workmen for final cleaning.
- D. Prior to final completion or Owner possession, conduct an inspection of sight-exposed interior and exterior surfaces and all work areas with the Wal-Mart Construction Manager to verify that entire Work is clean.

END OF SECTION

SECTION 01742 – CONSTRUCTION/DEMOLITION WASTE MANAGEMENT AND DISPOSAL

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes administrative and procedural requirements for nonhazardous demolition and construction waste removal and disposal by an Owner pre-selected waste management vendor.

B. Related Sections:

1. Section 01740 - Cleaning: Site and premises cleanup during and at completion of construction.
2. Section 02023 - Selective Site Demolition.

1.2 DEFINITIONS

A. Construction Waste: Building and site improvement materials and other solid waste materials resulting from construction, remodeling, renovation, or repair operations. Construction waste includes shipping and packaging and discarded temporary construction materials.

B. Demolition Waste: Building and site improvement materials resulting from demolition or selective demolition operations.

C. Disposal: Removal off-site of demolition and construction waste and subsequent sale, recycling, reuse, or deposit in landfill or incinerator acceptable to authorities having jurisdiction.

D. Recycle: Recovery of demolition or construction waste for subsequent processing in preparation for reuse.

1.3 SELECTION AND PAYMENT

A. Employment and payment for services of a Construction and Demolition Waste Management Vendor (Vendor) for the collection and disposal of designated construction and demolition waste will be by Wal-Mart.

1. Wal-Mart Vendor: Oakleaf Waste Management, LLC (678) 507-3181. Contact: Mary Widener.

1.4 RESPONSIBILITIES

A. Wal-Mart Responsibility:

1. Obtain the services of a pre-negotiated Vendor for the collection and disposal of designated construction and demolition waste.

B. Basic Vendor Responsibility:

1. Communicate to the job site contact what service and recycling is arranged.
2. Provide handling, containers, storage, signage, transportation, and other items as required to implement waste management during the entire duration of the Contract.
3. Identify what container is for which recyclable or for trash.
4. The Vendor will provide the waste container(s) to be used by the Contractor and shall coordinate the exact location(s) of the waste container(s) with the General Contractor. Waste containers will be classified and segregated to accept materials sorted with respect to type of waste or type of material.

C. Basic Contractor Responsibility:

1. Upon commencement of construction, contact the Vendor for collection and disposal arrangements.
2. Supply name and contact information to Vendor for a designated Contractor contact person on the job site.
3. Commit to required waste separation for recyclables and insure all are disposed in the proper container as agreed to between Vendor and Contractor.
4. Contact Vendor to order services during construction.

5. Provide and designate and label specific areas on Project site for waste containers and for separating waste materials.
6. Perform segregation of waste materials into the various classification and segregated materials as established and agreed to between Vendor and Contractor. Deposit wasted materials into the containers.
7. Notify the Vendor when containers are ready for pickup and disposal.

D. Recycling may consist of, but not necessarily include nor be limited to, any and all non-hazardous demolition and construction waste and debris to be disposed of and not to be reused, or considered of value to the Contractor and retained in the Contractor's possession.

1. Removed acoustical ceiling tile (ACT) shall be recycled as specified in Section 02023, if applicable.
2. Removed vinyl composition tile (VCT) shall be recycled as specified in Section 02023, if applicable.

E. Salvage/Recycle Goals: Owner's goal is to salvage and recycle as much nonhazardous demolition and construction waste as possible.

1.5 QUALITY ASSURANCE

A. Waste Management Conference: Conduct meeting between Vendor and Contractor at Project site to review methods and procedures related to waste management including, but not limited to, the following:

1. Review and discuss waste management including responsibilities of Vendor and the Contractor.
2. Review and finalize procedures for materials separation and verify availability of containers and bins needed to avoid delays.
3. Review procedures for periodic waste collection and transportation to recycling and disposal facilities.
4. Review waste management requirements as may be necessary for each trade or subcontractor at the work site.

PART 2 - PRODUCTS

Not Used.

PART 3 - EXECUTION

3.1 PLAN IMPLEMENTATION

A. Train workers, subcontractors, and suppliers on proper waste management procedures, as appropriate for the Work occurring at Project site. Notify workers and subcontractors of waste management plan to be carried out.

3.2 DISPOSAL OF WASTE NOT COLLECTED BY VENDOR

A. Except for items or materials to be removed by the Vendor or to be recycled as specified above, remove waste materials from Project site and legally dispose of them in a landfill or incinerator acceptable to authorities having jurisdiction.

B. Except as otherwise specified, do not allow waste materials that are to be disposed of accumulate on-site.

C. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.

D. Burning: Do not burn waste materials.

END OF SECTION

SECTION 01770 – CONTRACT CLOSEOUT

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Closeout Procedures.
 - 2. Final Closeout Submittals.
 - 3. Closeout Document Book.
 - 4. Record Letters of Conformance.
 - 5. Letters of Certification.
 - 6. Project Record Documents.
 - 7. Operations and Maintenance Data.
 - 8. Warranties and Bonds.
- B. Related Sections:
 - 1. Section 01740 - Cleaning: Requirements for final cleaning.

1.2 CLOSEOUT PROCEDURES

- A. Comply with closeout submittal requirements defined within individual Sections. Submittals procedures described herein shall apply unless otherwise described in individual Sections.
- B. When Contractor considers Work to be Substantially Complete, submit written certification to Wal-Mart's Construction Manager as follows.
 - 1. Contract Documents have been reviewed.
 - 2. Work has been inspected.
 - 3. Work is complete in accordance with Contract Documents.
 - 4. Work is ready for inspection.

1.3 FINAL CLOSEOUT SUBMITTALS

- A. Before final application for payment will be approved, final closeout submittals shall be received and approved by Wal-Mart. If Contractor fails to provide a fully completed Closeout Document Book within 90 days after Substantial Completion of the Work, then Contractor agrees to pay Owner the sum of \$250.00 per day, as liquidated damages and not as a penalty, until the fully completed Closeout Document Book is received by Wal-Mart Contract Administration.

1.4 CLOSEOUT DOCUMENT BOOK

- A. Bind closeout documents in a "Closeout Document Book" consisting of a black, three-ring binder. Include only one set of Documents. Documents included in Closeout Document Book shall consist only of the items in the following numbered list, separated and identified with a corresponding numbered tab for each numbered item listed. Note that all closeout documents are not necessarily included in the Closeout Document Book. Each document shall be an original document (not a copy) unless otherwise permitted in the listing below. If any item is not applicable, include a "Not Applicable" sheet after the numbered tab. The Contract Document Book shall not be compiled based only on the brief description of each item in the following list. It is compulsory that the individual sections and references be examined to comprehend the full description of the specific item to be included. Include the following:
 - 1. Contractor's Statement of Warranty. (Reference Document 00800) (Ref form included at end of this section.)
 - 2. Copy of Certificate of Occupancy.
 - 3. List of Subcontractors: Final list of Subcontractors used complete with telephone numbers, addresses, and after hours telephone numbers. (Reference Document 00700)
 - 4. Signed and notarized lien waivers from Contractor and all Subcontractors on the Wal-Mart form (Affidavit of Total Release and Certification of all Bills Paid) (Ref form included at end of this Section.) The form shall have no modifications or changes made thereon.
 - 5. Copies of Performance and Payment Bond. (Ref Document 00800).

6. Consent of Surety to Final Payment: From Bonding Co. (Ref Document 00800)
7. Substantial Completion Punch List: Building, Civil, HVAC/refrigeration punch lists showing items completed and approved by Wal-Mart. (Ref Document 00800)
8. Registration of Storage Tanks with State. (Sections 11140 and 13220)(If specified)
9. Maintenance Data Sheet. (Ref. form at the end of this Section).
10. Verification of transmittal to Store Manager of all Project Record Documents specified hereinafter and Operations and Maintenance Manuals. This shall be in the form of a Letter of Transmittal with a statement signed by the Store Manager verifying that the O&M manuals have been placed in the Electrical Distribution Center (EDC) by the Contractor and the placement witnessed by the Store Manager.
11. Warranties. Warranties shall be documents issued and signed by the manufacturer unless otherwise specified. Tab each warranty listed below separately in the Closeout Document Book.
 - a. Termite Control: (Section 02361) (If specified)
 - b. Ornamental Fence: (Section 02823) (If specified)
 - c. Planting: Plant Guarantee (Section 02900) (If specified)
 - d. Concrete: Penetrating Hardener/Densifier Warranty (Section 03300/03312).
 - e. Membrane Roofing. Submit Roofing Warranty included at the end of Roofing Section (Section 07511, 07530, or 07550 as applicable). Manufacturer's standard warranty will not be considered as a substitute for the warranty included herein.
 - f. Flexible Traffic Doors (Section 08383)
 - g. Automatic Swing Entrance Doors (Section 08461) (If specified)
 - h. Automatic Sliding Entrance Doors: (Section 08462)
 - i. Paint: Elastomeric Coating System Warranty. (Section 09900)
 - j. Heating, Ventilating, and Air Conditioning Equipment: HVAC Components (Section 15700)
12. Letters of Certification: Include separate letter for each certification required within the sections listed below.
 - a. Neutralization Enclosure Quality Control. (Section 01459)
 - b. Cast-In-Place Concrete. (Section 03300/03312) Certification for Penetrating Hardener/Densifier/Sealer Installer
 - c. Rough Carpentry. (Section 06100).
 - d. Exterior Insulation and Finish System. (Section 07240/07243)
 - e. Elastomeric Membrane Roofing (Section 07530)
 - 1) Letter of Certification of installer's qualifications and conformance with specified tests and criteria.
 - f. Sheet Metal Flashing. (Section 07620)
 - g. Glazing. (Section 08800)
 - h. Resinous Flooring. (Section 09675) (If specified)
 - i. Vehicle Service Equipment Systems. (Section 11140)
 - 1) Statement of Certified Installer.
 - j. Building Services Piping: (Section 15100)
 - 1) Certification of testing/inspection contractor.
13. Record Letters of Conformance: Include separate letter for each item listed below.
 - a. Elastomeric Membrane Roofing (Section 07530)
 - b. Fire Suppression (Including Fire Pump and Water Storage Tank if specified) (Section 13900)
 - c. Kitchen Exhaust Hood Fire Suppression System (ANSUL System) (Section 15700)
14. Inspection Reports: Include separate report for each required item listed below.
 - a. Elastomeric Membrane Roofing (Section 07530). Include the following:
 - 1) Roof Inspection Checklist.
 - 2) Periodic site inspection reports.
 - 3) Site Inspection Certificate.
 - b. Paints and Coatings. (Section 09900) Elastomeric Coating.
 - c. Vehicle Service Equipment Systems. (Section 11140)
 - 1) Testing and Inspection Reports.
 - d. Loading Dock Equipment. (Section 11160)
 - 1) Certificate of Inspection.
 - e. Building Services Piping: (Section 15100)
 - 1) Video Inspection Report.
 - 2) Dye Testing Report.
15. Copy of Notice of Termination of NPDES Construction General Permit with proof of submittal to appropriate agency. This is only applicable for those permits issued to the General Contractor. (See Section 02370).

1.5 RECORD LETTERS OF CONFORMANCE

- A. Submit Record Letters of Conformance as a Closeout Submittal. By submitting Record Letter of Conformance, the Contractor declares that the product identified by manufacturer's name and model number is the product specified and is suitable for the intended use as defined within the Contract Documents and has been provided and placed in operational condition in accordance with the manufacturer's published instructions and the Contract Documents.
 - 1. Submit completed Record Letter of Conformance for each product selected as indicated within each Section.
 - 2. Fill-in required information on form and sign in ink by person authorized to sign on behalf of the Contractor.
 - 3. No modifications shall be made to the form.
 - 4. Record Letters of Conformance, when required, are located at the end of the respective Section.

1.6 LETTERS OF CERTIFICATIONS

- A. Certify manufacturer's or installer's qualifications, conformance with tests or specified criteria, or other factors as required in individual specification sections.
- B. Submit supporting reference data, affidavits, and certifications as required.
- C. Number of Copies Required: Two.

1.7 PROJECT RECORD DOCUMENTS

- A. Maintain on site, one set of the following record documents. Record actual revisions to the Work.
 - 1. Contract Drawings (Building and Civil).
 - 2. Specifications.
 - 3. Addenda.
 - 4. Change Orders and other Modifications to the Contract.
 - 5. Reviewed shop drawings, product data, and samples.
- B. Maintain Record Documents separate from documents used for construction.
- C. As-built Record Documents and Shop Drawings: Record as-builts shall be maintained and submitted for the primary purpose of recording the locations for concealed interior and exterior underground utilities as specified in the individual specifications. Legibly record actual measured horizontal and vertical locations of interior and exterior underground utilities and appurtenances, referenced to permanent surface improvements.
- D. Record required as-built information concurrent with construction progress. Do not permanently conceal work until required information has been recorded.
- E. At Project completion, the Contractor shall place the Record Documents (including Building and Civil Record Drawings, Specifications, Addenda, and Change Orders) enclosed in a plastic pipe tube (fixed cap at one end and a threaded-cap on the other end) for storage in the Electrical Room unless otherwise specified to be located in another location in the individual Sections. Placement shall be in the presence of and witnessed by the Store Manager.

1.8 OPERATION AND MAINTENANCE DATA

- A. Operation and Maintenance data shall include a suitably bound set of descriptive literature, maintenance and operation data, and parts lists for each item of equipment provided under this Contract that will require maintenance or special operation procedures, including drawings, instructions, or manuals supplied with equipment furnished by others and installed under this Contract. Submittal of O&M data shall be in the form of placement by the Contractor of the bound set of O&M data in the Electrical Distribution Center (EDC) within the building. Do not include O&M data in the Closeout Document Book or submit to Wal-Mart Contract Administration. Placement of documents shall be witnessed by the Store Manager and shall be at least 14 days prior to final inspection.

1.9 WARRANTIES AND BONDS

- A. Prior to Final Application for Payment, submit required warranties and bonds in Closeout Document Book.
 - 1. Assemble documents from Subcontractors, suppliers, and manufacturers.
 - 2. For equipment put into use with Owner's acceptance during construction, submit within ten days after first operation, listing date of acceptance as start of warranty period.
 - 3. For items of Work delayed materially beyond Date of Substantial Completion, provide updated submittal within ten days after acceptance, listing date of acceptance as start of warranty period.

END OF SECTION

WAL-MART STORES, INC.**MAINTENANCE DATA SHEET**

Complete all Sections Prior To Final Payment

Location: _____

Store/Club No.: _____

Size: _____

Possession Date: _____

TYPE OF BUILDING CONSTRUCTION

Walls: _____

Roof (circle one): SBS BUR EPDM Metal Other (explain)

Roofing Mfg. _____ Warranty Information. (years) _____

STORE/CLUB TYPE (Check Those That Apply)

_____ Free Standing _____ New Store _____ Take-over Store

_____ Strip Center _____ Relocation _____ Stockroom Add'n.

_____ Mall _____ Remodel _____ Expansion _____ Back _____ Front

_____ L. Side _____ R. Side

	<u>Company Name</u>	<u>Location</u>	<u>Business Phone</u>	<u>Emerg. Phone</u>
Developer:	_____	_____	_____	_____
Gen. Contractor:	_____	_____	_____	_____
<u>Subcontractors:</u>				
Electrical:	_____	_____	_____	_____
Plumbing:	_____	_____	_____	_____
Fire Protection:	_____	_____	_____	_____
Roofing:	_____	_____	_____	_____
Ht/Vent/Cool.:	_____	_____	_____	_____
Paving:	_____	_____	_____	_____
Painting:	_____	_____	_____	_____
Storefront:	_____	_____	_____	_____
Earthwork:	_____	_____	_____	_____
Site Utility:	_____	_____	_____	_____
Striping:	_____	_____	_____	_____
Fencing:	_____	_____	_____	_____
Concrete Ext.:	_____	_____	_____	_____
Concrete Int.:	_____	_____	_____	_____

MAINTENANCE DATA SHEET (CONT)

	Company Name	Location	Business Phone	Emerg. Phone
Masonry:				
Struct. Steel:				
Overhead Doors:				
Auto. Doors:				
Flooring:				
Landscaping:				
Irrigation:				

HEATING AND AIR CONDITIONING EQUIPMENT

GAS FIRED ☐ ELECTRIC HEAT ☐

Quantity	Manufacturer	Model No.	Heat/Cool (BTU's)	Cool Only (BTU's)

MISCELLANEOUS INFORMATION

	Quantity	Manufacturer	Catalog/ Model No.	Volts/Watts
<u>Parking Lot Lighting:</u>				
Lighting Poles:				
Light Fixtures:				
Ballasts:				
Lamps:				
<u>Ceiling Light Fixtures:</u>				
High Bay:				
Ballasts:				
Lamps:				
Pendant Mount:				
Ballasts:				
Lamps:				
Fluorescent Mount:				
Ballasts:				
Lamps:				

MAINTENANCE DATA SHEET (CONT)

PRODUCTS

	<u>Manufacturer</u>	<u>Model/Serial #</u>	<u>Color/Style (If Applicable)</u>
Door Closers:			
Panic Hardware:			
Auto. Doors:			
Ceiling Panels:			
Floor Tile:			
Rubber:			
VCT:			
PVC:			
Ceramic:			
R.R. Partition:			
Fire Pump:			
Jockey Pump:			
Exit Lights:			
Emergency Lights:			

Note: Include all information requested, including Owner Provided Parts.

DNA: Does Not Apply

END OF MAINTENANCE DATA SHEET

AFFIDAVIT OF TOTAL RELEASE AND CERTIFICATION OF ALL BILLS PAID

THE UNDERSIGNED hereby certifies that he (or she) has examined and is authorized and empowered to execute this Affidavit as the owner, partner, or officer as the case may be, of the contractor named below ("the Contractor") employed in connection with the construction project ("the Project") mentioned below.

In consideration for the full and final payment to the Contractor for all services in connection with the Project, the Contractor hereby releases and waives all liens and claims to liens which the Contractor may have on or affecting the Project or Project property as a result of the Contractor's contract(s) for the Project or for performing labor and/or furnishing materials that are in any way connected with any construction of any building(s) or improvement(s) for the Project whether on the Project property or elsewhere. The Contractor further certifies and warrants that all subcontractors of labor and/or materials supplied to, for, through or at the direct or indirect request of the Contractor and/or subcontractor have been paid.

1. _____
(Print or type the firm or individual name of the Contractor)
2. _____
(Print or type the Contractor's address)
3. _____
Print or type the name of the person signing for the Contractor)
4. _____
(Print or type the position of the person signing for the Contractor)
5. Description of the Project (use an additional page, if necessary):
6. Date that the project was totally completed: _____.

The undersigned certifies that the foregoing information is true and correct and acknowledges that the owner of the Project has placed a material reliance on such information in directing final payment to the Contractor.

EXECUTED this _____ day of _____, 20_____.

(To be signed by the person shown in Item 3 above)

Subscribed and sworn before me this _____ day of _____, 20_____.

Notary Public: _____

My Commission Expires: _____

END OF AFFIDAVIT

[CONTRACTOR'S LETTERHEAD]

CONTRACTOR'S STATEMENT OF WARRANTY

DATE:

PROJECT:

LOCATION:

OWNER: Wal-Mart Stores, Inc.
702 SW 8th Street
Bentonville, AR 72712

CONTRACT: Construction Agreement Between Owner and Contractor, dated _____ 20____.

General Contractor hereby: (1) warrants that the Work for Project complies with Paragraph 3.5.1 of the General Conditions (as modified by the Supplementary Conditions, if applicable); (2) acknowledges that its warranty obligations under such Paragraph 3.5.1. extends one year beyond the actual date of Substantial Completion of the Project; and (3) affirms, and acknowledges the enforceability of, all other warranties made by Contractor in the Contract.

Terms used but not defined herein shall have the meanings given to them in the above referenced Contract.

The undersigned Contractor hereby makes the certifications set forth herein to Wal-Mart as of the _____ day of _____, 20____.

Witness:

Contractor: _____

By: _____

Print Name: _____ Name: _____

Title:

STATE OF _____
COUNTY OF _____

On this the _____ day of _____, 20____
before me, a Notary Public, within and for the State and County aforesaid, personally appeared, to me well know (or proved to me on the basis of satisfactory evidence), who stated upon oath that (s)he had executed the foregoing instrument for the consideration set forth therein.

Notary Public
My commission expires: _____

SECTION 02023 – SELECTIVE SITE DEMOLITION

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:

1. Procedures for demolition and removal of existing building elements.
2. Protection of existing construction.
3. Salvaged material and items.
4. Schedule of building demolition.
5. Disposal of demolished materials (non-hazardous and hazardous).

B. Related Sections:

1. Document 00800 - Supplementary Conditions: Review of Contract Documents and field conditions by Contractor.
2. Section 01100 - Summary: Restrictions for Work within and adjacent to existing building areas.
3. Section 01500 - Temporary Facilities and Controls: Temporary protection and barriers. Removal and disposal of demolished materials.
4. Section 01700 - Execution Requirements.
5. Section 01731 - Cutting and Patching: Requirements and limitations for cutting and patching Work.
6. Section 01742 - Construction/Demolition Waste Management And Disposal: Removal and disposal of non-hazardous demolition waste and debris.
7. Section 02251 - Shoring: Requirements for shoring and bracing.

1.2 SYSTEM DESCRIPTION

A. Selective Demolition Requirements:

1. Perform demolition in construction sequence phases as required by the scope of Work and as agreed upon with the Wal-Mart Construction Manager.
2. Work necessary and required to facilitate the new construction indicated.
3. Demolish so that construction, new and existing, can be performed and completed in accordance with construction documents.
4. Visit the project site and become familiar with the existing conditions and project requirements.
5. Clarify the scope of the Work under this Section including salvage material. The Owner will be responsible for removing materials and equipment, which the Owner wishes to salvage prior to the beginning of this Work.
6. Retain existing fire protection sprinkler system in place and active.
7. Contractor is responsible for damage to existing structure and replacement or repair of damage.
8. Repair, replace, or rebuild existing construction as required or as directed which has been removed, altered, or disrupted to allow for new construction. Correct existing construction to match adjacent construction, new or existing as specified in Section 01731.

B. Regulatory Requirements:

1. Conform to applicable code for demolition of structures, safety of adjacent structures, dust control, runoff control, and disposal.
2. Obtain required permits from authorities having jurisdiction and submit to Wal-Mart.
3. Notify affected utility companies before starting work and comply with their requirements. Submit Certificates for severance of utility services and submit confirmation documentation of all utility company contacts to Wal-Mart.
4. Do not close or obstruct roadways, sidewalks, or hydrants without permits from authorities having jurisdiction and Wal-Mart Construction Manager.
5. Conform to applicable regulatory procedures when discovering hazardous or contaminated materials.
6. Test soils around buried tanks for contamination (where buried tanks occur).

1.3 PROJECT CONDITIONS

- A. Owner will continuously occupy areas of building immediately adjacent to areas of selective demolition. Work within and adjacent to existing building areas will be restricted to areas and hours specified in Section 01700.
- B. Conditions of Structure:
 - 1. Owner assumes no responsibility for actual condition of items or structures to be demolished.
 - 2. Conditions existing at time of inspection for bidding purposes will be maintained by Owner insofar as practical.
 - 3. Variations within structure may occur by Owner's removal and salvage operations prior to start of selective demolition work.
- C. Traffic: Conduct selective demolition and debris removal in manner to ensure minimum interference with roads, streets, walks, and other adjacent occupied or used facilities. Provide traffic controls as specified in Section 01500.

1.4 QUALITY ASSURANCE

- A. Qualifications: Engage only personnel who can demonstrate not less than five (5) years successful experience in Work of similar character.
- B. Performance Criteria:
 - 1. Requirements of Structural Work: Do not cut structural work in a manner resulting in a reduction of load-carrying capacity of load/deflection ratio.
 - 2. Operational and Safety Limitations: Do not cut operational elements and safety-related components in a manner resulting in a reduction of capacities to perform in a manner intended or resulting in a decreased operational life, increased maintenance, or decreased safety.
 - 3. Visual Requirements: Do not cut work which is exposed on the exterior or exposed in occupied spaces of the building in a manner resulting in a reduction of visual qualities or resulting in substantial evidence of the demolition work judged by the Architect to be cut and patched in a visually unsatisfactory manner.
 - 4. Loading: Do not superimpose loads at any point upon existing structure beyond design capacity including loads attributable to materials, construction equipment, demolition operations, and shoring and bracing.
 - 5. Vibration: Do not use means, methods, techniques, or procedures, which would induce vibration into any element of the structure.
 - 6. Fire: Do not use means, methods, techniques, or procedures, which would produce any fire hazard.
 - 7. Water: Do not use means, methods, techniques, or procedures, which would produce water run-off, and water pollution.
 - 8. Air Pollution: Do not use means, methods, techniques or procedures, which would produce uncontrolled dust, fumes, or other damaging air pollution.

1.5 UTILITY SERVICES

- A. Maintain existing utilities. Keep in service and protect against damage during demolition operations.
- B. Do not interrupt existing utilities serving occupied or used facilities except when authorized in writing by authorities having jurisdiction and approval by Wal-Mart Construction Manager.
- C. Provide temporary services during interruptions to existing utilities as acceptable to governing authorities.
- D. Locate, identify, stub off, and disconnect utility services not to remain.
- E. Provide by-pass connections as necessary to maintain continuity of service to occupied areas of building.
- F. Provide advance notice to Wal-Mart if shut-down of service is necessary during change-over.

1.6 PROJECT SITE

- A. Indicated "Existing Construction" was obtained from existing drawings. Verify existing conditions as specified in Document 00800 and notify the Wal-Mart Construction Manager of discrepancies before proceeding with the Work.
- B. Perform removal, cutting, drilling, etc., of existing work with extreme care, and use small tools in order not to jeopardize the structural integrity of the building.
- C. Occupancy: Contractor will have limited use of the facility during construction as specified in Section 01700.
- D. Condition of Structure: The Owner assumes no responsibility for the actual condition of portions of the structure to be demolished.
- E. Protection: Ensure that the safe passage of persons around the area of demolition is provided. Conduct operations to prevent damage to adjacent buildings, structures, and other facilities, and injury to persons.

1.7 SEQUENCING AND SCHEDULING

- A. Comply with Wal-Mart approved schedule for sequence of operations for selective demolition work.
- B. Include coordination for shut-off, capping, and continuation of utility services as required, together with details for dust and noise control.
- C. Provide detailed sequence of demolition and removal work to ensure uninterrupted progress of Owner's on-site operations.
- D. Conduct selective demolition work in manner to minimize disruption of Owner's normal operations.
- E. Provide Wal-Mart advance notice of demolition activities impacting Wal-Mart's normal operations as specified in Section 01700.

1.8 SHORING AND BRACING

- A. Provide temporary shoring, bracing and supports for building structure as required for support of structure during demolition of existing structural elements and to prevent movement, settlement of existing building and adjacent buildings and facilities to remain as specified in Section 02251.

PART 2 PRODUCTS

2.1 MATERIALS

- A. Designated materials and equipment for re-installation: Carefully remove, store, and protect.
- B. Wal-Mart Salvage: Clean, store, and transfer designated materials and equipment to Owner, and obtain receipt. Wal-Mart salvage items include but are not limited to:
 - 1. Store fixtures.
 - 2. Storage racks.
 - 3. Store equipment.
 - 4. Cooler/freezer panels.
 - 5. Salvage items as indicated on Drawings.
- C. Contractor's Salvage:
 - 1. Contractor shall verify with and obtain approval from Wal-Mart Construction Manager for all Contractor salvage items prior to their removal from site.

2. Transport salvaged items from site as items are removed.
 3. Storage or sale of removed items on site not permitted.
- D. Replace materials scheduled for reuse, which are damaged to the extent that they cannot be reused. Replace with equal quality material at no additional cost to the Owner as specified in Section 01700.
- E. Coordinate with the Owner on disposition of salvage items not scheduled for reuse, demolished materials, and equipment. Deliver salvaged materials, not reused, as directed, by or to the Owner.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Examine surfaces and adjacent areas of Work under this Section. Do not proceed with Work until unsatisfactory conditions have been corrected.
- B. Starting Work constitutes acceptance of existing conditions.

3.2 PREPARATION

- A. Ensure safe passage of persons around area of demolition.
- B. Erect temporary covered passageways as specified in Section 01500.
- C. Protect existing finish work to remain in place.
- D. Protect floors with suitable coverage.
- E. Construct temporary insulated solid dustproof partitions where noise or extensive dirt or dust operations are performed. Equip partitions with dustproof doors and security locks if required as specified in Section 01500.
- F. Provide temporary weather protection between demolition and removal of existing construction on exterior surfaces and installation of new construction to ensure no water leakage or damage occurs to structure or interior areas of existing building as specified in Section 01500.
- G. Cease operations and notify Wal-Mart Construction Manager immediately if safety of structure appears to be endangered.
- H. Take precautions to support structure until determination is made for continuing operations.
- I. Cover and protect furniture, equipment, and fixtures to remain from soiling or damage when demolition work is performed in rooms or areas from which such items have not been removed.

3.3 DEMOLITION

- A. Demolition work within existing building shall be scheduled with the Wal-Mart Construction Manager for approved times of day.
1. Submit written request for approval to the Wal-Mart Construction Manager 14 calendar days in advance of the date Contractor demolition work is required to begin in the existing building.
- B. The Owner will remove or, under separate contract, have materials and equipment which the Owner requires removed, prior to commencement of Work under this Section. Coordinate scheduling of removal of Owner materials and equipment with Wal-Mart Construction Manager and Store Manager.
- C. Demolition:
1. Perform demolition work in systematic manner.

2. Demolish concrete and masonry in small sections.
3. Cut concrete and masonry at junctures with construction to remain, using masonry saws or hand tools, and make cuts straight and square with building.
4. Do not use powder-driven impact tools.
5. Locate demolition equipment throughout structure and promptly remove debris to avoid imposing excessive loads on supporting walls, floor, or framing.
6. Perform cutting of existing concrete and masonry construction with saws and core drills. Do not use jack-hammers or explosives.
7. Patch with seams which are durable and as invisible as possible. Comply with specified tolerances for the work.
8. Where selective demolition terminates at a "surface" or construction "to remain," completely remove all traces of material selectively demolished, including mortar beds. Provide smooth, even substrate transition as specified in Section 01731.
9. Demolition shall be carried out in a safe manner and in strict accordance with OSHA regulations.
10. The Contractor shall field verify the extent of demolition. The Work includes, but is not limited to, the demolition and removal of walls, doors, fixtures, plumbing, mechanical and electrical items including conduits and ductwork as shown on Drawings or as required for the installation of the new Work for a complete job.
11. When utilities are removed, cap and seal a minimum of 8" below finish floor or a minimum of 6" above finish ceiling.
12. When removing existing structural items, provide adequate shoring, bracing and support systems to keep the existing structure intact and in a safe condition. Refer to Section 02251.

D. Demolition of Interior Slabs on Grade:

1. Use removal methods that will not crack, undermine or structurally disturb adjacent slabs or partitions.
2. At interior concrete slabs on grade to receive floor coverings as final finish, minimum width of trench shall be as required to allow for compacting machine to properly compact the base. Manual compaction methods are not acceptable.
3. At interior concrete slabs on grade to receive exposed concrete finish (sealed or unsealed), demolish existing interior slab on grade as shown on the Drawings. No trenching shall be allowed in areas to receive exposed concrete finish.
4. Prior to proposed cutting, install 36" wide rosin paper outside of area to be removed in order to reduce scarring of slab which is to remain.

E. Environmental Controls:

1. Use water sprinkling, temporary enclosures, and other suitable methods to limit dust and dirt rising and scattering in air to lowest practical level.
2. Comply with governing regulations pertaining to environmental protection.
3. Do not use water when it may create hazardous or objectionable conditions, such as ice, flooding, or pollution.

F. Below Grade Demolition:

1. Demolish and remove below grade wood or metal construction.
2. Break up below grade concrete slabs.

G. Filling Below-Grade Voids:

1. Fill below grade areas and voids resulting from demolition work.
2. Use fill consisting of earth, gravel, or sand, free of trash and debris, stones over 6 inches diameter, roots, or other organic matter.

H. If unanticipated mechanical, electrical, or structural elements conflicting with intended function or design are encountered, submit written report of nature and extent of conflict to Architect and Wal-Mart Construction Manager. Rearrange demolition schedule to continue job progress without delay.

3.4 DISPOSAL OF DEMOLISHED MATERIALS

- A. Disposal of non-hazardous demolished materials shall be by Owner's Waste Management Vendor as specified in Section 01742 and in accordance with agreement between Waste Management Vendor and Contractor.
- B. Deposit waste materials, rubbish, and debris in waste containers as provided by the Waste Management Vendor as specified in Section 01742. Perform segregation of waste materials into the various classification and segregated materials as established and agreed to between Waste Vendor and Contractor.
- C. Do not allow waste materials, rubbish, and debris to accumulate and become an unsightly or hazardous condition.
- D. Notify the Owner's Waste Management Vendor when containers are ready for pickup and disposal.
- E. If hazardous materials are encountered during demolition operations, comply with applicable regulations, laws, and ordinances concerning removal, handling, and protection against exposure or environmental pollution. Notify Wal-Mart Construction Manager, in writing, of hazardous materials encountered.
- F. All acoustical ceiling tile (ACT) panels removed for disposal shall be recycled as directed by the Wal-Mart Construction Manager.
 - 1. Store removed ACT as directed. Coordinate location of stored material with Wal-Mart Construction Manager and Store Manager.
 - 2. Ensure ACT to be recycled contains no foreign material.
- G. All vinyl composition floor tile (VCT) removed for disposal shall be recycled as directed by the Wal-Mart Construction Manager.
 - 1. Place removed VCT in shipping boxes furnished by Wal-Mart as directed. Coordinate location of stored material with Wal-Mart Construction Manager and Store Manager.
 - 2. Ensure VCT to be recycled contains no foreign material.

3.5 POLLUTION CONTROLS

- A. Use temporary enclosures and other suitable methods to limit the amount of dust and dirt rising and scattering in the air to the lowest practical level.
- B. Comply with governing authorities pertaining to environmental protection.
- C. Clean adjacent portion of the structure and improvement of dust, dirt and debris caused by demolition operations, as directed by the Wal-Mart Construction Manager and governing authorities. Return adjacent areas to conditions existing prior to the start of the work.
- D. Burning of trash, debris, or removed materials not permitted on site.

3.6 SCHEDULE OF SELECTIVE DEMOLITION

- A. Remove and dispose of existing building items and adjacent sitework items as applicable, as required for Work and as indicated on Drawings.
- B. Sitework Adjacent to Building:
 - 1. Fencing, gates and concrete post footings.
 - 2. Asphalt concrete paving.
 - 3. Metal handrails and railings.
- C. Interior or Exterior Slab on Grade:
 - 1. Locate portion of existing concrete slab to be removed.

2. Wet saw concrete slabs along straight lines to full depth of slab where concrete is to be removed. The method of removal shall maintain the undamaged slab edge within the sawed line. Jack hammers may not be used at any time to remove/cut concrete from the existing interior slab.
 3. Break concrete slab to be removed into portions easily removed, maximum 30-inch dimension at any side.
 4. Remove concrete pieces within area of slab demolition down to the existing subgrade.
- D. Exterior Masonry:
1. Locate portion of existing masonry wall to be removed. Units which are removed: "tooth" from existing construction.
 2. Verify that temporary supports, enclosures, and bracing are in place and adequate for intended purpose.
 3. Remove only that portion of the exterior wall which is required for the indicated new construction.
- E. Below Grade Construction:
1. Remove below grade construction including foundation work, column footings, and abandon mechanical, plumbing, and electrical work as indicated.
- F. Interior Walls and Partitions:
1. Remove interior walls and partitions as indicated.
 2. Remove all top and bottom framing tracks and overhead braces of partitions being removed.
- G. Doors and Frames:
1. Remove hollow metal doors and frames.
 2. Remove aluminum storefront doors and frames.
 3. Remove aluminum automatic doors and frames.
- H. Interior Finishes:
1. Remove carpet and carpet adhesives.
 2. Remove floor coverings as indicated.
 3. Remove acoustical ceiling tile systems as indicated.
- I. Mechanical System:
1. Remove mechanical equipment and related ductwork as indicated.
 2. Provide temporary weathertight protection of openings in roof and exterior walls.
 3. Remove accessories to the mechanical system including, but not limited to, hanger straps.
- J. Plumbing:
1. Remove plumbing fixtures and accessories including exposed supply, waste, and vent piping as indicated.
 2. Identify concealed piping within and below slab construction, and cap a minimum of 3 inches below finish floor unless otherwise noted.
- K. Electrical Service:
1. Remove abandoned electrical fixtures, conduit, boxes, and wiring as indicated.
 2. Remove electrical circuits including conduct as indicated.

END OF SECTION

SECTION 02251 – SHORING

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Shoring at excavations and building structural and non-structural elements required to provide temporary support during excavating, demolition, and construction operations.
 - 2. Temporary protection including without limits for construction workers, materials, existing construction other adjacent properties, and public.
- B. Related Sections:
 - 1. Section 01700 - Execution Requirements: Requirements and limitations for cutting and patching Work.
 - 2. Section 01731 - Cutting and Patching.
 - 3. Section 02023 - Selective Site Demolition: Procedures for demolition and removal of existing building elements.

1.2 DESIGN REQUIREMENTS

- A. Design and provide shoring to safely prevent collapse of materials and structures and to permit construction operations to proceed in conformance with construction sequence phases indicated on Drawings.

1.3 QUALITY ASSURANCE

- A. Provide design of shoring by professional civil or structural engineer licensed in State in which project is located. Send design to Wal-Mart Construction Manager for documentation of this service.
- B. Coordinate shoring design and construction with:
 - 1. Soil Investigation Report prepared for this project (if applicable).
 - 2. Building structural system, including without limits to locations of footings, columns, pilasters, walls, and other related structural elements.
- C. Comply with pertinent requirements of Authorities Having Jurisdiction (AHJ).
- D. The Contractor shall be responsible for means and methods of shoring and temporary support and for the sequences and procedures to be used.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Provide materials as required for shoring system design.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine surfaces and adjacent areas where Work under this Section will be performed. Do not proceed with Work until unsatisfactory conditions have been corrected.
- B. Starting Work constitutes acceptance of existing conditions. Be responsible for correcting unsatisfactory and defective Work encountered after starting Work.

3.2 INSTALLATION

- A. Install shoring system in accordance with shoring design drawings.
- B. Coordinate placement of shoring system elements with existing Work and approved demolition procedures as specified in Section 02023.
- C. Perform cutting and patching required by installation of shoring in accordance with approved Cutting and Patching Procedures and Sequencing Plan as specified in Section 01731.

3.3 FIELD QUALITY CONTROL

- A. Shoring Design Engineer: Inspect and approve shoring materials and installation prior to start of any demolition work.
- B. Submit inspection report to Wal-Mart Construction Manager.

END OF SECTION

SECTION 02320 – EXCAVATING, BACKFILLING, AND COMPACTING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Trenching and backfilling for utilities.

B. Related Sections

1. Division 3 - Subbase requirements for granular subbase below building slabs.

1.2 REFERENCES

- A. The publications listed below form a part of this specification to the extent referenced. Publications are referenced within the text by the basic designation only.

B. ASTM International (ASTM):

1. ASTM D 422 - Standard Test Method For Particle Size Analysis of Soil.
2. ASTM D 698 - Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft³ (600 kN.m/m³)).
3. ASTM D 1557 - Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft³ (2,700 Kn.m/m³)).
4. ASTM D 2321 - Standard Practice for Underground Installation of Thermoplastic Pipe for Sewers and Other Gravity-Flow Applications.
5. ASTM D 2922 - Density of Soil and Soil-Aggregate In Place by Nuclear Methods (Shallow Depth).
6. ASTM D 4318 - Liquid Limit, Plastic Limit, and Plasticity Index of Soils.

C. American Association of State Highway and Transportation Officials (AASHTO):

1. AASHTO T 88 - Particle Size Analysis of Soils.

D. National Fire Protection Association (NFPA):

1. NFPA 70 - National Electrical Code.

E. American Water Works Association (AWWA):

1. AWWA C200 - Standard For Steel Water Pipe - 6 In. (150 Mm) And Larger.
2. AWWA C206 - Field Welding Of Steel Water Pipe.

1.3 QUALITY ASSURANCE

- A. An Independent Testing Laboratory (ITL), selected and paid for by the Owner, will be retained to perform construction testing on site.

1. The ITL shall prepare test reports that indicate test location, elevation data, and test results. Owner, Civil Engineering Consultant, and Contractor shall be provided with copies of reports within 96 hours of time that test was performed. In event that test performed fails to meet Specifications, the independent testing laboratory shall notify Owner and Contractor immediately.
2. Costs related to retesting due to failures shall be paid for by the Contractor at no additional expense to Owner. Contractor shall provide free access to site for testing activities.
3. Quality assurance testing will be conducted in accordance with Paragraph "Field Testing" in Part 3 hereinafter.

- B. Satisfactory Materials: ASTM D 2487 soil classification groups GW, GP, GM, SW, SP, SM, ML, CL, CH, MH, SC, GC, or a combination of these group symbols.
1. Fill material shall further conform to the plasticity index and liquid limits (PI and LL) specified in Paragraph FILLING hereinafter.
 2. Satisfactory materials shall be free of rock or gravel larger than allowed for fill or backfill material as specified hereinafter or as shown on the drawings.
 3. Satisfactory materials shall contain no debris, waste, frozen materials, vegetation, and other deleterious matter.
 4. Unless specifically stated otherwise in "Foundation Subsurface Preparation" on the Drawings, the following table stipulates maximum allowable values for plasticity index (PI) and liquid limit (LL) of satisfactory materials to be used as fill in specified areas:

<u>Location</u>	<u>PI</u>	<u>LL</u>
Building area (below upper four feet)	20	50
Building area (upper four feet)	12	40

(References to depth are to finished floor elevation)

- C. Unsatisfactory Materials: Materials which do not comply with the requirements for satisfactory materials are unsatisfactory.
1. Unsatisfactory materials also include man-made fills; trash; refuse; backfills from previous construction; and material classified as satisfactory materials which contains root and other organic matter or frozen material. The ITL shall be notified of any contaminated materials.
 2. Unsatisfactory materials also include satisfactory materials not maintained within 2 percent of optimum moisture content at time of compaction.

1.4 SUBMITTALS

- A. Submit 30-pound sample of each type of off-site fill material that is to be used at the site in airtight containers to the independent testing laboratory or submit gradation and certification of aggregate material that is to be used at the site to the independent testing laboratory for review.
- B. Submit certification that all material obtained from off-site sources complies with specification requirements.
- C. Submit name of each material supplier and specific type and source of each material. Change in source throughout project requires approval of Owner.
- D. Submit Dewatering Plans upon request by Owner.
- E. Shop drawings or details pertaining to excavating and filling are not required unless otherwise shown on the Drawings or if contrary procedures to Construction Documents are proposed.
- F. Shop drawings or details pertaining to site utilities are not required unless required by regulatory authorities or unless uses of materials, methods, equipment, or procedures that are contrary to The Drawings or Specifications are proposed. Do not perform work until Owner has accepted required shop drawings.

PART 1 - PRODUCTS

1.5 SOIL AND ROCK MATERIALS

- A. Fill and Backfill. Satisfactory materials excavated from the site.
- B. Imported Fill Material: Satisfactory material provided from offsite borrow areas when sufficient satisfactory materials are not available from required excavations.

- C. Trench Backfill: ASTM D 2321 unless otherwise specified or shown on the drawings.
- D. Building Subbase Material: Subbase for building and appurtenances slabs on ground is specified in Section 03300 as applicable.
- E. Bedding: Aggregate Type as indicated on the plans or naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; except with 100 percent passing a 1-inch sieve and not more than 8 percent passing a No.200 sieve.
- F. Drainage Fill: Washed, narrowly graded mixture of crushed stone, or crushed or uncrushed gravel; ASTM D 448; coarse-aggregate grading Size 57; with 100 percent passing a 1-1/2- inch sieve and 0 to 5 percent passing a No.8 sieve.
- G. Filter Material: Narrowly graded mixture of natural or crushed gravel, or crushed stone and natural sand; ASTM D448; coarse-aggregate grading Size 67; with 100 percent passing a 1-inch sieve and 0 to 5 percent passing a No.4 sieve.

1.6 EQUIPMENT

- A. Transport off-site materials to project using well-maintained and operating vehicles. Once on site, transporting vehicles shall stay on designated haul roads and shall at no time endanger improvements by rutting, overloading, or pumping.

1.7 SOURCE QUALITY CONTROL

- A. Laboratory testing of materials proposed for use in the project shall be by the Wal-Mart Independent Testing Laboratory at no cost to Contractor. The Contractor shall provide samples of material obtained off-site.
- B. Following tests shall be performed on each type of on-site or imported soil material used as compacted fill:
 1. Moisture and Density Relationship: ASTM D 698 or ASTM D 1557.
 2. Mechanical Analysis: AASHTO T 88 or ASTM D422.
 3. Plasticity Index: ASTM D 4318.

PART 2 - EXECUTION

1.8 PREPARATION

- A. Identify required lines, levels, contours, datum, elevations, and grades necessary for construction as shown on the drawings.
- B. Locate and identify existing utilities that are to remain and protect from damage.
- C. Maintain in operating condition existing utilities, previously installed utilities, and drainage systems encountered in utility installation. Repair surface or subsurface improvements shown on The Drawings.
- D. Verify location, size, elevation, and other pertinent data required making connections to existing utilities and drainage systems as indicated on The Drawings.

1.9 GENERAL EXCAVATION

- A. Classification of Excavation: The Contractor shall assure himself by site investigation or other necessary means that he is familiar with the type, quantity, quality, and character of excavation work to be performed. Excavation shall be considered unclassified excavation, except as indicated in the Contract Documents.
- B. Shore, brace, and drain excavations as necessary to maintain excavation as safe, secure, and free of water at all times.

- C. Place satisfactory excavated material into project fill areas.
- D. Unsatisfactory excavated material shall be disposed of in manner and location that is acceptable to Owner and local governing agencies.
- E. Perform excavation using capable, well-maintained equipment and methods acceptable to Owner and local governing agencies.

1.10 TRENCHING EXCAVATION FOR UTILITIES

- A. Saw cut existing concrete slab and hand dig trench at proper width and depth for laying pipe, conduit, or cable. Cut trench banks vertical, if possible, and remove stones from bottom of trench as necessary to avoid point-bearing. Over-excavate wet or unstable soil, if encountered, from trench bottom as necessary to provide suitable base for continuous and uniform bedding. Replace over-excavation with satisfactory material and dispose of unsatisfactory material.
- B. Trench excavation sidewalls shall be sloped, shored, sheeted, braced, or otherwise supported by means of sufficient strength to protect workmen in accordance with applicable rules and regulations established for construction by the Department of Labor, Occupational Safety and Health Administration (OSHA), and by local ordinances. Lateral travel distance to exit ladder or steps shall not be greater than 25 feet in trenches 4 feet or deeper.
- C. Perform trench excavation as indicated on the Drawings for specified depths. During excavation, stockpile materials suitable for backfilling in orderly manner far enough from bank of trench to avoid overloading, slides, or cave-ins.
- D. Remove excavated materials not required or not satisfactory as backfill or embankments and waste off-site or at on-site locations approved by the Owner and in accordance with governing regulations.
- E. Accurately grade trench bottom to provide uniform bearing and support for each section of pipe on bedding material at every point along entire length except where necessary to excavate for bell holes, proper sealing of pipe joints, or other required connections. Dig bell holes and depressions for joints after trench bottom has been graded. Dig no deeper, longer, or wider than needed to make joint connection properly.
- F. Trench width below top of pipe shall not be less than 12 inches nor more than 18 inches wider than outside surface of pipe or conduit that is to be installed to designated elevations and grades. Other trench width for pipe, conduit, or cable shall be least practical width that will allow for proper compaction of trench backfill.
- G. Trench depth requirements measured from finished slab shall meet the following requirements or applicable codes and ordinances, whichever is more stringent:
 - 1. Sanitary Sewer: Elevations and grades as indicated on the drawings and as specified in Section 02535.

1.11 PIPE BEDDING

- A. Excavate trenches for pipe or conduit to 4 inches below bottom of pipe and to the width as specified herein. Place 4 inches of bedding material, compact in bottom of trench, and shape to conform to lower portion of pipe barrel.

1.12 TRENCH BACKFILLING

- A. Materials used for trench backfill shall comply with requirements as specified herein.
- B. Backfill and compact in accordance with fill and compaction requirements in accordance with ASTM D 2321 unless otherwise shown on the drawings.
- C. Do not backfill trenches until required tests are performed and utility systems comply with and are accepted by applicable governing authorities.

- D. Backfill trenches as shown on the Drawings.
- E. Do not backfill over porous, wet, frozen, or spongy subgrade surfaces.

1.13 COMPACTION

- A. Compact as follows:

<u>Location</u>	Percent of Maximum Laboratory Density	
	<u>ASTM D698</u>	<u>ASTM D1557</u>
Utility Trench Backfill	98	95

- B. Maintain moisture content of not less than 1 percent below and not more than 3 percent above optimum moisture content of fill materials to attain required compaction density.
- C. Exercise proper caution when compacting immediately over top of pipes or conduits. Water jetting or flooding is not permitted as method of compaction.
- D. Corrective Measures for Non-Complying Compaction: Remove and re-compact deficient areas until proper compaction is obtained. Areas continually failing shall be stabilized at no additional cost to Owner. Notify the Architect of Record and the Wal-Mart Construction Manager should soil stabilization be required.

1.14 MAINTENANCE OF SUBGRADE

- A. Verify finished subgrades to ensure proper elevation and conditions for construction above subgrade.
- B. Remove areas of finished subgrade found to have insufficient compaction density to depth necessary and replace in manner that will comply with compaction requirements by use of material with CBR or LBR equal to or better than that specified on the drawings. Surface of subgrade after compaction shall be firm, uniform, smooth, stable, and true to grade and cross-section.

1.15 BORROW AND SPOIL SITES

- A. Comply with NPDES and local erosion control permitting requirements for any and all on-site and off-site, disturbed spoil and borrow areas. Upon completion of spoil or borrow operations, clean up spoil or borrow areas in a neat and reasonable manner to the satisfaction of Owner or off-site property owner, if applicable.

1.16 QUALITY ASSURANCE TESTING AND INSPECTION

- A. Responsibilities: Unless otherwise specified, quality control tests and inspection specified below will be conducted by the Owner's Independent Testing Laboratory (ITL) at no cost to the Contractor in accordance with Section 01458. The Contractor shall perform additional testing or inspection as considered necessary by the Contractor for assurance of quality control.
- B. Field testing, frequency, and methods may vary as determined by and between the Owner and the ITL.
- C. Work shall be performed by a Special Inspector - Technical I unless specified otherwise. Report of testing and inspection results shall be made upon the completion of testing.
- D. Classification of Materials: Perform test for classification of materials used and encountered during construction in accordance with ASTM D2488 and ASTM D2487.
- E. Laboratory Testing Of Materials: Perform laboratory testing of materials (Proctor, Sieve Analysis, Atterberg Limits, Consolidation Test, etc.) as specified.

F. Field Density Tests:

1. Utility Trench Backfill: Intervals not exceeding 30-feet of trench for first and every other 8-inch lift of compacted trench backfill.
2. Test Method: In-place nuclear density, ASTM D 2922 (Method B-Direct Transmission).

G. Corrective Measures For Non-Complying Compaction: Remove and re-compact deficient areas until proper compaction is obtained at no additional expense to Owner. Adjust moisture content as necessary to conform to the requirements of this section.

H. Observation and Inspection:

1. Observe all subgrades/excavation bases below slabs and verify design bearing capacity is achieved as required. Work shall be performed by a Special Inspector - Technical II.
2. Observe and document presence of groundwater within excavations.

END OF SECTION

SECTION 02765 – PAVEMENT MARKINGS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Re-painting of sidewalk striping as shown on the Drawings or as directed by the Authority Having Jurisdiction (AHJ).
 - a. If existing sidewalk striping at curb is for fire lane, re-paint associated fire lane striping in drive lane, if applicable.
 - 2. Re-painting of light pole bases.

1.2 REFERENCE STANDARDS

- A. American Association of State Highway and Transportation (AASHTO):
 - 1. AASHTO M248 - Ready-Mixed White and Yellow Traffic Paints.
- B. ASTM International (ASTM):
 - 1. ASTM D4414 - Standard Practice for Measurement of Wet Film Thickness by Notched Gauges.
- C. Federal Specifications (FS):
 - 1. FS A-A-2886 - Paint, Traffic, Solvent Based.
 - 2. FS TT-P-1952 - Paint, Traffic And Airfield Marking, Waterborne.

1.3 PROJECT CONDITIONS

- A. Maintain access for vehicular and pedestrian traffic as required for other construction activities. Utilize Temporary Controls specified in Section 01500 as required.

1.4 QUALITY ASSURANCE

- A. Use experienced personnel trained in applying the products and operating the equipment required for properly performed work.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Paint shall be waterborne or solvent borne and shall comply with all applicable local ordinances and state laws enacted to ensure compliance with Federal Clean Air Standards. Paint materials shall conform to the restrictions of the local Air Pollution Control District, if applicable.
- B. Waterborne Paint: Paints shall conform to FS TT-P-1952.
- C. Solvent Borne Paint: Paint shall conform to FS A-A-2886 or AASHTO M248. Paint shall be non-bleeding, quick-drying, and alkyd petroleum-based paint suitable for traffic-bearing surface, and shall be mixed in accordance with manufacturer's instructions before application.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine surfaces and adjacent areas where products will be applied and verify that surfaces conform to product manufacturer's requirements for substrate conditions. Do not proceed until unsatisfactory conditions have been corrected.

B. Beginning of application indicates acceptance of substrate conditions.

3.2 PREPARATION

A. Sweep and clean surface to eliminate loose material and dust.

B. Prepare surfaces to be painted in accordance with paint manufacturer's written instructions.

C. Existing striping interfering with or conflicting with the newly applied striping shall be removed using a motorized abrasive device. Deteriorated or obscured striping that is not misleading or confusing or does not interfere with the adhesion of the new striping does not require removal. Whenever removal operations are performed, the work shall be conducted in such a manner that the finished pavement surface is not damaged or left in a pattern that is misleading or confusing. When these operations are completed the pavement surface shall be blown off with compressed air to remove residue and debris resulting from the cleaning work. Coordinate method of marking removal with Authority Having Jurisdiction if markings are in a public right-of-way.

D. New pavement surfaces shall be allowed to cure for not less than 30 days before application of marking materials.

3.3 APPLICATION

A. Apply two coats of paint at manufacturer's recommended rate, without addition of thinner, with maximum of 100 square feet per gallon or as required to provide a minimum wet film thickness of 15 mils and dry film thickness of 7 ½ mils per coat. Paint shall be applied for a total dry film thickness of 15 mils. Apply with mechanical equipment to produce uniform straight edges. Use straightedge to ensure uniform, clean, and straight stripe.

B. Install pavement markings according to manufacturer's recommended procedures for the specified material.

C. The following items shall be re-painted with colors noted below:

1. Exterior Sidewalk Striping: Match existing.
2. Light Pole Bases: Yellow.
3. Fire Lane Striping: Red or per local code.

3.4 FIELD QUALITY CONTROL

A. Inspection: After the paint has thoroughly dried, visually inspect the entire application and touch up as required to provide clean, straight lines and surfaces throughout.

B. Testing: Minimum of one test on each stripe. At least one test shall be performed after refilling paint striping machine, changing operators of striping machine, and changing paint types, brands, etc. This shall be performed in addition to the testing stated above. These tests shall be performed on each coat applied. Testing shall be performed in accordance with ASTM D4414.

3.5 CLEANING

A. Waste materials shall be removed at the end of each workday.

B. Upon completion of the work, all containers and debris shall be removed from the site.

- C. Paint spots upon adjacent surfaces shall be carefully removed by approved procedures that will not damage the surfaces.

END OF SECTION

SECTION 02821 – CHAIN LINK FENCES AND GATES (BUILDING RELATED)

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Building related chain link fence.
 - 2. Columns for Garden Center aluminum trusses at shade cloth canopy.
 - 3. Chain link gates.
 - 4. Plastic screening slats.
 - 5. Mini mesh security fence fabric.
- B. Related Sections:
 - 1. Section 03300 - Cast-In-Place Concrete: Concrete anchorage for posts.
 - 2. Section 08110 - Steel Doors and Frames.
 - 3. Section 13121 - Fabric Structures: Aluminum trusses and shade cloth at Garden Center.
 - 4. Section 13123 - Glazed Structures.

1.2 REFERENCES

- A. The publications listed below form a part of this specification to the extent referenced. Publications are referenced within the text by the basic designation only.
- B. ASTM International (ASTM):
 - 1. ASTM A 392 - Specification for Zinc-Coated Steel Chain-Link Fence Fabric.
- C. Chain Link Fence Manufacturers Institute (CLFMI): Product Manual.

1.3 SYSTEM DESCRIPTION

- A. Design Requirements: Fencing system and installation engineered to withstand 90 mph minimum windload assuming 50 percent coverage with hanging plastic banners and signage.

1.4 QUALITY ASSURANCE

- A. Chain link fabric, posts, and components, and installation shall conform with the requirements of the CLFMI Product Manual unless otherwise shown or specified.
- B. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this Section with minimum 3 years documented experience.

1.5 VERIFICATION OF SCOPE

- A. Consult Wal-Mart Construction Manager for work required to the existing chain link fence system prior to submitting a Bid.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Steel Posts: Type I or II or roll formed "C" Section steel conforming to CLFMI and as specified hereinafter.
- B. Fabric: No. 9 gage galvanized steel wire in 2 inch mesh; ASTM A 392, height as shown.
 - 1. Where mini-mesh is shown, provide 1 inch mesh.

2. Fabric height less than 72 inches: Top and bottom selvages knuckled.
3. Fabric height 72 inches and greater: Top selvage twisted, bottom selvage knuckled.

2.2 COMPONENTS

- A. End, Corner, and Pull Posts: Minimum sizes and weights as follows unless otherwise shown.
 1. Up to 13 Foot Fabric Height: Type I or II in accordance with CLFMI Product Manual.
 2. 13 foot and over Fabric Height:
 - a. Type I Posts: Round; 4.0 inch outside diameter pipe, 9.10 lbs/lin ft.
 - b. Type II Posts: 4.0 inch outside diameter pipe, 6.56 lbs/lin ft.
- B. Line (Intermediate) Posts: Minimum sizes and weights as follows unless otherwise shown.
 1. Up to 8 Foot Fabric Height: Type I, II, or "C" Section in accordance with CLFMI Product Manual.
 2. Over 8 Foot Fabric Height:
 - a. Type I Posts:
 - 1) Round: 2.875 inch outside diameter pipe, 5.79 lbs/lin ft.
 - 2) Square: 2.5" x 2.5" outside dimension, 5.10 lbs/lin ft.
 - b. Type II Posts: 2.875 inch outside diameter pipe, 4.64 lbs/lin ft.
- C. Gate Posts: Type I or II in accordance with CLFMI Product Manual unless otherwise shown.
- D. Top, Bottom, and Intermediate Rails: Manufacturer's longest lengths.
 1. Type I or II in accordance with CLFMI Product Manual.
 2. Couplings: Expansion type, approximately 6 inches long.
 3. Attaching Devices: Means of attaching top rail securely to each gate, corner, pull, and end post.
 4. Do not install bottom rail at truck well fence which shall receive tension wire instead.

2.3 ACCESSORIES

- A. Sleeves: Galvanized steel pipe with inside diameter not less than 1/2 inch greater than outside diameter of fence posts. Provide steel plate closure welded to bottom of sleeves of width and length not less than 1 inch greater than outside diameter of sleeve.
 1. Up to 6 Foot Fabric Height: Provide sleeve not less than 12 inches long.
 2. Over 6 Foot Fabric Height (Not for Partitions Tight to Roof Deck): Provide sleeve not less than 24 inches long.
 3. Fabric Installed Tight to Roof Deck (Posts Braced to Roof Structure): Provide sleeve not less than 12 inches long.
- B. Tension Wire: 7 gage steel, metallic-coated coil spring wire, located at bottom of fence fabric.
- C. Wire Ties: 11 gage galvanized steel.
- D. Post Brace Assembly: Manufacturer's standard adjustable brace at end and gate posts and at both sides of corner and pull posts, with horizontal brace located at mid-height of fabric. Use same materials as top rail for brace, and truss to line posts with 0.375 inch diameter rod and adjustable tightener.
- E. Post Tops: Galvanized steel, weather tight closure cap for tubular posts, one cap for each post. Furnish cap with openings to permit passage of top rail as required.
- F. Stretcher Bars: Galvanized steel, one piece lengths equal to full height of fabric; with minimum cross section of 3/16 x 3/4 inch. Provide one stretcher bar for each gate and end post, and two for each corner and pull post.
- G. Stretcher Bar Bands: Manufacturer's standard.
- H. Gate Cross-Bracing: 3/8 inch diameter galvanized steel adjustable length truss rods.

I. Gate Hardware:

1. Swinging Gate Hardware:

a. Hinges:

- 1) Size and material to suit gate size; offset to permit 180 degree gate opening. Provide 1-1/2 pair of hinges for each leaf over 6'-0" nominal height.
- 2) TLE Service Area Gate: Hinges shall be Tru-close self closing round post gate hinges by D&D Technologies USA, Costa Mesa, CA (800) 716-0888.

b. Latch:

- 1) Exterior: Forked type or plunger-bar type to permit operation from both sides of gate, with padlock eye.
- 2) Interior: Forked type to permit operation from both sides of gate, with padlock link. At Electrical Room and Sprinkler Room, omit padlock link and substitute standard pin bracket for attachment of forked latch (gates are not to be padlocked).

2. Double Gate Hardware: In addition to the above, provide gate stops for double gates, consisting of mushroom type flush plate with anchors set in concrete to engage center drop rod or plunger bar. Configure for use of one padlock to lock both gate leaves.

3. Overhead Track Sliding Gate Hardware: Manufacturer's standard heavy duty overhead track sliding gates including the following:

- a. Track/rail and guide assembly. Top rail with two truck assemblies. Reinforce full length of track/rail with welded 2-1/2 x 2 x 1/4 min. angle iron.
- b. Gate hangers, rollers, latches, brackets, bracing, and stops.
- c. Bumper/Guide posts. Provide 3-inch x 3' high bumper/guide post at each gate post. Sleeve set into slab.

4. Cantilever Sliding Gate Hardware (If shown on Drawings): Manufacturer's standard heavy duty cantilever sliding gates including the following:

- a. Track/rail and guide assembly.
- b. Gate hangers, latches, brackets, bracing, and stops.
- c. Bottom wheel assemblies.

J. Plastic Screening Slats (Exterior): Tubular plastic slats designed for use in 2 inch mesh fabric, for vertical installation. PVT slats by Patrician Products, Inc.; Hicksville, NY (516) 937-3580.

1. Color: Verify to match existing.
2. Length: As required to install to full height of fence fabric in one piece.

2.4 SETTING MIXES

A. Concrete: See Section 03300.

B. Grout: Premixed, factory-packaged, non-staining, non-corrosive grout. See Section 03300. Provide type especially formulated for exterior application.

2.5 GATE FABRICATION

A. Fabricate gate frames of min. 1.90 inch outside diameter galvanized steel pipe. Provide horizontal and vertical members to ensure proper gate operation and for attachment of fabric, hardware, and accessories. Space frame members maximum 8'-0" apart.

B. Assemble gate frames rigidly by welding or with special fittings and rivets. Use same fabric as specified for fence. Install fabric with stretcher bars at vertical edges. Bars may also be used at top and bottom edges. Attach stretchers to frame at not more than 15 inches on center. Install diagonal cross-bracing on gates as required to ensure frame rigidity without sag or twist.

C. Attach fabric on sliding gates to maintain bottom clearance as specified below in Installation.

D. Attach hardware to provide security against removal or breakage.

2.6 FINISH

- A. Fabric and Framing: Zinc coated in accordance with CLFMI Product Manual.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install chain link fence in accordance with CLFMI Product Manual unless otherwise specified herein.
- B. Space line posts 10'-0" on center maximum, except as otherwise indicated.
 - 1. Space line posts at 8'-0" on center maximum if plastic slats are indicated to be installed in fence fabric.
 - 2. Space interior line posts 8'-0" on center maximum.
- C. Set posts as close to building walls as practical. Gaps greater than 1 inch between wall and posts shall be closed with a metal closure panel attached full height to post with Tek screws as shown. Hem edges and corners of sheet metal to eliminate sharp or rough edges.
- D. Methods for Setting Posts:
 - 1. Grade-Set Posts:
 - a. Drill or hand excavate to a depth approximately 3 inches lower than post bottom. Set post bottom not less than 36 inches below finish grade.
 - b. Excavate each post hole to 12 inch diameter, or not less than four times diameter of post.
 - c. Hold post in position while placing, consolidating, and finishing concrete.
 - d. Post shall be set plumb within 1/4" in 10 feet.
 - 2. Sleeve-Set Posts In Slabs: Anchor posts in concrete by means of pipe sleeves preset into concrete to depth not less than 24 inches below finish slab, and anchored into concrete. Insert posts into sleeves and fill annular space between post and sleeve solid with grout. Mix and place grout in accordance with manufacturer's published instructions.
- E. Intermediate Rails: Provide center and bottom rails where indicated. Install in one piece between posts and flush with post on fabric side, using offset fittings where necessary. Place intermediate rails a maximum of 6 feet on center.
- F. Brace Assemblies: Install braces so posts are plumb with rod in tension.
- G. Tension Wire: Install tension wires through post cap loops before stretching fabric and tie to each post cap with not less than 6 gage galvanized wire. Fasten fabric to tension wire using 11 gage galvanized steel hog rings spaced 24 inches on center.
- H. Fabric: Space between bottom of fabric and finish grade shall be not greater than 2 inches. Space between bottom of fabric and finish grade shall not be greater the 1/2-inch on sliding gates. Pull fabric taut and tie to posts, rails, and tension wires. Install fabric on security side of fence, and anchor to framework so fabric remains in tension after pulling force is released.
- I. Stretcher Bars: To secure end, corner, pull, and gate posts, thread through or clamp to fabric 4 inches on center and secure to posts with metal bands spaced 15 inches on center.
- J. Tie Wires:
 - 1. Use U-shaped wire conforming to diameter of pipe to which attached, clasping pipe and fabric firmly with ends twisted two full turns. Bend wire ends to minimize hazards to persons or clothing.
 - 2. Tie fabric to line posts with wire ties spaced 12 inches on center. Tie fabric to rails and braces with wire ties spaced 24 inches on center. Manufacturer's standard procedure will be accepted if of equal strength and durability.
- K. Fasteners: Install nuts for tension bands and hardware bolts on side of fence opposite fabric side. Peen ends of bolts or score threads to prevent removal of nuts.

- L. Gates: Install gates plumb, level, and secure for full opening without interference. Install ground-set items in concrete for anchorage. Adjust hardware for smooth operation.
 - 1. Furnish masonry gate hinges for installation under Section 04220.
- M. Install plastic slats vertically to manufacturer's instructions where shown on Drawings.

3.2 ERECTION TOLERANCES

- A. Maximum Variation from Plumb: 1/4 inch.
- B. Maximum Offset from True Position: 1 inch.

END OF SECTION

SECTION 02890 – TRAFFIC SIGNS AND SIGNALS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Traffic control signs.

1.2 REFERENCES

- A. American Standard for Testing Materials (ASTM):
 - 1. ASTM C94 - Ready Mix Concrete.
- B. US Department of Transportation, Federal Highway Administration:
 - 1. Manual on Uniform Traffic Control Devices (MUTCD).

PART 2 - PRODUCTS

2.1 SIGNS: Conform to the following and MUTCD classification is shown in parentheses:

- A. "STOP" Signs: 30-inches x 30-inches, Octagon, white legend and border on red background (R1-1).
- B. "YIELD" Signs: 36-inches x 36-inches x 36-inches, Triangle, red legend and border band with white interior (R1-2).
- C. "SPEED LIMIT 15MPH" Signs: 24-inches x 30-inches, black legend and border on white background (R2-1).
- D. "NO RIGHT TURN" (or "NO LEFT TURN") Signs: 24-inches x 24-inches, black legend and border, red circle and bar, and white background (R3-1 and R3-2).
- E. "RIGHT TURN ONLY" (or "LEFT TURN ONLY") Signs: 30-inches x 36-inches, black legend and border on white background (R3-5).
- F. "DO NOT ENTER" Signs: 30-inches x 30-inches, white legend, bar, and background and red circle (R5-1).
- G. "NO TRUCKS" Signs: 24-inches x 24-inches, black truck symbol, red circle and bar, on white background (R5-2).
- H. "ACCESSIBLE PARKING SYMBOL" Signs: 12-inches x 18-inches, green legend and border, white symbol on blue box, and white background (R7-8).
- I. "PED XING" Signs: 30-inches x 30-inches, black legend and border on yellow background (W11-2).
- J. "NO PARKING - FIRE LANE" Signs: 30-inches x 36-inches, red legend and border on white background.
- K. "NO PARKING - LOADING ZONE" Signs: 12-inches x 18-inches, black legend and border on white background.
- L. Miscellaneous Signs: See Construction Drawings.

2.2 POSTS

- A. "U" channel galvanized steel posts with galvanized sign-mounting hardware for each sign. Posts shall have a weight of 2-pounds per lineal foot.

2.3 CONCRETE

- A. Mix concrete and deliver in accordance with ASTM C94.
- B. Design mix to produce normal weight concrete consisting of Portland cement, aggregate, water-reducing admixture, air-entraining admixture, and water to produce following:
 - 1. Compressive Strength: 3,500 psi, minimum at 28 days, unless otherwise indicated on Construction Drawings.
 - 2. Slump Range: 1 to 3-inches at time of placement.
 - 3. Air Entrainment: 5 to 8 percent.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Contractor shall field verify underground utilities prior to sign installation. Primary utilities of concern of shallow depths include, but are not limited to, lawn sprinkler systems, electric, telephone, fiber optic, cable and gas.
- B. Cost related to repair of damaged surface and subsurface facilities shall be paid for by the Contractor at no additional expense to the Owner.

3.2 INSTALLATION

- A. Install posts in 6" diameter steel bollards in 18 inch diameter x 24 inch deep concrete foundations. Set posts vertical and plumb with bottom of sign at minimum 7'-0" above finish grade unless otherwise indicated on the Construction Drawings. Mount signs in accordance with manufacturer's instructions.

END OF SECTION

SECTION 03300 – CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Cast-in-Place Concrete, including sidewalks adjacent to building, light pole foundations and equipment pads.
2. Aggregate base material for building floor slab.
3. Formwork, shoring, bracing, and anchorage.
4. Reinforcement and accessories.
5. Color textured concrete.
6. Curing and finishing.
7. Grout, for setting and anchoring items in masonry and concrete.

B. Related Sections:

1. Section 01458 - Testing Laboratory Services: Procedures for inspection, testing, and documentation by Owner furnished testing laboratory.
2. Section 05120 - Structural Steel: Column anchor bolts.
3. Section 05500 - Metal Fabrications: Other metal components cast into concrete.
4. Section 07900 - Joint Sealers: Joint sealant for interior and exterior concrete joints.
5. Section 09650 - Resilient Flooring: Joint filler for control/construction joints concealed by floor finish material.

1.2 REFERENCES

A. The publications listed below form a part of this specification to the extent referenced. Publications are referenced within the text by the basic designation only.

B. American Concrete Institute (ACI):

1. ACI 117 - Tolerances for Concrete Construction and Materials.
2. ACI 301 -Structural Concrete for Buildings.
3. ACI 302 - Guide for Concrete Floor and Slab Construction.
4. ACI 303 - Standard Specifications for Cast-In-Place Architectural Concrete.
5. ACI 304 - Guide for Measuring, Mixing, Transporting, and Placing Concrete.
6. ACI 304.2R - Placing Concrete by Pumping Methods.
7. ACI 305R - Hot Weather Concreting.
8. ACI 306R - Cold Weather Concreting.
9. ACI 306.1 - Standard Specification for Cold Weather Concreting.
10. ACI 308 - Standard Practice for Curing Concrete.
11. ACI 315 - Details and Detailing of Concrete Reinforcement.
12. ACI 318 - Building Code Requirements for Reinforced Concrete and Commentary.
13. ACI 347 - Concrete Formwork.
14. ACI SP66 - Detailing Manual.

C. ASTM International (ASTM):

1. ASTM A36 - Carbon Structural Steel.
2. ASTM A82 - Steel Wire, Plain, for Concrete Reinforcement.
3. ASTM A185 - Steel Welded Wire Fabric, Plain, for Concrete Reinforcement.
4. ASTM A615 - Deformed and Plain Billet-Steel Bars for Concrete Reinforcement.
5. ASTM C31 - Making and Curing Concrete Test Specimens in the Field.
6. ASTM C33 - Concrete Aggregates.
7. ASTM C39 - Compressive Strength of Cylindrical Concrete Specimens.

8. ASTM C42 - Drilled Cores and Sawed Beams of Concrete.
9. ASTM C94 - Ready-Mixed Concrete.
10. ASTM C138 - Unit Weight, Yield and Air Content (Gravimetric of Concrete).
11. ASTM C143 - Slump of Hydraulic Cement Concrete.
12. ASTM C150 - Portland Cement.
13. ASTM C171 - Sheet Materials for Curing Concrete.
14. ASTM C172 - Sampling Freshly Mixed Concrete.
15. ASTM C173 - Air Content of Freshly Mixed Concrete by the Volumetric Method.
16. ASTM C231 - Air Content of Freshly Mixed Concrete by the Pressure Method.
17. ASTM C260 - Air-Entraining Admixtures for Concrete.
18. ASTM C309 - Liquid Membrane-Forming Compounds for Curing Concrete.
19. ASTM C494 - Chemical Admixtures for Concrete.
20. ASTM C618 - Fly Ash and Raw or Calcined Natural Pozzolan for use as a Mineral Admixture in Portland Cement Concrete.
21. ASTM C881 - Epoxy-Resin-Base Bonding Systems for Concrete.
22. ASTM C979 - Pigments for Integrally Colored Concrete.
23. ASTM C1107 - Packaged Dry, Hydraulic-Cement Grout (Non-Shrink).
24. ASTM C1218 - Water-Soluble Chloride in Mortar and Concrete.
25. ASTM C1315 - Liquid Membrane Forming Compounds Having Special Properties for Curing and Sealing Concrete.
26. ASTM D98 - Calcium Chloride.
27. ASTM D226 - Asphalt - Saturated Organic Felt used in Roofing and Waterproofing.
28. ASTM D698 - Moisture-Density Relations of Soils and Soil-Aggregate Mixtures Using 5.5 lb (2.49 Kg) Hammer and 12-in (305 mm) Drop.
29. ASTM D1241 - Materials For Soil-Aggregate Subbase, Base, And Surface Courses.
30. ASTM D2240 - Rubber Property - Durometer Hardness.
31. ASTM E 1745 - Plastic Water Vapor Retarders Used in Contact with Soil or Granular Fill Under Concrete Slabs.
32. ASTM E1155 - Determining Floor Flatness and Levelness Using the F-Number System (Inch-Pound Units).

D. American Welding Society (AWS): AWS D1.4 - Structural Welding Code Reinforcing Steel.

E. Concrete Reinforcing Steel Institute (CRSI):

1. CRSI - Manual of Standard Practice.
2. CRSI 63 - Recommended Practice for Placing Reinforcing Bars.
3. CRSI 65 - Recommended Practice for Placing Bar Supports, Specifications and Nomenclature.

F. Department of Commerce (National Institute of Standards and Technology) - Product Standard (DOC):

1. DOC PS 1 - Construction and Industrial Plywood.

1.3 SUBMITTALS

- A. Section 01330 - Submittal Procedures: Procedures for Submittals.
- B. Upon request, submit evidence and documentation that the specified epoxy joint filler products have been used in the project.
- C. Submit Contractor's Qualification Statement of Conformance included at the end of this section.
- D. Product Data: Submit product data for all concrete materials, admixtures, and curing compounds prior to beginning production to verify compatibility of materials with coloring agents for color stained concrete.

- E. Shop Drawings:
1. Reinforcement:
 - a. Submit concrete notes that concern proper placing of reinforcing and submit with shop drawings for field use. Do not use reproductions of Contract Drawings as shop drawings.
 - b. Submit reinforcement placement drawings with bar lists. Include elevations of walls and grade beams and plans of footings and slabs. Include sections, details, and schedules. Comply with Part B, Chapter 3 of ACI 315 for preparation of shop drawings. Include number, grade, size, length, mark, location, splice lengths, and bending diagrams for all reinforcing steel and related products.
- F. Samples: Materials as requested by the Engineer, including names, sources, and descriptions.
- G. Mix Design: Fill out and submit attached Concrete Mix Design Submittal Form. Submit three copies of each proposed mix design in accordance with ACI 301, Sections 3.9 "Proportioning on the basis of previous field experience or trial mixture", or 3.10 "Proportioning based on empirical data". Submit separate mix design for concrete to be placed by pumping in addition to the mix design for concrete to be placed directly from the truck chute. Submit mix design by e-mail to the Architect of Record and the Wal-Mart Construction Testing Laboratory. Include applicable information shown on the Mix Design Submittal Form and the following:
1. Proportions of cementitious materials, fine and coarse aggregate, and water.
 2. Water-cementitious material ratio, 28-day compressive design strength, slump, and air content.
 3. Type of cement, fly ash, slag and aggregate.
 4. Aggregate gradation.
 5. Type and dosage of admixtures.
 6. Special requirements for pumping.
 7. Range of ambient temperature and humidity for which design is valid.
 8. Special characteristics of mix which require precautions in mixing, placing, or finishing techniques to achieve finished product specified.
 9. Materials and methods for curing concrete.
- H. Submit mix designs for color textured concrete prior to field sample construction.
- I. Submit Product Data, Shop Drawings, and Quality Control Submittals within 5 working days of Contract date.
- J. Testing and Inspection Reports: Submit reports in accordance with Section 01458.
- K. Closeout Submittals: Submit Letter of Certification under provisions of Document 01770.

1.4 QUALITY ASSURANCE

- A. Penetrating Hardener/Densifier Installer Qualifications:
1. Minimum of 15 concrete finish applications within last 3 years similar in type and size to Work of this Contract.
 2. Assign experienced mechanics from previous applications including lead mechanic.
 3. Provide letter of certification from the penetrating hardener/densifier manufacturer stating that installer is a certified applicator of the specified concrete finish material and is familiar with proper procedures and installation requirements required by manufacturer.
- B. Codes and Standards: Comply with provisions of following codes, specifications, and standards, except where more stringent requirements are shown or specified:
1. ACI 301 - Specifications for Structural Concrete for Buildings.
 2. ACI 318 - Building Code Requirements for Reinforced Concrete.
 3. CRSI - Manual of Standard Practice.
- C. Pumped Concrete:
1. Perform mix design, proportioning and placement in accordance with ACI 304.2R.
 2. Submit documented evidence of experience in placing concrete by pumping on not less than three projects

- of similar size and complexity. List available pump size, standby pump size, piping, and other equipment.
3. Submit documented evidence of concrete supplier's ability to dedicate sufficient mixing and delivery equipment to supply the concrete continuously for the volumes to be placed by pumping.
- D. Chemical Admixtures: Use of admixtures is subject to Wal-Mart approval.
1. Notify Wal-Mart Construction Manager at Pre-Bid Conference if admixtures will be used in concrete.
 2. Notify Wal-Mart Construction Manager prior to installation for which admixtures will be used in concrete.
- E. Delivery, Storage And Handling:
1. Deliver materials in unopened containers with labels identifying contents.
 2. Store powdered materials in dry area and in manner to prevent damage. Protect liquid materials from freezing.
 3. Keep containers closed and upright to prevent leakage.
 4. Dispense penetrating hardener/densifier finish material from factory numbered and sealed drums. Maintain record of drum numbers.
- F. Color Textured (Stamped) Concrete Installer: Company qualified in patterned concrete and trained by imprinting tool manufacturer. Submit installer qualifications in accordance with Section 01330.
- G. Color Textured Concrete Field Samples:
1. Prior to commencing color textured concrete work, prepare a 24" x 24" reference sample of each type color textured concrete surface for approval by Wal-Mart Construction Manager. The sample shall be the standard for acceptance for color textured concrete.
 2. Once accepted by Wal-Mart Construction Manager, store sample on site as directed.
- H. Pre-Slab Installation Conference: At least 35 days prior to the start of the concrete slab construction, the Contractor shall conduct a meeting to review the proposed mix designs and to discuss the required methods and procedures to achieve the required concrete construction.
1. The Contractor shall send a pre-slab conference agenda to all attendees 20 days prior to the scheduled date of the conference. The Contractor shall require responsible representatives of each party involved with the concrete slab work to attend the conference. The conference shall convene only when all parties are present. Attendees shall include, but not be limited to the following:
 - a. Contractor's superintendent.
 - b. Laboratory responsible for the concrete design mix.
 - c. Laboratory responsible for field quality control.
 - d. Construction Manager.
 - e. Concrete subcontractor.
 - f. Penetrating hardener/densifier installer and polished floor surface installer (if applicable).
 - g. Ready-mix concrete producer.
 - h. Admixture manufacturer(s).
 - i. Concrete pumping equipment manufacturer (if applicable).
 - j. Concrete pumping subcontractor (if applicable).
 2. Minutes of the meeting shall be recorded, typed, printed, and distributed to all parties concerned by the Contractor within 5 days of the meeting. One copy of the minutes shall also be transmitted to the Owner's representative for information purposes:
 3. The minutes shall include a statement by the Contractor indicating that the proposed mix design will produce the specified concrete quality.
- I. Exposed Sales Area Concrete Slab:
1. Check each batch ticket for mix component materials to confirm that weights are within tolerance for mix design.
 2. Perform slump test and temperature for each truck load.
 3. Do not alter out-of-spec loads at job site. Loads that do not meet specifications for mix design will be rejected.

1.5 ENVIRONMENTAL REQUIREMENTS

- A. Cold Weather Concreting: Perform work in accordance with ACI 306R and 306.1 during cold weather concreting operations.
1. Comply with the following for minimum temperature of concrete delivered to job site:
 - a. Air Temperature 30-45 degrees F: Concrete temperature 60 degrees F minimum.
 - b. Air Temperature 0-30 degrees F: Concrete temperature 65 degrees F minimum.
 - c. Air Temperature below 0 degrees F: Concrete temperature 70 degrees F minimum.
 - d. Maximum concrete temperature: Not to exceed the minimum required temperature by more than 10 degrees F.
 2. Combine water heated to above 100 degrees F with aggregates before cement is added. Do not add cement to water or aggregates having temperature greater than 100 degrees F.
 3. When temperatures of 40 degrees F or lower occur during the placing and curing of concrete, maintain temperature of concrete at not less than 50 degrees F for at least 7 days for conventional concrete or at least 3 days for high early strength concrete.
 - a. Make arrangements before placement to maintain required temperature without damage from excessive heat.
 - b. Do not use combustion heaters during first 48 hours without precautions to prevent exposure of concrete to exhaust gases containing carbon dioxide and carbon monoxide.
 4. Protect concrete work from physical damage or reduced strength which could be caused by frost, freezing actions, or low temperatures, in compliance with the requirements of ACI 306R and 306.1 and as herein specified.
 5. When the air temperature has fallen to or is expected to fall below 40 degrees F, provide adequate means to maintain the temperature of the plastic concrete as placed, at 50 degrees F minimum, for at least 7 days for conventional concrete or at least 3 days for high early strength concrete. Provide temporary housings or coverings including tarpaulins or plastic film. Keep protection in place and intact at least 24 hours after artificial heat is discontinued. Avoid rapid dry-out of concrete due to overheating, and avoid thermal shock due to sudden cooling or heating.
 6. Do not use frozen materials containing ice or snow. Do not place concrete on frozen subgrade or on subgrade containing frozen materials. Ascertain that forms, reinforcing steel, and adjacent concrete surfaces are entirely free of frost, snow, and ice and temperature of these materials is above 32 degrees F before placing concrete.
- B. Hot Weather Concreting: Perform work in accordance with ACI 305R.
1. When hot weather conditions exist that would seriously impair the quality and strength of concrete, place concrete in compliance with ACI 305R and as herein specified.
 2. Temperature of concrete at time of placing: Not to exceed 90 degrees F. Maintain an accurate reading thermometer at the job site to check temperature of concrete. Reject concrete before placing if temperature of concrete exceeds 90 degrees F.
 3. Execute special precautions to protect fresh concrete before and during finishing when the rate of evaporation of surface moisture from concrete exceeds 0.1 pounds per square foot per hour. Determine rate of evaporation in accordance with ACI 305R. Provide special precautions as required:
 - a. Cool ingredients before mixing to reduce concrete temperature at time of placement. Mixing water may be chilled, or chopped ice may be used to control the concrete temperature provided the water equivalent of the ice is calculated to the total amount of mixing water.
 - b. Dampen subgrade and forms.
 - c. Cover reinforcing steel with water-soaked burlap so the steel temperature will not exceed the ambient air temperature immediately before embedment in concrete.
 4. When high temperature and/or placing conditions dictate, the concrete supplier may request use of water-reducing retarding admixture (Type D) in lieu of water-reducing admixture (Type A), subject to approval from the Wal-Mart Construction Manager.

1.6 PROJECT CONDITIONS

- A. Protect concrete slabs from staining prior to application of penetrating hardener/densifier concrete finish.

1. Diaper hydraulic powered equipment.
2. Place drop cloths under parked vehicles.
3. Do not store structural steel or metal fabrications on slab.
4. Do not allow pipe cutting machine on slab.

1.7 SITE VERIFICATION AND ADA-ADAAGS COMPLIANCE

- A. The Contractor shall be responsible for verification of all final concrete elevations for new flatwork, sidewalks, ramps, stoops and stairs, as applicable to the Project. All new ramps, stoops and stairs shall be ADA accessible unless specifically noted otherwise. Any discrepancies shall be reported to the Wal-Mart Construction Manager and the Consulting Architect prior to construction. Failure to do so does not relieve the Contractor from the responsibility to correct any non-complying construction.
- B. Verify final grades around new ramps and stairs and adjust stair width, risers/treads and ramp lengths to accommodate required slope or riser heights. The following are max./min. guidelines:
 1. Bale ramps: Slope 10% (1:10) (not required to be handicap accessible).
 2. Bale ramp width: 8'-0" wide typical (unless otherwise noted).
 3. ADA ramps: Slope 8% (1:12).
 4. ADA ramp width: 4'-0" minimum (Refer to Drawings).
 5. ADA accessible sidewalks/flatwork or path of travel in one direction: Max. slope 5% (1:20).
 6. Cross slope to direction of travel: 2% max. (1:50).
 7. Stair riser: 7" max. height.
 8. Stair tread: 11" min. length.
 9. Stair width (single door): 4'-6" minimum.
 10. Stair width (double door): 8'-8" minimum.
 11. Stoops/landings: 6'-0" x 4'-0" single door typical (unless otherwise noted - Refer to Drawings).
 12. Stoops/landings: 9'-0" x 4'-0" double door typical (unless otherwise noted - Refer to Drawings).

1.8 WARRANTY

- A. Document 00800 - Supplementary Conditions: Requirements for warranties.
- B. Penetrating Hardener/Densifier Finish: Provide 20 year manufacturer's material warranty commencing at date of building Substantial Completion. Manufacturer shall warrant to the Owner that treated surface will remain waterproof, dustproof, hardened and abrasion resistant for the duration of the warranty period.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Subject to compliance with project requirements, provide products as manufactured by the following to the extent as specified hereinafter for the specific product:
 1. American Colloid Company, (800) 527-9948.
 2. Ardex Engineered Cements, (412) 264-4240.
 3. BASF Admixtures Inc., Cleveland, OH (Formerly Master Builders) (800) 628-9990.
 4. BASF Building Systems, Shakopee, MN (Formerly Degussa Building Products) (800) 433-9517.
 5. Bomanite Corporation, (800) 854-2094.
 6. Chemtec Int'l. (513) 474-2090.
 7. Conspec Marketing & Manufacturing, (800) 348-7351.
 8. Curecrete Chemical Company Incorporated, (800) 998-5664.
 9. Degussa Building Products: See BASF Building Systems, DRC Inc., Carrollton, KY (502) 732-1001.
 10. DRC Inc., Carrollton, KY (502) 732-1001.
 11. E-Poxy Industries, Inc., (800) 833-3400.
 12. Euclid Chemical Co., (800) 321-7628.
 13. EZform, Inc., (866) 913-8363.
 14. H & C distributed by Sherwin-Williams.

15. Increte Systems Inc., (800) 752-4626.
16. L. M. Schofield Co., (800) 800-9900.
17. L & M Construction Chemicals Inc., (800) 362-3331
18. Master Builders, Inc.: See BASF Admixtures, Inc.
19. MBT: See BASF Building Systems.
20. Metzger/McGuire, (800) 223-6680.
21. Patterned Concrete Industries, Inc., (800) 252-4619.
22. Permagile Industries, Inc. (800) 645-7546.
23. PNA Construction Technologies, (800) 542-0214.
24. Reef Industries, (800) 231-6074.
25. Sika Corp., (800) 933-7452.
26. Solomon Colors, (800) 624-0261.
27. Sonneborn Building Products: See BASF Building Products.
28. Stego Industries LLC, (877) 464-7834.
29. Synko-Flex Products (Division of Henry Company); (800) 231-4551.
30. Thoro System Products: See BASF Building Products.
31. Unitex, (816) 231-7700 or (800)821-5846.
32. W.R. Grace and Co., (713) 223-8353.
33. Vexcon Chemicals, Inc., (888) 839-2661.

B. Substitutions: Not permitted unless otherwise specified.

2.2 AGGREGATE BASE MATERIALS

A. Aggregate base material shall be crusher run stone conforming to ASTM D 1241, Grade C or D unless otherwise indicated in the "Foundation Subsurface Preparation" on the Drawings.

2.3 FORMWORK

A. Design, engineer, and construct forms, shores, bracing, and other temporary supports to support loads imposed during construction in accordance with ACI 347. Design under the direct supervision of a licensed Professional Engineer experienced in design of this Work.

1. Plywood: DOC PS 1, sound, undamaged sheets with straight edges.
2. Lumber: Construction grade.
3. Steel: Minimum 16 gage sheet, well matched, tight fitting, stiffened to support weight of concrete without deflection detrimental to tolerances and appearance of finished surfaces.
4. Carton Forms: Moisture resistant treated paper faces, biodegradable, structurally sufficient to support weight of wet concrete until initial set.

B. Form Release Agent:

1. 100% biodegradable, non-toxic, 100% natural organic chemical release agent. Will not cause surface imperfections, non-staining, and compatible with field applied paints, toppings, curing compounds, and other coatings. Provide one of the following:
 - a. Form-EZE Natural by Euclid.
 - b. Enviroform by Conspec.
 - c. Certi-Vex V Form Release by Vexcon.
 - d. Farm Fresh by Unitex.
2. Use same brand form release agent for all forms.

C. Accessories:

1. Form Ties: Removable or snap-off metal, of fixed or adjustable length as applicable, with cone ends.
2. Waterstops: Provide one of the following.
 - a. Volclay RX-10, by American Colloid.
 - b. Synko-Fle, by Synko-Flex.

D. Prefabricated Access Pit Form: Pit form at Refrigeration Pit shall be Prefabricated Fiberglass Access Pit and

Anchoring Assembly as manufactured by Craig Manufacturing, Ephrata, IL (717) 733-1412.

2.4 REINFORCEMENT

- A. Reinforcing Steel: ASTM A615; 60 ksi yield grade billet-steel deformed bars, uncoated finish.

2.5 REINFORCEMENT ACCESSORY MATERIALS

- A. Tie Wire: Minimum 16 gage annealed type.
- B. Reinforcing Support Devices:
 - 1. Manufacturer support devices of metal (wire bar), concrete, or recycled plastic devices conforming to CRSI Manual of Standard Practice.
 - 2. Precast concrete bar supports shall have minimum compressive strength of 3500 psi.
 - 3. Plastic accessories shall have a minimum of 50% recycled content.
 - 4. Do not use wood, clay brick, and other devices that can expand due to moisture gain.
 - 5. For concrete surfaces exposed to view where legs of wire bar supports contact forms, use CRSI Class 1 plastic-protected steel wire or CRSI Class 2 stainless-steel bar supports.
 - 6. When precast concrete bar supports are used over aggregate base, or over waterproof membranes and vapor retarders, properly embed tie wires to prevent penetration of substrate.
 - 7. Properly size foot of bar supports or similar devices to prevent settlement on base material or prevent puncture of vapor retarder.
 - 8. When supporting multiple layers of reinforcement, provide the proper size and spacing of bar supports or similar devices to prevent deformation of plastic and to retain rebar within position tolerances.
- C. Slab on Grade Plate Dowels (For Interior Slabs Only):
 - 1. Plate dowel shall consist smooth steel plate bars, ASTM A36 steel. Plate dowels shall be one of the following:
 - a. Diamond Dowel System, by PNA Construction Technologies, size 1/4" x 4.5" dowels.
 - b. EZform Board & EZdowel by EZform, Inc., size 6-1/4" x 3-1/2" x 1/4" dowels.
 - 2. Install plate dowels at construction joints in accordance with manufacturer's recommendations.
- D. Joint Dowel Bars (For Exterior Slabs): ASTM A 615, Grade 40 or ASTM A36 plain-steel bars, size as shown on the drawings. Cut bars true to length with ends square and free of burrs.

2.6 CONCRETE MATERIALS

- A. Cement: ASTM C150 - Type I, II, or III, U.N.O. If reactive aggregates are present in the area, use low alkali cement containing less than 0.6 percent alkalis.
- B. Aggregate:
 - 1. Fine and Coarse Aggregate: Use gradation for fine and coarse aggregate per ASTM C33, but not larger than 1-1/2 inches.
 - 2. Fine, Intermediate and Coarse Aggregate: Combined aggregate gradation for slabs and other designated concrete shall be 8% - 18% for large top size aggregates (1 1/2 in.) or 8% - 22% for smaller top size aggregates (1 in. or 3/4 in.) retained on each sieve below the top size and above the No. 100. For pumped concrete use maximum aggregate size of 1/3 the inside diameter of the hose or pipe.
- C. Fly Ash: ASTM C618, Class C or F. Submit chemical and physical properties. Use only one type and source throughout project.
- D. Slag: ASTM C989, Grade 100 or 120. Use only one type and source throughout project.
- E. Water: Clean potable water, not detrimental to concrete.

2.7 CHEMICAL ADMIXTURES

- A. Chemical Admixtures: Provide admixture products as specified below. Within each product listing, provide one of the products specified. When specifically allowed within each product listing, equivalent admixture products by other manufacturers meeting the specified ASTM standards may be used upon submittal of product data and approval by the engineer.
- B. Air Entrainment: ASTM C260.
 - 1. Air-Mix or AEA-92, by Euclid.
 - 2. MB-VR MB-AE 90, or Micro-Air, by BASF Admixtures (Master Builders).
 - 3. Sika AER, by Sika.
 - 4. Daravair or Darex Series, by W.R. Grace.
 - 5. Equivalent approved products.
- C. Water Reducing Admixture: ASTM C494, Type A.
 - 1. Eucon Series, by Euclid.
 - 2. Pozzolith or PolyHeed Series by BASF Admixtures (Master Builders).
 - 3. WRDA, Daracem, or Mira Series, by W.R. Grace.
 - 4. Plastiment, Plastocrete, or Sikament Series, by Sika Corp.
 - 5. Equivalent approved products.
- D. Accelerating Admixture: ASTM C494, Type C or E.
 - 1. Accelguard 80, by Euclid Chemical Corp.
 - 2. Daraset Series, Gilco, Lubricon, Polarset, or DCI by W.R. Grace.
 - 3. Pozzolith or Pozzutec Series, by BASF Admixtures (Master Builders).
 - 4. Plastocrete 161 FL, Plastocrete 161 HE, Sikaset NC, or Sikaset HE by Sika Corp.
 - 5. Calcium Chloride (Type L) in solution form.
 - 6. Equivalent approved products.
- E. Water Reducing and Retarding Admixture: ASTM C494, Type B or D.
 - 1. Eucon Retarder 75, by Euclid.
 - 2. Pozzolith Series or Delvo by BASF Admixtures (Master Builders).
 - 3. Daratard 17 by W.R. Grace.
 - 4. Plastiment or Plastocrete Series by Sika Corp.
 - 5. Equivalent approved products.
- F. High-Range, Water Reducing Admixture (Super plasticizer): ASTM C494, Type F or Type G.
 - 1. Eucon 37 or Eucon 1037, by Euclid.
 - 2. Rheobuild 1000, by BASF Admixtures (Master Builders).
 - 3. Sikament 300, by Sika.
 - 4. Daracem Series, by W.R. Grace.
 - 5. Equivalent approved products.

2.8 RELATED MATERIALS

- A. Non-shrink Grout: Pre-mixed non-shrinking, high strength grout, ASTM C1107, Type A, B, or C; compressive strength of 5000 psi in 28 days.
 - 1. NS Grout, by Euclid.
 - 2. Construction Grout, by BASF Admixtures (Master Builders).
 - 3. SonogROUT, by BASF Building Systems (Sonneborn).
 - 4. Certi-Vex Grout #1000, by Vexcon.
 - 5. Enduro 50, by Conspec.
- B. Joint Fillers and Sealants: Specified in Section 07900.

- C. Epoxy Bonding Agent: ASTM C881.
 - 1. Euco #452 or Corr-Bond, by Euclid.
 - 2. EVA-POX Epoxy Paste No. 22, by E-Poxy Industries.
 - 3. Concrevice Liquid (LPL), by BASF Admixtures (Master Builders).
 - 4. Uniweld, by Permagile Industries.
 - 5. Sikadur 32, Hi-Mod LPL by Sika.
- D. Bond Breaker: ASTM D226, No. 15, unperforated asphalt saturated felt.
- E. Leveling Compound:
 - 1. Ardex V-900, by Ardex. Contact: Jesse David.
 - 2. Flo-Top or Super Flo-Top, by Euclid.
 - 3. SikaTop Overlay System, by Sika.
 - 4. Thoro Underlayment Self-Leveling including Thoro Primer #800, by BASF Building Systems (Thoro).
 - 5. Certi-Vex SLU TC including EnvioBond A Primer, by Vexcon.
 - 6. Conflow including Primeflow, by Conspec.
 - 7. MASTERTOP 110 UNDERLAYMENT, by BASF Admixtures (Master Builders).
- F. Pre- Hardener/Densifier Floor Cleaner: WM Pre-Densifier Floor Cleaner, by one of the following:
 - 1. Euclid Chemical Co.
 - 2. Curecrete Distribution Inc.
 - 3. L&M Construction Chemicals, Inc.
 - 4. Dayton/Superior.
 - 5. Vexcon Chemicals, Inc.
- G. Penetrating Hardener/Densifier: Provide one of the following:
 - 1. Ashford Formula by Curecrete. Contact: Kathy Moore, Director of Corporate Accounts.
 - 2. StarSeal PS by Vexcon. Contact: Darryl Manuel, President.
 - 3. Euco Diamond Hard by Euclid Chemical Company. Contact: Bill Phelan, V.P. of Marketing and Technical Services.
 - 4. Intraseal by Conspec.
 - 5. Seal Hard by L&M. Contact: Frank Bianchi, Regional Sales Manager.
 - 6. CHEMTEC ONE by Chemtec.
- H. Vapor Retarder: ASTM E1745, Class A, sheet membrane material, not less than 10 mils thick. Color: Mfg. standard.
 - 1. Griffolyn 10 mil Green, by Reef Industries (713) 507-4200.
 - 2. Moistop Ultra 10, by Fortifiber, (800)-773-4777.
 - 3. Perminator 10 mil, by W.R. Meadows, (847) 214-2100.
 - 4. Vapor Block 10 mil, by Raven Industries, (800) 635-3456.
 - 5. Tape and Adhesive: Tape and adhesives for sealing laps, punctures, tears and penetrations shall be pressure-sensitive, waterproof adhesive tape, 2 inches minimum width and compatible with retarder.
- I. Concrete Sealer: Solvent based concrete sealer having a minimum 25% solids similar to High Solids Clear Seal manufactured by Increte Systems Inc.

2.9 CONCRETE CURING MATERIALS

- A. Water: Clean, clear, and potable, not detrimental to concrete finish.
- B. Sheet Materials: Natural fiber / plastic sheet, ASTM C171. White natural fiber matting securely attached to plastic sheet backing.
 - 1. UltraCure, by McTech Group.
 - 2. AquaCure, by DRC.
 - a. Exclusive Distributor: Greenstreak Group, Inc., St. Louis, MO (800) 325-9504.

- C. Liquid Membrane Curing and Sealing Compound: ASTM C 1315, Type I, Class A or B, 25% minimum solids content, clear non-yellowing with no styrene-butadiene.
 - 1. Water Based, VOC less than 350 g/l:
 - a. Super Aqua Cure, by Euclid Chemical Corp.
 - b. Kure 1315 by BASF Building Systems (Degussa).
 - 2. Solvent Based:
 - a. Super Rez-Seal, by Euclid Chemical Corp.
 - b. Kure-N-Seal 30 by BASF Building Systems (Degussa).
- D. Dissipating Curing Compound: ASTM C 309 Type 1, Class A or B, solvent or water base, VOC less than 350 g/l.
 - 1. Cetri Vex EnvioCure 100 by Vexcon (Solvent base).
 - 2. Day Chem REZ Cure (J-11-W) or Safe Cure & Seal (J19) by Dayton Superior (Water Base).
 - 3. Kurez DR VOX, by Euclid (Water Base).

2.10 COLOR TEXTURED (STAMPED) CONCRETE

- A. Imprint Pattern: Imprint tools listed below shall be compatible in terms of providing a dimensional transition. Provide textured finishes as follows:
 - 1. Detectable Warning Area: 6"x 6" Granite Setts stamp, U.N.O.
 - 2. Vestibule Floor: Grid size as shown.
 - a. Bomanite Corporation: "Light Slate", # TL-1809.
 - b. Patterned Concrete Industries: "Ripple Slate", # PCRT-1440.
 - c. Increte Systems Inc.: "Slate Skin", # IN 10-40061.
- B. Colored Hardener: Dry-shake colored hardener. Subject to compliance with project requirements, provide colored hardener as manufactured by one of the following:
 - 1. Lithochrome Color Hardener by Schofield.
 - a. Detectable Warning Area (color as required to match existing):
 - 1) Base #A-21 "Deep Charcoal" with Release Agent of same color, or
 - 2) Base #A-24 "Russet" with Release Agent #A-21 "Deep Charcoal".
 - b. Vestibule Floor Color (color as required to match existing):
 - 1) Base #A-50 "Slate Gray" with Release Agent # A-57 "Platinum", or
 - 2) Base #A-24 "Russet" with Release Agent #A-21 "Deep Charcoal".
 - 2. Bomanite Color Hardener by Bomanite:
 - a. Detectable Warning Area Color (color as required to match existing):
 - 1) Base #B-2, "Cobblestone Gray" with Release Agent #A-3 "Natural Gray", or
 - 2) Base #BC-1 "Rust Brown" with Release Agent #BC-1 "Brownstone".
 - b. Vestibule Floor Color (color as required to match existing):
 - 1) Base #B-13 "Chargreen" with Release Agent #A-3 "Natural Gray", or
 - 2) Base #BC-1 "Rust Brown" with Release Agent #BC-1 "Brownstone".
 - 3. Increte Systems Color Hardener by Increte:
 - a. Detectable Warning Area (color as required to match existing):
 - 1) Base "Gray" with Release Agent "Gray" or "Clear", or
 - 2) Base "Redwood" with Release Agent "Charcoal".
 - b. Vestibule Floor Color (color as required to match existing):
 - 1) Base "Slate" with Release Agent "Dark Gray", or
 - 2) Base "Redwood" with Release Agent "Charcoal".
- C. Color Textured Concrete Sealer: Mixture of 20 parts of sealer to one part skid-resistant additive.
 - 1. Sealer: Solvent based concrete sealer having a minimum 25% solids similar to Concrete Sealer B28 as manufactured by Barrier International or High Solids Clear Seal manufactured by Increte Systems Inc.
 - 2. Additive: "Sharkgrip" Skid-Resistant Additive by H & C distributed by Sherwin-Williams.

2.11 CONCRETE MIX

- A. Portland Cement: Only one brand of cement shall be used on the project. Mix and deliver concrete in accordance with ASTM C94. Prepare design mixes for each type and strength of concrete by the laboratory trial batch or the field experience method as specified in ACI 301. After mix design approval, do not change mix proportions of Portland cement, fly ash, or slag.
- B. Provide concrete with the following characteristics:
 - 1. 28 Day Compressive Strength:
 - a. 3000 psi for all concrete unless otherwise shown or specified.
 - b. 3500 psi for exterior concrete and vestibule concrete.
 - c. 5000 psi for compactor pad concrete.
 - 2. Air Content:
 - a. For Concrete Exposed to Weather: 4 percent, plus or minus 1.5 percent.
 - b. For Concrete Not Exposed to Weather: Not to exceed 5 percent. Interior steel troweled floors shall have a maximum air content of 3%. Do not add air-entraining agents.
 - 3. Slump for Conventionally Placed Concrete: Not to exceed 4 inches or not to exceed 5 inches with a Type A water reducing admixture.
 - 4. Slump for Pumped Concrete: Not to exceed 7 inches at the point of discharge from the pipe or hose after pumping. HRWR admixture (super plasticizer) required.
 - 5. Maximum Water-Cementitious Material Ratio (Cementitious material includes fly ash or slag):
 - a. Exterior Concrete: 0.50 by wt.
 - b. Interior Concrete: 0.58 by wt.
 - c. Interior steel troweled exposed floor: 0.53 by wt.
 - 6. Temperature For Exposed Sales Area Floor Slab: Concrete placement temperatures shall be within the range of 10 to 20 degrees of aggregate base.
 - 7. Concrete to be Placed by Pumping Methods:
 - a. The minimum quantity of constituent materials passing the No. 50 sieve (fine aggregate and cementitious materials) shall be 600 pounds per cubic yard.
 - b. The particle size distribution of the combined fine and coarse aggregate shall be uniform from the largest to the smallest particles.
- C. Admixtures:
 - 1. Use water-reducing admixture or high-range water-reducing admixture (Superplasticizer) in concrete as required for placement and workability. Unless otherwise permitted herein, chemical admixtures shall be dispensed at the batch plant.
 - 2. Use accelerating admixture in concrete slabs placed at ambient temperatures below 50 F.
 - 3. Use high-range water-reducing admixture (HRWR) in pumped concrete. Use air-entraining admixture in exterior concrete exposed to weather. Add air-entraining admixture at manufacturer's prescribed rate to result in concrete at point of placement having total air content specified above.
 - 4. Use admixtures for water reduction and set control (accelerators and retarders) in strict compliance with manufacturer's directions.
 - 5. Verify with the admixture manufacturer the following:
 - a. The compatibility of the individual admixtures when combined in the concrete mix.
 - b. The compatibility of the individual admixtures with the concrete materials.
 - c. The compatibility of the individual admixtures with the coloring admixture.
- D. Supplementary Cementitious Materials (SCM):
 - 1. Concrete mix shall contain SCM at the amounts specified unless other amounts are approved by the Structural Engineering Consultant. Either fly ash or ground granulated blast furnace slag (GGBFS) may be used for the SCM but shall not be used together to form a ternary mix. Use of fly ash or GGBFS in the concrete mix is mandatory.

2. Fly Ash: Substitute fly ash for Portland cement at 15% minimum up to 20% maximum of the total cementitious content for interior floor slabs and at 20% of the total cementitious content for all other concrete.
 - a. If used to mitigate potential aggregate reactivity, only Type F fly ash may be used and shall have the following maximum properties: 1.5% available alkali and 8.0% CaO. When a maximum of 30% replacement is used, up to 10.0% CaO is permitted.
3. Ground Granulated Blast Furnace Slag (GGBFS): Substitute GGBFS for Portland cement at 25% minimum up to 30% maximum of the total cementitious content. If required to mitigate potential sulfate exposure or aggregate reactivity, up to 50% GGBFS substitution of Portland cement may be used.
4. Maintain air-entrainment at specified levels.
5. In cold weather, provide adequate concrete strength gain so concrete will not be damaged from traffic and loads of use.

E. Calcium Chloride Admixture:

1. Calcium chloride (Type L) conforming to ASTM D98 may be used in solution form as part of the mixing water to accelerate concrete setting and early-strength development.
2. Amount of calcium chloride added shall not be more than necessary to produce the desired results and shall not exceed 2% by weight of cement.
3. The dosage range for the calcium chloride for the entire project shall not vary by more than 1%. Range is defined as the difference between the maximum and minimum dosages of calcium chloride for the entire project.
4. Calcium chloride shall not be used in the following applications unless approved by Structural Engineer:
 - a. Concrete containing embedded dissimilar metals or aluminum.
 - b. Slabs supported on permanent galvanized steel forms.
 - c. Concrete exposed to deicing chemicals.
 - d. Prestressed or post-tensioned concrete.
 - e. Concrete containing aggregates with potentially deleterious reactivity.
 - f. Concrete exposed to soil or water containing sulfates.
5. Use calcium chloride in accordance with manufacturer's recommendation.
6. Chloride-ion Concentration: Maximum water-soluble chloride-ion concentrations in hardened concrete at ages from 28 to 42 days contributed from the ingredients including water, aggregates, cementitious materials, and admixtures shall not exceed the following limits unless approved by the Structural Engineer:

Type of Member	Maximum water-soluble chloride ion (Cl-) content in concrete (percent by weight of cement)
Prestressed concrete	0.06
Reinforced concrete exposed to chloride in service	0.15
Reinforced concrete that will be dry or protected from moisture in service	1.00
Other reinforced concrete construction	0.30

7. When using calcium chloride or other admixtures containing chlorides, measure water-soluble chloride-ion content (percent by weight of cementitious materials) per ASTM C1218. Sample shall be from concrete representing the submitted mix design and maximum chloride dosage anticipated for the project.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify anchors, seats, plates, reinforcement, and other items to be cast into concrete are accurately placed, held

securely, and will not cause hardship in placing concrete.

3.2 PREPARATION

- A. Prepare previously placed concrete by cleaning with steel brush and applying bonding agent. Apply bonding agent in accordance with manufacturer's instructions. Do not apply bonding agent at slab-on-grade construction joints.
- B. The base elevation shall conform to an elevation of +0" / -3/4". Prior to placing concrete, the soil support system shall be proof rolled by a loaded tandem axle dump, a loaded truck mixer, roller, or equivalent. Corrective action shall be taken if rutting or pumping is evident at any time during the preparation of the soil support system.
- C. Membrane roof construction shall be 100 percent complete prior to placement of interior floor slab.
 - 1. Roofing system shall be complete including flashing.
 - 2. Roof curbs shall be covered.
 - 3. Roof storm water drainage system shall be complete.
- D. Prefabricated Access Pit Form: Install in accordance with manufacturer's instructions.

3.3 AGGREGATE BASE PLACEMENT

- A. Unless otherwise shown in the "Foundation Subsurface Preparation" on the Drawings, place aggregate base to a minimum 4 inch depth below slabs associated with buildings and appurtenances.
 - 1. Compact to 100 percent of maximum density in accordance with ASTM D698.

3.4 VAPOR RETARDER INSTALLATION

- A. Following leveling and tamping of prepared base for slabs, place vapor retarder sheeting with longest dimension parallel with direction of placement.
- B. Lap joints 6 inches minimum and seal with appropriate tape. Do not disturb or damage vapor retarder while placing granular fill. If damage occurs, repair before concrete placement.
- C. Install vapor retarder under freezer slab as indicated on Drawings.

3.5 PLACING REINFORCEMENT

- A. Perform concrete reinforcement work in accordance with CRSI Manual of Standard Practice, Documents 63 and 65. Detailing practices and fabrication shall conform to ACI SP66.
 - 1. Accurately place and secure saddle ties at every other intersection with 16 gage black annealed wire; hold rigidly in place with metal chairs or spacers during placing of concrete.
 - 2. Hold bars in beams and slabs to exact location during concrete placement. Use spacers, chairs, or other necessary supports with the following tolerances:
 - a. Bars in Slabs and Beams:
 - 1) Members 8 Inches Deep or Less: $\pm 1/4$ inch.
 - 2) Members 8 Inches to 2'-0" Deep: $\pm 1/2$ inch.
 - 3) Members more than 2'-0" Deep: ± 1 inch.
 - b. Lengthwise of Member: ± 2 inches.
 - c. Concrete Cover to Formed Surfaces: $\pm 1/4$ inch.
 - d. Minimum Spacing Between Bars: $\pm 1/4$ inch.
- B. Welded Reinforcement (AWS D1.4): Do not weld reinforcement in the shop or field.
- C. Exterior Slab on Grade and Pavement Dowels:
 - 1. Install round smooth dowels within plus or minus (+/-) 1/4" alignment in vertical and horizontal planes.
 - 2. Secure dowels perpendicular to joint and parallel to finished concrete surface.

3. Lightly grease dowels to prevent bond to concrete.

D. Interior Slab on Grade Plate Dowels:

1. Install plate dowels at construction joints in accordance with manufacturer's recommendations.
2. Secure dowels and their sleeves perpendicular to joint and parallel to finished concrete surface.
3. Use prefabricated dowel supports at ends of dowels to maintain alignment.
4. Dowel alignment shall be within specified tolerances.
5. Do not grease plate dowels.
6. Install plate dowels within plus or minus (+/-) 1/8" in dowel alignment in vertical and horizontal planes.
7. Install plate dowels horizontally on the bulkhead at the greater depth of either mid-slab or 2-1/4 inch from slab surface to center line of the plate.

3.6 PLACING CONCRETE

- A. Notify Testing Laboratory minimum 48 hours prior to commencement of concreting operations.
- B. Place concrete in accordance with ACI 301; including hot and cold weather placement procedures.
- C. Inspect reinforcement, inserts, and embedded parts before beginning concrete placement to ensure accurate size and location.
- D. Ensure reinforcement, inserts, embedded parts and formed joints are not disturbed during concrete placement.
- E. Place concrete in uniform layers, horizontal, 12 to 18 inches thick, exercising care to avoid vertical joints or inclined planes. Place concrete continuously between predetermined construction joints shown on structural drawings. Piling up of concrete in forms to cause separation or loss of ingredients is not permitted.
- F. Maximum placement area for individual pours for interior slabs shall be the greatest width between construction joints shown by the length between exterior walls.
- G. Place exposed concrete surfaces free of stains, including petroleum stains. Means of adequately removing petroleum stains are not available; therefore, prevention of stains is most critical.
 1. No pipe cutting machinery allowed within building line on concrete surface.
 2. No stock piling of steel allowed within building line on concrete surface.
 3. No vehicle parking within building line on concrete surface without meeting the following requirements:
 - a. Provide non-absorbent "drop cloths" below vehicle that will not stain surface.
 - b. Cover hydraulic powered equipment to prevent staining of concrete surface.
- H. Do not deposit concrete which has partially set or hardened. Do not deposit initial lubricating mortar when pumping concrete. Remove hardened or partially hardened concrete which has accumulated on forms or reinforcement. Do not place concrete on previously deposited concrete which has hardened sufficiently to cause formation of seams or planes of weakness within respective member or section except as specified.
- I. Deposit concrete as nearly in final position as practical to avoid rehandling. Exercise care to prevent splashing forms or reinforcing with concrete. Do not permit concrete to drop freely a distance greater than 3 feet. Where longer drops are necessary, use chute, tremie, or other conveyance to help avoid separation.
- J. Do not deposit concrete into excavation where water is standing. If place of deposit cannot be successfully pumped dry, place through tremie with outlet end near bottom of place of deposit.
- K. Do not deposit concrete when plasticity, measured by slump test, is outside specified limits. The addition of water to increase slump will not be permitted.
- L. Exposed Sales Area Concrete Floor Slab: Verify that the aggregate base is uniform in moisture content and is fine graded to a tolerance of plus or minus 1/2 inch. Eliminate high or low spots, pot holes, or other variations which may affect finishing of concrete placed for floor slab due to uneven base material.

- M. Consolidate and screed concrete slabs-on-grade by use of laser screed to allow construction joint pattern as indicated on Structural Drawings and specified. Consolidate slab concrete in slabs by vibrating bridge screeds or laser screeds. Other vibratory screeding methods are acceptable only in areas where laser screed is not accessible.
 - 1. Check laser screed level head a minimum of 3 times during each pour. Use feeler gauge to measure deviations. If deviations are present, replace head with a new straight one.

- N. Vibration: As soon as concrete is deposited, thoroughly agitate with mechanical vibrators and suitable hand tools to work mixture into corners of forms and around reinforcing and embedded items. Use mechanical vibrators with minimum frequency of 9000 revolutions/minute. Do not over vibrate or use vibrators to transport concrete within forms. Insert and withdraw vibrators at approximately 18 inches apart. At each insertion, vibrate generally 5-15 seconds, sufficient to consolidate concrete but not long enough to cause segregation. Keep spare vibrator on job site during concrete placement operations. Do not insert vibrator into lower courses that have begun to set.
- O. Excessive honeycomb or embedded debris in concrete is not acceptable. Notify Wal-Mart Construction Manager upon discovery.
- P. Pumping: Maintain controls for proportioning, mixing, adjustment of mix and placement in accordance with ACI 301 and ACI 304.2R.
 - 1. Refer to Section 01330 for submittal requirements.

3.7 FORM REMOVAL

- A. Do not remove forms until concrete has attained sufficient strength. Clamps or tie rods may be loosened 24 hours after concrete is placed. Ties, except for sufficient number to hold forms in place, may be removed at that time.
- B. Minimum Curing Period Prior to Form Removal:
 - 1. Air Temperature: Above 60 degrees F: 3 days.
 - 2. Air Temperature: 50 degrees F to 60 degrees F: 5 days.
 - 3. Air Temperature: 40 degrees F to 50 degrees F: 7 days.
 - 4. Air Temperature: Less than 40 degrees F: When temperature below 40 degrees F prevails, leave forms until concrete reaches 75% of 28-day design strength.
- C. Observance of minimum curing periods listed above does not relieve Contractor of responsibility for safety of structure during construction.
- D. Remove wood forms from under floors, ramps, steps, and similar places (through temporary openings if necessary) so no material will be left to rot or to be infested by termites.
- E. Exterior Slab Construction and Expansion Joints: Remove greased dowels prior to form removal. Immediately re-insert dowels as forms are removed.

3.8 FINISHING

- A. Schedule of Finishes:
 - 1. Interior Floor Slabs unless otherwise specified: Machine trowel or hand trowel.
 - 2. Unexposed Exterior Formed Surfaces: Rough form finish.
 - 3. Exposed Exterior Formed Surfaces: Rubbed/stoned.
 - 4. Sidewalks: Light broom.
 - 5. Ramps and Steps: Heavy broom.
 - 6. Slabs Receiving Ceramic or Quarry Tile Flooring: Light broom.
 - 7. Color Textured Concrete: Specified in Paragraph "Color Textured Concrete".
 - 8. Exterior Garden Center Slab: Light broom.
- B. Sealing: Apply concrete sealer to interior concrete curbs in cart storage area.
- C. Initial Finishing:
 - 1. Initial surface straightening shall be performed with a laser screed.
 - 2. Re-straighten surface irregularities with a 10 ft highway screed in two directions as close to perpendicular as possible before water appears on concrete surface.
 - 3. Do no further working of surface until time for floating; do not work surface while water is present.

4. "Dry Sprinkle" method finishing is not acceptable and will be cause for rejection.

D. Floating:

1. Begin float operations when bleed water sheen has disappeared and concrete has stiffened sufficiently to allow walking on surface without leaving heel prints more than 1/4 inch deep. Check and level the surface lane to an initial tolerance not exceeding 1/4 inch in ten feet when tested with a ten foot straight edge. Immediately after leveling, refloat surface to a uniform smooth granular surface. Use magnesium or aluminum power float unless otherwise specified.
 - a. Color Textured Concrete Areas: Float concrete from with wood float to create an open and uniform surface.
2. Avoid premature finishing that brings excessive fines to surface causing finished slab to have soft surface which will dust.

E. Troweling:

1. Delay troweling as long as possible to prevent working excess fines and water to surface. Do not begin until surface moisture film and shine remaining after floating have disappeared. Trowel in alternate pass directions.
2. Power trowel using riding trowel where possible. Use hand trowel in inaccessible areas.
3. Do not over-trowel floors scheduled to receive curing/sealing or penetrating hardener/densifier compound unless specified otherwise. Slab shall be capable of accepting subsequent floor treatment. Coordinate with floor treatment manufacturer's application instructions for proper finish and for procedures when finish is too dense for proper floor treatment application.
4. Do not re-wet surface to trowel.
5. Final hand finish passes shall be done in the same direction. Finish all surfaces within a reasonable time period to provide uniformity of appearance.

F. Broomed Finish:

1. Provide a floated finish, then finish with broom.
 - a. Heavy Broom Finish: Steel wire or stiff, coarse, fiber broom.
 - b. Light Broom Finish: Soft-bristled fiber broom.
2. Allow surface to harden sufficiently to retain scoring or ridges.
3. Broom transverse to traffic or at right angles to slope of slab.

G. Floor Finish Tolerance:

1. Provide F_F35/F_L30 tolerance for troweled floors in accordance with ACI 117.
2. Replace slab if measured values are below minimum or give credit to Owner.

- H. Pitch to drains: Form 18 inch radius around floor drains and pitch concrete surface to drains at rate of 1/4 inch per foot nominal, unless noted otherwise in Drawings.

3.9 COLOR TEXTURED CONCRETE

- A. Areas to Receive Color Textured Concrete: Provide stamped concrete textures where indicated and noted as "Detectable Warning Area" and the vestibule "Textured Colored Concrete".

B. Pattern:

1. Exterior Detectable Warning Area: Layout defined pattern as indicated with proper alignment with respect to building lines. Apply imprint to concrete surface with a consistent pressure while concrete is plastic providing a uniform texture.
 - a. Layout texture area at 90 degrees to edge of sidewalk. Provide uniform balance of texture spacing, centering pattern between ends of detectable warning area.
 - b. Hand-tool in areas where imprinting tools are not practical.

2. Vestibule Entry Area: Layout defined pattern as indicated with proper alignment with respect to building lines. Imprint fresh concrete surface, creating uniform texture using "slate or rock" textured mat for entire entry area.
 - a. Saw cut 1/8"x 1/4" deep joints within entry area in 48 inch grid pattern at 90 degrees to building lines (1/4"x 3/4" deep at control joints). Follow saw cutting method as defined within this Section. Observe minimum curing times for fresh concrete.
 - b. Saw cut to within 8" of perimeter wall.
- C. Coloring Agents:
 1. Dry-Shake Method: Evenly apply color hardener in two or more applications to fresh concrete. Apply at a minimum rate of 100 pounds per 100 square feet. Wood float after each shake.
 2. Release Agent: Apply evenly to troweled surface before imprinting.
- D. Detailing: When necessary, after concrete has set for at least 24 hours, chisel to remove marks left by imprinting tool.
- E. Sealer: Apply color textured concrete sealer per manufacturer's requirements. Wait 28 days after placement of color textured concrete to apply sealer.
- F. Protection of Work: After application and curing or sealer, cover imprinted concrete area with polyethylene. Lay panels of hardboard over polyethylene at traffic paths. Remove protection material from finish surfaces only after Work in the area has been completed.

3.10 JOINTING

- A. Building Slab Joints:
 1. Saw-Cut Control Joints:
 - a. Primary Method: Soff-Cut System, by Soff-Cut International, Corona, CA (800) 776-3328. Finisher shall have documented successful experience in the use of this method prior to this project. Install cuts within 2 hours after final finish at each saw cut location. Use 1/4 inch thick blade, cutting 3/4 inch into slab.
 - b. Optional Method (Where Soff-Cut System Equipment is Not Available): Properly time cutting with set of concrete. Wet saw-cut control joints within 12 hours after finishing. Start cutting as soon as concrete has hardened sufficiently to prevent aggregates being dislodged by saw. Complete cutting before shrinkage stresses become sufficient to produce cracking. Use 1/4 inch thick blade, cutting 1-1/4 inch into slab.
- B. Sidewalk Joints:
 1. Tooled Joints: Provide at 12 feet on center maximum intervals each way, unless indicated at smaller intervals on Drawings.
 - a. Form tooled joints in fresh concrete by grooving top of slab minimum 1/4 slab thickness with jointer and finishing edges.
 - b. Do not use sawed joints.
 2. Expansion Joints: Provide at 30 feet on center maximum intervals unless indicated at smaller intervals on Drawings. Provide at joints abutting concrete curbs, buildings, and other appurtenances.
 - a. Recess top of filler 1/4 inch below finished surface of sidewalk. Provide joint fillers in one piece lengths for full width being placed.
 3. Align curb, gutter, and sidewalk joints.

3.11 JOINT FILLING AND SEALING

- A. Joint filling and sealing is specified in Section 07900.

3.12 CURING

A. General:

1. Cure concrete in accordance with ACI 301, ACI 308R and ACI 308.1, except as noted.
2. Start curing as soon as concrete surface will not be damaged by curing operations.
3. Continuously cure concrete for at least 7 consecutive days.
4. During curing period, do not allow any part of the concrete to become dry.
5. If using forms for curing, keep forms in contact with concrete wet during curing period unless type of form is impervious to water, such as metal or fiberglass.
6. If forms are removed before curing period is complete, continue curing immediately with other approved methods.

B. Curing Compound:

1. Apply curing compounds by spraying or rolling uniformly in a single coat on surfaces immediately following final finishing operation.
2. Apply curing compound in accordance with manufacturer's recommendations.
3. Do not use curing compound on surface against which additional concrete, other finishing materials, or coatings are to be bonded if their bond will be affected by curing compound.
4. Spraying shall be by power sprayer.
5. Immediately recoat, at the rate specified above, surfaces subjected to rainfall within 3 hours after compound has been applied or surfaces damaged by subsequent construction operations within the curing period.

C. Moisture Cure:

1. Begin moisture cure immediately after concrete placement and initial setup.
2. Thoroughly saturate the non-woven fabric side of concrete curing cover prior to placement on slab.
3. Wet exposed surfaces of concrete after completing finishing and then apply sheet with edges lapped 6 inches minimum and sealed & secured in such manner as to prevent moisture from escaping from concrete from laps or edges.
4. Install sheet in accordance with manufacture's recommendations. After laying, squeegee sheet with roller squeegee to insure uniform contact between curing cover and slab.
5. Place concrete curing cover with non-woven fabric side in intimate contact with concrete surface.
6. Place curing cover over entire concrete surface.
7. Maintain cure and keep surface saturated for a minimum of 7 days.
8. Ensure all edges and overlaps are secured against displacement during curing period.
9. Maintain reasonable constant temperature in freshly placed concrete for the duration of the curing period.

D. Removal Of Concrete Curing Cover At Sales Area Floor Slab:

1. After minimum 7 day cure, remove sheet in sections. Dispose of used sheet material. Do not reuse sheet material.
2. A maximum of 35,000 square feet of concrete curing cover may be removed at any one time.
3. Using a powered floor scrubber with a citrus-based detergent, scrub floor to remove any soluble salts that may have accumulated at the floor surface.
4. Double scrub floor with automatic scrubber capable of minimum of 80 to 120 pounds of head pressure, equipped with nylo-grit or strato-grit brushes or black stripping pads to remove any residues from curing. Rinse area thoroughly with clean fresh water. Remove water and allow to dry. If whitening occurs during drying, repeat scrubbing process before floor dries until no whitening occurs during drying.
5. Scrubbing shall be performed by the certified penetrating hardener/densifier applicator.
6. All areas of the floor shall remain wet during floor scrubbing process. Expose only the amount of floor surface that can be cleaned before any drying occurs without exceeding the maximum allowable exposed area.

- E. Curing Schedule:
1. Interior slabs:
 - a. Curing methods shall be as indicated for the specific areas on the Slab Plan on the Structural Drawings. Where curing compound is indicated, use only dissipating curing compound.
 - b. When interior surfaces to be moisture cured will be subject to freezing temperatures during curing period, use dissipating curing compound in lieu of moisture cure.
 2. Exterior: Unless otherwise shown, unformed surfaces shall receive a moisture cure or curing compound as appropriate except use moisture cure for exterior color textured finished surfaces.
 3. Use solvent based curing compounds when curing compound is applied below 40 F.

3.13 PENETRATING HARDENER/DENSIFIER FINISH

- A. Apply penetrating hardener/densifier finish to all interior floors except textured floor surfaces.
- B. Examination and Preparation:
1. Examine surfaces receiving penetrating hardener/densifier concrete finish. Verify that surfaces conform to product manufacturer's requirements for substrate conditions.
 2. Prior to application, scrub floor with WM Pre-Densifier Floor Cleaner to remove latent salts. Verify floor is free of curing membrane, bond-breaker, and construction laitance. Do not proceed until unsatisfactory conditions have been corrected.
 3. Beginning of application indicates acceptance of existing conditions.
- C. Application:
1. Schedule to begin 2 days after 7 day curing period. Application shall be performed by certified applicator in accordance with manufacturer's published instructions.
 2. Employ methods to ensure concrete surface is not damaged during application, including discoloration.
 3. Vacuum and clean saw cut joints and surrounding area so that no dust remains to react with concrete finish material.
 4. If dissipating curing compound has been applied, remove compound prior to application of penetrating hardener/densifier. Remove compound by cleaning and scrubbing in accordance with manufacturer's instructions.
 5. Apply penetrating hardener/densifier finish in accordance with manufacturers published instructions.
 6. Apply finish material with low pressure sprayer with enough coverage to keep concrete surface wet for 30 to 45 minute period (approximately 200 square feet per gallon).
 7. When treated surface gels and becomes slippery under foot, lightly sprinkle surface with water and agitate with broom to redistribute special concrete finish material evenly across surface.
 8. After surface again becomes slippery, using garden hose with garden-type spray nozzle, flush entire surface with water removing excess material, alkali, or impurities. Squeegee or wet-vac surface dry to remove excess material to avoid whitening of concrete during curing. Whitening of concrete by over-application of hardener/densifier may be cause for rejection.
- D. Disposal:
1. Upon completion of hardener/densifier treatment, dispose of excess hardener/densifier material as required by local agency having jurisdiction.
 2. Certified applicator shall remove hardener/densifier product containers from job site immediately upon completion of hardener/densifier treatment.

3.14 DEFECTIVE CONCRETE

- A. Concrete that does not satisfy the performance requirements of this specification, including but not limited to, tolerance, strength, durability and finish shall be removed and replaced at no extra cost to the Owner if repair cannot be accomplished to the satisfaction of Wal-Mart Construction Manager.
- B. Where cracking occurs wider than paper thickness, remove and replace entire section of concrete slab to nearest control joints each way.

- C. Patching:
1. Notify Wal-Mart Construction Management immediately upon discovery and before patching any imperfect areas.
 2. Repair and patch imperfect areas immediately after discovery with cement mortar consisting of the same cementitious material proportions as the base concrete. Imperfect areas not acceptable to Wal-Mart Construction Management will be considered defective.
 3. Cut out honeycomb, rock pockets, voids over ¼ inch in any dimension, surface imperfections and holes left by tie rods and bolts down to solid concrete, but in no case, to a depth of not less than one inch. Make edges of cut perpendicular to the concrete surface. Thoroughly clean, dampen with water and brush-coat the area to be patched with specified bonding agent. Place patching mortar after bonding compound has dried.

3.15 QUALITY CONTROL TESTING AND INSPECTION (BY OWNER)

- A. Unless otherwise specified field quality control tests and inspection specified below will be conducted by the Owner's Construction Testing Laboratory (CTL) at no cost to the Contractor in accordance with Section 01458. The Contractor shall perform additional testing or inspection as considered necessary by the Contractor for assurance of quality control.
- B. Qualifications: Unless otherwise specified, work shall be performed by a Special Inspector – Technical II or Special Inspector – Structural I. In addition to the Inspector and CTL qualifications specified in Section 01458, the following qualifications shall apply for all Cast-in-Place Concrete inspection.
- a. Technical I: ACI Certified Grade I inspector.
 - b. Technical II: ACI Certified Grade II inspector.
 - c. CTL Testing Laboratory: C.C.R.L. certification at the National Bureau of Standards.
 - d. Lead technician shall have at least five years experience in projects of this size and complexity.
 - e. Other technicians shall have at least two years experience.
- C. Review the Contractor's proposed materials and mix design for conformance with specifications.
- D. Perform testing in accordance with ACI 301 and testing standards listed herein.
- E. Conduct Strength Tests:
1. Secure composite samples in accordance with ASTM C 172. Sample at regularly spaced intervals from middle portion of the batch. Sampling time shall not exceed 15 minutes.
 2. Mold and cure specimens in accordance with ASTM C 31.
 - a. A minimum of four concrete test cylinders shall be taken for every 3 cubic yards or less of each class of concrete placed each day and not less than once for each 250 square feet of surface area or less for slabs.
 - b. During the initial 24 hours (plus or minus 8 hours) after molding, the temperature immediately adjacent to the specimens shall be maintained in the range of 60 to 80 degrees F. Control loss of moisture from the specimens by shielding from the direct rays of the sun and from radiant heating devices.
 - c. Specimens transported prior to 48 hours after molding shall not be demolded, but shall continue initial curing at 60 to 80 degrees F until time for transporting.
 - d. Specimens transported after 48 hours age shall be demolded in 24 hours (plus or minus 8 hours). Curing shall then be continued but in saturated limewater at 73.4 degrees (plus or minus 3 degrees F) until the time of transporting.

3. Test cylinders in accordance with ASTM C 39.
 - a. Date test cylinders and number consecutively. Give each cylinder of each set an identifying letter (i.e., A, B, C, D). Prepare a sketch of the building plan for each test set identifying location of placed concrete.
 - b. Test one cylinder (A) at 7 days for information. If the compressive strength of the concrete sample is equal to or above the 28 day specified strength, test another cylinder (B) at 7 days. The average of the breaks shall constitute the compressive strength of the concrete sample.
 - c. Test two cylinders (B and C) at 28 days and the average of the breaks shall constitute the compressive strength of the concrete sample.
 - d. Retain fourth cylinder (D) for further testing if needed, but do not retain cylinder more than 60 days.
- F. Conduct slump test for each cylinder set taken in accordance with ASTM C 143. Make additional slump tests for every other load from a stationary mixer or truck to test consistency. Sampling shall be in accordance with ASTM C 172.
- G. Conduct air content test for each cylinder set for concrete exposed to freeze-thaw in accordance with ASTM C 231, ASTM C 173, or ASTM C 138. Indicate test method on report. Make test at same time as slump test.
 1. When Type F fly ash is used and concrete is exposed to weather, perform air content test for first and second truck for each class of concrete placed each day. If either test fails, perform air test on every truck until two consecutive air tests comply with the requirements of the project specifications.
- H. Unit Weight: ASTM C 138.
- I. Conduct temperature test for each cylinder set taken in accordance with ASTM C 1064. Test hourly when air temperature is 40 F and below or 80 F and above. Determine temperature of concrete sample and ambient air for each strength test.
- J. Additional Tests: In-Place tests in accordance with ASTM C 42 shall be conducted as directed by the Wal-Mart Construction Manager when specified concrete strengths and other characteristics have not been attained in the structures.
- K. In addition to required information noted previously in this Section, record the following information on concrete compression reports:
 1. Test cylinder number and letter.
 2. Specific foundations or structures covered by this test.
 3. Proportions of concrete mix or mix identification.
 4. Maximum size coarse aggregate.
 5. Specified compressive strength.
 6. Tested compressive strength.
 7. Slump, air-content (when applicable) and concrete temperature.
 8. Concrete plastic unit weight.
 9. Concrete Temperature.
 10. Elapsed time from batching at plant to discharge from delivery truck at project.
 11. Date and time concrete was placed.
 12. Ambient temperature, wind speed, and relative humidity during concrete placement.
 13. Name of technician securing samples.
 14. Curing conditions for concrete strength test specimens (field and laboratory).
 15. Date strength specimens transported to laboratory.
 16. Age of strength specimens when tested.
 17. Type of fracture during test.
- L. At the start of each day's mixing, report any significant deviations from approved mix design including temperature, moisture and condition of aggregate.

- M. Note trends of decreasing quality in concrete due to changing seasons, conditions of curing, or other causes and bring to attention of the Wal-Mart Construction Manager with recommendations for corrective action before material falls below requirements of specifications for environmental tolerances. Report and log comments on Non-Conformance Correction Log.
- N. Certify each delivery ticket of concrete. Report type of concrete delivered, amount of water added and time at which cement and aggregate were loaded into truck, and time at which concrete was discharged from truck.
- O. Evaluation and Acceptance:
1. Strength level of concrete will be considered satisfactory if the average of all sets of three consecutive strength tests equal or exceed specified strength and no individual strength test (average of two cylinders) results are below specified compressive strength by more than 500 psi.
 2. Complete concrete work will not be accepted unless requirements of ACI 301, Section 1.7 have been met, including dimensional tolerances, appearance, and strength of structure.
 3. Non-Compliance Test Reports: All test reports indicating non-compliance should be faxed immediately to all parties on the test report distribution list. Copies shall be on different colored paper.
 4. Where average strength of cylinders, as shown by tests, falls below minimum ultimate compressive strength specified, Wal-Mart reserves the right to require Contractor to provide improved curing conditions of temperature and moisture to secure required strength. If average strength of laboratory control cylinders should fall so low as to cause portions of structure to be in question by Wal-Mart, follow core procedure set forth in ASTM C42. If results of core test indicate, in opinion of Wal-Mart, that strength of structure is inadequate, provide without additional cost to Wal-Mart, replacement, load testing, or strengthening as may be ordered by Wal-Mart. If core tests are so ordered and results of such tests disclose that strength of structure is as required, cost of test will be paid by Wal-Mart.
- P. Inspection:
1. Concrete Form Work: Verify formwork dimensions will result in member size and configuration shown. Structural adequacy of formwork is the sole responsibility of the Contractor.
 2. Concrete Reinforcement: Inspect reinforcement excluding slabs on grade, footings without transverse reinforcement, and topping slabs.
 - a. Verify reinforcing bar grade.
 - b. Verify reinforcing bars are free of dirt, excessive rust, and damage.
 - c. Verify reinforcing bars are adequately tied, chaired, and supported to prevent displacement during concrete placement.
 - d. Verify proper clear distances between bars and to surfaces of concrete.
 - e. Verify reinforcing bar size and placement.
 - f. Verify bar laps for proper length and stagger.
 3. Slab-on-Grade Structural Inspection: Inspect slabs-on-grade for compliance with Drawings and Specifications. Report on the following:
 - a. Preparation of subgrade.
 - b. Slab thickness.
 - c. Size, spacing, placement (cover), and lap of reinforcement.
 - d. Size, spacing, and placement of joint dowels.
 - e. Placement and finishing of concrete.
 - f. Time of saw cuts after placement of concrete.
 4. Concrete Foundations Structural Inspections: Inspect foundations for compliance with Drawings and Specifications. Report on the following:
 - a. Concrete footing size and depth.
 - b. Footing bar size, spacing, and placement (cover).
 - c. Placement and vibration of concrete.
 - d. Dowel bar size, orientation, embedment, and spacing.

5. Concrete Mix:
 - a. Verify mixer truck trip ticket conforms to approved mix design.
 - b. Verify that total water added to mix on site does not exceed that allowed by concrete mix design.
 - c. Verify that concrete quality is indicative of adequate mixing time, consistency, and relevant time limits.
 - d. Work shall be performed by a Special Inspector – Technical I. Report of results shall be made daily.
6. Preparation and Placement: Inspect preparation and placement of concrete, excluding slabs on grade, strip footings without transverse reinforcement, and topping slabs.
 - a. Verify acceptable general condition of concrete base prior to placement.
 - b. Verify that concrete conveyance and depositing avoids segregation and contamination.
 - c. Verify that concrete is properly consolidated.
 - d. Verify reinforcement remains at proper location.
 - e. Inspections shall be continuous.
7. Protection and Curing: Observe protection and curing methods for all concrete, excluding slabs on grade, strip footings without transverse reinforcement, and topping slabs.
 - a. Verify specified curing procedures are followed.
 - b. Verify that specified hot and cold weather procedures are followed.
8. Embedded Items:
 - a. Verify specified size, type, spacing, configuration, embedment length, and quantity of anchor bolts and embedded items.
 - b. Verify proper concrete placement and means have been taken to achieve consolidation around bolts and embedded items.

3.16 PROTECTION

- A. Protect finished work.
- B. Immediately after placement, protect concrete from premature drying, excessively hot or cold temperatures, and damage.
- C. Patch or replace damaged portions of concrete.
- D. Patch or replace damaged portions of color textured concrete.
- E. Diaper all lifts and duct tape all tires on lifts.

3.17 CLEANING

- A. Remove forms, equipment, protective coverings, and rubbish resulting from concreting operations. Leave finished concrete surfaces in clean conditions. After sweeping with ordinary broom and removing mortar, concrete droppings, loose dirt and mud, wash concrete floors and platforms with soapy water and rinse with clean water. Provide adequate measures during scrubbing, mopping, and rinsing to keep excessive or detrimental amounts of water off resilient tile floors. Repair damage to resilient tile floors due to concrete cleaning operations.

END OF SECTION

WAL-MART STORES
CONCRETE MIX DESIGN SUBMITTAL FORM
 (Section 03300 – Cast-in-Place Concrete)

SUBMITTED MIX DESIGN

Interior Building Slabs

- ☐ **03300-SLN** **Natural** Concrete (gray)
☐ **03300-SLS** Color Textured **Stamped** Concrete

* Same basic proportions for all interior slab concrete

A. CONCRETE INFORMATION

Supplier Mix Design # _____

Design Strength (f'c) _____ psi

Water / Cementitious Ratio _____

Total Air Content _____ %

Mix Developed From

- ☐ Trial Mix Test Data (*attach test data*)
☐ Field Experience

Density

Wet _____ pcf Dry _____ pcf

Slump

_____ “ (± 1”) **WITHOUT** WR Admixture

_____ “ (± 1”) **WITH** WR Admixture

B. ADMIXTURE INFORMATION

	ASTM Designation	Product (Manufacturer/Brand)	Dosage (ounces)	
			oz / cy	oz / cwt
Water Reducing				
Accelerating				
Retarding				

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Date _____

STORE INFORMATION

STORE # _____

ADDRESS _____

CITY, ST _____

GENERAL CONTRACTOR

COMPANY _____

JOBSITE PHONE _____

C. MIX DESIGN

Mix Proportions (per cubic yard)

	Identification (Type, size, source, etc.)	Weight (pounds)	Density (SSD)	Volume (cubic feet)	% Aggregate Absorption
Cement					
Fly Ash					
Slag (GGBFS)					
Coarse Aggregate #1					
#2					
#3					
Fine Aggregate #1					
#2					
Water					
Air Content					
	TOTALS				

Coarse & Fine Aggregate Gradation Information

Sieve Size	% Passing Each Sieve (All Sieve Sizes must be entered)					Combined % Passing	Combined % Retained	
	Coarse Agg. # 1	Coarse Agg. # 2	Coarse Agg. # 3	Fine Agg. # 1	Fine Agg. # 2		Cumulative	Individual
1-1/2"								
1"								
3/4"								
1/2"								
3/8"								
# 4								
# 8								
# 16								
# 30								
# 50								
# 100								
# 200								
% of Vol								

Aggregate Ratios

Coarseness Factor =	$\frac{\text{Combined \% cumulative retained } 3/8'' \text{ sieve}}{\text{Combined \% cumulative retained } \#8 \text{ sieve}}$		=
Workability Factor =	Combined % passing #8 sieve		=
Adj-Workability Factor =	$WF + [(Cementitious \text{ Material} - 564) \div 37.6]$		=
Allowable Adj-WF =	$Adj-WF = [(11.25 - .15 \text{ CF}) + 35.5] \pm 2.5$		= Low High

D. ATTACHMENTS: Include the following with this Mix Design Report.

- ☐ Portland Cement mill test reports
- ☐ Fly ash mill test reports
- ☐ Ground Granulated Blast Furnace Slag mill test reports
- ☐ Designation, type, quality, and source (natural or manufactured) of coarse and fine aggregate materials
- ☐ Separate aggregate gradation reports including all required sieve sizes
 - All gradation sieve report tests dated within 60 days of this report
 - Report for each coarse and fine aggregate material in mix
- ☐ Statement if possible reactivity of aggregate, based on tests or past service
- ☐ Statement if possible aggregate pop-outs or their disruptions, based on tests or past service
- ☐ Product data for the following admixtures:
 - Chloride ion data and related calculations
 - Water reducing, set retarding, set accelerating, etc.
- ☐ Concrete compressive strength data used for standard deviation calculations
- ☐ Measured water-soluble chloride ion content. (percent by weight of cement)

E. CONCRETE SUPPLIER INFORMATION

Company Name _____ **Tel. #** _____ ()

Address _____

City, ST Zip _____

Technical Contact _____ **Cell #** _____ ()

e-mail _____

Sales Contact _____ **Cell #** _____ ()

PRIMARY PLANT

SECONDARY PLANT

Plant Location: _____

Miles from Site: _____

Travel Time to Site: _____

NRMCA Certified: ☐ YES ☐ NO

☐ YES ☐ NO

State DOT Certified: ☐ YES ☐ NO

☐ YES ☐ NO

Batch Mixing Type: ☐ DRY ☐ CENTRAL MIX

☐ DRY ☐ CENTRAL MIX

CONTRACTOR'S QUALIFICATION STATEMENT OF CONFORMANCE
SECTION 03300
CAST-IN-PLACE CONCRETE

Project Location: _____ Date: _____

Project Number: _____ Store Number: _____

By signing below as approved, the Contractor hereby confirms that the qualifications of the concrete finishing subcontractor conforms to the qualifications as follows:

The concrete floor finishing subcontractor foreman and two additional members of the finishing crew are certified under the Concrete Flatwork Finisher Training and Certification Program as granted by the American Concrete Institute. (Attach Certificates)

The concrete floor finisher subcontractor has experience in finishing interior floors of similar size and scope in at least 5 previous projects. Projects name and location are identified as follows

1. _____
2. _____
3. _____
4. _____
5. _____

Submit one copy to the Wal-Mart Construction Manager.

Concrete Finishing Contractor Company Name and Address:

Signature of Responsible Officer: _____

Typed Name and Title of Officer: _____

Telephone Number: (_____) _____

General Contractor Company Name and Address:

Signed by: _____ Date: _____

SECTION 04060 – MASONRY MORTAR

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes: Mortar and grout for unit masonry.
- B. Related Sections:
 - 1. Section 04220 - Concrete Masonry Units: Installation of mortar and grout, reinforcement and anchorages.

1.2 REFERENCES

- A. ASTM International (ASTM):
 - 1. ASTM C 94 - Specification for Ready-Mixed Concrete.
 - 2. ASTM C 143 - Test Method for Slump of Hydraulic Cement Concrete.
 - 3. ASTM C 144 - Specification for Aggregate for Masonry Mortar.
 - 4. ASTM C 150 - Specification for Portland Cement.
 - 5. ASTM C 207 - Specification for Hydrated Lime for Masonry Purposes.
 - 6. ASTM C 270 - Specification for Mortar for Unit Masonry.
 - 7. ASTM C 387 - Specification for Packaged, Dry, Combined Materials for Mortar and Concrete.
 - 8. ASTM C 404 - Specification for Aggregates for Masonry Grout.
 - 9. ASTM C 476 - Specification for Grout for Masonry.
 - 10. ASTM C 1019 - Method of Sampling and Testing Grout.
 - 11. ASTM C 1142 - Specification for Ready Mixed Mortar for Unit Masonry (Prohibited).
 - 12. ASTM C 1329 - Standard Specifications for Mortar Cement.
- B. IMIAC - International Masonry Industry All-Weather Council: Recommended Practices and Guide Specifications for Cold Weather Masonry Construction.

1.3 SUBMITTALS

- A. Section 01330 - Submittal Procedures: Procedures for submittals.
 - a. Product Data.
 - 1) Design mix.
 - b. Include test reports, in accordance with ASTM C 780 for mortar mixes required complying with property specification.
 - c. Include test reports, in accordance with ASTM C 1019 for grout mixes required complying with compressive strength requirement.
 - d. Fill out attached Masonry Grout Mix Design Form completely, all information indicated on the form.
 - e. Submit Masonry Grout Mix Design Form by fax to the Structural Engineer of record, the Wal-Mart Independent Testing Laboratory, and the Wal-Mart Concrete Consultant (Structural Services, Inc. SSI; email to wm@ssiteam.com) as listed in Section 01330.
 - 1) Proportion method used.
 - 2) Required environmental conditions.
 - 3) Assurance that mix is free of admixtures.
- B. Testing and Inspection Reports: Submit reports in accordance with Section 01458.
 - a. Submit Product Data within 5 working days of Contract date.

1.4 QUALITY ASSURANCE

A. Testing CMU Grout:

1. Determine and certify that proportions of ingredients for mix design will provide the specified compressive strength for each type of grout.
2. Test mix design prior to beginning construction of CMU walls.
3. Required testing will be performed in accordance with Section 01458.
4. Prepare test specimens in accordance with Section 01458.

1.5 DELIVERY, STORAGE AND HANDLING

- A. Store sand for mortar on plastic sheeting to prevent contamination by extraneous chemicals in earth beneath.

1.6 PROJECT CONDITIONS

A. Environmental Requirements:

1. Cold Weather Requirements: IMIAC - Recommended Practices and Guide Specifications for Cold Weather Masonry Construction.
2. Specific Cold Weather Requirements: When the ambient air temperature is below 40 degrees F, heat mixing water to maintain mortar temperature between 40 degrees F and 120 degrees F until placed. When the ambient air temperature is below 32 degrees F, heat the sand and water to maintain this mortar temperature.

- B. For other measures and hot weather requirements refer to Section 04220.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Portland Cement: ASTM C 150, normal - Type I or Type II; gray color. Fly ash, slag, and pozzolans not permitted as substitutes for Portland cement except as otherwise specifically allowed.
- B. Mortar Cement: ASTM C 1329, Type S.
- C. Fly Ash: ASTM C 618, Type C or F maximum 4 percent loss in ignition shall be used as a replacement for Portland cement in grout. Fly ash shall be a minimum of 25 percent and a maximum of 30 percent of the total cementitious content. Use of fly ash in the grout mix is mandatory.
- a. Fly ash, slag and pozzolans not permitted as substitutes for Portland cement in mortar.
- D. Masonry Cement: Not allowed.
- E. Mortar Aggregate: ASTM C 144, standard masonry type; clean, dry, protected against dampness, freezing, and foreign matter.
- F. Mortar Pigments: Natural and synthetic iron oxides and chromium oxides, compounded for use in mortar mixes. Use pigments with a record of satisfactory performance in masonry mortar.
- G. Grout Aggregate: ASTM C 404; use of blast furnace slag is not permitted. Maximum coarse aggregate size, 3/8 inch.
- H. Calcium chloride is not permitted in mortar or grout. Admixtures or other chemicals containing Thiocyanates, Calcium chloride or more than 0.1 percent chloride ions are not permitted.
- I. Hydrated Lime: ASTM C 207, Type S.

- J. Water: Potable.
- K. Admixtures: Not permitted in mortar or grout except as otherwise specifically required herein.

2.2 MIXES - MORTAR

- A. Mortar: Type "S", in accordance with the Proportion Specification of ASTM C 270.
 - 1. Mixing of components on-site is acceptable.
 - 2. Mixing on-site water and packaged dry blended mix for mortar (ASTM C 387 or C1329), that contains no masonry cement, is acceptable.
 - 3. Use of ready mix mortar (ASTM C 1142) is prohibited.
 - 4. Do not add admixtures of any kind to mortar mix except as otherwise specifically required herein.
- B. Pointing Mortar: Duplicate original mortar proportions. Add aluminum tristearate, calcium stearate, or ammonium stearate equal to 2% of Portland cement weight.
- C. Mortar Color: As required to match existing, subject to approval by Wal-Mart Construction Manager. Control mortar mix to obtain desired color.

2.3 MIXING – MORTAR

- A. Thoroughly mix mortar ingredients in accordance with ASTM C 270, in quantities needed for immediate use.
 - 1. Maintain sand uniformly damp immediately before the mixing process.
 - 2. Provide uniformity of mix and coloration.
 - 3. Do not use anti-freeze compounds.
 - 4. If water is lost by evaporation, retemper only within 2 hours of mixing. Do not retemper mortar more than 2 hours after mixing.

2.4 MIXES - GROUT FILL

- A. Grout fill for concrete masonry unit bond beams, lintels, and reinforced cells with reinforcing bars and embedded plates: Conform to ASTM 476.
 - 1. Compressive Strength: 2000 psi minimum at 28 days, as determined in accordance with the provisions of ASTM C 1019.
 - 2. Slump: 8 inches, minimum; 10 inches, maximum, taken in accordance with ASTM C 143.
 - 3. Use coarse grout when grout space is equal to or greater than 4 inches in both directions.
 - 4. Use fine grout when grout space is smaller than 4 inches in either direction.
 - 5. Do not use air-entrainment admixtures.
 - 6. Do not add admixtures of any kind to grout.

2.5 MIXING – GROUT

- A. Batch and mix grout in accordance with ASTM C 94 or ASTM C476 for site batched and mixed grout. Do not use anti-freeze compounds to lower the freezing point of grout.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. After reinforcing of masonry is securely tied in place, plug cleanout holes with masonry units. Brace against wet grout pressure.
- B. Install mortar and grout under provisions of Section 04220.

3.2 QUALITY ASSURANCE TESTING AND INSPECTION

- A. Field quality control assurance tests specified below will be conducted by the Owner's Independent Testing Laboratory at no cost to the Contractor in accordance with Section 01458. The Contractor shall perform additional testing as considered necessary by the Contractor for quality control.
- B. Field testing, frequency, and methods may vary as determined by and between the Owner and the Owner's Testing Laboratory.
- C. Mortar Testing:
 - 1. Execute one mortar test specimen for each 500 square feet or less of masonry wall constructed and a minimum of one mortar test specimen for each day that masonry construction is performed. Test specimen at 28 days.
 - 2. Prepare and test mortar in accordance with the following:
 - a. Spread mortar on the masonry units 1/2 to 5/8 inch thick and allow to stand for one minute.
 - b. Remove mortar and place in a 2 inch by 4 inch cylinder in two layers, compressing the mortar into the cylinder using a flat-end stick or fingers. Lightly tap mold on opposite sides, level off and immediately cover molds and keep them damp until taken to the laboratory.
 - c. After 48 hours set, have the laboratory remove molds and place them in the fog room until tested in damp condition.
 - 3. Strength of mortar will be considered satisfactory if each mortar test equals or exceeds 1500 psi (this corresponds with a Type S, 2000 psi mortar mix).
- D. Grout Testing:
 - 1. Conduct strength tests in accordance with ASTM C 1019.
 - a. Take two strength samples for each 500 square feet or less of masonry wall surface for each type of grout placed each day.
 - b. Create test samples by forming with wood surface on bottom and concrete block on sides. The samples shall be minimum 3 inches square and 6 inches high.
 - c. Initial cure during first 48 hours. Protect samples from loss of moisture by covering with wet cloth and keeping moist. Protect from freezing and variations in temperature. Record maximum and minimum temperatures by using a max/min thermometer.
 - d. Remove masonry units that form samples after 48 hours and transport grout samples to laboratory. Keep samples protected from vibration, freezing, and moisture loss during transportation.
 - e. Test samples with test method ASTM C 39 at 7 days & 28 days. Compressive strength shall be the average of the two samples and shall be adequate if it equal fm as defined an Drawings. If 7 day test breaks are equal to or above specified 28 day strength, do not break 28 day samples.
 - 2. Conduct slump test at time compressive test samples are taken in accordance with ASTM C 143.
- E. Mortar and Grout Mix Verification: Verify mixes conform to the design mix.
- F. Report: In addition to required information in Section 01458, record the following information on masonry mortar and grout compression reports:
 - 1. Mix design or mix designation.
 - 2. Test sample number.
 - 3. Specific wall areas covered by test.
 - 4. Description of sample - dimensions amount out of plumb in percent.
 - 5. Description of units used to form sample.
 - 6. Curing history with max/min temperature, age when transported to lab, and age when tested.
 - 7. Tested compressive strength.
 - 8. Description of failure.
- G. Testing and inspection shall be preformed by a Special Inspector - Technical I as defined in Section 01458.

END OF SECTION

WAL-MART STORES

MASONRY GROUT MIX DESIGN SUBMITTAL FORM
(Section 04060 – Masonry Mortar)

Date

☐ DISCOUNT STORE ☐ SUPERCENTER ☐ NEIGHBORHOOD MARKET ☐ SAM'S CLUB

STORE INFORMATION

STORE # _____
ADDRESS _____
CITY, ST _____
GENERAL CONTRACTOR
COMPANY _____
JOBSITE PHONE _____

A. GROUT INFORMATION

Supplier Mix Design #	_____
Design Strength (f'c)	_____ psi
Water / Cementitious Ratio	_____
Mix Developed From:	
Density	
Wet	_____ pcf
Dry	_____ pcf
Slump	
_____ " (± 1")	

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B. MIX DESIGN

Mix Proportions (per cubic yard)

	Identification (Type, size, source, etc.)	Weight (pounds)	Density (SSD)	Volume (cubic feet)
Cement				
Fly Ash				
Aggregate #1				
#2				
Water				
TOTALS				

C. MASONRY SUBCONTRACTOR INFORMATION

Company Name _____ **Tel. #** () _____

Address _____

City, ST Zip _____

Technical Contact _____ **Cell #** () _____

e-mail _____

Sales Contact _____ **Cell #** () _____

SECTION 04220 – CONCRETE MASONRY UNITS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Concrete masonry units.
 - 2. Reinforcement, anchorages, and accessories.
 - 3. Masonry fill insulation.
- B. Work Installed But not Furnished under this Section: Support plates and angles with anchor studs, sleeve anchors, expansion bolts, adhesive anchors, and anchor bolts which are embedded in masonry for supporting structural members.
- C. Related Sections:
 - 4. Section 01458 - Testing Laboratory Services: Procedures for inspection, testing, and documentation by Owner furnished testing laboratory.
 - 5. Section 04060 - Mortar and Masonry Grout: Mortar and grout.
 - 6. Section 05120 - Structural Steel: Support plates and angles with anchor studs, expansion bolts, sleeve anchors, adhesive anchors, and anchor bolts embedded in masonry for supporting structural members.
 - 7. Section 05500 - Metal Fabrications: Loose steel lintels and other metal components embedded in masonry.
 - 8. Section 07900 - Joint Sealers: Rod and sealant at control joints.

1.2 REFERENCES

- D. The publications listed below form a part of this specification to the extent referenced. Publications are referenced within the text by the basic designation only.
- E. American Concrete Institute (ACI):
 - 1. ACI 530/ASCE 5/TMS 402 - Building Code Requirements for Masonry Structures.
 - 2. ACI 530.1/ASCE6/TMS 602 - Specifications for Masonry Structures.
- F. ASTM International (ASTM):
 - 3. ASTM A 153 - Zinc Coating (Hot-Dip) on Iron and Steel Hardware.
 - 4. ASTM A 307 - Carbon Steel Bolts and Studs, 60 000 psi Tensile Strength.
 - 5. ASTM A 615 - Deformed and Plain Billet-Steel Bars for Concrete Reinforcement.
 - 6. ASTM C 90 - Hollow Load-Bearing Concrete Masonry Units.
 - 7. ASTM C 129 - Non-Load-Bearing Concrete Masonry Units.
 - 8. ASTM C 140 - Methods For Sampling And Testing Concrete Masonry Units And Related Units.
 - 9. ASTM C 331 - Lightweight Aggregates for Concrete Masonry Units.
 - 10. ASTM C 516 - Vermiculite Loose Fill Thermal Insulation.
 - 11. ASTM C 549 - Perlite Loose Fill Insulation.
- G. International Masonry Industry All-Weather Council (IMIAC): Recommended Practices and Guide Specifications for Cold Weather Masonry Construction.
- H. Mason Contractors Association of America (MCAA):
 - 12. Standard Practice for Bracing Masonry Walls Under Construction.

1.3 SUBMITTALS

- I. Section 01330 - Submittal Requirements: Procedures for Submittals.

- J. Shop Drawings: Do not use reproductions of Contract Documents as shop drawings. Prepare shop drawings in accordance with ACI 315.
1. Reinforcement:
 - a. Include masonry notes on shop drawings that relate to proper placing of reinforcing and submit shop drawings for use in the field.
 - b. Reinforcing shown shall include but not limited to vertical and horizontal wall reinforcement, dowels, bond beam reinforcement, embedded steel items and anchor bolts.
 2. Placement Drawings:
 - c. Shop drawings shall include sides, front and rear elevations of building showing masonry walls full height and length; reinforcing size, quantity, spacing, location, length, and grade of steel; and control joint locations.
- K. Submit Shop Drawings within 5 working days of Contract date.
- L. Testing and Inspection Reports: Submit reports in accordance with Section 01458.

1.4 QUALITY ASSURANCE

- M. Construct masonry in accordance with ACI 530 and 530.1R.
- N. Regulatory Requirements: Special inspection and testing will be provided in accordance with the Building Code and as noted on the Drawings and will be performed under provisions of Section 01458.

1.5 PROJECT CONDITIONS

- O. Environmental Requirements (Cold Weather): Follow cold weather procedures of IMIAC. Include the following construction requirements for cold weather procedures.
1. When Air Temperature is above 40 degrees F:
 - a. Heating of Materials: Follow normal masonry procedures.
 - b. Protection: Cover walls with plastic or canvas at end of workday to prevent water entering masonry.
 2. When Air Temperature is below 40 degrees F:
 - c. Heating of Materials: Heat mixing water. Maintain mortar temperatures between 40 and 120 degrees F until placed.
 - d. Protection: Cover walls and materials to prevent wetting and freezing. Cover material: Plastic or canvas.
 3. When Air Temperature is below 32 degrees F:
 - e. Heating of Materials: In addition to above heating requirements, heat sand. Thaw frozen sand and frozen wet masonry units. Maintain masonry above 32 degrees F, by using auxiliary heat or insulated blankets for 16 hours after laying masonry units.
 - f. Protection: With wind velocities over 15 mph, provide windbreaks during the work day and cover walls and materials at the end of the workday to prevent wetting and freezing.
 4. When Air Temperature is below 20 degrees F:
 - g. Heating of Materials: In addition to above heating requirements, dry masonry units by heating to 40 degrees F.
 - h. Protection: Provide enclosures and supply sufficient heat to maintain masonry enclosure above 32 degrees F for 24 hours after laying masonry units.
- P. Environmental Requirements (Hot Weather): When the ambient air temperature exceeds 100 degrees F, or 90 degrees F with a wind velocity greater than 8 mph, execute the following:
5. Store masonry units out of direct sunlight.
 6. Do not spread mortar beds more than 4 feet ahead of masonry.
 7. Set masonry units within one minute of spreading mortar.

PART 2 - PRODUCTS

2.1 CONCRETE MASONRY UNITS

- Q. Hollow Load Bearing Units: ASTM C 90.
 - 1. Smooth CMU: Light weight or normal weight above finished floor; normal weight only below finished floor.
 - 2. Split Face CMU: Light weight or normal weight above finished floor; normal weight only below finished floor.
- R. Solid Load-bearing Units: ASTM C 90.
 - 3. Smooth CMU: Light weight or normal weight above finished floor; normal weight only below finished floor.
 - 4. Split Face CMU: Light weight or normal weight above finished floor; normal weight only below finished floor.
- S. Non-load Bearing Units: ASTM C 129.
- T. Light Weight Aggregate: ASTM C 331, free of materials that will cause rusting, staining, or popouts.
- U. Fire Resistance Classification: In accordance with UL, FM, WH, or SWRI listing and fire resistance rating required for CMU wall and partition assemblies and components. Provide units of minimum equivalent thickness specified for the fire rating and for corresponding aggregate type.
- V. Unit Design: Modular two core units sized as indicated or scheduled. Provide special units for bond beams, control and expansion joints, and lintels.
 - 5. Provide units as required for indicated construction including sill units and solid cap units.
 - 6. Provide units with exposed faces which are uniform in appearance.

2.2 REINFORCEMENT AND ANCHORAGES

- W. Horizontal Joint Reinforcement: At Contractor's option, truss design or ladder design, minimum 9 gage welded steel wire; hot dipped galvanized to 1.5 oz, ASTM A 153, Class B2. Width 1-1/2 to 2 inches less than wall thickness.
- X. Deformed Bars: ASTM A 615, Grade 60. Shop fabricate reinforcement which is shown bent or hooked. Field bending not allowed.
- Y. Anchor bolts and threaded rods as shown embedded in masonry on structural drawings: ASTM A 307.
- Z. Adhesive for embedding threaded rods: Cartridge type two-component adhesive.
 - 1. HIT HY-150 by Hilti Corp.
 - 2. Epcon System, Ceramic 6 by ITW Ramset/Red Head.
 - 3. Epoxy-Tie SET by Simson Strong Tie Co. Inc.
 - 4. Substitutions: Not permitted.
- AA. Bar Positioners for Vertical Wall Bars: Minimum 9 gage, galvanized wire.
 - 5. AA Wire Products Co.; Dallas, TX; (214) 637-1511.
 - 6. Dur-O-Wal, Inc.; Arlington Heights, IL; (708) 577-6400.
 - 7. Masonry Reinforcing Corporation of America; Charlotte, NC; (704) 525-3761.

2.3 ACCESSORIES

- BB. Joint Filler: Closed cell foam, oversized 50 percent; self-expanding.

CC. Preformed Control Joint Filler:

1. Regular Joint: 2-5/8 inches by 1-1/2 inches; rubber.
 - a. Rapid Control Joint D/A 2001, by Dur-O-Wal, Inc., Aurora, IL (800) 323-0090.
 - b. Control Joint No. 9101, by Southern Construction Products, Inc., Birmingham, AL (800) 821-9296.
 - c. Masonry Control Joint No. 571; by Greenstreak, St. Louis, MO (800) 325-9504.
2. Tee Joint: 2-5/8 inches by 1 inch; rubber.
 - d. Rapid Control Joint D/A 2025, by Dur-O-Wal, Inc., Aurora, IL (800) 323-0090.
 - e. Control Joint No. 9107, by Southern Construction Products, Inc., Birmingham, AL (800) 821-9296.
 - f. Masonry Control Joint No. 572; by Greenstreak, St. Louis, MO (800) 325-9504.

DD. Preformed Expansion Joint Filler: One Inch Expansion Joint: Secondary compression seal.

3. Backerseal (Grayflex) expanding precompressed foam by Emseal Joint Systems, Ltd., Westborough, MA (800) 526-8365.
4. IllbruckWillseal 600 polyurethylene foam joint sealing tape by Willseal USA, Pelham, NH (800) 438-0684.

EE. Prefabricated Masonry Reglet: Springlok Flashing System as manufactured by Fry Reglet Corporation.

5. Type MA-4, 24 ga. galvanized steel reglet for use at vestibule entry canopy when required.

FF. Adhesive: As recommended by flashing material manufacturer.

2.4 MASONRY FILL INSULATION

GG. Granular Insulation: ASTM C 516 vermiculite or ASTM C 549 perlite.

HH. Foamed In Place Insulation: Subject to compliance with project requirements and local jurisdictional restrictions, manufacturers offering Foam In-Place Insulation tested and found compatible and non-detrimental within the indicated Underwriters Laboratory fire resistance assemblies which may be incorporated into the Work include the following:

1. Tripolymer Foam Insulation; by C.P. Chemical Co., Inc., White Plains, NY (914) 428-2517.
2. Rapco Blue; by JESCO, Inc., Florence, SC (843) 665-5350.
3. R-501 Polymaster Plastic Foam Insulation; by PolyMaster, Inc., Knoxville, TN (800) 580-3626.
4. Core-Fill 500; by Tailored Chemical Products, Inc., Hickory, NC (800) 627-1687.
5. Thermco Foam; by Thermal Corp. of America; Mt. Pleasant, IA (319) 385-1535.
6. CoreFoam Insulation, by CoreFoam, Inc., Knoxville, TN (800) 656-3626.
7. Substitutions: None accepted.

II. Expanded polystyrene bead type loose or blown fill insulation shall not be used.

PART 3 - EXECUTION

3.1 PREPARATION

JJ. Verify items provided by other sections of work are properly sized and located.

KK. Establish lines, levels, and coursing. Protect from disturbance. Use non-corrosive materials in contact with masonry work.

LL. Provide temporary bracing for walls, lintels, and other masonry work during erection. Maintain in place until roof and other structural elements are complete and provide permanent bracing.

MM. Provide temporary bracing for walls, lintels, and other masonry work during erection.

1. Design bracing in accordance with MCAA Standard Practice for Bracing Masonry Walls Under Construction.
2. Design bracing under supervision of an independent Professional Engineer hired by the contractor and licensed in the state in which the project is located.
3. Maintain in place until roof and other structural elements are complete and provide permanent bracing.

3.2 COURSING

- NN. Place masonry to lines and levels indicated.
- OO. Maintain masonry courses to uniform width. Make vertical and horizontal joints equal and of uniform thickness matching coursing of existing building.
- PP. Lay concrete masonry units in running bond unless otherwise noted. Course one block unit and one mortar joint to equal 8 inches.
- QQ. Tool head and bed joints concave (to match existing adjacent masonry joints) regardless if below grade or above ceiling height. Use tool with large enough radius that joint is not raked free of mortar.

3.3 PLACING AND BONDING

- RR. Lay solid concrete masonry units with completely filled bed and head joints; butter ends with sufficient mortar to fill head joints and shove into place. Do not slush head joints. Remove excess mortar.
- SS. For hollow concrete masonry units, fill head and bed joints solidly with mortar for a distance in from the face of the unit not less than the thickness of the shell. Bed webs in mortar in starting course on footings and foundation walls and in courses of piers, columns and pilasters, and where adjacent to cells or cavities to be reinforced or filled with concrete or grout. For starting courses on footings, spread out full mortar bed, including areas under cells.
- TT. Fully bond intersections, and external and internal corners.
- UU. Do not shift or tap masonry units after mortar has taken initial set. Where adjustment must be made, remove mortar and replace.
- VV. Perform jobsite cutting with proper tools to provide straight unchipped edges. Take care to prevent breaking masonry unit corners or edges.
 - 1. Where required, match finish masonry work to adjacent surfaces.
 - 2. For fire-rated walls, construct walls to finish against bottom of roof or floor deck and fill voids with firestopping.
 - 3. For other than fire-rated walls, cut units to match the slope of the roof deck and finish construction to within 2 inches of and parallel to roof deck.
- WW. Isolate masonry partitions from vertical structural framing members with a control joint.

3.4 TOLERANCES

- XX. Construct masonry within the following tolerances:
 - 1. Alignment of Pilasters: Maximum 1/4 inch from true line.
 - 2. Variation from Plane of Wall: 1/4 inch in 10 feet; 3/8 inch in 20 feet; 1/2 inch maximum.
 - 3. Variation from Plumb: 1/4 inch per story non-cumulative.
 - 4. Variation from Level Coursing: 1/8 inch in 3 feet; 1/4 inch in 10 feet; 1/2 inch maximum.
 - 5. Variation of Joint Thickness: 1/8 inch in 3 feet.
- YY. Tolerances for the placement of reinforcing steel in walls and flexural elements:
 - 6. $\pm 1/2$ inch when the distance from the centerline of the steel to the opposite face of the masonry, "d", is equal to 8 inches or less.
 - 7. ± 1 inch for "d" equal to 24 inches or less but larger than 8 inches.
 - 8. $\pm 1-1/4$ inch for "d" greater than 24 inches.

3.5 REINFORCEMENT AND ANCHORAGES

- ZZ. Install horizontal joint reinforcement 16 inches on center, except space at 8 inches in parapet walls and below finished floor, or where otherwise indicated on Drawings. Place joint reinforcement continuous in first and second joint below top of walls. Lap joint reinforcement ends minimum 6 inches. Do not extend joint reinforcement through control joints.
- AAA. Place vertical reinforcing bars supported and secured against displacement, by means of bar positioners. Support other bars and tie to prevent displacement.
- BBB. Grout cells full that contain vertical reinforcing. Use low lift grout method of construction conforming to requirements of ACI.
- CCC. Verify that anchorages embedded in masonry are properly placed.
 - 1. Proper placement of embed anchors shall be understood as full depth penetration of scheduled anchorage without contact of embed stud with interior surface of exterior shell face.

3.6 MASONRY FILL INSULATION

- DDD. Confirm that selected foam insulation material is compatible and non-detrimental to referenced fire resistance assemblies before use.
- EEE. Install insulation in masonry unit cores of exterior walls.
- FFF. Granular Insulation:
 - 1. Place masonry fill insulation in accordance with manufacturer's instructions. Verify that holes and openings have been sealed to prevent escape of insulation.
 - 2. Place as masonry is erected. Ensure spaces are free of mortar to allow free flow of insulation.
 - 3. Completely fill spaces. Place in lifts and rod to eliminate air pockets. Place prior to covering cores with bond beams or lintels.
 - 4. Place temporary signs on face of insulated walls warning workers to use caution to prevent loss of insulation if cutting into walls.
- GGG. Foamed-In-Place Insulation:
 - 5. Installer shall be certified and/or approved by manufacturer of insulation. Install foam insulation in strict accordance with manufacturer's published instructions.
 - 6. Pump foam insulation bored into mortar joints around entire wall area 3 feet from floor level. Repeat at height no greater than ten feet until completion of wall area.
 - 7. Plug holes with mortar after completion.

3.7 LINTELS

- HHH. Install loose steel lintels as scheduled.
- III. Install reinforced unit masonry lintels over openings where steel lintels are not scheduled. Construct lintels using grout fill and reinforcing. Maintain minimum 8 inch bearing on each side of opening, unless noted otherwise on Drawings.
- JJJ. Use reinforcing bars of one piece lengths only.
- KKK. Place and consolidate grout fill without disturbing reinforcing. Allow lintels to reach strength before removing temporary supports.
- LLL. For soap units covering steel lintels, provide 9 gage Z-ties at each vertical joint. Weld Z-ties to web of steel lintel.

3.8 CONTROL JOINTS

MMM. Do not continue bond beam reinforcing or joint reinforcing across control joints unless otherwise shown on the drawings.

NNN. Install preformed control joint filler at locations indicated on Drawings. Use proper size material to create sealant joint space. For backer rod and sealant see Section 07900.

3.9 EXPANSION JOINTS

OOO. At expansion joints indicated on Drawings, locate expansion joint filler on centerline of wall. Install backer rods and sealant.

3.10 BUILT-IN WORK

PPP. As work progresses, build in metal door frames, fabricated metal frames, window frames, anchor bolts, diaphragm anchors, embedded plates, and other items included in the work supplied by other Sections.

1. Masonry Reglet: Install reglet level and parallel to building lines. Set reglet as indicated to coordinate with sloped roof surface.

QQQ. Install items plumb and level.

RRR. Bed anchors of metal door and glazed frames in mortar joints. Fill frame voids solid with grout. Fill masonry cores with grout minimum 12 inches from framed openings.

SSS. Do not build in organic materials subject to deterioration.

3.11 CUTTING AND FITTING

TTT. Cut and fit for bearing plates, chases, pipes, conduit, sleeves, and grounds. Coordinate with other Sections of work to provide correct size, shape, and location.

UUU. Obtain approval prior to cutting or fitting any area not indicated or where appearance or strength of masonry work may be impaired.

3.12 CLEANING

VVV. In-Progress Cleaning: Clean unit masonry as work progresses by dry brushing to remove mortar fins and smears before tooling joints.

WWW. Final

Cleaning: After mortar is thoroughly set and cured, clean exposed masonry as follows:

1. Remove large mortar particles by hand with wooden paddles and nonmetallic scrape hoes or chisels.
2. Protect non-masonry surfaces from contact with cleaner by covering them with liquid strippable masking agent, polyethylene film, or waterproof masking tape.
3. Clean masonry with a proprietary acidic cleaner applied according to manufacturer's written instructions.
4. Cleaned surfaces shall appear as represented by mockup wall panel.

3.13 PROTECTION

XXX. Maintain protective boards at exposed external corners which may be damaged by construction activities.

YYY. Provide protection without damaging completed work.

ZZZ. Protect the base of walls from rain-splashed mud and mortar droppings.

AAAA.

At day's

end, cover unfinished walls to prevent moisture infiltration. Weight cover down to prevent blow-off and maintain protection for fresh masonry work. Extend cover from top of wall a minimum of 2 feet down the wall on each side.

3.14 FIELD QUALITY CONTROL

BBBB.

Testing

And Inspection Responsibility: Unless otherwise specified, field quality control tests and inspection specified below will be conducted by the Owner's Independent Testing Laboratory at no cost to the Contractor in accordance with Section 01458. The Contractor shall perform additional testing or inspection as considered necessary by the Contractor for assurance of quality control.

CCCC.

Field

Testing:

1. Field testing, frequency, and methods may vary as determined by and between the Owner and the Owner's Testing Laboratory.
2. Conduct strength tests in accordance with ASTM C 140.
3. Select 3 units from each lot of 500 units or less.
4. Strength of concrete masonry units will be considered satisfactory if calculated test compressive strength conforms to requirements of ASTM C 90.
5. In addition to required information noted previously in this Section, record the following information on concrete unit masonry compression reports:
 - a. Test sample number.
 - b. Specific wall areas covered by test.
 - c. Description of units used to form sample.
 - d. Tested compressive strength to the nearest 10 psi separately for each specimen and as the average of three specimens.

DDDD.

Inspecti

ons:

6. General: Inspect masonry work for compliance with Construction Documents. Inspection of masonry shall be performed during placing of masonry units, placement of structural reinforcement, cleanout of grout space immediately prior to closing of elements, and during all grouting operations.
7. Frequency of Inspection:
 - a. Inspection of Masonry:
 - 1) Placing of units: Not less than once for every 500 SF or less of surface.
 - 2) Reinforcement: 100% of structural reinforcement prior to grouting.
 - 3) Grouting: 100% of structural grouting operations.
8. Preparation and Placement
 - b. Base Conditions: Verify that masonry bearing surfaces are clean.
 - c. Condition of Units: Verify that masonry units are clean and sound and dry.
 - d. Mortar: Verify mortar is prepared in accordance with Section 04060.
 - e. Placement: Inspect laying of masonry units for nominal unit widths, stack or running bond, proper thickness and tooling of mortar joints, and depth of furrowing of bed joints. Note temperature at time of inspection.
 - f. Joints: Inspect construction, expansion, and contraction joints for location and continuity of steel.
 - g. Verify hot and cold weather procedures are followed.
 - h. Verify wall cavities are protected against entry of precipitation.
9. Bond Beams: Inspect and report on the following:
 - i. Location.
 - j. Size, placement, and lap of reinforcing bars.
 - k. Placement and vibration of grout.
10. Openings: Inspect and report on the following:
 - l. Types of concrete masonry units used to form lintels.
 - m. Reinforcing bar size and placement at lintel.
 - n. Stirrup size and spacing at lintel.

- o. Vertical reinforcing size and placement at door jambs.
- p. Placement and vibration of grout in lintels and jambs.

11. Inspect pilasters for compliance with Drawings and Specifications. Report on the following:
 - q. Vertical reinforcing size and placement.
 - r. Tie size and placement.
 - s. Placement and vibration of grout.
 - t. Work shall be performed by a Special Inspector – Technical II or Special Inspector – Structural I.
 - u. Report of results shall be made daily.
12. Masonry Reinforcement:
 - v. Vertical Reinforcement: Inspect placement and alignment of vertical bars and dowels for size, grade and spacing. Inspect length of lap splices, clearances between bars, clearances to masonry units and outside face of walls, and positioning of steel.
 - a) Horizontal Reinforcement: Inspect horizontal joint reinforcement steel and masonry reinforcement bars for size, length of lap splices, dowels, clearances between bars, clearance to masonry units and outside face of walls, and alignment.
 - b) Ties: Inspect ties in masonry for type, straightness, embedment, spacing and size.
 - w. Dowels and Anchors: Inspect the installation of masonry anchor bolts, joist anchors, inserts, straps, and dowels. Inspect spacing and grouting of embedded plates for joist bearing. Inspect spacing and grouting (or installation of Hilti anchors) of embedded plates for continuous angle attachment at roof perimeter.
 - c) Work shall be performed by a Special Inspector – Technical II or Special Inspector – Structural I. Report of results shall be made daily.
13. Prior to Masonry Grouting and Capping:
 - a) Grout Spaces: Verify that grout spaces are correctly sized and clean, cleanouts are closed after inspection and grout barriers are in place before grouting.
 - b) Dry Packing: Verify proper application of dry packing.
 - c) Grouting: Verify proper grouting technique including consolidation to approved height of grout space, reconsolidation and vibration.
 - d) Work shall be performed by a Special Inspector – Technical II or Special Inspector – Structural I.
 - e) Report of results shall be made daily.

END OF SECTION

SECTION 05120 – STRUCTURAL STEEL

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Structural steel framing members, structural steel support members, struts, with required bracing, welds, and fasteners.
2. Base plates and shear stud connectors.
3. Teflon coated slide bearing pads.
4. Columns with anchor bolts and slide bearing pads.
5. Tire and Battery Storage deck bearing material.
6. Vestibule framing angles and channels.
7. Roof framing other than joists, joist girders, bridging, and continuity angles for joist girders.
8. Frames for rooftop HVAC units, exhaust fans and roof openings larger than 10 inches by 10 inches (except as shown on the drawings). Frames for openings not shown and sized on Drawings to be field fabricated.
9. Support plates and angles with anchor studs, sleeve anchors, expansion bolts, or adhesive anchors, which are embedded in or cast into concrete or masonry.
10. Adhesive anchors including, rods, adhesive cartridges, and mixing tubes.
11. Anchor bolts required for items included in this Section.
12. Erection bolts, nuts, and washers, including those required for attachment of steel joists, for items included in this Section.
13. Shims between joist girder ends.
14. Satellite dish support.

B. Related Sections:

1. Section 01458 - Testing Laboratory Services: Procedures for inspection, testing, and documentation by Owner furnished testing laboratory.
2. Division 3 - Concrete: Anchorages cast in concrete. Grouting base plates and bearing plates.
3. Section 04220 - Concrete Masonry Units: Anchorages embedded in masonry.
4. Section 05210 - Steel Joists: Steel bracing for joists and joist girders.
5. Section 05300 - Metal Deck: Support framing for roof openings.
6. Section 05500 - Metal Fabrications: Miscellaneous steel components.

1.2 REFERENCES

- A. The publications listed below form a part of this specification to the extent referenced. Publications are referenced within the text by the basic designation only.

B. American Institute of Steel Construction (AISC):

1. Specification for the Design, Fabrication and Erection of Structural Steel for Buildings.
2. AISC S348 - Specification For Structural Joints Using ASTM A325 Or A490 Bolts.

C. ASTM International (ASTM):

1. ASTM A 36 - Structural Steel.
2. ASTM A 53 - Pipe, Steel, Black and Galvanized, Seamless and Welded.
3. ASTM A 123 - Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
4. ASTM A 307 - Carbon Steel Bolts and Studs, 60,000 psi Tensile Strength.
5. ASTM A 325 - Structural Bolts, Heat Treated, 120/105 ksi Minimum Tensile Strength.
6. ASTM A 500 - Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes.
7. ASTM A 501 - Hot-Formed Welded and Seamless Carbon Steel Structural Tubing.
8. ASTM A 572 - High-Strength Low-Alloy Columbium-Vanadium Structural Steel.

D. American Welding Society (AWS): AWS D1.1 - Structural Welding Code.

- E. Steel Structures Painting Council (SSPC):
1. SSPC-Paint 20 - Zinc-Rich Coating Type I - Inorganic And Type II - Organic.
 2. SSPC-Paint 22 - Epoxy Polyamide Paints (Primer, Intermediate, And Topcoat).
 3. SSPC-Paint 25 - Zinc Oxide, Alkyd, Linseed Oil Primer For Use Over Hand Cleaned Steel Type I And Type II.
 4. SSPC-SP 2 - Hand Tool Cleaning.
 5. SSPC-SP 6 - Commercial Blast Cleaning.

1.3 SUBMITTALS

- A. Shop Drawings:
1. Indicate profiles, sizes, spacing, and locations of structural members, connections, attachments, and fasteners.
 2. Include supplementary parts and members necessary to complete structural steel work, regardless of whether parts are definitely shown or specified, and furnish bolts, gussets, plates, and related items as required for proper assembly of items.
 3. Include miscellaneous deck support angles as required for proper support of metal deck around columns, gussets, openings, and obstructions.
 4. Indicate welded connections using standard AWS welding symbols. Indicate net weld lengths.
 5. Provide setting drawings, templates, and directions for installation of anchor bolts and other anchorages to be installed by other trades.
 6. Indicate top of bearing plate elevations, and elevations above finish floor to the centerlines of embedded plate, anchor bolts, and all control joint locations.
 7. Templates shall be furnished by fabricator with instructions for setting of anchor bolts and bearing plates.
 8. Prepare shop drawings under seal of a Professional Structural Engineer registered in the State in which Project is located.
 9. Omission from shop drawings of materials required by Contract Documents does not relieve Contractor of responsibility of furnishing and installing such materials even though shop drawings may have been returned and reviewed.
- B. Quality Control Submittals: Submit design calculations for structural steel connections not detailed on Contract Documents or proposed differently than as shown on Contract Documents, signed and sealed by Professional Structural Engineer registered in State in which Project is located.
- C. Substitutions: Submit substitutions of sections or modifications of details, or both, and reasons for proposal, with shop drawings. Clearly identify substitutions as such. Accepted substitutions, modifications, and necessary changes in related portions of Work shall be coordinated by fabricator and shall be accomplished at no additional cost to Wal-Mart.
- D. Submit Shop Drawings and Quality Control Submittals within 10 working days of Contract date.

1.4 QUALITY ASSURANCE

- A. Qualifications for Welding Work: Qualify welding operators in accordance with Standard Qualification Procedures as required by AWS D1.1.
- B. Design connections not detailed on Drawings under direct supervision of a Professional Structural Engineer experienced in the design of this Work registered in State in which the project is located.

1.5 DELIVERY, STORAGE AND HANDLING

- A. Section 01600 - Product Requirements: Transport, handle, store, and protect products.
- B. Store materials to permit easy access for inspection and identification.
- C. Keep steel members off ground by using pallets, platforms, or other supports.

- D. Protect steel members and packaged materials from erosion and deterioration.
 - 1. Store fasteners in a protected place. Clean and re-lubricate bolts and nuts that become dry or rusty before use.
 - 2. Do not store materials on structure in a manner that might cause distortion or damage members or supporting structures.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Structural Steel:
 - 1. Wide Flange Steel Shapes: ASTM A 572, Grade 50.
 - 2. Steel Channels, Angles, Anchor Bolts, Plates and Bars: ASTM A 36.
- B. Structural Tubing: ASTM A 500, Grade B.
- C. Structural Steel Pipe: ASTM A53, Grade B; ASTM A500, Grade B; ASTM A 501.
- D. Bolts, Nuts, and Washers: ASTM A 325 or A 307 as indicated on Drawings.
- E. Welding Materials: AWS D1.1; type required for materials being welded or as indicated on Drawings. E7024 electrodes ("Jet Weld" rods) are not permitted; use only "All Position" rods (7018LH).
- F. Headed Stud Anchors: ASTM A 108, Grades 1010 through 1020, headed-stud type, cold-finished carbon steel; AWS D1.1, Type B.
- G. Adhesive Anchors: Stud-type anchors consisting of threaded steel rod, nut, and washer or deformed reinforcing bar, and anchor adhesive.
 - 1. Anchor adhesive: Cartridge type two-component adhesive for embedding anchors.
 - a. HIT HY-150 by Hilti Corp.
 - b. Epcon System, Ceramic 6 by ITW Ramset/Red Head.
 - c. Epoxy-Tie SET by Simson Strong Tie Co. Inc.
 - d. Substitutions: Not permitted.
- H. Alkyd Primer: SSPC-Paint 25; Gray color.
- I. Zinc Rich Primer: SSPC-Paint 20 Type II.
 - 1. Carboline 858, by Carboline.
 - 2. 90-97 Tneme-Zinc, by Tnemec.
- J. Epoxy Top Coat: SSPC-Paint 22.
 - 1. Carboline 893, by Carboline.
 - 2. Series 27 F.C. Typoxy, by Tnemec.
- K. Teflon Coated Slide Bearing Pads:
 - 1. Fluorogold, by Furon.
 - 2. Dura-Slide, by Tobi Engineering.
 - 3. Type CSA, by Con-Serv, Inc.

2.2 FABRICATION

- A. Fabricate structural steel members in accordance with AISC Specifications 303 and 335.
- B. Connections not detailed on Drawings: Engineered by fabricator, which is subject to review.
- C. Fabricator's Responsibility:
 - 1. Errors of detailing, fabrications, and for correct fitting of structural steel members.

2. Do not splice structural steel members. Members having splice not indicated on Drawings will be rejected.

2.3 FINISH

- A. Clean, prepare, and shop prime structural steel members.
- B. Galvanized Finish: Minimum 1.25 oz/sq ft zinc (hot-dipped galvanized) coating complying with ASTM A123. Galvanize the following items:
 1. Anchor bolts exposed to weather and in contact with or embedded in concrete or masonry.
- C. Epoxy Coating Finish: Prepare structural steel items scheduled to receive epoxy coating by SSPC-SP 6 (Commercial Blast Cleaning) method. Prime steel with SSPC-Paint 20 Type II, zinc rich primer; minimum dry film thickness of 3 mils. Top coat structural steel with SSPC-Paint 22, epoxy coating; minimum dry film thickness of 3 mils. Shop apply zinc rich primer and epoxy coating to the following items:
 1. Satellite dish support (from bottom of deck to top of support).
 2. Weatherpac support framing.
- D. Alkyd Primer Finish: Prepare structural steel items scheduled to receive alkyd primer by SSPC-SP 2 (Hand Tool Cleaning) method. Prime steel with SSPC-Paint 25 alkyd primer; minimum dry mil thickness of 2 mils. Apply alkyd primer to the following items:
 1. Structural steel items not specified as galvanized or scheduled to receive epoxy coating.
 2. Tire and Battery Storage framing (except wall plates and angles, which are galvanized as specified herein).
 3. Garden Center canopy framing (excluding wall angles, which are galvanized as specified herein).

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine conditions and adjacent areas where products and materials will be installed and verify that conditions conform to product manufacturer's requirements. Verify elevations of concrete and masonry bearing surfaces and locations of anchorage. Verify that all conditions are ready to receive Work. Do not proceed until unsatisfactory conditions have been corrected.
- B. Beginning of installation indicates acceptance of existing conditions.

3.2 PREPARATION

- A. Supply items required to be cast into concrete or embedded in masonry with setting diagrams to appropriate Sections.

3.3 SURVEY

- A. Employ Professional Engineer or Land Surveyor registered in State in which Project is located, experienced in survey work, to establish permanent benchmarks as shown and as necessary for accurate erection of structural steel. Check elevations of concrete and masonry bearing surfaces, and locations of anchor bolts and similar devices, before erection work proceeds, and report discrepancies to Wal-Mart Construction Manager. Do not proceed with erection until corrections have been made, or until compensating adjustments to structural steel work have been agreed upon with Wal-Mart.

3.4 ERECTION

- A. Erect structural steel in accordance with AISC Specification.
- B. Make provision for erection loads, and for sufficient temporary bracing to maintain structure safe, plumb, and in true alignment until completion of erection and installation of permanent bracing.
- C. Do not field cut or alter structural members.

- D. After erection, paint surfaces not shop painted that are to receive finish painting. Use a primer consistent with shop coat.
- E. Anchor Bolts: Install anchor bolts and other connectors required for securing structural steel to foundations and other in-place work. Furnish templates and other devices as necessary for presetting bolts and other anchors to accurate locations.
- F. Setting Bases and Bearing Plates: Clean concrete and masonry bearing surfaces of bond-reducing materials and roughen to improve bond to surfaces. Clean bottom surfaces of base and bearing plates.
 - 1. Set loose and attached base plates and bearing plates for structural members on adjusting nuts.
 - 2. Tighten anchor bolts after the supported members have been positioned and plumbed.
 - 3. Grout solidly between bearing surfaces and bases of plates immediately after erecting member and before additional load is placed on member. Finish exposed surfaces, protect installed materials, and allow to cure. For proprietary grout materials, comply with manufacturer's installation instructions.
 - 4. Slide bearings: Permanently affixed to member and support, respectively, by welding or bolting as indicated. Align and level member faces to maintain full contact between surfaces before completing installation.
- G. High-strength Bolting: Comply with AISC S348 - Specifications for Structural Joints using ASTM A 325 or A 490 Bolts.
- H. Erection Bolts:
 - 1. Comply with ASTM A 307.
 - 2. Hand tighten nut to minimum depth of nut.
- I. Perform field welding in accordance with AWS D1.1 or D1.3, as applicable. After installation, grind sight-exposed field welds smooth, touch-up welds, scratched, or damaged surfaces with primer.
- J. Touch-up Painting: Immediately after erection, clean exposed field welds, bolted connections, and abraded areas of shop paint. Apply paint to exposed areas with same material as used for shop painting. Apply by brush or spray to provide a minimum dry film thickness of 2.0 mils.
- K. Field Painting: Specified in Section 09900.

3.5 QUALITY ASSURANCE TESTING AND INSPECTION

- A. Responsibilities: Unless otherwise specified, quality control tests and inspection specified below will be conducted by the Owner's Independent Testing Laboratory at no cost to the Contractor in accordance with Section 01458. The Contractor shall perform additional testing or inspection as considered necessary by the Contractor for assurance of quality control.
 - 1. Work shall be preformed by a Special Inspector – Technical II or Special Inspector – Structural I.
 - a. In addition to the Special Inspector qualification stated in Section 01458, the Technical II Inspector shall be an American Society for Non-destructive Testing (ASNT) Non-destructive Testing Technician, TC-1A Level I, or an American Welding Society (AWS) Certified Associate Weld Inspector (C.A.W.I.).
 - 2. Inspect all new and/or modified Work requiring inspection under the provisions of this Section.
 - 3. Report of results shall be made after each observation visit.
- B. High Strength Bolting (Field Installed):
 - 1. General:
 - a. High strength bolting testing requirements pertain to all new and/or modified slip-critical bolted connections.
 - b. Visually inspect mating surfaces and bolt type for all slip-critical bolted connections for general conformance with the contract documents prior to bolting.
 - c. Verify requirements for bolts, nuts, washers, paint and installation/tightening standards are met.
 - d. Observe calibration procedures and verify that selected procedure is used to tighten bolts.
 - e. Test High Strength bolted connections in accordance with bolting standard specified above.

2. Slip Critical Bolts and Tension Bolts: Test bolt tightening in 100% of all bolts. Test a minimum of two bolts in each connection. Verify that all surfaces of connected elements have been brought into contact at 100% of connections. Verify all tips are removed from "twist"-off bolts.
 3. Bearing Bolts: Visually inspect to confirm all plies of connected elements have been brought into contact, at 100% of connections. This shall apply only to bolts designed for values not requiring exclusion of threads from failure plane. All other bolts shall be tested as for tension bolts.
- C. High Strength Bolting (Shop Installed): For shop fabricated work, perform tests required for field installation, except that bolt testing may be reduced or deleted if fabrication shop satisfies AISC Quality Certification Program - Category I, or more stringent criteria, or is approved by building official and SER.
- D. Welding (General):
1. Prior to start of fabrication, determine if fabrication shop meets the criteria for exempting shop welds from inspection and confirm in writing to building official and SER.
 2. Verify qualifications of welders as AWS certified.
 3. Verify proposed welding procedures and materials.
 4. Verify adequate preparation of faying surfaces.
 5. Verify preheat and interpass temperatures of steel, proper technique and sequence of welding, and cleaning and number of passes are provided as required.
 6. Inspect all new and/or modified Work under the provisions of this Section.
- E. Welding (Field):
1. Fillet Welds: Visually inspect 100% of all fillet welds for size, length, and quality, per AWS D1.1
 2. Partial Penetration Welds: Test 100% of all partial penetration welds exceeding 5/16 inch, using Ultrasonic Testing per AWS. D1.1. Test 100% of all partial penetration welds less than 5/16 inch, using Magnetic Particle Testing per ASTM E-109, performed on root pass and on finished weld.
 3. Complete Penetration Welds: Test 100% of all complete penetration welds exceeding 5/16 inch, using Ultrasonic Testing per A.W.S. D1.1. Test 100% of all complete penetration welds less than 5/16 inch, using Magnetic Particle Testing per ASTM E-109, performed on root pass and on finished weld.
 4. Miscellaneous Metals, Inserts and Prefabricated Components: Where integrity of the connections impact life safety or performance of the building structure, provide testing and inspection as for typical welds previously specified.
- F. Welding (Shop): Perform inspections as for field welding except weld testing may be reduced or deleted if fabrication shop satisfies AISC Quality Certification Program - Category I, or more stringent criteria, and is approved by building official and SER.
- G. Mechanical Fasteners:
1. Inspect all new and/or modified Work under the provisions of this Section.
 2. Adhesive Anchors: Visually inspect specified size, spacing, embedment, and location. Verify that installation of adhesive anchors conform to the ICBO reports noted on the plans.
 3. Miscellaneous Fasteners: Visually inspect specified size, spacing, embedment, and location that are part of the building structural system.
- H. Submittal Verification: Verify mill test reports and other submitted documentation for compliance with contract document.
- I. Materials Verification: Verify materials delivered to site comply with contract documents and approved shop drawings. Materials include:
1. Structural Steel.
 2. Bolts.
 3. Electrodes.
 4. Mechanical fasteners.
- J. Verification of Detail Compatibility:
1. Inspect on a periodic basis.

2. Review project documents affecting integrity of the structure, including contract documents and pertinent submittals including approved shop drawings.
3. Visit site at intervals appropriate to the stage of construction to perform review of the structure and visually confirm general compliance with the contract documents.
4. Inspect the following to verify member orientation, configuration, type, and size comply with details indicated on the contract documents and approved shop drawings:
 - a. Bracing and stiffening members.
 - b. Proper applications of joint details at connections for structural members.
 - c. Other work critical to the integrity of the building structure.

END OF SECTION

SECTION 05210 – STEEL JOISTS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Owner furnished open web steel joists, with extended ends, and attached bearing plates.
 - 2. Owner furnished joist girders and continuity angles for joist girders.
 - 3. Owner furnished bridging and connection angles for bridging at side walls.
 - 4. Contractor installation of steel joists and accessories.
- B. Work Installed, but not Furnished under this Section: Owner's Steel Joist Supplier will furnish steel joists, joist girders, and bridging under provisions of Section 01640.
- C. Related Sections:
 - 1. Section 03300 - Cast-In-Place Concrete: Grouting base plates and bearing plates.
 - 2. Section 04220 - Concrete Masonry Units: Embedment of bearing plates.
 - 3. Section 05120 - Structural Steel:
 - a. Support plates and angles with anchor studs, expansion bolts, or adhesive anchors, which are embedded in or cast into concrete or masonry for supporting steel joists and joist girders.
 - b. Bolts, nuts, and washers for attachment of steel joists to structural steel.
 - c. Frames for rooftop HVAC units and roof openings larger than 10 inches by 10 inches.
 - 4. Section 09900 - Paint and Coatings: Field painting of exposed joists and roof deck.

1.2 REFERENCES

- A. The publications listed below form a part of this specification to the extent referenced. Publications are referenced within the text by the basic designation only.
- B. American Institute of Steel Construction (AISC):
 - 1. AISC 303 - Code of Standard Practice for Steel Buildings and Bridges.
 - 2. AISC 348 - Specification For Structural Joints Using ASTM A325 Or A490 Bolts.
- C. ASTM International (ASTM):
 - 1. ASTM A 36 - Specification for Structural Steel.
 - 2. ASTM A 242 - Specification for High-Strength Low-Alloy Structural Steel.
 - 3. ASTM A 570 - Specification for Steel, Sheet and Strip, Carbon, Hot-Rolled, Structural Quality.
 - 4. ASTM A 572 - Specification for High-Strength Low-Alloy Columbium-Vanadium Steels of Structural Quality.
 - 5. ASTM E 109 - Standard Method for Dry Powder Magnetic Particle Inspection.
- D. American Welding Society (AWS):
 - 1. AWS D1.1 - Structural Welding Code.
- E. Steel Joist Institute (SJI):
 - 1. SJI - Standard Specifications, Load Tables and Weight Tables for Steel Joists and Joist Girders.
- F. Steel Structures Painting Council (SSPC):
 - 1. SSPC - Paint 15 Steel Joist Shop Paint/Metal Building Primer.

1.3 SUBMITTALS

- A. Shop Drawings:
 - 1. Owner's steel joist supplier will prepare shop drawings and forward via email to the Structural Engineer of Record reviewer specified in Paragraph "Procedures" in Section 01330.
 - 2. Shop Drawings will indicate:
 - a. Standard designations, configuration, sizes, spacing, and locations of joists and joist girders.
 - b. Joist and joist girder coding.
 - c. Bridging, connections, attachments, and cambers.
 - 3. Shop drawings will be prepared under the direction of a Professional Structural Engineer registered in State in which the Project is located.
 - 4. Submit Shop Drawings within 3 working days of Contract date.
- B. Qualification Data: For Manufacturer.
- C. Section 01330 - Submittal Procedures: Procedures for submittals.
- D. Contractor's Final Field Use Review Form: Complete attached Contractor's Final Field Use Review Form and forward to Structural Engineer of Record identified in Section 01330 and Owner's Steel Joist Supplier specified herein.

1.4 QUALITY ASSURANCE

- A. Manufacturer Qualifications: A manufacturer certified by SJI to manufacture joists complying with applicable standard specifications and load tables of SJI "Specifications".
- B. Qualifications for Welding Work: Qualify welding operators in accordance with Standard Qualification Procedures as required by AWS D1.1.

1.5 DELIVERY, STORAGE AND HANDLING

- A. Product Delivery: Owner's Steel Joist Supplier will deliver products to jobsite for Contractor to receive on delivery date established by contractor. To establish product delivery date, contact the Wal-Mart Account Contact person indicated, immediately upon notice of Award of Contract.
- B. Project Packaging: Steel Joists will be shipped in manufacturer's standard packaging with identification markings on each component or package. Identification markings will coordinate with identification markings for components indicated on Owner's Steel Joist Supplier installation shop drawings.
- C. Acceptance at Site: Receive products as specified in Section 01640.
 - 1. Verify quantity of products furnished with Installation Shop Drawings and Bills of Lading provided by Owner's Steel Joist Supplier.
 - 2. Report discrepancies in product quantity delivered, or damage to products delivered to Wal-Mart immediately. Upon notification, Wal-Mart will arrange for delivery of replacement products. Note description of product quality discrepancies and/or product damage on Bill of Lading.
- D. Manufacturing Defects: Report suspected product manufacturing defects to Wal-Mart Construction Manager and Owner's Steel Joist Supplier. Upon notification, Wal-Mart will arrange for repair of manufacturing defects.
- E. Section 01600 - Product Requirements: Transport, handle, store, and protect products in accordance with SJI requirements.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Owner's Steel Joist Supplier:
 - 1. CMC Joist Company, 3565 Hwy 32 North, Hope, AR 71801, (800) 643-1577. Account Sales Manager: Susan Rider or Robbie Fuller.
- B. Section 01600 - Product Requirements: Product options and substitutions: Substitutions: Not Permitted.

2.2 MATERIALS (OWNER FURNISHED - CONTRACTOR INSTALLED)

- A. Open Web Joist Members:
 - 1. SJI Type K Open Web.
 - 2. SJI Type H Open Web.
 - 3. LH Longspan.
 - 4. DLH Longspan.
 - 5. Joist Girders.
- B. Bridging: ASTM A 36, ASTM A 242, A 570, or A 572.
- C. Primer: SSPC - Paint 15, gray.
- D. Anchors and Fasteners:
 - 1. Bridging bolts and joist to girder bolts.
 - 2. Clips for bridging wall anchors.

2.3 ACCESSORIES (CONTRACTOR FURNISHED - CONTRACTOR INSTALLED)

- A. Anchors and Fasteners: Furnish anchors and fasteners required for installation and attachment of joist, joist girders, and bridging not provided by Owner's Steel Joist Supplier.
- B. Welding Materials: AWS D1.1.

2.4 FABRICATION

- A. Steel joists and joist girders will be fabricated in accordance with SJI Standard Specifications including headers and other supplementary framing. Top and bottom chord extensions will be provided where indicated on Drawings.
- B. Joists, joist girders, and accessories will be prepared and shop primed with one coat of primer, minimum dry film thickness of 1.0 mils.
- C. Fabrication Testing and Inspection:
 - 1. Testing and inspection will be performed under provisions of Section 01458.
 - 2. Fabrication of joists and joist girders is subject to inspection and testing.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine conditions and adjacent areas where products and materials will be installed and verify that conditions conform to product manufacturer's requirements. Verify that steel joist supporting framing components are ready to receive Work. Do not proceed until unsatisfactory conditions have been corrected.

- B. Beginning of installation indicates acceptance of existing conditions.

3.2 ERECTION

- A. Erect steel joists, joist girders, and bridging in accordance with approved final field use drawings and SJI Standard Specifications.
- B. Position joists and joist girders on supports in accordance with approved final field use drawings and SJI. During erection, provide temporary bracing, as required by joist manufacturer for induced loads and stresses on joists and joist girders.
- C. Limit sweep of joists to span length/180 or a maximum of 2 inches.
- D. Coordinate placement of anchorages in concrete and masonry construction for making connections to joists and joist girders, and for securing bearing plates.
- E. Connect or field weld joist seat to placed bearing plates after alignment, positioning after installation of bridging. Do not permit erection of decking until joists are braced and bridged.
- F. Do not field cut or alter joists without written approval from Structural Engineer of Record and Owner's Steel Joist Supplier.
- G. Perform field welding in accordance with AWS D1.1 or D1.3, as applicable. After installation, grind sight-exposed field welds smooth, touch-up welds, scratched, or damaged surfaces with primer.

3.3 QUALITY ASSURANCE TESTING AND INSPECTION

- A. Responsibilities: Unless otherwise specified, quality control tests and inspection specified below will be conducted by the Owner's Independent Testing Laboratory at no cost to the Contractor in accordance with Section 01458. The Contractor shall perform additional testing or inspection as considered necessary by the Contractor for assurance of quality control.
 - 1. Work shall be performed by a Special Inspector – Technical II or Special Inspector – Structural I.
- B. High Strength Bolting (Field Installed):
 - 1. General:
 - a. Visually inspect mating surfaces and bolt type for all slip-critical bolted connections for general conformance with the contract documents prior to bolting.
 - b. Determine the requirements for bolts, nuts, washers, paint and installation/tightening standards are met.
 - c. Observe calibration procedures when such procedures are required in the contract documents and verify that selected procedure is used to tighten bolts.
 - d. Test High Strength bolted connections in accordance with AISC S348.
 - 2. Slip Critical Bolts and Tension Bolts:
 - a. Test bolt tightening in 100% of all bolts. Test a minimum of two bolts in each connection. Verify that all surfaces of connected elements have been brought into contact at 100% of connections. Verify all tips are removed from "twist"-off bolts.
 - 3. Bearing Bolts:
 - a. Visually inspect to confirm all plies of connected elements have been brought into contact at 100% of connections. This shall apply only to bolts designed for values not requiring exclusion of threads from failure plane. All other bolts shall be tested as for tension bolts.
- C. High Strength Bolting (Shop Installed): For shop fabricated work, perform tests required for field installation, except that bolt testing may be reduced or deleted if fabrication shop satisfies AISC Quality Certification Program - Category I, or more stringent criteria, or is approved by building official and SER.
- D. Welding (General):

1. Prior to start of fabrication determine if fabrication shop meets the criteria for exempting shop welds from inspection and confirm in writing to building official and SER.
 2. Verify qualifications of all welders as AWS certified.
 3. Verify proposed welding procedures and materials.
 4. Verify adequate preparation of faying surfaces.
 5. Verify preheat and interpass temperatures of steel, proper technique and sequence of welding, and cleaning and number of passes are provided as required.
- E. Welding (Field):
1. Fillet Welds: Visually inspect 100% of all fillet welds, for size, length, and quality, per AWS D1.1.
 2. Partial Penetration Welds: Test 100% of all partial penetration welds exceeding 5/16 inch, using Ultrasonic Testing per AWS. D1.1. Test 100% of all partial penetration welds less than 5/16 inch, using Magnetic Particle Testing per ASTM E-109, performed on root pass and on finished weld.
 3. Complete Penetration Welds: Test 100% of all complete penetration welds exceeding 5/16 inch, using Ultrasonic Testing per A.W.S. D1.1. Test 100% of all complete penetration welds less than 5/16 inch, using Magnetic Particle Testing per ASTM E-109, performed on root pass and on finished weld.
 4. Steel Joist/Joist Girder Welds: Provide testing and inspection as specified for field welds.
 5. Miscellaneous Metals, Inserts and Prefabricated Components: Where integrity of the connections impact life safety or performance of the building structure, provide testing and inspection as for typical welds previously specified.
- F. Miscellaneous Mechanical Fasteners: Visually inspect specified size, spacing, embedment, and locations that are part of the building structural system.
- G. Submittal Verification: Verify mill test reports and other submitted documentation, for compliance with contract document.
- H. Material Verification: Verify materials delivered to site comply with contract documents and approved shop drawings. Materials include:
1. Structural Steel Bar Joists and Joist Girders.
 2. Bolts.
 3. Electrodes.
 4. Mechanical fasteners.
- I. Verification of Detail Compatibility:
1. Inspect on a periodic basis. Review project documents affecting integrity of the structure, including contract documents and approved shop drawings.
 2. Visit site, at intervals appropriate to the stage of construction to perform review of the structure and visually confirm general compliance with the project documents.
 3. Inspect the following to verify member orientation, configuration, type, and size comply with details indicated on the contract documents and approved shop drawings:
 - a. Bracing and stiffening members.
 - b. Proper applications of joint details at connections for structural members.
 - c. Other work critical to the integrity of the building structure.

END OF SECTION

**SECTION 05210
STEEL JOISTS
CONTRACTOR'S FINAL FIELD USE DRAWING REVIEW**

Project Name: _____ Project Number: _____

The Contractor shall perform no portion of the Work until review of the Final Field Use Drawings is complete.

By signing below as approved, the Contractor hereby certifies that he has reviewed the Final Field Use Drawings and has checked and coordinated the information contained therein with related work and has reported any errors, inconsistencies, or omissions to the Architect/Engineer.

The Architect/Engineer's review of this form or any attached drawings shall neither relieve the Contractor or the steel joist supplier from the responsibility to comply with the requirements of the Contract Documents nor approve any work not complying therewith. Final Field Use Drawings are not Contract Documents and do not modify Contract Documents. The Contractor shall be responsible for the accuracy of measurements, elevations, line and grades of the Work.

SUBMITTAL:

☐ Steel Joist Final Field Use Drawings from Owner's Steel Joist Supplier dated _____
(check the appropriate submittal action and fill in date on drawings)

☐ Approved / no exceptions taken

☐ Revise and resubmit

☐ Approved / comments attached

☐ Rejected

If comments are required, attach a separate sheet.

Approved by Contractor:

Firm Name: _____

Signed by: _____ Date: _____

Return email copy to the Structural Engineer or Architect of Record, and one copy to Owner's Steel Joist Supplier.

END OF FORM

SECTION 05300 – METAL DECK

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Owner furnished metal roof deck.
 - 2. Owner furnished sidelap fasteners.
 - 3. Framed openings up to 10 inches by 10 inches.
 - 4. Owner furnished metal canopy deck.
 - 5. Contractor installation of metal decking and accessories.
- B. Work Installed, but not Furnished under this Section:
 - 1. Owner's Metal Deck supplier will furnish steel deck under provisions of Section 01640.
 - 2. Owner's Metal Deck supplier will furnish side lap fasteners for deck. Owner's Metal Deck supplier will determine quantity of fasteners based on requirements of Side Lap Fastener Schedule on Drawings. At time of receipt, Contractor shall verify quantity of side lap fasteners is in accordance with Side Lap Fastener Schedule. If fastener quantity is not in accordance with requirements of Schedule, obtain balance of fasteners from Owner's Metal Deck supplier. Subsequent to receipt of side lap fasteners from Owner's Metal Deck supplier, additional fasteners shall be provided at Contractor's expense.
- C. Contractor's Responsibilities:
 - 1. Furnish and install cover plates and accessories, including bolts and fasteners, required for installation and attachment of deck to structural steel members.
 - 2. Installation of Owner furnished metal decking and accessories.
- D. Related Sections:
 - 1. Section 01458 - Testing Laboratory Services: Procedures for inspection, testing, and documentation by Owner furnished testing laboratory.
 - 2. Section 01640 - Owner Furnished Products: General procedures related to Owner furnished products.
 - 3. Section 04220 - Concrete Masonry Units: Anchorages for support plates and angles embedded in masonry.
 - 4. Section 05120 - Structural Steel:
 - a. Structural steel for rooftop HVAC units and framed openings larger than 10 inches by 10 inches.
 - b. Support plates and angles with anchor studs, expansion bolts, or adhesive anchors, which are embedded in or cast into concrete or masonry for supporting steel deck.
 - 5. Section 05210 - Steel Joists: Support structure for metal decking.
 - 6. Section 09900 - Paints and Coatings: Field painting of exposed deck.

1.2 REFERENCES

- A. The publications listed below form a part of this specification to the extent referenced. Publications are referenced within the text by the basic designation only.
- B. American Iron and Steel Institute (AISI): Specification for the Design of Cold-Formed Steel Structural Members.
- C. ASTM International (ASTM):
 - 1. ASTM A 653 - Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
 - 2. ASTM A1008 - Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, Solution Hardened, and Bake Hardenable.
- D. American Welding Society (AWS):

1. AWS D1.1 - Structural Welding Code.
2. AWS D1.3 - Structural Welding Code - Sheet Steel.

E. Steel Deck Institute (SDI): Design Manual for Composite Decks, Form Decks, Roof Decks.

F. Steel Structures Painting Council (SSPC):

1. SSPC-Paint 20 Type II - Zinc Rich Primers - Organic.
2. SSPC-Paint 25 - Red Iron Oxide, Zinc Oxide, Raw Linseed Oil, and Alkyd Primer.

1.3 SUBMITTALS

A. Shop Drawings:

1. Owner's metal deck supplier will prepare shop drawings and forward to Structural Engineer of Record. Transmit submittals reviewed by Structural Engineer of Record via email to the reviewer specified in Paragraph "Procedures" in Section 01330.
2. Shop Drawings will indicate:
 - a. Decking plan, deck profile dimensions, supports, projections, openings and reinforcements, fastening method and installation accessories.
 - b. Locations, types, and sequence of connections.
 - c. Welds by standard welding symbols adopted by AWS.
3. Shop drawings will be prepared under the direction of a Professional Structural Engineer registered in State in which the Project is located.

B. Final Field Use Drawing Review Form: Complete attached Final Field Use Drawing Review Form and forward to Structural Engineer of Record Specified in Section 01330 and Owner's metal deck supplier specified herein.

C. Submit Shop Drawings and Contractor's Final Field Use Drawing Review Form within 3 working days of Contract date.

D. Testing and Inspection Reports: Submit reports in accordance with Section 01458.

1.4 QUALITY ASSURANCE

A. Qualifications for Welding Work: Qualify welding operators in accordance with Standard Qualification Procedures as required by AWS D1.1.

1.5 DELIVERY, STORAGE AND HANDLING

A. Product Delivery: Owner's metal deck supplier will deliver products to jobsite for Contractor to receive on delivery date established by contractor. To establish product delivery date, contact the Delivery Scheduling or Wal-Mart Account Contact person indicated, immediately upon notice of Award of Contract.

B. Project Packaging: Metal decking will be shipped in manufacturer's standard packaging with identification markings on each component or package. Identification markings will coordinate with identification markings for components indicated on Owner's Metal Deck Supplier installation final field use drawings.

C. Acceptance at Site: Receive products as specified in Section 01640.

1. Verify quantity of products furnished with Installation Final Field Use Drawings and Bills of Lading provided by Owner's Metal Deck Supplier.
2. Report discrepancies in product quantity delivered, or damage to products delivered to Wal-Mart immediately. Upon notification, Wal-Mart will arrange for delivery of replacement products. Note description of product quality discrepancies and/or product damage on Bill of Lading.

D. Manufacturing Defects: Report suspected product manufacturing defects to Wal-Mart Construction Manager and Owner's Metal Deck Supplier. Upon notification, Wal-Mart will arrange for repair of manufacturing defects.

- E. Section 01600 - Product Requirements: Transport, handle, store, and protect products.
- F. Keep materials dry. Separate sheets and store deck on dry wood sleepers; slope for positive drainage.
- G. Prevent damage to edges, ends and surfaces.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Consolidated Systems Incorporated, Columbia, SC.
 - 1. Wal-Mart Account Sales Manager: Dreux Legros (888) 567-9747.
 - 2. Delivery Scheduling Contact: Sharon Bryant (803) 251-5174.
- B. Substitutions: Not permitted.

2.2 DECK MATERIALS (OWNER FURNISHED - CONTRACTOR INSTALLED)

- A. Metal Deck: Conforming to SDI standards, type, metal gage, and depth as shown on the drawings.
- B. Metal Roof Deck: ASTM A 1008, Classification SS (Structural Steel), Grade 33 (33ksi), prime painted grey top side and white bottom side.
- C. Metal Canopy Deck: Roll formed; ASTM A 653 Structural Quality, Grade 33, G90 galvanizing, prime painted grey top and bottom side.

2.3 ACCESSORIES (OWNER FURNISHED - CONTRACTOR INSTALLED)

- A. Side Lap Fasteners:
 - 1. Self-drilling screws; #10-16 /1, by ITW Buildex, Itaska, IL (800) 323-0720, or Wal-Mart approved substitute unless otherwise shown in the Fastener Schedule on the Structural Drawings or specified.

2.4 ACCESSORIES (CONTRACTOR FURNISHED - CONTRACTOR INSTALLED)

- A. Welding Materials: AWS D1.1.
- B. Primers For Field Touch-Up:
 - 1. For shop applied primer: SSPC 25.
 - 2. For galvanized surfaces: SSPC 20.
- C. Screw Fasteners: Self-drilling, self tapping No. 12 HWH Tek screws, by ITW Buildex, Itaska, IL (800) 323-0720, or Wal-Mart approved substitute.
- D. Powder Actuated or Air Actuated Fasteners:
 - 1. For fastening to steel equal to or greater than 1/4-inch thick: Minimum 0.145 inch diameter knurled hardened steel shank; minimum 0.5625 inch diameter washer; meet SDI design requirements.
 - a. ENP2-21-L15 or ENPH2-21-L15, by Hilti Incorporated, Tulsa, OK (800) 879-8000.
 - b. K-65056 by Pneutek Incorporated, Hudson, NH (603) 883-1660.
 - 2. For fastening to steel from 7/64-inch to 1/4-inch thick as per manufacturers installation instructions: Minimum 0.130 inch diameter knurled hardened steel shank; minimum 0.500 inch diameter steel washer or head; meet SDI design requirements.
 - a. X-EDNK22THQ12 HSN or X-EDN19-THQ12 HSN, by Hilti, Incorporated, Tulsa, OK (800) 879-8000.
 - b. SDK-63075, by Pneutek Incorporated, Hudson, NH (603) 883-1660.
 - 3. Fasteners shall be as specified above or as noted in the Fastener Schedule shown on the Structural Drawings.

4. Section 01600 - Materials and Equipment: Product options and substitutions. Substitutions: Not permitted.

E. Masonry Anchorage: Specified in Section 04220.

F. Premolded Closure Strips: Manufactured panel manufacturer's standard, size and configuration to match panel flutes.

G. Flashing and Counter Flashing: Specified in Section 07620.

H. Gutters and Downspouts: Specified in Section 07711.

I. Zinc-Rich Primer: SSPC-Paint 20 Type II.

2.5 FABRICATION

A. Fabricate steel decking in accordance with the SDI Design Manual and AISI, to accommodate the following:

1. Metal Roof Deck and Metal Canopy Deck: Maximum working stress of 20,000 psi and maximum span deflection of L/240.

B. Shop Prime Finish: Mechanically clean and apply primer at a minimum dry film thickness of 0.5 mils.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine conditions and adjacent areas where products and materials will be installed and verify that conditions conform to product manufacturer's requirements. Verify that metal deck supporting framing components are ready to receive Work. Do not proceed until unsatisfactory conditions have been corrected.

B. Beginning of installation indicates acceptance of existing conditions.

3.2 INSTALLATION

A. Erect metal decking and connect to structure in accordance with SDI Design Manual for Composite Decks, Form Decks, Roof Decks. Coordinate attachment sequence and procedure with placing of units; show on final field use drawings.

B. On steel support members provide 1-1/2 inch minimum bearing. On masonry support surfaces provide 3 inch minimum bearing.

C. Align and level deck on supports.

D. Attach welds, fasteners, and side lap connectors of size, spacing, and location as indicated on Drawings.

E. Install Hilti powder actuated fasteners using the DX 860HSN, DX 460SM, DX 860ENP, or DX-76 decking systems, by Hilti. Installed pin height shall be in accordance with manufacturer's recommendations, and verified with manufacturer approved inspection gage. Determine power level by jobsite testing.

F. Install Hilti air actuated fasteners using the R4x12 decking system, by Hilti. Installed pin height shall be in accordance with manufacturer's recommendations, and verified with manufacturer approved inspection gage. Determine power level by jobsite testing.

G. Install Pneutek air actuated fasteners using decking system, by Pneutek. Install pins in accordance with manufacturer's recommendations. Pin head shall clamp deck tightly to supporting member without gaps between underside of head and top side of deck. Pin shall not cause excessive dimpling of the deck greater than 1/2 the

thickness of the pin head.

- H. Powder and air actuated fasteners shall be installed by a tool operator licensed by the pin manufacturer.
- I. Welding: In accordance with AWS D1.1 and D1.3. Provide welding washers when welding 24 gauge or lighter steel in conformance with SDI standards. Install 6 inch wide sheet steel cover plates where deck changes direction. Spot weld in place 12 inches on center maximum. Install sheet steel closures and angle flashings to close openings between deck and walls, columns, and openings.
- J. Immediately after welding deck in place, touch-up welds, burned areas, and surface coating damage with prime paint.
- K. Field Painting: Dry Fog paint finish specified in Section 09900.
- L. Interface with Other Work:
 - 1. Coordinate locations and sizes of openings for skylights, smoke vents (if specified), roof top mechanical equipment and penetrations of metal deck.
 - 2. Verify steel joist spacing, bracing, and layout.
 - 3. Coordinate structural steel support framing for metal deck openings.
- M. Metal Canopy Deck:
 - 1. Install panels such that panel joint occurs at top of rib.
 - 2. Coordinate with work of other Sections to produce watertight assembly, capable of withstanding loading pressures and thermal and lateral loads.
 - 3. Install gutter and downspouts furnished under other Sections.
 - 4. Lap panels, set into sealant, and fasten at spacing indicated on Drawings.
 - 5. Coat welded connections with zinc-rich primer complying with SSPC-Paint 20.
 - 6. Isolate metals from dissimilar metals or corrosive substrates using bituminous coating.
 - 7. Fill space between metal panel and support beam and between metal panel and light fixtures with premolded closure accessory strip to eliminate nesting space for birds.
 - 8. Field Finish: Paint canopy supports, structural steel, metal fabrications and accessories on tops, bottoms, edges, and other weather-exposed surfaces as indicated on Drawings, in accordance with Section 09900.

3.3 QUALITY ASSURANCE TESTING AND INSPECTION

- A. Responsibilities: Unless otherwise specified field quality control tests and inspection specified below will be conducted by the Owner's Independent Testing Laboratory (ITL) at no cost to the Contractor in accordance with Section 01458. The Contractor shall perform additional testing or inspection as considered necessary by the Contractor for assurance of quality control.
- B. General: If inspection of fabricators work is required, testing agent may test and inspect structural steel at plant before shipment. Owner and SER reserve right to reject material not complying with Contract Documents at any time before final acceptance.
 - 1. ITL inspection shall be preformed by a Special Inspector – Technical II or Special Inspector – Structural I.
 - 2. Report of results shall be made after each observation visit.
- C. Roof Deck Fasteners:
 - 1. Visually inspect specified size, spacing, embedment, and location.
 - 2. Inspect 100% of side lap connectors over entire roof area for type, size, and spacing of side lap connectors. Verify that the side lap connection connects all layers of the deck tightly. Inspect 100% of primary deck attachments to continuous steel members (joists, joist girders, and perimeter angles).
 - 3. Manufacturer's Field Services: Powder and air actuated fasteners.
 - a. Inspection: Manufacturer's representative (not a distributor or agent) shall be on site to inspect and verify proper installation of 100% of fasteners.
 - b. Report: Manufacturer representative (not a distributor or agent) shall submit inspection report indicating verification to Wal-Mart Construction Manager.

4. For TEK screw connections, inspect for complete depth of penetration.
5. For welded connections, inspect for fusion and size.

- D. Cold Formed Metal Framing Welds: Visually inspect 100% of welds for specified length, size, and continuity in accordance with AWS D1.3 for metal less than 1/8" in thickness, for work designed as a structural element.
- E. Submittal Verification: Verify mill test reports and other submitted documentation, for compliance with contract document.
- F. Materials Verification:
 - 1. Verify materials delivered to site comply with contract documents and approved shop drawings. Materials include:
 - 2. Bolts.
 - 3. Electrodes.
 - 4. Mechanical fasteners.
 - 5. Deck: Select 6 random sheets for each type of deck used. Inspect for deck thickness, type, and material.
- G. Verification of Detail Compatibility:
 - 1. Inspect on a periodic basis.
 - 2. Review project documents affecting integrity of the structure, including contract documents and pertinent submittals including approved shop drawings.
 - 3. Visit site at intervals appropriate to the stage of construction, to perform review of the structure and visually confirm general compliance with the Contract Documents.
 - 4. Inspect the following to verify member orientation, configuration, type, and size comply with details indicated on the contract documents and approved shop drawings:
 - a. Bracing and stiffening members.
 - b. Proper applications of joint details at connections for structural members.
 - c. Other work critical to the integrity of the building structure.

END OF SECTION

**SECTION 05300
METAL DECK
CONTRACTOR'S FINAL FIELD USE DRAWING REVIEW**

Project Name: _____

Project Number: _____

The Contractor shall perform no portion of the Work until review of the Final Field Use Drawings is complete.

By signing below as approved, the Contractor hereby certifies that he has reviewed the Final Field Use Drawings and has checked and coordinated the information contained therein with related work and has reported any errors, inconsistencies, or omissions to the Architect/Engineer.

The Architect/Engineer's review of this form or any attached drawings shall neither relieve the Contractor or the steel deck supplier from the responsibility to comply with the requirements of the Contract Documents nor approve any work not complying therewith. Final Field Use Drawings are not Contract Documents and do not modify Contract Documents. The Contractor shall be responsible for the accuracy of measurements, elevations, line and grades of the Work.

SUBMITTAL:

☐ Steel Deck Final Field Use drawings from Owners Metal Deck Supplier dated _____
(check the appropriate submittal action and fill in date on drawings)

☐ Approved / no exceptions taken

☐ Revise and resubmit

☐ Approved / comments attached

☐ Rejected

If comments are required, attach a separate sheet.

Approved by Contractor:

Firm Name: _____

Signed by: _____

Date: _____

Return email copy to the Structural Engineer of Record, and one copy to Owner's Metal Deck Supplier.

END OF FORM

SECTION 05400 – COLD FORMED METAL FRAMING

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:

1. Load bearing formed steel stud exterior and interior framing 20 gage and heavier.
2. Cold formed steel cee-joists.
3. Cold formed steel ceiling joists.
4. Cold formed steel stud header wall framing and bracing supported from roof structure.
5. Cold formed deep leg track (capture track) for interior nonload-bearing steel stud partitions.
6. Cold formed steel stud partition between stockroom and sales area.

B. Related Sections:

1. Section 05120 - Structural Steel: Connecting to structural building framing.
2. Section 05210 - Steel Joists: Connecting to steel joists.
3. Section 05300 - Metal Deck: Connecting to decking.
4. Section 06100 - Rough Carpentry: Wood furring strips, plywood, and blocking.
5. Section 07210 - Building Insulation: Thermal insulation installed in exterior framing.
6. Section 09250 - Gypsum Board: Non-load bearing steel stud partition framing 20 gage and lighter and gypsum board attached to cold formed metal framing.

1.2 REFERENCES

A. The publications listed below form a part of this specification to the extent referenced. Publications are referenced within the text by the basic designation only.

B. American Iron and Steel Institute (AISI):

1. North American Specification for the Design of Cold-Formed Steel Structural Members.
2. Standard for Cold-Formed Steel Framing.

C. ASTM International (ASTM):

1. ASTM A 153 - Zinc Coating (Hot-Dip) on Iron and Steel Hardware.
2. ASTM A 653 - Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
3. ASTM A 1003 - Steel Sheet, Carbon, Metallic- and Nonmetallic-Coated for Cold-Formed Framing Members.
4. ASTM A 1007 - Installation of Load Bearing (Transverse and Axial) Steel Studs and Related Accessories.
5. ASTM C 954 - Steel Drill Screws for the Application of Gypsum Board or Metal Plaster Bases to Steel Studs from 0.033 in. (0.84 mm) to 0.112 in (2.84 mm) in Thickness.
6. ASTM C 1513 - Steel Tapping Screws for Cold-Formed Steel Framing Connections.

D. American Welding Society (AWS):

1. AWS D1.3 - Structural Welding Code - Steel Sheet.

E. Gypsum Association (GA):

1. GA-216 - Application and Finishing of Gypsum Board.

F. Steel Structures Painting Council (SSPC):

1. SSPC-Paint 20 Type I - Zinc Rich Primers - Inorganic.

G. Steel Stud Manufacturers Association (SSMA):

1. SSMA Product Technical Information.

1.3 QUALITY ASSURANCE

- A. Installer Qualifications: Company specializing in the installation of cold formed metal framing components with minimum five years documented experience.
- B. Install system to provide for movement of components without damage, failure of joint seals, undue stress on fasteners, or other detrimental effects when subject to seasonal or cyclic day/night temperature ranges.
- C. Install system to accommodate construction tolerances, deflection of building structural members, and clearances of intended openings.
- D. Qualifications for Welding Work: Qualify welding operators in accordance with Standard Qualification Procedures as required by AWS D1.1.

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Section 01600 - Product Requirements: Transport, handle, store, and protect products.
- B. Protect metal framing from corrosion, deformation, and other damage during delivery, storage, and handling.
- C. Store and protect with waterproof covering; ventilate to avoid condensation.
- D. Where framing is stored outdoors, stack materials off ground, supported on level platform, fully protected from weather.

PART 2 PRODUCTS

2.1 MATERIALS

- A. Comply with AISI North American Specification for the Design of Cold-Formed Steel Structural Members and ANSI Standard for Cold-Formed Steel Framing.
- B. Steel Sheet: ASTM A 1003, Structural Grade, Type H, metallic coated, Grade: ST33H (33 ksi) unless otherwise indicated, Coating G60.
- C. Material Thickness: Gage shown on the drawings shall have the following minimum base metal thickness.
 - 1. 20 gage: 33 mils.
 - 2. 18 gage: 43 mils.
 - 3. 16 gage: 53 mils.
- D. Interior and Exterior Load-Bearing Studs: Manufacturer's standard C-shaped steel studs, of web depths indicated, punched, with stiffened flanges, depth, flange width, and gage as indicated on Drawings.
 - a. Interior and Exterior Load-Bearing Steel Joists: Manufacturer's standard C-shaped steel joists, of web depths indicated, with stiffened flanges.
- E. Partition Floor Tracks and Runners: Galvanized sheet steel, C-shaped; same depth and gage as studs; tight fit; solid web.
- F. Steel Track: Manufacturer's standard U-shaped steel track, of web depths indicated, unpunched, with unstiffened flanges, and same minimum base-metal thickness as steel studs.

- G. Deflection (Capture) Track: Deep-leg, U-shaped steel track; unpunched, with unstiffened flanges, of web depth as shown to contain studs while allowing free vertical movement, with flanges or legs as shown designed to support horizontal and lateral loads. Provide fasteners as indicated on Drawings.
 - 1. Contractor's Option: Manufacturer's standard double or single deflection track as follows:
 - a. VertiClip or VertiTrack by The Steel Network, Raleigh, NC (888) 474-4876. If this option is used, track may be 20 gauge for all stud sizes.
 - b. FastTop Clip by Dietrich Metal Framing, Pittsburg, PA (412) 281-2805.
 - c. SLP-TRK by Brady Innovations as distributed by Dietrich Metal Framing.
- H. Load-Bearing Wall Furring and Partition Bracing: Galvanized sheet steel.
 - 1. Cold-Rolled Channels: 3/4 inch x 1/2 inch and 1-1/2 inch x 17/32 inch or as shown on the drawings.
 - 2. Clip Angles: 2 inches x 2 inches x 16 gage x 1/4 inch less than stud width or:
 - a. Bridge Clip by The Steel Network.
 - b. EasyClip U-Series Clip Angles 1-1/2" x 1-1/2" x 16 gage x 1/4 inch less than stud width by Dietrich Metal Framing.
 - 3. Contractor's Option: In lieu of cold rolled channels and clip angles for horizontal bridging, provide one of the following:
 - a. Bridge Bar by the Steel Network.
 - b. TradeReady Spazzer 5400 or 9200 bridging and spacing bar by Dietrich Metal Framing.
- I. Framing Attachment Angles: Galvanized sheet steel, size, shape and configuration as indicated on Drawings, 14 gage, unless indicated otherwise on Drawings.
 - 1. Contractor's Option: Contact Dietrich Clip Express (330) 372-5564 for alternative selections.
- J. Ceiling Joists and Runners: Galvanized sheet steel, C-shaped.
- K. Flat Metal Straps and Plates: Galvanized sheet steel, gage, shape, and configuration as indicated on Drawings.
 - 1. Contractor's Option: In lieu of 2-inch continuous metal strap at capture tracks, Contractor may provide one of the following:
 - a. Bridge Bar by The Steel Network.
 - b. TradeReady Spazzer 5400 bridging and spacing bar by Dietrich Metal Framing.

2.2 FASTENERS

- A. Power-Actuated Anchors: Fastener system of type suitable for application indicated, fabricated from corrosion-resistant materials, with capability to sustain, without failure, a load equal to 10 times design load.
- B. Mechanical Fasteners: ASTM C 1513, corrosion-resistant-coated, self-drilling, self-tapping steel drill screws.
- C. Framing to Framing: ASTM C 954; 5/8 inch Type S-12 low-profile head corrosion-resistant self-drilling self-tapping steel screws.
- D. Framing to Attachment Angle Fasteners: #12 diameter pan head corrosion-resistant self-drilling self-tapping steel screws.
- E. Wall Floor Track Anchorage Device: Carbon steel wedge type expansion anchor; minimum 3/8 inch diameter x minimum 1-1/2 inch embedment.
 - 1. Kwik Bolt KB II 38-3, by Hilti, Tulsa, OK (800) 879-8000.
 - 2. Thrubolt WS-3822, by ITW Ramset/Red Head, Wood Dale, IL (708) 350-1558.
- F. Wall Furring to Concrete or Masonry Wall Fasteners: Hex head sleeve anchors; minimum 1/4 inch diameter x minimum 1-1/8 inch embedment.
 - 1. Slv Anch HX 5/16X2-1/2, by Hilti, Tulsa, OK (800) 879-8000.
 - 2. Dynabolt HN-1413, by ITW Ramset/Redhead, Wood Dale, IL (708) 350-1558.

- G. Furring Channel to Masonry or Concrete Surface Fasteners: Low velocity powder-actuated drive pins of size to suit application.
- H. Welding Materials: AWS D1.3.
- I. Wood Furring, Blocking, and Plywood, Attached to Framing Fasteners: Specified in Section 06100.

2.3 FRAMING ACCESSORIES

- A. Fabricate steel-framing accessories from steel sheet, ASTM A 1003, Structural Grade, Type H, metallic coated, of same grade and coating weight used for framing members, unless otherwise indicated.
- B. Steel Shapes and Clips: ASTM A 36, zinc coated by hot-dip process according to ASTM A 123.

2.4 FINISHES

- A. Galvanizing: G90 coating class.
- B. Primer: SSPC Paint 20, Type I, touch-up for galvanized surfaces.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Examine existing conditions and adjacent areas where products will be installed and verify that conditions conform to product manufacturer's requirements. Verify that building framing components are ready to receive work. Verify that rough-in utilities are in-place and located where required. Do not proceed until unsatisfactory conditions have been corrected.
- B. Beginning of erection indicates acceptance of existing conditions.

3.2 INSTALLATION, GENERAL

- A. Install cold-formed metal framing in accordance with AISI Standard for Cold-Formed Steel Framing and to manufacturer's written instructions unless more stringent requirements are shown or specified.
- B. Install cold-formed metal framing and accessories plumb, square, and true to line, and with connections securely fastened.
- C. Install framing members in one-piece lengths.

3.3 INSTALLATION - STUD FRAMING

- A. Install studs and fasteners in accordance with manufacturer's published instructions and, where gypsum board is attached to studs, install studs in accordance with GA-201 and GA-216.
- B. Metal Stud Spacing: 16 inches on center, maximum, unless otherwise shown on the drawings.
- C. Align stud web openings horizontally.
- D. Construct corners using minimum three studs.
- E. Place studs as indicated on Drawings, minimum 2 inches from abutting walls.
- F. Erect studs one piece full length. Splicing of studs not permitted.

- G. Erect studs, brace, and reinforce to develop full strength to meet design requirements.
- H. Install headers at partition openings using load-bearing c-shaped joists.
- I. Install framing between studs for attachment of mechanical and electrical items.
- J. Coordinate placement of insulation in multiple stud spaces made inaccessible after erection.
- K. Install intermediate studs above and below openings to match wall stud spacing.
- L. Fasten studs adjacent to door and window frames, partition intersections, and corners to top and bottom runner flanges in double-stud fashion with metal lock fastener tools.
 - 1. Securely fasten studs to jamb and head anchor clips of door and borrowed-light frames.
 - 2. Place horizontally a cut-to-length section of runner with web-flange bent at each end, fasten with minimum one screw per flange.
 - 3. Position a cut-to-length stud (extending to top runner) at vertical panel joints over door frame header.
- M. Install bridging for stud partitions over 8 feet high at mid-height with 1-1/2 inch rolled channels through studs and screw attach in place using clip angles. Lap channels by nesting one inside the other to a length of at least 8 inches and wire tie together.
- N. Blocking: Screw attach wood blocking between studs. Install blocking for support of plumbing fixtures, toilet partitions, wall cabinets, toilet accessories, and hardware.
- O. Where optional framing products by the Steel Network are specified in Part 2 above in lieu of conventional components specified, install in accordance with manufacturers recommendations.
- P. Touch up field welds and damaged galvanized surfaces with primer.
- Q. Fastening: Fasten framing in accordance with manufacturer's published instructions and schedule below unless indicated otherwise on Drawings.

FASTENERS	MINIMUM CONNECTION
Floor Track to Concrete	1 Anchor at 36 inches on center.
Partition Stud to Floor Track	1 Screw each side at flange.
Stud Web to Stud Web	2 Screws.
Plates and Straps to Studs	2 Screws.
Lateral Bracing to Partition Stud Using clip Angles	2 Screws to stud and 2 Screws to cold rolled channel.
Runner to Header	1 Screw at 16 inches on center, maximum 6 inches from each end.
Welded Connections	Indicated on Drawings.

3.4 INSTALLATION - JOIST FRAMING

- A. Install joists and fasteners in accordance with manufacturer's published instructions.
- B. Make provisions for erection stresses. Provide temporary alignment and bracing.
- C. Place joists at locations and spacing as indicated on Drawings.
- D. Touch-up field welds and damaged galvanized surfaces with primer.
- E. Fastening: Indicated on Drawings.

3.5 INSTALLATION - CEILING JOISTS

- A. Install joists and fasteners in accordance with manufacturer's published instructions and, where gypsum board is attached to joists, install joists in accordance with ASTM A 1007 and GA-216.
- B. Ceiling Joist Spacing: 16 inches on center beginning from center of room unless otherwise shown on the drawings.
- C. Install joists in direction of shortest span, parallel and level, with lateral bracing and bridging.
- D. Install joists in one piece full length. Splicing of joists not permitted.
- E. Install perimeter joist runner track sized to match joists. Attach joist runner track to wall framing with minimum 2 screws per stud and at corners and ends.
- F. Attach joist ends to joist runner tracks with minimum 1 screw each side at each flange.
- G. Install bridging at 48 inches on center beginning from center of room with 1-1/2 inch rolled channels screw attached to joists.

3.6 INSTALLATION - FURRING

- A. Furring Channels: Attach vertically spaced at maximum 16 inches on center, unless otherwise shown on the drawings, to masonry and concrete surfaces with specified powder driven fasteners staggered 24 inches on center on opposite flanges.
- B. Wall Furring:
 - 1. Secure top and bottom runners to structure.
 - 2. Space metal furring at maximum 16 inches on center unless otherwise shown on the drawings.

3.7 CONSTRUCTION

- A. Interface with Other Work:
 - 1. Coordinate erection of studs with hollow metal door frames and overhead coiling door frames.
 - 2. Coordinate installation of anchors, supports, and blocking for mechanical, electrical, and building accessory items installed within framing.
- B. Perform field welding in accordance with AWS D1.3.

3.8 QUALITY ASSURANCE TESTING AND INSPECTION

- A. Responsibilities: Unless otherwise specified, quality control tests and inspection specified below will be conducted by the Owner's Independent Testing Laboratory at no cost to the Contractor in accordance with Section 01458. The Contractor shall perform additional testing or inspection as considered necessary by the Contractor for assurance of quality control.
 - 1. Work shall be performed by a Special Inspector – Technical II or Special Inspector – Structural I.
 - 2. Inspect all new and/or modified Work requiring inspection under the provisions of this section.
- B. Welding (General):
 - 1. Prior to start of fabrication, determine if fabrication shop meets the criteria for exempting shop welds from inspection and confirm in writing to building official and SER.
 - 2. Verify qualifications of all welders as AWS certified.
 - 3. Verify proposed welding procedures and materials.
 - 4. Verify adequate preparation of faying surfaces.
 - 5. Verify preheat and interpass temperatures of steel, proper technique and sequence of welding, and cleaning and number of passes are provided as required.
- C. Welding (Field):

1. Cold Formed Metal Framing Welds: Visually inspect 100% of welds for specified length, size, and continuity in accordance with AWS D1.3 for metal less than 1/8" in thickness, for work designed as a structural element.
 2. Miscellaneous Metals, Inserts and Prefabricated Components: Where integrity of the connections impact life safety or performance of the building structure, provide testing and inspection as for typical welds previously specified.
- D. Welding (Shop): Perform inspections as for field welding except weld testing may be reduced or deleted if fabrication shop satisfies AISC Quality Certification Program - Category I, or more stringent criteria, and is approved by building official and SER.
- E. Miscellaneous Mechanical Fasteners: Visually inspect specified size, spacing, embedment, and location that are part of the building structural system.
- F. Submittal Verification: Verify mill test reports and other submitted documentation for compliance with contract documents.
- G. Material Verification: Verify materials delivered to site comply with contract documents and approved shop drawings. Materials include:
1. Bolts.
 2. Electrodes.
 3. Mechanical fasteners.
- H. Verification of Detail Compatibility:
1. Inspect on a periodic basis:
 2. Review project documents affecting integrity of the structure including contract documents and approved shop drawings.
 3. Visit site at intervals appropriate to the stage of construction to perform review of the structure and visually confirm general compliance with the contract documents.
 4. Inspect the following to verify that member orientation, configuration, type, and size comply with details indicated on the contract documents and approved shop drawings:
 - a. Bracing and stiffening members.
 - b. Proper applications of joint details at connections for structural members.
 - c. Other work critical to the integrity of the building structure.

END OF SECTION

SECTION 05500 – METAL FABRICATIONS

PART 1 - GENERAL

SCHEDULE 0 - SUMMARY

PRODUCT DATA SHEET 0 - Section Includes:

- 0.1 Shop fabricated ferrous metal items, galvanized and prime painted.
- 0.2 Wal-Mart furnished fabricated metal items.

PRODUCT DATA SHEET 1 - Products Installed But Not Furnished Under This Section:

- 1.1 Under provisions of Section 01640, Wal-Mart's metal fabrication suppliers will furnish the following fabricated metal items for installation by Contractor.
 - A. Roof parapet camera support assembly (Tri-Mount).
 - B. AP Monitor support assembly - wall and ceiling mounting.

PRODUCT DATA SHEET 2 - Related Sections:

- 2.1 Section 01458 - Testing Laboratory Services: Testing and inspection.
- 2.2 Section 01640 - Owner Furnished Products: General procedures related to Wal-Mart furnished products.
- 2.3 Section 05120 - Structural Steel: Connection of miscellaneous framing and supports to structural steel.
- 2.4 Section 06065 - Plastic Materials: Plastic sleeves for steel pipe bollards.
- 2.5 Section 09900 - Paints and Coatings: Field painted finishes.

SCHEDULE 1 - REFERENCES

PRODUCT DATA SHEET 0 - The publications listed below form a part of this specification to the extent referenced. Publications are referenced within the text by the basic designation only.

PRODUCT DATA SHEET 1 - American National Standards Institute (ANSI):

- 1.1 ANSI A 14.3 – Ladders, Fixed, Safety Requirements.

PRODUCT DATA SHEET 2 - ASTM International (ASTM):

- 2.1 ASTM A 36 - Carbon Structural Steel.
- 2.2 ASTM A 53 - Pipe, Steel, Black and Hot-Dipped, Zinc-Coated Welded and Seamless.
- 2.3 ASTM A 307 - Carbon Steel Bolts and Studs, 60,000 psi Tensile Strength.
- 2.4 ASTM A 325 - Structural Bolts, Heat Treated, 120/105 ksi Minimum Tensile Strength.
- 2.5 ASTM A 500 - Cold-formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes.
- 2.6 ASTM A 591 - Steel Sheet, Electrolytic Zinc-Coated, for Light Coating Mass Applications.
- 2.7 ASTM A 653 - Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
- 2.8 ASTM A 1008 - Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, Solution Hardened, Baked Hardenable.
- 2.9 ASTM A 1011 - Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy and High-Strength Low-Alloy with Improved Formability.

PRODUCT DATA SHEET 3 - American Welding Society (AWS):

- 3.1 AWS D1.1 - Structural Welding Code.
- 3.2 AWS D1.3 - Structural Welding Code - Sheet Steel.

PRODUCT DATA SHEET 4 - Steel Structures Painting Council (SSPC):

- 4.1 SSPC-Paint 20 Type II - Zinc Rich Primers - Organic.
- 4.2 SSPC-Paint 25 - Red Iron Oxide, Zinc Oxide, Raw Linseed Oil, and Alkyd Primer.
- 4.3 SSPC-SP3 - Power Tool Cleaning
- 4.4 SSPC-PA1 - Shop, Field, and Maintenance Painting of Steel.

SCHEDULE 2 - SUBMITTALS

PRODUCT DATA SHEET 0 - Shop Drawings: Submit directly to Architect for Contractor furnished items only.

- 0.1 Indicate profiles, sizes, connection attachments, reinforcing, anchorage, size and type of fasteners, and accessories.
- 0.2 Include erection drawings, elevations, and details where applicable.
- 0.3 Indicate welded connections using standard AWS welding symbols. Indicate net weld lengths.
- 0.4 Prepare shop drawings under the supervision of a licensed structural Professional Engineer.

PRODUCT DATA SHEET 1 - Submit Shop Drawings within 10 working days of Contract date.

PRODUCT DATA SHEET 2 - Section 01330 - Submittal Procedures: Procedures for submittals.

SCHEDULE 3 - QUALITY ASSURANCE

PRODUCT DATA SHEET 0 - Qualifications for Welding Work: Qualify welding operators in accordance with Standard Qualification Procedures as required by AWS D1.1.

SCHEDULE 4 - DELIVERY, STORAGE AND HANDLING

PRODUCT DATA SHEET 0 - Section 01600 - Product Requirements: Transport, handle, store, and protect products.

SCHEDULE 5 - DELIVERY, STORAGE AND HANDLING (WAL-MART FURNISHED, CONTRACTOR INSTALLED ITEMS)

PRODUCT DATA SHEET 0 - Product Delivery: Wal-Mart's metal fabrication supplier will deliver products to jobsite for Contractor to receive on delivery date established by Contractor. To establish product delivery date and obtain Manufacturer's Installation Drawings contact:

- 0.1 Wylie Welding, Gravette, AR (479) 787-9929.

PRODUCT DATA SHEET 1 - Product Packaging: Products will be packaged in manufacturer's standard packaging on shipping pallets. Installation Drawings will be included with products.

PRODUCT DATA SHEET 2 - Acceptance at Site: Receive products as specified in Section 01640.

- 2.1 Verify quantity of products furnished with Bill of Material provided with Wal-Mart furnished products.
- 2.2 Report discrepancies in product quantity delivered, or damage to products delivered to the Wal-Mart Construction Manager immediately.
- 2.3 Upon notification by Contractor, Wal-Mart will arrange for delivery of replacement products.
- 2.4 Note description of product quantity discrepancies and/or product damage on Bill of Lading.

PART 2 - PRODUCTS

SCHEDULE 0 - MATERIALS

PRODUCT DATA SHEET 0 - Steel Plates and Shapes: ASTM A 36.

PRODUCT DATA SHEET 1 - Bolts, Nuts, and Washers: ASTM A 325 and ASTM A 307.

PRODUCT DATA SHEET 2 - Cold Rolled Steel Sheet: ASTM A 1008.

PRODUCT DATA SHEET 3 - Hot Rolled Steel Sheet: ASTM A 1011.

PRODUCT DATA SHEET 4 - Galvanized Steel Sheets:

- 4.1 Structural: ASTM A 653 Structural Quality, G90.
- 4.2 Galvanized Sheet Steel: ASTM A 591, Class C.

PRODUCT DATA SHEET 5 - Steel Tubing: ASTM A 500, Grade B.

PRODUCT DATA SHEET 6 - Steel Piping: ASTM A 53.

PRODUCT DATA SHEET 7 - Welding Materials: AWS D1.1 and AWS D1.3 type required for materials being welded.

PRODUCT DATA SHEET 8 - Primers:

- 8.1 Shop application and field touch-up: SSPC 25.
- 8.2 Touch-up Primer for Galvanized Surfaces: SSPC 20.
- 8.3 Color: To match primer used on steel roof deck and joists.

PRODUCT DATA SHEET 9 - Concrete Inserts: Cast steel or malleable bolts, washers, and shims; galvanized.

SCHEDULE 1 - FABRICATION

PRODUCT DATA SHEET 0 - Verify dimensions on site prior to shop fabrication.

PRODUCT DATA SHEET 1 - Fabricate items with joints tightly fitted and secured.

PRODUCT DATA SHEET 2 - Fit and shop assemble in largest practical sections, for delivery to site.

PRODUCT DATA SHEET 3 - Grind exposed welds flush and smooth with adjacent finished surface. Ease exposed edges to small uniform radius.

PRODUCT DATA SHEET 4 - Form exposed connections with hairline joints, flush and smooth, using concealed fasteners where possible. Use exposed fasteners of type indicated or, if not indicated, Phillips flat-head (countersunk) screws or bolts. Locate joints where least conspicuous.

PRODUCT DATA SHEET 5 - Supply components required for anchorage of metal fabrications. Fabricate anchorage and related components of same material and finish as metal fabrication, except where specifically noted otherwise.

SCHEDULE 2 - FINISHES

PRODUCT DATA SHEET 0 - Finish metal fabrications after assembly. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes. Shop prime ferrous-metal items not indicated to be galvanized.

PRODUCT DATA SHEET 1 - Prime Painting:

- 1.1 Prime paint in shop as scheduled.
- 1.2 Prepare uncoated ferrous-metal surfaces to comply with SSPC-SP 3, "Power Tool Cleaning."
- 1.3 Apply shop primer to comply with SSPC-PA 1, "Paint Application Specification No. 1," for shop painting.
- 1.4 Do not prime surfaces in direct contact bond with concrete or where field welding is required.
- 1.5 Prime paint items scheduled with one coat. Touch up with same primer.

PRODUCT DATA SHEET 2 - Galvanizing: Hot-dip galvanize items indicated to be galvanized to comply with ASTM A 123 or ASTM A 153 as applicable. Galvanize to minimum 2.0 oz/sq ft zinc coating, exterior items, and those items indicated on Drawings and specified herein, to be galvanized.

PRODUCT DATA SHEET 3 - Finish Painting: Finish paint after installation as shown on the drawings or specified herein in accordance with Section 09900.

PART 3 - EXECUTION

SCHEDULE 0 - PREPARATION

PRODUCT DATA SHEET 0 - Obtain Wal-Mart Construction Manager approval prior to site cutting or making adjustments not scheduled.

PRODUCT DATA SHEET 1 - Clean and strip site primed steel items to bare metal where site welding is scheduled.

PRODUCT DATA SHEET 2 - Make provision for erection loads with temporary bracing. Keep work in alignment.

PRODUCT DATA SHEET 3 - Use grout specified in Section 03300 for setting metal fabrications.

SCHEDULE 1 - INSTALLATION

PRODUCT DATA SHEET 0 - Install items plumb and level, accurately fitted, free from distortion or defects.

PRODUCT DATA SHEET 1 - Perform field welding in accordance with AWS D1.1 or D1.3, as applicable. After installation, grind sight-exposed field welds smooth, touch-up welds, scratched, or damaged surfaces with primer.

SCHEDULE 2 - FIELD QUALITY CONTROL

PRODUCT DATA SHEET 0 - Testing and Inspection: See Section 01458.

SCHEDULE 3 - SCHEDULE

PRODUCT DATA SHEET 0 - Provide items as scheduled herein, as applicable to the Project, and as indicated on Drawings.

PRODUCT DATA SHEET 1 - Include related items and systems necessary to complete the Work including anchorages and attachments necessary for installation

PRODUCT DATA SHEET 2 - Loose Bearing Plates and Lintels: Fabricate to sizes and configuration indicated on Drawings; prime paint finish except for items requiring field welding.

PRODUCT DATA SHEET 3 - Miscellaneous Framing and Supports: Furnish steel framing and supports not specified under Section 05120. Fabricate welded construction in as large units as possible. Drill and tap for hardware and other items. Include anchors required for building into work of other Sections.

- 3.1 Interior: Prime paint finish, gray.
- 3.2 Exterior: Galvanized.

PRODUCT DATA SHEET 4 - Rough Hardware: Custom fabricated bolts, plates, anchors, hanger, dowels, and other miscellaneous steel and iron shapes required for framing, supporting, and anchoring other construction. Galvanized unless otherwise indicated on Drawings.

PRODUCT DATA SHEET 5 - Steel columns not included in Section 05120.

- 5.1 Interior: Prime paint finish.
- 5.2 Exterior: Galvanized.

PRODUCT DATA SHEET 6 - Miscellaneous Steel Trim: Profiles and sizes as indicated on Drawings; continuous welded joints and smooth exposed edges. Use concealed field splices where possible. Provide cutouts, fittings, and anchorages; coordinate assembly and installation into work of other Sections.

- 6.1 Interior: Prime paint finish.
- 6.2 Exterior: Galvanized.

PRODUCT DATA SHEET 7 - Exterior Steel Pipe Bollards (Footing Mounted): ASTM A 53, Type E (electric-resistance welded) or Type S (seamless), Grade B, Schedule 40, height.

- 7.1 Size: Height and diameter as shown on the drawings.
- 7.2 Fill bollard as indicated on Drawings.
- 7.3 Finish:
 - A. Painted Bollards: Field prime and finish coated in accordance with Section 09900.
 - B. Plastic Sleeve Covered Bollards: Galvanized.
- 7.4 Plastic Sleeves: Install polyethylene thermoplastic pipe sleeves on bollards as specified in Section 06065 and at locations shown on the drawings.
- 7.5 Installation: Install in concrete footing as shown on the drawings.

PRODUCT DATA SHEET 8 - Interior Steel Pipe Bollards (Core Drilled): ASTM A 53, Type E (electric-resistance welded) or Type S (seamless), Grade B, Schedule 40.

1. Size: Height and nominal diameter as shown on the drawings.
2. Fill bollard as indicated on Drawings.
3. Finish: Field primed and painted in accordance with Section 09900.
4. Install as shown on the drawings.

B. Bollard Base Plate (For Wal-Mart Furnished and Installed Bollards Inside Freezer): Provide steel bollard mounting base plate to be cast in concrete floor as shown. Provide base plate by one of the following:

1. PNA Construction Technologies, contact: Marva Wilkerson (800) 542-0214.
2. Wylie Welding, Gravette, AR (479) 787-9929.
3. Fabricate base plate assembly as detailed on the drawings.
4. Install where shown on the drawings.

PRODUCT DATA SHEET 9 - Steel Pipe Railings: ASTM A53, Type E (electric-resistance welded) or Type S (seamless), Grade B, Schedule 40. Fabricate to dimensions indicated on Drawings. Cope horizontal railings intersecting vertical members. Provide radius bends at changes in direction. Finish as follows:

- 9.1 Interior: Prime paint finish.
- 9.2 Exterior: Galvanized.
- 9.3 Set-in sleeves and secure railings to other construction, as indicated on Drawings.
- 9.4 Handrails and Top Rails: Design point load 200 lbs, downward or horizontal, and uniform load of 50 lb/lin ft applied simultaneously in both vertical and horizontal directions. Concentrated and uniform loads need not be assumed to act concurrently.
- 9.5 Intermediate Rails: Uniform load of 25 lbs/sq ft of gross area of railing system, including open area.
- 9.6 Shopping Cart Railings (If Indicated on Drawings): 1-1/2 x 1-1/2 inches by 11 gage tube steel. Weld all connections. No finish required. Coordinate installation with store manager.

PRODUCT DATA SHEET 10 - Handrail Brackets: Cast iron with not less than 3 inch projection from wall surface to centerline of handrail. Finish as indicated below.

- 10.1 Interior: Prime paint finish.
- 10.2 Exterior: Galvanized.

PRODUCT DATA SHEET 11 - Steel Supports for Overhead Doors, Closures, and Grilles: Channels and tubes as indicated on Drawings for overhead coiling doors, rolling closures, and overhead coiling grilles. Coordinate fabrication with respective section of work.

PRODUCT DATA SHEET 12 - Roof Parapet Camera Support Assembly (Tri-Mount) (Wal-Mart Furnished Contractor Installed):

- 12.1 Factory fabricated welded steel tube of size and configuration indicated on Drawings. Factory prime finish ready for field painting.
- 12.2 Coordinate installation of parapet camera support mount with roofing installer. Install parapet camera support mount before installation of roofing waterproofing membrane is complete.
- 12.3 Seal attachment bolt penetrations of wall using sealant. Provide a watertight condition. Set support bracket plate in full bed of sealant and seal edge of plate to prevent infiltration of moisture behind plate.

PRODUCT DATA SHEET 13 - AP Monitor Support Assembly – Ceiling Mounted (Wal-Mart Furnished Contractor Installed):

- 13.1 Support Assembly: Factory fabricated steel assembly consisting of threaded pipe hanger, support angle, and attachment fasteners. Factory prime finish ready for field painting.
 - A. Install support assembly spanning across steel roof joist bottom chords and attach to structure as indicated on the Drawings.
 - B. Install support assemblies at locations indicated on Electrical Drawings and as approved by Wal-Mart.

- 13.2 Seismic Bracing: Provide seismic bracing when required by local building official.
- A. When required, seismic bracing shall be fabricated and installed in accordance with details provided by the Architect upon request by the Contractor.
 - B. Costs for additional work to provide seismic support will be paid for in accordance with Article 7 - Changes in the Work of the General Conditions.
 - C. Obtain seismic bracing members from fabricator as follows: Wylie Welding, 15012 Fruitwood Rd., Gravette, AR, 72736, (479) 787-5852.

PRODUCT DATA SHEET 14 - AP Monitor Bracket Support Assembly - Wall Mounted: (Wal-Mart Furnished Contractor Installed)

- 14.1 Manufacturer: Ultrak, Lewisville, TX, (800) 796-2288
- A. Monitor Mounting Bracket: Ultrak Model # MA21MMGR.
 - B. Wall Mount Bracket: ULTRAK Model # MAWB180G.

PRODUCT DATA SHEET 15 - Steel Ladder:

- 15.1 Side Rails: 1/2" x 3-1/2" steel bars, size as shown, 20" apart.
- 15.2 Rungs: 3/4" solid steel rods size, 12" apart.
- 15.3 Attach with steel mounting brackets.
- 15.4 Finish:
- A. Roof Hatch Ladder: Prime paint finish.

PRODUCT DATA SHEET 16 - Ladder Safety Extension (for Roof Hatch): HatchGrip by PS Doors, Grand Forks, ND (800) 284-0623.

- 16.1 Ladder rung continuation grip safety extension above ladder roof hatch opening.
- 16.2 Provide fasteners with neoprene washers for attachment to roof hatch curb.
- 16.3 Finish: Galvanized steel.
- 16.4 Assemble and install in accordance with manufacturer's instructions.
- 16.5 Substitutions: Not permitted.

PRODUCT DATA SHEET 17 - Ladder Cage: Provide at location and height shown on the drawings. Fabricate cage in conformance with ANSI A14.3 or OSHA requirements.

PRODUCT DATA SHEET 18 - Truck Well Curb Drain: 12 inch square cast iron grate, factory finished black, location as indicated on Drawings.

- 18.1 Model No. 1213 by National Diversified Sales, Inc. (800) 726-1994.

PRODUCT DATA SHEET 19 - Pit Angles and Channels: Provide perimeter steel angles and channels with welded studs, as indicated on Drawings, for dock leveler pits as required for installation of equipment. Coordinate fabrication with respective section of work.

- 19.1 Galvanize after fabrications.

PRODUCT DATA SHEET 20 - Anchor Bolts: Provide anchor bolts as indicated on Drawings for use with freezer floor slab installation of wood sleepers.

PRODUCT DATA SHEET 21 - Overhead Door Jambs: Fabricate metal door jambs, as indicated on Drawings, for use at overhead doors. Provide mitered and welded corners, ground smooth. Countersink fasteners, minimum six per jamb.

PRODUCT DATA SHEET 22 - Protector Angle: Provide continuous steel angles and fasteners, at locations indicated on Drawings. Fabricate angles for attachment to slab-on-grade with 1/2 inch, minimum 4 inch long expansion bolts at maximum 36 inch o.c.

PRODUCT DATA SHEET 23 - Wire Mesh Partitions: 10 to 14 gage steel, 1 x 1 or 1 x 2 inch mesh.

PRODUCT DATA SHEET 24 - Refrigerated Air Dryer Platform: Fabricate metal platform, as indicated on Drawings, for use at Automotive Center air compressor. Provide mitered and welded corners, ground smooth.

PRODUCT DATA SHEET 25 - Water Heater Support Frame: Fabricate support frame and floor-to-roof steel tube bracing

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as indicated on Drawings for overhead water heater platform located in Janitor area. Provide welded connections, ground smooth.

END OF SECTION

SECTION 06065 – PLASTIC MATERIALS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Plastic Sleeve: Thermoplastic polyethylene pipe sleeves for steel pipe bollards.
 - 2. Plastic Transition Strip (At Walk-In Freezer).
- B. Related Sections:
 - 1. Section 05500 - Metal Fabrications: Steel pipe bollards to receive plastic sleeves.

PART 2 - PRODUCTS

2.1 PLASTIC SLEEVES

- A. Polyethylene thermoplastic (HDPE) molded sleeves, bollard sleeve, 52" high (field verify height) to fit 4" or 6" diameter pipe bollards as shown. Color as shown on the Drawings.
 - 1. Manufactured by Ideal Shield, Detroit, MI (313) 842-7290. Contact: Chris Parenti.

2.2 PLASTIC TRANSITION STRIP (AT WALK-IN FREEZER)

- A. Korlyte S-2-S by Parkland Plastics Incorporated, Middlebury, IN (574) 825-4336 or (800) 835-4110.
 - 1. Parkland Part Number PVC 1901M.
 - 2. Factory cut to size: 3" x 3/4" x 8'.
 - 3. Color: Tan.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Plastic Sleeves:
 - 1. Install (2) beads of clear 100% silicone sealant by starting beads at opposite sides of top of bollard and spiraling downward, making one complete revolution of bollard with each bead.
 - 2. Slide sleeve over bollard and twist to seat sleeve in sealant.
 - 3. Allow sealant to cure and verify sleeve holds fast to bollard.
 - 4. Repeat installation if sleeve can be removed easily from bollard.
 - 5. Do not install sleeves with manufacturer's double sided foam tape.
- B. Install plastic transition strip at locations and as shown on the drawings.

END OF SECTION

SECTION 06100 – ROUGH CARPENTRY

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Blocking and nailers for roofing system and related metal flashings.
2. Preservative and fire resistive treatment.
3. Concealed blocking behind wall mounted items.
4. Structural panel products.
5. Non-structural panel products including the following:
 - a. Backing for electrical and telephone equipment.
 - b. Panels concealed within gypsum board and metal stud partitions.
 - c. Panels used as finish material; walls, ceilings, wainscots, and bases.
6. Panel product and framing for wood and wire mesh doors.

B. Related Sections:

1. Section 07620 - Sheet Metal Flashing And Trim; Optional Coping Detail.

1.2 REFERENCES

- A. The publications listed below form a part of this specification to the extent referenced. Publications are referenced within the text by the basic designation only.
- B. American Lumber Standards Committee (ALSC):
1. Softwood Lumber Standards.
- C. American Plywood Association (APA):
1. Grades and Standards.
- D. ASTM International (ASTM):
1. ASTM A 123/A - Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
 2. ASTM A 307 - Specification for Carbon Steel Bolts and Studs, 60,000 psi Tensile Strength.
 3. ASTM E 84 - Test Method for Surface Burning Characteristics of Building Materials.
- E. American Wood Preservers Association (AWPA):
1. AWPA C1 - All Timber Products - Preservative Treatment by Pressure Processes.
 2. AWPA C2 - Lumber, Timber, Bridge Ties, and Mine Ties - Preservative Treatment by Pressure Processes.
 3. AWPA C9 - Plywood Preservative Treatment by Pressure Processes.
 4. AWPA C15 - Wood for Commercial-Residential Construction Preservative Treatment by Pressure Processes.
 5. AWPA C20 - Structural Lumber - Fire-Retardant Treatment by Pressure Processes.
 6. AWPA C27 - Plywood - Fire-Retardant Treatment by Pressure Processes.
 7. AWPA M4 - Care of Preservative Treated Wood Products.
 8. AWPA P5 - Water Borne Preservatives
- F. National Forest Products Association (NFoPA):
1. National Design Specification for Wood Construction (and Supplement).
- G. Department of Commerce (National Institute of Standards and Technology) - Product Standard (DOC):
1. DOC PS 1 - Construction and Industrial Plywood.
 2. DOC PS 2 - Performance Standard for Wood Based Structural Use Panels.
 3. DOC PS 20 - American Softwood Lumber Standard.

- H. Southern Pine Inspection Bureau (SPIB):
 - 1. Grading Rules.
- I. Western Wood Products Association (WWPA):
 - 1. Western Lumber Grading Rules.
- J. Underwriters' Laboratories (UL):
 - 1. UL FR-S Classification - Fire Retardant Treated Wood with Flame Spread Ratings of 25 or less in accordance with ASTM E84.
 - 2. UL 723 - Test for Surface Burning Characteristics of Building Materials.

1.3 SUBMITTALS

- A. Closeout Submittals:
 - 1. Letter of Certification:
 - a. Preservatives Treatment: For type specified, include certification by treating plant stating chemicals and process used, net amount of preservative retained and conformance with AWPAC UCS U1 Commodity Standards (C9 and C15).
 - b. For water-borne preservatives, include statement that moisture content of treated materials was reduced to a maximum of 15% for plywood prior to shipment to project site.
 - c. Fire Retardant Treatment:
 - 1) For type specified, include certification by treating plant stating chemicals and process used, net amount of retardant retained and conformance with AWPAC UCS U1 Commodity Standards Appendix H (Standards C-20 and C-27).
 - 2) Include statement that moisture content of treated materials was 15 percent or less.
 - 2. Submit Letter of Certification under provisions of Section 01770.

1.4 QUALITY ASSURANCE

- A. Lumber Grading Agency: Lumber to be grade stamped by an agency certified by the Board of Review of the American Lumber Standards Committee (ALSC).
- B. Plywood Grading Agency: Certified by APA.
- C. Regulatory Requirements: Conform to applicable codes for fire retardant treatment of wood surfaces for flame/smoke ratings.

1.5 DELIVERY, STORAGE AND HANDLING

- A. Provide proper facilities for handling and storage of materials to prevent damage to edges, ends and surfaces.
- B. Keep materials dry. Stack materials off ground a minimum of 12 inches or if on concrete slab-on-grade a minimum of 1-1/2 inches, fully protected from weather.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Lumber: DOC PS 20; S4S. Maximum of 19 percent moisture content, surfaced dry, No. 2 any species graded under WWPA grading rules or No. 3 Grade Southern Pine graded under SPIB grading rules.
- B. Plywood Backing Panels: DOC PS 1, Exposure 1, Grade C Plugged veneer, fire retardant treated, thickness indicated but not less than 1/2 inch nominal thickness.
- C. Non-structural Panel: DOC PS 1 or PS 2, fire retardant treated plywood.
 - 1. Type 1 (Interior): Grade C-D Plugged veneer, Exposure I, locations and thickness indicated on the Drawings.

2. Type 2 (Exterior): Grade B-B veneer, Exterior, locations and thickness as indicated on the Drawings.

D. Structural Panels: DOC PS 1 or PS 2.

1. Plywood Wall Sheathing: Grade B-B veneer, Exterior for exterior, Exposure 1 for interior, span rating required to support spacing indicated on Drawings. Thickness: Indicated on Drawings.
2. Plywood Roof Deck: Grade B-B veneer, Exposure 1, Structural I, span rating as required to suit support spacing indicated on Drawings. Thickness: As indicated on Drawings.

E. High Density Wood Fiber:

1. EnergyGuard High Fiberboard, by GAF (800) 766-3411.
2. Huebert Fiberboard Roof Insulation, by Huebert Brothers Products, LLC; Booneville, MO (816) 882-2704.

2.2 ACCESSORIES

A. Fasteners: Provide manufacturers recommended power tools for each type of fastener.

1. Nails, Spikes and Staples: ASTM A123, Galvanized for exterior locations, high humidity areas, and treated wood; plain finish for other interior locations; size and type to suit application, unless otherwise noted.
2. Bolts, Nuts, Washers, Lag Screws, and Wood Screws: ASTM A307, Medium carbon steel; size and type to suit application; galvanized for exterior locations, high humidity areas, and treated wood; plain finish for other interior locations, of size and type to suit application, unless otherwise noted.
3. Toggle Bolt Fasteners: For anchorage of non-structural items to hollow masonry.
4. Expansion Shield Fasteners: For anchorage of non-structural items to solid masonry and concrete.
5. Powder or Pneumatically Activated Fasteners: For anchorage of non-structural items to steel.
6. Manufacturers:
 - a. Hilti, Tulsa, OK (800) 879-6000.
 - b. ITW Buildex, Itasca, IL (800) 323-0720.
7. Fasteners for Wood and Plywood to Light Gage Metal Framing and Metal Deck (up to 10 gage, 0.1345 inch): Self-drilling flat head wood-to-metal screws.
 - a. Wood and Plywood Up to 3/4 Inch Thick:
 - 1) Hilti: S-WD 8-18 x 1-15/16 PFH #3 Black Phosphated.
 - 2) ITW: Traxx 10-16 #3 point.
 - 3) Pre-drill wood if wood thickness is greater than 1/2 inch or use heavier fastener specified below.
 - b. Wood less than or equal to 1-1/8 inch thickness to 18 Gage (0.0478 inch) and 20 Gage (0.0359 inch) Metal:
 - 1) Hilti: S-WD 10-24 x 1-1/2 PWH #3 wafer head screw.
 - 2) ITW: Traxx 10-16 #3 point.
 - 3) Pre-drill wood if wood thickness is greater than 1/2 inch.
 - c. Wood less than or equal to 1-3/4 inch thickness to 16 Gage (0.598 inch) and Heavier Metal (less than or equal to 0.232 inches):
 - 1) Hilti: S-WW 12-24 x 2-1/2 PFH #4 Wings.
 - 2) ITW: Traxx 12-24 #4 Point with Wings.
 - d. Wood less than or equal to 2-inch thickness to 16 Gage (0.598 inch) and heavier metal (less than or equal to 1/4 inch):
 - 1) Hilti: S-WW 1/4-20 x 2-3/4 PFH #4 Wings.
8. Fasteners for Structural Wood Members to Solid Grouted Masonry: Adhesive anchors, size and length as indicated on Drawings.
 - a. Anchor adhesive: Cartridge type two-component adhesive for embedding anchors.
 - 1) HIT HY-150 by Hilti Corp.
 - 2) Epcon System, Ceramic 6 by ITW Ramset/Red Head.
 - 3) Epoxy-Tie SET by Simson Strong Tie Co., Inc.
 - 4) Substitutions: Not permitted.
9. Fasteners for Non-Structural Wood Members to Masonry: Masonry screw anchor with Phillips or Torx flat head, size and length as shown on the drawings.
 - a. Hilti: Kwik-Con II fastener.
 - b. ITW: Tapcon masonry anchor.

10. Alternate Manufacturers: Subject to compliance with project requirements, fasteners by alternate manufacturers of equal types to those specified may be provided.

2.3 WOOD TREATMENT

A. Preservative Pressure Treated Lumber:

1. Products and Manufacturers: Provide any of the following:
 - a. Wolman CCA, by Arch Wood Protection, Smyrna, GA (770) 801-6600.
 - b. CCA Pressure Treatment by Hoover Treated Wood Products Inc., Thomson, GA (800) .832-9663.
 - c. SupaTimber, by Chemical Specialties, Charlotte, NC (800) 421-8661.
2. Treat lumber in accordance with AWPAC USC U1 Commodity Specifications C2 except for lumber not in contact with ground and is continuously protected from liquid water may be treated according to USC U1 Commodity Specifications C31 with inorganic boron (SBX).
3. Preservative Chemicals shall be acceptable to authorities having jurisdiction and containing no arsenic or chromium.
4. Kiln dry lumber after treatment to 15-19 percent moisture content. Do not use warped material or materials that do not comply with requirements for untreated material. Material to be painted or stained shall have knots and pitch streaks sealed as with untreated wood.
5. Mark lumber with treatment quality mark of an inspection agency approved by the ALSC Board of Review.

B. Fire Retardant Treatment:

1. Products and Manufacturers: Provide any of the following:
 - a. Dricon FRX (exterior) and Dricon FRT (interior), by Arch Wood Protection, Smyrna, GA, 770.801.6600.
 - b. Exterior X (exterior) and Pyro-Guard (interior) by Hoover Treated Wood Products, Inc.; Thomson, GA; phone 800.832.9663.
 - c. D-Blaze (interior) by Chemical Specialties, Charlotte, NC; phone 800.421.8661.
2. Provide treated lumber and plywood bearing ULI FR-S classification or actual flamespread and smoke developed ratings indicating compliance with extended 30 minute tunnel test in accordance with ASTM E84 or UL 723.
3. Comply with performance requirements in USC U1 Commodity Specifications Appendix H for Standards C20 (lumber) and C27 (plywood).
 - a. Use Exterior type for exterior locations and where indicated.
 - b. Use Interior Type A, High Temperature (HT) for enclosed roof framing and where indicated.
 - c. Use Interior Type A, unless otherwise indicated.
4. Identify fire retardant treated wood with appropriate classification marking of testing and inspecting agency acceptable to authorities having jurisdiction.
5. For exposed items indicated to receive a stained or natural finish, use chemical formulations that do not bleed through, contain colorants, or otherwise adversely affect finishes.
6. After treatment, all lumber shall be dried to an average moisture content of 19 percent or less.
7. After treatment, plywood shall be dried to an average moisture content of 15 percent or less.
8. Chemicals used to treat material shall be free of halogens, sulfates, ammonium phosphate and formaldehyde.
9. Treatment material shall provide protection against termites and fungal decay and shall be registered for use as a wood preservative by the U. S. Environmental Protection Agency.
10. Submit evidence of local building code compliance and approval for proposed material.

C. Wood Requiring Treatment:

1. Lumber, Preservative Treated:
 - a. Nailers, blocking, stripping, and similar items in conjunction with roofing, flashing, and other construction.
 - b. Sills, blocking, furring, stripping, and similar items in contact with masonry or concrete.
2. Lumber, Fire Retardant Treated:
 - a. Wood in concealed spaces.
 - b. Wood exposed within the roof/ceiling assembly.
 - c. Pressure preservative treated wood shall not be fire retardant treated.

3. Interior Plywood, Fire Retardant Treated:
 - a. Plywood used as finish material, walls, wainscots, and bases in fire-rated corridors.
 - b. Plywood backing for electrical and telephone equipment.
4. Plywood Not to be Fire Retardant Treated: Structural plywood performing a structural function, such as a component of roof, floors or shear walls.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine areas to receive rough carpentry work and verify following:
 1. That installation of building components to receive rough carpentry work is complete.
 2. That surfaces are satisfactory to receive work.
 3. That spacing, direction and details of supports are correct to accommodate installation of blocking, backing, stripping, furring and nailing strips.

3.2 SITE TREATMENT OF WOOD MATERIALS

- A. Wood Treatment at Site: Comply with AWP M4 for applying field treatment to cut surfaces of preservative treated lumber.
 1. Use inorganic boron for items continuously protected from liquid water.
 2. Use copper naphthenate for items not continuously protected from liquid water.

3.3 INSTALLATION

- A. Set rough carpentry to required levels and lines, with members plumb, true to line, cut, and fitted. Fit rough carpentry to other construction; scribe and cope as needed for accurate fit. Locate furring, nailers, blocking, grounds, and similar supports to comply with requirements for attaching other construction.
 1. Construct members of continuous pieces of longest possible lengths.
 2. Do not splice structural members between supports, unless otherwise indicated.
- B. Provide blocking and framing indicated and necessary to support facing materials, fixtures, specialty items, and trim.
 1. Provide metal clips for fastening gypsum board or lath at corners and intersections where framing or blocking does not provide a surface for fastening edges of panels. Space clips not more than 16 inches o.c.
- C. Secure members in place with specified fastener. Select fasteners of size that will not fully penetrate members where opposite side will be exposed to view or will receive finish materials. Make tight connections between members. Install fasteners without splitting wood. Do not countersink nail heads unless otherwise indicated.
- D. Wood Ground, Sleeper, Blocking, and Nailer: Install where indicated and where required for screeding or attaching other work. Form to shapes indicated and cut as required for true line and level of attached work. Coordinate locations with other work involved.
 1. Attach items to substrates to support applied loading. Recess bolts and nuts flush with surfaces, unless otherwise indicated.
 2. Recess heads of fasteners below surface of wood members.
- E. Wood Furring: Install level and plumb with closure strips at edges and openings. Shim with wood as required for tolerance of finish work.
- F. Install firestopping complying with Section 07840 in concealed spaces with wood blocking, horizontally and vertically in accordance with drawings, minimum 2 inches thick where space is not blocked by framing members.

G. Tapered Wood Shim (edge strip) at Parapet Cap:

1. Provide shaped high density wood fiber or wood material as indicated at the optional Parapet Detail.
2. Shape wood material for continuous support of metal coping.

END OF SECTION

SECTION 06165 – FIBERBOARD PANELS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Tack (bulletin) boards.
- B. Related Sections:
 - 1. Section 06200 - Finish Carpentry: Sanitary trim.

1.2 REFERENCES

- A. The publications listed below form a part of this specification to the extent referenced. Publications are referenced within the text by the basic designation only.
- B. American Society for Testing and Materials (ASTM):
 - 1. ASTM C209 - Test Methods for Cellulosic Fiber Insulating Board.
 - 2. ASTM C954 - Steel Drill Screws for the Application of Gypsum Board or Metal Plaster Bases to Steel Studs From 0.033 inches to 0.112 inches in Thickness.
 - 3. ASTM C 1002 - Steel Self-Piercing Tapping Screws For The Application Of Gypsum Panel Products Or Metal Plaster Bases To Wood Studs Or Steel Studs.
 - 4. ASTM D1037 - Test Methods of Evaluating Properties of Wood-Base Fiber and Particle Panel Materials.
 - 5. ASTM E84 - Test Method for Surface Burning Characteristics of Building Materials.

1.3 DELIVERY, STORAGE AND HANDLING

- A. Section 01600 - Material and Equipment: Transport, handle, store, and protect products.

1.4 PROJECT CONDITIONS

- A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer. Do not install products under conditions outside manufacturer's limits.
- B. Acclimatize panels to existing moisture conditions and for not less than 24 hours before installation. Comply with manufacturer's recommendations.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Fiberboard: Subject to compliance with requirements specified herein, provide fiberboard by the following.
 - 1. Homasote Company, P.O. Box 7240, West Trenton, NJ 08628-0240, (609) 883-3300.
 - 2. Substitutions: Not permitted.

2.2 MATERIALS

- A. Homasote 440 Sound Barrier: Molded, recycled post-consumer paper, cellulose fiber structural panel.
 - 1. Thickness: 1/2 inch.
 - 2. Density: 26-28 pcf tested in accordance with ASTM C209.
 - 3. Tensile Strength when tested in accordance with ASTM C209:
 - a. Parallel: 450-7000 psi.
 - b. Transverse: 750-1,000 psi.
 - 4. Hardness (Janka Ball): 230 lbs tested in accordance with ASTM D1037.

5. Water Absorption by Volume: When tested in accordance with ASTM D 1037:
 - a. 2 hour immersion: 5 percent maximum.
 - b. 24 hour immersion: 15 percent maximum.
6. Expansion: 50 to 90 percent relative humidity, 0.25 percent in accordance with ASTM C209.
7. Thermal Resistance: When tested in accordance with ASTM C209 per ASTM C518:
 - a. R-value: 1.2.
8. Flame Spread: 76 to 200 tested in accordance with ASTM E84, Class III or C.

2.3 ACCESSORIES

- A. Panel Fasteners: ASTM C 954 and C 1002, Type S-12 bugle head, corrosion-resistant self-drilling self-tapping steel screws; length as required to penetrate framing members 3/4" minimum.
- B. Panel Adhesive: Latex-based paneling adhesive approved by fiberboard panel manufacturer.
- C. Perimeter Trim: Paint-grade sanitary molding as specified in Section 06200.
- D. Field Applied Paint Finish: Water-based acrylic enamel, semi-gloss, as specified in Section 09900 for wood substrates.
 1. Color: White, or as directed by the Wal-Mart Construction Manager.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Prepare substrate in accordance with fiberboard panel manufacturer's recommendations.
- B. Beginning of installation is acceptance of substrate.

3.2 INSTALLATION

- A. Install where noted on the Drawings in accordance with manufacturer's instructions.
- B. Install only clean, dry, undamaged panels.
- C. Install perimeter trim with minimum joints, using maximum lumber lengths possible.
- D. Field Finishing (Panels and Trim): Refer to Section 09900.

END OF SECTION

SECTION 06200 – FINISH CARPENTRY

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Interior standing and running trim.
 - 2. Shelving.
- B. Related Sections:
 - 1. Section 06100 - Rough Carpentry: Panel product used as finish material on walls, ceilings, wainscots, and bases. Lumber and panel products used for wood and wire mesh doors.
 - 2. Section 06400 - Architectural Woodwork: Plastic laminate casework and wainscoting.
 - 3. Section 09900 - Paints and Coatings: Opaque and transparent finishes.

1.2 REFERENCES

- A. The publications listed below form a part of this specification to the extent referenced. Publications are referenced within the text by the basic designation only.
- B. American Woodworking Institute (AWI):
 - 1. AWI - Quality Standards.
- C. American Plywood Association (APA):
 - 1. APA - Grades & Specifications.

1.3 DELIVERY, STORAGE AND HANDLING

- A. Section 01600 - Material and Equipment: Transport, handle, store, and protect products.

PART 2 - PRODUCTS

2.1 WOOD MATERIALS

- A. Interior Standing and Running Trim: AWI Custom Grade; plain sawn, Grade II lumber.
 - 1. Painted Finish: Closed-grain hardwood, any species.
 - 2. Clear Sealed Hardwood: One of the following hardwood species. Use one species throughout.
 - a. Ash.
 - b. Birch.
 - c. Oak.
- B. Shelving - Clear Sealer Finish: Fir or birch plywood with veneer core and sanded edges.
 - 1. APA 5-ply A/C, 3/4 inch thickness at Stockroom shelving.
 - 2. APA 5-ply A/B at other locations.
- C. Panel Product for Finish Material on Walls, Ceilings, Wainscots, and Bases: See Section 06100.

2.2 HARDWARE

- A. Fasteners: Size and type to suit application; galvanized for exterior and high humidity locations; plain finish at other locations.
- B. Clothes Rack (Layaway Hanging Rod): 5/8 inch diameter solid stainless steel rod, with escutcheon and brackets; configuration as indicated on Drawings.

2.3 FABRICATION

- A. Fabricate to AWI Standards.
 - 1. Standing and Running Trim: Custom Grade.
 - 2. Wood Shelving with Clear Sealer: Economy Grade.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install woodwork plumb, level, and straight without distortion; use concealed shims. Scribe and cut woodwork to fit adjoining work. Anchor woodwork items to nailers or blocking or directly to substrate using concealed fasteners.
- B. Standing and Running Trim: Install with minimum joints, using maximum lumber lengths possible. Cope at returns; miter at corner.
- C. Wood Shelving: Assemble units and install as indicated on Drawings.
- D. Site Finishing: Refer to Section 09900.

END OF SECTION

SECTION 06400 – ARCHITECTURAL WOODWORK

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Plastic Laminate Casework.
 - 2. High Pressure Laminate (HPL) Wainscoting.
 - 3. Thermoplastic Laminate Wainscoting.
 - 4. Prefabricated Wood Cornice (Pharmacy).
- B. Related Sections:
 - 1. Section 06100 - Rough Carpentry: Lumber and panel products used for wood and wire mesh doors.

1.2 REFERENCES

- A. The publications listed below form a part of this specification to the extent referenced. Publications are referenced within the text by the basic designation only.
- B. American National Standards (ANSI):
 - 1. ANSI A208.1 - Particleboard.
 - 2. ANSI A208.2 - Medium Density Fiberboard For Interior Use.
- C. Architectural Woodworking Institute (AWI):
 - 1. AWI – Architectural Woodwork Quality Standards Illustrated.
 - 2. AWI Architectural Woodwork Standards replaces the AWI Architectural Woodwork Quality Standards Illustrated and the Woodwork Institute's (WI) Manual of Millwork upon availability first quarter of 2009.
- D. Engineered Wood Association (APA): APA - Grades & Specifications.
- E. National Electrical Manufacturer's Association (NEMA):
 - 1. NEMA LD3 - High-Pressure Decorative Laminates.

1.3 DELIVERY, STORAGE AND HANDLING

- A. Inspect materials delivered and reject those not qualifying with requirements, those damaged in transit, or those that appear otherwise unsatisfactory.
- B. Schedule delivery of items to installation areas that are in proper condition to receive them. Place items neatly and systematically to avoid damage, store in clean, dry, enclosed, and secure storage area.

PART 2 - PRODUCTS

2.1 LAMINATE MATERIALS

- A. Manufacturers: Provide products as manufactured by the following as specified in the Color/Pattern Schedule below:
 - 1. Formica Corporation, Indianapolis, IN. Contact: Megan Shaughnessy (513) 786-3039.
 - 2. Kydex, Bloomsburg, PA, (800) 325-3133 or (570) 389-5810, Ext 542, Donna Thompson <http://www.kydex.com/>
 - 3. Nevamar Decorative Surfaces, Hampton, SC (800) 638-4380.
 - 4. Pionite Decorative Surfaces, Auburn, ME (800) 746-6483.
 - 5. Wilsonart, Temple, TX. Contact: Richard Wylie (972) 523-1027.

- B. High pressure laminate (PL): NEMA LD3; color, pattern, and finish as indicated in this Section.
 - 1. Exposed Horizontal Surfaces: GP-50.
 - 2. Exposed Vertical Surfaces: GP-50.
 - 3. Postformed Surfaces: PF-42.
 - 4. Thickness: Nominal 0.050 inch thick.
- C. Thermoplastic Laminate: [Kydex 150, thermoplastic sheet](#) by Kydex.
 - 1. Thickness: 0.028".
 - 2. Sheet Size: 48" by 96".
 - 3. Texture/Finish: P-K, Cashmere.
 - 4. Adhesive: As recommended and supplied by the sheet manufacturer.
 - 5. Caulk: Color matched to thermoplastic sheet as recommended and supplied by the sheet manufacturer.

2.2 ACCESSORIES

- A. Adhesives: Low VOC adhesive, as recommended by laminate manufacturer and suitable for shop or field application.
 - 1. Toxicity / IEQ:
 - a. Comply with applicable regulations regarding toxic and hazardous materials.
 - b. Comply with Green Seal Standard GS-36 for commercial aerosol adhesives.
 - c. Comply with California's South Coast Air Quality Management District (SCAQMD) Rule No. 1168 in areas where exposure to freeze/thaw conditions and direct exposure to moisture will not occur. In areas where freeze/thaw conditions exist or direct exposure to moisture can occur, then comply with California's Bay Area AQMD Regulation 8, Rule 51 for containers larger than 16 oz. and with California Air Resource Board (CARB) for containers 16 oz or less.
 - 2. Acceptable Products: Provide the following or equivalent as recommended by laminate manufacturer.
 - a. Wilsonart 3000 Adhesive Series.
 - b. Conbond C5800 Liquid or Cylinder.
 - c. Bond Rite WC 75.
 - d. Titebond.
- B. Fasteners: Unless otherwise recommended by the manufacturer, use size and type to suit application; galvanized or stainless for exterior and high humidity locations; plain finish at other locations.
- C. Metal Edge Trim:
 - 1. Manufacturer: Macklanburg-Duncan, Oklahoma City, OK (800) 851-1831.
 - 2. Description: Extruded aluminum shapes, smooth surface, anodized finish. Size and type to suit application.
 - 3. Alternate Manufacturers: As approved by the Wal-Mart Construction Manager.

2.3 COLOR/PATTERN SCHEDULE

- A. Provide one color where two or more are specified. Provide laminate specified below as applicable and as shown/scheduled on the Drawings. All PL designations are for HPL unless otherwise indicated. Colors shown in parentheses are generic color names.
 - 1. PL-1 (Light Gray):
 - a. No. 692 Folkstone Celesta, by Formica.
 - b. No. 4142-6 Grey Glace, by Wilsonart.
 - 2. PL-2 (White): No. D354-60 Designer White, matte finish, by Wilsonart.
 - 3. PL-3 (Medium Blue):
 - a. Medium Wal-Mart Blue by Kydex (Thermoplastic Laminate).
 - 4. PL-4 (Woodgrain):
 - a. No. WM791 Hardrock Maple, by Pionite.
 - b. No. 10776HW-60 Kensington Maple, by Wilsonart.
 - 5. PL-5 (Gray):
 - a. No. 462 Contract Gray, matte finish, by Formica.
 - b. No. D92-6 Dove Grey, by Wilsonart.

6. PL-6 (Light Tan): No. 4143-60 Neutral Glace, by Wilsonart.
7. PL-7 (Medium Brown): No. 96-60 Shadow, by Wilsonart.
8. PL-8 (Sand):
 - a. No. AG381 Mineral Talc, by Pionite.
 - b. No. 1763-60 Brune Slate, by Wilsonart.
9. PL-9 (Dark Gray):
 - a. No. SG228 Slate, by Pionite.
 - b. No. D91-60 Slate Grey, by Wilsonart.
10. PL-10: No. D436-60 Fleece, by Wilsonart.
11. PL-11 (Dark Gray): No. 4623-60 Graphite Nebula, by Wilsonart.
12. PL-12 (Black): No. 1595-60 Black by Wilsonart.
13. PL-13: No. ST622-S Caramel, by Pionite.
14. PL-14: No. 4680 Lodestone, by Wilsonart.
15. PL-15 (Brown):
 - a. No. MKT-001T Golden Iron Moonrock, by Nevamar.
 - b. No. 13041HW-60 Bronze Terra, by Wilsonart.
16. PL-16: No. 4745HW-60 Maroochy Brush, by Wilsonart.
17. PL-18 (Medium Tan):
 - a. No. PON-003T Painted Desert, by Nevamar.
 - b. No. 13042HW-60 Artistry Gold, by Wilsonart.
18. PL-19: No. ARP S-2-3T Champaign, by Nevamar.
19. PL-20 (Tan): No. 4762HW-60 Mystique Dawn, by Wilsonart.
20. PL-23 (Dark Gray):
 - a. No. 928-58 Mouse (matte finish), by Formica.
 - b. No. D90-60 North Sea, by Wilsonart.
21. PL-24 (Blue):
 - a. No. 85788 Federal Blue, by Formica.
 - b. No. D321-6 Brittany Blue, by Wilsonart.

B. Substitutions: Not permitted.

2.4 PLASTIC LAMINATE CASEWORK

A. Fabricate to AWI Standards.

1. Plastic Laminate Casework: Custom Grade, reveal overlay construction.
 - a. Exposed Surfaces: High pressure laminate, nominal 0.050 inch thick.
 - b. Semi-Exposed Surfaces: High pressure laminate, nominal 0.028 inch thick.
 - c. Concealed Surfaces: Mill option.

B. Panel Product Substrate for Laminate Clad Casework: Medium Density Fiberboard (MDF), ANSI A208.2, Grade MD or 45 lb density particleboard ANSI A208.1, Grade M-2.

C. Cabinet Hardware:

1. Base Cabinets:

a. Drawer Slides	Knape & Vogt (KV)	1300
b. Drawer Lock	KV	986 NP
c. Shelf Standards	KV	255ZC
d. Shelf Supports	KV	239
2. Doors:

a. Wire Pull	Ives	36 B26D
b. Door Lock	KV	986 NP
c. Hinges	Rockford Process	IH 860
d. Magnetic Catches	Ives	325 (A 92)

D. Fasteners: Unless otherwise recommended by the manufacturer, use size and type to suit application; galvanized or stainless for exterior and high humidity locations; plain finish at other locations.

2.5 LAMINATE WAINSCOT PANELS

- A. Provide wainscot from either high pressure laminate (HPL) or thermoplastic laminate materials specified above as shown on the Drawings.
- B. Corner Guards: Aluminum corner guards specified in Section 10260.

2.6 PREFABRICATED WOOD CORNICE (PHARMACY)

- A. Pharmacy Crown Molding: PH010-Poplar-Crown, PH010-Poplar-L Shape by Plunkett Distributing, Fort Smith, AR. Contact: Hollie Pierce (800) 833-4393.

PART 3 - EXECUTION

3.1 GENERAL

- A. Install items specified herein where and as shown on the Drawings.

3.2 PLASTIC LAMINATE CASEWORK

- A. Install woodwork plumb, level, and straight without distortion; use concealed shims. Scribe and cut woodwork to fit adjoining work. Anchor woodwork items to nailers or blocking or directly to substrate using concealed fasteners.
- B. Casework: Provide well fitting and smooth operating doors and drawers.
 - 1. Install woodgrain laminate with grain oriented horizontally.
- C. Countertops: Anchor plastic laminate countertops securely to base units.

3.3 LAMINATE WAINSCOT

- A. Securely attach wainscot panels to substrate at locations shown on the Drawings.
- B. Provide extruded aluminum trim at exposed vertical and horizontal edges of high pressure laminate (HPL).
- C. Provide color matched caulk at corners and joints of thermoplastic laminate.
- D. Install woodgrain laminate with grain oriented horizontally.

3.4 PREFABRICATED WOOD CORNICE (PHARMACY)

- A. Install cornice as shown on the drawings. Use fasteners and adhesive as required or as shown on the drawings.
- B. Field paint trim as shown on the drawings and as specified in Section 09900. Apply additional coats as necessary to obtain complete hiding and a smooth uniform surface.

END OF SECTION

SECTION 06610 – GLASS FIBER REINFORCED PLASTIC

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes: FRP plastic coated panels and accessories.

1.2 REFERENCES

- A. The publications listed below form a part of this specification to the extent referenced. Publications are referenced within the text by the basic designation only.
- B. ASTM International (ASTM):
1. ASTM E 84 - Test Method for Surface Burning Characteristics of Building Materials.
 2. ASTM D 256 - Test Methods For Determining The Izod Pendulum Impact Resistance Of Plastics.
 3. ASTM D 638 - Test Method For Tensile Properties Of Plastics.
 4. ASTM D 790 - Test Methods For Flexural Properties Of Unreinforced And Reinforced Plastics And Electrical Insulating Materials.

PART 2 - PRODUCTS

2.1 FIBER REINFORCED PLASTIC COATED PANELS

- A. Manufacturer: Provide panels FRP panel which meet or exceed the requirements specified herein. Manufacturers of FRP products and accessories specified herein shall be by one of the following:
1. Marlite, Dover, OH.
 2. Kemlite Co. Inc., Sales Office, Joliet, IL.
 3. Glasteel, Moscow, TN.
 4. ITW-TACC International Corporation, Rockland MA (Adhesive and Sealants only).
 5. Franklin International, Columbus, OH (Adhesive and Sealants only).
- B. Substitutions: Not permitted.
- C. Product Procurement: Reference paragraph Direct Purchase Products in Section 01600.
1. Fiber Reinforced Plastic Coated Panels specified herein shall be purchased by the General Contractor direct from a pre-negotiated supplier as follows:
 - a. Haines, Jones & Cadbury. Contact: Customer Service, Rick Layton (800) 459-7099 info@hjcinc.com
 - b. Golden Valley Supply, Minneapolis MN. Contact: Eric Olson (800) 274-3675 ericolson@goldenvalleysupply.com
- D. Description: Fiber reinforced plastic coated panels, 0.09 inch thick.
- E. Physical Characteristics: Meet the following minimum characteristics:
1. Flexural Strength: 8,500 psi per ASTM D 790.
 2. Tensile Strength: 5,000 psi per ASTM D 638.
 3. Izod Impact Resistance: 4 ft-lb/sq inch per ASTM D 256.
 4. Surface burning characteristics in accordance with ASTM E 84 for Class C finish:
 - a. Flame Spread: Less than 200.
 - b. Smoke Density: Less than 450.
 5. United States Department of Agriculture (USDA): Approved for incidental food contact.
- F. Finish: Embossed.

G. Color: Provide panels of color indicated on the Drawings:

FRP Designation	Kemlite	Glasteel	Marlite
FRP 1	#85 White	WL White	P100 White
FRP 2	#70 Beige	Beige	P106 Beige
FRP 5	#83 Colonial White	Almond	P118 Almond
FRP 7		Grey	P151 Light Grey

H. Wall Trim: Provide manufacturer's standard matching wall trim including caps, division bars, inside and outside corners, edge, and other trim as required for a complete and finished installation. Provide trim in manufacturer's standard colors to match panels provided.

I. Adhesive: Manufacturer's Low VOC Latex-Based Construction Adhesive suitable for gypsum board substrate.

1. Product: Titebond Solvent Free Fast Grab FRP, by Franklin International.
 - a. Water resistant type, VOC less than 50 g/l.

J. Sealant: Manufacturer's Silicone Construction Sealant.

1. Product: MS 250 or MS 251 Silicone Sealant, by Marlite or equivalent by any listed manufacturer.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine surfaces and adjacent areas where products will be installed and verify that surfaces conform to product manufacturer's requirements for substrate conditions. Do not proceed until unsatisfactory conditions have been corrected.
- B. Beginning of installation indicates acceptance of substrate conditions.

3.2 PREPARATION

- A. Prepare substrate for product installation in accordance with manufacturer's published instructions.

3.3 INSTALLATION

A. FRP Panels:

1. Install FRP wall panels in accordance with manufacturer's published instructions.
2. Prefit each wall panel before securing in place. Cut panels with carbide-tipped power saw or swivel-head shear.
3. Provide manufacturer's recommended spacing between abutting panel ends, edges and trim. Provide minimum 1/8 inch space around pipes, electrical fittings, obstructions and other items penetrating panels. Fill joints with sealant.

4. Install panels with edges vertical and plumb. Use maximum length pieces to provide minimum number of end joints.
 - a. Align panel to panel vertical joints at inside and outside corner conditions.
5. Gypsum Board Substrate: Apply adhesive to gypsum board substrate and to panel backs as recommended by manufacturer with V-notch spreader. Provide 100 percent coverage of adhesive.
6. Install accessory panel trim pieces concurrently with installation of panels. Miter cut accessory panel trim at corners to provide smooth transition. Set trim attached to adjacent panel ends and edges and seal with sealant.
7. Seal corner seams, base and ceiling junctures, and junctures between panels and wall with sealant. Remove excess sealant during installation.
8. Provide sealant around all openings, corners, and joints.

3.4 FIELD QUALITY CONTROL

- A. Inspect installation, accessories, and fastening to substrate.

END OF SECTION

SECTION 06620 – SOLID SURFACING

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Solid surfacing material for cabinet tops.
 - 2. Substrate material for Pharmacy countertop.

1.2 REFERENCES

- A. The publications listed below form a part of this specification to the extent referenced. Publications are referenced within the text by the basic designation only.
- B. ASTM International (ASTM):
 - 1. ASTM E-84 - Test Method for Surface Burning Characteristics of Building Materials.

1.3 QUALITY ASSURANCE

- A. Regulatory Requirements:
 - 1. Surface Burning Characteristics in Accordance with ASTM E-84:
 - a. Flame Spread: Less than 15.
 - b. Smoke Density: Less than 255.
 - 2. United States Department of Agriculture (USDA): Approved for incidental food contact.

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, protect, and handle products in accordance with provisions of Section 01600.
- B. Store surfacing materials to prevent breakage and marring of surfaces in accordance with manufacturer's printed instructions.
- C. Provide protective coverings to prevent physical damage or staining following installation for duration of project.

1.5 SEQUENCING

- A. Ensure that fabricators using products of this section are in possession of complete manufacturer's instructions before beginning fabrication. Work should be performed by factory trained fabricators.

PART 2 - PRODUCTS

2.1 MANUFACTURER

- A. Solid Surface Compression Molded Products: Provide products by the following manufacturer:
 - 1. The Swan Corporation, St. Louis, MO (314) 231-8148.

2.2 SOLID SURFACING MATERIAL

- A. Product Description: Homogenous compression molded material composed of acrylic resins or polyester/acrylic resin blend, fire-retardant filler materials, fiber reinforcement, and coloring agents meeting the following requirements:
 - 1. Nominal sheet thickness: 0.40 inch.
 - 2. Approximate weight: 2 pounds per square foot.

- B. Models as follows as shown on the drawings:
 - 1. IT27145 (.40), 27 X 145, .40" thickness.
 - 2. IT3698 (.40), 36 X 98, .40" thickness.
- C. Colors shall be as follows as applicable as shown on the drawings:
 - 1. SST1 - Tahiti Desert.
 - 2. SST2 - Tahiti Gray.

2.3 COUNTERTOP SUBSTRATE (Pharmacy)

- A. Substrate for solid surfacing countertop at locations shown in the Pharmacy shall be medium density fiberboard (MDF), ANSI A208.2, Grade MD or 45 lb density particleboard ANSI A208.1, Grade M-2. At the option of the Contractor, MDF made with binder containing no urea formaldehyde resin included and listed as one of the products below may be provided.
 - 1. Flakeboard MDF, Flakeboard Company.
 - 2. 440 Sound Barrier, Homasote.
 - 3. NCFR (fire rated), Homasote.
 - 4. Purekor MDF Board Plus, Panel Source International.
 - 5. Medite II, Sierra Pine.
 - 6. Medite FR (fire rated), Sierra Pine.
 - 7. Skyblend, Roseburg Forest Products.

2.4 ACCESSORIES

- A. Supply materials for installation of products as specified in manufacturer's printed installation instructions including color matched silicon sealant and adhesives where applicable.

2.5 FABRICATION

- A. Fabricate components in shop to the greatest extent practical to sizes and shapes indicated, in accordance with approved shop drawings.
- B. Form joints between components using manufactures standard joint adhesive. Joints shall be inconspicuous in appearance and without voids.
- C. Provide holes and cutouts for plumbing and bath accessories as indicated on the drawings.
- D. Rout and finish component edges to a smooth, uniform finish.
- E. All surfaces shall have a uniform finish.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine surfaces and adjacent areas where products will be installed and verify that surfaces conform to product manufacturer's requirements for substrate conditions. Do not proceed until unsatisfactory conditions have been corrected.
- B. Beginning of installation indicates acceptance of substrate conditions.

3.2 PREPARATION

- A. Preparation and Fabrication: Precondition surfacing materials and surfaces to receive surfacing materials in accordance with manufacturer's printed instructions. Fabrication of seams and fixture mounting in accordance with factory fabrication manual. Work to be performed by factory trained specialists.

3.3 INSTALLATION

- A. Install components plumb and level in accordance with approved shop drawings and manufacturer's printed installation instructions.
- B. Form field joints using manufacturers recommended adhesive, with joints inconspicuous in finished work.
- C. Provide backsplashes and end splashes as indicated on the drawings. Adhere to countertop using manufacturers standard color matched silicone sealant.
- D. Remove adhesives, sealants and other stains upon completion of installation per manufactures written instructions.
- E. Protect surfaces from damage until project completion.

3.4 FIELD QUALITY CONTROL

- A. Inspect installation, accessories, and fastening to substrate.

END OF SECTION

SECTION 07210 – BUILDING INSULATION

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Batt Insulation.
 - 2. Board Insulation.
 - 3. Sound Attenuation Insulation (Sound Batts).
- B. Related Sections:
 - 1. Section 04220 - Concrete Masonry Units: Masonry fill insulation.
 - 2. Section 07840 - Firestopping: Safing insulation used in conjunction with fire stop material.
 - 3. Section 09250 - Gypsum Board: Metal furring.

1.2 REFERENCES

- A. The publications listed below form a part of this specification to the extent referenced. Publications are referenced within the text by the basic designation only.
- B. ASTM International (ASTM):
 - 1. ASTM E 84 - Test Method for Surface Burning Characteristics of Building Materials.
 - 2. ASTM C 578 - Specification for Preformed, Cellular Polystyrene Thermal Insulation.
 - 3. ASTM C 665 - Specification for Mineral-Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing.
 - 4. ASTM E 136 - Behavior of Materials in a Vertical Tube Furnace at 750° C.

1.3 DEFINITIONS

- A. Concealed Insulation: Insulation concealed within framing system, both faces protected by finish material.
- B. Exposed Insulation: Insulation exposed within framing system, one or both faces unprotected.

1.4 QUALITY ASSURANCE

- A. Fire Test Response Characteristics: Provide insulation and related materials with the fire-test-response characteristics indicated, as determined by testing identical products per ASTM E 84 for surface-burning characteristics and other methods specified. Identify materials with appropriate markings of applicable testing and inspecting agency.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Provide products from one of the following manufacturers as specified in the Materials paragraph below:
 - 1. Atlas Energy Products, Atlanta, GA (800) 933-1476.
 - 2. Celotex Corporation, Tampa, FL (813) 873-1700.
 - 3. CertainTeed Corporation, Valley Forge, PA (800) 523-7844.
 - 4. Dow Chemical Company, Midland, MI (800) 232-2436.
 - 5. Firestone Building Products Company, Carmel, IN (800) 428-4442.
 - 6. Guardian Fiberglass Incorporated, Albion, MI (800) 748-0035.
 - 7. Johns Manville Insulations, Denver, CO (800) 654-3103.
 - 8. NRG Division/Johns Manville, Portland, ME (800) 343-1285.
 - 9. Owens-Corning, Toledo, OH (800) 438-7465.
 - 10. Pactiv Building Products, Toledo, OH (800) 438-7465.

2.2 MATERIALS

- A. Batt Insulation: ASTM C 665 mineral fiber blanket insulation.
 - 1. Unfaced Glass Fiber: Type I (blankets without membrane facing); with maximum flame-spread and smoke-developed indexes of 25 and 50, respectively when tested in accordance with ASTM E 84.
 - 2. Faced, Glass-Fiber: Type III (blankets with reflective membrane facing), Class A (membrane-faced surface with a flame-spread index of 25 or less); Category 1 (membrane is a vapor barrier), faced with vapor-retarder membrane on 1 face.
 - 3. Sound Attenuation Insulation (Sound Batts): Unfaced glass fiber insulation as specified above.
 - 4. Provide batt insulation by one of the following manufacturers:
 - a. CertainTeed Corporation.
 - b. Guardian Fiberglass, Inc.
 - c. Johns Manville.
 - d. Owens Corning.
- B. Board Insulation:
 - 1. Extruded Polystyrene:
 - a. Type VI: ASTM C578, Type VI (density 1.8 pcf minimum); square edges. Provide one of the following:
 - 1) Dow: Styrofoam 40 High Load.
 - 2) Owens Corning: Foamular 400.
- C. Substitutions: Not permitted.

2.3 ACCESSORIES

- A. Tape: Polyethylene or polyester self-adhering type; two inches wide.
- B. Adhesive: Waterproof type, acceptable to manufacturer of insulation board.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Batt Insulation:
 - 1. Verify adjacent materials are dry and ready to receive installation.
 - 2. Verify mechanical and electrical services within walls have been installed and tested.
- B. Board Insulation:
 - 1. Verify substrate and adjacent materials and insulation boards are dry and ready to receive insulation and adhesive.
 - 2. Verify insulation boards are unbroken, free of damage.

3.2 INSTALLATION - BATT INSULATION

- A. Install batt insulation in accordance with manufacturer's instructions, without gaps or voids.
- B. Trim insulation neatly to fit spaces. Use batts free of damage. Fit insulation tight in spaces and tight to exterior side of mechanical and electrical services within the plane of insulation.
- C. Install insulation with factory applied membrane facing warm side of building spaces. Lap ends and side flanges of membrane. Attach insulation in place to framing; tape seal butt ends and lapped side flanges. Tape seal tears or cuts in membrane.

3.3 INSTALLATION - BOARD INSULATION BENEATH FREEZER

- A. Coordinate with concrete Sections of Division 3 for timely placement of insulation board.
- B. Install two layers of insulation board in areas beneath freezers. Refer to Drawings for locations and details.

3.4 SCHEDULES

- A. Provide insulation types as scheduled below and as indicated on Drawings.

CONDI-TION	TYPE OF INSULA-TION	THICKNESS
Exterior Wall, Sof-fits, & Ceiling	Faced Batt Insulation	3-1/2 inches (R=11) or 6 inches (R=19) as shown; or as required to fill cavity.
Interior Partitions	Unfaced Batt Insulation	3-1/2 inches or 6 inches as Shown.
Sound Attenuation	Unfaced Batt Insulation	3-1/2 inches or 6 inches as Shown.
Freezer Slab Insulation	Extruded Poly-styrene, Type VI	6.0 inches
Batt Insulation at Roof Deck	Unfaced Glass Fiber Batt (above ceilings) Foil Faced Glass Fiber Batt (where exposed to view)	6.0 inches (R=19)

END OF SECTION

SECTION 07412 – METAL ROOF PANELS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Preformed, prefinished standing seam metal roofing and accessories.
- B. Related Sections:
 - 1. Section 05300 - Metal Deck. Metal canopy deck used as roofing panels.
 - 2. Section 13123 - Glazed Structures: Metal Roof Panels for glazed canopy system at Garden Center.

1.2 REFERENCES

- A. The publications listed below form a part of this specification to the extent referenced. Publications are referenced within the text by the basic designation only.
- B. ASTM International (ASTM):
 - 1. ASTM A 755A - Steel Sheet, Metallic Coated by the Hot-Dip Process and Prepainted by the Coil-Coating Process for Exterior Exposed Building Products.
 - 2. ASTM A 792 - Specification for Steel Sheet, Aluminum-Zinc Alloy-Coated by the Hot-Dip Process.
 - 3. ASTM D 226 - Specification for Asphalt-Saturated Organic Felt Used in Roofing and Waterproofing.
 - 4. ASTM D 523 - Test Method for Specular Gloss.

1.3 QUALITY ASSURANCE

- A. Installer Qualifications: Company specializing in performing Work of this Section with minimum 5 years documented experience certified by sheet metal roofing manufacturer as an "Approved Installer".

1.4 DELIVERY, STORAGE AND HANDLING

- A. Section 01600 - Product Requirements: Transport, handle, store, and protect products.
- B. Stack preformed and prefinished material to prevent twisting, bending, or abrasion, and to provide ventilation. Comply with manufacturer's recommendations for job site storage, handling, and protection.
- C. Prevent contact with materials during storage which may cause discoloration or staining.
- D. Do not overload roof structure with stored materials. Do not permit material storage or traffic on completed roof surfaces.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Standing Seam Metal Roof Panel: 24 gage; Aluminum-Zinc Alloy-Coated Steel Sheet, ASTM A 792A, Class AZ50 coating designation, Grade 40, structural quality, UL 90 rated panels, and prepainted by the coil-coating process to comply with ASTM A 755/A. Provide panels by one of the following:
 - 1. Snap-Seam System Standing Seam Roof by AEP-SPAN, Dallas, TX (800) 527-2503.
 - 2. Cee-Lock Snap-Lock Standing Seam Roof by Berridge Manufacturing Company, Houston, TX (800) 231-8127.
 - 3. Lokseam Standing Seam Roof System by MBCI (800) 206-6224.
 - 4. Snap-Clad Standing Seam Roof System by PAC-CLAD, Petersen Aluminum Corporation, Elk Grove Village, IL (800) 722-2523.

- B. Seam Spacing: Refer to Drawings.
 - 1. AEP-SPAN: 10 inches (12", 18", and 24" available).
 - 2. Berridge: 16-1/2 inches.
 - 3. MBCI: 10 inches (12" and 18" available).
 - 4. PAC-CLAD: 10 inches (12", 16" and 18" available).
 - 5. Match existing seam spacing where shown on Drawings, or where required to match existing.
- C. Finish: Smooth panel with factory finished baked-on fluoropolymer 2-coat coating system.
 - 1. Manufacturer's standard 2-coat, thermocured system composed of specially formulated inhibitive primer and fluoropolymer color topcoat containing minimum of 70 percent Penwalt Kynar 500 resin by weight with total minimum dry film thickness of 0.9 mil and 30 percent reflective gloss when tested in accordance with ASTM D 523.
 - 2. Color: As follows as shown on the drawings (Verify color prior to placing order):
 - a. PF-4 (Dark Zinc):
 - 1) Lead-Cote Metallic by Berridge Mfg. Co.
 - 2) Product by other specified Manufacturer: Match color "Lead-Cote Metallic", by Berridge Mfg. Co.

2.2 ACCESSORIES

- A. Provide manufacturer's standard accessories and other special items required for sheet metal roof system installation. Provide accessories with same finish and color as sheet metal roofing.
 - 1. Trim Items: Same material and finish as roofing panels.
 - 2. Fasteners: Recommended by roofing system manufacturer for intended purpose.
 - 3. Mastic Tape: Manufacturer's standard.
 - 4. Sealants: Color coordinated primerless silicone, or high grade, non-drying butyl recommended by panel manufacturer.
- B. Underlayment:
 - 1. Asphalt Saturated Fiberglass: ASTM D 266; No. 30 pound asphalt saturated fiberglass roofing felt, non-perforated.
- C. Protective Backing Paint: Bituminous.

2.3 FABRICATION

- A. Panels: Full length factory-formed panels, width as specified.
- B. Seams: Interlock panel seams entire length of panel without use of field seaming machines, while allowing expansion and contraction movement. Seam shall lock and resist joint disengagement during design wind uplift conditions. Fabricate female leg with pressure equalized capillary break to prevent water siphoning through joints. Provide factory sealant on leading edge of female seam leg for panel-to-panel seal.
- C. Clips: Provide UL listed clip designed to allow panels to thermally expand and contract.
- D. Use concealed anchors that permit expansion and contraction. Exposed fasteners in panels not permitted.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine surfaces and adjacent areas where products will be installed and verify that surfaces conform to product manufacturer's requirements for substrate conditions. Do not proceed until unsatisfactory conditions have been corrected.
- B. Beginning of installation indicates acceptance of substrate and existing conditions.

3.2 PREPARATION

- A. Broom clean substrate deck surfaces immediately before starting installation.

3.3 INSTALLATION

- A. Install sheet metal roofing and accessories in accordance with manufacturer's published instructions.
- B. Dissimilar Metals: Back paint surfaces in contact with dissimilar materials.
- C. Underlayment:
 - 1. Asphalt Saturated Asphalt: Install over substrate starting at lower point of roof surface, with horizontal overlaps and end laps staggered between layers. Lay parallel to ridge line with minimum 12 inch vertical laps and 6 inch horizontal laps. Install smooth and uniform. Secure in place.
- D. Metal Roof System:
 - 1. Install panels in accordance with manufacturer's published instructions and recommendations and as defined under this Section.
 - 2. Anchor securely in place using clips and fasteners spaced in accordance with manufacturer's recommendations for design wind load criteria. Fasteners shall be of the length required to penetrate deck a minimum of 3/4 inch.
 - a. Install to requirements for UL 90 uplift resistance.
 - 3. Fully seat adjacent panel to achieve continuous engagement of standing seam joint.
 - 4. Align panel seams at valley locations and ridge locations.
- E. Apply sealant to penetrations, transitions, and other locations necessary (not standing seam) for airtight, water-proof installation.

3.4 FIELD QUALITY CONTROL

- A. Inspect sheet metal roofing system installation for specified material, color, and attachment requirements. Inspect metal flashings, counterflashings and vents.
- B. Correct deficiencies in Work which inspection indicates are not in compliance with Contract requirements.

3.5 CLEANING

- A. Clean exposed surfaces of Work immediately after completion of installation.
- B. Clean exposed surfaces of Work 24 hours prior to date of Substantial Completion.

3.6 PROTECTION

- A. Provide protection and maintain manufacturer's recommended conditions to prevent damage or deterioration of sheet metal roofing system until date of Substantial Completion or final acceptance by Wal-Mart.

END OF SECTION

SECTION 07530 – ELASTOMERIC MEMBRANE ROOFING

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. TPO Membrane Roofing Systems.
 - 2. Flashing Membrane.
 - 3. Waterproofing Membrane.
 - 4. Roof insulation: Isocyanurate board.
 - 5. Repair and maintenance of the roof after roof installation until store Grand Opening.
- B. Related Sections:
 - 1. Section 05500 - Metal Fabrications: Roof parapet camera support mount.
 - 2. Section 06100 - Rough Carpentry: Wood blocking and nailers.
 - 3. Section 07620 - Sheet Metal Flashing and Trim: Sheet metal fascia and edge trim, counter flashings, and other sheet metal.
 - 4. Section 07711 - Gutters and Downspouts: Interface of gutters with roofing and metal flashings.
 - 5. Section 07721 - Manufactured Curbs: Curbs for roof penetrations.
 - 6. Section 07900 - Joint Sealers.
 - 7. Section 08631 - Metal Framed Fixed and Venting Skylights.

1.2 REFERENCES

- A. The publications listed below form a part of this specification to the extent referenced. Publications are referenced within the text by the basic designation only.
- B. ASTM International:
 - 1. ASTM C 1289 - Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board.
 - 2. ASTM D 4637 - EPDM Sheet Used In Single-Ply Roof Membrane.
 - 3. ASTM D 4434 - Polyvinyl Chloride Sheet Roofing.
 - 4. ASTM D 6878 - Thermoplastic Polyolefin Based Sheet Roofing.
- C. Factory Mutual Research Corporation (FM):
 - 1. FM Approvals Building Materials Approval Guide, Chapter 3 - Approved Combinations and Assemblies.
 - 2. FM Global Loss Prevention Data Sheet 1-28 - Design Wind Loads.
 - 3. FM Global Loss Prevention Data Sheet 1-29 - Roof Deck Securement and Above-Deck Components.
 - 4. FM Approval Standard 4450 - Class 1 Insulated Steel Deck Roofs.
 - 5. FM Approval Standard 4470 - Class 1 Roof Covers.
- D. Underwriters Laboratories, Inc. (UL):
 - 1. UL - Roofing Materials and Systems Directory.
 - 2. UL 790 - Fire Resistance of Roof Covering Materials.
 - 3. UL 1256 - Fire Test of Roof Deck Construction.

1.3 SYSTEM DESCRIPTION

- A. Single Ply Membrane Roofing System: Single ply membrane roofing system consisting of insulation on metal deck with 60 mil reinforced membrane mechanically fastened.
- B. Flashing and Waterproofing Membranes: 60 mil reinforced membrane, fully adhered, as defined herein and indicated on the drawings.

1.4 SUBMITTALS

- A. Submittal Process: Submit in accordance Section 01330 - Submittal Procedures. Submit required submittals within 30 days after contract award. Submittals shall be available at all times to the Wal-Mart Construction Manager.
- B. Product Data: Submit Product Data and MSDS sheets for accepted system showing compliance with the specified physical properties.
- C. Shop Drawing: Submit Shop Drawings showing:
 - 1. Fastener patterns to meet uplift requirements.
 - 2. Layouts for Crickets and saddles.
 - 3. Walk pad layouts.
 - 4. Details required for completion but not shown and drawings.
 - 5. Techniques for nighttime or weather tie offs.
- D. Quality Assurance Submittals: Copy of Certified Applicator Statement from system manufacturer showing:
 - 1. Job names, size, scope, letters from owner contact, present owner contact name and phone number to verify logistical and system experience.
- E. Closeout Submittals: Provide the following Closeout Submittals in accordance with Section 01770:
 - 1. Record Letter of Conformance included at the end of this Section.
 - 2. Letter of Certification of installer's qualifications and conformance with specified tests and criteria.
 - 3. Manufacturer's periodic site inspection reports.
 - 4. Site inspection certificates showing acceptance of roof installation by the manufacturer.
 - 5. Roof Inspection Form: Submit form included at the end of this Section at Final Inspection. Parties in attendance shall include General Contractor, Roofing Subcontractor, Owner's Independent Roofing Inspector, Manufacturers Representative, Wal-Mart Construction Manager, and the Wal-Mart Store Manager. Form shall be completed by the Independent Roofing Inspector and signed by the applicable parties. Form shall be submitted as part of close out documents and a copy given to all parties in attendance.
 - 6. Warranty.
- F. Regulatory Requirements Documentation: Submit Factory Mutual and UL data and assembly drawings showing compliance with Quality Assurance requirements specified below. Submit letter of compliance from the manufacturer certifying compliance with referenced FM and UL roofing system requirements.

1.5 QUALITY ASSURANCE

- A. Roofing Inspection:
 - 1. The Owner's Independent Roofing Inspector (IRI) will conduct roof construction inspections as specified in Section 01458. The IRI responsibilities will, in general, be as follows:
 - a. Provide full time inspection during roof installation.
 - b. Complete Roof Inspection Checklist included at the end of this Section.
 - c. Issue Certification of Quality of Roof Construction upon completion of roof installation.
 - 2. The activities and responsibilities of the IRI shall not preclude any quality control responsibilities by the Contractor, the Roofing Contractor, or the Manufacturer as specified herein.
 - 3. The Contractor shall be responsible for sampling and testing specified herein.
 - 4. The Roof Inspection Checklist included herein shall be used by the Contractor as a tool to measure quality roofing work as the work progresses.
- B. Qualifications of Applicator:
 - 1. Logistical Experience: Contractor shall have installed a minimum of ten roofing projects of the same or similar scope with a minimum of 5,000 SF in size within the last three years.

2. System Experience:
 - a. Contractor shall have been trained by and shall be an authorized installer or licensed contractor for the roofing system manufacturer, as defined by the roof system manufacturer, for one year prior to the bid date.
 - b. Contractor shall have installed a minimum of three projects using the specified roofing system within the past year.
- C. Regulatory Requirements for Roof Assembly: Comply with FM Approvals Building Materials Approval Guide or Underwriters Laboratories, Inc. Roofing Materials and Systems Directory as specified:
 1. Factory Mutual: Provide roofing assembly meeting Class 1A-90 requirements for fire resistance and wind uplift in accordance with FM Approvals Standard 4470 and FM Global Loss Prevention Data Sheet 1-28 and FM Global Loss Prevention Data Sheet 1-29.
 2. Provide roof assembly meeting requirements of UL 1256 for Flame Spread developed from underside of deck and roof assembly meeting requirements of FM Approvals Standard 4450 for Class 1 Insulated Steel Deck Roofs (construction materials calorimeter).
- D. Pre-installation Conference:
 1. Contractor shall convene a pre-installation conference at the site, one week prior to commencing work of this Section. Require attendance of parties directly affecting work of this Section, including, but not limited to, the Owner's representative, Contractor, Roofing Applicator and job foreman, Mechanical and Plumbing subcontractors, Owner's Independent Roofing Inspector, and Roofing Manufacturer's Representative.
 2. Contractor shall notify all attendees at least two weeks prior to the conference.
 3. Contractor shall review preparation and installation procedures and coordinating and scheduling required with related work.
 4. Contractor shall record discussions of conference and decisions and agreements (or disagreements) reached, and furnish copy of record to each party attending. Review foreseeable methods and procedures related to roofing work, including the following:
 - a. Tour, inspect and discuss condition of substrate, roof drains, roof drain final locations, curbs, penetrations and other preparatory work performed by other trades.
 - b. Review structural loading limitations of deck as defined below and inspect deck for loss of flatness and for required mechanical fastening.
 - c. Review roofing system requirements (drawings, specifications and other contract documents including submittals).
 - d. Review required submittals.
 - e. Review and finalize construction schedule related to roofing work and verify availability of materials, installer's personnel, equipment, and facilities needed to make progress and avoid delays.
 - f. Review required inspections, testing, certifying, and material usage accounting procedures.
 - g. Review weather and forecasted weather conditions, and procedures for coping with unfavorable conditions, including possibility of temporary roofing (if not a mandatory requirement).
- E. Manufacturer's Site Inspections:
 1. Provide site inspection and reports by the manufacturer's representative at the following periods:
 - a. At 100% completion of roof installation.
 2. Inspection shall conform to the inspection requirements specified herein.
 3. Prepare certificate of acceptance of completed roof installation by the Manufacturer.
 4. Perform a final audit 10 months after acceptance with Wal-Mart representative as scheduled by Wal-Mart.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Contractor shall make arrangements for delivery of materials in manufacturer's original unopened containers, dry, undamaged, seals and labels intact.
- B. Contractor shall store materials in weather-protected environment, clear of ground and moisture. Storage requirements for insulation are as follows:
 1. Cut or remove plastic shipping wrap from insulation.
 2. Cover with tarpaulin, shield from moistures and ultraviolet rays.
 3. Elevate minimum of 4 inches above substrate.

4. Secure to resist high winds.
 5. Distribute insulation stored on roof deck to prevent concentrated loads.
 6. Do not install wet insulation. Insulation shall be thoroughly dry prior to installation.
- C. Store cements, primers, and caulks in heated area above 40 degrees F during cold weather and in area below 80 degrees F in warm weather.
- D. Protect adjacent materials and surfaces against damage from roofing work. Do not store materials on completed roofing.

1.7 ENVIRONMENTAL REQUIREMENTS

- A. Follow industry standards for environment requirements including, but not limited to, the following:
1. Do not apply roofing membrane during inclement weather. When air temperature is expected to fall below 40 degrees F, follow specified Cold Weather Application Procedures as specified herein.
 2. Do not apply finished roofing system to wet, damp or frozen deck surface or when precipitation is occurring.
 3. Do not expose materials vulnerable to water or sun damage in quantities greater than can be weatherproofed during same day.

1.8 SEQUENCING AND SCHEDULING

- A. Contractor shall coordinate the Work with installation of associated metal counter flashings specified under other sections as the Work of this Section proceeds.
- B. Contractor shall complete installation of base flashing at roof curbs prior to setting roof top equipment.

1.9 WARRANTY

- A. Provide a warranty commencing at date of Substantial Completion, on form provided at the end of this Section that includes cost of labor and materials for loss of weather tightness without financial limit for a period of 15 years.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Acceptable Manufacturers: Subject to compliance with the physical properties listed below, the following Manufacturers are considered acceptable to Wal-Mart to provide the specified Roofing System:
1. Carlisle SynTec Systems, Dave Martin, National Accounts Technical Manager, (800) 423-2390.
 2. Firestone Building Products Company, (800) 428-4511.
 3. Johns Manville Roofing Systems, (800) 633-8594.
 4. JP Stevens, Holyoke, MA, (800) 621-ROOF.

B. ROOFING SYSTEMS

1. Single Ply TPO Membrane Roofing:
 - a. Sure-Weld Roofing System, by Carlisle.
 - b. UltraPly TPO Roofing System, by Firestone.
 - c. EP TPO Roofing System by JP Stevens.
 - d. JM TPO Mechanically Fastened Roofing System, by Johns Manville.
2. Substitutions: Not permitted.

2.2 MEMBRANE PHYSICAL PROPERTIES

- A. TPO: Thermoplastic single ply membrane composed of thermoplastic polyolefin (TPO) sheet as specified for the specific product hereinbefore and reinforced with polyester scrim conforming to ASTM D 6878.
1. Membrane Type: Reinforced, 60 mil thickness, 8 ft. maximum sheet width. Color: Match existing membrane color.

2.3 FLASHING MEMBRANE

- A. Flashing Membrane: Reinforced and non-reinforced membrane and pressure-sensitive flashing by Roofing System manufacturer, minimum 60 mils, specifically designed for use in flashing at perimeters and wall, and around projections through roofing system.

2.4 WATERPROOFING MEMBRANE

- A. Waterproofing Membrane: Membrane waterproofing formed into uniform, flexible sheets by Roofing System manufacturer. Reinforced, 60 mils nominal thickness.
- B. Waterproofing Flashing: Reinforced and non-reinforced membrane and pressure-sensitive flashing by Roofing System manufacturer, minimum 60 mils, specifically designed for use in flashing at perimeters and wall, and around projections through roofing system.

2.5 ROOF INSULATION

- A. Isocyanurate Foam Insulation: Polyisocyanurate board insulation, ASTM C 1289, Type II, felt or glass-fiber mat facer on both major surfaces, with an LTTR (Long Term Thermal Resistance) value of 16.92 based on ASTM C1303 and CAN/ULC S770.
 - 1. Manufacturers:
 - a. HPH, by Carlisle.
 - b. ISO 95+ GL, by Firestone.
 - c. ENRGY3 or ISO3 by Johns Manville.
 - d. Products meeting the specified requirements by other manufacturers as recommended by the roofing membrane manufacturer.
- B. Insulation Assembly:
 - 1. Insulation: Isocyanurate Foam, match existing insulation thickness if attaching to existing roof area, or 3.0 inches thick if new roof is isolated from existing roof.
- C. Roof Curb Insulation: Polyisocyanurate Foam; both faces covered with glass fiber felt; thickness to match wood nailer.
- D. Tapered Insulation: Provide crickets, saddles, and tapered insulation of same material as roof insulation; taper to the following slopes:
 - 1. Crickets and Saddles: 1/2 inch per foot (1/4 inch per foot positive slope).
 - 2. Insulation Installed to Counter slope the Roof Structure: 1/2 inch per foot.
 - 3. Edge Taper Insulation: Adjacent to gutter assembly, slope at minimum rate of 1/2 inch per foot. Provide insulation having a starting thickness of 1 inch, tapering insulation up to match nominal roof insulation thickness.

2.6 ROOF PENETRATION FLASHING AND SEALS

- A. Molded Pipe Flashing: Pre-molded flexible pipe flashing as recommended and supplied by the roofing manufacturer.
- B. Urethane Rubber Seal System: Manufacturer's standard elastomeric pourable sealer pockets including two-part pourable urethane sealer.

2.7 ACCESSORIES

- A. Provide accessories as shown on the drawings and manufacturer's system accessories for a complete and warranted Roofing System, including, but not limited to, the following:
 - 1. Weathered Membrane Cleaner.
 - 2. Lap Sealant.
 - 3. Bonding Adhesive.

4. Membrane Fasteners.
5. Termination Bar.
6. Insulation Fasteners.
7. Walkway / Isolation Pads.
8. Preformed Accessories including Pipe Flashings.
9. Preformed Corner Patching.
10. Draw Bands.
11. Foam Filler Insulation: Polyurethane Expanding Foam as defined within Section 07900.
12. 3-inch & 6-inch in-seam tape.
13. Pressure-sensitive flashing.
14. Primer.
15. Insulation & membrane fasteners.
16. In-seam plates.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify deck is clean and smooth, free of depressions, waves, or projections, properly sloped to drains, valleys, and eaves. Verify flutes of steel deck are evenly spaced at intersections. Defects in the substrate surface shall be reported and documented.
- B. Verify roof openings, curbs, pipes, sleeves, ducts, or vents through roof are solidly set, cant strips, nailing strips, and reglets are in place. Verify deck is supported and tightly secured.
- C. Verify deck surfaces are dry and free of water, snow, and ice.
- D. Beginning installation means acceptance of substrate and pre-installation conference has been held with agreements reached.

3.2 PREPARATION

- A. Provide covers and other means of protection as necessary to protect building surfaces against damage during roofing work.
- B. Where Work shall continue over finished roof membrane, protect surfaces from damage.

3.3 ROOF INSULATION INSTALLATION

- A. Place long edge of boards parallel to deck flutes, forming joint over solid bearing. Lay insulation units with long edge joints continuous and end joints staggered. Mechanically fasten insulation, through fire resistive layer if specified, to deck with FM approved fasteners and plates in accordance with requirements of FM.
 1. Install fasteners using drill with torque clutch; other types of drills will not be permitted.
 2. In no case shall the number of fasteners be less than indicated in approved submittals.
- B. Lay insulation boards to moderate contact without forcing joints. Cut insulation to fit neatly around protrusions through roof. At parapet walls, cope insulation around protrusions and embed plates; butt tight to wall, sealing conditioned building.
 1. Fill gaps over 1/4 inch wide with Foam Filler Insulation. After foam sets and before installation of membrane, trim foam flush with insulation surface.
- C. Place roof crickets and tapered insulation to required slope pattern in accordance with Contract Documents and manufacturer's instructions.
- D. Apply no more insulation than can be sealed with membrane in same day.
- E. Adhere a single layer of insulation to manufactured metal curbs with bonding cement.

3.4 ROOFING MEMBRANE APPLICATION

- A. Mechanically Fastened Membrane:
 - 1. Starting at low point of roof surface, run membrane perpendicular to roof slope. Unroll membrane over prepared substrate, lapping adjoining sheets as recommended by manufacturer.
 - 2. Mechanically fasten membrane using manufacturer's fastening system. Install fasteners in accordance with submitted engineered layout pattern to resist specified wind uplift.
 - 3. Install fasteners using drill depth sensing or torque limiting screw guns to limit under / over drive of fasteners.
 - a. Drill motors and other non-limiting drivers shall not be used.
 - 4. Seam Sealing:
 - a. TPO: Heat-weld seams according to the system manufacturer's recommendations, and with a minimum weld width of 1-1/2 inches.
- B. Cold Weather Application Procedures: When air temperature is expected to fall below 40 degrees F, follow Cold Weather Application Procedures as follows:
 - 1. Store materials in heated storage units prior to installation. Rotate adhesive, cement, and sealant containers to maintain their temperature above 40 degrees F.
 - 2. Allow membrane to relax until no wrinkles are visible.
 - 3. Allow adequate time for solvents in cements to flash off. Check dryness of applied cements before sealing joints.
 - 4. Verify that frost, dew, and other forms of moisture have evaporated prior to covering insulation with membrane to prevent entrapment of moisture within finished roof system.

3.5 WATER CUTOFFS AND WEATHER PROTECTION

- A. Install water cut-offs at end of day's operation to seal insulation and edge of roof membrane from moisture entry. If inclement weather appears imminent during roofing application, cease operations and protect deck, insulation, flashings, penetrations and membrane from moisture infiltration with water cutoffs. Insulation and roofing materials not so protected prior to inclement weather will be considered damaged and will be cause for rejection.
- B. Remove water cut-offs and other temporary weather protections prior to continuing roofing work. Remove materials that have been subject to moisture damage and return deck to a clean, dry condition before proceeding with roofing operations. Remove damaged materials from job site.
- C. The water cut-offs and weather protection shall not be considered a part of the final roof system specified.

3.6 MEMBRANE FLASHING AND ACCESSORIES

- A. Apply flexible flashings to seal membrane to vertical elements using manufacturer's standard peel and stick flashing.
 - 1. Reinforced Flashing Membrane: Where conditions permit, flash penetrations and walls with reinforced flashing membrane.
 - 2. Uncured Flashing: Limit use of uncured flashing to overlay vertical seams as required at angle changes, to flash inside and outside corners, scuppers, and other penetrations or unusually shaped walls as approved by the manufacturer.
- B. Roof Penetrations:
 - 1. Molded Pipe Flashing: Install where configuration of penetration will permit.
 - 2. Urethane Rubber Seal System: Install where molded pipe flashing cannot be installed due to configuration of penetration. Install at locations shown including electrical penetrations, camera mount conduits, gas line penetrations, flues, and satellite dish location.
 - a. Install per manufacturers application instructions.
- C. Seal flashings and flanges of items penetrating membrane.
- D. Fasten termination bars at 12 inches on center or less to maintain constant compression.

- E. Isolation Pads: Install isolation pads at pipe supports.
- F. Walkway Pads: Install walkway pads as arranged and located as shown on the drawings. Adhere to roofing system to prevent displacement in maximum anticipated design wind velocity and to allow drainage of moisture from beneath pad. Ensure that walkway pads allow roof surface drainage and do not pond water. Install pads after adjacent equipment installation.

3.7 WATERPROOFING MEMBRANE

- A. Waterproofing Membrane: Install waterproofing membrane to be fully adhered to parapet using bonding adhesive as recommended by membrane manufacturer. Run membrane waterproofing over top of parapet and turn down front side of parapet 3 inches.
 - 1. Provide continuous weather tight seal from 3" below parapet cap, over parapet, down interior face, and onto roof surface.
 - 2. Conceal adhesive on exterior face of parapet with waterproofing.
- B. Waterproofing Flashing: Apply waterproofing membrane flashings to seal membrane to vertical elements using manufacturer's peel and stick flashing.
 - 1. Reinforced Waterproofing Flashing: Where conditions permit, flash walls with reinforced waterproofing flashing or as required by the manufacturer.
 - 2. Uncured Flashing: Limit use of uncured flashing to overlay vertical seams as required at angle changes, to flash inside and outside corners, scuppers, and other penetrations or unusually shaped walls where use of reinforced waterproofing flashing is not practical or as required by the manufacturer.

3.8 FIELD QUALITY CONTROL

- A. Correct identified defects or irregularities.
- B. Take core samples and report information when determined to be necessary to verify the insulation thickness by the IRI.
- C. Quality Control inspection will be conducted by the Owner's IRI as specified in Part 1.

3.9 CLEANING

- A. Replace defaced or disfigured finishes caused by Work of this Section.

3.10 PROTECTION

- A. Where construction traffic must continue over finished roof installation, protect roof surfaces as recommended by roofing system manufacturer to protect manufacturer's warranty.

3.11 MAINTENANCE AND REPAIR DURING CONSTRUCTION

- A. The Contractor shall maintain the entire roofing system and related work from the time of roofing completion until issuance of Certificate of Occupancy. Maintenance shall consist of repair of material or installation defects or damage resulting from any subsequent work on the roof or from any weather related damage. Maintenance shall be to maintain the roof system in a watertight condition including repair of conditions that show signs of inferior workmanship that may result in potential leaks. Leaks occurring during the maintenance shall be repaired in accordance with good roofing practice and the requirements specified herein. The Contractor shall remove and replace all wet insulation caused by water leaks and repair the Roofing System.

END OF SECTION

CONTRACTOR'S RECORD LETTER OF CONFORMANCE

SECTION 07530

ELASTOMERIC MEMBRANE ROOFING

Project Location: _____ Date: _____

(City)

(State)

Project Number: _____ Store Number: _____

Regulatory Requirements for Roof Assembly: The roof assembly meets the following FM & UL requirements:.

- ☐ Roof assembly meets Class 1A-90 requirements for fire resistance and wind uplift in accordance with FM Approvals Standard 4470 and FM Global Loss Prevention Data Sheet 1-28 and FM Global Loss Prevention Data Sheet 1-29 (Insert UL Classification)
- ☐ Roof assembly meets Fire Classification UL 1256 for Flame Spread developed from underside of deck and meets approval standard of FM Standard 4450 for Class 1 Insulated Steel Deck.

The following product has been selected for use in this project from the list of acceptable products specified.

Quality Assurance: Roofing Applicator: In accordance with this specification, the applicator is qualified to install the indicated Roofing System.

- ☐ Carlisle SynTec Systems, Authorized Applicator.
- ☐ Firestone Red Shield Licensed Contractor
- ☐ Johns Manville Approved Roofing Contractors.
- ☐ JP Stevens Licensed Applicator.

Roofing System Manufacturer: Indicate System provided below:

- ☐ Single Ply EPDM Membrane Roofing
 - ☐ Sure-Seal Mechanically-Fastened Roofing System, by Carlisle
 - ☐ RubberGard EPDM Mechanically Attached Roofing System, by Firestone.
 - ☐ UltraGard EPDM Mechanically Fastened Roofing System, by Johns Manville.
- ☐ Single Ply TPO Membrane Roofing
 - ☐ Sure-Weld Roofing System, by Carlisle
 - ☐ UltraPly TPO Roofing System, by Firestone
 - ☐ UltraGard TPO Mechanically Fastened Roofing System, by Johns Manville.
 - ☐ EP TPO Roofing System by JP Stevens.
- ☐ Single Ply PVC Membrane Roofing
 - ☐ UltraPly PVC Roofing System, by Firestone
 - ☐ EV Roofing System, by Stevens
 - ☐ UltraGard System SR-60, Mechanically Fastened Roofing System, by Manville.

Roofing System Accessories: The following accessories are compatible with the indicated Roofing System Warranty.

- ☐ Sheet Seaming System:
 - ☐ Cleaner: _____.
 - ☐ Primer: _____.
 - ☐ In-seam tape: _____.
 - ☐ Lap Sealant: _____.
- ☐ Bonding Adhesive: _____.

- ☐ Mechanical Fasteners for Membrane:
 - ☐ Manufacturer: _____.
- ☐ Termination Bar:
 - ☐ Manufacturer: _____.
- ☐ Mechanical Fasteners for Insulation:
 - Coated mechanical fasteners; proper length and acceptable for defined wind uplift.
 - ☐ Manufacturer: _____.
- ☐ Walkway/Isolation Pads:
 - ☐ Manufacturer: _____.
- ☐ Urethane Rubber Seal System:
 - ☐ Manufacturer: _____.
- ☐ Molded Pipe Flashing:
 - ☐ Manufacturer: _____.
- ☐ Draw Band: Stainless steel.

Roof Insulation: Check insulation system and those products to be provided; give thicknesses.

Insulation Boards: Indicate boards used in insulation assembly:

Isocyanurate Foam Insulation:

- | | |
|--|-------------------|
| <input type="checkbox"/> HPH, by Carlisle: | Thickness: _____. |
| <input type="checkbox"/> ISO 95+ GL, by Firestone: | Thickness: _____. |
| <input type="checkbox"/> E'NRG'Y 3, by Johns Manville: | Thickness: _____. |
| <input type="checkbox"/> Other: _____: | Thickness: _____. |

Roof Curb Insulation:

- | | |
|---|-------------------|
| <input type="checkbox"/> Polyisocyanurate Foam: | Thickness: _____. |
|---|-------------------|

Statement of Conformance:

This Record Letter of Conformance is provided as a Record Document in accordance with Section 01770 – Contract Closeout. The undersigned hereby declares that the Product identified above by manufacturer's name and model number is (one of) the product(s) specified and is suitable for the intended use as defined within the Contract Documents and has been provided and placed in operational condition in accordance with the manufacturer's published instructions and the Contract Documents.

SUPPLIER:

(Contact name of supplier offering above product) Phone Number: () _____

(Supplier name and address)

SUBCONTRACTOR:

(Contact name of subcontractor offering above product) Phone Number: () _____

(Subcontractor name and address)

CONTRACTOR:

(Contact name of Contractor) (Contractor signature and Title of Signatory)

ROOFING SYSTEM WARRANTY

Owner: _____

Address of Owner: _____

Type and Name of Building: _____

Location: _____

Roofing System Specification Number: _____ Area of Roof System: _____

Date of Substantial Completion: _____ Date Warranty Expires: _____

Manufacturer's 24 hour Emergency Telephone: (____) _____ (no answering machines or message Center)

Contact Name: _____

Contractor's Telephone: (____) _____ (no answering machines or message center)

Contact Name: _____

Upon completion of and after inspection by the Manufacturer of such Work, Manufacturer agrees to warrantee the aforesaid Roofing System for a limited period and subject to the conditions herein set forth:

Manufacturer Warrantees, subject to the conditions herein set forth, that during a period of 10 years from the date of Substantial Completion, it will, at its own cost and expense, make or cause to be made such repairs to said Roofing System resulting solely from faults or defects in materials and/or workmanship applied by or through the Roofing System Contractor as may be necessary to maintain said Roofing system in watertight condition. Owner's remedies and manufacturer's liability shall include cost of labor and materials for loss of weather tightness without financial limit. In accordance with good roofing practice, the Manufacturer shall remove and replace all wet insulation (as defined in specifications) caused by water leaks covered under this Warranty (i.e. leaks resulting from circumstances other than those listed in the exclusions) and repair the Roofing System at no cost to the Owner. Should the investigation reveal that the leak is the result of something other than a defect in materials and/or workmanship applied by or through the Roofing System Contractor, the reasonable investigative work and reasonable repair costs shall be paid by the Owner. Failure by the Owner to pay these costs shall render this warranty null and void.

Warranty shall include materials and workmanship from the following items:

1. Membranes (including parapet waterproofing).
2. Membrane flashings including attachment to sheet metal flashings and trim.
3. Fasteners, cements, and adhesives.

This warranty is made subject to the following conditions:

1. The Owner shall notify Manufacturer within 24 hours of notice by the Wal-Mart Roof Maintenance Department of leaks. The Manufacturer will respond with service within 24 hours of notice from owner (if not possible, than no later than 48 hours, however Wal-Mart retains the right to make repairs at Warrantor's expense to mitigate damages).
2. Specifically excluded from this Warranty is any and all damage to said roof system, the building, or contents caused by natural disasters, including, but not limited to: earthquake, hail, lightning, hurricane, tornado, strong gale wind force (72 MPH or greater), or structural failure of the building or of the roof deck (as defined by a licensed Structural Engineer and except that caused by the Manufacturer), fire, and acts of war. If the roof system is damaged by reason of any of the foregoing, this warranty shall become null and void (AFFECTED AREAS ONLY) for the balance of the warranty period unless such damage is repaired at the expense of the owner.
3. Manufacturer is not liable for consequential damages to the building or contents resulting from any defects in said roof system, including, but without limitation, any interruption of business experienced by Owner or occupants of the building.

4. All additions and/or alterations to the roof system shall be installed in accordance with the manufacturer's written recommendations and the manufacturer should provide prior to acceptance to said additions or alterations. Should unauthorized additions/alterations be discovered by the Wal-Mart Roof Maintenance Department, the manufacturer will be notified in writing within fourteen days of such discovery. Provide at manufacturer's discretion an inspection of the unauthorized additions/alterations and notify the Owner in writing of any remedy required by the manufacturer within fourteen days. This Installation/Inspection by the Manufacturer is to be done at a cost to Wal-Mart Stores, Inc. of not more than \$500.00 to cover travel and time for the inspector. Provide inspection of said roof during business hours. Failure to notify the Owner of any required remedy shall deem the addition/alteration acceptable to the Manufacturer and the warranty will remain in effect.
5. The area of additions and/or alterations shall be the only area of the roof system where warranty is suspended. All other roof system areas will have continual coverage under the roof warranty.
6. This Warranty is transferable within the 10-year warranty period, subject to Manufacturer's inspection, written approval and transfer fee payment.
7. During the term of this warranty, the manufacturer, its agents and employees, shall have free and unlimited access to the roof during the hours of store operation.
8. The terms and conditions of this warranty are controlling. Any other warranty conditions attached or referenced that are in conflict with this warranty are ineffective and invalid.
9. This limited warranty shall be governed and construed in accordance with the laws of the State of Arkansas without regard to conflict of laws.
10. The Manufacturer does not warrant products incorporated or utilized in this installation that it has not furnished. The Manufacturer specifically disclaims liability under any theory of law arising out of the installation or performance of, or damages sustained by or caused by, products not furnished by the Manufacturer.

IN WITNESS WHEREOF, this instrument has been duly executed this ____ day of _____, _____.

By _____

END OF WARRANTY

ROOF INSPECTION INSTRUCTIONS

TOOLS AND SUPPLIES: Provide the following during inspections:

- Copy of roof plan and copy and specifications.
- Tape measure, metal thickness gauge, paint for marking defects on roof, roof coring tools and repair materials, and seam probe (to be supplied by Roofing Contractor).

INSPECTION PROCEDURE

- All undersigned parties shall accompany inspection.
- Inspect underside of decking from inside of building for proper insulation fastener spacing and sheet fastener spacing.
- Roof Inspection shall start at the parapet wall on the GM side of the building, at the back corner.
- Proceed around perimeter, (including TLE, Garden Center, etc).
- Continue across front wall and down sidewall at GR.
- Inspect all metal flashings, base and wall flashings, perimeter attachments, perimeter membrane sheet layout, parapet waterproofing membrane, and all accessories.
- Inspect condition of paint on exterior walls. Inspect CMU for proper paint coverage.
- Inspect all painted metals for proper coverage.
- Inspect back wall gutter or internal drainage system.
- Inspect field of roof system, beginning approx. 10' from back wall, walking side to side of building.
- Inspect roof area no more than 10 feet on each side of walking paths, from back, to front of building.
- Inspect all checklist items at field seams, flashings, RTUs, mechanical equipment, skylights, refrigeration units, gas lines, expansion joints, crickets, walkpads, and other roof accessories.
- Mark defects on roof by paint markings and identify each defect using corresponding defect number.
- After roof inspection is complete FAX signed inspection form to Wal-Mart Construction Manager within 24 hours.

COMPLETION OF CHECKLIST AND DEFECTS FORM

- Answer each checklist item Yes or No.
- Mark "N/A" on checklist items which do not apply.
- Identify defects on the Wal-Mart Deviation Log. (www.bldgportal.com, enter username and password, select Deviation Log)
- Number each defect as follows:
 - Identification Symbol-Checklist Item No.-Defect No. (E.g. MF-1-3)
 - Identification symbol and checklist item number shall correspond to the Roof Inspection Checklist. The defect number shall be numbered in sequence for each checklist item.
- Complete all applicable information in the Deviation Log including the resolution of each item.

ATTENDED BY:

GENERAL CONTRACTOR

(Printed name and title)

ROOFING CONTRACTOR

(Printed name and title)

MANUFACTURERS REP.

(Printed name and title)

WAL-MART CONST MGR.

(Printed name and title)

WAL-MART STORE MGR

(Printed name and title)

INDEPENDENT ROOFING INSPECTOR

(Printed name and title)

ROOF INSPECTION CHECKLIST

(GI) GENERAL:

- | | | | |
|--|--------|-------|--------|
| 1. Has the specified roof system been installed? | YES___ | NO___ | N/A___ |
| 2. Has all construction materials, trash, and other debris been removed from the roof? | YES___ | NO___ | N/A___ |
| 3. Have all punch list items been addressed and signed off? | YES___ | NO___ | N/A___ |
| 4. Is there any visible physical damage to roof? | YES___ | NO___ | N/A___ |
| 5. Are the RTU's numbered so they can be seen from the roof hatch? | YES___ | NO___ | N/A___ |
| 6. Is the roof hatch painted? | YES___ | NO___ | N/A___ |
| 7. Is the any roofing mastic or other foreign substance on roof membrane? | YES___ | NO___ | N/A___ |

(MF) MECHANICAL FASTENERS: (Check from inside building)

- | | | | |
|--|--------|-------|--------|
| 1. Is the insulation attachment pattern installed per manufacturers required spacing and pattern? | YES___ | NO___ | N/A___ |
| 2. Is the membrane sheet attachment in the seams at minimum 12" inches o.c. or per manufacturers required spacing? | YES___ | | |
| | NO___ | | |
| | N/A___ | | |
| 3. Are all seams mechanically attached? | YES___ | NO___ | N/A___ |

(PF) PERIMETER WALL FLASHING

Metal Flashing Types (Check all that apply)

- ☐ Embedded edge metal
- ☐ Metal cap flashing
- ☐ Wall/Parapet
- ☐ Coping
- ☐ Other
- ☐ Pre-finished metal
- ☐ Painted metal. Paint condition:

1. Has the edge metal fascia been attached with fastener spacing in 3" o.c. staggered?

YES___
NO___
N/A___

2. Is the edge metal fascia continuously attached to the cleat?

YES___
NO___
N/A___

3. Is the edge metal lapped a minimum of 4"?

YES___
NO___
N/A___

4. Have the laps been sealed?

YES___
NO___
N/A___

5. Is edge metal properly stripped into roof system?

YES___
NO___
N/A___

6. Has the metal been sealed at the flashing?

YES___
NO___
N/A___

7. Has the metal coping been fastened with neoprene gasket fasteners at 12" o.c.?

YES___
NO___
N/A___

(PW) PARAPET WALL MEMBRANE

1. Is the membrane fully adhered in all areas to the parapet walls?

YES___
NO___
N/A___

2. Are there any voids, wrinkles, or disbonded areas?

YES___

- NO___
N/A___
3. Has the termination bar been installed at the base flashing?
YES___
NO___
N/A___
4. Is the base flashing run onto the roof membrane and seam sealant used?
YES___
NO___
N/A___
5. Are corner flashings installed?
YES___
NO___
N/A___
6. Are there any open seams?
YES___
NO___
N/A___
7. Is the membrane terminated and sealed at parapet end wall conditions?
YES___
NO___
N/A___
8. Are all parapet end walls fully painted or flashed?
YES___
NO___
N/A___

(PA) PERIMETER MEMBRANE SHEETS ATTACHMENT

1. Have the required number perimeter sheets per system specification been installed?
YES___
NO___
N/A___
2. Are the fasteners spaced per the manufacturers requirements?
YES___
NO___
N/A___
3. Have T-Lap patches been installed at all T-joints?
YES___
NO___
N/A___
4. Have seams been properly sealed?
YES___
NO___
N/A___

(EW) EXTERIOR WALL PAINT (Inspect every 25' minimum.)

1. Is wall painted/sealed?
YES___
NO___
N/A___
2. Are there visible voids in the paint?
YES___
NO___
N/A___
3. Cracks in blocks or open mortar joints?
YES___
NO___
N/A___
4. Are walls painted behind downspouts?
YES___
NO___
N/A___

DRAINAGE SYSTEM (Check all that apply)

- ☐ Gutters and downspouts
☐ Interior drains ☐ Overflow drains ☐ Overflow scuppers
☐ Scuppers with leaders & downspouts ☐ Overflow scuppers

Specified gauge (Check all areas with gauge)

- Main roof area _____ gauge _____
- TLE _____ gauge _____
- Garden Center _____ gauge _____
- Receiving _____ gauge _____
- Other _____ gauge _____

(GD) GUTTERS AND DOWNSPOUTS

1. Is the specified type of metal installed?
 YES____
 NO____
 N/A____
2. Is the gutter sized as indicated on the drawings?
 YES____
 NO____
 N/A____
3. Is gutter holding water?
 YES____
 NO____
 N/A____
4. Is the gutter painted inside?
 YES____
 NO____
 N/A____
5. Are gutter straps installed every 36" o.c.?
 YES____
 NO____
 N/A____
6. Gutter expansion joints installed every 40' maximum?
 YES____
 NO____
 N/A____
7. Are the gutter outlets soldered to the gutter?
 YES____
 NO____
 N/A____
9. Are gutter brackets installed every 36" o.c.? (Inspect from the ground level) YES____
 NO____
 N/A____
10. Are the downspouts the specified size and configuration?
 YES____
 NO____
 N/A____
11. Are the downspout straps installed at top, center, and bottom?
 YES____
 NO____
 N/A____
12. Are the downspouts spaced as called out in the documents?
 YES____
 NO____
 N/A____
13. Have splash blocks been installed?
 YES____
 NO____
 N/A____
14. Have the downspouts been properly tied to the storm sewer?
 YES____
 NO____
 N/A____
15. Are joints in gutter leaking?
 YES____
 NO____

16. Are outlets in gutter leaking?
N/A____
YES____
NO____
N/A____

(RE) ROOF EDGE

1. Is gravel guard properly installed?
YES____
NO____
N/A____
2. Is gravel guard properly stripped into roof system?
YES____
NO____
N/A____
3. Is gravel guard prefinished or painted?
YES____
NO____
N/A____
4. Is the gravel guard nailed at 3"o.c. staggered?
YES____
NO____
N/A____
6. Is roof edge ponding water?
YES____
NO____
N/A____

(DR) INTERIOR DRAINS

1. Are the roof drains the specified diameter?
YES____
NO____
N/A____
2. Are the overflow drains the specified diameter?
YES____
NO____
N/A____
3. Does the roof drain outlet diameter match the diameter of the leader pipe?
YES____
NO____
N/A____
4. Has the roof membrane been properly trimmed inside the roof drain?
YES____
NO____
N/A____
5. Is the roof drain free of debris and draining properly?
YES____
NO____
N/A____
6. Has the insulation been tapered around the roof drains?
YES____
NO____
N/A____
7. Have the roof drains been checked for leaks inside the store?
YES____
NO____
N/A____
8. Has the wire mesh and draw band been installed over the over flow drain outlet?
YES____
NO____
N/A____
9. Are the roof drain strainers in place?
YES____
NO____
N/A____
10. Does ponding exist?
YES____
NO____
N/A____

(SC) SCUPPERS

1. Are scuppers the specified height and width?
YES___
NO___
N/A___
2. Are the scuppers located directly in line with the primary and over flow drains?
YES___
NO___
N/A___
3. Are they flush with the roof?
YES___
NO___
N/A___
4. Does ponding exist?
YES___
NO___
N/A___
5. Has the scupper box been installed and sealed to the wall?
YES___
NO___
N/A___
6. Are scuppers properly flashed to roof system?
YES___
NO___
N/A___

(JC) JIB CRANE

1. Is the jib crane located with unobstructed clear space below?
YES___
NO___
N/A___
2. Does the jib crane appear to be usable in a safe manner?
YES___
NO___
N/A___
3. Is safety chain installed?
YES___
NO___
N/A___
4. Is the ladder safety chain installed?
YES___
NO___
N/A___
5. Is GFI outlet installed within 6' reach of the jib hoist arm?
YES___
NO___
N/A___
6. Are walkway protection pads installed?
YES___
NO___
N/A___
7. Is parapet door in place (on raised parapet projects)?
YES___
NO___
N/A___

(CM) CAMERA MOUNTS

1. Are mounts attached and sealed to parapet wall?
YES___
NO___
N/A___
2. Are penetrations installed for each mount?
YES___
NO___
N/A___
3. Are specified flashings and conduit used and installed at wire penetrations?
YES___
NO___
N/A___
4. Is wiring for camera held off of the roof?
YES___
NO___
N/A___

(RM) ROOF FIELD MEMBRANE: (Seams should be checked in random areas for proper seals and voids. No wrinkles in seams will be acceptable.)

1. Has maximum width field sheet been used? (7' EPDM / 8' TPO)
YES___
NO___
N/A___
2. Are all seams properly lapped and sealed?
YES___
NO___
N/A___
3. Are T-lap patches in place at all T-Laps?
YES___
NO___
N/A___
4. Are all edges of cut sheet sealed?
YES___
NO___
N/A___
5. Do wrinkles exist in any laps?
YES___

- NO___
N/A___
6. Does any ponding exist in roof area?
YES___
NO___
N/A___
7. Is membrane shingled properly with the slope of the roof?
YES___
NO___
N/A___

(RI) ROOF INSULATION

1. Is insulation the specified thickness? (To be checked when making roof cores.)
YES___
NO___
N/A___
2. Are there visible gaps in the insulation boards?
YES___
NO___
N/A___
3. Is there any ponding along horizontal insulation joints?
YES___
NO___
N/A___
4. Are there any voids or missing insulation?
YES___
NO___
N/A___

(RTU) ROOF TOP UNITS & REFRIGERATION UNITS FLASHINGS:

1. Are base flashings fully adhered to curb?
YES___
NO___
N/A___
2. Are corner flashings on curbs installed?
YES___
NO___
N/A___
3. Are seams to roof membrane sealed with no voids or wrinkles?
YES___
NO___
N/A___
4. Are crickets installed to divert water around unit?
YES___
NO___
N/A___
5. Are counterflashings installed and properly attached?
YES___
NO___
N/A___
6. Are walkpads installed as per the documents?
YES___
NO___
N/A___
7. Are condensation P-traps installed on all units?
YES___
NO___
N/A___

(SK) SKYLIGHTS:

1. Are base flashings fully adhered to curb?
YES___
NO___
N/A___
2. Are corner flashings on curbs installed?
YES___
NO___
N/A___
3. Are seams to roof membrane sealed with no voids or wrinkles?
YES___
NO___

4. Are crickets installed to divert water around unit?
N/A___
YES___
NO___
5. Are counterflashings installed and properly attached?
N/A___
YES___
NO___
6. Are skylights attached to curbs at 12"o.c.?
N/A___
YES___
NO___
7. Do screws have neoprene washers?
N/A___
YES___
NO___
8. Are any cracks visible in domes?
N/A___
YES___
NO___
9. Is there moisture between domes?
N/A___
YES___
NO___
10. Are any of the units damaged?
N/A___
YES___
NO___
11. Are any of the corners open?
N/A___
YES___
NO___

(GL) GAS LINES:

1. Are gas lines painted?
YES___
NO___
N/A___
2. Is blocking spaced under line at 8' o.c max.?
YES___
NO___
N/A___
3. Is blocking located within 2' of RTU?
YES___
NO___
N/A___
4. Is blocking located within 1'-6" of each corner?
YES___
NO___
N/A___
5. Are protection pads under each block?
YES___
NO___
N/A___
6. Are protection pads the correct size and fully adhered?
YES___
NO___
N/A___
7. Are pipe clamps correct sizes and installed per the documents?
YES___
NO___
N/A___
8. Are gas pipe dirt legs touching roof?
YES___
NO___
N/A___

(EJ) ROOF EXPANSION JOINTS

1. Is the expansion joint installed?
YES___
NO___
N/A___
2. Is the joint properly terminated at the parapet at the front?
YES___
NO___
N/A___
3. Is the joint properly terminated at the rear?
YES___
NO___
N/A___
4. Is the joint properly flashed to roof system?
YES___
NO___
N/A___
5. Are there any open seams?
YES___
NO___
N/A___

(MI) MISCELLANEOUS ITEMS

1. Are soil stacks properly flashed and clamps installed?
YES___
NO___
N/A___
2. Are roof jacks properly flashed and collars sealed?
YES___
NO___
N/A___
3. Are protection pads under support?
YES___
NO___
N/A___

SECTION 07611 – SHEET METAL SOFFIT

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Preformed metal soffit panels.
- B. Related Sections:
 - 1. Section 05400 - Cold Formed Metal Framing: Steel framing supporting metal soffit.

1.2 REFERENCES

- A. The publications listed below form a part of this specification to the extent referenced. Publications are referenced within the text by the basic designation only.
- B. American Architectural Manufacturer's Association (AAMA):
 - 1. AAMA 2605 - Specifications, Performance Requirements And Test Procedures For Superior Performing Organic Coatings And Aluminum Extrusions And Panels.
- C. ASTM International (ASTM):
 - 1. ASTM A 755/A - Steel Sheet, Metallic Coated by the Hot-Dip Process and Prepainted by the Coil-Coating Process for Exterior Exposed Building Products.
 - 2. ASTM A 792 - Steel Sheet, 55% Aluminum-Zinc Alloy-Coated by the Hot-Dip Process.

1.3 DELIVERY, STORAGE AND HANDLING

- A. Section 01600 - Product Requirements: Transport, handle, store, and protect products.
- B. Protect panels from accelerated weathering by removing or venting sheet plastic shipping wrap.
- C. Deliver panels to site in dry and undamaged condition. Unload and handle in accordance with manufacturer's published instructions.
- D. Store panels off ground protected from weather, to prevent twisting, bending, or abrasion, and to provide ventilation.

PART 2 - PRODUCTS

2.1 METAL SOFFIT

- A. Metallic-Coated Steel Sheet:
 - 1. Steel Sheet with Organic Coating Finish: Steel sheet metallic coated by the hot-dip process and prepainted by the coil-coating process to comply with ASTM A 755.
 - 2. Steel Sheet with Aluminum or Galvalume Finish: Aluminum-Zinc Alloy-Coated Steel Sheet: ASTM A 792, Class AZ50 coating designation, Grade 40; structural quality.
- B. Manufacturer: Subject to compliance with requirements, provide product equivalent to those specified by any one of the following manufacturers:
 - 1. AEP-SPAN; Dallas, TX (800) 527-2503.
 - 2. Berridge Manufacturing Co., Houston, TX (800) 231-8127.
 - 3. Fabral Metal Roof and Wall Systems, Lancaster, PA (800) 884-4484.
 - 4. MBCI: Houston, TX (800) 861-6224.
 - 5. McElroy Metal, Bossier City, LA (800) 950-6531.

6. PAC-CLAD, Petersen Aluminum Corporation, Elk Grove Village, IL (800) 722-2523.

C. Description:

1. Exterior Soffit (Prefinished metal soffit panels, as required to match existing):
 - a. L-Panel by Berridge, 24 gage steel grooved panels, concealed fasteners. Panel profile shall be approximately 12" panel width, 1" panel depth, 3" groove spacing or similar panel profile by any named manufacturer.
 - b. Flush Panel with One Rib, 24 gage steel, Flush Panel FP-1 by AEP-SPAN or equal.
2. Garden Center Awning Soffit (If shown on Drawings): Flush Panel with Vent Perforations, .032 aluminum panel, Marquee II, Flat Pan with Perforations by McElroy Metals or equal. Seam Spacing: 12 Inches.

D. Substitutions: Not permitted.

2.2 ACCESSORIES

- A. Provide manufacturer's standard accessories and other special items required and essential to completeness of soffit installation. Sight-exposed accessories shall match finish of metal soffit system.
1. Trim Items: Of same material and finish as soffit sheets.
 2. Fasteners: As recommended by soffit system manufacturer for intended purpose.
 3. Sealants: Color coordinated primerless silicone or high grade non-drying butyl, recommended by panel manufacturer.

2.3 FABRICATION

- A. Factory fabricate and finish panels and accessories ready for field assembly.
- B. Form sections true to shape, accurate in size, square, and free from distortion.
- C. Fabricate panels in one piece. Fabricate accessories in longest practicable lengths.

2.4 FINISHES

- A. Exterior Soffit: Factory finish surfaces with high performance pigmented organic coating. Prepare, pretreat, and apply coating to exposed metal surfaces in conformance with coating and resin manufacturer's instructions providing finish free of scratches and other blemishes.
1. Finish: Manufacturer's standard 2-coat, thermocured system composed of specially formulated inhibitive primer and fluoropolymer color topcoat containing minimum of 70 percent Penwalt Kynar 500 resin by weight with total minimum dry film thickness of 1.0 mil and 30 percent reflective gloss when tested in accordance with ASTM D523 and complying with physical properties and coating performance requirements of AAMA 2605, except Humidity Resistance and Salt Spray Resistance shall be 2000 hours.
 2. Color: Match Regal White by AEP-SPAN.
- B. Garden Center Awning Soffit: Aluminum finish without additional coating.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine building structure and adjacent areas where panels will be installed. Do not proceed with Work until unsatisfactory conditions have been corrected.
1. Examine soffit structure to verify that structure is ready for soffit panel installation.
 2. Verify field dimensions to determine compliance with panel manufacturer's tolerances.
- B. Beginning of installation indicates acceptance of existing conditions.

3.2 INSTALLATION

- A. Install soffit panels in accordance with manufacturer's published instructions.
- B. Secure panel in place with concealed fasteners.
- C. Interlock panels and secure in place to prevent warping and wracking.
- D. Back paint surfaces in contact with dissimilar materials.

3.3 FIELD QUALITY CONTROL

- A. Inspect soffit panel installation, alignment, attachments, trim, and accessories.

3.4 CLEANING

- A. Wipe clean each soffit panel after erection.
- B. Replace damaged panels and other components of Work, which cannot be repaired by finish touch-up or similar minor repairs.
- C. Remove from finished surface, filing caused by drilling and cutting of panels.

END OF SECTION

SECTION 07620 – SHEET METAL FLASHING AND TRIM

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Fascia and roof edge trim.
2. Counterflashing over base flashing.
3. Metal parapet cap.
4. Standing Seam Metal Panel Parapet Coping.
5. Door hoods.
6. Expansion joint covers (If shown on Drawings).
7. Refrigeration line hood.

B. Related Sections:

8. Section 04220 - Concrete Masonry Units: Metal reglets for masonry.
9. Section 06100 - Rough Carpentry: Wood blocking and nailers.
10. Section 07530 - Elastomeric Membrane Roofing: Roof penetration flashing and seals.
11. Section 07711 - Gutters and Downspouts.
12. Section 07900 - Joint Sealers.
13. Section 09900 - Paints and Coatings.

1.2 REFERENCES

- A. The publications listed below form a part of this specification to the extent referenced. Publications are referenced within the text by the basic designation only.
- B. American Architectural Manufacturers Association (AAMA):
 14. AAMA 621 - Voluntary Specifications for High Performance Organic Coatings on Coil Coated Architectural Hot Dipped Galvanized (HDG) and Zinc-Aluminum Coated Steel Substrates.
- C. ASTM International (ASTM):
 15. ASTM A 653 - Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
 16. ASTM A 755/A - Steel Sheet, Metallic Coated by the Hot-Dip Process and Prepainted by the Coil-Coating Process for Exterior Exposed Building Products.
 17. ASTM A 792/A - Steel Sheet, 55% Aluminum-Zinc Alloy-Coated by the Hot-Dip Process.
 18. ASTM B 749 - Lead and Lead Alloy Strip, Sheet, and Plate Products.
 19. ASTM D 523 - Standard Test Method for Specular Gloss.
 20. ASTM D 4586 - Specification for Asphalt Roof Cement, Asbestos Free.
- D. National Roofing Contractors Association (NRCA):
 21. NRCA - Low Slope Roofing Manual.
- E. Sheet Metal and Air Conditioning Contractors National Association (SMACNA):
 22. SMACNA - Architectural Sheet Metal Manual, Fifth Edition, 1993.
- F. Steel Structures Painting Council (SSPC):
 23. SSPC-Paint 12 - Cold-Applied Asphalt Mastic (Extra Thick Film).

1.3 SUBMITTALS

- A. Contract Closeout Submittals: Submit the following under provisions of Section 01770.
 - 24. Letter of Certification: Submit certification from sheet metal supplier verifying quality of galvanized steel sheet materials.

1.4 QUALITY ASSURANCE

- A. Perform work in accordance with SMACNA "Architectural Sheet Metal Manual" and NRCA "Low Slope Roofing Manual" standard details and requirements.
- B. Supplier Certification: Provide certification from galvanized sheet steel supplier stating that materials conform to ATSM A 653, G90 hot-dipped galvanized steel.

1.5 DELIVERY, STORAGE AND HANDLING

- A. Stack preformed material to prevent twisting, bending, or abrasion, and to provide ventilation.
- B. Prevent contact with materials during storage that may cause discoloration, staining, or damage.

PART 2 - PRODUCTS

2.1 SHEET MATERIALS

- A. Galvanized Steel: ASTM A 653 Commercial Quality and Lock-Forming Quality, G90 hot-dip galvanized, mill phosphatized for painting where exposed to view from ground level. Sheet metal gages shall be as shown or as follows where not shown:
 - 25. Flashing and Counter Flashing: 24 gage.
 - 26. Fascia and Edge Trim: 24 gage.
 - 27. Door Hood: 18 gage.
 - 28. Expansion Joint Cover - Roof to Roof (If shown on Drawings): 24 gage.
 - 29. Refrigeration Line Hood: 18 gage.
- B. Prefinished Sheet Metal: 24 gage; Aluminum-Zinc Alloy-Coated Steel Sheet, ASTM A 792/A, Class AZ50 coating designation, Grade 40, structural quality, UL90 rated panels, and prepainted by the coil-coating process to comply with ASTM A 755/A.
- C. Finish: Smooth panel with factory finished baked-on fluoropolymer 2-coat coating system (Unless shown to be painted per Section 09900).
 - 30. Manufacturer's standard 2-Coat Fluoropolymer conforming to AAMA 621. Fluoropolymer finish containing not less than 70 percent Kynar 500 PVDF resin by weight in color coat with a minimum of 0.9 mil dry film thickness. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.
 - 31. Unexposed side finish shall consist of not less than a 0.5 mil dry film thickness backer coat.
 - 32. Color: As shown on Drawings.

2.2 ACCESSORIES

- A. Fasteners: Galvanized steel finish exposed fasteners to match flashing metal. Furnish exposed fasteners with soft EPDM washers as manufactured by the following:
 - 33. Tap - Fast Screws, by Hilti.
 - 34. Trugrip GT, by ITW Buildex.
- B. Sealant: Specified in Section 07900.

- C. Sealing Mastic: Single component gun grade butyl or polyurethane sealant as recommended by roofing manufacturer.
- D. Bituminous Coating: SSPC - Paint 12, solvent-type bituminous mastic, nominally free of sulfur, compounded for 15 mil dry film thickness per coat.
- E. Draw Band: Stainless steel.

2.3 FABRICATION

- A. Form sections true to shape, accurate in size, square, and free from distortion or defects.
- B. Fabricate cleats of same material as sheet, interlockable with sheet.
- C. Form pieces in longest possible lengths.
- D. Hem exposed edges on underside 1/2 inch; miter and seam corners.
- E. Fabricate corners to form one piece with minimum 18 inches long legs; rivet for rigidity.
- F. Fabricate vertical faces with bottom edge formed outward 1/4 inch and hemmed to form drip.
- G. Fabricate flashings to allow toe to extend 4 inches over roofing. Return and brake edges.
- H. Fabricate exposed sheet metal components with provisions for thermal expansion.

2.4 FINISH

- A. Paint metal surfaces exposed to view from ground level in accordance with Section 09900, and as indicated on Drawings, unless otherwise shown to be prefinished.

PART 3 - EXECUTION

3.1 INSPECTION

- A. Verify roof openings, curbs, pipes, sleeves, ducts, or vents through roof are solidly set.
- B. Verify roofing membrane termination and base flashings are in place, sealed, and secure.
- C. Beginning of installation means acceptance of existing conditions.

3.2 PREPARATION

- A. Field measure site conditions prior to fabricating work.
- B. Install starter and edge strips, and cleats before starting installation.

3.3 INSTALLATION

- A. Install sheet metal flashing and trim in accordance with applicable details of SMACNA "Architectural Sheet Metal Manual" and NRCA "Low Slope Roofing Manual". Anchor units of work securely in place by methods indicated, providing for thermal expansion of metal units; conceal fasteners where possible, and set units true to line and level. Install work with laps, joints, and seams that will be permanently watertight and weatherproof.
- B. Bed flanges of metal flashings in plastic cement or sealing mastic where required for waterproof performance.

- C. Apply bituminous coating on surfaces in contact with dissimilar materials including the following:
 - 35. Dissimilar metals as defined in SMACNA Appendix A-3.
 - 36. Preservative treated wood.
- D. Roof Edge Trim:
 - 37. Install sheet metal edge trim in accordance with SMACNA Figure 2-1, profile as indicated on Drawings. Nail edge trim flange at 3 inches on center, in staggered pattern.
 - 38. Thermal Expansion Joints: Install roof edge trim in 10 foot lengths with a 1/4 inch gap joint with a 6 inch cover plate in accordance with SMACNA Figure 2-5A. Set the cover plate in sealant, nail through opening in edge trim, and loose lock to the drip edge.
 - 39. Corner Joints: Notch and lap. Set laps in sealant and rivet for rigidity. Space rivets at 1 inch on center.
- E. Parapet Cap Flashing – Option A:
 - 40. Install sheet metal fascia with cleat in accordance with SMACNA Figure 2-6, profiles and as indicated on Drawings.
 - a. Set cleat in full bed of sealant, overlaying and concealing continuous parapet waterproofing membrane.
 - b. Secure cleat to nailer at 6 inches on center.
 - c. Secure fascia to wood nailer with fasteners at 3" o.c. staggered per basic flange nailing pattern.
 - 41. Thermal Expansion Joints: Install parapet fascia in min 10 foot lengths with 4 inch lap joint in accordance with SMACNA Figure 2-5B. Set lap in sealant.
- F. Parapet Cap Flashing – Option B:
 - 42. Install sheet metal coping with continuous cleat in accordance with SMACNA requirements, profiles as indicated.
 - a. Set cleat in full bed of sealant, overlaying and concealing continuous parapet waterproofing membrane.
 - b. Secure cleat at 6 inches on center to nailer.
 - 43. Install coping in accordance with SMACNA Figure 3-1 over shaped fiber board; secure roof side edge using washers screws in staggered pattern through slotted or oversized holes located at maximum 12" on-center.
 - 44. Provide coping in minimum 10 foot lengths.
 - 45. Provide thermal expansion joints using joints in accordance with SMACNA Figure 3-3, Covered Plate Seam. Set lap in beds of sealant.
- G. Expansion Joint Cover (If shown on Drawings):
 - 46. Roof-To-Roof Expansion Joint: Install galvanized sheet metal joint cover in accordance with NRCA Detail MB-9, profile as indicated on Drawings. Form cap pieces in sections not exceeding 12 feet and join with standing seams held in place by cleats in accordance with SMACNA Figure 5.5A.
- H. Door Hood: Install galvanized sheet metal hood with 3/8-inch expansion bolts at 16 inches on center and as indicated on Drawings.
- I. Refrigeration Line Hood: Install galvanized sheet metal hoods with 3/8 inch expansion bolts at 16 inches on center and as indicated on Drawings.
- J. Reglet and Counterflashing System:
 - 47. Surfaced Mounted Reglet:
 - a. Set reglet parallel to roof line in full bed of sealant. Provide minimum 2 inch end lap at continuous elevations.
 - b. Secure to wall with neoprene/stainless steel washers and drive pins at maximum 16 inches on center.
 - c. Provide a continuous, full bead of sealant at top edge of reglet between flashing and wall. Sealant bead shall be of sufficient width to provide a 45 degree angle with vertical surface.
 - 48. Masonry Joint Reglet: Specified in Section 04220.

49. Counterflashing: Provide counterflashing of the type indicated or required to match reglet system. Insert counterflashings into reglets to form tight fit. Counterflashing shall be installed in such a manner as to provide for continuous contact at base flashing with sufficient pressure at point of contact to prevent dislocation. Lap inside corners. Notch and hook-seam outside corners. Set laps and seams in sealant.
- d. Provide minimum 2" end lap at continuous elevations.
 - e. Change in elevation of 4", provide 8" end lap.
 - f. Change in elevation of 8", provide 12" end lap.

END OF SECTION

SECTION 07711 – GUTTERS AND DOWNSPOUTS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Galvanized steel gutters and downspouts, with expansion joints.
 - 2. Downspout collectors.
 - 3. Through-wall scuppers.
 - 4. Conductor heads.
- B. Related Sections:
 - 1. Section 07620 - Sheet Metal Flashings and Trim.
 - 2. Section 07900 - Joint Sealers.
 - 3. Section 09900 - Paints and Coatings: Field painting of metal surfaces.

1.2 REFERENCES

- A. The publications listed below form a part of this specification to the extent referenced. Publications are referenced within the text by the basic designation only.
- B. ASTM International (ASTM):
 - 1. ASTM A123 - Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
 - 2. ASTM A283 - Low and Intermediate Tensile Strength Carbon Steel Plates.
 - 3. ASTM A653 - Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
- C. Sheet Metal and Air Conditioning Contractors National Association (SMACNA):
 - 1. Architectural Sheet Metal Manual.
- D. Steel Structures Painting Council (SSPC):
 - 1. SSPC - Paint 12 - Cold-Applied Asphalt Mastic (Extra Thick Film).

1.3 QUALITY ASSURANCE

- A. Nominal sizing of components for rainfall intensity determined by a storm occurrence of 1 in 5 years shall be as indicated on Drawings.

1.4 DELIVERY, STORAGE AND HANDLING

- A. Stack preformed materials to prevent twisting, bending, or abrasion, and to aid ventilation. Slope to drain.
- B. Prevent contact with materials during storage which may cause discoloration, staining, or damage.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Galvanized Steel Sheet: ASTM A 653 Structural Quality, Grade 33, G90 zinc coating.
- B. Galvanized Steel Plate: ASTM A283, Grade A; hot-dipped galvanized G90 coating complying with ASTM A123.

2.2 COMPONENTS

- A. Hanging Gutters: Fabricate to cross section indicated, complete with end pieces, outlet tubes, and other accessories as required. Fabricate in minimum 96-inch long sections. Furnish flat-stock gutter spacers and gutter brackets fabricated from same metal as gutters, of size recommended by SMACNA but not less than twice the gutter thickness. Fabricate expansion joints, expansion joint covers, and gutter accessories from same metal as gutters. SMACNA rectangular profile, Figure 1-2, Style D, gauge as follows:
 - 1. 8"x 8" or larger: 22 gauge.
 - 2. Smaller than 8" x 8": 24 gauge.
- B. Downspouts: 22 gauge, size as indicated on Drawings; SMACNA rectangular. Fabricate downspouts complete with mitered elbows. Furnish with metal hangers, from same material as downspouts, and anchors. Downspouts shall be fully enclosed profile, Figures 1-32B.
- C. Through-Wall Scuppers: SMACNA Figure 1-26.
- D. Overflow Scuppers: SMACNA Figure 1-30.
- E. Conductor Head: SMACNA Figure 1-25F.

2.3 ACCESSORIES

- A. Gutter Brackets: Galvanized steel plate, 3/16 inch thick by 2 inches wide bent plate.
- B. Gutter Spacer Clip: Galvanized steel sheet, gauge to match gutter.
- C. Gutter Strap: Galvanized steel sheet, size and spacing as shown on Drawings.
- D. Downspout/Gutter Connections: SMACNA rectangular profile, Figure 1-33B, Detail 1, gauge to match gutter.
- E. Downspout Straps: Galvanized steel sheet; 20 gauge, SMACNA Figure 1-35G.
- F. Bituminous Coating: SSPC - Paint 12, solvent-type bituminous mastic, nominally free of sulfur, compounded for 15 mil dry film thickness per coat.
- G. Sealant: Specified in Section 07900.
- H. Splash Blocks: Precast concrete units, minimum 3000 psi at 28 days, with 5 percent air entrainment, size and profile to suit application.
- I. Downspout Collectors: Pipe material, sizes, connections, dimensions and profiles to suit downspouts and underground storm drainage system as indicated on drawings.

2.4 FABRICATION

- A. Field measure site conditions prior to fabricating work.
- B. Form gutters and downspouts of size indicated on Drawings.
- C. Form scuppers and overflow scuppers of size and clear dimensions indicated on Drawings.
- D. Fabricate in accordance with SMACNA details unless otherwise shown.
- E. Provide gutter spacers at spacing shown. Fasten to front and back of gutter.

- F. Form sections square, true, and accurate in size, in maximum possible lengths and free of distortion or defects detrimental to appearance or performance. Allow for expansion at joints.
- G. Hem exposed edges of metal.
- H. Field Finishing: Field paint gutter, downspouts, and accessories surfaces exposed to view from ground surface. Paint in accordance with Section 09900.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify that surfaces are ready to receive work and conditions are acceptable.
- B. Verify surfaces behind gutters and downspouts are painted prior to installation. Gutters, downspouts, and conductor heads shall not be in place while surfaces behind such items are being painted.
- C. Beginning of installation indicates acceptance of existing conditions and substrate.

3.2 INSTALLATION

- A. Install gutters, brackets, and accessories in accordance with SMACNA Figure 1-12. Match existing installation.
 - 1. Gutter Brackets: Space alternately with gutter spacers at 36 inches on center.
 - a. Attachment to Masonry: Anchor to masonry bond beam with (2) 1/2" diameter expansion bolts. Space anchor bolts minimum of 3 inches apart.
 - b. Attachment to Steel: Weld to steel tube section with 3/16 inch by 2 inches fillet weld, both sides of bracket. Begin weld at top of bracket.
- B. Install downspouts in accordance with SMACNA Figure 1-35A, space straps at 48 inches on center.
- C. Provide lap type gutter expansion joint in accordance with SMACNA Figure 1-6. Locate joints at a maximum spacing of 40 feet with at least one expansion joints in each segment of gutter between ends and/or downspouts.
- D. Apply bituminous coating on surfaces in contact with dissimilar materials including the following:
 - 1. Dissimilar metals as defined in SMACNA Appendix A-3 and backside of conductor heads, gutters and downspouts.
 - 2. Preservative treated wood.
- E. Lap gutter joints 2 inches, set laps in bead of sealant, and rivet at 1 inch on center.
- F. Install conductor heads and downspouts after application of exterior wall coating. Locate top of conductor head 1" below primary scupper opening to permit drainage.
- G. Install scuppers in accordance with SMACNA Figure 1-26. Install scuppers before installation of roofing membrane. Do not encumber clear opening with flashings, cants or roofing materials. Ensure bottom of overflow scupper is 2" above bottom or main scupper as required by adopted Building Code.
- H. Install strainers as required.

END OF SECTION

SECTION 07721 – MANUFACTURED CURBS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Manufactured structural and non-structural metal roof curbs.
 - 2. Coordination with manufacturers and suppliers of roof mounted items and equipment.
- B. Products Installed but not Supplied Under the Section: Under provisions of Section 01640, Owner's supplier will furnish structural roof curbs and associated wind seismic restraint brackets (when required) for installation by the Contractor.
 - 1. Non-Structural roof curbs shall be Contractor furnished and installed.
 - 2. Descriptions and specifications of Owner furnished items and equipment hereinafter are included as information to the Contractor only and are not to be considered as Contractor requirements unless otherwise stated.
- C. Related Sections:
 - 1. Section 05120 - Structural Steel: Roof opening frames and headers.
 - 2. Section 05210 - Steel Joists: Joists supporting roof curbs.
 - 3. Section 07530 - Elastomeric Membrane Roofing: Board insulation for roof curbs.
 - 4. Section 07620 - Sheet Metal Flashing Trim: Sheet metal flashing installed in conjunction with roof penetration curbs.
 - 5. Section 08631 - Metal Framed Fixed and Venting Skylights.
 - 6. Section 15700 - Heating, Ventilating and Air Conditioning Equipment.
 - 7. Section 15800 - Air Distribution: Grease duct exhaust fan curbs supplied by grease duct manufacturer.

1.2 REFERENCES

- A. The publications listed below form a part of this specification to the extent referenced. Publications are referenced within the text by the basic designation only.
- B. American Welding Society (AWS): AWS D1.1 - Structural Welding Code.
- C. ASTM International (ASTM):
 - 1. ASTM A 463 - Specification for Steel Sheet, Cold Rolled, Aluminum Coated Type 1 and Type 2.
 - 2. ASTM A 653 - Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
 - 3. ASTM A 792 - Specification for Steel Sheet, Fifty-Five Percent Aluminum-Zinc Alloy-Coated by the Hot-Dip Process.
- D. Steel Structures Painting Council (SSPC):
 - 1. SSPC-Paint 20 Zinc Rich Coating Type I - Inorganic and Organic.

1.3 DEFINITIONS

- A. Structural Roof Curb: Manufactured square or rectangular roof curb, bearing on structural steel joists or headers, designed to support equipment dead load and roof dead and live loads.
- B. Non-Structural Roof Curb:
 - 1. Deck Penetrations - 10 Inches by 10 Inches or Less: Manufactured square or rectangular roof curb, bearing on top of metal roof deck, designed to receive sheet metal flashing skirt, not used for support of equipment.

2. Deck Penetrations - Greater Than 10 Inches by 10 Inches: Manufactured square or rectangular roof curb bearing on structural steel angle frame, designed to support equipment dead load. Roof dead and live load supported by structural angle frame.
3. Expansion Joints (If shown on Drawings): Manufactured linear roof curb, bearing on top of metal roof deck, designed to receive expansion joint cover.

1.4 QUALITY ASSURANCE

- A. Qualifications for Welding Work: Qualify field welding operators in accordance with AWS Standard Qualification Procedures. Provide certification that field welders have satisfactorily passed AWS qualification tests within previous 12 months.
 1. If recertification of welders is required, provide without additional cost to Wal-Mart.
- B. Structural Curbs: Provide manufactured metal roof curbs designed by a licensed engineer. Meet or exceed Live Loads and Dead Loads as specified in this Section and as indicated on Drawings. Coordinate curb dimensions with shop drawings of equipment to be supported.

1.5 DELIVERY, STORAGE AND HANDLING

- A. Ship curbs to site palletized and banded.
- B. Curb manufacturer shall furnish Curb Schedule to Contractor identifying curb "Type" and roof penetration for which curb is to be used. Curb Schedule shall identify identical curbs as single "Type" (i.e., Type A - 10 ton RTU's, Type B - 5 ton RTU's, etc.). Identify each curb with "Type" designation painted in 1 inch high letters on outside face of curb.
- C. Stack curbs at site to prevent twisting, bending or permanent deformation.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Structural Roof Curbs (including Curb Adaptors if shown on Drawings): Wal-Mart supplier for structural roof curbs will be as follows:
 1. AES Industries, Tallassee, AL, Contact Chad Burt (800) 786-0402.
- B. Non-Structural Roof Curbs: Subject to compliance with project requirements, provide prefabricated metal roof curbs manufactured by one of the following:
 1. AES Industries, Tallassee, AL, Contact Chad Burt (800) 786-0402.

2.2 MATERIALS

- A. Sheet Steel: One of the following at Contractor's option:
 1. Galvanized Steel Sheet: ASTM A 653, SS (Structural Steel) Classification, Grade 33, G60 hot-dip zinc coating.
 2. Aluminum-Coated Steel Sheet: ASTM A 463, SS (Structural Steel) Classification, Grade 33, Type 2, T2 100 aluminum coating.
 3. Aluminum Zinc Alloy-Coated Steel Sheet (GAVALUME): ASTM A 792, AZ55 aluminum zinc alloy coating.
- B. Board Insulation: Specified in Section 07511, 07530, or 07550 as applicable.
- C. Wood Nailers: CCA Pressure Treated Lumber Type C, "Standard" grade lumber of any species.
- D. Zinc-Rich Primer: SSPC-Paint 20 Type II.

E. Deck Support Clip: Galvanized steel sheet, gauge as shown.

F. Alkyd Finish Paint:

1. Primer: One coat PPG Multigrip Epoxy Ester Dry Fog #6-157.
2. Finish: One coat PPG Speedhide Super-Tech Dry Fog Coating, Eggshell # 6-151.

2.3 STRUCTURAL ROOF CURBS (OWNER FURNISHED - CONTRACTOR INSTALLED)

A. Structural roof curbs will be furnished by Owner for installation by Contractor. The following describes the Owner furnished curbs.

B. Fabrication, General: Coated 14 gauge steel sheet curb sections, corners fully mitered and welded; 2 inch by 4 inch (nominal dimension) pressure treated continuous wood nailers mechanically fastened with corrosion resistant fasteners at 12 inches on center to exterior face of curb. Shop prime welded connections with zinc-rich paint complying with SSPC-Paint 20.

C. Web Height: Comply with local code requirements for minimum curb height, but in no case shall curb height be less than 14 inches, as measured from top of bar joist to top of curb, nor shall curb height be less than 8 inches as measured from top of roof membrane to top of curb.

D. Reinforce curb sections as required for design loads indicated on Drawings.

E. Welding: AWS D1.1.

F. HVAC Unit Curbs: Label curbs with "FRONT" designating the curb orientation to the front of store prior to shipment. HVAC curbs will be provided as follows as applicable:

1. Roof Top Unit (RTU) Curbs: Provide continuous height rail curbs. It is acceptable for units to follow roof slopes not exceeding 1/4 inch per foot, unless noted otherwise on structural drawings.
2. Make-Up Air Unit (MAU) Curbs: Provide tapered rail curbs. Construct curb for MAU to be level (verify roof slope).
3. Air Handling Unit (AHU) Curbs: Provide tapered rail curbs. Construct curb for AHU to be level (verify roof slope).
4. Double roof slope curbs: Provide tapered rail curbs for level mounting of RTUs when located in a double sloped section of roof as shown on the structural roof plan. Curbs fabricated for double sloped installation shall be clearly marked by the manufacturer to indicate for special application.

G. Fixed and Venting Skylight Curbs:

1. Internal Support Frame for Safety Screen: 14 gage, 3/4"x3/4" maximum galvanized steel support angle to interior perimeter walls of curb, recessed from top flange 3/4" minimum. Internal support frame for safety screen to be welded to curb at 12" on center with minimum 1" welds.
2. Safety Screen: Shop fabricated 3/16 inch cold rolled galvanized steel rods welded in 6 inch by 6 inch grid pattern. Weld screen to internal support frame at each grid point. Do not mount safety screen on top of curb nor attached to curb wall. For venting skylights when used, allow room at top inside face of curb for smoke vent installation. Internal support frame and screen shall have been tested to withstand impact of 245 pound lead weight, 10-3/4 inch diameter, dropped from height of 3 feet and support concentrated load of 600 pounds after impact.

H. Shop Painting: Shop finish interior surfaces of curbs including safety screen; PPG dry fog coating as specified; color to match Sherwin-Williams #SW 2537 "Blossom White".

2.4 NON-STRUCTURAL ROOF CURBS

- A. Coated 18 gauge steel sheet curb sections, corners fully mitered and welded; 2 inch by 4 inch (nominal dimension) pressure treated continuous wood nailers mechanically fastened at 12 inches on center to exterior face of curb. Shop prime welded connections with zinc-rich paint complying with SSPC-Paint 20. Profile and dimensions shall be as shown.
 - 1. Web Height: Comply with local code requirements for minimum curb height, but in no case shall curb height be less than 18 inches for deck penetrations greater than 10 inches by 10 inches and not less than 14 inches for deck penetrations 10 inches by 10 inches or less as measured from top of steel roof deck to top of curb, nor shall curb height be less than 8 inches as measured from top of roof membrane to top of curb.
- B. Expansion Joints (If shown on Drawings): Coated 14 gauge steel sheet curb sections; 2 inch by 4 inch (nominal dimension) pressure treated continuous wood nailers mechanically fastened at 12 inches on center to exterior face of curb.
 - 1. Bottom Flange Width: 9 inches.
 - 2. Web Height: Comply with local code requirements for minimum curb height, but in no case shall curb height be less than 16 inches as measured from top of steel roof deck to top of curb, nor shall curb height be less than 8 inches as measured from top of roof membrane to top of curb.

2.5 WIND/SEISMIC RESTRAINT BRACKETS

- A. When noted on the Mechanical Rooftop HVAC Unit Schedules, provide wind and seismic restraint brackets for anchorage of rooftop HVAC units to curbs. Bracket section at curb attachment shall be 10 gauge galvanized steel and extend under the unit base rail. Bracket section at base rail attachment shall be 18 gauge galvanized steel, factory welded to 10 gauge section with 1 inch puddle welds. Bracket sections shall be pre-punched for fastener attachment to curb and unit base rail. Brackets shall be mechanically fastened with corrosive resistant fasteners to interior of curb and exterior of unit base. Design brackets to withstand wind load of 150 mph for 3 seconds. Provide number of brackets as required to meet wind and seismic conditions shown on the structural drawings. Brackets shall be manufactured by curb manufacturer and furnished with roof curbs. Brackets shall be designed by a licensed Professional Engineer.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install curbs in accordance with manufacturer's instructions and as indicated on Drawings. Coordinate installation with roof membrane installation requirements specified under other Sections.
- B. Roof Curbs Bearing on Steel Angles, Joists, and Headers:
 - 1. Set units in place and secure base to roof structure by welding to top chord of structural member.
 - 2. Secure metal deck to perimeter of curb as indicated on Drawings.
- C. Roof Curbs Bearing on Roof Deck:
 - 1. Set units in place and secure base to steel roof deck by self-tapping screw fasteners spaced at a maximum of 12 inches on center, staggered.
- D. Install wind/seismic restraint brackets prior to installation of HVAC equipment in accordance with manufacturer's recommendations.

3.2 COORDINATION

- A. Coordinate project requirements for custom adapting and connecting to roof curbs with manufacturers and suppliers of curb mounted items and equipment.

3.3 ROOF CURB SCHEDULE

- A. Structural Curbs: Owner furnished structural curbs and adaptors (if applicable) will be supplied for the following items:
 - 1. HVAC roof top units (RTU).
 - 2. Make-up Air Units (MAU).
 - 3. Air Handling Units (AHU).
 - 4. Fixed and Venting Skylights.
- B. Non-Structural Curbs: Provide non-structural roof curbs for the following items:
 - 1. Exhaust fans.

END OF SECTION

SECTION 07815 – MINERAL FIBER FIREPROOFING

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Mineral fiber blanket fireproofing.

1.2 REFERENCES

- A. The publications listed below form a part of this specification to the extent referenced. Publications are referenced within the text by the basic designation only.
- B. ASTM International (ASTM):
 - 1. ASTM E84 - Test Method for Surface Burning Characteristics of Building Materials.
 - 2. ASTM E119 - Method For Fire Tests of Building Construction and Materials.
- C. Underwriters Laboratories, Inc. (UL) - Fire Hazard Classifications.
 - 1. UL 263 - Standard for Fire Tests of Building Construction and Materials.

1.3 PERFORMANCE REQUIREMENTS

- A. Mineral Fiber Fireproofing System: Provide a fire rated assembly rating of 1 hour for grease duct assembly. Grease duct enclosure shall have been tested in accordance with UL 263 and shall be listed in UL Fire Protection Equipment Directory as an approved Grease Duct Enclosure (UL YYET, R14229).

1.4 QUALITY ASSURANCE

- A. Fire Performance Characteristics: Provide ceramic or glass fiber blanket fireproofing identical to those whose specified fire performance characteristics have been determined per test method indicated below, by UL or other testing and inspecting organization acceptable to authorities having jurisdiction.
 - 1. Surface Burning Characteristics: ASTM E 84.
 - 2. Fire Resistance Ratings: ASTM E 119, provide UL-labeled units listed for application indicated.

1.5 SEQUENCING

- A. Sequence and coordinate installation of mineral fiber blanket fireproofing with other, related construction specified in other sections to comply the following requirements:
 - 1. Avoid unnecessary exposure of mineral fiber blanket fireproofing to abrasion and other damage likely to occur during construction operations subsequent to its application.
 - 2. Do not install enclosing or concealing construction until after mineral fiber blanket fireproofing has been applied and inspected by authorities having jurisdiction.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Subject to compliance with requirements of this Section, provide mineral fiber fireproofing as manufactured by one of the following:
 - 1. FireMaster Duct Wrap, by 3M Fire Barrier Products, (800) 328-1687.
 - 2. FyreWrap Duct Insulation, by Unifrax Corporation, (716) 278-3800.
 - 3. Pyroscat FP Duct Wrap, by Thermal Ceramics, (423) 743-4125

2.2 MATERIALS

- A. Mineral Fiber Blanket Fireproofing: Ceramic or glass fiber blanket covered with polypropylene or fiberglass scrim foil facing; with flame and smoke developed ratings of 5; and as follows:
 - 1. Thickness: 4 inches (2 layers of 2 inch blanket).
 - 2. Nominal Density/Thermal Resistivity: 8 pcf/4.15 at 70 deg F.
- B. Anchorage Accessories: For each fire resistive assembly in which mineral fiber blanket serves as fireproofing, provide manufacturer's standard blanket-anchorage system complying with related design of UL or other testing and inspecting organization acceptable to authorities having jurisdiction.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine surfaces and adjacent areas in which Work under this Section is to be performed. Report in writing to the Construction Manager prevailing conditions that may adversely affect satisfactory execution of Work. Do not proceed with Work until unsatisfactory conditions have been corrected.
- B. Starting Work constitutes acceptance of the existing conditions and this Contractor shall then, at his expense, be responsible for correcting all unsatisfactory and defective Work encountered.

3.2 INSTALLATION

- A. Comply with manufacturer's instructions for particular conditions of installation in each case. Consult with manufacturer's technical representative for conditions not covered by printed instructions.
- B. Install fireproofing blanket to comply with requirements for thickness, number of courses (layers), construction of joints and corners, and anchorage methods that apply to fire resistance rated assemblies indicated.

3.3 PROTECTION

- A. Coordinate installation of fireproofing with other construction to minimize cutting into, or removal of, installed fireproofing. As other construction is successively completed, replace or repair fireproofing installations which have been cut away to facilitate this other construction. Maintain complete coverage of full thickness on members and substrates protected by fireproofing.
- B. Provide final protection and maintain conditions in a manner acceptable to Installer, Manufacturer, and authorities having jurisdiction that ensures mineral fiber blanket fireproofing being without damage or deterioration at time of Substantial Completion.

END OF SECTION

SECTION 07840 – FIRESTOPPING

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Firestopping in rated assemblies.
- B. Related Sections:
 - 1. Section 07815 - Mineral Fiber Fireproofing: Fireproofing for grease ducts.
 - 2. Section 09250 - Gypsum Board.

1.2 REFERENCES

- A. ASTM International (ASTM):
 - 1. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials.
 - 2. ASTM E814 - Test Methods for Fire Tests of Through Penetration Fire Stops.
- B. Underwriters' Laboratories, Inc. (UL):
 - 1. UL 1479 - Fire Tests of Through-Penetration Firestops.
 - 2. UL 2079 – Tests for Fire Resistance of Building Joint Systems.
 - 3. UL Fire Resistance Directory:
 - 4. International Firestop Council Guidelines for Evaluating Firestop Systems Engineering Judgments.

1.3 SUBMITTALS

- A. Certifications:
 - 1. Certifications of installer qualifications.
 - 2. Certification of manufacturer's inspection.

1.4 CONTRACTOR QUALIFICATIONS

- A. Installation of firestopping shall be by a Designated Responsible Individual (DRI) in accordance with FM 4991 or shall be an approved installer by the Firestop Manufacturer. Submit documentation of the DRI or a letter from the manufacturer naming the approved installer to the Architect prior to commencement of firestop work.

1.5 ENVIRONMENTAL REQUIREMENTS

- A. During application of caulk and putty, keep away from heat, open flame, sparks, or other sources of ignition until product cures. Use only with adequate ventilation.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Subject to compliance with requirements, provide firestopping products as manufactured by one of the following:
 - 1. Nelson Firestop Products, (800) 331-7325.
 - 2. Hilti, Inc, (800) 879-8000.
 - 3. The RectorSeal Corporation, (800) 231-3345.
 - 4. Specified Technologies, Inc. (STI), (800) 992-1180.
 - 5. 3M Fire Protection Products, (800) 328-1687.
 - 6. Tremco Firestop System, (800) 852-8173.

2.2 MATERIALS

- A. Firestop materials shall have been tested with and shall be in compliance with the minimum requirements of ASTM E814, UL 1479, and UL 2079 as applicable. Products used shall be as listed below as suitable for the intended application and as required to produce the fire rating as shown on the drawings and to conform to the Firestopping Schedule of UL assemblies included at the end of this Section.
- B. Intumescent Latex or Acrylic Sealant: Single-component, intumescent, latex or acrylic formulation.
1. LBS, by Nelson Firestop Products.
 2. FS ONE or CP 606, by Hilti.
 3. Metacaulk 950 or 1000, by RectorSeal.
 4. SpecSeal SSS100, by STI.
 5. CP 25WB+, by 3M.
 6. TREMstop WBM, by Tremco.
- C. Intumescent Solvent-Release-Curing Sealant: Single component, intumescent, synthetic-polymer based, non-sag grade.
1. CP 25N/S, by 3M.
 2. TREMstop WBM, by Tremco.
- D. Intumescent Wrap/Strip: Single-component, elastomeric sheet with aluminum foil on one face.
1. WRS, by Nelson Firestop Products.
 2. CP 645 Wrap Strip, by Hilti.
 3. Metacaulk Wrap Strip, by RectorSeal.
 4. SpecSeal SSWRED Wrapstrip, by STI.
 5. FS-195+ Wrap/Strip, by 3M.
 6. TREMstop WS, by Tremco.
- E. Intumescent Putty: Single-component, non-hardening, dielectric, intumescent putty.
1. FSP, by Nelson Firestop Products.
 2. CP 618 Putty Stick or CP 617/617L Putty Pad, by Hilti.
 3. CP 645 Wrap Strip, by Hilti.
 4. CP 658 Firestop Plug, by Hilti.
 5. Metacaulk Fire Rated Putty, by RectorSeal.
 6. SpecSeal Putty, by STI.
 7. Moldable Putty+, by 3M.
- F. Silicone Sealant: Single-component, moisture-curing, silicone-based elastomeric, non-sag grade.
1. CLK N/S, by Nelson Firestop Products.
 2. CP 601S, by Hilti.
 3. Metacaulk 835, by RectorSeal.
 4. SpecSeal PEN 300, by STI.
 5. 2000+ Silicone, by 3M.
 6. FYRE SIL, by Tremco.
- G. Silicone or Polyurethane Foam: Two-Component, liquid elastomer that, when mixed, expands and cures in place to produce a flexible, nonshrinking foam.
1. SpecSeal PEN 200, by STI.
 2. 2001 Silicone RTV Foam, by 3M.
 3. CP 620 Fire Foam, by Hilti.
- H. Intumescent Collar: Factory-fabricated, intumescent collar.
1. PCS, by Nelson Firestop Products.
 2. CP 642 or CP 643, by Hilti.
 3. Metacaulk Pipe Collar, by RectorSeal.
 4. SpecSeal SSC Collars, by STI.
 5. Plastic Pipe Device, by 3M.
 6. TREMstop D, by Tremco.
- I. Intumescent Composite Sheet, Pillows and Mortar, or Blocks: Products used to firestop large openings.

1. CPS, by Nelson Firestop Products.
 2. FS 657 Fireblocks, by Hilti.
 3. CP 637 Firestop Mortar, by Hilti.
 4. CP 675T Firestop Board, by Hilti.
 5. SpecSeal SSB Pillows and SpecSeal SSM Firestop Compound, by STI.
 6. CS-195+ Composite Sheet, by 3M.
 7. TREMstop PS, by Tremco.
- J. Sprayable Fire-Rated Mastic: Products used to firestop construction joints.
1. CP672 Speed Spray, by Hilti.
 2. Specseal Elastomeric Spray, by STI.
 3. Firedam Spray, by 3M.
- K. Packing Material: Manufacturer's standard mastic, putty, ceramic fiber blanket, or mineral wool to be used as fill or backing material for firestopping.
1. FSB or Mineral Wool, by Nelson Firestop Products.
 2. Mineral Wool, by Hilti.
 3. Fire Safing or Backer Rod, by RectorSeal.
 4. Mineral Wool, by STI.
 5. FireMaster Mastic, FireMaster Putty, or FireMaster Bulk, by 3M.
 6. Cerablanket, by Tremco.
 7. CP 777 Speed Plugs, by Hilti (Preformed mineral wool designed for top of wall fluted metal deck packing material).
- L. Substitutions: Not Permitted.

PART 3 EXECUTION

3.1 PREPARATION

- A. Remove loose dirt and oil from penetration surfaces.
- B. Place hangers or damming materials in penetration to hold firestopping materials, if necessary.

3.2 INSTALLATION

- A. Follow manufacturer charts for appropriate material to achieve required fire rating in various locations.
- B. Install firestopping at penetrations of fire rated wall materials in accordance with manufacturer's published instructions.
- C. Install firestopping at penetrations and construction joints of fire rated walls and floors in accordance with manufacturer's published instructions and in accordance with UL Fire Resistance Directory.

3.3 FIELD QUALITY CONTROL

- A. Site Inspection: Upon completion of installation, inspection of installed firestopping shall be made by a qualified manufacturer's representative to verify work complies with the manufacturers requirements. Submit written certification to the Architect that Manufacturer has visited the site and the work is in accordance with manufacturer's requirements and published instructions.

3.4 SCHEDULES

A. Provide firestopping complying with UL assemblies specified below.

Penetration	Assembly	Nelson	Hilti	RectorSeal	STI	3M	Tremco
Metal Pipe	CMU Wall 8" Thick or Less	CAJ1224 or CAJ1203	CAJ 1149 or CAJ1155 or CAJ1226	CAJ1114 or CAJ1115	CAJ1079 or CAJ1217	CAJ1001 or CAJ1009	CAJ1179 or CAJ1187
	Gypsum Board Partition	WL1083 or WL1030	WL1054 or WL1058	WL1026 or WL1034	WL1049 or WL1079	WL1003 or WL1009	WL1020 or WL1051
Non-Metallic Pipe	CMU Wall 8" Thick or Less	CAJ2086	CAJ2110 or CAJ2109	CAJ2021 or WJ2025	CAJ2064 or CAJ2045	CAJ2005	CAJ2082 or FA2024
	Gypsum Board Partition	WL2071	WL2098 or WL2078	WL2015 or WL2104	WL2093 or WL2029	WL2002 or WL2005	WL2083 or WL2082
Cable Tray	CMU Wall 8" Thick or Less	CAJ8049 or CAJ4033	CAJ4035 or CAJ4017	CAJ8043	CAJ4020 or CAJ4029	CAJ4003 or CBJ4020	CAJ4007 or WJA4005
	Gypsum Board Partition	WL4003	WL4011 or WL4019	----	WL4005 or WL4008	WL4004	WL3043 or WL3044
Insulated Metal Pipe	CMU Wall 8" thick or Less	CAJ5008 or CAJ5059	CAJ5090 or CAJ5091	WJ5016 or CAJ5070	CAJ5021 or CAJ5029	CAJ5001 or CAJ5002	CAJ5052 or CBT5005
	Gypsum Board Partition	WL5036	WL5028 or WL5029	WL5057	WL5014 or WL5051	WL5001	WL5034
Construction Gaps - Head of Wall to Roof Deck	CMU Wall to Metal Deck	----	HWD0098	TRC/PV120-14	----	HWD0013	----
	Gyp Bd Parti'n to Metal Deck	----	HWD0042 or HWD0049	HWD0014	----	HWS0003	WHPV60.01
Construction Gaps - Wall to Wall	CMU Wall to CMU Wall	----	WWD1011 or WWD1012 or WWD1017	----	----	WWS1001	----
	Gyp Bd Parti'n to Gyp Bd Parti'n	----	----	----	----	WWS0004	----

END OF SECTION

SECTION 07900 – JOINT SEALERS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Joint sealants for interior and exterior joints in vertical surfaces and horizontal non-traffic surfaces.
 - 2. Joint sealants and fillers in interior concrete floor slab-on-grade joints.
 - 3. Joint sealant and fillers in exterior concrete sidewalks and pavement adjacent to building.
- B. Related Sections:
 - 1. Division 2: Joint fillers and sealants for joints in sidewalk and pavement not adjacent to building.
 - 2. Section 04220 - Concrete Masonry Units: Installation of expansion joint filler in masonry walls.
 - 3. Section 07530 - Elastomeric Membrane Roofing: Sealants associated with roofing.
 - 4. Section 07840 - Firestopping: Joint seals around penetrations of fire-rated assemblies.
 - 5. Section 09650 - Resilient Flooring: Joint filler for control/construction joints concealed by floor finish material.
 - 6. Section 09900 - Paints and Coatings: Protection of wall joints from painting prior to sealing.

1.2 REFERENCES

- A. The publications listed below form a part of this specification to the extent referenced. Publications are referenced within the text by the basic designation only.
- B. ASTM International (ASTM):
 - 1. ASTM C920 - Specification for Elastomeric Joint Sealants.
 - 2. ASTM C1330 - Cylindrical Sealant Backing for Use with Cold Liquid Applied Sealants.
 - 3. ASTM D 1056 - Flexible Cellular Materials-Sponge or Expanded Rubber.
 - 4. ASTM E84 - Test Method for Surface Burning Characteristics of Building Materials.

1.3 SUBMITTALS

- A. Installer Qualification Certification: Provide certification letters for the installers of the following:
 - 1. Polyurea Joint Filler.
- B. Letter shall be from the product manufacturer stating that the installer is qualified and certified by the manufacturer to install the material to be used, citing the specific project and location.
- C. Provide minimum of 15 projects, with locations, performed within the last 3 years, similar in type and size to this project.
- D. Product Data: Brand name, chemical composition, installation directions and certificates of compliance with required standards for the following products:
 - 1. Elastomeric joint materials (sealant and back-up material).
 - 2. Preformed expansion (isolation) joint filler (PMEJ).
 - 3. Polyurea joint filler.
 - 4. Submit 30 days prior to first concrete placement.

1.4 QUALITY ASSURANCE

- A. Interior sealants in food preparation areas shall meet the compositional requirements for use in USDA regulated facilities, as required by FDA according to 21 CFR 177.2600, and local authorities having jurisdiction.

1.5 ENVIRONMENTAL REQUIREMENTS

- A. Do not install solvent curing sealants in enclosed building spaces.
- B. Maintain temperature and humidity recommended by sealant manufacturer during and after installation.

PART 2 - PRODUCTS

2.1 ELASTOMERIC SEALANTS (BUILDING)

- A. General: Comply with ASTM C 920 and other requirements indicated for each liquid-applied chemically curing sealant specified, including those referencing ASTM C 920 classifications for type, grade, class, and uses related to exposure and joint substrates.
- B. Sealants identified as (Non-USDA) shall not be used in food preparation areas.
- C. Manufacturers:
 - 1. BASF Building Systems (Formerly Sonneborn Building Products), (651) 779-7091, Marthe Brock.
 - 2. Convenience Products, (800) 325-6180.
 - 3. Dow Corning Corporation, www.dowcorning.com
 - 4. Euclid Chemical Co. (877) 438-3826.
 - 5. GE Silicones & GE Sealants and Adhesives (Momentive Performance Materials), (877) 943-7325 www.gesilicones.com
 - 6. Metzger/McGuire, (800) 223-6680.
 - 7. Pecora Corporation, (215) 796-1401, Keith Waters, www.pecora.com
 - 8. Tremco Sealant/Weatherproofing Division, (800) 841-3778, Jack Sykes, www.tremcosealants.com
 - 9. VersaFlex Inc. (913) 321-1416.
 - 10. W. R. Meadows, Inc. (847) 214-2100.
- D. Polyurethane Sealants (USDA Certified, unless otherwise noted):
 - 1. Polyurethane Sealant #1 (P1): ASTM C920, Type S, Grade NS, Class 25, single component.
 - a. Vulkem 116, Dymonic, or Dymonic FC, by Tremco.
 - b. Dynatrol I-XL, by Pecora.
 - c. Sonolastic NP-1, by BASF.
 - 2. Polyurethane Sealant #2 (P2): ASTM C920, Type S, Grade P, Class 25, single component.
 - a. Vulkem 45 (Non-USDA) or Vulkem 45SSL (Non-USDA), by Tremco.
 - b. Urexpam NR-201, by Pecora.
 - c. Sonolastic SL-1, by Sonneborn.
 - 3. Polyurethane Sealant #3 (P3): ASTM C920, Type M, Grade NS, Class 25, multi-component.
 - a. Dymeric 240-240FC or Dymeric 511, by Tremco.
 - b. Sonolastic NP-2, by BASF.
 - c. Dynatrol II (Non-USDA), by Pecora.
- E. Silicone Sealants (USDA Certified, unless otherwise noted):
 - 1. Silicone Sealant #1 (S1): ASTM C920, Type S, Grade NS, Class 25.
 - a. Spectrem 1, Spectrem 2, or Spectrem 3, by Tremco.
 - b. 791 Silicone Perimeter Sealant (Non-USDA), by Dow.
 - c. 864 or 890, by Pecora.
 - d. Sonolastic 150, by BASF.
 - e. SilPruf (Non-USDA), by GE.
 - 2. Silicone Sealant #2 (S2): ASTM C920, Type S, Grade NS, Class 25, mildew resistant.
 - a. Tremsil 200, by Tremco.
 - b. 898, by Pecora.
 - c. 786 Silicone Sealant (Non-USDA), by Dow.
 - d. Sanitary SCS 1700 (Non-USDA), by GE.

- F. Sealant Color:
1. In interior and exterior exposed areas, match color of adjacent paint color finish or other adjacent finish color.
 2. In joints where plumbing fixtures meet adjacent floor and wall finishes, match color of plumbing fixture.
 3. Use clear, colorless sealant where applied to stainless steel surfaces.

2.2 EXPANDING FOAM SEALANTS

- A. Polyurethane Expanding Foam Sealants:
1. Polyurethane Expanding Foam Sealant #1 (EF1): Closed-cell foam and non-flammable propellant; urea formaldehyde-free, CFC-free; UL Class 1 Foam with flame spread of 20 and smoke developed of 25 as tested in accordance with ASTM E84.
 - a. Touch'n Seal Quick Cure, by Convenience Products.
 - b. Space Invader by GE Sealants & Adhesives, (877) 943-7325.

2.3 JOINT-SEALANT BACKING (BUILDING)

- A. Sealant Backing: Provide sealant backings of material and type that are nonstaining; are compatible with joint substrates, sealants, primers, and other joint fillers; and are approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.
1. Cylindrical Sealant Backings: ASTM C 1330, types as approved by joint-sealant manufacturer for joint application indicated, and of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance.
 2. Elastomeric Tubing Sealant Backings: Neoprene, butyl, EPDM, or silicone tubing complying with ASTM D 1056.
- B. Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant manufacturer for preventing sealant from adhering to rigid, inflexible joint-filler materials or joint surfaces at back of joint where such adhesion would result in sealant failure. Provide self-adhesive tape where applicable.

2.4 INTERIOR SLAB ON GRADE JOINT SEALANT MATERIALS

- A. Preformed Expansion (Isolation) Joint Filler (PMEJ) Strips: Flexible closed-cell synthetic foam expansion joint strips, non-extruding, for full depth of concrete.
1. Ceramar Flexibe Foam Expansion Joint, by W.R. Meadows.
 2. Deck-O-Foam Expansion Joint Filler, by W.R. Meadows.
 3. Expansion Joint Filler, by BASF Building Systems (Degussa) (Formerly Sonneborn Sonolastic).
- B. Elastomeric Joint Materials:
1. Sealant:
 - a. Polyurethane Sealant: No. 2 (P2) as specified above.
 - b. Color: Match color of adjacent exposed surface of concrete slab.
 - c. Sealant shall be compatible with construction material placed against it.
 2. Joint Back-Up Material:
 - a. Polyethylene Foam, 100% closed cell.
 - b. Material shall be compatible with construction material to be placed against it such as tile adhesive.
- C. Polyurea Joint Filler: Rapid setting, two-component polyurea polymer liquid of 100% solids content, Shore Hardness 85 to 90, compatible with construction material placed against it.
1. Spall-Pro RS 88, by Metzger/McGuire.
 2. Euco Qwik Joint 200, by Euclid Chemical.
 3. VersaFlex SL/85, by VersaFlex.
 4. Match color of adjacent exposed surface of concrete.

2.5 EXTERIOR PAVEMENT JOINT MATERIALS

- A. Joint Back-up Material: Polyethylene foam, 100% closed cell.

- B. Sealant:
 - 1. Dow 888, by Dow Corning.
 - 2. 301 NS, by Pecora.
 - 3. Spectrum 800 or 900, by Tremco.

2.6 ACCESSORIES

- A. Primer: Non-staining type, recommended by sealant manufacturer to suit application.
- B. Joint Cleaner: Non-corrosive and non-staining type, recommended by sealant manufacturer; compatible with joint forming materials.
- C. Joint Filler: Polyethylene foam rod, oversized 30 percent to 50 percent.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify that surfaces and joint openings are ready to receive work and field measurements are as indicated on Drawings.
- B. Beginning of installation means installer accepts existing substrates.

3.2 PREPARATION

- A. Clean and prime joints in accordance with manufacturer's instructions.
- B. Remove loose materials and foreign matter which might impair adhesion of sealant.
- C. Verify that joint backing and release tapes are compatible with sealant.
- D. Protect elements surrounding work of this Section from damage or disfiguration.

3.3 INSTALLATION

- A. Install sealant in accordance with manufacturer's instructions.
- B. Measure joint dimensions and size materials to achieve required width/depth ratios.
- C. Install joint backing to achieve neck dimension no greater than 1/3 the joint width.
- D. Install bond breaker where joint backing is not used.
- E. Apply sealant within recommended temperature ranges. Consult manufacturer when sealant cannot be applied within recommended temperature ranges.
- F. Install sealant free of air pockets, foreign embedded matter, ridges, and sags.
- G. Tool joints concave.

3.4 INTERIOR SLAB ON GRADE JOINT SEALING AND FILLING

- A. General:
 - 1. Seal/fill contraction, isolation and construction joints in floor slabs and pavements, unless otherwise indicated on Drawings or specified herein.
 - 2. Unless noted otherwise, use polyurea joint filler in floor slab contraction and construction joints and use elastomeric joint sealant in isolation joints.
 - 3. Use pavement sealant in pavement's contraction, construction, and isolation joints.

4. Do not seal joints with materials specified herein when below relatively impervious floor finish material, such as PVC flooring, sheet rubber, wood, epoxy topping; refer to floor finish specification for joint sealing requirements.
 5. Do not place polyurea joint filler under resilient flooring. Coordinate placement of polyurea joint filler with joint filler placement specified under resilient flooring as specified in Section 09650.
- B. Cleaning:
1. Immediately prior to sealing/filling, clean joints to full depth of sealant/filler in accordance with manufacturer's recommendation.
 2. Remove dirt, debris, saw laitance, and other foreign material from joint. Clean inner joint walls mechanically using dustless dry-cut saw, or similar tool, to the full depth of saw cuts and 2 inch minimum depth in construction joints.
 3. Remove form release agent, curing compound, or other components.
- C. General Installation:
1. Commence placing floor joint sealant / filler no sooner than 30 days after first placement of concrete.
 2. If joint is wet or damp, allow joint to dry for 72 hours prior to filling.
 3. Delay floor joint sealing / filling operations until facility's environmental systems have been placed in operation for 14 days.
 4. Mix and install sealant and filler in accordance with manufacturer's recommendations. Use primer if recommended for specific application.
 5. Choke off shrinkage crack if necessary at bottom of contraction joint or void below construction joints by the following methods.
 - a. Saw Cut Contraction Joints:
 - 1) Place 1/8 inch to 1/4 inch (maximum) layer of dry-bagged silica sand. Do not use compressible backer rod.
 - b. Construction Joints Through Slab: Fill by one of the following methods:
 - 1) Fill joint with dry-bagged silica sand to within 2 inches of slab surface.
 - 2) Insert compressible backer rod to a minimum depth of 2 inches below slab surface.
 6. Do not allow sealant / filler to extend over joint edges in finished condition.
- D. Elastomeric Joint Sealant Installation:
1. Use joint back-up material.
 2. Tool surface to provide smooth, attractive appearance and geometry recommended by sealant manufacturer.
- E. Joint Filler Installation:
1. Installation shall be by installer who is approved in writing by the manufacturer's corporate office for this project.
 2. Do not use joint back-up material (i.e., backer rod, sand, etc.) except below bottom of saw cut in construction joints. Provide a minimum joint filler depth of 2 inches.
 3. Fill joint using single pass method. Fill joint full depth from bottom to top, leave slight crown at slab surface.
 4. Remove excess filler from exposed concrete surface prior to setting, leaving slightly crowned material in place.
 5. Add extra filler prior to filler set if needed to prevent depressed areas.
 6. Razor off crowned filler flush with floor surface after filler has sufficiently set.
 7. One week prior to Grand Opening, refill joints if:
 - a. Joint filler sidewall separation or splitting exceeds 1/32 in.
 - b. Joint filler surface profile is concave, crowned, or chattered or if voids occur.
 8. Follow manufacturer's requirements for joint preparation for proper adhesion.
- F. Isolation Joints: Form isolation joints of preformed joint-filler strips (PMEJ) where indicated.
1. Extend joint fillers full width and depth of joint.
 2. Terminate joint filler or otherwise provide joint sealant cavity of not less than 1/2 inch or more than 1 inch below finished surface if joint sealant is indicated.
 3. Place top of joint filler flush with finished concrete surface if joint sealant is not indicated.
 4. Furnish joint fillers in one-piece lengths. Where more than one length is required, lace or clip joint-filler sections together.

5. Protect top edge of joint filler during concrete placement with metal, plastic, or other temporary preformed cap. Remove protective cap after concrete has been placed on both sides of joint.

3.5 EXTERIOR SIDEWALK AND PAVEMENT JOINT SEALING AND FILLING

- A. Fill and seal sidewalk and pavement joints in areas of pavement adjacent to the building. Joint filling and sealing of sidewalks and pavement not adjacent to building is specified in Division 2.
- B. Joint Fillers: Extend joint fillers full-width and depth of joint, and not less than 1/2-inch or more than 1-inch below finished surface where joint sealer is indicated. Furnish joint fillers in 1-piece lengths for full width being placed, wherever possible. Where more than 1 length is required, lace or clip joint filler sections together.
- C. Joint Sealants: Joints shall be sealed as shown and scheduled and shall be installed in accordance with manufacturer's recommendations.

3.6 SCHEDULE

- A. Provide sealants in accordance with the following schedule. Joint sealing required by the drawings or required for a complete and proper installation but not listed in the following schedule shall be sealed as necessary regardless of whether shown or scheduled. Such joints not shown or scheduled shall be sealed with sealants consistent with specified materials or as recommended by the manufacturer for the specific application.

EXTERIOR JOINTS				
	MATERIAL TO	MATERIAL	JOINT WIDTH	SEALANT TYPE
SITE	Concrete Sidewalk Control Joint	Concrete Sidewalk	1/4"	Sidewalks adjacent to building: See Materials Par. Otherwise: See Division 2.
	Concrete Sidewalk Expansion Joint	Concrete or CMU	1/2"	See above
	Concrete Paving Control Joint	Concrete Paving	1/4"	Pavement adjacent to building: See Materials Par. Otherwise: See Division 2.
	Concrete Paving Expansion Joint	Concrete	1/2"	See above
	Concrete Stair Expansion Joint	Concrete or CMU	1/2"	P1 or P3
	Concrete Curb Expansion Joint	Concrete or CMU	1/2"	See Division 2
	CMU Wall Control Joint, 3/8"	CMU Wall	3/8"	P1 or P3
	CMU Wall Expansion Joint, 1"	CMU Wall	1"	P1 or P3
BUILDING WALL	EIFS Wall	CMU or Cast Concrete shapes	1/2"	P1 or P3
	EIFS Cornice/Trim	CMU or EIFS	1/2"	P1 or P3
	Metal Flashing	Metal Flashing		S1
	Metal Flashing	CMU, EIFS, Aluminum Storefront Frame	1/4"	P1 or P3
SOFFITS	Gypsum Soffit Control Joint	Gypsum Soffit	3/8"	P1 or P3
	Gypsum Soffit Perimeter Expansion Joint	EIFS or CMU	3/8"	P1 or P3
	Metal Soffit Panel Trim	EIFS or CMU		P1 or P3
WALL PENETRATIONS	Aluminum Storefront Frame	CMU, EIFS, Aluminum Storefront Frame	1/4"	P1 or P3
	Aluminum Storefront Sill	Cast Concrete Shapes or Concrete Slab	1/4"	P1 or P3
	Aluminum Storefront Door Threshold	Concrete Slab		P1 or P3
	Translucent Insulated Panels	Translucent Insulated Panels, EIFS, Metal Flashing	1/4"	S1
	Hollow Metal Door Frame	CMU Wall, Tube Steel Frame	1/4"	P1 or P3

EXTERIOR JOINTS					
	MATERIAL	TO	MATERIAL	JOINT WIDTH	SEALANT TYPE
	Hollow Metal Door Threshold		Concrete Slab		P1 or P3
	Steel Corner Angle Frame		CMU Wall	1/4"	P1 or P3
	Steel Pipe and/or Conduit Through		CMU, EIFS, Concrete	1/2"	P1 or P3
	Ganged Steel Conduit Through		CMU, EIFS, Concrete	1/2"	P3
	PVC and/or Copper Pipe Through		CMU, EIFS, Concrete	1/2"	P1 or P3
	ROOF MEM-BRANE AREA	Roofing Membrane		Roofing Membrane	
Roofing Membrane			Waterproof Wall Membrane		See Roofing Section
Roofing Membrane			Metal Fascia		See Roofing Section
Roofing Membrane			Molded Pipe Flashing		See Roofing Section
Waterproof Membrane			Metal Fascia, Plates, Bolts		P1 or P3
Waterproof Membrane			Steel Conduit	1/2"	P1 or P3
Metal Cap Flashing Joint			Metal Cap Flashing	1/8"	S1
Metal Cap Flashing Expansion Joint			Metal Cap Flashing	1"	S1
Metal Cap Flashing			Gasketed Fasteners		S1
Skylight Flashing Joints			Skylight Flashing		S1
Vent Flashing Joints			Vent Flashing		S1
Smoke Vent Flashing Joints			Smoke Vent Flashing		S1
RTU Flashing Joints			RTU Flashing		S1
Waterproof Membrane Termination Bar			CMU Wall	1/4"	S1
Steel Gutter			Steel Gutter or Downspout		S1
Steel Downspout			Steel Downspout		S1
Urethane Rubber Seal System			Steel Pipe/ Flue	Varies	See Section 07530
ROOF METAL/ FIBERGLASS PANELS	Roof Panel		Flue Penetration Flashing		P1 or P3
	Roof Panel		Gutter		P1 or P3
	Roof Panel		End Closure		P1 or P3

INTERIOR JOINTS					
	MATERIAL	TO	MATERIAL	JOINT WIDTH	SEALANT TYPE
FLOOR	Concrete Floor		Concrete Floor		
	Contraction Joint			1/4"	See Materials Par.
	Expansion Joint			3/4"	Same
	Concrete Curb In Grocery		Concrete Floor		See Section 03300
	Ceramic Tile Expansion Joints		Ceramic Tile	Ref Mfr.	P1 or P3
	Quarry Tile Expansion Joints		Quarry Tile	Ref Mfr.	P1 or P3
	Mop Sink		Floor		P1 or P3
	Sanitary Cove Base (SCB)		Floor		P1
	Structural Steel Column		VCT/PVC		P1
WALLS	CMU Wall Control Joint, 3/8"		CMU Wall	3/8"	P1
	CMU Wall Expansion Joint, 1"		CMU Wall	1"	P1
	Rated Gypsum Board Wall Control Joint		Rated Gypsum Board Wall		
	Rated Gypsum Board Wall		Metal Roof Deck or Rated CMU Wall		See Section 07840 - Firestopping
	Gypsum Board		CMU Walls	3/8"	P1 (Use edge trim, ref. Section 09250)
	Ceramic Tile		Wood or Galvanized Steel Base Trim		P1 or P3
	Fiber Reinforced Wall Panel (FRP)		Galvanized Steel Base Trim		See Section 06610
	Fiber Reinforced Wall Panel (FRP)		Ceramic Tile		See Section 06610
	Stainless Steel Corner Guards		Ceramic Tile		P1
	Plastic Base		Grocery Equipment Wall		P1 or P3
	Plastic Base		Ceramic Tile or Gypsum Board Wall		P1 or P3
	Plastic Base		Concrete or Quarry Tile Floor		P1 or P3
	Sanitary Cove Base (SCB)		Wall		See Section 09655
	Joints shown on the drawings to be sealed with Expanding Foam Sealant				EF1
	WALL PEN-ETRA-TIONS	Aluminum Storefront Frame		Alum Storefront Frame, CMU, or Gypsum Board	1/4"
Aluminum Storefront Sill			Gypsum Board Wall or Cast Concrete Shapes	1/4"	P1
Hollow Metal Door Frame			CMU or Gypsum Board	1/4"	P1
Steel Corner Angle Frame			CMU Wall	1/4"	P1
Steel Pipe or Conduit Through			CMU Wall	1/2"	P1
Steel Pipe or Conduit Through			Gypsum Board	1/4"	P1
PVC or Copper Pipe Through		CMU or Gypsum Board	1/2"	P1	

INTERIOR JOINTS					
	MATERIAL	TO	MATERIAL	JOINT WIDTH	SEALANT TYPE
	Steel, PVC, or Copper Pipe Through		Rated CMU or Gypsum Board Wall		See Section 07840
	Steel Conduit Through		Rated CMU or Gypsum Board Wall		See Section 07840
TOILET	Sink		Ceramic Tile Wall		S2
FIXTURES	Floor Mount Toilet		Ceramic Tile Floor		S2
	Wall Mount Toilet or Urinal		Ceramic Tile Wall		S2
GROCERY EQUIP	Premanufactured Freezer		Concrete Curb		P1 or P3
	Premanufactured Freezer		Plastic Transition Strip		P1 or P3
	Premanufactured Freezer		Concrete Floor		P1 or P3
	Refrigerated Case Trim		Refrigerated Case		S1 or S2
	Stainless Steel Equipment		Fiberglass Reinforced Plastic (FRP) Wall Panels		S1 or S2
	Stainless Steel Equipment		Ceramic Tile		S1 or S2
EWC	Electric Water Coolers		Ceramic Tile		P1 or P3
COUNTER	Plastic Laminate Counter Tops		Gypsum Board or Plastic Laminate Walls		S2

END OF SECTION

SECTION 08110 – STEEL DOORS AND FRAMES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Steel doors, panels, and frames.
 - 2. Glazed light frames.
- B. Related Sections:
 - 1. Section 04060 - Masonry Mortar: Masonry mortar fill of metal frames. Placement of anchors into wall construction.
 - 2. Section 08337 - Coiling Counter Shutters.
 - 3. Section 08710 - Door Hardware: Door hardware coordination.
 - 4. Section 08800 - Glazing: Glass in steel doors and frames.
 - 5. Section 09250 - Gypsum Board: Door frame attachment to metal wall framing.
 - 6. Section 09900 - Paints and Coatings: Field painting of doors and frames.

1.2 REFERENCES

- A. The publications listed below form a part of this specification to the extent referenced. Publications are referenced within the text by the basic designation only.
- B. American National Standards Institute (ANSI):
 - 1. ANSI A117.1 - Specifications for Making Buildings and Facilities Accessible to and Usable by Physically Handicapped People.
 - 2. ANSI A250.8 (Formerly SDI-100) - Recommended Specifications for Standard Steel Doors and Frames.
 - 3. ANSI A250.11 (Formerly SDI-105) - Recommended Erection Instructions for Steel Frames.
- C. ASTM International (ASTM):
 - 1. ASTM C578 - Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation.
 - 2. ASTM A653 - Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
- D. National Fire Protection Association (NFPA):
 - 1. NFPA 80 - Fire Doors and Windows.
 - 2. NFPA 252 - Fire Tests for Door Assemblies.
- E. Underwriters Laboratories (UL):
 - 1. UL 10B - Fire Tests of Door Assemblies.
- F. Regulatory Requirements:
 - 1. Installed Fire Rated Door Assemblies: Conform to NFPA 80, NFPA 252, and UL 10B for fire rated class, as indicated on Drawings.
 - 2. When replacing existing fire-rated doors, verify and match rating required for opening assembly. Ensure compliance with the Building Code for fire-rated assembly for each specific opening.

1.3 DELIVERY, STORAGE AND PROTECTION

- A. Protect doors and frames with resilient packaging. Break seal on-site to permit ventilation.

1.4 PROJECT CONDITIONS

- A. Field Measurements: Verify that field measurements are as indicated on shop drawings.

- B. Coordination: Coordinate the work with door opening construction, door frame and door hardware installation.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Doors and Frames: Subject to compliance with requirements specified herein, provide flush doors and frames by one of the following:
1. Amweld Building Products Division.
 2. Ceco Door Division.
 3. Curries.
 4. Fenestra Corporation.
 5. Kewanee Corporation.
 6. Mesker.
 7. Steelcraft Manufacturing Co.
 8. Windsor Republic Doors.

2.2 DOORS

- A. Interior Doors: ANSI 250.8, Level 1 and Physical Performance Level C (Standard-Duty), 1-3/4 inches thick, Model 1 (Full Flush) 0.032 min. thickness (20 gage), cold-rolled steel, optional core construction as specified below.
- B. Exterior Doors: ANSI 250.11, Level 2 and Physical Performance Level B (Heavy Duty), 1-3/4 inches thick, Model 1 (Full Flush) 0.042 inch min. thickness (18 gage), ASTM A653, Commercial Steel (CS), Type B, with an A60 zinc-iron-alloy (galvannealed) coating cold-rolled steel, polyurethane or polystyrene foam insulated core construction.
1. Fabricate head flush with top edge to exclude water.
- C. Core Construction:
1. Polyurethane core foamed in place or laminated, R=10; 1/2 inch maximum voids in any direction. Strength of bond between core and steel face sheet shall exceed strength of core so delamination will not occur during operating conditions.
 2. Rigid core or polystyrene foam board, R=7. Strength of bond between core and steel face sheet shall exceed strength of core so that delamination will not occur under operating conditions.
 3. Honeycomb Core: Kraft fiber honeycomb with nominal 1 inch cell size and crush strength of 45 psi.
 4. If laminated insulation is used, apply adhesive full coverage to door face.

2.3 FRAMES

- A. Interior Drywall Frames (New Wall Construction): 0.053 min. thickness (16 gage), cold-rolled steel, mitered welded units.
1. Jamb depth: Sized to fit wall thickness.
- B. Interior Drywall Frames (Retrofit Openings ONLY): 16 gage, cold-rolled steel, mitered knock down.
1. Jamb depth: Sized to fit wall thickness.
- C. Interior Masonry Frames: 16 gage, cold-rolled steel, mitered and welded units.
1. Jamb depth: Sized to fit wall thickness.
- D. Exterior Frames: 16 gage steel, A60 galvannealed coating (ASTM A 653), mitered and welded units.
1. Jamb depth: 5-3/4", unless otherwise indicated on Drawings.

2.4 ACCESSORIES

- A. Rubber Silencers: Resilient rubber. Specified in Section 08710.

- B. Glazing Stops: Rolled steel channel shape, butted corners; prepared for countersink style screws.
- C. Plaster Guards: Provide 26 gage steel plaster guards or mortar boxes, welded to frame, at back of hardware cutouts in masonry openings.
- D. Mullions For Double Doors: Removable type, specified in Section 08710.
- E. Astragals for Double Doors: Steel, specifically for double doors. For rated pairs of doors, provide astragal to meet UL rating requirement. If doors are provided that maintain rating without an astragal, submit door manufacturer's literature indicating UL rating. If U-shaped astragal is used that does not require a coordinator, omit double door coordinator from applicable hardware set in Section 08710.
- F. Board Insulation Blocking: ASTM C578, Type IV (density 1.6 pcf minimum), 1 inch thick. Provide one of the following:
 - 1. Greenguard CM by Pactiv Building Products, Smyrna, GA (800) 241-4402.
 - 2. Styrofoam Square, by Dow Chemical Co., Midland, MI (800) 232-2436.
 - 3. Foamular 250, by Owens Corning, Toledo, OH (800) 438-7465.
- G. Glazed Lights in Fire-Rated Doors: Provide UL Labeled Wire Glass Assembly as specified in 08800.
 - 1. NO SITE RETROFIT ALLOWED.

2.5 PROTECTIVE COATINGS

- A. Bituminous Coating: Fibered asphalt emulsion, field applied.
- B. Primer: Exposed surfaces shall be cleaned, treated with Bonderite chemical and given one baked-on shop coat of gray synthetic primer.

2.6 FABRICATION

- A. Fabricate doors and frames in accordance with ANSI A250.8.
- B. Transom Bars for Glazed Lights: Fixed type, of same profiles as jamb and head.
- C. Fabricate doors with hardware reinforcement welded in place.
- D. Fabricate frames with hardware reinforcement plates welded in place. Provide mortar guard boxes.
- E. Fabricate frames to suit masonry wall coursing with 4 inch head member.
- F. Silencers: Prepare frames for silencers.
 - 1. Single Doors: Provide 3 single rubber silencers on strike side.
 - 2. Double Doors with Mullions: Provide 3 single rubber silencers on each door, on strike side.
 - 3. Double Doors Without Mullions: Provide 2 single silencers on frame head.
 - 4. Do not install silencers until frames have received their final finish coat.
- G. Fire Rated Doors: Attach fire rated label to each door and each frame unit. Do not paint over labels.
- H. Undercut non-fire rated doors as indicated on drawings.
- I. Where multiple openings are indicated, fabricate double wide frames of material gauge as scheduled. Joint frames at swing jamb using minimum 16 gauge insert spline connection full length. After assembly, fill joint with epoxy filler, allow to harden, and finish smooth and flush.
 - 1. Fabricate impost base anchor, providing for minimum of two (2) anchors per impost. Base shall fit impost inside profile with "force fit".

2.7 SIGNAGE

- A. All exit doors shall have a mounted sign stating:

“THIS DOOR TO REMAIN UNLOCKED DURING BUSINESS HOURS”

- B. The letters on the sign shall be a minimum of 1" high and on contrasting background (white on black or black on white).

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify substrate conditions, opening sizes and tolerances are acceptable for proper installation.

3.2 INSTALLATION

- A. Install frames in accordance with ANSI A250.8.
- B. Install doors in accordance with ANSI A250.11.
- C. Coordinate with adjacent wall construction for anchor placement.
- D. Coordinate installation of glass and glazing.
- E. Coordinate installation of doors with installation of hardware specified in Section 08710.
1. Provide board insulation blocking at exterior hollow metal frames. Glue blocking in frame jambs (strike side and hinge side) at height indicated on Drawings.
- F. Factory install glazed light assemblies in accordance with manufacturer's published instructions for fire rating required and compliance with referenced standards.

3.3 ADJUSTING AND CLEANING

- A. Test for smooth operation through full range of swing; make necessary adjustments.
- B. Coordinate adjustment of doors with installation of hardware. Adjust doors and hardware for smooth and balanced door movement.

END OF SECTION

SECTION 08311 – ACCESS DOORS AND FRAMES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Fire-rated and non-rated access doors and frames for walls and ceilings.
- B. Related Sections:
 - 1. Section 09250 - Gypsum Board: Openings in gypsum board ceilings.
 - 2. Section 09900 - Paints and Coatings: Field paint finish.

1.2 REFERENCES

- A. The publications listed below form a part of this specification to the extent referenced. Publications are referenced within the text by the basic designation only.
- B. ASTM International (ASTM):
 - 1. ASTM A 653 - Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
 - 2. ASTM A 879 - Steel Sheet, Zinc Coated by the Electrolytic Process for Applications Requiring Designation of the Coating Mass on Each Surface.
 - 3. ASTM A 1008 - Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, Solution Hardened, and Bake Hardenable.
 - 4. ASTM E 119 - Standard Test Methods for Fire Tests of Building Construction and Materials.
- C. National Fire Protection Association (NFPA):
 - 1. NFPA 80 - Fire Doors and Windows.
 - 2. NFPA 252 - Fire Tests for Door Assemblies.
- D. Underwriters Laboratories (UL):
 - 1. UL 10B - Fire Tests of Door Assemblies.
 - 2. UL 263 - Fire Tests Of Building Construction And Materials.

1.3 QUALITY ASSURANCE

- A. Perform Work in accordance with UL requirements.
- B. Fire-Rated Access Doors and Frames: Provide units complying with NFPA 80 that are identical to assemblies tested for fire-test-response characteristics per the following test method and that are listed and labeled by UL or another testing and inspecting agency acceptable to authorities having jurisdiction:
 - 1. NFPA 252 or UL 10B for vertical access doors and frames.
 - 2. ASTM E 119 or UL 263 for horizontal access doors and frames.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Provide access doors by one of the following manufacturers:
 - 1. Milcor, Inc (Commercial Products Group) Bensenville, IL; Contact Don Fessendon (630) 595-7320.
 - 2. Acudor Products, Inc., Fairfield, NJ (800) 722-0501.
 - 3. Nystrom Building Products, Minneapolis, MN (800) 547-2635 or (612) 781-7850.

2.2 STEEL MATERIALS

- A. Steel Sheet: Uncoated or electrolytic zinc-coated, ASTM A 879 with cold-rolled steel sheet substrate complying with ASTM A 1008, Commercial Steel (CS), exposed.
- B. Metallic-Coated Steel Sheet: ASTM A 653, Commercial Steel (CS) with **A60** zinc-iron-alloy (galvannealed) coating or **G60** mill-phosphatized zinc coating.
- C. Drywall Beads: **0.0299-inch** zinc-coated steel sheet to receive joint compound.
- D. Manufacturer's standard finish factory primed finish.

2.3 ACCESS DOORS AND FRAMES FOR WALLS AND CEILINGS

- A. Flush Access Doors and Frames:
 - 1. Fabricated from steel sheet.
 - 2. Exposed Trim Type:
 - a. Model NT by Nystrom.
 - b. Model M 3202 by Milcor.
 - c. Model UF 5000 by Acudor.
 - 3. Trimless Frame:
 - a. Model MW by Nystrom.
 - b. Model DW 3203 by Milcor.
 - c. Model DW 5040 by Acudor.
 - 4. Locations: Wall and ceiling.
 - 5. Door: Minimum **0.060-inch**- thick sheet metal.
 - 6. Frame: Minimum **0.060-inch**- thick sheet metal with **1-1/4-inch**- wide, surface-mounted trim.
 - 7. Hinges: Spring-loaded, concealed-pin type or continuous piano.
 - 8. Latch: Cam latch with interior release. Provide latch for all units unless specified to have locks.
 - 9. Lock: Cylinder with 2 keys. Provide lockable cylinders as follows:
 - a. Exterior locations.
 - 10. Units larger than 24 inches on the hinge side shall have two locks or latches.
- B. Fire-rated, Insulated, Flush Access Doors and Frames:
 - 1. Fabricated from steel sheet.
 - 2. Exposed Trim or Trimless Type:
 - a. Model IT or IW by Nystrom.
 - b. Model UFR 3218 by Milcor.
 - c. Model FW 5050 by Acudor.
 - 3. Locations: Wall and ceiling surfaces.
 - 4. Fire-Resistance Rating: Not less than that of adjacent construction.
 - 5. Temperature Rise Rating: **250 deg F** at the end of 30 minutes.
 - 6. Door: Flush panel with a core of mineral-fiber insulation enclosed in sheet metal with a minimum thickness of **0.036 inch**.
 - 7. Frame: Minimum **0.060-inch**- thick sheet metal with **1-inch**- wide, surface-mounted trim.
 - 8. Hinges: Concealed-pin type or continuous piano.
 - 9. Automatic Closer: Spring type.
 - 10. Latch: Self-latching device operated with interior release.
 - 11. Size: Minimum 24 x 36 inches except where otherwise shown on the drawings.
- C. Trash Chute Door: Coordinate size of trash chute access door with trash compactor vendor.
- D. Substitutions: Not Permitted.

2.4 FINISH

- A. Base Metal Protection: Factory prime coat units with electrostatic baked on electrostatic powder. For ceiling units, prime exposed edges with coat of white rust-inhibitive paint.

PART 3 - EXECUTION

3.1 INSPECTION

- A. Verify rough openings for door and frame are correctly sized and located.
- B. Beginning of installation means acceptance of existing conditions.

3.2 INSTALLATION

- A. Install units in accordance with manufacturer's instructions.
- B. Install units plumb, square and flush with adjacent ceiling or wall surface. Secure rigidly in place.
- C. Position to provide convenient access to concealed work requiring access.
- D. Provide weather tight installation at exterior locations.

3.3 ACCESS DOOR SCHEDULE

- A. Provide access door and frame suitable for the application.
- B. Install trimless access door and frame in interior gypsum board walls and ceilings and other locations suitable and adaptable for trimless installation.
- C. Install exposed trim access door and frame where at exterior locations and where impractical to install trimless installation.
- D. Install access doors in ceilings and walls in locations as shown on the Drawings, at valves, controls, and manual dampers requiring access, and as required by code and governing authorities.
- E. For access doors adjacent to secure areas (Cash/Counting Room), coordinate location with Wal-Mart Construction Manager.

END OF SECTION

SECTION 08332 – OVERHEAD ROLLING CLOSURE

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes: Overhead rolling closure, motor operated, for Pharmacy.

1.2 DELIVERY, STORAGE AND HANDLING

- A. Product Packaging: Closure shall be delivered in manufacturer's standard packaging with identification markings on each component or package.
- B. Section 01600 - Product Requirements: Transport, handle, store, and protect products.

1.3 QUALITY ASSURANCE

- A. Provide components from a single manufacturer with resources to provide consistent quality in appearance.
- B. Field measure before fabrication.
- C. Use manufacturer approved installers.

PART 2 - PRODUCTS

2.1 MANUFACTURER & MODEL

- A. Manufacturer: QMI Security Solutions, Itasca, IL (800) 446-2500, Fax (630) 980-6364.
- B. Model: Countersafe Rolling Shutter. Aluminum overhead coiling security grille.
- C. Substitutions: Not permitted.

2.2 COMPONENTS

- A. Curtain: Continuous C sections of extruded aluminum slats, Style AL6-E, Punch Style 51.
- B. Side Track: Extruded aluminum tracks lined with insulation, woven polypropylene runners. Color to match slats.
- C. Mounting: Manufacturer's standard 3x3 inch steel tube, structural angle for surface mounting conditions or existing structural surfaces.
- D. Bottom Bar: Heavy duty extruded aluminum section, 0.50-inch wall thickness.
- E. Locking: Two thumb-turn "Best" cylinder locking mechanisms installed in bottom bar, one at each end, operable from the interior of the Pharmacy.
- F. Counter Balance: Tempered helical torsion high cycle spring mounted on housings and solid torsion rods permanently lubricated and enclosed within steel pipe shaft.
- G. End Caps: Steel end plates not less than 3/16" thick bolted to structural support tubes.
- H. Finishes: Manufacturer's standard clear anodized coating on exposed aluminum; manufacturer's standard finish on other metal components.

- I. Operator: Motor operated.
- J. Motor: Single phase 110V-60Hz UL recognized. Motor Model/Size EHJ. Provide emergency egress device allowing manual operation in case of power outage.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install assembly in accordance with manufacturer's published instructions.
- B. Use anchorage devices to securely fasten assembly to supporting construction and building framing without distortion or stress.
- C. Securely and rigidly brace components suspended from structure. Fit and align assembly including hardware. Level and plumb to provide smooth operation.

3.2 FIELD QUALITY CONTROL

- A. Inspect closure installation and operation.
- B. Adjust installations to operate smoothly and easily. Clean surfaces with manufacturer's recommended cleaners.

END OF SECTION

SECTION 08337 – COILING COUNTER SHUTTERS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Pharmacy coiling counter shutter doors.
- B. Related Sections:
 - 1. Section 07900 - Joint Sealants: Installation of sealant at visible joints around frames and tracks.

1.2 DELIVERY, STORAGE AND HANDLING

- A. Product Packaging: Coiling counter shutter doors shall be delivered in manufacturer's standard packaging with identification markings on each component or package.
- B. Section 01600 - Product Requirements: Transport, handle, store, and protect products.

PART 2 - PRODUCTS

2.1 COILING COUNTER SHUTTERS

- A. Manufacturer: QMI Roll Shutter Supply, Elmhurst, IL (630) 529-7111.
 - 1. Model: CounterSafe Rolling Shutter System, curtain type AL5-E-P-51.
 - 2. Description: Aluminum extruded profile with locking device.
 - 3. Operation:
 - a. Manual strap operation for curtains 3 feet wide or less.
 - b. Geared pole crank operation for curtains greater than 3 feet wide.
 - 4. Color: Gray.
- B. Substitutions: Not Permitted.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine surfaces and adjacent. Do not proceed with Work until unsatisfactory conditions have been corrected.
 - 1. Openings shall be to the dimensions indicated.
 - 2. Door support framing shall be installed at locations indicated.

3.2 INSTALLATION

- A. Install doors in accordance with manufacturer's published instructions.
- B. Use anchorage devices to securely fasten assembly to wall construction and building framing without distortion or stress.
- C. Fit and align assembly including hardware; level and plumb, to provide smooth operation.
- D. Install joint sealant at visible joints around frames and tracks as specified in Section 07900.

3.3 FIELD QUALITY CONTROL

- A. Inspect coiling counter shutter and operating system installation.
- B. Correct deficiencies in Work which inspection indicates are not in compliance with Contract Documents.

END OF SECTION

SECTION 08360 – SECTIONAL OVERHEAD DOORS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Manually operated, insulated, steel sectional overhead doors.
2. Manually operated, insulated, composite sectional overhead doors.

B. Related Sections:

1. Section 07900 - Joint Sealants: Installation of sealant at frame perimeter.
2. Section 09900 - Paints and Coatings: Application of field paint finish.

1.2 REFERENCES

A. The publications listed below form a part of this specification to the extent referenced. Publications are referenced within the text by the basic designation only.

B. American National Standards Institute (ANSI):

1. ANSI Z97.1 - For Safety Glazing Materials Used In Buildings - Safety Performance Specifications and Methods of Test.

C. ASTM International (ASTM):

1. ASTM C 1048 - Heat-Treated Flat Glass - Kind HS, Kind FT Coated and Uncoated Glass.
2. ASTM A 653 - Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.

1.3 SYSTEM DESCRIPTION

- A. Performance Requirements: Provide doors designed to sustain min. wind load pressures calculated by the manufacturer based on the wind loads shown on the drawings (See Structural Drawing Sheet S0). Maximum deflection shall not be greater than 0.03 inches per foot of opening width for the wind load pressure calculated.
- B. Operation: Manual rope lift for doors unless otherwise specified. Lift operating styles with track and hardware as indicated.

1.4 DELIVERY, STORAGE AND HANDLING

- A. Product Packaging: Deliver Overhead doors in manufacturer's original packaging with identification markings on each component or package.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Provide products by one of the following manufacturers to the extent specified for the specific product:

1. Overhead Door Corporation, Dallas, TX. National Account Sales Manager: Laura Shemo (800) 972-1730.
2. Windsor Door, Little Rock, AR, Technical Services (800) 774-1282.
3. TKO Doors, a 4Front Engineered Solutions, Inc. Company, Carrollton, Texas, (262) 246-135, Amy Carlson.
4. Clopay Building Products Co., Mason, OH (800) 225-6729.

2.2 STEEL SECTIONAL OVERHEAD DOORS

A. Models: Provide one of the following:

1. Series 591 Insulated Doors by Overhead.
2. Model 3100, by Windsor.
3. Model 3200 by Clopay.

B. Components:

1. Steel Door Sections: Ribbed profile, minimum 0.016 inch thick structural quality carbon steel (interior and exterior face) G60 galvanized in accordance with ASTM A 653.
 - a. Panel Thickness: 1-3/8 inch min.
2. Tracks, Supports, and Accessories: 3 inch track, galvanized, with leaf bumpers (stops), ball bearing roller guides, brackets, bracing, and reinforcing.
 - a. Track: Track as indicated on Drawings.
 - b. Weather Seal: Weather seals at head, jambs, and door bottoms.
3. Counterbalance: 100,000 cycle torsion spring mechanism for manual operation.
4. Hardware: Chrome plated or galvanized.
5. Insulation: Expanded polystyrene or fully encapsulated, CFC Free and HCFC Free Polyurethane.
 - a. Minimum R-Value: 9.00.
6. Air Infiltration: 0.08 cfm at 15 mph; 0.13cfm at 25 mph.
7. Vision Panels: Clear thermal pane acrylic insulating glazing set into rubber or neoprene glazing channels, or plastic frames for metal door sections. Locate where indicated on Drawings.
8. Hoist: Manual chain lift.
9. Rollers: Heavy duty with steel ball bearings in case hardened stall races.

C. Knockout Sectional Panels (For use up to 14 psf wind load): Provide knockout sectional panels in lower two panels of all steel sectional overhead doors except Auto Center doors.

1. Model: Knock and Lock Breakaway Sectional Door Panel by Overhead Door.
2. Description: Sectional panels designed to break away upon impact to prevent panel damage and to automatically reset. Breakaway panels shall be designed to replace standard steel door sections on new or existing doors.
3. Components:
 - a. Interior Panel: Rubber modified styrenic polymer composite.
 - b. Exterior Panel: Galvanized steel to match exterior face of standard steel door sections.
 - c. Panel Profile: 2-inch total thickness with polystyrene foam insulation core.
 - d. Seals: Flexible PVC bottom and side seals.
 - e. Track Guards: Manufacturer's standard track impact protection.
 - f. Lifting Handle: Manufacturer's standard.
 - g. Locks: Two side locks, one each side of door.
4. Option: At the option of the Contractor, steel doors with Knock and Lock may be provided in lieu of Composite Sectional Overhead Doors specified hereinafter where composite doors are shown or scheduled on the drawings.

D. Fabrication:

1. Fabricate door sections not more than 24 inches high, with horizontal meeting edges rolled to form weather seal.
2. Enclose ends and provide reinforcing required for stability.

E. Anchorage Devices: Hilti HYL50 adhesive anchors 3/8"x 3-1/2" embedded rod minimum.

F. Field Finish:

1. Exterior Face: Phosphate treated for field paint adhesion.
2. Field Painting: Field paint as specified in Section 09900. Color as indicated on Drawings.

2.3 COMPOSITE SECTIONAL OVERHEAD DOOR – HEAVY DUTY

- A. Composite Door: Insulated composite panel door with knockout section for impact protection.
1. Model: Heavy duty, door shall be model as required to meet wind load requirements shown. Model shall be Knockout Sectional Door by TKO Doors as applicable.
 - a. TKO Cruiserweight (up to 25 PSF).
 - b. TKO Door CWCD (30 to 34.4 PSF).
 - c. TKO Door CWWL (25.3 to 42.2 PSF; max. width 10 ft.).
 2. At the option of the Contractor, steel sectional doors with knockout sectional door panels by Overhead Door as specified above may be provided in lieu of Composite Sectional Overhead Doors.
- B. Components:
1. Door Section:
 - a. Frame: Composite tubular perimeter frame.
 - b. Door Panels:
 - 1) Interior Panel Skin: 1/8-inch textured high-impact polymer sheet for heavy duty knockout resistance.
 - 2) Exterior Panel Skin: 1/8-inch high-impact composite reinforced sheet.
 - c. Color: White.
 - d. Panel Thickness: 1-3/4-inch thick.
 - e. Insulation: Closed cell expanded polystyrene core insulation, R-11.
 - f. Vision Panels:
 - 1) Tempered glass unless otherwise shown on the drawings. Provide if and where shown on the drawings.
 - 2) Vision panel for Model V-120 or V-130 doors shall be a single 4-inch diameter by 1/4-inch thick Lexan view window located in center of 3rd panel in lieu of window configuration shown on the drawings.
 2. Rollers: Heavy duty with steel ball bearings in case hardened steel races.
- C. Tracks, Supports, and Accessories:
1. Tracks: Impact-A-Track constructed of UHMW polyethylene, color black with knockout capability towards exterior while providing security and high wind load towards interior. Provide stops.
 2. Supports: Full height 8 gauge galvanized steel mounting angle factory installed to track. Secure, reinforce and support tracks as required for size and weight of door to provide strength and rigidity without sag, sway and vibration during opening, closing and possible impact to door track.
 3. Weather Seal: Single loop seal along both vertical edges of door panel. Provide 35 ounce Hypalon loop extending the full width of the door opening with 1-inch foam insert. Provide 2-inch horizontal lintel brush to seal upper door section and provide 3-inch brush seal with 45 degree retainer to seal the bottom of the door panel full width.
- D. Hardware: Heavy-duty, Grade 1 corrosion resistant hardware.
1. Hinges: Flexible, high strength hinge system consisting of composite center and outer hinges.
 2. Plungers: Spring loaded, quick release plungers on knockout panels and fixed plungers on top panels with plungers acting as quick release system when door is impacted, preventing door panel damage.
 3. Locking:
 - a. Slide Lock: Slide lock with padlock provision.
 - b. Pilfer Proof Lock: Provide cable lock device attached permanently to the bottom of the door track. Locate padlock opposite end of cable to the black grip handle/step plate.
 - c. Provide additional side locks, knockout locks, and door panel support plates standard with the manufacturer for doors designed for wind pressures in excess of 25 PSF.
- E. Counterbalance:
1. Torsion Spring: Operation by torsion-spring counterbalance consisting of adjustable tension, tempered steel torsion springs mounted on a cross header solid steel shaft, and cast aluminum or gray iron cable drums. Calibrate springs for 15,000 cycles minimum.
- F. Field Painting: Field paint as specified in Section 09900. Color as indicated on Drawings.

2.4 COMPOSITE SECTIONAL OVERHEAD DOOR – NORMAL DUTY

- A. Composite Door: Normal duty insulated composite panel door with knockout section for impact protection.
 1. Model: Model TKO Welterweight Knockout Sectional Door by TKO Doors (For use up to 35.2 PSF wind load).
 2. At the option of the Contractor, steel sectional doors with Knock and Lock panels by Overhead Door as specified above may be provided in lieu of Composite Sectional Overhead Doors.
- B. Components:
 1. Door Section:
 - a. Frame: Composite tubular perimeter frame.
 - b. Door Panels: Unitized construction with exterior and interior panel skins firmly bonded to high density expanded polystyrene core insulation.
 - 1) Interior Panel Skin: 0.09-inch high-impact polymer sheet.
 - 2) Exterior Panel Skin: 0.03-inch aluminum with a crystal coat finish.
 - c. Color: White.
 - d. Panel Thickness: 2-inch thick.
 - e. Vision Panels: Tempered glass unless otherwise shown on the drawings. Locate as and where indicated on Drawings.
 - f. Insulation: Closed cell expanded polystyrene core insulation, R-12.
 2. Rollers: Heavy duty with steel ball bearings in case hardened stall races.
- C. Tracks, Supports, and Accessories:
 1. Tracks: Formed 12 gauge galvanized steel.
 2. Provide 3'0" Impact-A-Track mounted to lower section of knockout track to prevent track impact damage.
 3. Design track with knockout capability towards exterior while still providing security and high wind load towards interior.
 4. Weather Seal: Continuous extruded loop of low-friction urethane coated PVC weather seal along both vertical edges of the door panel.
 - a. Provide one extruded loop of PVC weather seal extending the full width of the door opening as a bottom seal.
 - b. Attach low temperature exposure rated loop weather seals to panel edge capping for installation and removal.
 - c. Provide 2-inch horizontal lintel brush to seal upper door section and provide 3-inch brush seal full width of door panel with 45 degree retainer to bottom of door.
- D. Hardware: Heavy-duty, rust-resistant hardware.
 1. Hinges: High strength flat panel hinges constructed from 12-gauge steel bolted to door panels.
 2. Plungers: Spring loaded, round nosed, quick release plungers on knockout panels and fixed plungers on top panels acting as quick release system when door is impacted to prevent door panel damage.
 3. Locking:
 - a. Slide Lock: Slide lock with padlock provision.
 - b. Pilfer Proof Lock: Provide cable lock device attached permanently to the bottom of the door track. Locate padlock opposite end of cable to black grip handle/step plate.
- E. Counterbalance:
 1. Torsion Spring: Operation by torsion-spring counterbalance consisting of adjustable tension, tempered steel torsion springs mounted on a cross header solid steel shaft, and cast aluminum or gray iron cable drums. Calibrate springs for 15,000 cycles minimum.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine surfaces and substrates receiving attachments. Verify opening sizes, tolerances, reinforcements, and conditions are acceptable. Do not proceed with Work until unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. Install doors in accordance with manufacturer's published instructions.
 - 1. Stockroom Doors: Position stops so bottom edge of door is minimum of 12 inches above top of masonry opening when door is in up position.
 - 2. Other Doors: Position stops so bottom edge of door is flush with top of opening when door is in up position.
- B. Use anchorage devices to securely fasten assembly to wall construction and building framing without distortion or stress.
- C. Fit and align assembly including hardware, level and plumb, to provide smooth operation.
- D. Grout concrete masonry unit cells for attachment of track and counterbalance mechanism.
- E. Install metal fabrications for support and attachment of door assembly, where required.
- F. Install sealants at joints around frames and tracks as specified in Section 07900.

3.3 CONSTRUCTION

- A. Preparation:
 - 1. Coordinate construction of door openings within walls. Verify door head is parallel to floor.
 - 2. Coordinate installation and locations of structural supports for door assembly.

END OF SECTION

SECTION 08381 – FLEXIBLE STRIP DOORS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Flexible plastic strip doors.

PART 2 - PRODUCTS

2.1 FLEXIBLE STRIP DOORS - AT-GRADE DOOR

- A. Manufacturers: Subject to compliance with requirements, provide flexible strip doors as manufactured by one of the following:
 - 1. Model No. 12023, by Frommelt Industries, Inc., Dubuque, IA (800) 553-5560 or (866) 852-1500.
 - 2. Model No. S10B3 by Mueller Door Corporation, Wauconda, IL, Suzanne Miller (800) 981-2040.
- B. Components:
 - 1. Strips: 12 inch wide, 0.120 gage, vinyl strips with 2/3 overlap.
 - 2. Brush Weatherstripping: Part No. B-0772, 3 inch polypropylene brush and Part No. A-0086 aluminum retainer, by Action Industries; Cleveland, OH (800) 321-1130.
 - 3. Mounting Bracket: Manufacturers standard studded steel cantilever extension bracket with 2 inch by 2 inch studded front box beam.
 - a. No Substitutions.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Verify condition of existing opening. Make opening square and plumb.
- B. Secure mounting head support structure in place in accordance with manufacturer's published instructions and as indicated on Drawings. Field cut studded extension bracket to appropriate length to allow 1 inch clearance between back side of box beam and sectional overhead door track.
- C. Wrap curtain around corners of wall brackets and return to wall construction, providing lap at each strip as defined.

3.2 ADJUSTING AND CLEANING

- A. Provide 1 inch clearance between bottom of flexible strip door and finish floor.

END OF SECTION

SECTION 08383 – FLEXIBLE TRAFFIC DOORS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Plastic double acting swinging traffic doors.
 - 2. Café style traffic doors.
- B. Related Sections:
 - 1. Section 05500 - Metal Fabrications: Prepared opening with steel channel jambs and head.

1.2 DELIVERY, STORAGE AND HANDLING

- A. Section 01600 - Product Requirements: Transport, handle, store, and protect Products.
- B. Deliver product in manufacturer's original unopened packages with labels legible and intact.
- C. Labels shall identify manufacturer, brand name, model size, finish, and location of installation.
- D. Store doors and accessories in unopened packages in protected dry area to prevent damage from environmental and construction operations.

1.3 WARRANTY

- A. Door Panel: 10 years on panel against manufacturer's defects.
- B. Hardware: Lifetime warranty.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- 1. Chase Doors, Cincinnati, OH; Geri Brazeal (541) 504-4808.

2.2 FLEXIBLE PLASTIC TRAFFIC DOORS

- A. Description: High impact plastic traffic door, gasketed or non-gasketed as shown on the drawings.
- B. Door Panel: U.S.D.A. compliant, solid high density polyethylene panels or non-CFC urethane-filled polyethylene plastic sandwich panels with textured surfaces each face. Minimum thickness as follows:
 - 1. 8 ft Wide x 9 ft High Openings: 3/4" thick panel.
 - 2. All Other Openings: 1/2" thick panel.
- C. Gaskets (Seals): Provide integrated nylon brush or rubber perimeter seal package. Provide solid gasket seals at food preparation areas as shown on the drawings. Color: Black.
- D. Hardware: Enclosed stainless steel positive-close double acting hinges interconnected by full length powder coated aluminum spline. Color: Black.
- E. Vision Panel: Integrated, non-gasketed 1/4" thick polycarbonate. Size: 200 square inch per leaf. Locate bottom of panel to be not more than 43 inches above finished floor.
- F. Jamb Guards: Space saving low profile integrated steel jamb guards. Color: Matt stainless steel.

- G. Impact Bumper: 2 foot high impact absorbing tear drop shaped bumper each side of door.
- H. Door Color: Khaki or Black, as shown on the door schedule.
 - 1. Beige or Gray, only where required to match existing door color. Refer to door schedule on Drawings.

2.3 CAFE TRAFFIC DOORS

- A. Door: High impact café style abbreviated form plastic traffic door.
- B. Door Panel: 1/2" thick U.S.D.A. compliant high density polyethylene panels having textured surfaces each face.
- C. Hardware:
 - 1. Hinge: Positive close double acting, enclosed adjustable hinge system.
 - 2. Lock: Provide slide lock Mueller Model number CL 6010 or equivalent by Chase.
- D. Door Color: Black or gray, as shown on drawings. Gray shall be Metallic Gray by Chase.
- E. Hardware Color: Black.
- F. Provide cutouts on pairs of doors as shown on Drawings.
- G. Bollard: Steel post with black urethane coated finish.

2.4 SUBSTITUTIONS

- A. Substitutions not permitted.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify that openings are ready to receive work and opening dimensions and clearances are as indicated on Drawings.
- B. Beginning of installation means acceptance of existing conditions.

3.2 INSTALLATION

- A. Install door unit assembly to manufacturer's installation instructions and manufacturer's location and installation drawings.
- B. Frame Mounted Traffic Doors: Use anchorage devices to fasten flexible traffic door assembly to door frame construction without distortion or imposed stresses.
- C. Bollard Mounted Cafe Doors: Install cafe doors at Bakery as freestanding, pedestal (bollard) mounted in accordance with manufacturer's instructions.
 - 1. Install bollard in core drilled holes in concrete floor in accordance with manufacturer's instructions. Fill space between bollard and floor slab with non-metallic non-shrink grout.
- D. Cabinet Mounted Cafe Doors: Install cabinet mounted cafe doors at Pharmacy in accordance with details shown on the Drawings.
- E. Fit and align door assembly level and plumb.
- F. Adjust door assembly to provide smooth operation from closed to full open position.

3.3 CONSTRUCTION

A. Interface with Other Work:

1. Flexible door supplier shall provide location and installation drawings to Contractor.
2. Indicate type of door to be installed at each door opening.
3. Include manufacturer's published instructions for installation of doors attached to manufacturer's location and installation drawings.

3.4 CLEANING

- A. Remove protective material from pre-finished surfaces.
- B. Remove labels and visible markings.
- C. Wash down surfaces with a solution of mild detergent in warm water, applied with soft, clean wiping cloths. Wipe surfaces clean.

END OF SECTION

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Aluminum doors, frames, and glazed lights.
 - 2. Door hardware.
- a. Products Furnished and Installed Under Separate Contract (NIC): Under provisions of Section 01640, Owner's automatic entrance door supplier will furnish and install storefront entrance doors, other than at separate interior or exterior Vision Center doctor entrance, as described within this Section.
- b. General Contractor shall furnish and install doors at separate Vision Center interior or exterior entrance.
- B. Related Sections:
 - 1. Section 01640 - Owner Furnished Products: General procedures related to Owner furnished products.
 - 2. Section 08462 - Automatic Sliding Entrance Doors: Coordination between components.
 - 3. Section 08710 - Finish Hardware: Coordinate cylinders, thresholds and other hardware.
 - 4. Section 08800 - Glazing: Glass products.
 - 5. Section 09900 - Paints and Coatings: Painting infill panels.

1.2 REFERENCES

- A. The publications listed below form a part of this specification to the extent referenced. Publications are referenced within the text by the basic designation only.
- B. Architectural Aluminum Manufacturers Association (AAMA):
 - 1. AAMA 611 - Voluntary Specifications for Anodized Architectural Aluminum.
- C. ASTM International (ASTM):
 - 1. ASTM A 123 - Zinc (Hot-Dip Galvanized) Coatings On Iron And Steel Products.
 - 2. ASTM E 283 - Standard Test Method For Determining Rate Of Air Leakage Through Exterior Windows, Curtain Walls, And Doors Under Specified Pressure Differences Across The Specimen.
 - 3. ASTM E331 - Water Penetration Of Exterior Windows, Skylights, Doors, And Curtain Walls By Uniform Static Air Pressure Difference.
- D. Americans with Disabilities Act of 1990: Accessibility Guidelines for Buildings and Facilities.
- E. American National Standards Institute (ANSI):
 - 1. ANSI A117.1 - Specifications for Making Buildings and Facilities Accessible to and Usable by Physically Handicapped People.

1.3 SYSTEMS DESCRIPTION

- A. Storefront System Performance Requirements:
 - 1. Air Infiltration: ASTM E 283. Air infiltration rate shall not exceed 0.06 cfm/ft² at a static air pressure differential of 6.24 psf.
 - 2. Water Penetration Under Static Pressure: Systems do not evidence water penetration through fixed glazing and framing areas when tested according to ASTM E 331 at a minimum static-air-pressure difference of 20 percent of positive wind-load design pressure, but not less than 6.24 lbs/sq. ft.
 - 3. Structural Performance: Maximum deflection of L/175 of span under a windload pressure calculation by the manufacturer based on the design wind loads shown on the Structural Drawings.

1.4 QUALITY ASSURANCE

- A. Regulatory Requirements: Conform to disabled access requirements of the following:
 - 1. State or Local requirements (where applicable).
 - 2. ANSI A117.1.
 - 3. ADA (Americans with Disabilities Act - 1990) requirements for entrance door access, entrance doors and hardware.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Subject to compliance with requirements, products by one of the following manufacturers may be provided.
 - 1. Kawneer Company, Inc., National Accounts Contacts as follows:
 - a. Central Area: Greenwood, IN (877) 505-3757.
 - b. Eastern Area: Bloomsburg, PA (877) 505-3756.
 - c. Southern Area: Springdale AR (877) 505-3783.
 - d. Western Area: Visalia, CA (877) 505-3785.
 - 2. EFCO Corporation, Monett, MO (800) 221-4169.
 - 3. Southwest Aluminum Systems, Inc., Chandler, AZ (602) 961-2000.
 - 4. Tubelite, Inc., Reed City, MI (800) 866-2227.
 - 5. U.S. Aluminum Corporation, Waxahachie, TX (800) 627-6440.
 - 6. Vistawall Architectural Products, Terrell, TX (800) 869-4567.
- B. Substitutions: Not permitted.

2.2 FRAMING

- A. Interior Framing System: TRIFAB VG 450, by Kawneer. 1-3/4 x 4-1/2 inch nominal dimension, extruded aluminum flush glazed framing system.
- B. Exterior Framing System: TRIFAB VG 450, by Kawneer. 1-3/4 x 4-1/2 inch nominal dimension, extruded aluminum flush glazed framing system.
- C. Receptor Channel: Model No. 451VG570 and 451VG572, by Kawneer. Finish to match that of storefront system.
- D. Member Wall Thickness: Each framing member shall provide structural strength to meet specified performance requirements.

2.3 DOORS

- A. Doors: Series 350 swing door, medium stile, by Kawneer. Door sizes indicated on Drawings.
 - 1. Top Rail: 6-1/2 inch, single piece.
 - 2. Bottom Rail: 10 inch.
 - 3. Glazing: 1/4 inch thick units per Section 08800, with standard bevel glass stops.

2.4 COMPOSITE INFILL PANELS (If shown on Drawings)

- A. Composite Panels: 5/16" or 1/2", smooth primed aluminum finish each face (Masonite panels are not acceptable).
- B. Acceptable Manufacturers:
 - 1. Mapes Industries, Inc. (800) 228-2391.
- C. Paint infill panels to match storefront system bronze or black finish.
 - 1. 1st Coat: Alkali-resistant primer (factory applied).
 - 2. 2nd Coat: Acrylic Latex (match existing adjacent finish).

2.5 HARDWARE

A. Closers:

1. Single Acting Doors: Heavy duty, parallel arm only, surface closer meeting ADA-90 requirements, independently hung, with adjustable back check and 100 degree hold-open; slim line half covers, spray painted aluminum to match aluminum storefront system. Attachment: Thru-bolted in door. No drop-plates allowed.
 - a. Dorma 7601PA Series.
 - b. LCN P1461.
 - c. Norton 8301BF.
 - d. Russwin 2820DA.
 - e. Yale 3301BF.
2. Double Acting Doors (Replacement of existing only): Heavy duty, double acting overhead concealed closer with cover plate.
 - a. Kawneer Huskie.
 - b. Jackson 20-330.
 - c. Rixson 800 Series.

B. Pivots:

1. Off-set Pivots: For single acting doors.
2. Center Pivots: For double-acting doors.
3. Intermediate Pivots: For single acting doors, adjustable, load bearing, surface applied; to match door finish.

C. Push/Pulls: Type CP-2 push and type CO-9 pull, by Kawneer Company, Inc. Finish: #14 Clear Anodized. Mount push bar at 42 inches above finish floor.

D. Door Holder (Exterior doors only): 1221-4 cast iron, finish to match door color, by Trimco - Triangle Brass Mfg. Co.

E. Weatherstripping (Exterior doors only):

1. Head and Jamb: Replaceable wool, polypropylene, or nylon wool pile with aluminum strip backing, recessed in frame.
2. Sill: Semi-rigid polymeric material on aluminum anodized to match door; EPDM sweep strip; 38-560 by Kawneer or similar by other named manufacturers.

F. Threshold: See Section 08710.

G. Glass Guards: Nominal 1/2 inch by 2 inch aluminum bars, mounted at heights shown, flush mounted stile-to-stile. Coordinate with Section 08462 as applicable.

1. Install glass guards both faces of interior and exterior doors.

H. Flush Bolt/Interlocking Device:

1. Exterior Doors: 3 point lock. Provide the following:
 - a. Controller Locking System, by Kawneer.
2. Interior Doors: 2 point lock (jamb and header bolts only). Provide one of the following:
 - a. Controller Locking System, by Kawneer.
 - b. Model No. 6003-1063, 2 point lock, by Truth Hardware, (818) 834-2433. For distributor, call (800) 866-7884.
3. Substitutions: None accepted.
4. Install flush bolt/interlocking device on pairs of storefront doors indicated as an exit in the Store. Coordinate with Section 08710, Hardware Schedule, for doors requiring flush bolt/interlocking device.

I. Deadbolt Locks: Mortise type, Adams Rite MS-1850A with 4089 exit indicator, less cylinder. See Section 08710 for cylinders and thumbturns. Thumbturn shall be installed in addition to a keyed cylinder on same door.

1. Install deadbolt lock on single doors.
2. Install deadbolt lock on pairs of storefront doors not indicated as an exit.

- J. Flush Bolts: Kawneer top and bottom flush bolts.
 - 1. Install flush bolts in inactive leaf on pairs of storefront doors not indicated as an exit.
- K. Hardware Schedule: Provide hardware as scheduled for each exterior entry/exit doors under this Section. Coordinate additional hardware requirements with Section 08710 - Door Hardware.
 - 1. Off-set or center pivot hinges, top and bottom.
 - 2. Intermediate Pivots.
 - 3. Closers.
 - 4. Decal.
 - 5. Weatherstripping.
 - 6. Threshold, coordinate with Section 08710.
 - 7. Push / Pull Sets.
 - 8. Deadbolt Locks, coordinate cylinder with Section 08710.
 - 9. Flush Bolt/Interlocking device on pairs of doors.
- L. Additional Hardware: Coordinate with hardware supplier and prepare door as required for additional field installed hardware as specified in Section 08710.

2.6 FABRICATION

- A. Fabricate components with minimum clearances and shim spacing around perimeter of assembly, yet enabling installation and dynamic movement of perimeter seal.
- B. Rigidly fit and secure joints and corners. Make joints and connections flush, hairline, and weatherproof.
- C. Develop drainage holes with moisture pattern to exterior.
- D. Prepare components to receive anchor devices. Fabricate anchorage items. Arrange fasteners, attachments, and jointing to ensure concealment from view.
- E. Prepare components with internal reinforcement for door hardware.
- F. Reinforce framing members for imposed loads.
- G. Accessories:
 - 1. Break Metal Closures: Minimum 0.040 inch thick aluminum x length required. Finish to match adjacent related work.
 - 2. Provide clean sharp edges, uniform in appearance and consistent in shape. Secure in place with concealed fasteners where possible. Exposed fasteners shall match enclosure fabrication.
 - 3. Sill Flashing: Fabricate to configuration indicated and required of minimum 0.040 inch aluminum having exposed edges hemmed. Finish to match adjacent related work.

2.7 FINISHES

- A. Exposed Aluminum Surfaces: Architectural Class II anodic coating conforming to AAMA 611, AA-M12 C22 A31, #17 Clear, unless otherwise indicated on Drawings.
- B. Provide clear finish for all new storefront systems unless partial replacement or repair; then, verify and match existing storefront system color. Maintain same color range. Do not mix light and dark shades.
- C. Concealed Steel Items: Galvanized in accordance with ASTM A386 to 2.0 oz/sq ft.
- D. Apply two coats of bituminous paint to concealed aluminum and steel surfaces in contact with cementitious or dissimilar materials.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify wall openings are ready to receive work of this Section. Verify dimensions, tolerances, and method of attachment with other work.
- B. Beginning of installation means acceptance of existing conditions.

3.2 INSTALLATION

- A. Install storefront system components in accordance with manufacturer's instructions.
- B. Use anchorage devices to securely attach frame assembly to structure.
- C. Align assembly plumb and level, free of warp or twist. Maintain assembly dimensional tolerances, aligning with adjacent work.
- D. Break Metals:
 - 1. Set sill flashing in full bed of sealant. Provide riveted end laps of not less than 3 inches.
- E. Pack fibrous insulation in shim spaces at perimeter of assembly to maintain continuity of thermal barrier.
- F. Install perimeter sealant and backing materials in accordance with Section 07900.
- G. Install glass in accordance with Section 08800, to glazing method required to achieve performance criteria.
- H. Install hardware using templates provided and in accordance with disabled access regulatory requirements for hardware. Refer to Section 08710 for cylinders and installation requirements.
 - 1. Cylinder and Thumb Turn: 48 inches above finished floor.
- I. Set thresholds in bed of mastic and secure.
- J. Adjust operating hardware and crash bars for smooth operation.

3.3 TOLERANCES

- A. Variation from Plane: 0.03 inches per foot maximum or 0.25 inches per 30 feet, whichever is less.
- B. Misalignment of Two Adjoining Members Abutting in Plane: 0.015 inches.

3.4 FIELD QUALITY CONTROL

- A. Inspect storefront system installation and attachment to building structure.
- B. Inspect door operation and hardware installation.

3.5 CLEANING

- A. Wash down exposed surfaces using a solution of mild detergent in warm water, applied with soft, clean wiping cloths. Take care to remove dirt from corners. Wipe surfaces clean.
- B. Remove excess sealant by moderate use of mineral spirits or other solvent acceptable to sealant manufacturer.

END OF SECTION

SECTION 08462 – AUTOMATIC SLIDING ENTRANCE DOORS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Electric operated automatic sliding entrance doors with transom assemblies, including frames, glazing, and hardware.
 - 2. Control System: Motion detection and hold open safety system.
 - 3. Video camera system.
- B. Products Furnished and Installed Under Separate Contract (NIC): Under provisions of Section 01600, Owner's automatic entrance door supplier will furnish and install automatic entrance doors as described within this Section.
- C. Related Sections:
 - 1. Section 07900 - Joint Sealers.
 - 2. Section 08411 - Aluminum Framed Storefronts: Aluminum framed storefront system for installation of Automatic entrance doors.
 - 3. Section 08800 - Glazing: Storefront system glass.
 - 4. Section 16100 - Wiring Methods: Power to automatic doors.

1.2 REFERENCES

- A. The publications listed below form a part of this specification to the extent referenced. Publications are referenced within the text by these basic designations only.
- B. American Association of Automatic Door Manufacturers (AAADM):
 - 1. AAADM Inspector Certification Program.
- C. American National Standards Institute (ANSI):
 - 1. ANSI A117.1 - Guidelines For Accessible And Usable Buildings And Facilities.
 - 2. ANSI (BHMA) A156.10 - Power Operated Pedestrian Doors.
 - 3. ANSI Z97.1 - Safety Glazing Material Used in Buildings.
- D. ASTM International (ASTM):
 - 1. ASTM C 1048 - Heat Treated Flat Glass - Kind HS, Kind FT Coated and Uncoated Glass.
- E. Consumer Products Safety Standards for Architectural Glazing: CPSC 16 CFR, Part 1201.

1.3 DEFINITIONS

- A. Automatic Entrance Door Supplier: Manufacturer of products, separately contracted by Owner.

1.4 SYSTEM DESCRIPTION

- A. Performance Requirements:
 - 1. Design system to operate, hold open, and close doors under wind and suction loads calculated by the manufacturer based on the design wind loads shown on the Structural drawings.
 - 2. Provide for thermal expansion and contraction of door and frame units, transmitted to operating equipment.
 - 3. Provide for dimensional distortion of components during operation.
 - 4. Provide for opening and closing operation of door panels in the event of power failure.
 - 5. Operating Temperature Range: -20 F to 130 F ambient.
 - 6. Eliminate system performance interference by ambient light and radio frequencies.
 - 7. Provide sliding doors and side panels with break-away capability.

1.5 QUALITY ASSURANCE

- A. Installer Qualifications:
 - 1. Automatic and barrier free door equipment shall be installed by the manufacturer's factory trained installers or shall be installers as recommended and approved by the automatic door operator manufacturer.
 - 2. Installers shall be certified and recognized by and in accordance with the AAADM Inspector Certification Program.
- B. Regulatory Requirements:
 - 1. Conform to applicable code for automatic release of control drive unit to permit manual opening of doors.
 - 2. Comply with ANSI A156.10 and ANSI A117.1.
 - 3. Products Requiring Electrical Connection: Listed and classified by Underwriters Laboratories, Incorporated as suitable for the purpose specified and indicated.
- C. Pre-Installation Meetings:
 - 1. Contractor shall convene a pre-installation conference at the site, one week prior to commencing work of this Section. Require attendance of parties directly affecting Work of this Section, including, but not limited to, Wal-Mart Construction Manager, Contractor Project Field Superintendent, Aluminum Storefront job foreman, Automatic Entrance Door Manufacturer's Technical Representative, electrical subcontractor field supervisory personnel, and any subcontractor, supplier, or installer directly affecting, or affected by Work of this Section.
 - 2. Contact Wal-Mart Construction Manager two weeks prior to pre-installation conference to confirm schedule.
 - 3. Review preparation and installation procedures and coordinating and scheduling required with related work.
 - 4. Record discussions of conference and decisions and agreements (or disagreements) reached, and furnish copy of record to each party attending. Review foreseeable methods and procedures related to automatic entrance door Work, including the following:
 - a. Tour, inspect, and discuss condition of door assembly openings, connections to building structure, electrical requirements, and other preparatory work performed by other trades.
 - b. Review automatic entrance door system requirements including drawings, specifications and other contract documents.
 - c. Review required submittals, both completed and yet to be completed.
 - d. Review and finalize construction schedule related to automatic entrance door Work and verify availability of materials, installer's personnel, equipment and facilities needed to make progress and avoid delays.
 - e. Review required inspections, operational testing, and certifying procedures.
 - f. Review weather and forecasted weather conditions, and procedures for coping with unfavorable conditions.

1.6 DELIVERY, STORAGE AND HANDLING

- A. Product Delivery: Automatic Entrance Door Supplier will deliver products to jobsite and install products. Automatic Entrance Door Supplier will contact Contractor after Award of Contract to establish a product delivery and installation date and establish a coordination procedure.
- B. Product Packaging: Automatic Entrance Doors will be delivered in manufacturer's standard packaging with identification markings on each component or package.
- C. Acceptance at Site: Contractor shall inspect products with Automatic Entrance Door Supplier upon delivery of products to jobsite.
 - 1. Verify quantity of products furnished.
 - 2. Report discrepancies in product quantity delivered, or damage to products delivered to Automatic Entrance Door Supplier and Wal-Mart immediately. Upon notification, Wal-Mart will arrange for delivery of replacement products.
- D. Manufacturing Defects: Report suspected manufacturing defects to Wal-Mart Construction Manager and Automatic Entrance Door Supplier. Upon notification, Wal-Mart will arrange for repair of manufacturing defects.

- E. Section 01600 - Product Requirements: Transport, handle, store, and protect products.

1.7 WARRANTY

- A. Provide manufacturer's three year warranty. Include coverage of complete system for failure to meet specified requirements. Include cost of material and labor for repairs and adjustments.

PART 2 - PRODUCTS

2.1 MANUFACTURER

- A. Stanley Access Technologies, Farmington, CT.
 - 1. Contact: Kevin Bernier, National Accounts Project Manager (860) 409-6500.

2.2 AUTOMATIC SLIDING ENTRANCE DOORS

- A. Jamb-Mounted Automatic Bi-Parting Entrance Doors: Dura-Glide Series 3000 with Stan-Vision as manufactured by Stanley. Overhead concealed slide door system with sidelights and transom where indicated, full breakout of doors and sidelights unless otherwise scheduled to be non-breakaway, and doorway monitoring device to control door opening, closing, and hold open functions, single or pair as indicated.
 - 1. Door and Transom Sizes: As shown on Drawings.
- B. Surface-Mounted Automatic Bi-Parting Entrance Doors: Dura-Glide Series 2000 with Stan-Vision as manufactured by Stanley. Overhead concealed slide door system, breakaway on sliding leaf only, and doorway monitoring device to control door opening, closing, and hold open functions. Provide package with 'P' panels.
 - 1. Door Sizes: As shown on Drawings.

2.3 OPERATING SYSTEM COMPONENTS

- A. Visual Sensing System (Motion Detector): Stan-Vision Series as manufactured by Stanley.
 - 1. The system consists of the following major components:
 - a. Two CCD (Closed Circuit Digital) visual sensors with mounting templates, one visual sensor controller, a four-channel encoder, two RG-59 cables for connecting the visual sensors to the visual sensor controller.
 - 2. The system shall connect with the Stanley interface board, motor encoder assembly, and the Stanley Dura-Glide microprocessor control box.
 - 3. Provide one unit center mounted above doorway on each side of header.
 - 4. Provide a 4-11/16" square by 2-1/4" deep "J-Box" at the center above the automatic doors for the camera coax cable. Provide (2) 1-1/4" flex cables to the door jamb pre-drilled holes. Provide 1-1/4" conduit to the "J-Box" up above ceiling level or to roof structure area, as required for connections by Wal-Mart Loss Prevention.
- B. Jamb / Stile Mounted Frontal View Camera System:
 - 1. CMOS video camera system by Stanley. The system consists of the following major components:
 - a. Jamb mounted CMOS color camera with mounting hardware.
 - b. Camera I/O interface module for power connection and video output connection located within the header assembly.
 - 2. Camera system shall be mounted within the jamb tube that supports the door assembly.
 - 3. Provide one camera at approach side of each sliding door.
 - 4. Provide one camera each side of Garden Center sliding door.
- C. Power Requirements: Dedicated 120V AC, 10 Amp, 60 Hz, single phase power with solid earth ground connection.

2.4 DOORS, HARDWARE, AND ACCESSORIES

- A. Doors: Narrow stile aluminum doors.
1. Top Rail: Manufacturer's standard.
 2. Bottom Rail: 10 inches high.
 3. Horizontal Muntins: Provide two muntins, locate at 24 inches and 42 inches above finish floor. Align with bumper guards and push bars on aluminum storefront system entrance door as indicated on Drawings.
 4. Stiles: 2-1/4 inches.
 5. Glass:
 - a. Interior Doors and Transom Glazing Above Exterior Doors: Clear tempered glass; ASTM C1048, Kind FT (Fully Tempered), Condition A (Uncoated), Type I (Transparent Glass, Flat), Class 1 (Clear), Quality q3 (Glazing Select). Conform to ANSI Z97.1 and CPSC 16 CFR Part 1201.
 - 1) Thickness: 6.0 mm (1/4 inch).
 - 2) Identification: Permanently identify by manufacturer. Etch or ceramic fire identification on glass visible when unit is glazed.
 - b. Exterior Doors (But Not Including Transom Glazing): Tinted tempered glass; ASTM C 1048, Kind FT (Fully Tempered), Condition A (Uncoated), Type I (Transparent Glass, Flat), Class 2 (Tinted Heat Absorbing and Light Reducing), Quality q3 (Glazing Select). Conform to ANSI Z97.1 and CPSC 16CFR Part 1201.
 - 1) Thickness: 6.0 mm (1/4 inch).
 - 2) Color: Gray tint or bronze tint (verify and match existing).
 - 3) Identification: Permanently identify by manufacturer. Etch or ceramic fire identification on glass visible when unit is glazed.
- B. Finish:
1. Exposed Aluminum Surfaces: Architectural Class II anodic coating, AA-M12 C22 A31, #17 Clear, unless otherwise indicated on Drawings.
 2. Provide clear finish for all new storefront systems unless partial replacement or repair; then, verify and match existing storefront system color. Maintain same color range. Do not mix light and dark shades.
 3. Apply two coats of bituminous paint to concealed aluminum and steel surfaces in contact with cementitious or dissimilar materials.
- C. Door Hardware and Accessories:
1. Pivots: Allows sliding panel and sidelights to break away to full open position to provide immediate egress at any point in door movement.
 2. Top Door Arm: Door holders for all break-away door panels.
 3. Quick disconnect wiring harness.
 4. Power Switch: 5 position "On/Off/Hold Open" switch; full automatic, reduced automatic, and exit only.
 5. Adjustable door sweeps (Exterior doors only).
 6. Finger Protection: Provide finger protection between sidelight and sliding door when door is in open position.
 7. Lock:
 - a. Cylinder: Slide doors shall include two point lock securing lead edges of door styles together and to hanger assembly.
 - b. Electromechanical Solenoid Lock (Exterior Doors): Provide automatic locking mechanism to secure doors in closed position when the door is closed to outside entry (ENTER/NO). Provide fail-safe control. Provide door unit with exterior access by key control switch mounted at outside jamb to disengage electromechanical lock and open door.
 8. "Watchdog" monitoring of microprocessor.
 9. Keyed Cylinder (Outside): Specified in Section 08710 (Furnished by Contractor).
 10. Perimeter pile weatherstripping.
 11. Panic break-away shall be code approved, acceptable to authorities having jurisdiction.
 12. Thresholds:
 - a. Provide aluminum threshold of profile shown. Provide edge profile suitable for installation adjacent to entrance tile where applicable.
 - b. Length: Opening width plus 2 inches minimum.
 13. Glass Guards (Crash Bars): Nominal 1/2 inch by 2 inch aluminum bar with 1 inch projection from

mounting surface. Mount on doors where and as shown on the drawings.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Contractor and Automatic Entrance Door Supplier shall jointly examine existing conditions prior to start of door installation.
- B. Examine surfaces and adjacent areas in which Work is performed. Report conditions that may adversely affect satisfactory execution of Work to Wal-Mart Construction Manager. Do not proceed with Work until unsatisfactory conditions have been corrected.

3.2 PREPARATION (CONTRACTOR)

- A. Provide door openings to size indicated on Drawings.
- B. Provide door head level and parallel with floor at door opening. Size and configuration shall be as indicated on the Drawings.
- C. Provide door jambs parallel and plumb.
- D. Provide power to location at door required by door manufacturer ready for power connection.

3.3 INSTALLATION (OWNER)

- A. Automatic entrance doors and operating system will be installed by Automatic Entrance Door supplier personnel.
- B. Installation will be in accordance with manufacturer's published instructions.
- C. Anchorage devices will be used to securely fasten assembly to adjacent construction without distortion or stress.
- D. Hardware will be installed in accordance with ANSI A117.1 requirements and local adopted disabled access requirements for hardware.
- E. Joint sealing between door frames and walls will be by Automatic Entrance Door supplier in accordance with Section 07900.
- F. Doors shall be rendered non-breakaway when scheduled on the drawings.

3.4 INSTALLATION (CONTRACTOR)

- A. Make final power connections to automatic entrance doors as specified in Section 16100.
- B. Furnish and install keyed cylinder and thumbturn if and where specified in Section 08710.

3.5 CONSTRUCTION

- A. Interface with Other Work:
 - 1. Coordinate locations of power connections and requirements.
 - 2. Coordinate locations of building management alarm connections and requirements.
 - 3. Coordinate requirements for door openings required for automatic entrance door installation.

3.6 FIELD QUALITY CONTROL

- A. Site Tests: Upon completion of installation, test operation of automatic entrance doors and operating system. Make all necessary adjustments as required and retest.

- B. Inspection:
 - 1. Inspect automatic entrance doors and operating system installation in accordance with AAADM requirements. Submit completed AAADM inspection form as specified.
 - 2. Correct deficiencies in Work which inspection indicates are not in compliance with Contract Documents.
- C. Completion Notice: Sign "Post Installation Check List" form provided by Automatic Entrance Door Supplier at completion of door installation. Automatic Entrance Door Supplier will forward copy of signed form to Wal-Mart.

END OF SECTION

SECTION 08631 – METAL FRAMED FIXED AND VENTING SKYLIGHTS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Owner furnished prefabricated fixed Skylights.
- B. Products Installed But Not Supplied Under This Section: Under provisions of Section 01640, Owner's supplier will furnish all skylights and accessories specified herein for installation by the Contractor.
 - 1. Descriptions and specifications of Owner furnished items and equipment hereinafter are included as information to the Contractor only and not to be considered as Contractor requirements unless otherwise stated.
- C. Related Sections:
 - 1. Section 07721 - Manufactured Curbs: Curbs for mounting of skylight assemblies.
 - 2. Section 07900 - Joint Sealers: Application of sealant around skylights.

1.2 REFERENCES

- A. The publications listed below form a part of this specification to the extent referenced. Publications are referenced within the text by these basic designations only.
- B. Aluminum Association (AA):
 - 1. Specifications for Aluminum Structures.
- C. American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE):
 - 1. ASHRAE 90.1 - Energy Standard for Buildings Except Low-Rise Residential Buildings.
- D. Factory Mutual System (FM):
 - 1. FM - Approval Guide, Chapter 18 - Building Materials.
 - 2. FM Standard 4430 - Test Criteria for Heat and Smoke Vents.
- E. National Fenestration Rating Council (NFRC):
 - 1. NFRC 100 - Procedure for Determining Fenestration Product U-Factors.
 - 2. NFRC 200 - Procedure for Determining Fenestration Product Solar Heat Gain Coefficient and Visible Transmittance of Normal Incidence.
- F. North American Fenestration Standard (NAFS):
 - 1. AAMA\WDMA\CSA\101\I.S.2\A440 - The Voluntary Performance Specification for Windows, Skylights, and Glass Doors.

1.3 PERFORMANCE REQUIREMENTS

- A. Plastic unit skylights shall conform to recommendations of the AA Specifications for Aluminum Structures.
- B. Skylights shall be designed to carry a minimum tributary roof load as shown on Structural drawings, or greater per site as specified in the current International Building Code or prevailing model code.
- C. Skylights shall be tested and labeled in accordance to AAMA\WDMA\CSA\101\I.S.2\A440 as required by Section 2405.5 of the 2006 International Building Code.

- D. The test laboratory shall also perform a 200 lb drop test from a height of 24" above the center (highest point) of dome shape and at mid points of both the 5' and 6' side (approximately 15" and 18" from center). The 200 lb. load shall be contained within a flexible bladder or sack having approximate dimensions no larger than 30" long, 20" wide, and 8" high, filled with course sand or pea gravel. The dome shall withstand the sack drop without inverting or breaking. The drop test shall be witnessed and certified by the test laboratory which provides the NAFS certification.

1.4 SUBMITTALS

- A. Wal-Mart supplier will provide submittals specified herein to the Contractor who shall forward them to the Architect. Contractor shall review and process submittals in accordance with Section 01640.
- B. Provide manufacturer's certifications and reports within 15 days of contract award showing that the skylights to be provided conform to these specifications.
- C. Certifications:
 - 1. Drop Test: Provide certification of passing drop test signed by test laboratory.
 - 2. 50 Percent Impact: Provide manufacturer's certification that glazing material conforms to the 50% impact requirements of these specifications.
 - 3. NAFS Certification: Provide manufacturer's certification showing that the skylight system provided has been tested in accordance to AAMA\WDMA\CSA\101\I.S.2\A440.
 - 4. NFRC Certification: Provide certification issued by NFRC that skylights comply with U-Value and SHGC requirements specified. Use mandatory default requirements of ASHRAE 90.1.

1.5 REGULATORY REQUIREMENTS

- A. Skylights shall be certified by the NFRC.
- B. Skylights shall be certified by the NAFS.

1.6 DELIVERY, STORAGE AND HANDLING

- A. Section 01600 - Material and Equipment: Transport, handle, store, and protect products.
- B. Handle, deliver, and store in manufacturer's original packaging, following manufacturer's recommendations.
- C. Store in a dry area and in a manner to prevent damage.

PART 2 - PRODUCTS

2.1 MANUFACTURER

- A. Wal-Mart supplier for skylights will be as follows:
 - 1. Sunoptics Prismatic Skylights, Sacramento, CA (800) 289-4700. Contact: Nicole Thio.

2.2 FIXED SKYLIGHT UNITS

- A. Description: Factory fabricated aluminum framed plastic thermalized sealed double glazed dome skylights.
- B. Skylight Glazing Panels:
 - 1. Outer Lens: 50% minimum impact modified clear acrylic or clear prismatic acrylic of sufficient thickness to meet the specified performance requirements.
 - 2. Inner Lens: High diffusing white prismatic acrylic.

3. Energy Requirements: Glazing material shall have a maximum light distribution characteristic that maximizes the shading factor. The combined inner/outer lens target values shall be as follows:
 - a. Light Transmittance: 60 percent minimum.
 - b. Solar Heat Gain Coefficient: 0.52 maximum. NFRC 200.
 - c. "U" Value: 0.71 or lower (glazing and framing) in accordance with NFRC 100 or "unlabeled skylight" default requirements of ASHRAE 90.1.

C. Frame:

1. ASTM B 221 alloy 6063-T5 extruded aluminum frame with extruded aluminum dome retaining angle, thermal break, and integral condensate gutter.
2. Finish: Manufacturer's standard mill finish.
3. Provide pre-installed 1-1/2" x 1/4" foam rubber gasket between frame and curb.
4. Provide weather sweep attached to frame.
5. Curb Dimensions: Nominal 60 inches by 72 inches. Verify with selected skylight manufacturer.

2.3 SKYLIGHT CURBS

- A. Specified in Section 07721.

2.4 ACCESSORIES

- A. Sealant: As recommended by skylight manufacturer and provided by the Contractor.
- B. Fasteners (For anchorage of skylight to roof curb): #12 x 1-1/2 inch stainless steel screws with washers, furnished by skylight manufacturer. Provide fasteners in sufficient quantity for complete installation.
- C. Washers: Neoprene/stainless steel bonded washer furnished by skylight manufacturer.

2.5 FABRICATION

- A. Provide skylight fabrication drawings to manufactured curb manufacturer specified in Section 07721 for verification of exact dimensions and attachment methods prior to fabrication of manufactured curb assemblies.
- B. Skylights shall be assembled and glazed ready for installation.
- C. Fabricate skylights weathertight and free of visual distortions and defects.
- D. Exterior drip/counterflashing and drainage ports shall be protected from weather and air-borne debris. Corners of curb and retaining frames shall be mitered and full penetration welded. Retaining frames that secure the glazing panels along each side under spring tension need not be welded and must be sealed with a silicone sealant along the full perimeter of the retaining frame. Skylight curbs shall be predrilled for anchorage to roof curbs.
- E. Seal glazing panels to base frame allowing for sufficient expansion and contraction. Provide weeping hole arrangement.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine surfaces and adjacent areas in which Work under this Section is to be performed. Do not proceed with Work until satisfactory conditions have been corrected.
- B. Beginning of installation indicates acceptance of existing conditions.

3.2 INSTALLATION (By Contractor)

- A. Install skylights on manufactured curbs provided under Section 07721 in accordance with manufacturer's published instructions. Coordinate with installation of roofing system and related flashings. Provide weathertight installation.
- B. Separate aluminum surfaces of units in contact with cementitious materials or dissimilar metals with bituminous coating or other permanent separation as recommended by manufacturers.
- C. Skylight Orientation: Unless noted otherwise, install skylight with long dimension perpendicular to steel bar joist.
- D. Attach skylight to curbs with specified fasteners and washers with minimum spacing of 12 inches on center.

3.3 CONSTRUCTION

- A. Interface with Other Work: Coordinate attachment and mounting methods of skylight units to manufactured curb assemblies with manufactured curb manufacturers listed in Section 07721.

3.4 FIELD QUALITY CONTROL

- A. Inspect skylight installation and attachment to manufactured curbs. Verify that installation is weathertight.
- B. Ensure shipping clips have been removed from venting skylights after verification of weathertight installation.
- C. Correct deficiencies in Work which inspection indicates are not in compliance with Contract Documents.
- D. Conduct operational test on each installed venting skylight.

END OF SECTION

SECTION 08710 – DOOR HARDWARE AND HARDWARE SCHEDULE

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Hardware for doors.
 - 2. Thresholds.
 - 3. Weatherstripping, seals and door gaskets.
- B. Related Sections:
 - 1. Section 03300 - Cast-In-Place Structural Concrete: Non-shrink grout for thresholds.
 - 2. Section 03310 - Cast-In-Place Structural Concrete: Non-shrink grout for thresholds.
 - 3. Section 06100 - Rough Carpentry: Blocking for miscellaneous hardware mounting.
 - 4. Section 06200 - Finish Carpentry: Hardware for cabinetry and other finish carpentry.
 - 5. Section 08110 - Steel Doors and Frames: Hardware coordination.
 - 6. Section 08331 - Coiling Counter Doors: Hardware coordination.
 - 7. Section 08411 - Aluminum Framed Storefronts: Hardware coordination.
 - 8. Section 08461 - Automatic Swing Entrance Doors: Hardware coordination.
 - 9. Section 08462 - Automatic Sliding Entrance Doors: Hardware coordination.
 - 10. Section 16100 - Wiring Methods: Electrified hardware coordination.

1.2 REFERENCES

- C. The publications listed below form a part of this specification to the extent referenced. Publications are referenced within the text by the basic designation only.
- D. American National Standards Institute (ANSI):
 - 1. ANSI A117.1 - Specifications for Making Buildings and Facilities Accessible to and Usable by Physically Handicapped People.
- E. National Fire Protection Institute (NFPA):
 - 1. NFPA 80 - Fire Doors and Windows.
 - 2. NFPA 101 - Code for Safety to Life from Fire in Buildings and Structures.
 - 3. NFPA 252 - Fire Tests of Door Assemblies.
- F. Underwriters Laboratories (UL):
 - 1. UL 10B - Fire Tests of Door Assemblies.
 - 2. UL 305 - Panic Hardware.

1.3 QUALITY ASSURANCE

- G. Perform work in accordance with the following requirements:
 - 1. ANSI A117.1.
 - 2. NFPA 101.
 - 3. NFPA 80.
 - 4. NFPA 252.
 - 5. UL 10B.
 - 6. UL 305.
- H. Regulatory Requirements:
 - 1. Conform to applicable code for requirements applicable to fire rated doors and frames.
 - 2. Products Requiring Electrical Connection: Listed and classified by Underwriters' Laboratories, Inc., and

- acceptable to the authority having jurisdiction as suitable for the purpose specified and indicated.
3. Conform to applicable local, State or Federal disabled access requirements for the installation and operation of door hardware.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- I. Provide hardware as Scheduled in the Hardware Schedule in Part 3 of this Section.
- J. Suppliers: Provide hardware by one of the following suppliers:
1. D.H. Pace, Inc.
Springfield, MO
Mark Lyons
(417) 831-5585
 2. Girtman & Associates
Nashville, TN
Bruce Wilkerson
(615) 350-6000 Ext 24
 3. Arc One
Tampa, FL
Dan Winter
(813) 620-3667
 4. Royal Architectural Products, Ltd
Amarillo, TX
Fred Barksdale, ACH
(806) 373-1759
- K. Product Designations: Hardware may be any of the products listed within the tables below for each specific type. Substitutions will not be permitted.
- L. Hardware Manufacturer Designations:

ID	Manufacturer	Telephone	ID	Manufacturer	Telephone
A	Adams Rite.	(213) 699-0511	No	Norton (Yale Security Group)	(800) 438-1951
Ar	Arrow (ASSA ABLOY)	(800) 233-0478	P	Pemko Mfg. Co.	(805) 642-2600
CR	Corbin Russwin (Yale Security Group)	(800) 438-1951	Po	Positive Lock	(800) 342-7670
De	Detex Corporation	(800) 729-3839	Re	Reese Enterprises, Inc.	(800) 328-0953
Dor	Dorma Architectural Hardware	(800) 523-8483	Ri	Rixson (Yale Security Group)	(800) 438-1951
Dyn	DynaLock Corp	(877) 396-2562	Ru	Rutherford Controls	(800) 265-6630
			Ro	Rockwood	(814) 926-2026
GJ	Glynn-Johnson	(800) 525-0336	Sa	Sargent (ASSA ABLOY)	(203) 562-2151
H	Hager Companies	(800) 325-9995	Sc	Schlage (IR Security & Safety)	(800) 847-1864
I	H. B. Ives (IR Security & Safety)	(877) 613-8766	Sel	Select Hinge	(800) 423-1174
			Si	Simplex (Kaba Ilco)	(919) 725-1331
L	Lawrence Brothers, Inc.	(815) 625-0360	S	Stanley	(800) 622-4393
LCN	LCN Closers (IR Security & Safety)	(800) 526-2400	T	Trimco (Trimco/BBW)	(213) 262-4191
Ln	Locknetics (IR Security & Safety)	(866) 322-1237	VD	Von Duprin (IR Security & Safety)	(800) 999-0408
Mc	McKinney (ASSA ABLOY)	(717) 346-7551	W	Wooster Products Inc.	(800) 321-4936

ID	Manufacturer	Telephone	ID	Manufacturer	Telephone
Mo	Monarch Exit Devices & Door Hardware (IR Security & Safety)	(800) 826-5792	Y	Yale (Yale Security Group)	(800) 438-1951
Na	National Guard Products, Inc.	(800) 647-7874			

2.2 HINGES

M. Material:

1. Provide full mortise-type hinges with stainless steel pins, except steel pins with steel hinges; non-removable pin (NRP) for exterior and public interior exposure, non-rising pin, flat button with matching plugs, 4-1/2 x 4-1/2 unless otherwise shown.
2. Ball-bearing Type: Swaged, inner leaf beveled, square corners.
3. Full-surface Reinforcing Pivot:
 - a. For 4-1/2" butts with standard 1/4" backset.
 - b. Install per manufacturer's written instructions using attachments furnished with pivot.

N. Hinges by types:

Type	Description	Finish	MANUFACTURER/MODEL		
			Stanley	Hager	McKinney
H-1	Butts: Medium weight door, average frequency, bronze (NRP)	626	FBB191	BB1191	TB2314
H-2	Butts: Medium weight door, low frequency, steel	652	F179	1279	T2714
H-3	Butts: Medium weight door, low frequency, steel (NRP)	652	F179	1279	T2714
H-4	Butts: Medium weight door, average frequency, steel	652	FBB179	BB1279	TB2714
H-5	Butts: Medium weight door, average frequency, steel (NRP)	652	FBB179	BB1279	TB2714
H-6	Hinge: Continuous geared hinge	CL	SL21 SD x SDTF x FDH by Select Hinge (Sel)		
H-7	Not Used				
H-8	Hinge: Surface mounted 3 x 3	US2H	808BP	1808	705
H-9	Pivot: Full-Surface Reinforcing (Helper Hinge)			253 (right or left handed as applicable)	

2.3 LOCKS, LATCHES, AND BOLTS

O. Materials:

1. Cylindrical Locks: ANSI A156.2, Series 4000 Grade 1, equipped with 6-pin tumbler; "keyed alike" to match keying system of existing locks to remain. Provide 2-3/4 inch backset. Provide two keys for each lock.
2. Mortise Locks: ANSI A156.13, Grade 1, equipped with 6-pin tumbler; "keyed alike" to match keying system of existing locks to remain. Provide 2-3/4 inch backset. Provide two keys for each lock.
3. Latch Sets: Provide push-button releases by turning lever, closing door, or turning emergency release key through hole in outside knob.
4. Strikes: ANSI Strikes, 1-1/4 x 4-7/8 inches, with curved lip. Wrought box strikes, with extended lip for latch bolts, except open strike plates may be used in wood frames. Provide dustproof strikes for foot bolts.
5. Tactile Warning: Provide locks with tactile warning for handicapped codes when required by local jurisdiction having authority.

P. Locks by types:

Type	Description	Finish	MANUFACTURER/MODEL			
			Corbin Russwin	Sargent	Schlage (Provide Classic "C" keyway)	Yale
L-1	Mortise Cylinder	626	100-118-A03	41	20-001	2153
L-2	Mortise Cylinder	626	1000-114-A02	42	20-001-1-1/4"	2153
L-3	Rim Cylinder	626	3000-200	34	20-022	1109
L-4	Thumbturn	626	1300-118-A03	124-41		S2053S
L-5	Storeroom Lock (F86)	626	CL3357-NZD-217L13	10G04 LL	ND80PD-Rhodes- 25	5405LN-AU-497
L-6	Office Lock (F82)	626	CL3351-NZD-217L13	10G05 LL	ND50PD-Rhodes-10-025	5407LN-AU-497
L-7	Passage Latch (F75)	626	CL3310-NZD- 217L13	10U15 LL	ND10S - Rhodes- 10-025	5401LN-AU-497
L-8	Privacy Lock (F76)	626	CL3320-NZD- 217L13	10U65 LL	ND40S - Rhodes- 10 -025	5402LN - AU-497
L-9	Dead Bolt Lock	626	DL2111	486	B661P	3532B
L-10	Access Control Lock	626	Simplex L1011			
L-11	Entrance Lock (F81/82)	626	CL3351-NZD - 217L13	10G05 LL	ND53PD- Rhodes 10-25	5407LN-AU-497
L-12	Storeroom Lock with deadbolt	626			L9480-06L	
L-13	Institutional Lock (F87)	626	CL3332-NZD - 217L13	10G17 LL	ND82PD-Rhodes 10-025	5430LN-AU-497
L-14	Institutional Lock (F91)	626			ND66PD-Rhodes 10-025	
L-15	Entrance Lock with deadbolt	626			L9453-06L	
L-16	Dead Bolt Lock with thumbturn (Classroom Function)	626	DL2017	487	B663P	3562B

2.4 EXIT DEVICES

Q. Alarm Exit: Contact manufacturer for Contractor-furnished alarm exit device.

1. Positive Lock - Contact: Kimbra White, (800) 342-7670.

R. Materials:

1. Provide exposed metal to match hardware.
2. Size and mount units indicated or, if not indicated, to comply with manufacturer's recommendations for exposure condition. Reinforce substrate as recommended.

S. Exit Devices by types:

Type	Description	Finish	MANUFACTURER/MODEL				
			Adams Rite	Corbin Russwin	Yale	Monarch	Von Duprin
E-1	Exit Device: Rim, exit only, UL listed.	626		ED5200A	7100-F	F18R BA	99EO-F
E-2	Exit Device: Rim, exit only, with alarm. Provide exterior access model or time delay when scheduled.	600	Positive Lock THPA-30 Positive Lock THPA (O/A)-30 - Outside Access Positive Lock THPA-30 (TDL) -Time Delay Positive Lock THPA (O/A)-30 (TDL) - Outside Access, Time Delay				

Type	Description	Finish	MANUFACTURER/MODEL				
			Adams Rite	Corbin Russwin	Yale	Monarch	Von Duprin
E-3	Exit Device: Surface vertical rod (top rod only), lever trim, blank escutcheon, UL listed.	626	3100T x 3083-91			F-18-V LE-LS/LK Dane	9927L-F-BE-LBR
E-4	Exit Device: Concealed vertical rod, lever trim, blank escutcheon, UL listed for oversized doors.	626				F-18-C LE-LS/LK Dane	9948L-F-BE
E-5	Exit Device: Rim, lever trim, blank escutcheon, UL listed.	626	3700 x 3083-97	ED5200A x N710	7100-F x AU528F	F-18-R LE-LS/LK Dane	99L-F-BE
E-6	Alarm Exit. Rim, weatherproof, exit only, with alarm.	600	Positive Lock THPA (WE)-30				
E-7	Exit Device: Rim, pull trim.	626		ED5200 x T1357	7100 x 532	18-R P Apollo	99NL x 697NL
E-8	Exit Device: Rim delay exit device, pull trim, with alarm. Power Transfer #EPT-10 Mini-Power Booster #PS 873	626					CX9975L x 992L (06 Lever)
E-9	Exit Device: Rim, pull trim, with alarm.	626					99NL x 697NL + 99ALK
E-10	Exit Device: Rim, exit only	626					99EO
E-11	Exit Device: Rim, weatherproof, exit only, with alarm.	626	Detex V40 EB W AL RWE				
E-12	Exit Device: Rim, weatherproof, exit only, with alarm.	600	Positive Lock THPA (WE)-70				
E-13	Exit Device: Rim, exit only, with alarm.	600	Positive Lock THPA- 40 Positive Lock THPA- 40 (TDL) -Time Delay				
E-14	Exit Device: Rim, exit only, with alarm.	600	Positive Lock THPA-70				
E-15	Exit Device: Rim, lever trim, with alarm. Power Transfer #EPT-10 Mini-Power Booster #PS-873-BB	626					
E-16	Exit Device: Rim, lever trim	626					
E-17	Exit Device: Rim, pull trim	626		ED4200x T1457	7200x 512F	17 R DT	33NL-OPx3308NL
E-18	Exit Device: Rim, lever trim, UL Listed	626					99L-F-992L-NL

T. Substitutions: Not permitted.

2.5 PULLS AND PUSHES

U. Materials: ANSI A156.6 for 0.050 inch thickness.

V. Push and Pulls by types:

Type	Description	Finish	MANUFACTURER/MODEL		
			Ives	Trimco	Rockwood
P-1	Push	630	8200	1001-2	70B
P-2	Pull	630	8314-5	1012-2	137x70B

Type	Description	Finish	MANUFACTURER/MODEL		
			Ives	Trimco	Rockwood
P-3	Pull. 8" CTC x 3/4" dia	626	8103-8	1194-2	107

2.6 CLOSERS

W. Materials & Features:

1. ANSI A156.4, grade 1.
2. ADA/ANSI A117.1
3. UL listed.
4. Non-handed, non-sized; adjustable 1-6.
5. 180 degree door opening.
6. Heavy-duty parallel arm.
7. Standard cover.
8. Multiple backcheck location valve.
9. Extreme temperature fluid.
10. Sex nuts and bolts (SNBs).
11. Provide exposed metal to match hardware.
12. Size and mount units indicated or, if not indicated, to comply with manufacturer's recommendations for exposure condition. Reinforce substrate as recommended.

X. Closers by types:

Type	Description	Finish	MANUFACTURER/MODEL				
			Corbin Russwin	LCN	Norton	Yale	Dorma
C-1	Closer	Painted	DC6210M54	4041RW PA TBWMS	P8501 SNB	3501 SNB	8616 AF86P FC SNB1

2.7 DOOR PROTECTION PLATES

- Y. Materials: J100 Protection Plates conforming to ANSI 156.6, stainless steel, 0.050" (1.2 mm) minimum thickness. Mount centered, flush with bottom of door. Screws: Phillips head sheet metal screws plated to match plate.

Z. Protection Plates by types:

Type	Description	Size	Finish	MANUFACTURER/MODEL		
				Ives	Trimco	Rockwood
K-1	Not Used					
K-2	Kick Plate (J102)	10" x (DW-2")	630	8400	K0050	J102
K-3	Armor Plate (J101)	34" x (DW-2")	630	8400	KA050-2	J101
K-4	Armor Plate (J101)	41" x (DW-2") Notch for lockset	630	8400	KA050-2	J101
K-5	Kick Plate (J102)	18" x (DW-2")	630	8400	K0050-1	J102
K-6	Armor Plate (UL Rated)	34" x (DW-2")	630		KA050-2 Fire Rated	K1050F
K-7	Armor Plate (UL Rated)	36" x (DW-2")	630		KA050-2 Fire Rated	K1050F

2.8 STOPS, HOLDERS AND BUMPERS

AA. Materials:

1. Door stop mounting: Methods to suit substrates encountered (plastic anchor, drywall anchor, expansion shield).
2. Provide gray rubber exposed resilient parts.
3. Do not furnish aluminum floor stops.
4. For most doors, the preferred door stop is Wall Stop type S-1 and is specified as such in the hardware

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schedule. However, if circumstances prevent a wall stop installation (door too far from perpendicular wall, door swing into adjacent glass, etc.) then substitute a type S-3 or S-4 floor stop as indicated for use intended.

5. Adjust height of floor stops to suit undercut of adjacent door.

BB. Stops, Holders and Bumpers by types:

Type	Description	Finish	MANUFACTURER/MODEL		
			Ives	Trimco	Rockwood
S-1	Wall Stop	630	407	W1276CS	409
S-2	Stop & Holder	626	445	1207	477
S-3	Stop. For doors without thresholds	626	436	1211ES	441
S-4	Stop. For doors with threshold or undercut doors	626	438	1212 3/4ES	442
			Rixson	Glynn-Johnson	Sargent
S-5	Overhead Stop - 3-0 doors	626	9-336	904S	594S
S-6	Overhead Stop - 2-6 doors	626	9-236	902S	592S
			Ives	Trimco	Rockwood
S-7	Stop & Holder. Kickdown type. Alum or satin chrome		452	1221-4FF	460

2.9 ELECTROMAGNETIC DOOR HOLDERS

CC. Materials & Features:

1. ANSI A156.15, Grade 1.
2. UL listed.
3. Magnet protected against transients and surges up to 600 volts.
4. 24V DC
5. Holding force 35 lbs., nominal.
6. Low residual magnetism for easy release of door.
7. Electrical values +10% -15%.
8. Provide exposed metal to match hardware.
9. Size and mount units indicated or, if not indicated, to comply with manufacturer's recommendations for exposure condition. Reinforce substrate as recommended.

DD. Electromagnetic Door Holders by types:

Type	Description	Finish	MANUFACTURER/MODEL		
			LCN	Rixon	Dorma
DH-1	Door Holder	As Scheduled	SEM 7850 689	FM-998 SA	EM-F24120 652

2.10 THRESHOLDS

EE. Thresholds by types:

Type	Description	MANUFACTURER/MODEL			
		National Guard	Pemko	Reese	Wooster
T-1	Threshold: 5" Heavy-duty abrasive cast aluminum (Alumogrit).				114
T-2	Threshold: 6" x 1/4" Aluminum saddle type, fluted.	513	271A	S405A	
T-3	Not Used				

Type	Description	MANUFACTURER/MODEL			
		National Guard	Pemko	Reese	Wooster
T-4	Threshold: 2" x 1/8" Stainless steel plate, smooth surface, beveled 1 side only. Transition threshold between concrete slab and vinyl tile. Set threshold in full bed of silicone sealant, butted to adjacent vinyl tile. Anchor into concrete slab with Hilti Kwik-Con II, #14-134 TFH fasteners spaced at 6-inch centers using Matched Tolerance drill bit for dense concrete.	BAR6SS-2-10bevel			
T-5	Not Used				
T-6	Threshold: 5" x 1/2" Aluminum saddle type, fluted.	425	171A	S205A	
T-7	Not Used				
T-8	Threshold: 4" x 1/4" Aluminum half saddle/offset type, fluted.	414	274A	S439A	

2.11 WEATHERSTRIPPING

FF. Weatherstripping by types:

Type	Description	MANUFACTURER/MODEL		
		National Guard	Pemko	Reese
W-1	Jamb & Head Weatherstripping, aluminum, vinyl insert	155	303AV	807A
W-2	Door Shoe. Weatherstripping, aluminum, slotted, vinyl insert.	35A	217AV	DB596F
W-3	Door Bottom Sweep, surface mounted sweep, anodized aluminum, neoprene seal.	201NA	315CN	323A
W-4	Meeting Stile Gaskets, aluminum, silicone insert seal.	160S	303AS	807A
W-5	Jamb Door Gaskets, adhesive application, silicone seal.	5050	S88D	797B
W-6	Door Shoe Weatherstripping, for hollow metal doors with inverted bottom channel, recessed thermo-plastic insert, slotted/adjustable.	35EN	222PK	596AF
W-7	Door Shoe Weatherstripping, for hollow metal doors with inverted bottom channel, recessed vinyl insert, slotted/adjustable		222AV	
W-8	Jamb & Head Weatherstripping, aluminum, silicone insert	155S	303AS	678

2.12 MISCELLANEOUS HARDWARE

GG. Silencers: Provide in metal door frames, unless not permitted for fire rating, or unless bumper-type weatherstripping is provided; three for each single door frame, two for double-door frame.

HH. Miscellaneous Hardware by types:

Type	Description	Size	Finish	MANUFACTURER/MODEL			
				Stanley	Ives	Lawrence	Rockwood
M-1	Hasp & Staple	4-1/2"	602	SP917	WS1920	930	
M-2	Surface Bolt	4"	626	CD4060	144		
M-3	Surface Bolt	3"	626		40		
M-4	Viewer				700		629
					Ives	Trimco	Rockwood
M-5	Flush Bolt (UL)	12"	626		458	3917	555
M-6	Automatic Flush Bolt		626		559		

Type	Description	Size	Finish	MANUFACTURER/MODEL			
				Stanley	Ives	Lawrence	Rockwood
M-1	Hasp & Staple	4-1/2"	602	SP917	WS1920	930	
M-7	Electric Strike			FA712 by Folger Adam F4114-08 32D 24VAC by Rutherford Controls (Fire Rated) S6514-08 32D 24VAC by Rutherford Controls (Non Fire Rated)Transformer: 40VA, 120VAC to 24VAC with provisions for mounting in a standard 1/2" knockout. No. 599, by Edwards. Push Button: Single button with one normally open contact and one normally closed contact. No. KR3BH13, by Square D.			
				Ives	Trimco	Rockwood	
M-8	Silencers			SR64	1229-A	608	
				National Guard	Pemko	Reese	
M-9	Drip Cap			16AD	346CxFW	R201A	
				Ives	Trimco		
M-10	Door Coordinator			469	3093		
					Arrow	Detex	
M-11	Door Alarm with rim or mortise cylinder		626		130 Series AL	EA-500	
M-12	Door Alarm with rim cylinder		630			Alarm: EA-2500F Transformer: PP5152-3	
M-13	Electromagnetic Lock		626	ML1548 by Detex. 3000-TD-DYN-LED by DynaLock. 390-ADD-MBSL1 by Locknetics. 8310 SES US28 by Rutherford. Power Supply/Transformer: 120VAC to 24VAC with provisions for mounting in a standard 1/2" knockout. 80-800 or 90-800 by Detex. 5500 by DynaLock. 505 by Locknetics. PS 10.-175 UL by Rutherford. Push Button: Single button with LED indicator. PB2100 by Detex. 6110-LED by DynaLock. 603-RD-L2 by Locknetics. 908 32RD by Rutherford. Blank Lens (2 push buttons required). Motion Sensor (mount above door on service side) MN01 by Detex. ScanII-B by Locknetics. 915 by Rutherford. Set motion sensor opening time to 20 seconds.			
				Ives	Rockwood		
M-14	Mail Slot		630	IVE- 621B5			
M-15	Lock Guard		US32D		321		

2.13 FABRICATION

- II. Finish and Base Material Designations: Number indicates BHMA Code or nearest traditional U.S. commercial finish.
- JJ. Where base material and quality of finish are not otherwise indicated, provide at least commercially recognized quality.

PART 3 - EXECUTION

3.1 EXAMINATION

- KK. Verify that doors and frames are ready to receive Work and dimensions are as instructed by the manufacturer.
- LL. Verify that electric power is available to power operated devices and of the correct characteristics.

3.2 INSTALLATION

- MM. Hardware Mounting Heights: Door and Hardware Institute Recommended Locations for Builders Hardware for Standard Steel Doors and Frames, except as otherwise indicated.
 - 1. Conform to requirements of applicable local, State or Federal disabled access requirements for the installation and operation of door hardware.
- NN. Install each hardware item to comply with manufacturer's instructions and recommendations.
- OO. Thru-bolt closers on doors.
- PP. Vestibule Thresholds: Set and bolt into grout.

3.3 ADJUSTING

- QQ. Hardware Adjustment: Return to project one month after Owner's occupancy, and adjust hardware for proper operation and function. Instruct Wal-Mart personnel in proper maintenance and adjustment.

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3.4 HARDWARE SCHEDULE

RR. Product Designations: Products specified in the following Hardware Schedule are for reference only. Alternate products for each hardware type shown may be any of the products as specified in the tables in Part 2 above.

SS. The Hardware Schedule below represents the full set of hardware for each door listed. Refer to the Door Schedule and Schedule Notes on Sheet A8 for actual hardware components required for each door in this project.

SET 100A

Doors 100A - Sales: (HM, (2) Singles, 3'-0", w/ Exit Device)

3 pr.	(H-1)	Butts	S	FBF191	4-1/2" x 4-1/2" NRP	626
2 ea.	(E-2)	Alarm Exit	Po	THPA-30		
2 ea.	(T-6)	Threshold	P	171A		
2 ea.	(W-7)	Door Shoe	P	222AV		
2 ea.	(W-3)	Door Bottom Weatherstrip	P	315CN		
2 set	(W-1)	Jamb & Head Weatherstrip	P	303AV		
1 ea.	(M-9)	Drip Cap	P	346C x FW		

SET 100L

Doors 100L - Sales: (HM, Pair, 4'-0", w/ Exit Device)

3 pr.	(H-1)	Butts	S	FBF191	4-1/2" x 4-1/2" NRP	626
2 ea.	(E-13)	Alarm Exit	Po	THPA-40		
2 ea.	(T-6)	Threshold	P	171A		
2 ea.	(W-7)	Door Shoe	P	222AV		
2 ea.	(W-3)	Door Bottom Weatherstrip	P	315CN		
2 set	(W-1)	Jamb & Head Weatherstrip	P	303AV		
1 ea.	(M-9)	Drip Cap	P	346C x FW		

SET 101A

Doors 101A – GM Vestibule: (Aluminum/Glass, Bi-Parting Automatic w/ Breakaway)

1 ea.	(L-1)	Keyed Cylinder	Sc	20-001		626
1 ea.		Locking Device	-		See Section 08462.	
1 ea.		Threshold	-		See Section 08462.	

All other hardware furnished by door manufacturer as specified in Section 08462.

SET 101B

Doors 101B – GM Vestibule: (Aluminum/Glass, Bi-Parting Automatic w/ Breakaway)

1 ea.	(L-1)	Keyed Cylinder	Sc	20-001		626
1 ea.		Locking Device	-		See Section 08462.	
1 ea.		Threshold	-		See Section 08462.	

All other hardware furnished by door manufacturer as specified in Section 08462.

SET 102A

Door 102A - Janitor: (HM, Single)

1-1/2 pr.	(H-2)	Butts	S	F179	4-1/2" x 4-1/2"	652
1 ea.	(H-9)	Reinforcing pivot	H	253	Left or Right Handed as applicable	
1 ea.	(L-5)	Storeroom Lock	Sc	ND80PD	Rhodes	626
1 ea.	(K-3)	Armor Plate	I	8400	34" x (DW-2")	630
1 ea.	(S-1)	Wall Stop	I	407		630
3 ea.	(M-8)	Silencers	I	20		

SET 103A

Doors 103A - Other Income: (Aluminum/Glass, Manual Swing, Single)

1 ea.	(L-1)	Keyed Cylinder	Sc	20-001		626
1 ea.		Locking Device	-		See Section 08411.	
1 ea.	(S-1)	Wall Stop	I	407		630
1 ea.	(T-6)	Threshold	P	171A		

All other hardware furnished by door manufacturer as specified in Section 08411.

SET 104A

Door 104A – GM Cart Storage: (Sectional Overhead)

Hardware furnished by door manufacturer as specified in Section 08360.

SET 107A

Door 107A – Cash Office: (HM, Single)

1-1/2 pr.	(H-4)	Butts	S	FBF179	4-1/2" x 4-1/2"	652
1 ea.	(H-9)	Reinforcing pivot	H	253	Left or Right Handed as applicable	
1 ea.	(L-12)	Storeroom Lock w/ Deadbolt	Sc	L9480-06L	Rhodes	626
1 ea.	(C-1)	Closer	CR	DC6210-M54		689
1 ea.	(K-3)	Armor Plate	I	8400	34" x (DW-2")	630
3 ea.	(M-8)	Silencers	I	SR64		
1 ea.	(S-1)	Wall Stop	I	407		630
2 ea.	(M-4)	One-Way Viewer	I	700	Mount 1 ea @ 48" & 60" AFF	626
1 ea.	(M-14)	Mail Slot	I	IVE- 621B5		

SET 108A

Door 108A – Counting Room: (HM, Single)

1-1/2 pr.	(H-4)	Butts	S	FBF179	4-1/2" x 4-1/2"	652
1 ea.	(H-9)	Reinforcing pivot	H	253	Left or Right Handed as applicable	
1 ea.	(L-12)	Storeroom Lock w/ Deadbolt	Sc	L9480-06L	Rhodes	626
1 ea.	(C-1)	Closer	CR	DC6210-M54		689
1 ea.	(K-3)	Armor Plate	I	8400	34" x (DW-2")	630
3 ea.	(M-8)	Silencers	I	SR64		
1 ea.	(S-1)	Wall Stop	I	407		630
2 ea.	(M-4)	One-Way Viewer	I	700	Mount 1 ea @ 48" & 60" AFF	626

SET 109A

Door 109A - Equipment: (HM, Single)

1-1/2 pr.	(H-2)	Butts	S	F179	4-1/2" x 4-1/2"	652
1 ea.	(H-9)	Reinforcing pivot	H	253	Left or Right Handed as applicable	
1 ea.	(L-5)	Storeroom Lock	Sc	ND80PD	Rhodes	626
1 ea.	(K-3)	Armor Plate	I	8400	34" x (DW-2")	630
3 ea.	(M-8)	Silencers	I	SR64		
1 ea.	(S-1)	Wall Stop	I	407		630

SET 110A

Doors 110A – Hallway #1: (HM, (2) Singles, 3'-0", w/ Exit Device)

3 pr.	(H-1)	Butts	S	FBF191	4-1/2" x 4-1/2" NRP	626
2 ea.	(E-2)	Alarm Exit	Po	THPA-30		
2 ea.	(T-6)	Threshold	P	171A		
2 ea.	(W-7)	Door Shoe	P	222AV		
2 ea.	(W-3)	Door Bottom Weatherstrip	P	315CN		
2 set	(W-1)	Jamb & Head Weatherstrip	P	303AV		
1 ea.	(M-9)	Drip Cap	P	346C x FW		

SET 110G

Door 110G - Hallway #1: (HM, Pair, 3'-0", w/Exit Device, UL Label)

3 pr.	(H-4)	Butts	S	FBF179	4-1/2" x 4-1/2"	652
2 ea.	(H-9)	Reinforcing pivot	H	253	Left or Right Handed as applicable	
2 ea.	(E-5)	Exit Device	VD	99L-F-BE		626
2 ea.	(M-11)	Door Alarm	Ar	130 Series AL		626
2 ea.	(C-1)	Closer	CR	DC6210-M54		689
2 ea.	(S-1)	Wall Stop	I	407		630
2 set	(W-5)	Door Gaskets	P	S88D series		

SET 115A

Doors 115A – GR Vestibule: (Aluminum/Glass, Bi-Parting Automatic w/ Breakaway)

1 ea.	(L-1)	Keyed Cylinder	Sc	20-001		626
1 ea.		Locking Device	-		See Section 08462.	
1 ea.		Threshold	-		See Section 08462.	

All other hardware furnished by door manufacturer as specified in Section 08462.

SET 115B

Doors 115B – GR Vestibule: (Aluminum/Glass, Bi-Parting Automatic w/ Breakaway)

1 ea.	(L-1)	Keyed Cylinder	Sc	20-001		626
1 ea.		Locking Device	-		See Section 08462.	
1 ea.		Threshold	-		See Section 08462.	

All other hardware furnished by door manufacturer as specified in Section 08462.

SET 116A

Door 116A - Mechanical: (HM, Single)

1-1/2 pr.	(H-2)	Butts	S	F179	4-1/2" x 4-1/2"	652
1 ea.	(H-9)	Reinforcing pivot	H	253	Left or Right Handed as applicable	
1 ea.	(L-6)	Office Lockset	Sc	ND50PD	Rhodes	626
1 ea.	(K-3)	Armor Plate	I	8400	34" x (DW-2")	630
1 ea.	(S-1)	Wall Stop	I	407		630
3 ea.	(M-8)	Silencers	I	20		

SET 117A

Doors 117A - Other Income: (Aluminum/Glass, Manual Swing Single)

1 ea.	(L-1)	Keyed Cylinder	Sc	20-001		626
1 ea.		Locking Device	-		See Section 08411.	
1 ea.	(S-1)	Wall Stop	I	407		630
1 ea.	(T-6)	Threshold	P	171A		

All other hardware furnished by door manufacturer as specified in Section 08411.

SET 118A

Door 118A – GR Cart Storage: (Sectional Overhead)

Hardware furnished by door manufacturer as specified in Section 08360.

SET 119A

Doors 119A - AP Office: (HM, Single)

1-1/2 pr.	(H-2)	Butts	S	F179	4-1/2" x 4-1/2"	652
1 ea.	(H-9)	Reinforcing pivot	H	253	Left or Right Handed as applicable	
1 ea.	(L-6)	Office Lockset	Sc	ND50PD	Rhodes	626
1 ea.	(M-4)	Viewer	I	700		
1 ea.	(S-1)	Wall Stop	I	407		630
1 ea.	(K-3)	Armor Plate	I	8400	34" x (DW-2")	630
3 ea.	(M-8)	Silencers	I	SR64		

SET 122A

Door 122A - EDC-2: (HM, Single)

1-1/2 pr.	(H-1)	Butts	S	FBB191	4-1/2" x 4-1/2" NRP	626
1 ea.	(L-5)	Storeroom Lock	Sc	ND80PD	Rhodes	626
1 ea.	(T-6)	Threshold	P	171A		
1 ea.	(W-7)	Door Shoe	P	222AV		
1 ea.	(W-3)	Door Bottom Weatherstrip	P	315CN		
1 set	(W-1)	Jamb & Head Weatherstrip	P	303AV		
1 ea.	(M-9)	Drip Cap	P	346C x FW		

SET 126A

Doors 126A - Seasonal Shop: (Aluminum/Glass, Bi-Parting Automatic w/Breakaway)

1 ea.	(L-1)	Keyed Cylinder	Sc	20-001		626
1 ea.		Locking Device	-		See Section 08462.	

All other hardware furnished by door manufacturer as specified in Section 08462.

SET 126B

Doors 126B - Seasonal Shop: (HM, Single, w/ Exit Device)

1-1/2 pr.	(H-1)	Butts	S	FBF191	4-1/2" x 4-1/2" NRP	626
1 ea.	(E-2)	Alarm Exit Device	Po	THPA-30		
1 ea.	(T-6)	Threshold	P	171A		
1 ea.	(W-7)	Door Shoe	P	222AV		
1 ea.	(W-3)	Door Bottom Weatherstrip	P	315CN		
1 set	(W-1)	Jamb & Head Weatherstrip	P	303AV		
1 ea.	(M-9)	Drip Cap	P	346C x FW		

SET 127A

Door 127A –Riser Closet: (HM, Single)

1-1/2 pr.	(H-2)	Butts	S	F179	4-1/2" x 4-1/2"	652
1 ea.	(H-9)	Reinforcing pivot	H	253	Left or Right Handed as applicable	
1 ea.	(L-5)	Storeroom Lock	Sc	ND80PD	Rhodes	626
3 ea.	(M-8)	Silencers	I	SR64		
1 ea.	(S-5)	Overhead Stop	Ri	9-336		626

SET 150A

Doors 150A – Hallway #7: (HM, (2) Singles, w/ Exit Device)

3 pr.	(H-1)	Butts	S	FBF191	4-1/2" x 4-1/2" NRP	626
2 ea.	(E-2)	Alarm Exit Device	Po	THPA-30		
2 ea.	(T-6)	Threshold	P	171A		
2 ea.	(W-7)	Door Shoe	P	222AV		
2 ea.	(W-3)	Door Bottom Weatherstrip	P	315CN		
2 set	(W-1)	Jamb & Head Weatherstrip	P	303AV		
1 ea.	(M-9)	Drip Cap	P	346C x FW		

SET 150E

Door 150E – Hallway #7: (Flexible Plastic, Pair)

1 ea.	(T-4)	Threshold	NG	BAR6SS-2-10bevel	2" x DW x 1/8"	
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Hardware furnished by door manufacturer per Section 08383.

SET 151B

Door 151B - Breakroom: (HM, Single)

1-1/2 pr.	(H-4)	Butts	S	FBF179	4-1/2" x 4-1/2"	652
1 ea.	(H-9)	Reinforcing pivot	H	253	Left or Right Handed as applicable	
1 ea.	(P-1)	Push	I	8200		630
1 ea.	(P-2)	Pull	I	8314-5		630
1 ea.	(C-1)	Closer	CR	DC6210-M54		689
1 ea.	(S-1)	Wall Stop	I	407		630
2 ea.	(K-3)	Armor Plate	I	8400	34" x (DW-2")	630
3 ea.	(M-8)	Silencers	I	SR64		

SET 151C

Door 151C - Breakroom: (HM, Single)

1-1/2 pr.	(H-4)	Butts	S	FBF179	4-1/2" x 4-1/2"	652
1 ea.	(H-9)	Reinforcing pivot	H	253	Left or Right Handed as applicable	
1 ea.	(P-1)	Push	I	8200		630
1 ea.	(P-2)	Pull	I	8314-5		630
1 ea.	(C-1)	Closer	CR	DC6210-M54		689
1 ea.	(S-1)	Wall Stop	I	407		630
2 ea.	(K-3)	Armor Plate	I	8400	34" x (DW-2")	630
3 ea.	(M-8)	Silencers	I	SR64		

SET 153A

Door 153A - UPS: (HM, Single)

1-1/2 pr.	(H-2)	Butts	S	F179	4-1/2" x 4-1/2"	652
1 ea.	(H-9)	Reinforcing pivot	H	253	Left or Right Handed as applicable	
1 ea.	(L-5)	Storeroom Lock	Sc	ND80PD	Rhodes	626
1 ea.	(S-1)	Wall Stop	I	407		630
1 ea.	(K-3)	Armor Plate	I	8400	34" x (DW-2")	630
3 ea.	(M-8)	Silencers	I	SR64		

SET 159A

Doors 159A - Sprinkler: (Chain Link, Single)

All hardware furnished by fence manufacturer as specified in Section 02821.

SET 162A

Doors 162A – Hallway #5: (HM, (2) Singles, w/ Exit Device)

3 pr.	(H-1)	Butts	S	FBF191	4-1/2" x 4-1/2" NRP	626
2 ea.	(E-2)	Alarm Exit	Po	THPA-30		
2 ea.	(T-6)	Threshold	P	171A		
2 ea.	(W-7)	Door Shoe	P	222AV		
2 ea.	(W-3)	Door Bottom Weatherstrip	P	315CN		
2 set	(W-1)	Jamb & Head Weatherstrip	P	303AV		
1 ea.	(M-9)	Drip Cap	P	346C x FW		

SET 162E

Door 162E – Hallway #5: (Flexible Plastic, Pair)

1 ea. (T-4) Threshold NG BAR6SS-2-10bevel 2" x DW x 1/8"
Hardware furnished by door manufacturer per Section 08383.

SET 165A

Doors 165A - Men: (HM, Single)

1 ea.	(H-6)	Continuous Geared Hinge	Sel	SL21 SD x SDTF x FDH	CL
1 ea.	(P-1)	Push	I	8200	630
1 ea.	(P-2)	Pull	I	8314-5	630
1 ea.	(C-1)	Closer	CR	DC6210-M54	689
2 ea.	(K-3)	Armor Plate	I	8400 34" x (DW-2")	630
1 ea.	(S-2)	Stop and Holder	I	445	
3 ea.	(M-8)	Silencers	I	SR64	

SET 166A

Doors 166A - Women: (HM, Single)

1 ea.	(H-6)	Continuous Geared Hinge	Sel	SL21 SD x SDTF x FDH	CL
1 ea.	(P-1)	Push	I	8200	630
1 ea.	(P-2)	Pull	I	8314-5	630
1 ea.	(C-1)	Closer	CR	DC6210-M54	689
2 ea.	(K-3)	Armor Plate	I	8400 34" x (DW-2")	630
1 ea.	(S-2)	Stop and Holder	I	445	
3 ea.	(M-8)	Silencers	I	SR64	

SET 167A

Doors 167A - Family Toilet: (HM, Single)

1 ea.	(H-6)	Continuous Geared Hinge	Sel	SL21 SD x SDTF x FDH	CL
1 ea.	(L-8)	Bathroom Privacy Lock	Sc	NND40S Rhodes	626
1 ea.	(C-1)	Closer	CR	DC6210-M54	689
2 ea.	(K-3)	Armor Plate	I	8400 34" x (DW-2")	630
1 ea.	(S-2)	Stop and Holder	I	445	
3 ea.	(M-8)	Silencers	I	SR64	

SET 169A

Door 169A - Photo Lab/Site to Store: (HM, Single)

1-1/2 pr.	(H-4)	Butts	S	FBB179	4-1/2" x 4-1/2"	652
1 ea.	(H-9)	Reinforcing pivot	H	253	Left or Right Handed as applicable	
1 ea.	(L-7)	Passage Latch	Sc	ND10S Rhodes		626
1 ea.	(K-3)	Armor Plate	I	8400 34" x (DW-2")		630
3 ea.	(M-8)	Silencers	I	SR64		

SET 171A

Doors 171A - UPC/Invoicing: (HM, Single)

1-1/2 pr.	(H-4)	Butts	S	FBF179	4-1/2" x 4-1/2"	652
1 ea.	(H-9)	Reinforcing pivot	H	253	Left or Right Handed as applicable	
1 ea.	(L-5)	Storeroom Lock	Sc	ND80PD	Rhodes	626
1 ea.	(C-1)	Closer	CR	DC6210-M54		689
1 ea.	(S-1)	Wall Stop	I	407		630
1 ea.	(K-3)	Armor Plate	I	8400	34" x (DW-2")	630
3 ea.	(M-8)	Silencers	I	SR64		

SET 172A

Door 172A - Training: (HM, Single)

1-1/2 pr.	(H-4)	Butts	S	FBF179	4-1/2" x 4-1/2"	652
1 ea.	(H-9)	Reinforcing pivot	H	253	Left or Right Handed as applicable	
1 ea.	(P-1)	Push	I	8200		630
1 ea.	(P-2)	Pull	I	8314-5		630
1 ea.	(C-1)	Closer	CR	DC6210-M54		689
1 ea.	(S-1)	Wall Stop	I	407		630
1 ea.	(K-3)	Armor Plate	I	8400	34" x (DW-2")	630
3 ea.	(M-8)	Silencers	I	SR64		

SET 176A

Doors 176A – Hallway #3: (HM, (2) Singles, w/ Exit Device)

3 pr.	(H-1)	Butts	S	FBF191	4-1/2" x 4-1/2" NRP	626
2 ea.	(E-2)	Alarm Exit	Po	THPA-30		
2 ea.	(T-6)	Threshold	P	171A		
2 ea.	(W-7)	Door Shoe	P	222AV		
2 ea.	(W-3)	Door Bottom Weatherstrip	P	315CN		
2 set	(W-1)	Jamb & Head Weatherstrip	P	303AV		
1 ea.	(M-9)	Drip Cap	P	346C x FW		

SET 176E

Door 176E – Hallway #3: (Flexible Plastic, Pair)

1 ea.	(T-4)	Threshold	NG	BAR6SS-2-10bevel	2" x DW x 1/8"	
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Hardware furnished by door manufacturer per Section 08383.

SET 177A

Door 177A - Assistant Manager: (HM, Single)

1-1/2 pr.	(H-2)	Butts	S	F179	4-1/2" x 4-1/2"	652
1 ea.	(H-9)	Reinforcing pivot	H	253	Left or Right Handed as applicable	
1 ea.	(L-6)	Office Lock	Sc	ND50PD	Rhodes	626
1 ea.	(S-1)	Wall Stop	I	407		630
1 ea.	(K-6)	Armor Plate	T	KA050-2 FR	34" x (DW-2")	630
3 ea.	(M-8)	Silencers	I	SR64		

SET 178A

Doors 178A - Receiving (GM): (HM, Single, w/ Exit Device)

1-1/2 pr.	(H-1)	Butts	S	FBB191	4-1/2" x 4-1/2" NRP	626
1 ea.	(E-2)	Alarm Exit	Po	THPA-30		
2 ea.	(M-4)	One-Way Viewer	I	700	Mount 1 ea @ 48" & 60" AFF	626
1 ea.	(T-6)	Threshold	P	171A		
1 ea.	(W-7)	Door Shoe	P	222AV		
1 ea.	(W-3)	Door Bottom Weatherstrip	P	315CN		
1 set	(W-1)	Jamb & Head Weatherstrip	P	303AV		
1 ea.	(M-9)	Drip Cap	P	346C x FW		

SET 178B

Door 178B - Receiving (GM): (Sectional Overhead)

Hardware furnished by door manufacturer per Section 08360.

SET 178C

Door 178C - Receiving (GM): (Sectional Overhead)

Hardware furnished by door manufacturer per Section 08360.

SET 178D

Door 178D - Receiving (GM): (Sectional Overhead)

Hardware furnished by door manufacturer per Section 08360.

SET 178E

Door 178E - Receiving (GM): (Sectional Overhead)

Hardware furnished by door manufacturer per Section 08360.

SET 179E

Door 179E – GM Stockroom: (Flexible Plastic, Pair)

1 ea. (T-4) Threshold NG BAR6SS-2-10bevel 2" x DW x 1/8"
Hardware furnished by door manufacturer per Section 08383.

SET 183A

Doors 183A - Management Office: (HM, Single)

1-1/2 pr.	(H-2)	Butts	S	F179	4-1/2" x 4-1/2"	652
1 ea.	(H-9)	Reinforcing pivot	H	253	Left or Right Handed as applicable	
1 ea.	(L-6)	Office Lock	Sc	ND50PD	Rhodes	626
1 ea.	(S-1)	Wall Stop	I	407		630
1 ea.	(K-3)	Armor Plate	I	8400	34" x (DW-2")	630
3 ea.	(M-8)	Silencers	I	SR64		

SET 188B

Doors 188B – Hallway #2: (HM, (2) Singles, w/ Exit Device, UL Label)

3 pr.	(H-4)	Butts	S	FBF179	4-1/2" x 4-1/2"	652
2 ea.	(H-9)	Reinforcing pivot	H	253	Left or Right Handed as applicable	
2 ea.	(E-3)	Exit Device	VD	9927L-F-BE-LBR		626
2 ea.	(C-1)	Closer	CR	DC6210-M54		689
1 set	(W-5)	Door Gaskets	P	S88D Series		
1 pr.	(W-4)	Meeting Style Gaskets	P	303AS		
2 ea.	(K-6)	Armor Plate	Ro	K1050F	34" x (DW-2")	630
2 ea.	(DH-1)	Door Holder	LCN	SEM 7850		689

SET 188C

Doors 188C - Hallway #2: (HM, Pair, w/ Exit Device, UL Label)

4 pr.	(H-4)	Butts	S	FBF179	4-1/2" x 4-1/2"	652
2 ea.	(H-9)	Reinforcing pivot	H	253	Left or Right Handed as applicable	
2 ea.	(E-4)	Exit Device	VD	9948L-F-BE		626
2 ea.	(C-1)	Closer	CR	DC6210-M54		689
1 set	(W-5)	Door Gaskets	P	S88D Series		
1 pr.	(W-4)	Meeting Style Gaskets	P	303AS		
2 ea.	(K-6)	Armor Plate	Ro	K1050F	34" x (DW-2")	630
2 ea.	(DH-1)	Door Holder	LCN	SEM 7850		689

PHARMACY

SET 300F

Door 300F - Pharmacy: (Coiling Counter Shutter)

Hardware furnished by door manufacturer per Section 08337.

SET 300G

Door 300G - Pharmacy: (HM, Single)

2 pr.	(H-4)	Butts	S	FBF179	4-1/2" x 4-1/2"	652
1 ea.	(H-9)	Reinforcing pivot	H	253	Left or Right Handed as applicable	
1 ea.	(L-15)	Office Lock w/ Deadbolt	Sc	L9453-06L	Rhodes	626
1 ea.	(C-1)	Closer	CR	DC6210-M54		689
2 ea.	(K-2)	Kick Plate	I	8400	10" x (DW-2")	630
3 ea.	(M-8)	Silencers	I	SR64		

SET 300H

Door 300H - Pharmacy: (Overhead Rolling Closure)

Hardware furnished by door manufacturer per Section 08332.

SET 301A

Doors 301A - Pharmacy Toilet: (HM, Single)

1-1/2 pr.	(H-4)	Butts	S	FBF179	4-1/2" x 4-1/2"	652
1 ea.	(H-9)	Reinforcing pivot	H	253	Left or Right Handed as applicable	
1 ea.	(L-8)	Bathroom Privacy Lock	Sc	NND40S	Rhodes	626
1 ea.	(C-1)	Closer	CR	DC6210-M54		689
1 ea.	(S-1)	Wall Stop	I	407		630
1 ea.	(K-3)	Armor Plate	I	8400	34" x (DW-2")	630
3 ea.	(M-8)	Silencers	I	SR64		

SET 302A

Door 302A - Pharmacy Checkout: (Café Flexible Plastic, Single)

Hardware furnished by door manufacturer, Section 08383.

FOOD SERVICE TENANT

SET 400A

Door 400A - Back Room: (HM, Single)

1-1/2 pr.	(H-4)	Butts	S	FBF179	4-1/2" x 4-1/2"	652
1 ea.	(H-9)	Reinforcing pivot	H	253	Left or Right Handed as applicable	
1 ea.	(L-6)	Office Lock	Sc	ND50PD	Rhodes	626
1 ea.	(C-1)	Closer	CR	DC6210-M54		689
3 ea.	(M-8)	Silencers	I	SR64		
1 ea.	(S-3)	Floor Stop	I	436		626
2 ea.	(K-2)	Kick Plate	I	8400	10" x (DW-2")	630

SET 402A

Door 402A- Dining Area: (HM, Single, w/ Exit Device)

1-1/2 pr.	(H-1)	Butts	S	FBF191	4-1/2" x 4-1/2" NRP	626
1 ea.	(E-2)	Alarm Exit Device	Po	THPA-30		
1 ea.	(T-6)	Threshold	P	171A		
1 ea.	(W-7)	Door Shoe	P	222AV		
1 ea.	(W-3)	Door Bottom Weatherstrip	P	315CN		
1 set	(W-1)	Jamb & Head Weatherstrip	P	303AV		
1 ea.	(M-9)	Drip Cap	P	346C x FW		

SET 403A

Door 403A - Storage: (HM, Single)

1-1/2 pr.	(H-4)	Butts	S	FBF179	4-1/2" x 4-1/2"	652
1 ea.	(H-9)	Reinforcing pivot	H	253	Left or Right Handed as applicable	
1 ea.	(L-5)	Storeroom Lock	Sc	ND80PD	Rhodes	626
1 ea.	(C-1)	Closer	CR	DC6210-M54		689
1 ea.	(S-1)	Wall Stop	I	407		630
3 ea.	(M-8)	Silencers	I	SR64		

GARDEN CENTER

SET 500A

Doors 500A – Glazed Canopy: (HM, Single, w/ Exit Device)

1-1/2 pr.	(H-1)	Butts	S	FBF191	4-1/2" x 4-1/2" NRP	626
1 ea.	(E-2)	Alarm Exit Device	Po	THPA-30		
1 ea.	(T-6)	Threshold	P	171A		
1 ea.	(W-7)	Door Shoe	P	222AV		
1 ea.	(W-3)	Door Bottom Weatherstrip	P	315CN		
1 set	(W-1)	Jamb & Head Weatherstrip	P	303AV		
1 ea.	(M-9)	Drip Cap	P	346C x FW		

SET 500B

Doors 500B – Glazed Canopy: (HM, Single, w/ Exit Device)

1-1/2 pr.	(H-1)	Butts	S	FBB191	4-1/2" x 4-1/2" NRP	626
1 ea.	(E-2)	Alarm Exit Device	Po	THPA-30		
1 ea.	(T-6)	Threshold	P	171A		
1 ea.	(W-7)	Door Shoe	P	222AV		
1 ea.	(W-3)	Door Bottom Weatherstrip	P	315CN		
1 set	(W-1)	Jamb & Head Weatherstrip	P	303AV		
1 ea.	(M-9)	Drip Cap	P	346C x FW		

SET 500G

Doors 500G – Glazed Canopy: (Aluminum/Glass, Bi-Parting Automatic, Non-Breakaway)

1 ea.	(L-1)	Keyed Cylinder	Sc	20-001		626
1 ea.	(L-4)	Thumbturn	CR	1300-118		626
1 ea.		Locking Device	-		See Section 08462.	

All other hardware furnished by door manufacturer as specified in Section 08462.

SET 501A

Doors 501A - Garden Center: (HM, Single, w/ Exit Device)

1-1/2 pr.	(H-1)	Butts	S	FBB191	4-1/2" x 4-1/2" NRP	626
1 ea.	(E-2)	Alarm Exit Device	Po	THPA-30		
1 ea.	(T-6)	Threshold	P	171A		
1 ea.	(W-7)	Door Shoe	P	222AV		
1 ea.	(W-3)	Door Bottom Weatherstrip	P	315CN		
1 set	(W-1)	Jamb & Head Weatherstrip	P	303AV		
1 ea.	(M-9)	Drip Cap	P	346C x FW		

SET 501B

Doors 501B - Garden Center: (HM, Single, w/ Exit Device)

1-1/2 pr.	(H-1)	Butts	S	FBB191	4-1/2" x 4-1/2" NRP	626
1 ea.	(E-2)	Alarm Exit Device	Po	THPA-30		
1 ea.	(T-6)	Threshold	P	171A		
1 ea.	(W-7)	Door Shoe	P	222AV		
1 ea.	(W-3)	Door Bottom Weatherstrip	P	315CN		
1 set	(W-1)	Jamb & Head Weatherstrip	P	303AV		
1 ea.	(M-9)	Drip Cap	P	346C x FW		

AUTOMOTIVE CENTER

SET 600A

Door 600A – Lube and Tire Mounting Area: (HM, Single, w/ Exit Device)

1-1/2 pr.	(H-1)	Butts	S	FBB191	4-1/2" x 4-1/2" NRP	626
1 ea.	(E-7)	Exit Device	VD	99NL x 697NL		626
1 ea.	(L-3)	Cylinder for Latch	Sc	20-022		626
1 ea.	(C-1)	Closer	CR	DC6210-M54		689
1 ea.	(M-11)	Door Alarm w/ cylinder as required	Ar	130 Series AL		626
1 ea.	(S-1)	Wall Stop	I	407		630
1 ea.	(T-6)	Threshold	P	171A		
1 ea.	(W-2)	Door Shoe	P	217AV		
1 ea.	(W-3)	Door Bottom Weatherstrip	P	315CN		
1 set	(W-1)	Jamb & Head Weatherstrip	P	303AV		
1 ea.	(M-9)	Drip Cap	P	346C x FW		
1 ea.	(K-3)	Armor Plate	I	8400	34 x (DW-2")	630

SET 600C

Door 600C - Lube and Tire Mounting Area: (Sectional Overhead)

Hardware furnished by door manufacturer, Section 08360.

SET 600D

Door 600D - Lube and Tire Mounting Area: (Sectional Overhead)

Hardware furnished by door manufacturer, Section 08360.

SET 600E

Door 600E - Lube and Tire Mounting Area: (Sectional Overhead)

Hardware furnished by door manufacturer, Section 08360.

SET 600F

Door 600F - Lube and Tire Mounting Area: (Sectional Overhead)

Hardware furnished by door manufacturer, Section 08360

SET 600G

Door 600G - Lube and Tire Mounting Area: (Sectional Overhead)

Hardware furnished by door manufacturer, Section 08360.

SET 600H

Door 600H - Lube and Tire Mounting Area: (Sectional Overhead)

Hardware furnished by door manufacturer, Section 08360.

SET 600L

Doors 600L - Lube and Tire Mounting Area: (HM, Single, w/ Exit Device)

1-1/2 pr.	(H-1)	Butts	S	FBB191	4-1/2" x 4-1/2" NRP	626
1 ea.	(E-2)	Alarm Exit	Po	THPA-30		
1 ea.	(T-6)	Threshold	P	171A		
1 ea.	(W-7)	Door Shoe	P	222AV		
1 ea.	(W-3)	Door Bottom Weatherstrip	P	315CN		
1 set	(W-1)	Jamb & Head Weatherstrip	P	303AV		
1 ea.	(M-9)	Drip Cap	P	346C x FW		

SET 600M

Door 600M - Lube and Tire Mounting Area: (Coiling Counter Door, UL Label)

Hardware furnished by door manufacturer per Section 08331.

SET 601A

Door 601A - Toilet: (HM, Single)

1-1/2 pr.	(H-2)	Butts	S	F179	4-1/2" x 4-1/2"	652
1 ea.	(H-9)	Reinforcing pivot	H	253	Left or Right Handed as applicable	
1 ea.	(L-8)	Bathroom Privacy Lock	Sc	NND40S	Rhodes	626
1 ea.	(S-1)	Wall Stop	I	407		630
3 ea.	(M-8)	Silencers	I	SR64		
1 ea.	(K-3)	Armor Plate	I	8400	34 x (DW-2")	630

SET 602A

Doors 602A - Mechanical: (HM, Single, 4'-0", w/ Exit Device)

2 pr.	(H-1)	Butts	S	FBB191	4-1/2" x 4-1/2" NRP	626
1 ea.	(E-10)	Exit Device	VD	99EO		626
1 ea.	(M-11)	Door Alarm w/ cylinder as required	Ar	130 Series AL		626
1 ea.	(T-6)	Threshold	P	171A		
1 ea.	(W-7)	Door Shoe	P	222AV		
1 ea.	(W-3)	Door Bottom Weatherstrip	P	315CN		
1 set	(W-1)	Jamb & Head Weatherstrip	P	303AV		
1 ea.	(M-9)	Drip Cap	P	346C x FW		
1 ea.	(K-3)	Armor Plate	I	8400	34 x (DW-2")	630

SET 603A

Door 603A – Security / Office: (HM, Single)

1-1/2 pr.	(H-3)	Butts	S	F179	4-1/2" x 4-1/2" NRP	652
1 ea.	(H-9)	Reinforcing pivot	H	253	Left or Right Handed as applicable	
1 ea.	(L-5)	Storeroom Lock	Sc	ND80PD	Rhodes	626
1 ea.	(S-1)	Wall Stop	I	407		630
1 ea.	(K-3)	Armor Plate	I	8400	34" x (DW-2")	630
3 ea.	(M-8)	Silencers	I	SR64		

SET 604A

Door 604A - Customer Service: (HM, Single w/ Exit Device)

1-1/2 pr.	(H-1)	Butts	S	FBF191	4-1/2" x 4-1/2" NRP	626
1 ea.	(E-2)	Alarm Exit	Po	THPA-30		
1 ea.	(T-6)	Threshold	P	171A		
1 ea.	(W-7)	Door Shoe	P	222AV		
1 ea.	(W-3)	Door Bottom Weatherstrip	P	315CN		
1 set	(W-1)	Jamb & Head Weatherstrip	P	303AV		
1 ea.	(M-9)	Drip Cap	P	346C x FW		

SET 605A

Doors 605A - Storage: (HM, Single, 4'-0", UL Label)

1-1/2 pr.	(H-4)	Butts	S	FBF179	4-1/2" x 4-1/2"	652
1 ea.	(H-9)	Reinforcing pivot	H	253	Left or Right Handed as applicable	
1 ea.	(L-6)	Office Lock	Sc	ND50PD	Rhodes	626
1 ea.	(C-1)	Closer	CR	DC6210-M54		689
1 ea.	(S-1)	Wall Stop	I	407		630
1 set	(W-5)	Door Gaskets	P	S88D series		
1 ea.	(K-3)	Armor Plate	I	8400	34 x (DW-2")	630

SET 605B

Door 605B - Storage: (HM, Single)

1-1/2 pr.	(H-4)	Butts	S	FBF179	4-1/2" x 4-1/2"	652
1 ea.	(H-9)	Reinforcing pivot	H	253	Left or Right Handed as applicable	
1 ea.	(L-6)	Office Lock	Sc	ND50PD	Rhodes	626
1 ea.	(C-1)	Closer	CR	DC6210-M54		689
1 ea.	(S-1)	Wall Stop	I	407		630
3 ea.	(M-8)	Silencers	I	SR64		
1 ea.	(K-3)	Armor Plate	I	8400	34 x (DW-2")	630
1 ea.	(T-4)	Threshold	NG	BAR6SS-2-10bevel	2" x DW x 1/8"	

SET 608A

Door 608A - Supply (HM, Single)

1-1/2 pr.	(H-4)	Butts	S	FBF179	4-1/2" x 4-1/2"	652
1 ea.	(H-9)	Reinforcing pivot	H	253	Left or Right Handed as applicable	
1 ea.	(L-6)	Office Lock	Sc	ND50PD	Rhodes	626
1 ea.	(C-1)	Closer	CR	DC6210-M54		689
1 ea.	(S-1)	Wall Stop	I	407		630
3 ea.	(M-8)	Silencers	I	SR64		
1 ea.	(K-3)	Armor Plate	I	8400	34 x (DW-2")	630

SET 609A

Door 609A - Storage: (HM, Single)

1-1/2 pr.	(H-4)	Butts	S	FBF179	4-1/2" x 4-1/2"	652
1 ea.	(H-9)	Reinforcing pivot	H	253	Left or Right Handed as applicable	
1 ea.	(L-6)	Office Lock	Sc	ND50PD	Rhodes	626
1 ea.	(C-1)	Closer	CR	DC6210-M54		689
1 ea.	(S-1)	Wall Stop	I	407		630
3 ea.	(M-8)	Silencers	I	SR64		
1 ea.	(K-3)	Armor Plate	I	8400	34 x (DW-2")	630
1 ea.	(T-4)	Threshold	NG	BAR6SS-2-10bevel	2" x DW x 1/8"	

SET 610A

Doors 610A – Tire & Battery Storage: (Chain Link, Pair)

Hardware furnished by fence manufacturer per Section 02821.

SET 614A

Doors 614A - Environmental Cage: (Chain Link, Pair)

Hardware furnished by fence manufacturer as specified in Section 02821.

VISION CENTER

SET 701A

Door 701A - Lab: (HM, Single)

1-1/2 pr.	(H-2)	Butts	S	F179	4-1/2" x 4-1/2"	652
1 ea.	(H-9)	Reinforcing pivot	H	253	Left or Right Handed as applicable	
1 ea.	(L-6)	Office Lock	Sc	ND50PD	Rhodes	626
1 ea.	(S-1)	Wall Stop	I	407		630
3 ea.	(M-8)	Silencers	I	SR64		
2 ea.	(K-2)	Kick Plates	I	8400	10" x (DW-2") (Each side of door)	630

SET 705A

Door 705A - Exam #1: (HM, Single)

1-1/2 pr.	(H-2)	Butts	S	F179	4-1/2" x 4-1/2"	652
1 ea.	(H-9)	Reinforcing pivot	H	253	Left or Right Handed as applicable	
1 ea.	(L-6)	Office Lock	Sc	ND50PD	Rhodes	626
1 ea.	(S-1)	Wall Stop	I	407		630
3 ea.	(M-8)	Silencers	I	SR64		
2 ea.	(K-2)	Kick Plates	I	8400	10" x (DW-2") (Each side of door)	630

SET 706A

Door 706A - Exam #2: (HM, Single)

1-1/2 pr.	(H-2)	Butts	S	F179	4-1/2" x 4-1/2"	652
1 ea.	(H-9)	Reinforcing pivot	H	253	Left or Right Handed as applicable	
1 ea.	(L-6)	Office Lock	Sc	ND50PD	Rhodes	626
1 ea.	(S-1)	Wall Stop	I	407		630
3 ea.	(M-8)	Silencers	I	SR64		
2 ea.	(K-2)	Kick Plates	I	8400	10" x (DW-2") (Each side of door)	630

SET 708A

Doors 708A - Reception: (Aluminum/Glass, Single, Single Acting)

1 ea.	(L-1)	Keyed Cylinder	Sc	20-001		628
1 ea.	(L-4)	Thumbturn	CR	1300-118		626
1 ea.		Closer	-		See Section 08411.	
1 set		Pivots	-		See Section 08411.	
1 ea.		Push	-		See Section 08411.	
1 ea.		Pull	-		See Section 08411.	

All other hardware furnished by door manufacturer as specified in Sections 08411.

SET 711A

Doors 711A - Vestibule: (Aluminum/Glass, Single, Single Acting)

1 ea.	(L-1)	Keyed Cylinder	Sc	20-001		628
1 ea.	(L-4)	Thumbturn	CR	1300-118		626
1 ea.	(T-2)	Threshold	P	271A		
1 ea.		Closer	-		See Section 08411.	
1 set		Pivots	-		See Section 08411.	
1 ea.		Push	-		See Section 08411.	
1 ea.		Pull	-		See Section 08411.	

All other hardware furnished by door manufacturer as specified in Sections 08411.

SET 711B

Doors 711B - Vestibule: (Aluminum/Glass, Single, Single Acting)

1 ea.	(L-1)	Keyed Cylinder	Sc	20-001		628
1 ea.	(L-4)	Thumbturn	CR	1300-118		626
1 ea.		Closer	-		See Section 08411.	
1 set		Pivots	-		See Section 08411.	
1 ea.		Push	-		See Section 08411.	
1 ea.		Pull	-		See Section 08411.	

All other hardware furnished by door manufacturer as specified in Sections 08411.

HAIR CARE

SET 810A

Door 810A – Hair Salon: (HM, Single)

1-1/2 pr.	(H-4)	Butts	S	FBF179	4-1/2" x 4-1/2"	652
1 ea.	(H-9)	Reinforcing pivot	H	253	Left or Right Handed as applicable	
1 ea.	(L-7)	Passage Latch	Sc	ND10S	Rhodes	626
1 ea.	(C-1)	Closer	CR	DC6210-M54		689
1 ea.	(M-11)	Door Alarm w/ cylinder as required	Ar	130 Series AL		626
1 ea.	(S-1)	Wall Stop	I	407		630
3 ea.	(M-8)	Silencers	I	SR64		

SET 811A

Door 811A - Utility: (HM, Single)

1-1/2 pr.	(H-4)	Butts	S	FBF179	4-1/2" x 4-1/2"	652
1 ea.	(H-9)	Reinforcing pivot	H	253	Left or Right Handed as applicable	
1 ea.	(L-7)	Passage Latch	Sc	ND10S	Rhodes	626
1 ea.	(C-1)	Closer	CR	DC6210-M54		689
1 ea.	(S-1)	Wall Stop	I	407		630
3 ea.	(M-8)	Silencers	I	SR64		

SET 813A

Door 813A - Storage: (HM, Single)

1-1/2 pr.	(H-4)	Butts	S	FBF179	4-1/2" x 4-1/2"	652
1 ea.	(H-9)	Reinforcing pivot	H	253	Left or Right Handed as applicable	
1 ea.	(L-7)	Passage Latch	Sc	ND10S	Rhodes	626
1 ea.	(C-1)	Closer	CR	DC6210-M54		689
1 ea.	(S-1)	Wall Stop	I	407		630
3 ea.	(M-8)	Silencers	I	SR64		

SET 814A

Doors 814A – Hallway #10: (HM, Single, 3'-0", w/ Exit Device)

1-1/2 pr.	(H-1)	Butts	S	FBF191	4-1/2" x 4-1/2" NRP	626
1 ea.	(E-2)	Alarm Exit Device	Po	THPA-30		
1 ea.	(T-6)	Threshold	P	171A		
1 ea.	(W-7)	Door Shoe	P	222AV		
1 ea.	(W-3)	Door Bottom Weatherstrip	P	315CN		
1 set	(W-1)	Jamb & Head Weatherstrip	P	303AV		
1 ea.	(M-9)	Drip Cap	P	346C x FW		

TENANT SPACE

SET 830A

Door 830A – Portrait Studio: (HM, Single)

1-1/2 pr.	(H-2)	Butts	S	F179	4-1/2" x 4-1/2"	652
1 ea.	(H-9)	Reinforcing pivot	H	253	Left or Right Handed as applicable	
1 ea.	(L-6)	Office Lock	Sc	ND50PD	Rhodes	626
1 ea.	(S-1)	Wall Stop	I	407		630
3 ea.	(M-8)	Silencers	I	SR64		

SET 830B

Doors 830B - Closet: (HM, Single)

1-1/2 pr.	(H-2)	Butts	S	F179	4-1/2" x 4-1/2"	652
1 ea.	(H-9)	Reinforcing pivot	H	253	Left or Right Handed as applicable	
1 ea.	(L-6)	Office Lock	Sc	ND50PD	Rhodes	626
1 ea.	(S-1)	Wall Stop	I	407		630
3 ea.	(M-8)	Silencers	I	SR64		

GROCERY AREA

SET 900A

Door 900A - Grocery Sales: (Flexible Plastic Door, Pair)

1 ea. (T-4) Threshold NG BAR6SS-2-10bevel 2" x DW x 1/8"
Install transition threshold at door opening tight to vinyl floor tile edge where tile transitions to concrete slab.
All other hardware furnished by door manufacturer as specified in Section 08383.

SET 901A

Door 901A - Deli Service: (Flexible Plastic, Single)

Hardware furnished by door manufacturer, Section 08383.

SET 902A

Door 902A - Deli Prep: (Flexible Plastic, Single)

Hardware furnished by door manufacturer, Section 08383.

SET 909B

Door 909B - Produce Prep: (Flexible Plastic, Pair)

Hardware furnished by door manufacturer, Section 08383.

SET 912A

Door 912A - Meat Prep: (Flexible Plastic, Single)

1 ea. (T-4) Threshold NG BAR6SS-2-10bevel 2" x DW x 1/8"
Hardware furnished by door manufacturer per Section 08383.

SET 916A

Door 916A – GR Stockroom: (HM, Single, w/ Exit Device)

1-1/2 pr.	(H-1)	Butts	S	FBF191	4-1/2" x 4-1/2" NRP	626
1 ea.	(E-2)	Alarm Exit Device	Po	THPA-30		
1 ea.	(T-6)	Threshold	P	171A		
1 ea.	(W-7)	Door Shoe	P	222AV		
1 ea.	(W-3)	Door Bottom Weatherstrip	P	315CN		
1 set	(W-1)	Jamb & Head Weatherstrip	P	303AV		
1 ea.	(M-9)	Drip Cap	P	346C x FW		

SET 916B

Door 916B – GR Stockroom: (HM, Single, w/ Exit Device)

1-1/2 pr.	(H-1)	Butts	S	FBF191	4-1/2" x 4-1/2" NRP	626
1 ea.	(E-2)	Alarm Exit Device	Po	THPA-30		
1 ea.	(T-6)	Threshold	P	171A		
1 ea.	(W-7)	Door Shoe	P	222AV		
1 ea.	(W-3)	Door Bottom Weatherstrip	P	315CN		
1 set	(W-1)	Jamb & Head Weatherstrip	P	303AV		
1 ea.	(M-9)	Drip Cap	P	346C x FW		

SET 917B

Doors 917B - Plumbing Mechanical: (Chain Link, Pair)

Hardware furnished by fence manufacturer per Section 02821.

SET 918A

Doors 918A – Hallway #9: (HM, (2) Singles, w/ Exit Device)

3 pr.	(H-1)	Butts	S	FBB191	4-1/2" x 4-1/2" NRP	626
2 ea.	(E-2)	Alarm Exit Device	Po	THPA-30		
2 ea.	(T-6)	Threshold	P	171A		
2 ea.	(W-7)	Door Shoe	P	222AV		
2 ea.	(W-3)	Door Bottom Weatherstrip	P	315CN		
2 set	(W-1)	Jamb & Head Weatherstrip	P	303AV		
1 ea.	(M-9)	Drip Cap	P	346C x FW		

SET 918E

Door 918E – Hallway #9: (Flexible Plastic, Pair)

1 ea.	(T-4)	Threshold	NG	BAR6SS-2-10bevel	2" x DW x 1/8"
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Hardware furnished by door manufacturer per Section 08383.

SET 920A

Door 920A - Receiving (GR): (Sectional Overhead)

Hardware furnished by door manufacturer per Section 08360.

SET 920B

Door 920B - Receiving (GR): (Sectional Overhead)

Hardware furnished by door manufacturer per Section 08360.

SET 920C

Door 920C - Receiving (GR): (Sectional Overhead)

Hardware furnished by door manufacturer per Section 08360.

SET 920D

Door 920D - Receiving (GR): (Sectional Overhead)

Hardware furnished by door manufacturer per Section 08360.

SET 927A

Door 927A – Dept. 82 Room: (HM, Single)

1-1/2 pr.	(H-2)	Butts	S	F179	4-1/2" x 4-1/2"	652
1 ea.	(H-9)	Reinforcing pivot	H	253	Left or Right Handed as applicable	
1 ea.	(L-5)	Storeroom Lock	Sc	D80PD	Rhodes	626
3 ea.	(M-8)	Silencers	I	20		
1 ea.	(S-5)	Overhead Stop	Ri	9-336		626

SET 930A

Doors 930A - Compressor Enclosure: (Chain Link, Pair)

Hardware furnished by fence manufacturer per Section 02821.

SET 930B

Doors 930B - Compressor Enclosure: (Chain Link, Pair)

Hardware furnished by fence manufacturer per Section 02821.

SET 931A

Doors 931A - Equipment: (HM, Pair)

3 pr.	(H-2)	Butts	S	F179	4-1/2" x 4-1/2"	652
2 ea.	(H-9)	Reinforcing pivot	H	253	Left or Right Handed as applicable	
1 ea.	(L-5)	Storeroom Lock	Sc	ND80PD	Rhodes	626
1 set	(M-5)	Extension Flush Bolts	I	458		626
1 set	(W-1)	Jamb & Head Weatherstripping	P	303AV		
2 ea.	(W-3)	Door Bottom Weatherstrip	P	315CN		
1 pr.	(W-4)	Meeting Style Gaskets	P	303AS		
1 ea.	(S-1)	Wall Stop	I	407		626
1 ea.	(S-6)	Overhead Stop	Ri	9-236		626
1 ea.		Astragal (Inactive leaf)				

SECTION 08800 – GLAZING

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Glass and glazing for interior and exterior metal frames and doors.
 - 2. Window Hardware: Sliding glass track assembly.
- B. Related Sections:
 - 1. Section 08110 - Steel Doors and Frames: Glazed doors and fixed window frames.
 - 2. Section 08411 - Aluminum Framed Storefronts: Aluminum storefront framing system.
 - 3. Section 08462 - Automatic Sliding Entrance Doors: Glazed doors.
 - 4. Section 08710 - Door Hardware: Hardware coordination.

1.2 REFERENCES

- A. The publications listed below form a part of this specification to the extent referenced. Publications are referenced within the test by these basic designations only.
- B. American National Standards Institute (ANSI):
 - 1. ANSI Z97.1 - Safety Performance Specifications and Methods of Test for Safety Glazing Material Used in Buildings.
- C. ASTM International (ASTM):
 - 1. ASTM C920 - Specification for Elastomeric Joint Sealants.
 - 2. ASTM C1036 - Flat Glass.
 - 3. ASTM C1048 - Heat-Treated Flat Glass - Kind HS, Kind FT Coated and Uncoated Glass.
 - 4. ASTM D2000 - Classification System for Rubber Products in Automotive Applications.
- D. Flat Glass Marketing Association (FGMA):
 - 1. FGMA - Glazing Manual and Glazing Sealing Systems Manual.
- E. Consumer Product Safety Standards for Architectural Glazing: CPSC 16 CFR, Part 1201.

1.3 SUBMITTALS

- A. Contract Closeout Submittals: Submit the following under provisions of Section 01770.
 - 1. Letters of Certification: Submit certification from fire-rated glazed light manufacturer that UL label identification is etched on each glazed light.

1.4 QUALITY ASSURANCE

- A. Conform to FGMA Glazing Manual for glazing installation methods.
- B. Provide permanent labeling for safety glass indicating conformance with specified standards.

PART 2 - PRODUCTS

2.1 GLASS MATERIALS

- A. Tempered Glass: ASTM C 1048, Kind FT (Fully Tempered), Condition A (Uncoated), Type I (Transparent Glass, Flat), Quality q3 (Glazing Select). Conform to ANSI Z97.1 and CPSC 16CFR Part 1201.
 - 1. Tempered glazing panels as specified in the Glass Schedule below (including doors, sidelights, storefronts, and transoms) shall comply with the CPSC 16CFR Part 1201 criteria for Category I or II as follows:
 - a. Glazing Panels 9 sq. ft. or less: Category I.
 - b. Glazing Panels more than 9 sq. ft.: Category II.
 - 2. Thickness:
 - a. 1/4 inch unless otherwise shown or specified.
 - b. 3/8 inch at butt glazing where shown on Drawings.
 - 3. Clear: Class 1 (Clear).
 - 4. Tinted: Class 2 (Tinted Heat Absorbing and Light Reducing).
 - a. Color: Gray tint or bronze tint (match existing).
- B. UL Labeled Wire Glass Assembly: Factory installed UL Classified fire rated frame and glass assembly for fire rated doors as follows:
 - 1. Vision Light Metal Frame: 20 gage cold rolled steel with Fire Glaze liner squares spacers and Fire Glaze fire rated glazing sealant. Factory prime for field painting. Size as indicated on Drawings.
 - 2. Glass: Pilkington Pyroshield 1/4 inch thick wire glass; UL Classified glazing material for fire doors and frame assemblies rated up to 1-1/2 hours, tested and certified to meet requirements of standard UL 10B and UBC Standard 7.2.
 - 3. UL Labeling and Identification: "UL B Label" etched in glass. No exception.
 - 4. Glazing Material: Pemko Manufacturing Company, Ventura, CA (800) 283-9988.
- C. Identification:
 - 1. Each unit of tempered glass shall be permanently identified by the manufacturer. The identification shall be etched or ceramic fired on the glass and be visible when the unit is glazed.

2.2 GLAZING COMPOUNDS

- A. Polysulphide Sealant: Two component, chemical curing, non-sagging type; cured Shore A hardness of 15-25.
- B. Silicone Sealant: Single component, chemical curing; capable of water immersion without loss of properties; non-bleeding, non-staining; cured Shore A hardness of 15-25.
 - 1. Color: Clear.
- C. Acrylic terpolymer compounded especially for glazing; non-hardening, non-staining, and non-bleeding.

2.3 GLAZING ACCESSORIES

- A. Setting Blocks: Resilient blocks of 70 to 90 Shore A durometer hardness; compatible with glazing sealant.
- B. Spacers: Resilient blocks of 40 to 50 Shore A durometer hardness; self adhesive on one side; compatible with glazing sealant.
- C. Filler Rods: Closed cell or jacketed foam rods of polyethylene, butyl, neoprene, polyurethane, or vinyl; compatible with glazing sealant.
- D. Joint Cleaners, Primers, and Sealers: As recommended by glazing sealant manufacturer.
- E. Gaskets: ASTM D2000, SBC 415 to 3BC 620; extruded or molded neoprene or EPDM, black.

- F. Butt Joint "H" Trim: CRL Satin Anodized 1/4" "H" Channel by C.R. Laurence Company Inc., Los Angeles, CA (800) 421-6144.
- G. Stainless Steel Frame (Pharmacy Privacy Wall Glass Frame): CRL Brushed Stainless Anodized Wet Glaze 1-1/2" Deep "U" Channel, Catalog No. WU1BSCL, by C.R. Laurence Company, Inc. Los Angeles, CA (800) 421-6144.
- H. Aluminum Angle (Pharmacy Privacy Wall Glass Retainer): CRL 1" Satin Anodized Angle Extrusion. Catalog No. D1634A, by C.R. Laurence Company Inc., Los Angeles, CA (800) 421-6144.

2.4 SLIDING WINDOW HARDWARE

- A. Sliding Glass Track (UPC/Merch. and Automotive Center Windows): Zinc-plated steel sliding glass window track assembly including upper channel, shoe, ball-bearing carrier, lower track, and nickel finish adjustable lock. Provide sliding glass window assembly Model No. KV P992 and Lock KV 965, as manufactured by Knape & Vogt Manufacturing Company.

PART 3 - EXECUTION (REFER TO RELATED SECTIONS FOR OWNER PROVIDED WORK IN THIS SECTION)

3.1 EXAMINATION

- A. Verify surfaces of glazing channels or recesses are clean, free of obstructions, and ready for work of this Section.
- B. Beginning of installation means acceptance of substrate.

3.2 PREPARATION

- A. Clean contact surfaces; prime or seal where recommended by sealant manufacturer for intended application.
- B. Inspect glass edges immediately prior to setting; discard those with edge damage that will contribute to glazing failure.

3.3 GLAZING

- A. Locate setting blocks at quarter points of sill; set in sealant if heel or toe bead is required.
- B. Install spacers inside and out except where preshimmed tape or glazing gaskets are to be used.
- C. Set each piece in a series to other pieces in pattern draw, bow, or other visually perceptible characteristics.
- D. Provide glazing sealants and gaskets as required for particular glazing application. Coordinate with other Sections for material compatibility.
- E. Gaskets:
 - 1. Provide adequate anchorage, particularly for driven-in wedge gaskets.
 - 2. Miter and weld ends of channel gaskets at corners to provide continuous gaskets.
 - 3. Seal face gaskets at corners with sealant to close opening and prevent withdrawal of gaskets from corners.
- F. Do not leave voids in glazing channels except as specifically indicated or recommended by glass manufacturer. Force sealant into channel to eliminate voids. Tool exposed surfaces to slight wash away from joint. Trim and clean promptly.
- G. Do not allow sealant to close weeps of aluminum framing.
- H. Provide filler rod where sealants are used in the following locations:
 - 1. Head and jamb channels.

2. Colored glass over 75 united inches in size.
3. Clear glass over 125 united inches in size.

3.4 INSTALLATION - BUTT GLAZED METHOD

- A. Apply "H" Trim at butt joints at locations shown on the drawings in accordance with manufacturer's instructions.

3.5 SLIDING WINDOW TRACK INSTALLATION

- A. Attach sliding window track assembly to hollow metal frame with double faced tape or adhesive as recommended by the manufacturer.

3.6 ADJUSTING AND CLEANING

- A. Immediately prior to Wal-Mart acceptance of Project, replace broken or otherwise damaged glass. Wash and polish glass inside and out.

3.7 GLASS SCHEDULE

- A. Provide type of glass specified for the applications scheduled as follows:

APPLICATION/LOCATION	TYPE OF GLASS
Interior Windows	Clear tempered glass unless otherwise shown or specified.
Interior Hollow Metal Doors	Clear tempered or wire glass as scheduled on the drawings.
Exterior storefront including storefront doors	Tinted tempered glass.
Storefront transom (Garden Center Entry)	Fully etched and sealed tempered glass.
Interior storefront including storefront doors	Clear tempered glass.
Locations shown.	Butt Glazed Glass.
Exterior Automatic Sliding Doors and Transoms	Specified in Section 08462.

END OF SECTION

SECTION 09250 – GYPSUM BOARD

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Interior non-load bearing steel stud partition framing 20 (30 mil) gage and lighter (designed for 5 pounds per square foot uniform load perpendicular to partition).
2. Gypsum board.
3. Gypsum sheathing.
4. Backer materials: Backer panels for wall tile and plastic wall panels.
5. Textured wallboard coating.

B. Related Sections:

1. Section 05400 - Cold Formed Metal Framing: Load-bearing steel stud exterior and interior wall framing 20 gage and heavier and ceiling joists. Cold formed deep leg track for interior nonload-bearing steel stud partitions. Metal stud header wall framing and bracing supported from roof structure.
2. Section 06100 - Rough Carpentry: Wood furring strips, plywood, blocking, and fasteners attached to partition framing.
3. Section 07210 - Building Insulation: Thermal and acoustical insulation.
4. Section 07840 - Firestopping: Installation of firestopping at penetrations of fire-rated partitions.
5. Section 09900 - Paints and Coatings: Paint finish applied to gypsum board.
6. Section 10200 - Vents and Louvers: Soffit Vents.

1.2 REFERENCES

- A. The publications listed below form a part of this specification to the extent referenced. Publications are referenced within the test by these basic designations only.

B. ASTM International (ASTM):

1. ASTM A 653 - Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process
2. ASTM C 475 - Joint Compound and Joint Tape for Finishing Gypsum Board.
3. ASTM C 557 - Adhesives for Fastening Gypsum Wallboard to Wood Framing.
4. ASTM C 645 - Nonstructural Steel Framing Members.
5. ASTM C 754 - Installation of Steel Framing Members to Receive Screw-Attached Gypsum Panel Products.
6. ASTM C 840 - Application And Finishing Of Gypsum Board.
7. ASTM C 954 - Steel Drill Screws for the Application of Gypsum Board or Metal Plaster Bases to Steel Studs From 0.033 inches to 0.112 inches in Thickness.
8. ASTM C 1002 - Steel Self-Piercing Tapping Screws For The Application Of Gypsum Panel Products Or Metal Plaster Bases To Wood Studs Or Steel Studs.
9. ASTM C 1177 - Glass Mat Gypsum Substrate for Use as Sheathing.
10. ASTM C 1178 - Coated Glass Mat Water-Resistant Gypsum Backing Panel.
11. ASTM C 1396 - Gypsum Board
12. ASTM C 1658 - Glass Mat Gypsum Panels.
13. ASTM D 3273 - Standard Test Method for Resistance to Growth of Mold on the Surfaces of Interior Coatings in an Environmental Chamber.
14. ASTM D 3274 - Standard Test Method for Evaluating Degree of Surface Disfigurement of Paint Films by Microbial (Fungal or Algal) Growth or Soil and Dirt Accumulation.

C. Gypsum Association (GA):

1. GA-214 - Levels of Gypsum Board Finish.
2. GA-216 - Application and Finishing of Gypsum Board.

3. GA-234 - Control Joints For Fire-Resistance Rated Systems.
4. GA-600 - Fire Resistance and Sound Control Design Manual.

- D. Steel Stud Manufacturer's Association (SSMA):
1. Member listing.

1.3 SUBMITTALS

- A. Product Data: Provide product data for framing members.

1.4 QUALITY ASSURANCE

- A. Installer Qualifications: Company specializing in the installation of light gage metal framing components and gypsum wallboard with minimum 5 years documented experience.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Section 01600 - Product Requirements: Transport, handle, store, and protect products.
- B. Protect metal framing from corrosion, deformation, and other damage during delivery, storage, and handling.
- C. Store and protect metal framing with weatherproof covering, and ventilate to avoid condensation.
- D. Deliver materials in original packages, containers, or bundles bearing brand name and identification of manufacturer or supplier.
- E. Stack gypsum board flat to prevent sagging.

1.6 PROJECT CONDITIONS OR SITE CONDITIONS

- A. Environmental Requirements:
1. Establish and maintain environmental conditions for applying and finishing gypsum board in conformance with GA-216.

PART 2 - PRODUCTS

2.1 FRAMING MATERIALS

- A. Manufacturer: Subject to compliance with requirements, provide products of one of the following:
1. Dietrich Metal Framing.
 2. The Steel Network.
 3. Other manufacturers listed as a member of SSMA.
- B. Recycled Content of Steel Products: Provide steel framing products with an average recycled content of steel products such that the post-consumer recycled content plus 1/2 of pre-consumer recycled content is not less than 25 percent.
- C. Interior Nonload-Bearing Partition Framing: ASTM C 645; galvanized sheet steel, channel shaped, punched for utility access, depth and gages as indicated below unless otherwise indicated on Drawings.
1. Partition having an unbraced length of 12 feet or Less: Minimum 25 gage (18 mil).
 2. Partition having an unbraced length greater than 12 Feet: Minimum 20 gage (30 mil).
 3. Partition (bulkheads) suspended from overhead having an unbraced length of 10 Feet or Less: Minimum 25 gage (18 mil).
 4. Partition height 8 feet and less: Minimum 25 gage (18 mil).
 5. Partition height 8 - 16 feet: Minimum 22 gage (27 mil).
 6. Partition height 16 feet and higher: Minimum 20 gage (30 mil).

- D. Option: Modified framing members of equivalent thickness for 20 and 25 gage metal such as UltraSTEEL by Dietrich may be used in lieu of traditional framing members.
- E. Partition Floor Tracks and Runners: ASTM C 645; galvanized sheet steel, channel shaped, same depth and gage as studs, tight fit; solid web.
- F. Capture Track: Deep leg track at roof deck or structure to provide vertical travel as indicated.
 - 1. Contractor's Option: Manufacturer's standard double or single deflection track as follows:
 - a. VertiClip or VertiTrack by The Steel Network, Raleigh, NC (888) 474-4876. If this option is used, track may be 20 gage (30 mil) for all stud sizes.
 - b. FastTop Clip by Dietrich Metal Framing, Pittsburg, PA (412) 281-2805.
 - c. SLP-TRK by Brady Innovations as distributed by Dietrich Metal Framing.
- G. Furring and Bracing: ASTM C 645; galvanized sheet steel.
 - 1. Studs: ST25 - 2-1/2 inch deep, 25 gage (18 mil).
 - 2. Studs: ST25 - 3-5/8 inch deep, 25 gage (18 mil).
 - 3. Hat-Shaped Channels: 7/8 inch deep x 1-1/2 inch wide, 25 gage (18 mil).
 - 4. Cold-Rolled Channels: 3/4 x 1/2 inch and 1-1/2 x 17/32 inch, 16 gage (54 mil).
 - 5. Z Furring Channel: 1-1/2 inch deep, 25 gage (18 mil).
 - 6. Clip Angles: 2 inches x 2 inches x 16 gage (54 mil) x 1/4 inch less than stud width.
 - 7. Contractor's Option: In lieu of cold rolled channels and clip angles for horizontal wall bridging, Contractor may provide one of the following:
 - a. Bridge Bar by the Steel Network.
 - b. TradeReady Spazzer 9200 Bridging and Bracing Bar by Dietrich Metal Framing.
- H. Ceiling Joists, Tracks, Headers at Partition Openings, Framing Attachment Angles, and Fasteners: Specified in Section 05400.
- I. Partition Framing Fasteners: Corrosion-resistant self-drilling self-tapping steel screws.
 - 1. 22 (27 mil) Gage Framing: ASTM C 1002; 3/8 inch Type S pan head.
 - 2. 20 (30 mil) Gage and Heavier Framing: ASTM C 954; 5/8 inch Type S-12 low-profile head.
- J. Bracing to Framing Attachment Angle Fasteners: #12 diameter pan head corrosion-resistant self-drilling screws.
- K. Partition Floor Track Anchorage Device: Low velocity powder-actuated drive pins; minimum 0.138 inch shank diameter x 1-1/2 inch shank length with 7/8 inch diameter washer.
 - 1. Hilti PAT System using X-ZF 37 P8S36 Pins, by Hilti, Tulsa, OK (800) 879-8000.
 - 2. Ramset/Red Head System using 1500SD Pins, by ITW Ramset/Redhead, Wood Dale, IL (630) 350-0370.
- L. Wall Furring to Concrete or Masonry Wall Fasteners: Hex head sleeve anchors; minimum 1/4 inch diameter x minimum 1-1/8 inch embedment.
 - 1. Slv Anch HX 5/16 x 2-1/2, by Hilti, Tulsa, OK (800) 879-8000.
 - 2. Dynabolt HN-1413, by ITW Ramset/Redhead, Wood Dale, IL (708) 350-1558.
- M. Furring Channel to Masonry or Concrete Surface Fasteners: Low velocity powder-actuated drive pins of size to suit application.
- N. Flat Straps and Plates: ASTM A 653; galvanized sheet steel, gage, shape, and configuration as indicated on Drawings.
 - 1. Contractor's Option: In lieu of 2-inch continuous metal strap at capture tracks, Contractor may provide one of the following:
 - a. Bridge Bar by The Steel Network.
 - b. TradeReady Spazzer 9200 Bridging and Bracing Bar by Dietrich Metal Framing.

2.2 GYPSUM BOARD MATERIALS

- A. Manufacturer: United States Gypsum Company, Chicago, IL. (800) 874-4968.
1. United States Gypsum (USG) gypsum wallboard designations are used within this Section to identify gypsum wallboard and accessory types, unless noted otherwise.
 2. Alternate Manufacturers: Subject to compliance with project requirements, unless otherwise specified, gypsum board and accessories equivalent to the USG products specified, by one of the following alternate manufacturers may be provided:
 - a. CertainTeed Corp, Tampa, FL (866) 427-2872.
 - b. Georgia-Pacific, Atlanta, GA (800) 284-5347.
 - c. National Gypsum Company, Gold Bond Building Products, Charlotte, NC (800) 628-4662.
 - d. The Steel Network, Raleigh, NC (888) 474-4876 (Accessories only).
 - e. Dietrich Metal Framing, Pittsburg, PA (412) 281-2805 (Accessories only).
- B. Standard Gypsum Board: Sheetrock, ASTM C 1396; 1/2 inch and 5/8 inch thick, maximum permissible length; ends square cut, tapered edges.
- C. Water Resistant Gypsum Board: ASTM C 1396 or C 1658, 1/2 inch thick, maximum permissible lengths; ends square cut, tapered edges. Mold resistance of water resistant gypsum board shall score a rating of not less than 10 when tested in accordance with ASTM D 3273.
1. Sheetrock Brand Mold Tough by USG.
 2. Gold Bond Brand XP Gypsum Board by National Gypsum.
 3. DensArmor Plus by Georgia-Pacific.
- D. Fire Resistant Gypsum Board: ASTM C 1396, Type X; 5/8 inch thick, maximum permissible lengths; ends square cut, tapered edges; core material as required to comply with Underwriters Laboratories (UL) assemblies indicated on Drawings.
1. Sheetrock Firecode Core by USG.
- E. Water and Fire Resistant Gypsum Board: ASTM C 1396, Type X; 5/8 inch thick, maximum permissible lengths; ends square cut, tapered edges, core material as required to comply with Underwriters Laboratories (UL) assemblies indicated on Drawings. Mold resistance of water and fire resistant gypsum board shall score a rating of not less than 10 when tested in accordance with ASTM D 3273.
1. Sheetrock Mold Tough Firecode "C" Core, by USG.
 2. Gold Bond Brand XP Fire-Shield C Gypsum Board, by National Gypsum.
- F. Impact Resistant Gypsum Board: ASTM C 1396, thickness shown, manufactured to produce greater resistance to surface indentation and through-penetration than standard gypsum panels.
1. Sheetrock Brand Abuse-Resistant Gypsum Wallboard by US Gypsum.
 2. Hi-Abuse Brand Wallboard by National Gypsum.
 3. ProRoc Brand Abuse Resistant Gypsum Board by CertainTeed.
- G. Impact and Water Resistant Gypsum Board: ASTM C 1396, thickness shown, manufactured to produce greater resistance to surface indentation and through-penetration than standard gypsum panels and providing water resistant gypsum core with paperless facing and mold resistance with a rating of not less than 10 when tested in accordance with ASTM D 3273.
1. DensArmor Plus Abuse Guard Paperless Drywall by Georgia Pacific.
- H. Exterior Gypsum Soffit Board: ASTM C 1396, Type X, 5/8" thick, gypsum wallboard manufactured to produce extra resistance to moisture and sagging.
1. Sheetrock Brand Exterior Gypsum Ceiling Board by US Gypsum.
 2. Gold Bond Brand Exterior Soffit Board by National Gypsum.
 3. ProRoc Brand Exterior Soffit Board by CertainTeed.

- I. Gypsum Board Fasteners:
 - 1. Metal Framing: ASTM C 954 and C 1002, Type S-12 bugle head, corrosion-resistant self-drilling self-tapping steel screws.
 - a. One Layer 1/2 Inch: 1 inch.
 - b. One Layer 5/8 Inch: 1-1/8 inch.
 - c. Two Layers: 5/8 Inch: 1-7/8 inch.
 - 2. Wood Furring: ASTM C 1002, 1-1/4 inch, Type W bugle head, corrosion-resistant self-drilling steel screws.
- J. Gypsum Board Accessories:
 - 1. Corner Beads: No. 104 Dur-A-Bead galvanized steel corner bead.
 - 2. Edge Trim: Galvanized steel casing.
 - a. No. 200-B, L shape for tight abutment at edges.
 - b. No. 200-A, J shape at other locations.
 - 3. Control Joint Accessory Piece:
 - a. No. 093 roll-formed zinc.
 - 4. Vertical Movement Joint Trim:
 - a. No DRMZ-625-200 aluminum Z shape trim by Fry Reglet.
 - 5. Adhesive:
 - a. Commercial Adhesive complying with ASTM C 557.
 - 6. Acoustical Insulation:
 - a. Unfaced fiberglass batts specified in Section 07210.
 - 7. Firestopping:
 - a. Specified in Section 07840 for penetrations of fire-resistive rated gypsum board.

2.3 JOINT TREATMENT MATERIALS

- A. General: Comply with ASTM C 475.
- B. Joint Tape:
 - 1. Interior Gypsum Wallboard: Paper tape.
 - 2. Exterior Gypsum Soffit Board: Paper tape.
 - 3. Gypsum Sheathing Board: 10/10 grid glass mesh tape.
 - 4. Backer Panels:
 - a. Glass-Mat Backer Material: 10/10 grid glass mesh tape.
- C. Joint Compound:
 - 1. Interior Gypsum Wallboard:
 - a. Sheetrock Ready-Mixed Lightweight All-Purpose Joint Compound with Dust Control, by USG.
 - b. Substitutions not permitted.
 - 2. Exterior Applications:
 - a. Exterior Gypsum Soffit Board: Use setting-type taping compound and setting-type, sandable topping compound.
 - b. Gypsum Sheathing Board: As recommended by sheathing board manufacturer.
 - 3. Backer Panels:
 - a. Glass-Mat Backer Materials: Use setting-type taping compound as recommended by backer panel manufacturer and that is rated 10 when tested in accordance with ASTM D 3273 and evaluated in accordance with ASTM D 3274.

2.4 GYPSUM SHEATHING BOARD

- A. ASTM C 1396 and ASTM C 1177; water resistant gypsum core surfaced on face and back with inorganic glass fiber mats; 1/2 inch thick, maximum permissible lengths; ends square cut.
 - 1. Dens-Glass Gold gypsum sheathing as manufactured by Georgia-Pacific.
 - 2. GlasRoc Brand Sheathing as manufactured by CertainTeed.

3. Substitutions: Not Permitted.

- B. Sheathing Board Fasteners: ASTM C 954 and ASTM C 1002, 1 inch length for 1/2 inch sheathing board and 1-1/4 inch length for 5/8" thick sheathing board, Type S-12 bugle head, corrosion-resistant self-drilling steel screws.

2.5 BACKER MATERIALS

- A. Glass-Mat Backer Materials: Provide glass-mat moisture resistant gypsum core backer materials complying with ASTM C 1178 as follows:
 - 1. Product: "DensShield Tile Guard" by Georgia Pacific.
 - 2. Glass-Mat Backer Material shall score a rating of 10 when tested according to ASTM D 3273.
 - 3. Thickness: As indicated.
 - 4. Substitutions not permitted.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine existing conditions and adjacent areas where products will be installed and verify that conditions conform to product manufacturer's requirements. Verify that building framing components are ready to receive Work. Verify that rough-in utilities are in-place and located where required. Do not proceed until unsatisfactory conditions have been corrected.
- B. Examine panels to assure they are dry and free of moisture and mold damage as evidenced by discoloration, sagging, irregular shape, fuzzy or splotchy surface contamination, and discoloration.
- C. Beginning of erection and installation indicates acceptance of existing conditions.

3.2 INSTALLATION - STEEL FRAMING, GENERAL

- A. Installation Standards: Comply with ASTM C 754, and ASTM C 840 requirements that apply to framing installation and with further details and instruction by gypsum board manufacturer's written construction guidelines.
- B. Install supplementary framing, blocking, and bracing at terminations in gypsum board assemblies to support fixtures, equipment services, heavy trim, grab bars, toilet accessories, furnishings, or similar construction. Comply, if none available, with United States Gypsum's "Gypsum Construction Handbook".

3.3 INSTALLATION - PARTITION FRAMING

- A. Install studs and fasteners in accordance with manufacturer's published instructions, ASTM C 754, GA-216, and GA-600.
- B. Metal Stud Spacing: Unless otherwise noted, provide interior framing at maximum 24 inches on center. Provide spacing of 16 inches on center maximum for walls to receive ceramic tile.
- C. Align stud web openings horizontally.
- D. Splice studs with minimum 8 inch nested lap, fasten each stud flange with minimum two screws.
- E. Construct corners using minimum three studs.
- F. Double stud at wall openings, door and window jambs, maximum 2 inches from each side of openings.
- G. Place studs as indicated on Drawings, minimum 2 inches from abutting walls.

- H. Install headers at partition openings using load-bearing C-shaped joists specified in Section 05400.
- I. Install framing between studs for attachment of mechanical and electrical items.
- J. Install intermediate studs above and below openings to match wall stud spacing.
- K. Refer to Drawings for indication of partitions extending to finished ceiling only and for partitions extending through ceiling to building structure above.
- L. Maintain clearance under structural members to avoid deflection transfer to studs.
 - 1. Where indicated, construct partition to accommodate vertical deflection.
 - 2. Install optional products specified in Part 2 above in accordance with manufacturer's printed instruction.
 - a. Install clip with step bushing in center of slotted hole.
 - b. Use a minimum of two fasteners per clip leg to connect clip to structure and partition framing.
 - c. Attach clip to each stud by screwing through the center of each step bushing.
- M. Fasten studs adjacent to door and window frames, partition intersections, and corners to top and bottom runner flanges in double-stud fashion with metal lock fastener tools.
 - 1. Securely fasten studs to jamb and head anchor clips of door and borrowed-light frames.
 - 2. Place horizontally a cut-to-length section of runner with web-flange bend at each end, fasten with minimum one screw per flange.
 - 3. Position a cut-to-length stud (extending to top runner) at vertical panel joints over door frame header.
- N. Lateral Bracing for Metal Studs:
 - 1. In metal stud partitions and bulkheads where length of metal studs is over 8 feet, install lateral bracing using one of the following methods:
 - a. Install 1-1/2 inch cold-rolled channel through stud web holes and screw attach in place with clip angles. Lap channels by nesting one inside the other to a depth of at least 8 inches and wire tie together.
 - b. Install optional products specified in Part 2 above in accordance with the manufacturers printed instructions.
 - c. Install field-cut runner for solid bridging at each end of wall, adjacent to wall openings, and 10 feet on center maximum. Install 1-1/2 inch wide, 20 (30 mil) gage strap bracing on both sides of stud. Fasten strap bracing to each solid bridging runner section with four screws.
 - 2. Gypsum Board Partitions: Space lateral bracing at the following intervals:
 - a. Provide bracing at ceiling line or at mid-span of studs at areas without ceilings.
 - 3. Wire Mesh Partitions: Space lateral bracing at the following intervals:
 - a. Stud Length Greater Than 8 Feet and Up To 10 Feet: Provide bracing at midpoint.
 - b. Stud Length Greater Than 10 Feet and Up To 15 Feet: Provide bracing at third points.
 - c. Stud Length Greater Than 15 Feet and Up To 20 Feet: Provide bracing at quarter points.
- O. Install braced framing of steel stud framing as indicated on Drawings. Use only screw attachments.
- P. Blocking: Screw attach wood blocking between studs. Install blocking for support of plumbing fixtures, toilet partitions, wall cabinets, toilet accessories and hardware.

- Q. Framing Fastening: Fasten framing in accordance with manufacturer's published instructions and schedule below, unless indicated otherwise on Drawings.

<u>CONNECTION</u>	<u>FASTENER</u>
Floor Track to Concrete	1 - Pin at 32 inches on center.
Partition Stud to Floor Track	1 - Screw each side at each flange.
Stud Brace Web to Stud Web	2 - Screws.
Plates and Straps to Studs	2 - Screws.
Stud Web to Stud Web	2 - Screws.
Stud Brace Web to Attachment Angle	2 - Screws.
Lateral Bracing to Partition Stud Using clip Angles	2 - Screws to stud and 2 - Screws to cold rolled channel.
Runner to Header	1 - Screw at 16 inches on center, maximum 6 inches from each end.

3.4 INSTALLATION - SUSPENDED CEILING

- A. Unless otherwise shown, install suspended ceilings in accordance with the following requirements.
- B. Suspend ceiling hangers from building structure as follows:
1. Install 1 1/2" cold rolled channels 4'-0" o.c. with 8 ga hanger wire spaced a max of 4'-0" o.c. along carrying channels. Attach 7/8" screw furring channels spaced 16" o.c. perpendicular to the 1 1/2" channel with double strand of saddle tied # 16 ga galvanized tie wire or 1 1/2" furring channel clips. Apply 1/2" gypsum board with its long dimension at right angles to the furring channels. Attach gypsum board with 1" self drilling drywall screws 12" o.c. in the field of the board 8" or 12" o.c. at butt joints, located not more than 1/2" from edges.
 2. Install hangers plumb and free from contact with insulation or other objects within ceiling plenum that are not part of supporting structural or ceiling suspension system. Splay hangers only where required to miss obstructions and offset resulting horizontal forces by bracing, countersplaying, or other equally effective means.
 3. Where width of ducts and other construction within ceiling plenum produces hanger spacing that interferes with the location of hangers required to support standard suspension system members, install supplemental suspension members and hangers in form of trapezes or equivalent devices. Size supplemental suspension members and hangers to support ceiling loads within performance limits established by referenced standards.
 4. Secure wire hangers by looping and wire-tying, either directly to structures or to inserts, eyescrews, or other devices and fasteners that are secure and appropriate for substrate, and in a manner that will not cause them to deteriorate or otherwise fail.
 5. Do not attach hangers to steel deck tabs.
 6. Do not attach hangers to steel roof deck. Attach hangers to structural members.
 7. Do not connect or suspend steel framing from ducts, pipes, or conduit.
- C. Installation Tolerances: Install steel framing components for suspended ceilings so members for panel attachment are level to within 1/8 inch in 12 feet measured lengthwise on each member and transversely between parallel members.

3.5 INSTALLATION - FURRING

- A. Furring Channels:
1. Attach vertically spaced at maximum 16 inches on center, to masonry and concrete surfaces with hammer set or powder driven fasteners staggered 24 inches on center on opposite flanges.
 2. Nest channels 8 inches at splices and anchor with 2 fasteners in each wing.
- B. Wall Furring:
1. Secure top and bottom runners to structure.

2. Space metal studs at maximum 16 inches on center.
3. Furring for Fire Rating: Install metal furring as required for fire resistance ratings indicated on Drawings, and to GA-600 requirements.

3.6 ACOUSTICAL INSULATION INSTALLATION

- A. Place acoustical insulation in partitions tight within spaces, around cut openings, behind and around electrical and mechanical items within or behind partitions, and tight to items passing through partitions as specified in Section 07210 where shown on Drawings.

3.7 INSTALLATION - GYPSUM BOARD

- A. Install gypsum board in accordance with manufacturer's published instructions, ASTM C 840, GA-216, and GA-600.
 1. Use water resistant gypsum board at wet areas including walls and ceiling in toilet rooms, janitor closets, and food prep areas as applicable and where shown.
 2. Use fire resistant gypsum board at locations of fire-resistive rated assemblies indicated on Drawings.
 3. Use water and fire resistant gypsum board at locations of fire-resistive rated assemblies where water resistant gypsum board is specified.
 4. Use standard gypsum board at locations not indicated to be fire resistant or water resistant type.
- B. Where applicable, install ceiling panels before the installation of wall panels.
- C. Erect single layer gypsum board in most economical direction in accordance with ASTM C 840, with attachment to firm bearing surfaces over framing members. Do not align panel joints with edges of openings.
- D. Double Layer Applications: Secure second layer to first with screws; apply second layer with screws, staggering joints with those of first layer. Use adhesive only to hold second layer until screwed in place. Use fire rated gypsum backing board for fire rated partitions.
- E. Treat cut edges, holes, fastener heads, and joints, including those at angle intersections, in water resistant gypsum board and exterior gypsum soffit board with specified joint compound. Treat prior to installation.
- F. Place gypsum panels over supporting framing members with panel ends aligning and parallel with framing members. Leave bottom edge spacing above floor in accordance with GA-216. Provide furring and gypsum board enclosure around all vertical ducts in Mezzanine. Install access panels to all control dampers.
- G. Install fasteners spaced and located in accordance with GA-216 or ASTM C840.

3.8 INSTALLATION - GYPSUM SHEATHING

- A. Install gypsum board sheathing in accordance with manufacturer's published instructions, GA-216 and GA-600.
- B. Erect single layer gypsum board horizontally with attachment to firm bearing.
- C. Place edge trim where gypsum board abuts dissimilar materials. Use longest practical length.
- D. Using screws, attach panels in place at maximum 12 inches on center, perimeter and field, to supporting framing.
- E. Protect exposed gypsum core at perimeter edges and penetrations by covering core with metal trim.

3.9 BACKER MATERIALS

- A. Install backer materials where indicated to receive glass-mat backer material. Install in accordance with manufacturer's instructions.

3.10 JOINT TREATMENT

- A. Install joint treatment in accordance with GA-216.
- B. Install corner bead, trim, and casing in accordance with GA-216.
- C. Install control joints full height of partition with 1/2 inch gap between board edges and between studs. Control joints shall be installed in accordance with the gypsum manufacturer's recommended guidelines for control joints or the Gypsum Association GA-234 for control joint in fire rated systems. Apply sealant at base of joint and control joint accessory piece at face. Install control joints at the following locations:
 - 1. Where a wall or partition runs in an uninterrupted straight plane exceeding 30 linear feet.
 - 2. At pairs of doors, install vertical control joint at each jamb. At single doors, install control joint at latch side of jamb.

3.11 FINISH

- A. Apply gypsum board finish in accordance with manufacturer's published instructions and GA-214 Finish Levels.
- B. Provide gypsum board finish levels at locations as follows:
 - 1. Level 0 (GA-214): No taping, finishing, or accessories necessary.
 - a. Exposed surfaces above 12 ft high in Cart Storage Area.
 - 2. Level 1 (GA-214): Joints and interior angles have tape embedment set in joint compound. Surface free of excess joint compound. Tool Marks and ridges are acceptable.
 - a. Areas above ceilings where required by drawings.
 - b. Concealed areas.
 - c. Areas where Customers do not have access.
 - d. Stockroom Area and Stockroom Area Corridors.
 - e. Areas not indicated to receive Level 3 Finish.
 - 3. Level 3 (GA-214): Joints and interior angles have tape embedded in joint compound and one additional coat of joint compound applied over all joints and interior angles and two separate coats of joint compound are applied over joints, angles, fastener heads, and accessories. Surface smooth and free of tool marks and ridges.
 - a. Sales Areas.
 - b. Tenant Spaces.
 - c. Public Toilet Rooms.
 - d. Customer Service Areas.
 - e. Grocery Sales Area.
 - f. Employee Toilet Rooms.
 - g. Breakroom, Training, UPC/Merch, and Offices.
 - h. Exterior exposed gypsum surfaces.
 - i. Pharmacy.
- C. Textured Coating:
 - 1. Texture shall be the product and application as specified in Publication SA 933 of the United States Gypsum Co. (USG), or equivalent by other wallboard manufacturers.
 - a. Vision Center: Medium knock-down pattern.
 - 2. Apply textured coating to gypsum board surfaces as scheduled on the drawings.

3.12 CONSTRUCTION

- A. Interface with Other Work:
 - 1. Coordinate erection of studs with hollow metal door and window frames, sliding window, and overhead coiling door frames.
 - 2. Coordinate installation of anchors, supports, and blocking for mechanical, electrical, and building

accessory items installed within framing.

3.13 FIELD QUALITY CONTROL

- A. Inspect metal framing erection, placement, spacing, fasteners, and connections to building.
- B. Inspect gypsum board installation, fastener type, spacing, and finish level.
- C. Inspect installation of firestopping penetrations of fire-restive rated partitions and at voids between top of partition and building structure.
- D. Correct deficiencies in Work which inspection indicates are not in compliance with Contract Documents.

END OF SECTION

SECTION 09310 – CERAMIC TILE

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Ceramic floor tile.
 - 2. Ceramic tile base.
 - 3. Ceramic wall tile.
 - 4. Porcelain tile.
- B. Related Sections:
 - 1. Division 3 - Concrete: Flooring substrate finish and preparation.
 - 2. Section 07900 - Joint Sealers: Sealant at tile penetrations and control/construction joints.
 - 3. Section 09250 - Gypsum Board Systems: Water resistant gypsum board and cementitious backer units for wall tile substrate.
 - 4. Section 09330 - Quarry Tile.
- C. Products Supplied by Wal-Mart Supplier and Installed by the Contractor Under This Section: Under Provisions of Section 01640, Wal-Mart's supplier will furnish the following to be installed by the Contractor:
 - 1. Ceramic Tile CT-2 including setting materials, additives, leveling compound, transition strip, and accessories as required for the installation of CT-2 tile.
 - 2. Wal-Mart supplied products shall be as specified in the MATERIALS paragraph below.
 - 3. Products will be supplied to the job site as a bundle complete and ready for installation.
 - 4. Wal-Mart Supplier: Pantheon Floor Solutions, Inc., Dallas, TX (214) 740-1161 or **Haines, Jones & Cadbury, Inc.** (800) 459-7099 as determined by Wal-Mart.

1.2 REFERENCES

- A. The publications listed below form a part of this specification to the extent referenced. Publications are referenced within the text by the basic designation only.
- B. American National Standards Institute (ANSI):
 - 1. ANSI A108.1 - Installation of Ceramic Tile.
 - 2. ANSI A108.5 - Installation of Ceramic Tile with Dry-Set Portland Cement Mortar or Latex Portland Cement Mortar.
 - 3. ANSI A118 - Dry-Set Portland Cement Mortar.
 - 4. ANSI A118.4 - Latex-Portland Cement Mortar.
 - 5. ANSI A118.6 - Ceramic Tile Grouts.
 - 6. ANSI A137.1 - Recommended Standard Specifications for Ceramic Tile.
- C. Tile Council of America, Inc. (TCA):
 - 1. TCA Handbook for Ceramic Tile Installation.

1.3 QUALITY ASSURANCE

- A. Conform to ANSI A137.1.

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Section 01600 - Product Requirements: Transport, Handle, Store, and Protect Products.
- B. Deliver and store packaged materials in original containers with seals unbroken and labels intact until time of use.

- C. Prevent damage or contamination to materials by water, freezing, foreign matter, and other causes.

1.5 SITE CONDITIONS

- A. Do not install adhesives in a closed, unventilated environment.
- B. Maintain 50 degrees F during installation of mortar materials.

1.6 MAINTENANCE

- A. Extra Materials: Provide one unopened box of wall and floor tile with label indicating store number and date. Submit to Wal-Mart Construction Manager at Date of Substantial Completion.

PART 2 PRODUCTS

2.1 PRODUCT PROCUREMENT

- A. Products specified herein, except Wal-Mart furnished materials, shall be direct purchased by the General Contractor from a pre-negotiated supplier. Reference Section 01600 for additional information regarding Direct Purchase Products. Pre-negotiated supplier shall be as follows:
 - 1. Contact: Customer Service, **Haines, Jones & Cadbury, Inc.** (800) 459-7099, Fax (479) 756-8998, info@hjcinc.com

2.2 MANUFACTURERS

- A. Ceramic Tile: Provide products by the following manufacturers as specified:
 - 1. Alcalagres-Estilya, Madrid, Spain, supplied by Pantheon Floor Solutions, Inc., Dallas.
 - 2. American Olean Tile Company, Dallas, TX.
 - 3. Crossville Ceramics, Crossville, TN.
 - 4. Dal-Tile Corporation, Dallas, TX.
 - 5. Mannington Mills, Inc., Salem, NJ.
 - 6. Pantheon Floor Solutions, Dallas, TX.
 - 7. StonePeak Ceramics, Chicago, IL
- B. Floor Leveling Compound: Provide products by any of the following:
 - 1. Laticrete International, Bethany, CT.
 - 2. Mapei Corporation, Deerfield Beach, FL.
- C. Mortar and Grout: Provide products by any of the following manufacturers in colors equivalent to those specified:
 - 1. W. R. Bonsal Company, Charlotte, NC.
 - 2. Laticrete International, Bethany, CT.
 - 3. Mapei Corp., Elk Grove Village, IL.
- D. Grout Sealer: Provide products by any of the following manufacturers:
 - 1. Aqua Mix, Inc., Santa Fe Springs, CA.
 - 2. W. R. Bonsal Company, Charlotte, NC.
 - 3. Bostik, Middleton, MA.

2.3 MATERIALS

- A. Floor and Wall Tile: Provide tile and grout specified herein as applicable as shown on the drawings. Provide sizes specified or as shown on the drawings. Provide only products specified. Provide product of one of the manufacturers where more than one is specified. Provide matching inside and outside corners, and trim. Provide matching 2 inch cove base unless specified otherwise.
 - 1. CT-2 (Red) (Wal-Mart furnished, Contractor installed):
 - a. N01 Natura Rodeno, Estilya Catalog, Series Natura, by Alcalagres.

2. CT-3 (Red) (Wal-Mart furnished, Contractor installed):
 - a. River Red, 2" x 12" cove base, by StonePeak.
3. CT-4 (Tan):
 - a. Dal-Keystone, DK-147 Buffstone, by Dal-Tile.
 - b. Egyptstones, A52 Buff Granite, by American Olean.
 - c. Unglazed Mosaics by Florida Tile, Match DK-147 Buffstone, by Dal-Tile.
4. CT-5 (Lt. Tan):
 - a. 180 Chamois, by Dal-Tile.
 - b. 24 Bright Maize, by American Olean.
5. CT-6 (Medium Tan):
 - a. K174 Mexican Sand, by Dal-Tile.
 - b. 122 Kerton Brown, by American Olean.
6. CT-7 (Brown):
 - a. Q181 Cotto, by Dal-Tile.
 - b. 107 Russet, by American Olean.
7. CT-8 (Dark Green):
 - a. K112 Timberline, by Dal-Tile.
 - b. 103 Hunter Green, by American Olean.
8. CT-9 (Light Brown) (Accent Tile):
 - a. No. 160022 Rialto Terra, Venetian Stone Collection Series, by Del Conca.
 - b. Mannington #TV0T06 Tuscan Valley Adobe Sunset.
9. CT-10 (Dark Blue):
 - a. K189 Navy, by Dal-Tile.
 - b. 117 Navy, by American Olean.
10. CT-11 (Green):
 - a. Permabrites, 6472 Glass Teal by Dal-Tile.
11. CT-12 (Lt. Tan):
 - a. Semi-Gloss, D-0136 Fawn, by Dal-Tile.
 - b. 159 Taupe Mist, by American Olean.
12. CT-13 (Brown):
 - a. Floor Tile (12"x24"):
 - 1) TL 1224 Extra Forest, by StonePeak.
 - b. Cove Base (Sanitary Floor Molding):
 - 1) TL 212 Extra Forest 2"x12" , by Stone Peak.
 - c. Bullnose:
 - 1) TL 412 Extra Forest 4"x12", by Stone Peak.
13. CT-15 (Black):
 - a. K111, Black, by Dal-Tile.
 - b. 49 Gloss Black, by American Olean.
14. CT-16 (Tan):
 - a. Keystone Select, D175 Mexican Sand Speckle, by Dal-Tile.
 - b. 11633 Speckled Pecan, by Crossville.
15. CT-17 (Almond):
 - a. Semi Gloss, 0135 Almond, by Dal-Tile.
 - b. 12 Gloss Almond, by American Olean.

16. CT-18 (Sunset):
 - a. Cove Base (Sanitary Floor Molding and Sanitary Corner Molding as shown on the Drawings):
 - 1) KIC609 2"x8", by Pantheon.
 - 2) RT212 Speckled Fawn 2"x12", by Stone Peak.
 - 3) 10212 Dilste 2"x12", by Crossville Ceramics.
 - b. Outside Corner:
 - 1) FOC609 Outside Corner by Pantheon.
 - 2) RTOC Speckled Fawn by Stone Peak.
 - 3) 10202OSCS Dilste by Crossville Ceramics.
 - c. Inside Corner:
 - 1) FIC609 Inside Corner by Pantheon.
 - 2) RTIC Speckled Fawn by Stone Peak.
 - 3) 10202ISCS Dilste by Crossville Ceramics.
 17. CT-19 (Ivory): 12x24" tile.
 - a. 10-608, Volcanes Series, by Alcalagres-Estilya.
 - b. SP1224 Dilste Beige, by Crossville.
 - c. RT1224 Durable Crème, by StonePeak.
 18. CT-20 (Riverstone):
 - a. Terreon Solid Surface Accent Strip, 1-1/2" x 24", Riverstone, by Bradley.
 19. CT-21 (Gray):
 - a. Dal-Keystone, DK-326 Dapple Gray, by Dal-Tile.
 - b. Egyptstones, C18 Chariot Gray, by American Olean.
 - c. Unglazed Mosaics, 4313 Lt. Molted Gray, by Florida Tile.
 20. CT-22 (Gray):
 - a. Dal-Matte, D-714 Steel, by Dal-Tile.
 - b. Bright and Matte, 80 Sterling Silver, by American Olean.
 - c. Matte-Glaze, 10707 Matte Gray, by Florida Tile.
 21. CT-31: 6 x 6 inch (Crossville) or 2 x 2 inch (Dal-Tile). If 2 x 2 inch tiles are used, 9 tiles shall be installed for each 6 x 6 inch tile shown on the Drawings.
 - a. A634 Terra Rosata, by Crossville Ceramics.
 - b. 6549 Matte Cotto, by Dal-Tile.
 22. CT-32: 6 x 6 inch (Crossville) or 2 x 2 inch (Dal-Tile). If 2 x 2 inch tiles are used, 9 tiles shall be installed for each 6 x 6 inch tile shown on the Drawings.
 - a. A310 Bamboo, by Crossville Ceramics.
 - b. 6536 Matte Spice, by Dal-Tile.
 23. CT-33: 6 x 6 inch (Crossville) or 2 x 2 inch (Dal-Tile). If 2 x 2 inch tiles are used, 9 tiles shall be installed for each 6 x 6 inch tile shown on the Drawings.
 - a. B410 Doges Gold, by Crossville Ceramics.
 - b. 6547 Matte Mustard, by Dal-Tile.
- B. Mortar:
1. Dry Set Portland Cement Mortar: ANSI A118.1.
 2. Latex-Portland Cement Mortar: ANSI A118.4.
- C. Portland Cement Based Grout: ANSI A118.6; Latex-Portland Cement Grout (sanded for floor tile and base, unsanded for wall tile).
1. White:
 - a. White, by W.R. Bonsal.
 - b. White #00, by Mapei.
 - c. Equivalent by Laticrete.
 2. G-4 (Dark Gray):
 - a. Charcoal #17, by W.R. Bonsal.
 - b. Charcoal #47, by Mapei.
 - c. Equivalent by Laticrete.

3. G-6 (Silver):
 - a. Sterling Silver #61, by W.R. Bonsal.
 - b. Silver #27, by Mapei.
 - c. Equivalent by Laticrete.
- D. SpectraLOCK Grout by Laticrete.
 1. G-1 (Dark Gray): Platinum #42 by Laticrete.
 2. G-2 (Dark Gray): Platinum #42 by Laticrete (Wal-Mart furnished, Contractor installed).
 3. G-3 (Light Tan): Parchment #61, by Laticrete.
 4. G-5 (Ivory): Almond #85 by Laticrete.
 5. G-7: (Brown): Chestnut Brown #1266 by Laticrete.
 6. G-10 (Red): Quarry Red #46, by Laticrete.
 7. G-11: Almond #85, by Laticrete.
 8. G-13 (Beige): Sand Beige #30, by Laticrete.
 9. G-14: Mushroom #39, by Laticrete.
 10. G-15 (Black): Raven #45, by Laticrete.
 11. G-16 (Beige): Marble Beige #17, by Laticrete.
- E. Grout Sealer: Water-based penetrating sealer. Provide one of the following:
 1. Aqua Mix Grout Sealer, by Aqua Mix.
 2. Bonsal Grout Sealer, by W. R. Bonsal.
 3. CeramaSeal Grout Sealer, by Bostik.
- F. Grout Cleaning Additive: Laticrete SpectraLOCK Pro Cleaning Additive.
- G. Floor Leveling Compounds: Cementitious, quick-setting, trowelable or self-leveling floor topping over concrete substrate specifically formulated for placement as a leveling underlayment for floor covering. Provide one of the following:
 1. Laticrete 86 Latilevel Self-Leveling Underlayment by Laticrete.
 - a. Primer: Ultraprime L, by Mapei.
 2. Ultraplan M20, by Mapei.
 - a. Admix and Primer for Underlayment by Laticrete.
- H. 12 x 24 Tile Setting Materials: Use the following specifically for setting and sealing the 12 x 24 wall and floor tile (CT-19 for toilets) and associated trim.
 1. Mortar: 255 MultiMax Multipurpose Thin-set Mortar (floors and walls) by Laticrete.
 2. Floor Leveling Compounds and Primer: As specified above.
 3. Calking: Latasil Tile and Stone Silicone Sealant for use at cove base.
- I. Sealant: See Section 07900.
- J. Cementitious Backer Units: See Section 09250.
- K. Stainless Steel Top and Corner Trim: Rondec-E 3/8 x 1-1/4, Stainless Steel, by Schluter.
- L. Toilet Tile Installation Accessories: 1/2" notched trowel and drill bits (1/4", 13/64", 11/64", 3/16", and 1/8" for drilling tiles) for installation of tile in toilets.
- M. Transition Strips:
 1. Transition edge strip between concrete slab or VCT and ceramic tile (As shown on Drawings): No. 8136 by [National Guard Products, Inc.](#) or equivalent by Pemko or Reese. 1-1/8"x 1/4" aluminum, smooth surface, beveled 1 side only.
 2. Transition edge strip between concrete slab or VCT and ceramic tile (As shown on Drawings): Reno Ramp AERP-125B90 by Schluter Systems, Plattsburgh, NY. 3-1/2" x 1/2" anodized aluminum sloped transition ramp.

- N. Substitutions: Not permitted.

2.4 MORTAR MIX AND GROUT

- A. Mix mortars and grouts to comply with requirements of referenced standards and manufacturers for proportioning of materials, water or additive content; type of mixing equipment, selection of mixer speeds, mixing containers, and mixing time to produce mortars and grouts of uniform quality with optimum performance characteristics for application indicated.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Examine surfaces and adjacent areas where products will be installed and verify that surfaces conform to product manufacturer's requirements for substrate conditions. Do not proceed until unsatisfactory conditions have been corrected.
- B. Beginning of installation indicates acceptance of substrate conditions.

3.2 PREPARATION

- A. Protect surrounding work from damage or disfiguration.
- B. Vacuum clean existing substrate and damp clean.
- C. Seal substrate surface cracks with filler.
- D. Level existing substrate surfaces in accordance with TCA installation requirements and remove peaks or valleys using floor leveling compound specified. Prime, clean and prepare concrete surface as required by manufacturer and apply leveling compound in accordance with manufacturer's instructions.
- E. Prepare substrate surfaces which do not need joint repair with sealers or conditioners as recommended by adhesive manufacturer.

3.3 INSTALLATION

- A. ANSI Tile Installation Standards: Comply with parts of ANSI A108 Series "Specifications for Installation of Ceramic Tile" that apply to types of setting and grouting materials shown and specified.
- B. TCA Installation Guidelines: TCA's "Handbook for Ceramic Tile Installation". Comply with applicable TCA installation methods.
- C. Lay tile to pattern indicated. Do not interrupt tile pattern through openings.
 - 1. Lay tile to grid pattern shown at vestibule. Customers must have access to at least half the vestibule entrance at all times.
- D. Cut and fit tile tight to penetrations. Form corners and bases neatly. Align floor and base joints.
- E. Place tile joints uniform in width, subject to variance in tolerance allowed in tile size. Make joints watertight, without voids, cracks, excess mortar, or excess grout.
- F. Sound tile after setting. Replace hollow sounding units.
- G. Expansion Joints: Provide tile expansion joints at control/construction joints in concrete slab. Keep joints free of mortar or grout.
 - 1. Installation Method: TCA EJ171.

- H. Allow tile to set for a minimum of 48 hours prior to grouting.
- I. Grout tile joints.
 - 1. Grout space shall be 1/16-inch for all tile joints except as follows:
 - a. Deli: 3/16 inch.
 - b. Entry: 1/8 inch.
 - c. Recycle Center (when applicable): 1/8 inch.
- J. Grout Sealer: Apply grout sealer to floor and wall joints in accordance with manufacturer's published instructions. Apply to all grout joints except Laticrete SpectraLock grout.
 - 1. Allow grout joints to cure for 28 days prior to sealing.
 - 2. Clean joints removing all surface soil and stains prior to sealing.
- K. Apply sealant to junction of tile and dissimilar materials, at tile penetrations, and at tile expansion joints.

3.4 FIELD QUALITY CONTROL

- A. Inspect ceramic tile installation, joints, grout line alignment, and attachment to substrate.
- B. Correct deficiencies in Work which inspection indicates are not in compliance with Contract Documents.

3.5 CLEANING

- A. Remove excess mortar and grout from floor, base, and wall surfaces without damage.
- B. On completion of placement and grouting, clean all ceramic tile surfaces so they are free of foreign matter.
 - 1. Initially clean and remove grout residue from tile as soon as possible according to tile and grout manufacturer's written instructions. Use cleaners recommended by tile and grout manufacturers and only after determining that cleaners are safe to use by testing on samples of tile and other surfaces to be cleaned. Protect metal surfaces and plumbing fixtures from effects of cleaning. Flush surfaces with clean water before and after cleaning.
 - 2. Begin final cleaning approximately 1 hour after initial cleaning of the grout. Mix cleaning additive to 2 gallons of clean, cool water. Use a white scrub pad to lightly scrub apart any of the leftover residue remaining on the surface of the tile. Drag a clean, damp sponge diagonally over the scrubbed surfaces to remove any froth and residue. Rinse sponge often and change water every 50 square feet of surface. Allow cleaned areas to dry and inspect entire surface of tile. Repeat if haze remains.
 - 3. If haze remains 24 hours after installation, clean surfaces using straight white vinegar or bleaching type cleanser by methods described in preceding paragraph.
- C. Perform final cleaning of tile with cleaning materials recommended by tile manufacturer one day prior to Date of Substantial Completion.

3.6 PROTECTION

- A. Protect installed tile work with Kraft paper or other heavy covering during construction period to prevent staining, damage, and wear. If recommended by tile manufacturer, apply coat of neutral protective cleaner to completed tile walls and floors.
- B. Prohibit traffic from floor finish for 72 hours after installation.

END OF SECTION

SECTION 09330 – QUARRY TILE

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Quarry Floor Tile.
- B. Related Sections:
 - 1. Division 3 - Concrete Slab: Flooring substrate finish and preparation.
 - 2. Section 07900 - Joint Sealers: Sealant at tile penetrations and control/construction joints.
 - 3. Section 09310 - Ceramic Tile.

1.2 REFERENCES

- A. The publications listed below form a part of this specification to the extent referenced. Publications are referenced within the text by these basic designations only.
- B. American National Standards Institute (ANSI):
 - 1. ANSI A108.1 - Installation of Ceramic Tile.
 - 2. ANSI A108.5 - Installation of Ceramic Tile with Dry-Set Portland Cement Mortar or Latex Portland Cement Mortar.
 - 3. ANSI A108.6 - Installation of Ceramic Tile with Chemical Resistant, Water Cleanable Tile-Setting and Grouting Epoxy.
 - 4. ANSI A118.1 - Dry-Set Portland Cement Mortar.
 - 5. ANSI A118.3 - Chemical Resistant Water Cleanable Tile-Setting and Grouting Epoxy and Water Cleanable Tile Setting Epoxy Adhesive.
 - 6. ANSI A118.4 - Latex-Portland Cement Mortar.
 - 7. ANSI A118.6 - Ceramic Tile Grouts.
 - 8. ANSI A137.1 - Recommended Standard Specifications for Ceramic Tile.
- C. Tile Council of America, Inc. (TCA):
 - 1. TCA Handbook for Ceramic Tile Installation.

1.3 QUALITY ASSURANCE

- A. Conform to ANSI A137.1.

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Section 01600 - Product Requirements: Transport, Handle, Store, and Protect Products.
- B. Deliver and store packaged materials in original containers with seals unbroken and labels intact until time of use.
- C. Prevent damage or contamination to materials by water, freezing, foreign matter, and other causes.

1.5 SITE CONDITIONS

- A. Do not install adhesives in a closed, unventilated environment.
- B. Maintain 50 degrees F during installation of mortar materials.

1.6 MAINTENANCE

- A. Extra Materials: Provide one unopened box of tile with label indicating store number and date. Submit to Wal-Mart Construction Manager at Date of Substantial Completion.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Tile: Provide products by the following manufacturers to the extent as specified in the Materials paragraph below:
 - 1. Dal-Tile Corporation, Dallas, TX. Contact Paulett Newman, National Account Director (800) 507-5590.
 - 2. American Olean Tile Company, Dallas, TX. Contact Gina Norman (214) 309-4559.
 - 3. Summitville Tiles, Inc., Summitville, OH. Contact Steve Clary (330) 223-1551 for local distributor.
 - 4. Metropolitan Ceramics, Canton, OH. Contact Ellen Yossarian (603) 942-8787 or Terrie Chastain (888) 325-3945
- B. Mortar and Grout: Provide products by the following manufacturers:
 - 1. Laticrete International, Bethany, CT (800) 243-4788.

2.2 MATERIALS

- A. Provide tile and grout of type and color specified as shown on the drawings. Provide sizes specified or as shown on the drawings. Provide product of one manufacturer where more than one is specified.
- B. Quarry Tile: Unglazed floor tile.
 - 1. QT-1: Raised pattern:
 - a. Sure Step, Q32 Fawn Gray, by American Olean.
 - b. Wal-Mart Tread, N46 Shadow Gray, by American Olean.
 - c. Dal-Pavers, Gray Suretread, by Dal-Tile.
 - d. Metro Tread Systems, 57T Stone Gray, by Metropolitan Ceramics.
 - 2. QT-3: Abrasive aggregate embedded in surface:
 - a. Quarry Colors, Q06 Fawn Gray, by American Olean.
 - b. X Quarry Basics, 57X Stone Gray, by Metropolitan Ceramics.
 - c. Quarry Textures, #TO3 Ashen Gray, by Dal-Tile.
 - 3. QT-31: Abrasive aggregate embedded in surface:
 - a. Q40 Red Blaze, by Dal-Tile.
 - b. 10 Summitville Red, by Summitville Tiles.
 - c. 0Q01 Canyon Red, by American Olean.
 - 4. QT-34: Smooth Finish:
 - a. 0Q40 Red Blaze, by Dal-Tile.
 - b. 0Q01 Canyon Red, by American Olean.
 - 5. QT-35: Smooth Finish:
 - a. 0T08 Sahara Sand, by Dal-Tile.
 - 6. QT-36: Smooth Finish:
 - a. 0T01 Diablo Red, by Dal-Tile.
- C. Quarry Tile Base: Provide matching 5 x 6 inch cove base, inside and outside corners, and trim if required to match existing conditions.
- D. Mortar:
 - 1. Dry Set Portland Cement Mortar: ANSI A118.1.
 - 2. Latex-Portland Cement Mortar: ANSI A118.4
 - 3. Epoxy Mortar: ANSI A118.3
- E. SpectraLOCK Grout by Laticrete.

1. G-1: Platinum #42.
2. G-10: Quarry Red #46.
3. G-11: Midnight Black #22.
4. G-12: Mocha #35.
5. G-13: Raven #45.
6. G-16: Marble Beige #17.
7. G 17: River Rock #38.

F. Control Joints:

1. Dal-Seal CIS membrane by Dal-Tile, Dallas, TX (800) 933-8453.

G. Sealant: See Section 07900.

H. Aluminum Edge Strip: RENO-AERP-125-B-90, 1/2-inch high profile, 3-1/2-inch ramp, satin anodized aluminum edge strip by Schluter Systems, Plattsburgh, NY, Contact Earl Maicus (800) 472-4588, Ext 111.

I. Substitutions: Not permitted.

2.3 MORTAR MIX AND GROUT

- A. Mix mortars and grouts to comply with requirements of referenced standards and manufacturers for proportioning of materials, water or additive content; type of mixing equipment, selection of mixer speeds, mixing containers, and mixing time to produce mortars and grouts of uniform quality with optimum performance characteristics for application indicated.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Examine surfaces and adjacent areas where products will be installed and verify that surfaces conform to product manufacturer's requirements for substrate conditions. Do not proceed until unsatisfactory conditions have been corrected.
- B. Beginning of installation indicates acceptance of substrate conditions.

3.2 PREPARATION

- A. Protect surrounding work from damage or disfiguration.
- B. Vacuum clean existing substrate and damp clean.
- C. Seal substrate surface cracks with filler. Level existing substrate surfaces to acceptable flatness tolerances.
- D. Prepare substrate surfaces with sealers or conditioners as recommended by adhesive manufacturer.

3.3 INSTALLATION

- a. ANSI Tile Installation Standards: Comply with parts of ANSI A108 Series "Specifications for Installation of Ceramic Tile" that apply to types of setting and grouting materials shown and specified.
- b. TCA Installation Guidelines: TCA's "Handbook for Ceramic Tile Installation". Comply with applicable TCA installation methods.
- B. Lay tile at locations and in pattern indicated. Do not interrupt tile pattern through openings.
 1. Lay Metro Tread Systems by Metropolitan Ceramics in basket weave (alternating) pattern.

- C. Cut and fit tile tight to penetrations. Form corners neatly.
- D. Place tile joints uniform in width, subject to variance in tolerance allowed in tile size. Make joints watertight, without voids, cracks, excess mortar, or excess grout.
- E. Sound tile after setting. Replace hollow sounding units.
- F. Control Joints: Provide tile control joints over control and construction joints in concrete slab. Remove all debris from concrete joint before starting installation of membrane.
 - 1. Following manufacturer's printed recommendations for installation, provide continuous x minimum 24" wide membrane.
 - 2. Set membrane in full bed of modified thin-set bond coat.
 - 3. Lap membrane and make single cut, reducing total thickness to one membrane.
 - 4. Following recommendation from thin-set mortar manufacturer, set tile in accordance with referenced TCA setting method.
- G. Allow tile to set for a minimum of 48 hours prior to grouting.
- H. Grout tile joints.
 - 1. Provide continuous elastomeric grout joints on each side of bridged concrete joint following recommendation and requirements of TCA EJ171.
- I. Apply sealant to junction of tile and dissimilar materials, at tile penetrations, and at tile expansion joints.
- J. Aluminum Edge Strip: Install edge strip at transitions between quarry tile and concrete or VCT. Install during tile placement in accordance with edge strip manufacturer's instructions.

3.4 FIELD QUALITY CONTROL

- A. Inspect tile installation, joints, grout line alignment, and attachment to substrate.
- B. Correct deficiencies in Work which inspection indicates are not in compliance with Contract Documents.

3.5 CLEANING

- A. Remove excess mortar and grout from floor and wall surfaces without damage.
- B. Clean tile with cleaning materials recommended by tile manufacturer one day prior to Date of Substantial Completion.

3.6 PROTECTION

- A. Prohibit traffic from floor finish for 48 hours after installation.

END OF SECTION

SECTION 09511 – ACOUSTICAL PANEL CEILINGS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Suspended metal grid ceiling system.
 - 2. Acoustical panels.
 - 3. Perimeter trim.
 - 4. Column trim.
 - 5. Fire rated assembly.
- B. Related Sections:
 - 1. Section 13900 - Fire Suppression: Sprinkler heads in ceiling system.
 - 2. Section 15800 - Air Distribution: Air diffusion devices in ceiling system.
 - 3. Section 16500 - Lighting: Light fixtures attached to ceiling system.

1.2 REFERENCES

- A. The publications listed below form a part of this specification to the extent referenced. Publications are reference within the text by these basic designations only.
- B. ASTM International (ASTM):
 - 1. ASTM C 635 - Specification for Metal Suspension Systems for Acoustical Tile and Lay-in Panel Ceilings.
 - 2. ASTM C 636 - Practice for Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-in Panels.
 - 3. ASTM E 84 - Test Method for Surface Burning Characteristics of Building Materials.

1.3 SYSTEM DESCRIPTION

- A. Design Requirements:
 - 1. Rigidly secure acoustical ceiling system including integral mechanical and electrical components with maximum deflection of 1/360.

1.4 QUALITY ASSURANCE

- A. Regulatory Requirements:
 - 1. Surface Burning Characteristics in Accordance with ASTM E 84 for Class A finish:
 - a. Flame Spread: Less than 25.
 - b. Smoke Density: Less than 50.
 - 2. Food Serving and Preparation Areas where Scheduled:
 - a. United States Department of Agriculture (USDA): Approved for incidental food contact.

1.5 DELIVERY, STORAGE AND HANDLING

- A. Section 01600 - Product Requirements: Transport, handle, store, and protect products.
- B. Deliver acoustical units in manufacturer's original unopened containers with brand name and type clearly marked.
- C. Store under cover in dry, watertight conditions.
- D. Prior to installation, store acoustical units for 24 hours minimum at same temperature and relative humidity as space where Work will be installed.

1.6 PROJECT CONDITIONS

- A. Environmental Requirements: Maintain uniform temperature range of 60-85 degrees F, and humidity of no more than 70 percent relative humidity prior to, during, and after installation.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Provide products by the following manufacturers as specified:
 - 1. Armstrong World Industries Incorporated, Lancaster, PA (800) 448-1405.
 - 2. BPB America, Tampa, FL (866) 427-2872.
 - 3. Chicago Metallic Corporation, Chicago, IL (800) 323-7164.
 - 4. USG Interiors, Chicago, IL (800) 950-3839.
 - 5. Gold Bond Building Products, National Gypsum Company, Charlotte, NC (704) 365-7300.

2.2 SUSPENSION SYSTEM

- A. Provide suspension system specified herein for the corresponding ACT system as applicable as shown on the drawings. Provide suspension system compatible with acoustical panels selected.
- B. Materials:
 - 1. Grid: ASTM C635, intermediate duty, steel exposed T; nominal 1 inch width; stab-in connections.
 - 2. Accessories: Stabilizer bars, clips, and splices.
 - 3. Grid Finish: White.
 - 4. Support System: Hot or cold rolled steel channels; galvanized hanger wire, minimum 12 gage.
 - 5. Edge Moldings: Metal channel with exposed flange to match suspension system.
 - a. Standard Duty Clip: Manufacturer's standard retention clips to suit conditions specified.
 - b. Heavy Duty Clip (Vision Center): Armstrong Model EHDC58 hold-down clip.
- C. ACT-1 and ACT-3: Non Fire-Rated Suspension System. Provide one of the following:
 - 1. Prelude 15/16 inch, XL #7300 Exposed Tee System, by Armstrong.
 - 2. Classic Stab System, 15/16 inch, #C12-12-15, by BPB America.
 - 3. 1200 System, by Chicago Metallic.
 - 4. Donn DX System, by USG.
- D. ACT-2: Fire Rated - USDA Approved Suspension System. Provide one of the following:
 - 1. Prelude Plus Fire Guard, XL, HDA8200, by Armstrong.
 - 2. Environmental HDG Steel System, 1830 Fire Front, by Chicago Metallic.
 - 3. Environmental System ZXLA, by USG.
- E. ACT-4: Non Fire-Rated Suspension System. Provide one of the following:
 - 1. Environmental HDG Steel System 1830 Fire Front, by Chicago Metallic.
 - 2. Environmental System ZXLA, by USG.
 - 3. Prelude Plus XL, by Armstrong.
- F. Substitutions: Not Permitted.

2.3 ACOUSTICAL LAY-IN PANELS

- A. Provide acoustical panels specified herein for the corresponding ACT system as applicable as shown on the drawings.
- B. ACT-1: Non Fire-Rated Panels, square edge, nonperforated, abuse-resistant vinyl film facing, size as shown. Provide one of the following:
 - 1. Vinyl Faced Fiberglass Ceiling Panels, Random Fissured; Item #2911 by Armstrong.

2. Premier Hi-Lite ClimaPlus Kapok Panels, unperforated, Item #7057G, by USG.
 3. Commercial White Vintage Item #1530-VIN-1, by BPB America.
 4. Coral Soft Touch Series, Item #7010-01F, by Chicago Metallic.
- C. ACT-2: Fire Rated panels, USDA approved, square edge, vinyl faced, nonperforated, size as shown. Provide one of the following:
1. Clean Room VL, non-perforated, Item #870, by Armstrong.
 2. VinylRock X Protectone, Item #1140-CRF-1, by BPB America.
 3. Clean Room ClimaPlus, Class 100 Panels, Item #56091, by USG.
- D. ACT-3: Non fire-rated panels, min. 1.00 pounds per square foot, angled tegular lay-in edge, factory-applied vinyl latex paint, perforated, and scored, size as shown. Provide one of the following:
1. Cortega Second Look II, #2767 White, by Armstrong.
 2. Baroque Customline Designer Series, BQCL-224, by BPB Celotex.
 3. Radar Illusion, Two/24, #2742 White, by USG.
- E. ACT-4: Non fire-rated panels, min. 2.00 pounds per square foot, square edge, factory-applied vinyl facing, embossed stipple pattern, size as shown. Provide one of the following
1. Vinylrock X, Safetone Class A, #1130-CRF-1, by BPB America.
 2. Gridstone, by Gold Bond.
 3. Sheetrock Brand ClimaPlus Lay-In Ceiling Tile Panels, #3270 White, by USG.
- F. Substitutions: Not Permitted.

2.4 ACCESSORIES

- A. Flexible curved angle trim for Sales Area Columns.

PART 3 - EXECUTION

3.1 PREPARATION/DEMOLITION

- A. Examine surfaces and adjacent areas where products will be installed and verify that surfaces conform to product manufacturer's requirements for substrate conditions. Do not proceed until unsatisfactory conditions have been corrected.
- B. Coordinate extension of existing grid ceiling system if existing system is to remain.
- C. Clean or paint existing grid as shown on Drawings prior to removal of "old" panels. Refer to Section 09900.
- D. Remove existing ceiling panels as shown on Drawings. Store removed panels for recycling as specified in Section 02023.
1. If ceiling batt insulation is present, remove, retain and re-install batts above new ceiling panels.
- E. In new ceiling grid installation, verify that layout of hangers will not interfere with other Work.
- F. Beginning of installation indicates acceptance of existing conditions.

3.2 INSTALLATION - SUSPENSION SYSTEM

- A. Install system in accordance with ASTM C636 and manufacturer's published instructions.
- B. If metal deck is not supplied with hanger tabs, coordinate installation of hanger clips during steel deck erection. Provide additional hangers and inserts as required.

- C. Hang system independent of walls, columns, ducts, pipes and conduit. Where carrying members are spliced, avoid visible displacement of face plane of adjacent members. Where ducts or other equipment prevent regular spacing of hangers, reinforce nearest affected hangers and related carrying channels to span extra distance.
- D. Locate system on room axis according to Reflected Ceiling Plan, where indicated on Drawings, or locate system to a balanced grid design with edge units no less than 50 percent of acoustical panel size where Reflected Ceiling Plan not shown on Drawings. Match direction of existing ceiling grid unless directed otherwise by the Drawings.
- E. Do not support components on main runners or cross runners if weight causes total dead load to exceed deflection capability. Do not eccentrically load system, or produce rotation of runners.
- F. Install edge molding at intersection of ceiling and vertical surfaces using longest practical lengths. Miter corners. Provide edge moldings at junctions with other interruptions. Secure at 16 inches on center.
 - 1. Rivet cross tee's at 4 feet on center to edge mold.

3.3 INSTALLATION - ACOUSTICAL PANELS

- A. Fit acoustic units in place free from damaged edges or other defects. Install acoustic units level, in uniform plane, and free from twist, warp, and dents.
- B. Install manufacturer's standard duty hold-down clips to retain panels tight to grid system at each Vestibule and Cart Storage ceiling acoustical panel.
- C. Install heavy duty hold-down clips to retain panels tight to grid system at each ceiling acoustical panel at Vision Center.

3.4 CONSTRUCTION

- A. Interface with Other Work:
 - 1. Do not install acoustical ceilings until building is enclosed, heating is provided, dust generating activities have terminated, and overhead work is completed, tested, and approved.
 - 2. Schedule installation of acoustic units after interior wet work is completed.
 - 3. Install after major above ceiling work is complete.
 - 4. Coordinate location of hangers with other Work.
- B. Site Tolerances:
 - 1. Variation from Flat and Level Surface: 1/8 inch in 12 feet.

3.5 FIELD QUALITY CONTROL

- A. Inspect acoustical panel placement, ceiling grid suspension system installation and connection to structure.
- B. Correct deficiencies in Work which inspection indicates are not in compliance with contract requirements.

3.6 CLEANING

- A. Clean exposed surfaces of acoustical ceilings including trim, edge moldings, and suspension system members.

END OF SECTION

SECTION 09650 – RESILIENT FLOORING

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Wal-Mart furnished vinyl composition tile, feature strip tile, and adhesive.
 - 2. Wal-Mart furnished PVC plank flooring and adhesive.
 - 3. Contractor furnished resilient flooring accessories.
 - 4. Preparation of Contraction/Construction Joints under floor finishes.
 - 5. Contractor installation of resilient flooring and accessories.
 - 6. Floor Treatment: Application of stripper and finish to resilient floor tile.
- B. Products Installed But Not Supplied Under This Section: Wal-Mart will furnish resilient flooring, and primer and adhesive under provisions of Section 01640.
- C. Related Sections:
 - 7. Section 01640 - Owner Furnished Products: General procedures related to Wal-Mart furnished products.
 - 8. Section 03300 - Cast-In-Place Concrete: Floor substrate surface.
 - 9. Section 09655 - Resilient Base and Accessories: Resilient flooring base.

1.2 REFERENCES

- A. The publications listed below form a part of this specification to the extent referenced. Publications are referenced within the text by these basic designations only.
- B. ASTM International (ASTM):
 - 10. ASTM E 648 - Test Method for Critical Radiant Flux of Floor-Covering Systems Using a Radiant Heat Energy Source.
 - 11. ASTM E 662 - Test Method for Specific Optical Density of Smoke Generated by Solid Materials.
 - 12. ASTM F 710 - Preparing Concrete Floors to Receive Resilient Flooring.
 - 13. ASTM F 1700 - Solid Vinyl Floor Tile.
 - 14. ASTM F 1066 - Vinyl Composition Floor Tile.
 - 15. ASTM F 1869 - Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride.

1.3 QUALITY ASSURANCE

- A. Regulatory Requirements:
 - 16. Critical Radiant Flux in Accordance with ASTM E 648: More than 0.45 Watts per square centimeter.
 - 17. Specific Optical Smoke Density in Accordance with ASTM E 662: Less than 450.
- B. Floor Treatment Applicator Qualifications:
 - 18. Company Requirements: Company specializing in performing work as specified herein with minimum 3 years documented experience.
 - 19. Stripper Applicator Crew Requirement: Four-man crew, one to apply solution ahead of auto scrubber, one to run auto scrubber, two with mops and buckets to pick up dirty solution residues behind the auto scrubber and rinse floor prior to applying finish.
- C. PVC Flooring Installer Qualifications:
 - 20. Installers shall be trained by a Certified Technician of the adhesive manufacturer. The manufacturer (Mohawk Industries) will contact the adhesive installer prior to installation to coordinate training requirements.

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Product Delivery: Wal-Mart will deliver products to jobsite for Contractor to receive on delivery date established by Contractor. To order tile and notify Wal-Mart of product delivery date and quantity of resilient tile and resilient flooring adhesive required, complete attached Order Form at end of this Section. Product will not be delivered without receipt of this form.
- B. Wal-Mart Carpet/Tile Plan: Issued to Contractor by Wal-Mart prior to possession date.
- C. Product Packaging: Resilient flooring and accessories will be packaged in manufacturer's standard cartons.
- D. Acceptance at Site: Receive Wal-Mart furnished products as specified in Section 01640.
 - 21. Verify quantity of products furnished with Bill of Material provided with Wal-Mart furnished products.
 - 22. Store resilient tile indoors and protect from excessive cold, heat, temperature fluctuations, humidity and moisture penetration. Store tile on original pallets with no multiple stacking of pallets. Check material for consistency of run item and shade numbers. Store resilient tile adhesive in same manner as tile and protect from freezing.
 - 23. Report discrepancies in product quantity delivered or damage to products delivered to Wal-Mart Store Planning Division within 24 hours.
 - 24. Upon notification by Contractor, Wal-Mart will arrange for delivery of replacement products.
 - 25. Note description of product quantity discrepancies and/or product damage on Bill of Lading.
- E. Storage:
 - 26. Store materials in a secure area to prevent loss due to theft or damage. Store flooring and adhesive materials in controlled climate conditions when recommended by manufacturer label instruction. Do not allow adhesive to freeze. Store adhesives in environment between 60 and 80 degrees.
- F. Section 01600 - Product Requirements: Transport, Handle, Store, and Protect Products.

1.5 SITE CONDITIONS

- A. Environmental Requirements:
 - 27. Store flooring materials for three days prior to installation in area of installation to achieve temperature stability.
 - 28. Maintain ambient temperature required by adhesive manufacturer (no less than 72 degrees F for 48 hours) three days prior to, during, and 24 hours after installation of materials.

1.6 SCHEDULING

- A. Schedule resilient flooring installation to prevent damage to resilient flooring and to prevent movement of construction materials over area of resilient flooring.
- B. Work shall begin no earlier than 15 minutes before approved "start time" and shall finish within one hour after approved completion time. Approved time is determined by the Wal-Mart Construction Manager.
- C. All work shall be done in association with approved interruption of the Store's normal operations.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Wal-Mart will furnish resilient flooring specified herein as applicable as shown on the drawings.
- B. Quantity Furnished: General Contractor shall determine quantity of each type of resilient flooring and resilient flooring adhesive required, and complete the attached Order Forms for the applicable flooring to indicate quantities.

- C. Vinyl Composition Tile (VCT): Azrock Vinyl Composition Tile, 12" x 12" x 1/8", by Tarkett, pattern number as listed below.
 - 29. VCT-1 (White): Cortina No. V-862, Cloud White.
 - 30. VCT-3 (Lite): Slip Resistant Tile SR120-3 White.
 - 31. VCT-4 (Dark): Slip Resistant Tile SR123-3 Black.
 - 32. VCT-9 (White): Cortina No. V-789, Windrift.
 - 33. VCT-10 (Tan): Feature Strip, FS 289, Toast.
 - 34. VCT-11 (Beige): Slip Resistant Tile, SR-124, Tan.
 - 35. VCT-12 (Tan): Cortina No. V-984, Elemental.
 - 36. VCT-19 (White): Slip Resistant Tile, Granite SR135-3, Neutral White.
 - 37. Azrock 249 (Daisy Yellow).
 - 38. Armstrong 51910 Classic Black (Snack Bar Area).
- D. PVC Plank Flooring: Van Gogh Grandewood Collection, 7" x 48" x 1/8" strips, virgin PVC composition, by Karndean International. Contact: Ken Sinchar.
 - 39. PVC-1 (Woodgrain): No. VGW39T, Antique Karri.
- E. Feature strip: VCT-2 (Red); FS240, Rio Red (6 x 24 x 1/8").
- F. Primers: Types as suitable for specific material and substrates encountered.
- G. VCT Adhesive: Titebond Solvent-Free Multi-Purpose Flooring Adhesive by Franklin International.
 - 40. Water resistant type, VOC less than 50 g/L.
- H. PVC Plank Adhesive: As recommended by flooring manufacturer.
- I. Floor Treatment Materials (Contractor Furnished):
 - 41. Stripper: Pro Strip Extra Heavy Duty Stripper, by SC Johnson Wax Professional.
 - 42. Finish: Signature High Performance UHS Finish, by SC Johnson Wax Professional.
- J. Substitutions: Not permitted.

2.2 CONTRACTOR FURNISHED ACCESSORIES

- A. Transition Strips
 - 43. PVC or VCT Flooring to Concrete: No. 8132, 2" x 1/8" extruded aluminum transition strip, beveled one edge at 10 degrees, predrilled for fasteners at 12" o.c, by [National Guard Products, Inc.](#) (800) 647-7874.
- B. Subfloor Filler (Cementitious Based Underlayment): Provide one of the following:
 - 44. Ardex SD-F Feather Finish, by Ardex Engineered Cements. Contact: Jesse David, (412) 264-4240.
 - 45. Levelayer I, by Dayton Superior.
 - 46. No. 547 UniPro Universal Underlayment by W.W. Henry. Contact: Dave Fabyonic (724) 203-5035.
- C. Contraction/Construction Joint Filler: Provide the following:
 - 47. Epoxy Joint Filler: Masterfill 300 I, by Master Builders, Inc. (800 227-3350).
- D. Obtain metal transition strips from one of the hardware suppliers specified in Section 08710.

PART 3 EXECUTION

3.1 EXAMINATION

- A. On remodel installations evaluate existing materials for suitability as a substrate.
 - 48. Verify concrete substrate is free of excessive moisture, hydrostatic pressure, and alkalinity within 30 days of installation. Report test results to the Wal-Mart Construction manager.
 - 49. Patch or replace any missing, loose, broken, or otherwise unacceptable areas of existing floor coverings.

50. Large amounts of cracked, craized, bleeding, shifting, or otherwise degraded resilient tile are indicative of excessive moisture, poor installation, or other problems. If this condition exists, further evaluate as to cause, and take appropriate corrective actions.

B. Beginning of installation indicates acceptance of substrate conditions.

3.2 PREPARATION

A. The Contractor must have the Final Carpet and Tile Plan (Feature Tile Plan) and the schedule of moving the gondolas and verify with Wal-Mart Construction Manager, Store Manager, and Store Planning Supervisor. Contact Store Manager and Department Manager 48 prior to any work affecting their area.

B. Remove existing floor tiles as required. All demolished tile shall be recycled as specified in Section 02023.

C. Prepare substrate for product installation as outlined below. For additional information not addressed consult manufacturer's published instructions.

D. Remove by sanding, grinding, or similar means ridges, bumps, protrusions, and other irregularities. Properly prepare expansion joints and fill contraction/construction joints with joint sealant or subfloor filler specified in Part 2 of this section as required. Fill cracks, holes, and depressions with cementitious based underlayment, which upon cure is sanded smooth, to achieve a level, flat, hard surface.

E. Smooth concrete surface by light sanding or grinding. Finished concrete surface shall be smooth with no more than 1/8 inch variation from plane within any 10 feet.

F. Remove paint, oils, waxes, sealers and curing compounds not compatible with adhesive to be used. Avoid organic solvents or liquid adhesive removers.

G. Bond and Moisture Tests:

51. Bond Test: Determine suitability of concrete substrate for receiving resilient flooring with regard to moisture content and curing compounds. Conduct bond test by adhering 3 feet by 3 feet panels of specified floor covering with specified adhesive. Test will be considered passed if after several days panels are well bonded, difficult to remove, and display no signs of moisture or adhesive degradation.

52. Moisture Content and pH Tests: Moisture content tests and pH tests will be conducted by Owner's Independent Testing Laboratory (ITL) at no cost to the Contractor. Moisture tests will be made to ensure that moisture content in concrete substrate does not exceed 5 percent as measured by the Calcium Carbide Hygrometer Procedure or 5 pounds/1000 sq. ft./24 hours as measured by the Rubber Manufacturers Association Quantitative Calcium Chloride Test. Tests shall be taken in sufficient number and locations as required to obtain results representative of various areas to be covered by resilient flooring. Contractor shall notify the ITL when slab is considered sufficiently dry for testing. The ITL shall report test results to the Wal-Mart Construction Manager and to the adhesive vendor identified on the PVC plank flooring order form at the end of this section. Final tests shall be taken not more than 24 hours prior to application of flooring.

H. Prohibit traffic until filler is cured. Thereafter, unnecessary traffic in work areas shall be kept to a minimum.

I. Vacuum clean substrate.

3.3 INSTALLATION

A. Install resilient flooring in accordance with manufacturer's published instructions at locations indicated on Wal-Mart Carpet/Tile Plan.

B. Open number of floor material cartons to provide quantity required to cover each area; mix pieces within single shade lot to ensure shade variations do not occur within any one area. When working with more than one lot, plan lot placement and location to minimize possible shade differences.

- C. Apply adhesive in accordance with manufacturer's directions. Follow adhesives open time by spreading only enough adhesive to permit installation of floor materials before initial set. Do not spread adhesive for overnight dry.
- D. PVC Flooring Installation:
 - 53. Install PVC flooring strips from side-to-side, not front-to-back, of store.
 - 54. Install PVC plank strips with random end-joint offset over entire area. Cut planks in random sizes for starter pieces and alternate the size of the starter piece to avoid a repeating joint pattern. The shortest starter piece shall be not less than 12".
 - 55. Overall PVC flooring layout shall produce a complete random appearance of joint spacing.
 - 56. Install PVC border as shown on the drawings.
- E. VCT Flooring Installation:
 - 57. Lay flooring from center marks established parallel to building walls.
 - 58. Allow minimum 1/2 full size tile width at room or area perimeter.
 - 59. Adjust tile layout as required to avoid use of units less than 1/2 tile.
 - 60. Install tile to square grid pattern with all joints aligned and pattern grain alternating with adjacent unit to produce basket weave pattern unless indicated otherwise on Drawings.
 - 61. Install edge strips and threshold transitions at locations indicated on Final Carpet and Tile Plan.
- F. Wipe down adhesive bleed through during installation.
- G. Rolling: Set flooring into place, thoroughly cross roll with a 100-150 pound three-sectional roller before adhesive set time expires to attain full adhesion.
- H. Terminate flooring at centerline of door openings where adjacent floor finish is dissimilar. Where flooring continues through door opening, continue established pattern with no interruption.
- I. Install transition strips at unprotected or exposed edges where flooring terminates.
 - 62. Set metal transition strips butted to adjacent flooring. Anchor into concrete slab with Hilti Qwik-Con II, #14-134 TFH (1/4" x 1-3/4 Torq Flathead) fasteners spaced at 6" on center unless otherwise shown on the drawings. Drill concrete with Matched Tolerance Drill Bit for Dense Concrete by Hilti.
- J. Scribe flooring to walls, columns, cabinets, floor outlets, and other appurtenances to produce tight joints.
- K. Continue flooring under movable type partitions without interrupting floor pattern.
- L. On installations involving tile placement over existing asphaltic based (black) adhesives, substitute solvent-free asphaltic emulsion adhesive (Azrock Black Thin Spread) for clear adhesive typically specified. Fast set Portland cement/latex based patch by the following manufacturers may be substituted:
 - 63. Kwik Patch, by Azrock (as first preference, if unavailable, select items 2 or 3).
 - 64. Plani-Patch, by Mapei.
 - 65. Featherfinish, by Ardex.

3.4 FIELD QUALITY CONTROL

- A. Inspect resilient flooring installation, pattern, layout, and attachment to substrate.
- B. Correct deficiencies in Work which inspection indicates are not in compliance with Contract Documents.

3.5 CLEANING

- A. Remove excess adhesive from floor, base, and wall surfaces without damage.
- B. Broom clean resilient flooring after application.

3.6 FLOOR TREATMENT

- A. Provide floor treatment for new resilient flooring.
- B. Examine surfaces and adjacent areas where products will be applied and verify that surfaces conform to product manufacturer's requirements for substrate conditions. Do not proceed until satisfactory conditions have been corrected.
- C. Stripping VCT:
 - 66. Mix one part stripper to four parts water.
 - 67. Apply solution liberally to a manageable area of the floor and let solution set for 10 minutes prior to scrubbing. Do not allow the stripper to dry. Re-wet as necessary.
 - 68. Scrub VCT floor using an auto scrubber with maximum pad pressure or a slow speed buffer equipped with black pads or stripping brushes. Make at least three passes over each tile to remove mill finish.
 - 69. Thoroughly rinse the floor to remove any residue of cleaning or stripper solution.
 - 70. Let floor dry completely prior to application of floor finish.
- D. Cleaning PVC:
 - 71. Clean PVC flooring with a commercial flooring cleaner using mop or scrubber with white pads.
 - 72. Apply stripper only as necessary to remove adhesive bleed-thru.
 - a. Apply diluted stripper solution liberally to a manageable area of the floor and let solution set for 10 minutes prior to scrubbing. Do not allow the stripper to dry. Re-wet as necessary.
 - 73. Pick up cleaning or stripper solution from floor using the auto scrubber with clear water and red pads.
 - 74. Thoroughly rinse the floor to remove any residue of cleaning or stripper solution.
 - 75. Let floor dry completely prior to application of floor finish.
- E. Finishing:
 - 76. Apply floor finish in accordance with manufacturer's instructions.
 - 77. VCT Tile: Apply four coats of floor finish to floor. Burnish floor after 24 hours after final application and again prior to store opening.
 - 78. Slip Resistant VCT Tile: Apply two coats of floor finish to floor.
 - 79. PVC Plank Flooring: Apply two light coat of floor finish to floor with a 24" rayon mop in direction of wood grain of plank. Do not burnish.
 - 80. Allow a minimum of 45 minutes drying time between coats.
 - 81. HVAC shall be in operation during drying and curing of floor finish.

3.7 PROTECTION

- A. Prohibit traffic on floor finish for 48 hours after installation.

END OF SECTION

VCT TILE ORDER FORM

To: General Contractor

To procure VCT floor tile, complete this form in full and fax to the Vendor (Linron Company: (713) 802-1654). Delivery dates shall be scheduled with the Vendor. Quantities shall be taken from the architectural drawings. The Carpet & Tile plan shall be used for final location of the VCT flooring. An overage of 2-3% of the actual floor area shall be included. The tile vendor will monitor quantities of all tile orders. Prior to releasing orders, the tile vendor will inform the Wal-Mart Construction manager when there appears to be excessive overage.

Additional material required beyond this original order without a Change Order will be back charged to the contractor.

Order shall be placed 90 days prior to possession date allowing for a 2 week lead time.

The Contractor shall verify quantity of material delivered and notify Construction Planning within 24 hours if delivered quantities do not match Tile Order Form.

	QUANTITY FROM CARPET TILE PLAN (SQ. FT.)	CONTRACTORS ORDER (SQ. FT.)
• VCT-1: Cortina No. V-862, Cloud White	_____	_____
• VCT-3: Slip Resistant Tile SR120-3, White	_____	_____
• VCT-4: Slip Resistant Tile SR123-3, Black	_____	_____
• VCT-9: Cortina No. V-789, Windrift	_____	_____
• VCT-10: Feature Strip, FS 289, Toast	_____	_____
• VCT-11: Slip Resistant Tile SR-124, Tan	_____	_____
• VCT-12: Cortina No.V-984, Elemental	_____	_____
• VCT-19: Slip Resistant Tile SR135-3, White	_____	_____
• Azrock 249, Daisy Yellow	_____	_____
• Armstrong 51910, Classic Black	_____	_____
• OTHER: _____	_____	_____
• OTHER: _____	_____	_____
• OTHER: _____	_____	_____

Required delivery date _____

Superintendent

Date

Please print Superintendent's name

Superintendent's Cell Phone

General Contractor

General Contractor's Phone

Job Site Address: _____

Wal-Mart Store # _____

Job Site Phone: _____

PVC PLANK FLOORING ORDER FORM

To: General Contractor

To procure PVC plank flooring, complete this form in full and fax to the Vendor (Karndean: (800) 887-7043). Delivery dates shall be scheduled with the Vendor. Quantities shall be taken from the architectural drawings. The Carpet & Tile Plan shall be used for final location and final areas of PVC flooring. An overage of 5% of the actual floor area shall be included. The flooring vendor will monitor quantities of all orders. Prior to releasing orders, the flooring vendor will inform the Wal-Mart Construction manager when there appears to be an overage.

Fax this completed form to the adhesive vendor as follows: Christine Chambers, Mohawk Industries, East Dublin, GA Telephone: (800) 553-6045 Ext. 63144, Fax: (478) 296-2384. christine_chambers@mohawkind.com or alternate Fax (888) 758-4488, Att: Christy Fowler.

Additional material required beyond this original order without a Change Order will be back charged to the contractor.

Order must be placed 90 days prior to possession date allowing for a 2 week lead time.

The Contractor shall verify quantity of material delivered and notify Construction Planning within 24 hours if delivered quantities do not match PVC Plank Flooring Order Form.

	QUANTITY FROM CARPET TILE PLAN	CONTRACTORS ORDER
• PVC-1: VGW-39T Karndean Antique Karri	_____	sq. ft. _____ sq. ft.
• ADHESIVE	As determined by adhesive vendor	

Required delivery date _____

Superintendent

Date

Please print Superintendent's name

Superintendent's Cell Phone

General Contractor

General Contractor's Phone

Job Site Address: _____

Wal-Mart Store # _____

Job Site Phone: _____

SECTION 09655 – RESILIENT BASE AND ACCESSORIES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Resilient Base (B).
 - 2. Plastic base (B).
 - 3. Sanitary Cove Base (SCB).
 - 4. Duratuff Base (DB).

1.2 REFERENCES

- A. The publications listed below form a part of this specification to the extent referenced. Publications are referenced within the text by the basic designation only.
- B. ASTM International (ASTM):
 - 1. ASTM E84 - Surface Burning Characteristics Of Building Materials.

1.3 QUALITY ASSURANCE

- A. Regulatory Requirements: Conform to applicable code for flame/fuel/smoke rating requirements in accordance with ASTM E84.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Resilient Base: FS SS-W-40; vinyl or rubber, 4 inch high cove base, 1/8 inch thickness; with matching end stops and preformed corner units; verify color prior to ordering.
 - 1. B-4 Black Color (For Snack Bar, Stockroom Areas, Garden Center Areas, Sales Areas - verify):
 - a. Armstrong Vinyl: No. 14100 Standard Black.
 - b. Flexco Rubber: No. WF-01 Black Dahlia.
 - c. Kencove Vinyl: No. KC-1 Black.
 - d. Johnsonite Vinyl: No. CB-40 Black.
 - e. Roppe Rubber: No. 00 Black.
 - 2. B-1 Blue/Gray (For use in older stores; verify use with Wal★Mart Construction Manager):
 - a. Roppe Vinyl: No. 877 Steel Blue.
 - b. Roppe Rubber: No. 75 Slate.
 - c. Johnsonite Vinyl: No. CB-48 Gray.
 - d. Johnsonite Rubber: No. DC-28 Gray.
 - e. Flexco Rubber: No. 14 Medium Gray.
 - f. Kencove Vinyl: No. KC213 Granite.
 - g. VPI Vinyl: No. 336 Silver Sable.
 - h. VPI Rubber: No. 736 Silver Sable.
 - 3. Adhesive: GREENchoice Professional Cove Base Adhesive, by Franklin International (800) 877-4583.
 - a. Water resistant type, VOC less than 50 g/l.
- B. Plastic Base: Style B, Plas-tex with NRP emboss on backside, by Parkland Plastics Incorporated, Middlebury, IN (574) 825-4336 or (800) 835-4110.
 - 1. Size: As shown on the drawings.

2. Colors:
 - a. B-6 - Black: 6-inch base.
 - b. B-9 - Black: 4-inch base with 1/4" horizontal trim.
 - c. B-10 - Black Plastic Base Outside Corner: 3" x 6" corner angle.
 3. Fasteners: Black flathead countersunk screws, length sufficient to penetrate substrate and metal stud wall framing.
- C. Duratuff Plastic Base: Plas-TEX, including ends, corners and accessories, by Parkland Plastics, Inc., Middlebury, IN (574) 825-4336 or (800) 835-4110. Distributed by Plunkett Distributing, Fort Smith, AR. Contact: Hollie Pierce (800) 833-4393.
1. DB5 - Par-5-Blk-Base, 3/8" x 5" x 144".
 2. DB10 - Par-Blk-Base, 3/8" x 10" x 144".
 3. Color: Black.
 4. Fasteners: Black flathead countersunk screws, length sufficient to penetrate substrate and metal stud wall framing.
- D. Sanitary Cove Base: Sanitary Cove Base manufactured by Murphy Manufacturing, Denver, CO (303) 289-5686. Base, accessories, and fasteners shall be supplied by the manufacturer.
1. Material: Antimicrobial plastic, open core construction.
 2. Grade: Standard.
 3. Size: As shown.
 4. Edge: As shown.
 5. Finish: Smooth.
 6. Special Shapes: Inside and outside corners, splicers, and end caps.
 - a. 90 degree Corners: Shop prefabricated heat welded corners.
 - b. Other than 90 degree Corners: Field fabricated as shown on the drawings.
 7. Color:
 - a. SCB1 - Red: 901 sanitary cove base for quarry tile.
 - b. SCB2 - Gray: 902 sanitary cove base for quarry tile.
 - c. SCB4 - Red: 904 sanitary cove base for vct/epoxy/concrete.
 - d. SCB5 - Gray: 905 sanitary cove base for vct/epoxy/concrete.
 8. Fasteners: Push pins as provided by the manufacturer as shown on the drawings.
 9. Adhesive/Sealant: Greenchoice Titebond Weathermaster by Franklin International.
 - a. Water resistant type, VOC less than 50 g/L, as supplied by Haines, Jones, Cadbury, Inc. (800) 459-7099. Furnish adhesive together with SCB shipped to the project site. Color to match base as follows:
 - 1) Gray: Color No. 44741.
 - 2) Red: Color No. 44231.
- E. Sill Sealer: Peel and Stick 3/8" thick closed cell foam sill sealer tape, Protecto Triple Guard Energy Sill Sealer, by Protecto Wrap Co., Denver, CO (800) 759-9727.
- F. Building Tape: 20 mil polyethylene backed rubberized adhesive membrane tape, BT-20XL Building Tape, by Protecto Wrap Co.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Resilient Base:
1. Install base in accordance with manufacturer's requirements using manufacturer's approved adhesive.
 2. Fit joints tight and vertical. Maintain minimum measurement of 18 inches between joints. Use premolded corner units.
 3. Install base on solid backing. Bond tight to wall and floor surfaces.
 4. Scribe to fit door frames and other interruptions.
 5. Remove excess adhesive from floor, wall surfaces and base.

- B. Plastic Base (including Duratuff Plastic Base):
 - 1. Fit joints tight and vertical. Maintain minimum measurement of 18 inches between joints.
 - 2. Install base on solid backing. Bond tight to wall and floor surfaces.
 - 3. Scribe to fit door frames and other interruptions.
 - 4. Miter and adhesively bond plastic base joints together.
 - 5. Pre-drill plastic base and trim for attachment screws. Unless otherwise shown, attach plastic base at 24 inches on center into metal stud wall framing.
- C. Sanitary Cove Base:
 - 1. Install base in accordance with manufacturer's written instruction and as shown on the drawings.
 - 2. Attach base using adhesive and fasteners per instructions.
 - 3. Plug fastener holes with buttons furnished by the manufacturer.
- D. Sill Sealer and Building Tape: Install sill sealer or building tape at base of wall behind resilient base or at joints as shown on the drawings. Install in accordance with manufacturer's instructions.

3.2 CLEANING

- A. Remove excess adhesive from floor, base, and wall surfaces without damage.

END OF SECTION

SECTION 09680 – CARPET

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Owner furnished, Contractor installed carpet tiles for the following areas:
 - a. Pharmacy.
- B. Related Sections:
 - 1. Section 01640 - Owner Furnished Products: General procedures related to products furnished by others.

1.2 REFERENCES

- A. Carpet and Rug Institute (CRI):
 - 1. CRI 104 - Standard for Installation of Commercial Carpet.

1.3 QUALITY ASSURANCE

- A. Installer Qualifications: A qualified installer who is certified by the Floor Covering Installation Board or who can demonstrate compliance with its certification program requirements.

1.4 DELIVERY, STORAGE AND HANDLING

- A. Product Delivery: Carpet will be delivered to jobsite for Contractor to receive on delivery date established by Contractor. To establish product delivery date and quantity of carpet required, contact the following three weeks prior to desired delivery:
 - 1. Wal-Mart Store Planning Division, Suzann Johnson, (479) 273-4088.
- B. Product Packaging: Carpet will be shipped in cartons. Manufacturer's published installation instructions will be included in package.
- C. Acceptance at Site: Receive products as specified in Section 01640. Verify quantity of products furnished with Bill of Material provided with products. Report discrepancies in product quantity delivered or damage to products delivered to contact specified above. Upon notification by Contractor, arrangement will be made for delivery of replacement products. Note description of product quantity discrepancies and/or product damage on Bill of Lading.
- D. Comply with CRI 104, Section 5, "Storage and Handling".
- E. Section 01600 - Product Requirements: Transport, Handle, Store, and Protect products.
- F. Protect packaged adhesive from temperature cycling and cold temperatures. Keep adhesives away from any ignition source.
- G. Do not store roll goods on end.

1.5 SITE CONDITIONS

A. Environmental Requirements:

1. Maintain areas to receive carpet at constant minimum temperature of 45 to 50 degrees F for minimum three days prior to and during installation.
 - a. Comply with carpet manufacturer's surface moisture requirements.
 - b. Provide negative alkalinity at substrate.
2. Provide continuous ventilation during and after installation.
3. Do not install carpet until wet work in spaces is complete and dry, and ambient temperature and humidity conditions are maintained at the levels indicated for Project when occupied for its intended use.

B. Provide lighting levels of 80 foot candles measured mid-height at substrate surface.

C. General: Comply with CRI 104, Section 6.1, "Site Conditions; Temperature and Humidity".

D. Do not install adhesive applied carpet over concrete slabs until slabs have cured and are sufficiently dry to bond with adhesive and concrete slabs have pH range recommended by manufacturer.

1.6 SCHEDULING

A. Schedule installation to prevent damage to carpet by subsequent construction activities.

PART 2 - PRODUCTS

2.1 CARPET

A. Carpet will be provided as applicable as shown on the drawings.

B. C-1 (Pharmacy): Cushion Back Carpet Tile: Geometry by Interface, or match existing carpet which is to remain. CushonBac Plus Tile, tufted tip sheared pattern loop, 100% Solutia yarn. Furnished by Wal-Mart, installed by Contractor.

1. Tile Size: 50 cm x 50 cm (19.69 in. square).
2. Pattern: Geometry, or match existing, which is to remain.
3. Color: Optical, or match existing which is to remain.

2.2 ACCESSORIES (OWNER FURNISHED)

A. Adhesive: Franklin 780 Premium Multipurpose Flooring Adhesive by Franklin International.

1. Water resistant type, VOC less than 50 g/l.

B. Primer: Type recommended by adhesive and carpet manufacturer; compatible with substrate.

C. Transition Strip: Rubber transition strip at exposed edge of carpet tile as detailed on Drawings.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine surfaces and adjacent areas where products will be installed and verify that surfaces conform to product manufacturer's requirements for substrate conditions. Do not proceed until unsatisfactory conditions have been corrected.

1. Substrate Surface: Clean, true, and free of irregularities.

B. Beginning of installation indicates acceptance of substrate conditions.

3.2 PREPARATION

- A. Prepare substrate for product installation in accordance with manufacturer's published instructions.
- B. Vacuum clean surfaces free of loose particles.

3.3 INSTALLATION

- A. Install in accordance with manufacturer's instructions.
- B. Comply with CRI 104, Section as applicable for the application method used.
- C. Maintain uniformity of carpet direction and lay of pile (except, alternate direction at Pharmacy). At doorways, center seams under door in closed position. Bind or seal cut edges as recommended by carpet manufacturer.
- D. Install pattern parallel to walls and borders.
- E. Install geometric pattern in non-directional layout as recommended by the manufacturer.

3.4 FIELD QUALITY CONTROL

- A. Inspect installation, pattern matching, and attachment to substrate.
- B. Correct deficiencies in Work which inspection indicates are not in compliance with Contract Documents.

3.5 CLEANING AND PROTECTION

- A. Perform the following operations immediately after installing carpet:
 - 1. Remove excess adhesive, seam sealer, and other surface blemishes using cleaner recommended by carpet manufacturer.
 - 2. Remove yarns that protrude from carpet surface.
 - 3. Vacuum carpet using commercial machine with face-beater element.
- B. Protect installed carpet to comply with CRI 104, Section 15, "Protection of Indoor Installations".
- C. Protect carpet against damage from construction operations and placement of equipment and fixtures during the remainder of construction period. Use protection methods indicated or recommended in writing by carpet manufacturer.

END OF SECTION

SECTION 09900 – PAINTS AND COATINGS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Field applied paints and finishes for interior and exterior surfaces (Partial Wal-Mart Furnished/Partial Contractor furnished, Contractor Installed).
- B. Related Sections:
 - 2. Section 01640 - Owner Furnished Products.
 - 3. Section 05120 - Structural Steel: Shop priming.
 - 4. Section 05210 - Steel Joists: Shop priming.
 - 5. Section 05300 - Metal Decking: Shop priming.
 - 6. Section 05500 - Metal fabrications: Shop priming.
 - 7. Section 08110 - Steel Doors and Frames: Shop priming.
 - 8. Section 08360 - Sectional Overhead Doors.
 - 9. Section 09250 - Gypsum Board: Textured Coatings.
- C. Products Supplied by Wal-Mart Supplier and Installed by Contactor: Under provisions of Section 01640, Wal-Mart's supplier will furnish a limited portion of the specified products in the quantities as specified hereinafter on the Wal-Mart furnished Quantity Schedule for installation by the Contractor.
 - 10. Wal-Mart supplied products will conform to the specifications included in this section.
 - 11. Wal-Mart Supplier: Sherwin Williams Company. Contact: Kevin Behm, (216) 566-1558, Kevin.Behm@sherwin.com
- D. Products Provided (Furnished and Installed) by the Contractor: The Contractor shall provide all products specified herein which are not scheduled to be Wal-Mart furnished.
- E. Quantity Furnished: Wal-Mart will furnish coatings in the quantities shown on the Wal-Mart Furnished Quantity Schedule at the end of this Section. The quantity furnished by Wal-Mart is not to be considered fully sufficient for the total project. Supplemental required quantities to those of Wal-Mart furnished coatings including additional quantities of Wal-Mart furnished coatings, coatings not furnished by Wal-Mart, and other materials and accessories as determined by the Contractor necessary for the complete project, shall be furnished by the Contractor at Contractor expense. Supplemental coating quantities shall be obtained from the Wal-Mart Supplier. Wal-Mart furnished coatings are not differentiated by color. The Contractor shall identify on the order, the appropriate colors as required.

1.2 REFERENCES

- F. The publications listed below form a part of this specification to the extent referenced. Publications are referenced within the text by the basic designation only.
- G. ASTM International (ASTM):
 - 1. ASTM E 2129 - Standard Practice for Data Collection for Sustainability Assessment of Building Products.

1.3 SUBMITTALS

- H. Material List: Submit list of required coating materials. Indicate each material and cross reference specific coating, finish system, application, and estimated quantity. Identify each material by manufacturer's catalog number and general classification.
- I. Material Certification: Submit certification by manufacturer that products comply with environmental regulations controlling use of volatile organic compounds (VOCs).

- J. Submit environmental data in accordance with Table 1 of ASTM E2129 for products provided.
- K. Applicator Qualifications Statement: Submit statement of applicator qualifications in accordance with Section 01330. Submit within 30 days of contract award.
- L. Closeout Documents: Submit Manufacturer's Inspection Report of post-installation site visit specified hereinafter and in accordance with Section 01770.

1.4 QUALITY ASSURANCE

- M. Regulatory Requirements:
 - 1. VOC Content: Provide paint and coating materials that conform to Federal, State, and Local restrictions for Volatile Organic Compounds (VOC) content.
 - 2. Toxicity/EQ: Comply with federal, state, and local toxicity and environmental quality regulations and with federal requirements on content of lead, mercury, and heavy metals. Do not use solvents in paint products that contribute to air pollution.
- N. Exterior Finish Pre-Installation Conference:
 - 3. Convene a pre-installation teleconference, at least one week prior to commencing Work of this Section and prior to the Elastomeric Coating Pre-Installation Conference, if specified.
 - 4. Contact Wal-Mart Construction Manager two weeks prior to pre-installation conference to confirm schedule.
 - 5. Attendance:
 - a. Wal-Mart Construction Manager.
 - b. Contractor.
 - c. Coating Subcontractor.
 - d. Coating Manufacturer's Technical Representative. This individual must be the same person that performed the Initial Site Visit. Technical Representative shall reference the Sherwin Williams/WM Initial Site Visit Worksheet for site specific information.
 - 6. Agenda:
 - e. Sherwin Williams/WM Initial Site Visit Worksheet.
 - f. Preparation of existing substrate to receive recommended finish.
 - g. Sequence and method of application of coating system.
 - h. Warranty provisions.
 - 7. Record, type, and print minutes of the meeting. Distribute minutes to all parties concerned within 5 days of the meeting. Transmit one copy of the minutes to the Owner's representative for information purposes.
- O. Elastomeric Coating Field Sample:
 - 8. Apply elastomeric coating weatherproofing system to 10 ft by 10 ft sample panel at location on the building as directed.
 - 9. Apply in accordance with specified colors, texture, workmanship, and application requirements.
 - 10. Obtain Wal-Mart Construction Manager inspection and approval of sample panel.
 - 11. Maintain approved sample panel during construction as a standard for judging completed Work. Do not alter, move, or destroy panel until Work is completed.
 - 12. Apply scheduled final elastomeric coat to sample panel simultaneous with final coat of adjacent wall surface.
- P. Elastomeric Coating Applicator Qualifications: Applicator having minimum 5 years documented experience in the application of elastomeric coatings and approved in writing by coating manufacturer.
- Q. Elastomeric Coating Manufacturer's Technical Representative: A coating manufacturer's representative shall provide field service at site as required.

R. Elastomeric Coating Pre-Installation Conference:

13. Pre-Installation Conference:

- a. Convene a pre-installation conference at the site, one week prior to commencing Work of this Section.
- b. Contact Wal-Mart Construction Manager two weeks prior to pre-installation conference to confirm schedule.
- c. Attendance:
 - 1) Contractor.
 - 2) Coating subcontractor.
 - 3) Coating manufacturer's technical representative.
- d. Agenda:
 - 4) Substrate condition including manufacturer's written approval.
 - 5) Sequence and method of application of coating system.
- e. Record discussions of conference and decisions and agreements (or disagreements) reached, and affix signatures of all attendees. Furnish copy of record to the Wal-Mart Construction Manager and to each party attending.

S. Post-Installation Site Visit: Upon completion, Manufacturer's Technical Representative shall provide field service including site visit and observation of completed coating system installation.

14. Prepare inspection report of site visit and submit as a closeout submittal.

T. Waste Management:

15. Paint Containers: Obtain paint in containers of the largest size practical for each color, sheen, and type. Make arrangements to clean and recycle containers that cannot be returned to manufacturer.
16. Return reusable drums and totes to manufacturer.

1.5 DELIVERY, STORAGE AND HANDLING

U. Section 01600 - Product Requirements: Transport, handle, store, and protect products.

V. Product Order and Delivery: The Contractor shall prepare and order all coating materials and accessories for Contractor furnished products and arrange delivery of Wal-Mart furnished products and submit together to Wal-Mart Supplier specified hereinbefore. Wal-Mart Supplier will deliver products to site on delivery date established by Contractor. To arrange product order and delivery, contact Supplier.

W. Acceptance at Site: Receive products as specified in Section 01640.

1. Verify quantity of products furnished with Bill of Material provided with Wal-Mart furnished products.
2. Report discrepancies in product quantity delivered or damage to Supplier.
3. Upon notification by Contractor, Supplier will arrange for delivery of replacement products.
4. Note description of product quantity discrepancies and/or product damage on Bill of Materials.

X. Paint orders shall identify the store number, location, and address of project.

Y. Delivery of paint materials shall be in sealed original labeled containers, bearing manufacturer's name, type of paint, brand name, lot number, brand code, coverage, surface preparation, drying time, cleanup requirements, color designation, and instructions for mixing and/or reducing. Notify Supplier when delivered products do not conform to these requirements.

1.6 ENVIRONMENTAL REQUIREMENTS

Z. Apply paint finishes only when moisture content of surfaces is within manufacturer's acceptable ranges for type of finish being applied.

AA. Minimum surface temperatures or ambient air temperature shall be as follows for the specified coatings unless otherwise specifically stated by the manufacturer for the specific coating:

1. Alkyd and interior and exterior latex finishes: 50 degrees F.

2. Varnish and transparent finishes: 65 degrees F.
3. All coatings: 5 degrees F above dew point.

BB. Provide continuous ventilation and heating facilities to maintain temperatures above 50 degrees F for 24 hours prior to, during, and 48 hours after application of finishes.

CC. Do not apply paint in areas where dust is being generated.

DD. Expose waste paint to air and allow paint to dry.

EE. Remove bulk from container and dispose in accordance with MSDS data and local environmental regulations for paint products. Clean containers and recycle.

FF. Provide lighting level in areas being painted of 80 foot candles measured mid-height at substrate surface.

1.7 ELASTOMERIC COATING WARRANTY

GG. Document 00800 - Supplementary Conditions: Warranty requirements.

HH. Contractor shall obtain Intent-to-Warrant statement from Coating Manufacturer prior to coating application.

II. Submit warranty as part of closeout documents in accordance with Section 01770.

JJ. Material: Provide 10 year manufacturer's material warranty (5 year for previously coated substrate), including labor for re-application, to cover:

1. Waterproofing above grade.
2. Bonding.
3. Weathering.

KK. Workmanship: Provide 10 year manufacturers workmanship warranty to cover labor for deficient workmanship and application.

LL. Prepare "Application for Limited Warranty" included at the end of this Section for submission to elastomeric paint manufacturer. Follow instructions on form.

PART 2 - PRODUCTS

2.1 MATERIALS

MM. Paint: Wal-Mart and Contractor provided coating materials shall be the product of Sherwin Williams Co. as specified in the Painting Schedule hereinafter. Substitutions will not be permitted.

NN. Accessory Materials (Contractor Provided): Accessory materials not specifically indicated herein but required to achieve the finishes specified, shall be provided by the Contractor and shall be of highest quality and as recommended by the manufacturer.

1. Paint Thinners: Type recommended by paint or coating manufacturer for paint or coating system, VOC compliant, first line commercial quality. Do not use solvents for thinning paint materials.
2. Patching Materials: Low VOC Latex filler.

OO. Carpet Adhesive Cleaner (Contractor Provided): Mohawk Nu-Spraylok Adhesive Cleaner (DK138) as distributed by Mohawk Group (800) 428-8311.

PART 3 - EXECUTION

3.1 EXAMINATION

- PP. Examine surfaces and adjacent areas where products will be applied and verify that surfaces conform to product manufacturer's requirements for substrate conditions. Do not proceed until unsatisfactory conditions have been corrected.
- QQ. Beginning of application indicates acceptance of substrate conditions.

3.2 PREPARATION

- RR. Apply paint only on surfaces free of dirt, rust, scale, grease, moisture, scuffed surfaces, and conditions otherwise detrimental to formation of a durable paint film.
- SS. Coordinate removal of shelf standards. Paint wall strips on all existing Sales walls.
- TT. Coordinate moving of merchandise and shelving with the Wal-Mart Store Manager prior to painting.
- UU. Perform preparation and cleaning procedures in accordance with paint manufacturer's published instructions for each particular substrate condition.
 - 1. Provide barrier coats over incompatible primers or remove and reprime as required.
 - 2. Remove hardware, hardware accessories, machined surfaces, plates, lighting fixtures, and similar items in place and not to be painted or provide surface applied protection prior to surface preparation and painting operations. Reinstall all removed items after completion of paint work.
 - 3. Clean surfaces to be painted before applying paint or surface treatment. Remove oil and grease prior to mechanical cleaning.
- VV. Ferrous Metals: Clean ferrous surfaces that are not galvanized or shop-coated, of oil, grease, dirt, loose mill scale, and other foreign substances by solvent or mechanical cleaning.
 - 4. Touch-up shop-applied prime coats where damaged or bare. Clean and touch-up with same type shop primer.
- WW. Galvanized Surfaces: Clean free of oil and surface contaminants with non-petroleum based solvent. Apply coat of etching primer if required by paint manufacturer.
- XX. Cementitious Materials: Prepare cementitious surfaces to be painted by removing efflorescence, chalk, dust, dirt, grease, oils, and by roughening as required to remove glaze.
 - 5. Determine alkalinity and moisture content of surfaces to be painted by performing appropriate tests.
 - a. Alkalinity shall be a maximum ph of 13 and a minimum of 6.
 - b. If surface alkalinity is outside range specified above, correct condition before application of paint.
 - c. Do not paint over surfaces where moisture content exceeds that permitted in manufacturer's printed instructions.
 - 6. Clean and etch floor surfaces scheduled to be painted with a commercial solution of muriatic acid, or other etching cleaner. Flush floor with clean water to neutralize acid and allow to dry before painting. Mask floor surfaces not to be cleaned and etched.
 - d. Sealer Removal: Prior to etching, remove curing compound and sealers with strong solvents such as xylene, MEK, toluene or commercial paint strippers or by sandblasting or other similar mechanical action.

- YY. Wood: Clean wood surfaces to be painted of dirt, oil, and other foreign substances with scrapers, mineral spirits, and sandpaper, as required. Sandpaper smooth those finished surfaces exposed to view, and dust off. Scrape and clean small, dry, seasoned knots and apply a thin coat of white shellac or other recommended knot sealer, before application of priming coat. After priming, fill holes and imperfections in finish surfaces with putty or plastic wood filler. Sandpaper smooth when dried.
7. Prime, stain, or seal wood required to be job-painted immediately upon delivery to job. Prime edges, ends faces, undersides, and backsides of such wood, including cabinets and counters.
 8. Seal tops, bottoms, and cut-outs with a heavy coat of varnish or equivalent sealer immediately upon delivery to job.
- ZZ. Gypsum Board: Fill minor defects with filler compound. Spot prime defects after repair.
9. If shown on Drawings to receive textured finish, prepare gypsum board surfaces with textured coating specified in Section 09250.
 10. Exterior Gypsum Board Sheathing: Exterior gypsum board sheathing to receive a paint finish shall be prepared for painting with joint treatment and skim coating as specified in Section 09250.
- AAA. Previously Painted Surfaces: Prepare previously painted surfaces in accordance with manufacturer's recommendations. Remove loose paint by scrape or wire brush as necessary. Smooth edges of existing sound paint film to prevent telegraphing of ridges through new paint film. Clean surfaces thoroughly and roughen existing paint surfaces by lightly sanding. Clean and remove mildew using trisodium phosphate. Touch up bare surfaces with prime coat scheduled. Painted surfaces with existing sound prime or finish coats do not require additional prime coating. Finish coats shall be applied in number and DFT specified.
- BBB. Previously Carpeted Column Surfaces: Completely remove adhesives left by carpet removal from existing column with carpet adhesive cleaner. Roughen existing primed paint surfaces by lightly sanding. Touch up bare surfaces with prime coat scheduled. Painted surfaces with existing sound prime or finish coats do not require additional prime coating. Finish coats shall be applied in number and DFT specified.
- CCC. Existing Composite Overhead Sectional Doors: Prepare surface as recommended by manufacturer. Surface shall be clean and dull before painting. Thoroughly wash with an abrasive cleanser or wash and dull by sanding.

3.3 APPLICATION

- DDD. Apply coating systems specified in the Painting Schedule hereinafter for the corresponding surface. Shop primed surfaces will not require field applied 1st coat (primer) specified in the Painting Schedule.
- EEE. Apply paint products in accordance with manufacturer's published instructions using application procedures approved for the particular application and substrate.
- FFF. Apply each coat to the Dry Film Thickness (DFT) specified which represents the minimum Dry Film Thickness in mils per coat. Apply each coat to uniform coverage.
- GGG. Apply each coat slightly darker than preceding coat unless otherwise approved by Wal-Mart Construction Manager. Lightly sand surfaces between coats to achieve specified finish.
- HHH. Allow drying time between coats as recommended by the manufacturer.
- III. Apply additional coats when undercoats, stains, or other conditions show through final coat until paint film is of uniform finish, color, and appearance. Surfaces, including edges, corners, crevices, welds, and exposed fasteners shall receive minimum dry film thickness equivalent to that of flat surfaces.
- JJJ. Block Fillers: Apply block fillers to concrete masonry units at rate to provide complete coverage with pores filled.

KKK. Prime Coats: Before application of finish coats, apply a prime coat of material as scheduled or as recommended by manufacturer to material scheduled to be painted or finished that has not been shop primed. Recoat primed and sealed surfaces where evidence of suction spots or unsealed areas in first coat appears, to assure a finish coat with no burn through or other defects due to insufficient sealing.

LLL. Pigmented (Opaque) Finishes: Completely cover to provide an opaque, smooth surface of uniform finish, color, appearance and coverage. Cloudiness, spotting, laps, brush marks, runs, sags or other surface imperfections will not be acceptable.

3.4 MECHANICAL AND ELECTRICAL EQUIPMENT

MMM. Replace identification markings on mechanical or electrical equipment when painted over or spattered.

NNN. Paint exposed piping, conduit, and electrical equipment occurring in finished areas where it will be exposed to the public. Color and texture shall match adjacent surfaces.

OOO. Paint both sides and edges of plywood backboards for electrical equipment prior to installation.

PPP. Prepaint Gas piping prior to installation. Touch up paint after installation. Colors shall be as follows:

1. Exterior Piping on Roof (Yellow): P5, OSHA Standard "Safety Yellow".
2. Interior Piping in Receiving and Stockroom Areas (Yellow): P5, OSHA Standard "Safety Yellow".
3. Piping in all Other Areas: Color to match adjacent surfaces.

3.5 APPLICATION OF ELASTOMERIC COATINGS

QQQ. General:

1. Concrete masonry unit walls shall have been installed at least 21 days prior to elastomeric coating application.
2. Begin system application at rear of building and work toward front. Begin system application at top of wall and work down. Begin application of system in the presence of Manufacturer's Technical Representative.
3. Do not paint sealants. Paint wall prior to sealant application in building joints. Protect joints to be sealed by inserting calking backer rods at face of wall.
4. Apply coatings in accordance with manufacturer's recommendations.
5. Apply cold weather coatings at surface and ambient temperatures at or above manufacturer's recommended application temperatures and rising.

RRR. Application:

6. Primer:
 - a. Apply primer to masonry surfaces when and as recommended by the manufacturer as a part of the elastomeric system. Provide written documentation from manufacturer if primer coat is or is not required.
7. Block Filler:
 - b. Apply using brush, roller, or spray unless recommended by manufacturer to use brush only. For spray application, use airless equipment and back roll material into voids of substrate.
 - c. Comply with manufacturer's published instructions for application rate appropriate for profile, texture, and porosity of substrate.
8. Coating:
 - d. Allow block filler to dry 24 to 48 hours before proceeding with subsequent coating.
 - e. Apply material by brush, roller, plaster type sprayer, or low pressure sprayer unless recommended by manufacturer to use brush only. Back roll brushed or sprayed material. Cross roll roller-applied material. Finish material with brush and roller strokes in one direction. For spray application, use airless equipment.
 - f. Apply two coats with a minimum dry film thickness (DFT) as specified in the Painting Schedule.
 - g. Provide pinhole free finish coat.
 - h. Match color and sheen of approved elastomeric coating field samples.

SSS. Apply the scheduled accent coating system to exterior CMU surfaces designated to receive the following accent colors as applicable.

9. Colors:

- a. P3 - Nobility Blue.
- b. P4 - Theater Red.
- c. P6 - Honorable Blue.
- d. P13 - Shamrock.
- e. P21 - Safety Red.

10. Apply the accent coating over block filler and the elastomeric coating specified. Apply elastomeric in number of coats necessary to attain a minimum of 10 mil total DFT or thickness as required to meet manufacturer's warranty.

3.6 FIELD QUALITY CONTROL

TTT. Inspect painting and coating application for scheduled material, color, sheen, specified thickness (DFT), and coverage.

UUU. Elastomeric Coatings:

1. Maintain schedule of application of system in field office for Owner's review.
2. Manufacturer's Representative Inspection: At completion of application, obtain Manufacturer's Representative (must be same individual present at pre-construction conference) inspection of application and color. Compare application with sample panel. Provide Manufacturer's Representative Report of deficiencies to Contractor and Wal-Mart Construction Manager.

VVV. Remove, refinish or repaint work rejected by Wal-Mart Construction Manager.

3.7 CLEANING

WWW. As work proceeds and upon completion, promptly remove paint where spilled, splashed, or spattered.

XXX. During progress of work keep premises free from unnecessary accumulation of tools, equipment, surplus materials, and debris.

YYY. Collect waste, cloths, and material which may constitute a fire hazard, place in closed metal containers, and remove daily from site.

ZZZ. Upon completion of work, leave premises neat and clean.

3.8 PROTECTION

AAAA. Protect other surfaces from paint and damage. Repair damage as a result of inadequate or unsuitable protection.

3.9 PAINT COLOR SCHEDULE

BBBB. Provide following colors as applicable as shown or scheduled on the drawings.

Mark	Generic Color	Specific Color (Match color specified)
P1	Light Gray	Sherwin Williams #SW 1234 "Evening Shadow"
P2	Dark Gray	Sherwin Williams #SW 7664 "Steely Gray"
P3	Blue	Sherwin Williams #SW 1504 "Nobility Blue", OR Sherwin Williams #SW 6510 "Loyal Blue"
P4	Red	Sherwin Williams #SW 1602 "Theater Red"
P5	Safety Yellow	OSHA Standard "Safety Yellow"

Mark	Generic Color	Specific Color (Match color specified)
P6	Blue	Sherwin Williams #SW 6811 "Honorable Blue"
P7	White	Pittsburgh Paints #2537 "Blossom White"
P8	White	Sherwin Williams #SW 7005 "Pure White"
P9	White	Sherwin Williams #SW 7042 "Shoji White". Apply over textured coating specified in Section 09250
P10	Dark Brown	Sherwin Williams #SW 6061 "Tan Bark"
P11	Caramel	Sherwin Williams #SW 6115 "Totally Tan"
P12	Beige	Sherwin Williams #SW 6112 "Biscuit"
P13	Dark Green	Sherwin Williams #SW 6454 "Shamrock"
P14	Yellow	Sherwin Williams #SW 6677 "Goldenrod"
P15	Not used.	
P16	Gray	Sherwin Williams #SW 7074 "Software"
P17	Tan	Sherwin Williams #SW 7689 "Row House Tan"
P18	Yellow	Sherwin Williams #SW 7068 "Grizzle Gray"
P19	Lt. Brown	Sherwin Williams #SW 6094 "Sensational Sand"
P20	Tan	Sherwin Williams #SW 7036 "Accessible Beige"
P21	Red	Sherwin Williams "Safety Red". Shop coated doors and storefronts shall be coated with color P21 specified in the respective Division 8 sections.
P22	Blue	Pantone Color System PMS 286C.
P23	White	Sherwin Williams #SW 1954 "White Orchid."
P24	Dark Gray	Sherwin Williams #SW 2819 "Downing Slate"
P25	Brown	Sherwin Williams #SW 0045 "Antiquarian Brown"
P26	Beige	Sherwin Williams #SW 6080 "Utterly Beige"
P27	Dk. Brown	Sherwin Williams #SW 6103 "Tea Chest"
P28	Brown	Sherwin Williams #SW 6124 "Cardboard"
P29	Lt. Green	Sherwin Williams #SW 6420 Queen Anne's Lace"
P30	Light Beige	Sherwin Williams #SW 2018 "Pink Beige"
P31	Dark Beige	Sherwin Williams #SW 2016 "Canberra".
P32	Cream	Sherwin Williams #SW 6387 "Compatible Cream"
P33	White	Sherwin Williams #SW 6385 "Dover White"
P34	Light Blue	Sherwin Williams #SW 6519 "Hinting Blue."
P35	Lt. Gray	Sherwin Williams #SW 7071 "Gray Screen"
P36	Black	Sherwin Williams #SW 6989 "Domino"
P37	White	Sherwin Williams #SW 0046 "White Hyacinth"
P38	Dark Tan	Sherwin Williams #SW6102 "Portabello"
P39	Light Tan	Sherwin Williams #SW6122 "Camelback"
P40	Gardenia	Sherwin Williams #SW 6665 "Gardenia"
P41	Beige	Sherwin Williams #SW 6100 "Practical Beige"
P42	Ivory	Sherwin Williams #SW 6372 "Inviting Ivory"
P43	Yellow	Sherwin Williams #SW 6667 "Afterglow"
P44	Yellow	Sherwin Williams #SW 6666 "Enjoyable Yellow"
P45	Dark Yellow	Sherwin Williams #SW 0044 "Hubbard Squash"
P46	White	Sherwin Williams #SW 7006 "Extra White"
P47	Ivory	Sherwin Williams #SW 0051 "Classic Ivory"
P48	Light Tan	Sherwin Williams #SW 7722 "Travertine"
P49	Gray	Sherwin Williams #SW 7019 "Gauntlet Grey"
P50	Gold	Sherwin Williams #SW 6382 "Ceremonial Gold"
P51	Orange	Sherwin Williams #SW 6662 "Summer Day"
P52	Dk. Red	Sherwin Williams #SW 6334 "Flower Pot"
P53	Med. Blue	Sherwin Williams #SW 6810 "Lupine"
P54	Med. Green	Sherwin Williams #SW 6432 "Garden Spot"
P55	Purple	Sherwin Williams #SW 6285 "Grape Harvest"

Mark	Generic Color	Specific Color (Match color specified)
P56	Lt. Blue	Sherwin Williams #SW 6500 "Open Seas"
P57	Dk. Gray	Sherwin Williams #SW 2848 "Roycroft Pewter"
P58	Not used.	
P59	Light Gray	Sherwin Williams #SW 0077 "Classic French Gray"
P60	Brick	Sherwin Williams #SW 6053 "Reddened Earth"
P61	Med. Tan	Sherwin Williams #SW 6079 "Diverse Beige"
P62	Gray	Sherwin Williams #SW 6172 "Hardware".
P63	Light Beige	Sherwin Williams #SW 2340 "Buff"
P64	Light Clay	Sherwin Williams #SW 6332 "Coral Island"
P65	Off White	Sherwin Williams #SW 6378 "Crisp Linen"
P66	Light Beige	Sherwin Williams #SW 6085 "Simplify Beige"
P67	Beige	Sherwin Williams #SW 6114 "Bagel"
P68	Light Tan	Sherwin Williams #SW 6113 "Interactive Cream"
P69	Dark Clay	Sherwin Williams #SW 6340 "Baked Clay".
P70	Dark Brown	Sherwin Williams #SW 2838 "Polished Mahogany"
P71	Gray	Sherwin Williams #SW 7051 "Analytical Gray".
P72	White	Sherwin Williams #SW 6658 "Welcome White".
P73	Green	Sherwin Williams #SW 6214 "Underseas"
P74	Cream	Sherwin Williams #SW 6659 "Captivating Cream"
P75	Dark Red	Sherwin Williams #SW 2804 "Renwick Rose Beige"
P76	Blue	Sherwin Williams 076 Medium Wal-Mart Blue
P77	Tan	Sherwin Williams #SW 6087 "Trusty Tan"
P78	White	Sherwin Williams #SW 2445 "Creamy White"
P79	Light Tan	Sherwin Williams #SW 6359 "Sociable"
P80	Dark Brown	Sherwin Williams #SW 6060 "Moroccan Brown"
P81	Not Used	
P82	Medium Gold	Sherwin Williams SW# 7679 "Golden Gate"
P83	Medium Brown	Sherwin Williams SW# 6082 "Cobble Brown"
P84	Not Used	
P85	Dark Sand	Sherwin Williams SW# 7519 "Mexican Sand"
P86	Light Sand	Sherwin Williams SW# 7687 "August Moon"
P87	Medium Brown	Sherwin Williams SW# 2807 "Rookwood Medium Brown"
P88	Medium Orange	Sherwin Williams SW# 2823 "Rookwood Clay"
P89	Dark Brown	Sherwin Williams SW# 6062 "Rugged Brown "
P90	Medium Beige	Sherwin Williams SW# 7502 "Dry Dock"
P91	Medium Beige	Sherwin Williams SW# 7513 "Sanderling"
P92	Medium Sand	Sherwin Williams SW# 7536 "Bittersweet Stem"
P93	Medium Sand	Sherwin Williams SW# 7538 "Tamarind"
P94	Medium Tan	Sherwin Williams SW# 7694 "Exterior Dromedary Camel"
P95	Dark Clay	Sherwin Williams SW# 7702 "Spiced Cider"
P96	Medium Tan	Sherwin Williams SW# 7705 "Wheat Penny "
P97	Dark Clay	Sherwin Williams SW# 7710 "Brandy Wine"
P98	Medium Tan	Sherwin Williams SW# 7718 "Oak Creek"
P99	Light Tan	Sherwin Williams SW# 7722 "Travertine"
P100	Light Blue	Sherwin Williams SW#6521 "Notable Hue"
P101	Yellow	Sherwin Williams SW#6904 "Gusto Gold"
P102	Medium Tan	Sherwin Williams SW #7539 "Cork Wedge"
P103	Tan	Sherwin Williams SW #6095 "Toasty"

3.10 PAINT SHEEN SCHEDULE

CCCC.

Gloss:

1. Exterior metal surfaces.
2. Exterior hollow metal doors and frames (inside and outside surfaces).
3. Roof hatch (inside and outside surfaces).
4. Interior & exterior pipe bollards shown to be painted.
5. Interior & exterior metal railings.
6. Metal stair stringers and handrails.
7. Metal fixed ladders and cages.
8. CMU accent colors.
9. Exterior composite overhead sectional door surface if shown to be painted.
10. Automotive Center surfaces including Service Area, Toilet, Office, Security, Waiting, Customer Service, and Storage Areas (below 8 ft above finish floor).

DDDD.

Semigloss:

11. Interior hollow metal doors and frames.
12. Interior hollow metal window frames.
13. Wood trim or simulated wood trim scheduled to be painted.
14. Coiling metal counter doors, except aluminum coiling counter shutters at Pharmacy.
15. Toilet gypsum board ceilings.
16. Pharmacy including front wall on sales floor side.
17. Interior columns surfaces to receive epoxy finish.

EEEE. Eggshell:

18. All surfaces to be painted where a sheen is not otherwise specified.

FFFF. Flat:

19. Exterior Insulation and Finish System.
20. Exterior gypsum board ceilings.

3.11 ITEMS TO BE PAINTED SCHEDULE

GGGG.

Paint surfaces as shown or scheduled on the drawings including, but

not limited to, the following items.

1. Exterior: Paint existing exterior surfaces and new exterior surfaces as shown and noted on the Drawings, including, but not limited to:
 - a. Hollow metal doors and frames.
 - b. Metal opening frames and trim.
 - c. Metal flashing and downspout (surfaces exposed from ground level).
 - d. Metal gutters (surfaces exposed to view from ground level).
 - e. Metal fascias (vertical face).
 - f. Top of metal parapet cap where exposed to view from ground level.
 - g. Parapet walls, roof side (where roofing does not occur).
 - h. Pipe bollards where shown to be painted.
 - i. Metal railings.
 - j. Roof hatch.
 - k. Shop primed metal canopies and canopy supporting steel structure.
 - l. Overhead doors if shown.
 - m. Concrete masonry unit.
 - n. Masonry accent stripes.
 - o. Paving graphics and markings.
 - p. Exposed piping and conduit, hangers and supports.

2. Interior: Paint existing and new interior surfaces as indicated on the Drawings including, but not limited to:
 - q. Hollow metal doors and frames.
 - r. Hollow metal window frames.
 - s. Overhead coiling doors.
 - t. Metal opening frames and trim.
 - u. Gypsum wallboard.
 - v. Exposed concrete unit masonry.
 - w. Pipe bollards shown to be painted.
 - x. Metal railings.
 - y. Exposed plywood.
 - z. Plywood wainscot, if shown to be painted.
 - aa. Exposed mechanical ductwork, hangers and supports (if exposed structure is scheduled to be painted).
 - bb. Exposed piping and conduit, hangers and supports (if exposed structure is scheduled to be painted).
 - cc. Exposed fire protection piping, hangers and supports (if exposed structure is scheduled to be painted).
 - dd. Exposed overhead structure including joists, girders, bridging, miscellaneous metal fabrications and deck (if scheduled to be painted).
 - ee. Exposed structure columns.
 - ff. Floor striping, graphics, and markings as shown or noted.
 - gg. Metal stair stringers and handrails.
 - hh. Exposed wood trim.

HHHH.

Do not paint the following Items:

3. Aluminum, brass, bronze, stainless steel, and chrome plated steel.
4. Pre-finished items, such as toilet compartments, acoustical ceiling materials, mechanical, and electrical equipment or factory finished metal panels and trim.
5. UL, FM, and other code-required labels.
6. Equipment identification, performance rating, and name plates.
7. Finish hardware.
8. Fire Suppression sprinklers.

3.12 PAINTING SCHEDULE

III. Apply paint to the substrate surface scheduled as applicable as specified or as shown on the drawings in accordance with the following:

EXTERIOR PAINTING SCHEDULE							
Surface	Sheen	1st Coat	DFT (mils)	VOC (g/l)	2nd and 3rd Coats	DFT (mils)	VOC (g/l)
Ferrous Metal	Gloss	<u>Pro Industrial ProCryl Universal Primer B66-310</u>	3.0	100	2 Coats: <u>Pro Industrial Zero VOC Enamel, B66-600 Series</u>	4.0	0
Ferrous Metal Over factory painted surface (signage at Auto Center Overhead Door)	Gloss	<u>Pro Industrial Zero VOC Enamel, B66-600 Series</u>	4.0	0	1 Coat: <u>Pro Industrial Zero VOC Enamel, B66-600 Series</u>	4.0	0
Ferrous Metal (Existing roof mounted equip framing to remain)	Gloss	<u>Epolon II Rust Inhibitive Epoxy Primer B67W400, B67A400, B67A400</u>	5.0	300	2 Coats: <u>Epolon II Multi-Mil Water Based Epoxy Finish, B62V800</u>	6.0	280
Prefinished Metal Trim	Low Sheen	<u>Bond-Plex Waterbased Acrylic B71-200 Series</u>	4.0	48	2 Coats: <u>Bond-Plex Waterbased Acrylic B71-200 Series</u>	4.0	48

EXTERIOR PAINTING SCHEDULE							
(If shown to be repainted)							
Galvanized Trim	Semi-gloss	<u>Pro Industrial ProCryl Universal Primer B66-310</u>	3.0	100	2 Coats: Pro Industrial Zero VOC Enamel, B66-600 Series	4.0	0
Nonferrous and Galvanized Metal	Semi-gloss	<u>Pro Industrial ProCryl Universal Primer B66-310</u>	3.0	100	2 Coats: Pro Industrial Zero VOC Enamel, B66-600 Series	4.0	0
Concrete Masonry Unit New Construction Elastomeric (50 degrees F or above)	Flat	<u>Heavy Duty Block Filler B42W46</u>	18.0	100	2 Coats: Conflex XL High Build Elastomeric, A5-400	11	93
Concrete Masonry Unit New Construction Elastomeric (Below 50 degrees F)	Flat	<u>Loxon Block Surfacers, A24W200</u> (Above 35°F).	8.0	81	2 Coats: UltraCrete Solvent Borne Masonry Coating, B46 Series (Above 20° F)	16	400
Concrete Masonry Unit Existing Construction Elastomeric (50 degrees F or above)	Flat	<u>Loxon Block Surfacers, A24W200</u> (After power washing). Apply surfacer as recommended by paint manufacturer	8.0	81	1 Coat: Conflex XL High Build Elastomeric, A5-400	11	93
Concrete Masonry Unit Existing Construction Elastomeric (Below 50 degrees F)	Flat	<u>Loxon Block Surfacers, A24W200</u> (Above 35°F). (After power washing). Apply surfacer as recommended by paint manufacturer	8.0	81	1 Coat: UltraCrete Solvent Borne Masonry Coating, B46 Series (Above 20° F)	16	400
Concrete Masonry Unit Existing Construction Acrylic	Flat	<u>Loxon Block Surfacers, A24W200</u> (After power washing). Apply surfacer as recommended by paint manufacturer	8.0	81	1 Coat: A-100 Exterior Latex Finish, A6-100 Series	1.3	49
Concrete Masonry Unit (Accent Coating)	Gloss	<u>Pro Industrial Zero VOC Enamel, B66-600 Series</u> (Apply to Elastomeric)	4.0	0			
Exterior Insulation and Finish System	Flat	<u>A-100 Exterior Latex Finish, A6-100 Series</u>	1.3	49	1 Coat: A-100 Exterior Latex Finish, A6-100 Series	1.3	49
Fiber Cement Siding	Flat	<u>Loxon Exterior Acrylic Masonry Primer, A24W300</u>	3.2	97	2 Coats: A-100 Exterior Latex Finish, A6-100 Series	1.3	49
Exposed Timber, Purlins, Plywood, Wood	Semi-Transparent Stain	<u>WoodScapes Polyurethane Stain A15T5</u>	1.3	79	1 Coat: WoodScapes Polyurethane Stain A15T5	1.3	79
Exposed Timber, Purlins	Opaque Stain	<u>Acristain Exterior Latex Stain CK6688-051 series</u>	1.7	96	1 Coat: Acristain Exterior Latex Stain CK6688-051 series	1.7	96

EXTERIOR PAINTING SCHEDULE							
lins, Ply-wood, Wood							
Gypsum Board (Ceiling)	Flat	<u>A-100 Exterior Latex Primer, B42W43</u>	1.4	87	2 Coats: A-100 Exterior Latex Finish, A6-100 Series	1.3	49
Concrete Pavement	Egg-shell	<u>Setfast Acrylic Waterborne Traffic Marking Paint, TM 226/227</u>	8.5	100	1 Coat: Setfast Acrylic Waterborne Traffic Marking Paint, TM 226/227	8.5	100

INTERIOR PAINTING SCHEDULE							
Surface	Sheen	1st Coat	DFT (mils)	VOC (g/l)	2nd and 3rd Coats	DFT (mils)	VOC (g/l)
Ferrous Metal (Except as otherwise scheduled)	Gloss	Pro Industrial ProCryl Universal Primer B66-310	2	100	2 Coats: Pro Mar 200 Interior Latex Gloss Enamel, B21W200	1.5	143
Ferrous Metal (Except as otherwise specified)	Semi-gloss	ProCryl Universal Primer B66-310	2	100	2 coats Pro Green 200 Interior Latex Semi-Gloss Enamel, B31-600 Series	1.6	47
Ferrous Metal (Dryfall system over shop primed steel - overhead structure)	Egg-shell	Waterborne Acrylic Dryfall, B42 Series Touch up prime welds, bare spots, blemishes, and scratches with Pro Industrial ProCryl Universal Primer B66-310	4.5	58			
Ferrous Metal (Dryfall system over unprimed steel - overhead structure)	Egg-shell	Pro Industrial ProCryl Universal Primer B66-310	2	100	1 coat: Waterborne Acrylic Dryfall, B42 Series	4.5	58
Ferrous Metal (Columns and Hollow Metal Door Frames as shown on Drawings to receive epoxy)	Semi-gloss	Epolon II Rust Inhibitive Epoxy Primer B67W400, B67A400, B67A400	5.0	300	1 coat: Epolon II Multi-Mil Water Based Epoxy Finish, B62V800	6.0	280
Galvanized Metal (Exposed Ductwork)	Semi-gloss	Pro Industrial ProCryl Universal Primer B66-310	2	100	2 coats Pro Green 200 Interior Latex Semi-Gloss Enamel, B31-600 Series	1.6	47
Concrete Masonry Unit (New Construction)	Gloss	PrepRite Block Filler, B25W25	8.0	45	2 Coats: Pro Mar 200 Interior Latex Gloss Enamel, B21W200	1.5	143
Concrete Masonry Unit (Previously Painted)	Gloss	Pro Green 200 Latex Primer, B28W600	1.5	43	2 Coats: Pro Mar 200 Interior Latex Gloss Enamel, B21W200	1.5	143
Concrete Masonry Unit (New Construction)	Egg-shell	PrepRite Block Filler, B25W25	8.0	45	2 Coats: Pro Mar 200 Interior Latex Eggshell, B20-600 Series	1.5	143
Concrete Masonry Unit (Previously Painted)	Egg-shell	Pro Green 200 Latex Primer, B28W600	1.5	43	2 Coats: Pro Mar 200 Interior Latex Eggshell, B20-600 Series	1.5	143

INTERIOR PAINTING SCHEDULE							
Gypsum Board	Gloss	Pro Green 200 Latex Primer, B28W600	1.5	43	2 Coats: Pro Mar 200 Interior Latex Gloss Enamel, B21W200	1.5	143
Gypsum Board	Semi-gloss	Pro Green 200 Latex Primer, B28W600	1.5	43	2 Coats: Pro Green 200 Interior Latex Semi-Gloss Enamel, B31-600 Series	1.6	47
Gypsum Board	Egg-shell	Pro Green 200 Latex Primer, B28W600	1.5	43	2 Coats: Pro Green 200 Interior Latex Eggshell Enamel, B20-600 Series	1.7	41
Wood	Semi-gloss	Pro Green 200 Latex Primer, B28W600	1.5	43	2 Coats: Pro Green 200 Interior Latex Semi-Gloss Enamel, B31-600 Series	1.6	47
Wood (Exposed laminated wood roof structure)	Semi-gloss	PrepRite ProBlock Interior/Exterior Latex Primer Sealer B51 Series	1.4	97	2 Coats: Pro Green 200 Interior Latex Semi-Gloss Enamel, B31-600 Series	1.6	47
Wood (Transparent sealer)		Wood Classics Varnish Sanding Sealer, B26V43	1.2	522			
Concrete Floors	Egg-shell	Floor & Porch Enamel, A32-100	1.4	50	2 Coats: Floor & Porch Enamel, A32-100	1.4	50

3.13 WAL-MART FURNISHED COATINGS QUANTITY SCHEDULE

Sherwin Williams Coating Product Number	Product Description	Gallons Provided by Wal-Mart
EXTERIOR		
A6-100 Series	A-100 Exterior Latex Finish	

Sherwin Williams Coating Product Number	Product Description	Gallons Provided by Wal-Mart
EXTERIOR		
A5-400	Conflex XL High Build Elastomeric	
OR		
B46 Series	UltraCrete Solvent Borne Masonry Coating (Below 50 F)	

JJJJ. Elastomeric coating and block filler specified above for indicated “New Construction” shall be furnished by the General Contractor.

Sherwin Williams Coating Product Number	Product Description	Gallons Provided by Wal-Mart
INTERIOR		
B20-600	Pro Green 200 Interior Latex Eggshell Enamel,	255
B21W200	Pro Mar 200 Interior Latex Gloss Enamel	20
B28W600	Pro Green 200 Latex Primer	145
B31-600	Pro Green 200 Interior Latex Semi-Gloss Enamel	20

END OF SECTION

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Application for Limited Warranty (Elastomeric Coatings)

(To be completed by paint contractor)

Wal-Mart Store _____ Supercenter _____ Sam's Club _____ Neighborhood Market _____ Store # _____ Prototype _____
Store Address: _____
City _____ State _____ Zip _____
Paint Contractor _____
Paint Contractor's Address _____
City _____ State _____ Zip _____
Phone No. _____ Fax No. _____
Paint Contractor Contact _____
General Contractor _____
General Contractor Contact _____ Job Site Phone _____

SURFACE PREPARATION: (Completed by Manufacturer & applicator prior to coating)

Substrate construction (Concrete Block, Tilt-up Concrete, Metal) _____

Date job started _____ Weather conditions _____

Did another contractor clean the substrate? Yes _____ No _____ Explain _____

Was substrate in acceptable condition prior to your coating application? Yes _____ No _____
If no, attach documentation with explanation.

Were all surfaces approved for application of coating? _____
(Painting contractor) Date _____
(Manufacturer) Date _____

PRIMER/BLOCK FILLER

List product used _____ Manufacturer _____
Total square feet (wall) _____ Gallons used _____
Date completed _____ Applicator's initials _____

WATERPROOF COATING SYSTEM:

Coating system _____ Manufacturer _____
Manufacturer's representative _____ Phone No. _____
Purchased from _____ Address _____
City _____ State _____
Phone No. _____ Contact _____

APPLICATION:

Number of finish coats _____ Procedure (Spray/back roll, etc.) _____
Note mils Dry Film Thickness (DFT) required per each coat of finish. _____
Date application started _____ Weather conditions _____

List wall surface area in square footage (per each color):

Color: _____ square feet: _____
Color: _____ square feet: _____
Color: _____ square feet: _____

Total gallons applied (per each color):

Color: _____ gallons: _____
Color: _____ gallons: _____
Color: _____ gallons: _____

Accent stripes:

Color: _____ square feet: _____ gallons: _____

Color: _____ square feet: _____ gallons: _____

Applicator acknowledges completion of work related to the surface preparation and application of the elastomeric coating system.

Date job completed: _____ Applicators Signature: _____

This Application for Limited Warranty will not be accepted unless complete information is provided. Any deceptive information contained in this application for Limited Warranty is grounds for voiding the Limited Warranty.

Upon completion of this application form, submit to the corporate office of the coating system manufacturer for processing. When approved, the manufacturer will submit a 10-year Limited Warranty Certificate to be included in the closeout documents specified in Specifications Section 01770.

END OF FORM

SECTION 10160 – METAL TOILET COMPARTMENTS

PART 1 - GENERAL

1.1 SUMMARY

- A. Work Includes:
 - 1. Stainless steel toilet compartments and screens, floor mounted, head rail braced.
- B. Related Sections:
 - 1. Section 06100 - Rough Carpentry: Framing and plates within walls.
 - 2. Section 10810 - Toilet Accessories: Coordinate compartment installation with subsequent accessory installation.

1.2 REFERENCES

- A. American National Standards Institute (ANSI): ANSI A117.1 - Specification for Making Buildings and Facilities Accessible To and Usable by Physically Handicapped People.
- B. Americans with Disabilities Act (ADA), ADA-ADAAGS - 1990 Accessibility Guidelines for Buildings and Facilities.
- C. State and local disabled accessibility requirements and guidelines.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Subject to compliance with project requirements, provide stainless steel toilet compartments and screens, as manufactured by the following:
 - 1. Mills Partitions (A Subsidiary of Bradley).
 - 2. Accurate Partitions Corp.
 - 3. Flush Metal Partition Corp.
 - 4. Global Steel Products, Deer Park, NY.
- B. Products of named manufacturers shall strictly comply with all material and fabrication provisions specified below.

2.2 PRODUCT PROCUREMENT

- A. Items specified herein shall be purchased by the General Contractor direct from a pre-negotiated supplier. Reference Section 01600 for additional information regarding Direct Purchase Products. Pre-negotiated supplier shall be as follows:
 - 1. Contact: Customer Service; **Haines, Jones & Cadbury**, Inc. (800) 459-7099.

2.3 METAL TOILET PARTITIONS

- A. Stainless Steel Compartments and Screens: Provide the following:
 - 1. Model:
 - a. Sentinel Overhead Braced - Series 400 by Mills.
 - b. Stainless Steel by Accurate Partitions.
 - c. Stainless Steel by Flush Metal.
 - d. Stainless Steel by Global Steel Products.

2. Panels: Form panels as two-piece interlocking unit with corners brazed and finished smooth. Panel face shall be stainless steel 304, insulated honeycomb core adhered to inner surfaces with moisture resistant adhesive.
 - a. Side Panels and Doors: 22 gauge sheet steel, 1 inch thick composite panel.
 - b. Pilasters: Min 22 gauge sheet steel, 1-1/4 inch thick composite panel.
 3. Finish: Textured "diamond" pattern similar to Rigidized 5WL. Pattern in panels shall be without seams.
- B. Urinal Screens: Wall hung type, 24" x 42" to match toilet compartments.
- C. Pilaster Shoes: 3 inches high; one-piece stainless steel.
- D. Headrail: Extruded clear anodized type 6463T5 aluminum channel; anti-grip design.
- E. Wall and Side Panel Mounting Brackets: 18 gauge stainless steel #4 finish. Brackets shall be one piece continuous roll-formed shape, pre-punched and free of sharp edges. Resistance and/or spot welded brackets will not be acceptable.
- F. Join panel and pilaster with full length continuous stainless steel bracket to eliminate sight between stalls.
- G. Hardware:
 1. Hinge: Cast stainless steel, wrap-around and through-bolted.
 2. Latch: Cast stainless steel service mounted slide latch, thru-bolted. Strike keeper shall be wrap-around type, thru-bolted.
 3. Coat Hook and Wall Bumper: Cast stainless steel with rubber bumper.
 4. Pull Handle: Cast stainless steel, through-bolted to door.
- H. Screws/Fasteners: Tamper proof, stainless steel, 6-Lobe/Pin sex bolts.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Take site dimensions prior to fabrication of any items. Verify correct spacing of plumbing fixtures.
- B. Verify correct location of built-in framing, anchorage, and bracing.

3.2 INSTALLATION

- A. Install partitions secure, rigid, plumb, level, and square. Secure units in position with manufacturer's anchoring devices and in accordance with manufacturer's instructions.
 1. Provide for adjustment due to minor floor variations.
 2. Install adjacent components for consistency of line and plane.
- B. Maintain 1/2 inch space between wall and panels, and between wall and pilasters.
- C. Attach panels and pilasters to bracket with through sleeve, tamperproof bolts, and nuts. Locate head rail joints at pilaster centerlines.
- D. Anchor urinal screen panels to walls with brackets in accordance with manufacturer's instructions to suit supporting wall construction.
- E. Attach panel brackets securely to walls using anchor devices.
- F. Conceal floor fastenings with pilaster shoes.
- G. Equip each door with hinges, one door latch and one coat hook and bumper. Align hardware to uniform clearance at vertical edges of doors, not exceeding 1/4 inch.

3.3 ADJUSTING

- A. In Swinging Doors: Adjust hinges to hold doors in partially open position when unlatched.
- B. Out Swinging Doors: Adjust hinges to gently return doors to closed position.

3.4 CLEANING

- A. Protection and Cleaning of Stainless Steel Toilet Compartments and Screens Prior to Possession:
 - 1. Remove protective plastic coating from stainless steel partitions. Remove any residue from the plastic coating with mild soap and water.
 - 2. Caution: Muriatic acid or other caustic chemicals shall not be used to clean stainless steel products. Muriatic acid for cleaning masonry or similar hydrochloric acid type cleaners must immediately be neutralized and scrubbed off with clean water if splashed, sprayed, spilled or otherwise in contact with a stainless steel component.
 - 3. Immediately prior to possession, clean stainless steel toilet compartments and screens thoroughly using soap, ammonia, or mild detergent and water. Apply with sponge or soft cloth, rinse with clear water and wipe dry. Always rub in the direction of polish lines. Rinse thoroughly with fresh water after every cleaning operation. Clean and polish toilet partitions to a spotless luster. Wipe dry to avoid water marks.

END OF SECTION

SECTION 10200 – VENTS AND LOUVERS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Soffit vents.

1.2 SUBMITTALS

- A. Comply with Section 01300 - Submittal Procedures.
- B. Product Data: Submit Manufacturer's product data and performance data.
- C. Shop Drawings: Indicate materials, construction, dimensions, accessories and installation details.

1.3 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to site in manufacturer's original, unopened containers and packaging with labels clearly indicating manufacturer and material.
- B. Store materials in a dry area, protected from damage, in accordance with manufacturer's instructions.
- C. Protect materials and finishes during handling and installation.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Provide products by one of the following manufacturers as specified:
 - 1. Fry Reglet, (800) 237-9773.

2.2 SOFFIT VENTS

- A. Exterior Gypsum Soffit Vent: Clear anodized aluminum vented soffit molding, Model DCS-625-V-600, as manufactured by Fry Reglet or equal.
- B. Exterior EIFS Soffit Vent: Clear anodized aluminum vented soffit molding, PCS-150-V-150 as manufactured by Fry Reglet or equal.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Inspect areas to receive vents or louvers. Do not proceed, if unsatisfactory conditions exist that will not allow for a complete and proper installation. Proceed upon correction.

3.2 INSTALLATION

- A. Locations, size, and shape of vents or louvers as indicated on the Drawings.
- B. Install in accordance with manufacturer's instructions. Provide appurtenances required for a complete and proper installation.

- C. Install plumb, level, flush, and in alignment with adjacent work.

3.3 CLEANING

- A. Remove temporary coverings and protection of adjacent work areas.
- B. Clean exposed surfaces that are not protected by temporary covering, to remove fingerprints and soil during construction period. Do not let soil accumulate until final cleaning.
- C. Before final inspection, clean exposed surfaces with water and a mild soap or detergent not harmful to finishes. Thoroughly rinse surfaces and dry.
- D. Restore items damaged during installation and construction so no evidence remains of corrective work. If results of restoration are unsuccessful as determined by Architect, remove damaged units and replace with new units. Touch up minor abrasions in finishes with air-dried coating that matches color and gloss of, and is compatible with, factory-applied finish coating.

END OF SECTION

SECTION 10260 – WALL AND CORNER GUARDS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Surface applied Corner Guards.
 - 2. Wall Guards.
- B. Related Sections:
 - 1. Section 09310 - Ceramic Tile: Integrally installed stainless steel corner trim associated with ceramic wall tile.

PART 2 - PRODUCTS

2.1 MANUFACTURER

- A. Provide guards by one of the following manufacturers as specified:
 - 1. American Floor Products Co., Inc. (800) 342-0424.
 - 2. IPC Door and Wall Protection Systems (800) 222-5556.
 - 3. McCue Corporation, Salem, MA. Attn: Rich Whelan (800) 800-8503 or (978) 741-8500 x268.
 - 4. Parkland Plastics Incorporated, Middlebury, IN (574) 825-4336.
 - 5. Pawling Corporation (800) 431-3456. Contact: Jennifer Killmer.

2.2 CORNER GUARDS

- A. Plastic:
 - 1. Space (CG-2145) Corner Guard, clear, 1/8-inch thick, 2-1/2 x 2-1/2 inches x 48 inches, by American Floor.
 - 2. Clear Polycarbonate Corner Guards (CGT-18), 2-1/2 inches x 2-1/2 inches x 48 inches, by Pawling.
- B. Rigid Plastic:
 - 1. Rigid Plastic Corner Guard, 1/2-inch thick, 3 x 3 inches x 32 inches, color black, by Parkland Plastics.
 - 2. Fasteners: Black flathead countersunk screws, length sufficient to penetrate substrate.
- C. Vinyl (Pharmacy):
 - 1. Electra (CG-2144) Corner Guard, 3/4 x 3/4 inches x 48 inches, by American Floor.
 - 2. Surface Mounted Corner Guard (CG-34), 3/4 x 3/4 inches x 48 inches, by Pawling.
 - 3. Color: Black.
 - 4. Contact Adhesive: One of the following:
 - a. Starstuk HM by North Star Chemicals, Cartersville, GA (770) 386-6961.
 - b. 3M Fastbond Adhesive, by 3M, St. Paul, MN (800) 362-3550.
 - c. Other similar contact adhesive that is suitable for use with high pressure laminates.
- D. Aluminum:
 - 1. Polaris (CG-2139) 90° Corner Guard, 18 gage, 2 x 2 inches x 48 inches, unless otherwise shown, by American Floor.
 - 2. Aluminum Corner Guard, 0.08 inch thick, 2 x 2 inches x 48 inches, unless otherwise shown, by Pawling.
 - a. CG-401, for 90° corners.
 - b. CG-404, for 135° corners.
 - 3. Factory pre-drilled for installation with countersunk screws.
- E. Stainless Steel:
 - 1. Lunar (CG-2143) Corner Guard, 16 gage, 1-1/2 x 1-1/2 inches x 48 inches, unless otherwise shown, by American Floor.

2. Stainless Steel Corner Guard, (CG-520), 16 gage, 1-1/2 x 1-1/2 inches x 48 inches, unless otherwise shown, by Pawling.

2.3 WALL GUARDS

- A. Plastic Wall Guards - also noted on drawings as 'WG' or 'bumper rail' (Except Pharmacy): PVC bumper on PVC mounting base, 2" high x 12 ft long x 1-3/4" projection, color black. Provide the following:
 1. CartGuard E (CGT-175) bumper with base (CGB-175), including corners and end caps as required, by McCue Corporation.
- B. Plastic Wall Guards (Pharmacy): Vinyl bumper on continuous aluminum retainer, 3" high x 12 ft long section x 1" projection, lightly pebbled or matte finish, color black or gray as shown on the drawings. Provide one of the following:
 1. WG-3 Wall Guard, by Pawling.
 - a. Black: No. 1 Black.
 - b. Gray: No 210 Silver Gray.
 2. 500 Wall Guard by IPC.
 - a. Black: No 0152 Black.
 - b. Gray: No. 0105 Silver.
- C. Accessories: End caps, outside corners, brackets, and fasteners, as recommended by wall guard manufacturer.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates and wall areas, with installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of Work.
 1. Examine walls to which wall guards will be attached for blocking, grounds, and other solid backing installed in the locations required for secure attachment of support fasteners.
 2. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Before installation, clean substrate to remove dust, debris, and loose particles.

3.3 INSTALLATION

- A. Install in accordance with manufacturer's instructions, square and plumb, secured rigidly in position.
- B. Position corner guard spaced above finished floor to allow for installation of wall base type specified or shown on Drawings. Coordinate installation of wall finishes with corner guard installation.
- C. Attach vinyl corner guard at Pharmacy using contact adhesive only.
- D. Install aluminum corner guards using stainless steel screws.

3.4 SCHEDULE

- A. Corner Guards:
 1. Locate aluminum corner guards in sales areas accessible by public at locations as shown on the drawings, unless otherwise indicated or specified to receive other type of corner guards.
 2. Locate rigid plastic corner guards at millwork at locations shown on the drawings. Attach corner guards with countersunk screw fasteners at 6 inches on center. Fill countersunk holes with plugs matching rigid plastic material.
 3. Locate stainless steel corner guards as shown on Drawings.

B. Wall Guards: Locate wall guards where shown on the drawings.

END OF SECTION

SECTION 10440 – SIGNAGE

PART 1 - GENERAL

1.1 WORK INCLUDED

- A. Exterior Fire Lane and Handicap Accessible Signs.
- B. Exterior Fire Lane Stripes.
- C. Temporary Construction and Temporary Operational Signs.
- D. Exit Door Signage.
- E. Exterior Building signs (furnished and installed by Wal-Mart Sign Department).

1.2 REFERENCES

- A. ADA - American with Disabilities Act, Title 3, ADA-ADAAGs Accessibility Guidelines.
- B. State Specific Requirements for Handicap Accessibility:
 - 1. Texas.
 - 2. Florida.
 - 3. North Carolina.
 - 4. Louisiana.
 - 5. California.

1.3 PRODUCT DELIVERY AND STORAGE

- A. Wal-Mart will deliver signage in boxes or cartons, adequately padded and protected against scratching and other damage. Label packages with listing of sign labels and locations.
- B. Store materials out of weather and protect from damage.

PART 2 - PRODUCTS

2.1 TEMPORARY CONSTRUCTION SIGNS

- A. Traffic Direction Signs:
 - 1. Minimum 6” high lettering on contrasting background. Size and location to suit job site situation and conditions.
- B. Temporary Operational Signs:
 - 1. Stenciled letters in 12” high letters (black color) on white background.
- C. Refer to Section 01500 for Temporary Construction Signs.

2.2 EXTERIOR BUILDING SIGNS

- A. Furnished and installed by Wal-Mart Sign Department.

2.3 EXTERIOR FIRE LANE STRIPE

- A. Stenciled letters "FIRE LANE" in 6" high letters (white color) on continuous red paint stripe. Space at 20'-0" o.c. or as directed by Local/State Fire Marshal.

2.4 FIRE LANE SIGN

- A. Provide pre-manufactured signage approved by Local/State Fire Marshal attached to metal posts.

2.5 ACCESSORIES

- A. Nuts, bolts, washers and adhesive necessary to install signage.

2.6 EXIT DOOR SIGNAGE

- A. Signage: When required by local authority having jurisdiction, post doors with durable, permanent signs, 1 inch high block letters of contrasting background, located on header framing, reading:
 - 1. "THESE DOORS MUST REMAIN UNLOCKED DURING BUSINESS HOURS".
 - 2. "IN EMERGENCY, PUSH TO OPEN".

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Coordinate installation of Temporary Construction Signs with the Wal-Mart Construction Manager. Install Temporary Construction Signs at locations directed by Wal-Mart Construction Manager. Attach these signs based upon function and location. Install as soon as possible after commencement of Project construction.
- B. The Contractor shall demolish or remove existing signage that interferes with the new construction. Relocate all signage obscured by any part of the new construction. Remove both wall or building mounted and site signs that are disturbed or obscured by the new construction. The Contractor must remove the total sign or phrase. Do not leave partial signs, words or phrases at any time.
- C. Removed signage that is intended to be relocated by Wal-Mart shall be stored and protected by the General Contractor until installation. The Contractor shall patch or replace surfaces damaged by removed signage. This includes all electrical conduits and boxes.
- D. Verify exact locations of new or relocated signage with Wal-Mart Construction Manager. Contractor will be responsible for repair or replacement of substrate materials damaged by improper locations of signs.
- E. Install signs and letters plumb, level, and in line and in accordance with manufacturer's recommendations.
- F. Painted Fire Lane striping shall be installed by striping painting Contractor experienced in this Work. All work shall meet Local and State Fire Marshal approval.
- G. Verify and install exterior Fire Lane signs where required and approved by Local/State Fire Marshal.
- H. Install exit door signage as required by local code and Authorities Having Jurisdiction on door head of aluminum storefront doors or centered at 5'-0" A.F.F. on solid panel hollow metal doors.
- I. All signage required for compliance shall be installed in accordance with ADA-ADAAGS and State specific handicap accessibility requirements.

3.2 CLEANING

- A. Clean and polish signs and related brackets and supports. Comply with manufacturer's recommendations.
- B. Clean any paint spillage to satisfaction of Wal-Mart Construction Manager. Refer to Section 01710.

END OF SECTION

SECTION 10810 – TOILET ACCESSORIES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes: Toilet accessories and attachment hardware.
- B. Work Installed, But Not Furnished Under This Section: Under provisions of Section 01640, Wal-Mart will furnish toilet accessories for installation by Contractor as follows:
 - 1. Soap Dispensers.
- C. Related Sections:
 - 1. Section 01600 - Product Requirements: General procedures related to products.
 - 2. Section 01640 - Owner Furnished Products: General procedures related to Owner furnished products.
 - 3. Section 06100 - Rough Carpentry: Blocking for attachment of accessories.

1.2 REFERENCES

- A. The publications below form a part of this specification to the extent referenced. Publications are referenced within the text by the basic designation only.
- B. American National Standards Institute (ANSI):
 - 1. ANSI A117.1 – Accessible and Usable Buildings and Facilities.

PART 2 - PRODUCTS

2.1 PRODUCT PROCUREMENT

- A. All Contractor provided accessory items specified herein shall be purchased by the General Contractor direct from a pre-negotiated supplier. Reference section 01600 for additional information regarding Direct Purchase Products. Pre-negotiated supplier shall be as follows:
 - 1. Haines, Jones & Cadbury, Inc. Contact: Customer Service (800) 459-7099, Fax (479) 756-8998, Email info@hjcinc.com

2.2 MANUFACTURERS

- A. Provide products from the following manufacturers as specified in the Schedule of Accessories hereinafter:
 - 1. American Specialties Co., Inc., Deer Park, NY.
 - 2. Bobrick Washroom Equipment, Inc., Jackson, TN.
 - 3. Bradley Corporation, Menomonee, WI.
 - 4. Brocar Products Inc., Cincinnati, OH.
 - 5. Excel Dryer Corporation, East Longmeadow, MA.
 - 6. Ginger, Ft. Mill, SC.
 - 7. Koala Bear Kare Corporation (A Division of Bobrick), Englewood, CO.
 - 8. Meek Manufacturing Company, Fort Smith, AR.
 - 9. World Dryer Corporation.

- B. Substitutions: Not permitted.

2.3 MATERIALS

- A. Stainless Steel: AISI Type 302/304.
- B. Mounting Devices: Hot-dip galvanized after fabrication or of same material as accessory unit.

- C. Adhesive: Epoxy type contact cement.
- D. Finishes:
 1. Chrome/Nickel Plating: Polished finish.
 2. Stainless Steel: No. 4 satin finish, unless specified otherwise.
 3. Shop Primed Ferrous Metals: Pretreat and clean, spray apply one coat primer and bake.

2.4 FABRICATION

- A. Weld and grind smooth joints of fabricated components.
- B. Form exposed surfaces from one sheet of stock, free of joints. Form surfaces flat without distortion. Maintain flat surfaces without scratches or dents.
- C. Provide steel anchor plates and anchor components for installation on building finishes. Hot-dip galvanize ferrous metal anchors and fastening devices.
- D. Back paint components where contact is made with building finishes to prevent electrolysis.
- E. Shop assemble components and package complete with anchors and fittings.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Deliver inserts and rough-in frames to jobsite at appropriate time for building-in. Use templates and rough-in measurements as required.
- B. Ensure that blocking is appropriately installed and ready to receive accessories.
- C. Rough Wall Openings: Provide rough wall opening (RWO) in compliance with ADA Accessibility Guidelines, as detailed on architectural drawings, and as described in the Schedule of Accessories.

3.2 INSTALLATION

- A. Install fixtures, accessories, and items in accordance with manufacturer's instructions and as shown on Drawings. Install accessories within toilet rooms and install soap dispensers in other areas in addition to toilet rooms where shown on the drawings. Use tamper-proof fasteners.
- B. Install true, plumb, and level, securely and rigidly anchored to wall framing.
- C. Install sealant around metal frames of mirrors and all toilet accessories abutting FRP wall panels.

3.3 SCHEDULE OF ACCESSORIES

- A. Soap Dispensers: Furnished by Wal-Mart for installation by Contractor.
- B. Sanitary Napkin Dispenser:
 1. Model No. 0468-Recessed, by American Specialties, Inc.
 - a. Finish: Stainless Steel.
 - b. Rough Wall Opening: 16" W x 26" H x 6-1/4" D.
 2. Model No. 4017, by Bradley Corporation.
 - a. Finish: Stainless Steel.
 - b. Rough Wall Opening: 12" W x 26" H x 6-1/2" D.

- C. Sanitary Napkin Disposal:
 - 1. Model No. 0473-1A, by American Specialties, Inc.
 - a. Finish: Stainless Steel.
 - 2. Model No. 4722-15, by Bradley.
 - a. Finish: Stainless Steel.

- D. Paper Towel Dispensers: Recessed Pull Core Paper Towel Cabinet and Waste Receptacle.
 - 1. Model 04693MCPTD, by American Specialties, Inc.
 - a. Rough Wall Opening: 15-3/4" W x 54-1/2" H x 10-1/4" D or 4-1/4" D depending on wall depth. Top of rough wall opening 3/4" below top of unit.
 - b. Provide collar as required for depth of wall stud.
 - 2. Model No. 236-WM as manufactured by Bradley.
 - a. Rough Wall Opening: 15-3/4" W x 54-1/2" H x 7-1/2" D.
 - b. Provide collar as required for depth of wall studs.

- E. Paper Towel Dispensers - Surface Mounted: Wal-Mart furnished and installed.

- F. Toilet Paper Dispenser:
 - 1. Model No. 5425, by Bradley Corporation.
 - 2. Model No. 0040, by American Specialties.

- G. Electric Hand Dryers - Surface Mounted: Automatic (no-touch) model.
 - 1. Model No. NT126, by World Dryer Corporation.
 - a. Color: Snow White PWHC.
 - 2. Model No. HO-IW, by Excel Dryer Corporation.
 - a. Color: White.
 - 3. Location: Provide surface mounted hand dryers where not otherwise indicated as recessed.

- H. Electric Hand Dryers: Recessed, automatic (no-touch) model.
 - 1. Model No. NR126, by World Dryer Corporation.
 - a. Color: Snow White PWHC.
 - b. Rough Wall Opening: 11-3/4" W x 12-1/2" H x 3-1/2" D.
 - 2. Model No. R76-IW, by Excel Dryer Corporation.
 - a. Color: White.
 - b. Rough Wall Opening: 10-7/8" W x 8-1/8" H x 3-1/2" D.

- I. Diaper Changing Table and Accessories:
 - 1. Changing Table: Provide one of the following.
 - a. Brocar Products, Inc.: Stainless Steel Baby Changing Station, Recessed Mount; Model 100-SSC-MCB.
 - b. Koala Bear Care: Stainless Steel Baby Changing Station Recessed Mount KB110-NLRF.
 - 2. Accessories: Provide accessories by one of the following manufacturers:
 - a. Manufacturer: Koala Bear Kare.
 - 1) Diaper Dispenser: Koala Model KB143-SS-Recessed, with KB144-99 collar. Rough Wall Opening: 12-1/2" W x 42-1/4" H x 5-1/2" D.
 - 2) Sanitary Liner Dispenser: Koala Model KB134-SSLD-Recessed. Rough Wall Opening: 7-7/8" W x 16-1/2" H x 4-1/4" D.
 - b. Manufacturer: Brocar Products Inc.
 - 1) Diaper Dispenser: Brocar Model 105-SS-SM-Recessed with 025-SS recessing flange.
 - a) Rough Wall Opening: 12-3/4" W x 42-1/4" H x 5-1/4" D.
 - c. Manufacturer: Bradley Corp.
 - 1) Sanitary Liner Dispenser: Bradley Model 2441-Recessed.
 - a) Rough Wall Opening: 11-3/8" W x 15-11/16" H x 4" D.
 - d. Manufacturer: Bradley Corp.
 - 1) Diaper Disposal: Bradley Model No. 356-35-Recessed, Stainless Steel, with push flap door.
 - a) Rough Wall Opening: 12-1/2" W x 26-1/2" H x 4" D.

- J. Toilet Seat Cover Dispensers: Surface mounted (one per each water closet), 22 gage 18-8 type 304 stainless steel, satin finish.
 - 1. Model No. 0477SM, by American Specialties.
 - 2. Model No. B221, by Bobrick.
 - 3. Model No. 583, by Bradley.
- K. Small Framed Mirrors: No. 1 quality 1/4 inch float glass electrolytically copper plated, tempered glass. Mitered stainless steel frame; concealed theft resistant wall hanger. Mirror size shall be 24 x 36 unless otherwise shown.
 - 1. Model No. M1516, by Meek.
 - 2. Model No. 781-024362, by Bradley.
- L. Child Safety Seat: Surface Mounted.
 - 1. Model No. 103-BQS, by Brocar.
- M. Coat Rack: Surface Mounted.
 - 1. Model 2810D, by Ginger (Double Coat Rack).
 - 2. Model 2810T, by Ginger (Triple Coat Rack).
 - 3. Model 2810Q, by Ginger (Quad Coat Rack).
- N. Restroom Needs Cleaning Switch Sign: Approximately 2" x 4" sign.
- O. Grab Bars: 18 gage stainless steel; 1-1/4 inch diameter, (1-1/2 inch diameter where required by Local Code) textured grip surface; concealed mounting consisting of welded-on mounting flange with snap-on cover flange or escutcheon. Location, quantity, and length shall be as shown.
 - 1. Model No. 3700 P, by American Specialties.
 - 2. Model No. B5506.99, by Bobrick.
 - 3. Model No. 832-2, by Bradley.

3.4 CLEANING

- A. Protection and Cleaning of Toilet Accessories and Attachment Hardware Prior to Possession:
 - 1. Immediately prior to possession, clean stainless steel accessories and attachment hardware thoroughly using soap, ammonia, or mild detergent and water. Apply with sponge or soft cloth, rinse with clear water and wipe dry. Always rub in the direction of polish lines. Rinse thoroughly with fresh water after every cleaning operation. Clean and polish to a spotless luster. Wipe dry to avoid water marks.
 - 2. Clean and polish stainless steel accessories and mirror surfaces to a spotless luster.

END OF SECTION

SECTION 10990 – MISCELLANEOUS SPECIALTIES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Owner furnished items for Contractor installation.

PART 2 - PRODUCTS

- 2.1 Floor Safe.
- 2.2 Vision Center Entrance Canopy.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install floor safe in location directed by Wal★Mart authorized personnel.
- B. Install Vision Center entrance canopy as directed by Canopy Manufacturer at a location directed by Wal★Mart Construction Manager.

END OF SECTION

SECTION 11025 – LOCK BOXES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Lock box key vault for Pharmacy.
 - 2. Lock box key vault for fire department emergency building access.

1.2 QUALITY ASSURANCE

- A. Pre-Installation Meetings: Meet with fire department to determine requirements for lock box type and coordinate exact location for installation and mounting of box on building.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Pharmacy Lock Box:
 - 1. Master Lock Co., Oak Creek, WI (800) 558-5528.
 - 2. Roper Lock Box, Hudson OH (800) 466-9312.
 - 3. Substitutions: Not permitted.
- B. Fire Department Lock Box:
 - 1. Knox Box by The Knox Company, Phoenix, AZ. Phone (800) 552-5669, FAX (949) 252-0482.
 - 2. Alternate Manufacturers: As approved by fire department.

2.2 MANUFACTURED UNITS

- A. Pharmacy Lock Box: Wall mounted, combination lock, metal box. Provide one of the following:
 - 1. 540ID Select Access Wall Mount Key Storage.
 - 2. Avanti/Guardian by Roper Lock Box.
- B. Fire Department Lock Box:
 - 1. UL labeled, weather resistant, factory finished, heavy duty steel lock box.
 - 2. Model: Type and size as required by fire department.
 - 3. Ordering: Complete manufacturer's Authorization/Order Form and obtain local fire department authorized signature on form before processing.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install pharmacy lock box at locations shown on the drawings.
- B. Install fire department lock box at location required by fire department in accordance with manufacturers published instructions.

END OF SECTION

SECTION 11140 – VEHICLE SERVICE EQUIPMENT SYSTEMS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Vehicle service equipment including but not limited to tire changers, wheel balancers, vehicle lifts, and lube equipment as scheduled on the Drawings.
 - 2. Automotive Center piping.
- B. Products Supplied by Wal-Mart Supplier and Installed by the Contractor Under This Section:
 - 1. Under Provisions of Section 01640, Wal-Mart's Vehicle Service Equipment Supplier will furnish vehicle service equipment. Installation of equipment shall be by Wal-Mart Equipment Supplier (ES), Certified Installer (CI) hired by the General Contractor, or the General Contractor (GC) as indicated on the Automotive Equipment Schedule on the Drawings.
- C. Products Furnished by the Contractor and Installed by a Certified Installer Under This Section:
 - 1. Automotive Center piping.
- D. Related Sections:
 - 1. Section 01330 - Submittal Procedures: Automotive service equipment systems certifications, testing, and inspections.
 - 2. Section 01640 - Owner Furnished Products: General procedures related to Owner furnished products.
 - 3. Section 16100 - Wiring Methods: Power and connections to equipment.

1.2 REFERENCES

- A. The publications listed below form a part of this specification to the extent referenced. Publications are referenced within the text by the basic designation only.
- B. American National Standards Institute (ANSI):
 - 1. ANSI B16.3 - Malleable Iron Threaded Fittings.
 - 2. ANSI B93.4 - Hydraulic Line Welded Tubing.
- C. ASTM International (ASTM):
 - 1. ASTM A53 - Pipe, Steel, Black And Hot-Dipped, Zinc-Coated, Welded And Seamless.
 - 2. ASTM A234 - Piping Fittings of Wrought Carbon Steel and Alloy Steel for Moderate and High Temperature Service.
 - 3. ASTM A249/A - Welded Austenitic Steel Boiler, Superheater, Heat-Exchanger, and Condenser Tubes.
 - 4. ASTM A269 - Seamless And Welded Austenitic Stainless Steel Tubing For General Service.
 - 5. ASTM D1785 - Polyvinyl Chloride (PVC) Plastic Pipe, Schedules 40, 80, and 120.
 - 6. ASTM D2466 - Polyvinyl Chloride (PVC) Plastic Pipe Fittings, Schedule 40.
 - 7. ASTM D2564 - Solvent Cements for Polyvinyl Chloride (PVC) Plastic Pipe and Fittings.
 - 8. ASTM D2855 - Making Solvent-Cemented Joints with Polyvinyl Chloride (PVC) Pipe and Fittings.
- D. National Fire Protection Association (NFPA):
 - 1. NFPA 30 - Flammable And Combustible Liquids Code.
- E. Society of Automotive Engineers (SAE):
 - 1. SAE J525 - Welded And Cold Drawn Low Carbon Steel Tubing Annealed For Bending And Flaring.

1.3 SUBMITTALS

- A. Submit the following to the Architect in accordance with Section 01330.
 - 1. Installer Qualifications: Submit names and qualifications of Certified Installers to the Architect for review within 30 calendar days after award of Contract.
- B. Record Documents: Submit record documents required by Authority having jurisdiction including but not limited to the following to Architect for review for compliance with requirements as installation of each respective item is completed and tested as required, but in no instance later than 60 days prior to possession. Submit copies of the same documents, with the Architect's stamp indicating review and acceptance, to Wal-Mart as Closeout Submittals prior to final payment in accordance with Section 01770.
 - 1. Certification of Installation: Statement by Certified Installer of verification of satisfactory installation.
 - 2. Inspection Reports.
 - 3. Operational Test Report.
 - 4. Operation and Maintenance Manuals.

1.4 QUALITY ASSURANCE

- A. Qualifications: Vehicle Service Equipment Systems Installer Qualifications shall conform to the following:
 - 1. Certification: Vehicle service equipment, to the extent indicated on the Equipment Schedule on the Drawings, and associated piping specified herein shall be installed by an approved Certified Installer.
 - 2. Contact appropriate suppliers as noted in Part 2-Products to obtain a list of at least 3 qualified vehicle equipment systems installers.
 - 3. General Contractor shall provide the requirements of this Section to the Certified Installer to make known to the installer, the necessary qualifications and stipulations.
 - 4. General Contractor shall submit names and compliance qualifications of Certified Installers to the Architect for review within 30 calendar days after award of Contract. The Architect shall review for compliance or non-compliance, the Certified Installer prior to the hiring of the installer by the General Contractor.
 - 5. Upon compliance approval by the Architect, General Contractor shall hire directly, the Certified Installer to perform the work.
- B. The Authority Having Jurisdiction requires installation of Vehicle Service Equipment by an approved Certified Installer. Certified Installation requirements of an Authority Having Jurisdiction may supercede the requirements of a Vehicle Service Equipment supplier. Contact the Authority Having Jurisdiction for list(s) of Certified Installers.
 - 1. Equipment requiring installation by Certified Installer: As indicated on the Automotive Equipment Schedule on the Drawings.
- C. Regulatory Requirements:
 - 1. Regulations: Equipment and piping as described by this Section shall be installed to comply with Federal, State, and local regulatory agencies and environmental regulations including but not limited to those listed in Appendix A from Shaw Environmental, Inc, dated 04/11/08.
 - 2. Documentation: Obtain documents required by the Authority Having Jurisdiction or by Applicable Codes, including, but not limited to documents listed as follows:
 - a. Certification: Obtain statement by Certified Installer confirming installation complies with regulatory and environmental requirements and equipment and piping manufacturer's installation requirements.
 - b. Test Report: Compile and produce test reports specified in Part 3.
 - c. Refer to Appendix A from Shaw Environmental, Inc., dated 04/11/08, attached at the end of this Section for additional Documentation requirements, if any.

1.5 DELIVERY, STORAGE AND HANDLING

- A. Product Delivery: The Contractor shall contact all vehicle equipment suppliers after Award of Contract to establish a product delivery date, and installation date as applicable, and establish a coordination procedure.

- B. Product Packaging: Equipment will be delivered in manufacturer's standard packaging with identification markings on each component or package.
- C. Acceptance at Site: Contractor shall inspect products with Supplier upon delivery of products to jobsite.
 - 1. Verify quantity of products furnished.
 - 2. Report discrepancies in product quantity delivered or damage to products delivered to Equipment Supplier and Wal-Mart immediately. Upon notification, Wal-Mart will arrange for delivery of replacement products.
- D. Manufacturing Defects: Report suspected manufacturing defects to Wal-Mart Construction Manager and Equipment Supplier. Upon notification, Wal-Mart will arrange for repair of manufacturing defects.
- E. Handle, store, and protect products in accordance with the provisions of Section 01600 - Product Requirements.

1.6 SCHEDULING

- A. Complete all inspections, submittals, and approvals within 48 hours of equipment installation as allowed by AHJ or regulatory agencies.

PART 2 - PRODUCTS

2.1 SUPPLIERS

- A. Wal-Mart furnished equipment will be furnished by one of the following suppliers as scheduled on the drawings.
 - 1. Challenger Lift: Contact Caroline Redmon (800) 648-5438.
 - a. Contact supplier for list of Certified Installers.
 - 2. Champion Pneumatic: Contact Dennis Williams or Ed Campea (800) 647-5298.
 - a. Supplier does not provide list of certified installers.
 - 3. Coats (Hennessy Ind): Contact Mary Gortney (800) 688-6359 ext 7209.
 - a. Contact supplier to coordinate date of delivery and installation of vehicle service equipment by supplier's service center.
 - 4. Conney Safety: Contact Ron Koopman (608) 271-3300.
 - a. Supplier does not provide list of certified installers.
 - 5. Containment Solutions (Hoover): Contact Kelly Gorrell (800) 537-4730 ext. 216.
 - a. Supplier does not provide list of certified installers.
 - 6. Graco: Contact Christina Harmon (877) 582-3246.
 - a. Contact supplier for list of Certified Installers.
 - 7. Gray Automotive: Contact Kim Blakely (800) 821-7320.
 - a. Supplier does not provide list of certified installers.
 - 8. Ingersoll-Rand: Contact Sheila Kersey or David Medley (908) 238-7389.
 - a. Supplier does not provide list of certified installers.
 - 9. JE Adams: Contact Mike Cox (918) 597-2575.
 - a. Supplier does not provide list of certified installers.
 - 10. John Bean, a Division of Snap-On, Inc.: Contact Steve Price (800) 362-4610.
 - a. Contact supplier to schedule delivery and installation of scheduled vehicle service equipment.
 - 11. JS Products: Contact Jim Ratliff or Stephanie Ratliff (800) 255-7011.
 - a. Supplier does not provide list of certified installers.
 - 12. Lincoln: Contact Ken Fehlig (636) 536-1086.
 - a. Contact supplier for list of installers. Contracted installer must be recommended by vehicle service equipment supplier.
 - 13. Modern Welding: Contact Linda Malone (800) 253-8265 ext. 837.
 - a. Supplier does not provide list of certified installers.
 - 14. Multiplex: Contact Nancy Wright (800) 325-3350.
 - a. Supplier does not provide list of certified installers.
 - 15. Pioneer Plastics, Inc.: Contact Peter Shepherd (479) 263-6670.
 - a. Supplier does not provide list of certified installers.
 - 16. Quest Recycling: Contact Jeff Forte (318) 347-5108.

17. Forward Mfg. Rotary Lift: Contact Nadja Tapkas (800) 717-3782.
 - a. Contact supplier to coordinate date of delivery and installation of vehicle service equipment by supplier's installer.
 18. Samson (Cruzen): Contact John Garrison or Joe McAndrew (800) 311-1047.
 - a. Contact supplier for list of recommended Certified Installers.
 19. Southern Tool: Contact Sue Sebo (501) 554-9416.
 - a. Supplier does not provide list of certified installers.
 20. Universal (Unilube): Contact James Farner (800) 326-1711.
 - a. Supplier does not provide list of certified installers.
- B. Contractor provided equipment shall be furnished as noted on the drawings. Contractor provided equipment supplier contact information is as follows (Refer to Equipment Schedule on drawings):
1. Containment Solutions (Hoover): Contact Bill Hase (800) 777-2823 ext. 311.
 2. Modern Welding: Contact Linda Malone (800) 633-0571.
 3. Phoenix Products: Contact Buddy Miller, (904) 354-1858.

2.2 EQUIPMENT

- A. Vehicle service equipment shall be as scheduled on the drawings.
- B. Equipment supplier will provide hydraulic fluid for lifts.

2.3 AUTOMOTIVE CENTER PIPING

- A. Compressed Air Piping:
 1. Above Grade: ASTM A53, galvanized steel pipe, Schedule 40 pipe with 150 lb galvanized iron threaded fittings.
- B. Vent Piping: ASTM A53, galvanized steel pipe, Schedule 40 pipe with 150 lb galvanized iron threaded fittings.
- C. Chassis Grease Piping: Hydraulic fluid line and fittings per ANSI B93.4, SAE J525, ASTM A249, or ASTM A269, rated for 5000 psi working pressure.
- D. Gear Oil Piping: ASTM A53, Schedule 40 black steel.
 1. Fittings: ASME B16.3, malleable iron, or ASTM A234, forged welded steel type. Suitable for 400 psi working pressure.
- E. Oil Tank Fill and Suction Piping: ASTM A53 Schedule 40 black steel pipe.
 1. Below Grade: Standard weight weld fittings, plastic wrapped or bitumastic coated.
 2. Above Grade: 150 lb malleable iron threaded fittings.
- F. Windshield Washer Piping: Use PVC piping if permitted by Authorities Having Jurisdiction. If PVC piping is not permitted, use galvanized steel pipe.
 1. PVC Pipe: ASTM D 1785, Schedule 40.
 - a. Fittings: ASTM D 2466, Schedule 40.
 - b. Joints: ASTM D 2855, solvent weld with ASTM D 2564 solvent cement.
 2. Galvanized Steel Pipe: ASTM A53, Schedule 40 pipe with 150 lb galvanized iron threaded fittings.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Installation shall be by Wal-Mart Equipment Supplier, Certified Installer, or the Contractor as scheduled on the drawings. Equipment shall be installed in accordance with manufacturer's published instructions, NFPA 30, and regulatory requirements specified in this section.

- B. Contractor furnished piping specified herein associated with vehicle service equipment systems shall be installed by Certified Installer.
- C. Provide electrical connections to power operated equipment.
- D. Flush piping of debris before making any connections to equipment.
 - 1. Compressed Air System. Flush air lines to remove debris and chips prior to installation of FRL's, valves, reels, or pumps.
 - 2. Grease and Fluid Piping Systems. Wet flush piping/tubing lines and tanks to remove debris and chips prior to installation of hose reels, solenoid valves, impulse meters, control handle, shut off valves, or pumps.
- E. Run Automotive Center air lines overhead unless otherwise noted on the drawings.

3.2 FIELD QUALITY CONTROL

- A. Installation Inspection: Upon completion of installation, Contractor and Installer of each respective piece of equipment shall make a final inspection(s) and tests specified hereinafter to verify installation is in accordance with specified requirements. Prepare Statement of Verification of Satisfactory Installation signed by Contractor and Installer.
- B. Upon completion of installation and inspections, conduct operational tests on all vehicle service equipment and piping systems (new or extended) to ensure proper operation.
- C. Test equipment according to NFPA 30 and in accordance with manufacturer's instructions and recommendations.
 - 1. Final Tank Leakage Testing: In lieu of leakage test for in-place tanks required in NFPA 30, test the waste oil tank(s), the bulk oil storage tank(s), and the customer return oil tank(s) scheduled on the Drawings in accordance with the following procedure:
 - a. Prior to filling and placing in use, test tanks to 2 psi air pressure and apply soap solution over welded seams to identify leakage. Inspect tank contents before filling and replace tin caps with pipe plugs or doped piping before test.
 - b. When testing a double wall tank, pressurize inner tank to a maximum capacity of the outer tank by bringing pressure up gradually to 2 psi to avoid damage by over-pressurization of the outer tank due to relatively small pressure capacity of outer tank.
- D. Automotive Center Piping Systems (New or Extended):
 - 1. Cleaning and Testing Procedures: Prior to testing and installation of equipment, de-burr piping and thoroughly blow-out piping to remove dirt, shavings, and foreign matter. Subject piping to test for 24 hours if air tested. Provide product for pumped systems tests. Product shall match that to be used in the system. Conduct tests with all pumps, hoses, and nozzles, etc. installed on the system. Make necessary replacements and repairs and repeat tests until system is accepted as satisfactory. If applicable, test underground piping prior to backfill.
 - 2. Pressure test all fluid and air piping. Test in according to NFPA 30 or manufacturer's instructions and recommendations as applicable prior to equipment installation.
 - a. Compressed Air System: Test system to 150 percent of design working pressure psi.
 - b. Virgin Oil Fill and Suction Piping: Air test piping to 200 psi.
 - c. Lube/Chassis Grease, Windshield Washer Fluid, Oil Fill Systems: Fluid test systems with 100 psi air delivered to pumps.

3.3 ADJUSTING AND CLEANING

- A. Make necessary adjustments for proper operation. Set air pressure at each pump according to Drawings. After installation, restore marred and abraded surfaces to original condition.

END OF SECTION

SECTION 11160 – LOADING DOCK EQUIPMENT

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Dock seals.
 - 2. Dock levelers.
 - 3. Edge of dock levelers.
 - 4. Wheel chocks.
 - 5. Dock bumpers.
- B. Related Sections:
 - 1. Section 03300 - Cast-In-Place Concrete: Concrete pit for dock levelers.
 - 2. Section 05500 - Metal Fabrications: Steel angle frame around dock leveler pit.

1.2 SUBMITTALS

- A. Samples:
 - 1. Operation Chart: Submit one sample each for dock levelers and edge of dock levelers.
- B. Closeout Submittals:
 - 2. Submit the following in accordance with Section 01770 for equipment specified in this section.
 - a. Operations and Maintenance Manuals.
 - b. Certificate of Inspection.

1.2 QUALITY ASSURANCE

- A. Installation shall be by manufacturer's qualified and authorized installers. Installation by unauthorized installers will not be accepted.
- B. All equipment provided for the project shall be by one manufacturer. Dock seals by Dixie Dock are the only exception.
- C. Provide on-site field inspection by a manufacturer's authorized representative verifying installation and operation of all products specified herein are in accordance with manufacturer's recommendations and instructions.
- D. Complete Certificate of Inspection included at the end of this section.

1.3 DELIVERY, STORAGE, AND HANDLING

- B. Section 01600 - Product Requirements: Transport, handle, store and protect products.
- C. Store and handle dock seals in a manner to avoid damage to fabric. Comply with manufacturer's published instructions for minimum and maximum temperature requirements for storage.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Loading Dock Equipment Manufacturer Designations:
 - 1. DD: Dixie Dock, Cookeville, TN (800) 467-1714, Contact: Jennifer Brown.
 - 2. Ke Kelley Company, Inc.; Milwaukee, WI (262) 246-1325, Contact: Amy Carlson.
 - 3. No: Nordock, Inc.; Pewaukee, WI (888) 654-2687, Contact: Tom Barlow.

- B. Substitutions: Substitutions of products specified hereinafter will not be permitted.

2.2 DOCK SEALS

- A. Commentary: *Conditions at docks receiving dock seals may vary. The General Contractor must field verify the conditions to determine the required depth of the pads. No additional compensation will be granted to the Contractor because of failure to verify conditions prior to ordering of equipment.*
- B. Description:
1. Side Pads: 12 inch width, length to be clear opening height, with maximum 12 inch projection. Profile of pad shall be square. Side pads shall taper 1" per percent (%) of grade of driveway approach, as necessary, from maximum projection. Head pad shall match depth of side pads.
 2. Head Pad: 12 inch height, length to be 2 feet longer than clear opening width, with maximum 12 inch projection.
 3. Clear Opening Size: As indicated on Drawings.
 4. Provide breather slots for pads.
 5. Core: High-density urethane foam core with supporting frame.
 6. Cover Fabric: Vinyl coated nylon, 22 oz/sq yd, black.
 7. Wear Pleats: Full height of side pads, 40 oz/sq yd vinyl coated nylon, with 8 inch exposure, black. Extra 40 ounce wearface on face of head pad, black.
 8. Guide Stripes: Manufacturer's standard width stripe full height of side pads, yellow.
 9. Supporting Frame: 2" Kiln-dried, preservative treated wood, fully encased with cover fabric, galvanized steel hardware.
- C. Manufacturers and Models: Subject to compliance with requirements, provide dock seals of one of the following:
1. DD: Model #DS100.
 2. Ke: Model DSS-102-WP8-WF (on head pad).
 3. No: Model FPW-22V-WP8-WF.
- D. Substitutions: Not permitted.

2.3 FULL DOCK LEVELERS

- A. Description:
1. Mechanical operation, 7'-0" by 8'-0" nominal size; minimum static capacity of 35,000 lbs.
 2. 12 inch lip beyond bumper face, below dock control, secure from illegal entry, safety stops and working range side telescopic toe guards.
 3. Performance Requirements:
 - a. Maximum gross moving load (forktruck weight + load): 13,000 pounds.
 - b. Maximum forktruck speed with load: 6 miles per hour.
 - c. Forktruck wheel configuration: Both 3 and 4 wheel.
 - d. Assumed Usage: Up to 4 trucks per day per door, seven days per week.
 - e. Assume angled approach traffic pattern on and off deck.
 4. Service Range: 12" above and below dock level.
 5. Brush style weatherseal with galvanized steel frame at dock plate perimeter.
 6. Extended night lock feature.
 7. Two steel faced dock bumpers, 20 inches high and 11 inches wide with 6 inch projection.
- B. Manufacturers and Models: Subject to compliance with project requirements, provide mechanical dock levelers of one of the following:
1. Ke: Model CM7X8-35.
 2. No: Model NM-78-35W.
- C. Warranty: Provide manufacturer's guarantee to repair or replace any deck lip or frame assemble from structural defects of any kind for a period of ten years from date of installation based on the performance requirements specified. All other components shall be covered for one year from date of installation.

2.4 EDGE OF DOCK LEVELERS

- A. Description:
 - 1. 72 inch width, minimum 20,000 pound capacity.
 - 2. Recessed mounting as indicated on Drawings.
 - 3. Two steel faced dock bumpers, 20 inches high and 11 inches wide with 6 inch projection.
 - 4. Block-out size determined by Manufacturer's standard width.
- B. Manufacturers and Models: Subject to compliance with requirements, provide edge of dock levelers of one of the following:
 - 1. Ke Model EOD7220P.
 - 2. No: Model EM-7220-W.

2.5 WHEEL CHOCKS

- A. Description:
 - 1. Laminated rubber pads assembled on 3/4 inch bolts and compressed between 1/4 inch plates. Unit will have eye bolt or loop for attachment of chain.
 - 2. Meets OSHA and DOT requirements.
 - 3. Provide 20 foot long approved chain and attach to concrete wall at dock with expansion anchors. Locate on driver's side of truck trailer.
- B. Manufacturers and Models: Subject to compliance with project requirements, provide wheel chocks of one of the following:
 - 1. Ke: Model AP0452.
 - 2. No: Model L-88.

2.6 DOCK BUMPERS

- A. Components:
 - 1. Fabric reinforced laminated, 6 inch projection, 12 inches high, 9 feet 5 inches long (one piece).
 - 2. Hardware: Galvanized steel rods between end plates, galvanized bolts and expansion shields.
 - 3. Provide intermediate support with bottom anchor.
- B. Manufacturers and Models: Subject to compliance with project requirements, provide dock bumpers of one of the following:
 - 1. Ke: Model 612111.
 - 2. No: Model AF-620-11-9.5W.

2.7 OPERATION CHART

- a. Description: Provide operation chart for dock levelers and edge-of-dock levelers outlining operational instruction. Chart shall be adhesive-backed vinyl-faced sticker suitable for permanent application to composite or steel dock doors. Chart shall not include maintenance instructions.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify if dock is "at-grade" (high dock) or truckwell. Determine profile and dimension at dock edge/wall location in order to coordinate proper depth and direction of taper of dock seals.
- B. Examine existing conditions and adjacent areas where products will be installed and verify that conditions conform to product manufacturer's requirements. Verify that building elements required for product installation are ready to received work. Do not proceed until unsatisfactory conditions have been corrected.

- C. Verify size of pit and equipment anchorage requirements with dock leveler manufacturer. Beginning of installation indicates acceptance of conditions.

3.2 INSTALLATION

- A. Install loading dock equipment in accordance with manufacturer's published instructions at locations shown on the drawings.
- B. Apply sealant between dock wall and dock seal as shown on the drawings.
- C. Install wheel chock at each new dock door and at each existing dock door to remain on driver's side of door. Provide 20 foot long, 1/4-inch plated chain for each wheel chock. Attach chain to foundation wall by expansion anchor on driver's side of door.
- D. Dock equipment shall be installed by manufacturer's qualified and authorized installers. Installation by unauthorized installers will not be accepted.

3.3 CONSTRUCTION

- A. Interface with Other Work:
- B. Coordinate size and location of cast-in-place concrete dock leveler or edge of dock leveler block-outs, pits, reinforcement, frames, inserts, and formwork with Contractor before start of concrete placement.

3.4 CLEANING AND ADJUSTMENT

- a. Installed equipment shall be cleaned and fully adjusted for proper operation at time of installation. In addition, dock levelers and edge-of-dock levelers shall be serviced, cleaned, and adjusted by the original installer not more than two weeks prior to store opening. Documentation of final service performed on the levelers shall be included with the O & M Manual submitted.
- b. Apply maintenance/operation chart for dock leveler and edge-of-dock leveler on inside face of each dock door centered at 5 ft above floor.

END OF SECTION

CONTRACTOR'S CERTIFICATE OF INSPECTION
SECTION 11160
LOADING DOCK EQUIPMENT

Project Location: _____ Date: _____

(City)

(State)

Project Number: _____ Store Number: _____

The following loading dock equipment has been inspected and approved:

<input type="checkbox"/> Dock Seals:	Product Mfr and Model: _____
<input type="checkbox"/> Dock Levelers:	Product Mfr and Model: _____
<input type="checkbox"/> Edge of Dock Levelers:	Product Mfr and Model: _____
<input type="checkbox"/> Wheel Chocks:	Product Mfr and Model: _____
<input type="checkbox"/> Dock Bumpers:	Product Mfr and Model: _____

Statement of Conformance:

The undersigned hereby declares that the Product identified above by manufacturer's name and model number is (one of) the product(s) specified and is suitable for the intended use as defined within the Contract Documents and has been provided and placed in operational condition in accordance with the manufacturer's published instructions and the Contract Documents.

SUPPLIER:

(Contact name of supplier offering above product)

Phone Number: () _____

(Supplier name and address)

SUBCONTRACTOR (INSTALLER):

(Contact name of subcontractor installing above product)

Phone Number: () _____

(Subcontractor name and address)

PRIME CONTRACTOR:

(Contact name of Contractor)

(Contractor signature and Title of Signatory)

SECTION 13121 – FABRIC STRUCTURES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Garden Center aluminum trusses and accessories.
 - 2. Shade cloth.
- B. Related Sections:
 - 1. Section 02821 - Chain Link Fences and Gates: Shade cloth canopy truss support columns.

1.2 DELIVERY, STORAGE, AND HANDLING

- A. Installation Drawings and Instructions: Delivered with furnished products.
- B. Product Packaging: Products will be packaged in manufacturer's standard cartons.
 - 1. Trusses: Four trusses per bundle. Trusses weigh approximately 3 pounds 8 ounces per lineal foot.
 - 2. Truss Hardware: Boxes approximately 24 inches x 8 inches x 20 inches.
 - 3. Shade Cloth: Boxes approximately 30 inches x 20 inches x 25 inches.
- C. Section 01600 - Product Requirements: Transport, Handle, Store, and Protect Products.
- D. Protect roll materials from damage by storing on end.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Subject to compliance with project requirements, provide products specified herein by one of the following manufacturers:
 - 1. Hendee Enterprises Incorporated, Houston, TX (800) 231-7275. Contact: Crystal Genovese Crystal-g@hendee.com
 - 2. Hired-Hand Green, Bremen, AL (800) 219-0117, Extension 122. Contact: Randy Remington randyr@hired-hand.com
 - 3. Nexus Corporation, North Glenn, CO (800) 228-9639. Contact: Michael Schroeder michaels@nexuscorp.-com
 - 4. Substitutions: Not permitted.
- B. Aluminum Trusses:
 - 1. Height of Trusses:
 - a. Provide 12 inch high trusses at all-new-garden center.
 - b. Provide trusses of height to match existing where new garden center area is a continuation of the existing garden center or for replacement of existing damaged trusses as noted on the drawings.
 - 2. Lengths: Furnished in standard lengths in two foot increments.
 - 3. Hardware: Mounting brackets, cross bracing, angle brackets, bolts, and washers.
 - 4. Provide special trusses as determined by truss vendor for special garden center configurations for support of trusses at interface of new and existing trusses.
 - 5. Color: Clear Aluminum.
- C. Shade Cloth: Vinyl impregnated woven polyester yarn, heat set for stability.
 - 1. Color: Beige.
 - 2. Shade Cloth Shade Factor: 63%.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine conditions and adjacent areas where products and materials will be installed and verify that conditions conform to product manufacturer's requirements for in conditions. Do not proceed until unsatisfactory conditions have been corrected.
- B. Beginning of installation indicates acceptance of substrate conditions.

3.2 INSTALLATION - ALUMINUM TRUSSES

- A. Coordinate location and installation of steel post columns provided in Section 02821.
- B. Install aluminum trusses in accordance with suppliers published instructions.
- C. Attach mounting brackets to Garden Center truss support columns or to CMU wall as shown on Drawings.
- D. Attach one end of truss to mounting bracket. Hold opposite end of truss to other mounting bracket to determine required truss length. Cut truss to required length. Repeat for each truss requiring field cutting.
- E. Fit trusses into mounting brackets and attach.
- F. Install truss "X" bracing between trusses.
- G. Install shade cloth attachment tubing between truss mounting brackets.

3.3 INSTALLATION - SHADE CLOTH

- A. Install shade cloth panels to aluminum truss system in accordance with suppliers published instructions.
- B. Install each shade cloth panel individually to truss system by rope lacing in a zigzag pattern on all four sides of panel.
- C. Provide spacing between shade cloth panel and truss system components as shown on drawings.
- D. Install rope lacing through grommets in shade cloth panel and around truss top chords and attachment tubing between trusses.

3.4 CONSTRUCTION

- A. Interface With Other Work: Coordinate installation of light fixtures to aluminum trusses at locations indicated on Drawings.

3.5 FIELD QUALITY CONTROL

- A. Inspect installation of all components and attachments.
- B. Correct deficiencies in Work which inspection indicates are not in compliance with Contract Documents.

END OF SECTION

SECTION 13123 – GLAZED STRUCTURES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Factory fabricated Greenhouse glazed canopy system.
 - 2. Tubular steel framework and supports.
 - 3. Retractable sidewall system.
 - 4. Horizontal Air Flow fans. Gable end fans.

1.2 REFERENCES

- A. The publications listed below form a part of this specification to the extent referenced. Publications are referenced within the text by the basic designation only.
- B. ASTM International (ASTM):
 - 1. ASTM A 307 - Carbon Steel Bolts and Studs, 60,000 psi Tensile Strength.
 - 2. ASTM A 449 - Hex Cap Screws, Bolts and Studs, Steel, Heat Treated, 120/105/90 KSI Minimum Tensile Strength, General Use.
 - 3. ASTM A 500 - Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes.
 - 4. ASTM A 653 - Steel sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
 - 5. ASTM A 1008 - Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy With Improved Formability, Solution Hardened, Baked Hardenable.
 - 6. ASTM E 84 - Surface Burning Characteristics of Building Materials.
- C. American Welding Society (AWS):
 - 1. AWS D1.1 - Structural Welding Code.
 - 2. AWS D1.3 - Structural Welding Code - Sheet Steel.
- D. National Fire Protection Association (NFPA):
 - 1. NFPA 70 - National Electrical code.
- E. Related Sections:
 - 1. Section 02821 - Chain Link Fences and Gates: Chain link fences and gates at glazed canopy.
 - 2. Section 03300 - Cast-In-Place Concrete: Concrete anchorage for footings and slabs.
 - 3. Section 05300 - Metal Deck: Garden Center metal canopy deck.
 - 4. Section 07620 - Sheet Metal Flashing and Trim: Flashing at interface between building and glazed canopy.
 - 5. Section 13121 - Fabric Structures: Garden Center aluminum trusses and shade cloth.
 - 6. Section 13900 - Fire Suppression: Fire sprinkler system installed in glazed canopy structure.
 - 7. Section 15100 - Building Services Piping: Storm water piping for glazed canopy gutters and trench drains.
 - 8. Section 15700 - Heating, Ventilating, and Air Conditioning Systems: Garden Center circulating air flow fans.
 - 9. Section 16100 - Wiring Methods: Electrical system installed in structure.
 - 10. Section 16500 - Lighting: Lighting fixtures installed in glazed canopy structure.

1.3 SYSTEM DESCRIPTION

- A. Glazed Canopy Structure: Manufacturer designed and shop fabricated integral sloped canopy system. Glazed canopy system consists of fiberglass and metal roof panels, polycarbonate skirts and gable ends; sheet metal gutters and gutter drops; structural framework including column supports; and gable end fans. In addition, the Garden Center door surrounds including polycarbonate panels, posts and headers, and girts for all garden center doors including remote (shade cloth area) doors shall be provided by the glazed canopy manufacturer. Glazed Canopy System, including gable fans, shall be furnished and installed by one supplier.
- B. Design Requirements:
 - 1. Manufacturers shall comply with the current edition of the National Greenhouse Manufacturers Association "Standards for Design Loads in Greenhouse Structures".
 - 2. Design structural components and develop shop drawings under direct supervision of a professional engineer licensed in the State where Project is located.
- C. Retractable Sidewall System: Motorized rolling fabric retractable system in guide tracks attached to Glazed Canopy Structure.

1.4 QUALITY ASSURANCE

- A. Regulatory Requirements:
 - 1. Glazed canopy structure polycarbonate and fiberglass glazing shall be approved by ICBO, SBCCI, or BOCA and possess a current Evaluation Report prepared by the respective evaluation service, where required by the authority having jurisdiction.
 - 2. Products Requiring Electrical Connection: Listed and classified by testing firm acceptable to the authority having jurisdiction as suitable for the purpose specified and indicated.
 - 3. Design Data: Conform to applicable local code requirements for roof dead load, roof live load, collateral load, wind load, seismic load, and snow load.
 - 4. Glazed canopy structure shall be designed to provide for automatic sprinkler system as specified in Section 13900.
 - 5. Work within this Section shall comply with national code design limitations for fiberglass roof panel area as shown on the drawings as well as with state and local model codes.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Section 01600 - Product Requirements: transport, handle, store, and protect products.
- B. Stack material to prevent twisting, bending, or abrasion, and to provide ventilation. Comply with manufacturer's published instructions for job site storage, handling, and protection.
- C. Prevent contact with materials during storage which may cause discoloration or staining.
- D. Do not overload roof structure with stored materials. Storage or walking on completed roof surfaces not permitted.

1.6 WARRANTY

- A. Glazed Canopy System: Correct defective Work, including leaks, discoloration, and excessive thermal or structural movement, for one year after Date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Glazed Canopy: Subject to compliance with project requirements, manufacturers offering Products which may be incorporated in the Work include the following:
1. Hendee Enterprises Incorporated, Houston, TX (800) 231-7275. Contact: Yvonne Davis yvoned@hendee.com
 2. Hired-Hand Green, Bremen, AL (800) 219-0117, Extension 122. Contact: Randy Remington randyr@hired-hand.com
 3. Ludy Greenhouse Manufacturing Corporation, New Madison, OH (800) 255-5839; Contact Leah Scantland leah.scantland@ludy.com
 4. Nexus Corporation, North Glenn, CO (800) 228-9639. Contact: Michael Schroeder Michaels@nexuscorp.com
 5. Rough Brothers Incorporated, Cincinnati, OH (800) 543-7351, Ext 274. Contact: John Philips jmcphill@roughbros.com
- B. Retractable Sidewall System: Hired Hand Incorporated, Bremen, AL (800) 219-0117.
- C. Section 01600 - Product Requirements: Product options and substitutions. Substitutions: Not permitted.

2.2 CANOPY

- A. Roof:
1. Manufacturers:
 - a. Fiberglass (FRP) Panels: One of the following:
 - 1) Resolite, Zelienople, PA, (724) 452-6800.
 - 2) Enduro Systems Inc.: Tuff Span, Houston, TX, (713) 358-4169.
 - b. Metal Panels: One of the following:
 - 1) McElroy Metal, Bossier City, LA (800) 950-6531.
 - 2) Fabral Metal Roof and Wall Systems, Lancaster, PA (800) 477-2741.
 2. Fiberglass (FRP) Panels:
 - a. Resolite.
 - 1) Product: 1040 Forty Series Roofing Panels by Resolite.
 - 2) Weight: 10 oz per square ft.
 - 3) Fiberglass Material: FS25A translucent.
 - 4) Profile: 7.2" x 1.5".
 - 5) Finish: EMB/Smooth.
 - 6) Color: 31 White.
 - 7) Light Trans.: 40%.
 - b. Enduro Systems.
 - 1) Product: Series 250 PFR.
 - 2) Profile: 7.2 x 1.5".
 - 3) Finish: EMB/Smooth.
 - 4) Color: Tuff Span N2002T.
 - 5) Light Trans.: 40%.
 3. Metal Roof Panels:
 - a. Product: Ribbed galvalume steel sheet.
 - 1) McElroy: Mega-Rib.
 - 2) Fabral: Hefti-Rib.
 - b. Profile: 7.2 inch x 1-1/2 inch rib height, 36 inch width.
 - c. Thickness: 24 GA.
 - d. Factory Finish: Fluoropolymer coating containing a minimum of 70 percent Pennwalt Kynar 500 resin with a minimum of 1.2 mil dry film thickness.
 - e. Color: Manufacturer's standard "White".

4. Substitutions: Not permitted.

B. Skirt, Gable End, and Door Surround Glazing:

1. Manufacturer:
 - a. Lexan Thermoclear LTC 2R8, by GE Structured Products (800) 451-3147.
2. Material: Approved Class CC-1 polycarbonate.
 - a. Thickness: 8mm.
 - b. Color: Opal.
 - c. Flame Spread Rating: 25 or less as tested in accordance with ASTM E 84.
3. Substitutions: Not permitted.

C. Structure Columns, Posts, Trusses, Purlins, and Bridging:

1. Provide welded one or two piece shop prefabricated galvanized structural trusses and tubular steel columns and framing.
2. Secondary framing may include extruded aluminum members with mill finish.
3. Materials:
 - a. Steel Plates Less Than 3/16 Inch Thick: ASTM A 1008, Grade 50.
 - b. Steel Tubes Less Than 3/16 Inch Thick: ASTM A 500, Grade A.
 - c. Cold-Formed Shop Fabricated Steel Shapes: ASTM A 1008, Grade 50, Fy=50KSI, Fu=65KSI.
 - d. Aluminum Shapes: Alloy 6063-T6.
4. Steel Plate and Tube Galvanizing: ASTM A 653, G90.

D. Fasteners:

1. Bolts: Type as appropriate for design requirements.
 - a. ASTM A 307 hot dip galvanized bolts or stainless steel fasteners.
 - b. ASTM A 449 tempered steel bolts and studs.
2. Screws: Galvanized self drilling with hex washer head.

E. Gutters: Minimum 14 gage galvanized formed sheet steel.

F. Downspouts: PVC as shown on Drawings.

G. Flashing and Gasketing: Sheet metal flashing and resilient gasketing to provide watertight installation.

H. Additional Items:

1. Provide additional components including brackets, spacers, connectors, and other items required for erection.
2. Items shall be galvanized or of corrosion resisting materials.
3. Provide miscellaneous items required for complete installation including base plates, anchor bolts, gutter boots, fasteners and other items recommended by the manufacturer.

I. Welding: AWS D1.1 and AWS D1.3 type required for materials being welded.

J. Framing Finish: Finish steel by hot dip galvanizing after fabrication or fabricate using pre-galvanized tubing with welded joints treated by shop applied thermo spray zinc coating process using zinc wire to provide rust protection.

2.3 RETRACTABLE SIDEWALL SYSTEM

A. Sidewalls: Retractable sidewalls consisting of two exterior and one interior layer of woven polyethylene, sizes as indicated on Drawings.

B. Drive System:

1. 120VAC drive motor and hoisting mechanism for motorized hoisting capability of minimum 120 feet of sidewalls simultaneously.
2. Motors in approved NEMA waterproof enclosure.
3. Provide mechanism for manual operation during motor failure.

- C. Track System: 14 gage galvanized steel track for roll-up of sidewalls.
- D. Protective Hood: Sidewalls shall retract into protective hood when sidewall is in retracted position.
- E. Sidewall Flashing: Provide flashing at sidewalls to form weather protection.

2.4 FANS

- A. Gable Fans (GF): Gable fans shall be located and as scheduled on the mechanical drawings.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine conditions and adjacent areas where glazed canopy system will be installed. Verify that conditions conform to product manufacturer's requirements and installation conditions. Do not proceed until unsatisfactory conditions have been corrected.
- B. Beginning of installation indicates acceptance of existing conditions.

3.2 ERECTION - FRAMING

- A. Erect framing in accordance with manufacturer's published instructions.
- B. Provide for erection wind loads. Provide temporary bracing to maintain structure plumb and in alignment until completion or erection and installation of permanent bracing.
- C. Set column base plates in non-shrink grout to achieve full plate bearing.
- D. Do not field cut or alter structural members without approval.

3.3 INSTALLATION

- A. Install glazed panels in accordance with manufacturers published instructions.
- B. Coordinate with installation of related flashings.
- C. Seal roof, skirt and gable end glazing to provide weathertight installation.
- D. Install flashing, gasketing, gutters, and additional items.
- E. Gable Fans: Mount gable end fans on interior side of canopy gable exhausting to the outside of the building as shown on the drawings.

3.4 INSTALLATION - RETRACTABLE SIDEWALL SYSTEM

- A. Install retractable sidewall system in accordance with manufacturer's published instructions.
- B. Attach curtain assembly tracks, guide brackets, back plates, and bottom channels to Glazed Canopy Structure at locations indicated on Drawings.
- C. Install drive pipe and tubular motor.
- D. Connect electrical power to motor and controls in conformance with NFPA 70.
- E. Install curtain to drive pipe.

- F. Install top covers over curtain drive pipe.

3.5 CONSTRUCTION

- A. Interface With Other Work: Coordinate installation of the following items at locations indicated on Drawings.
 - 1. Fence and gate post locations with glazed canopy structure columns.
 - 2. Concrete footing locations with glazed canopy structure columns and posts.
 - 3. Sheet metal flashing at interface between building and glazed canopy.
 - 4. Storm water piping with gutter openings for rain water leaders and locations of glazed canopy structure for attachment of rainwater leaders.
 - 5. Lighting fixtures and attachment to glazed canopy structure and supports.

3.6 FIELD QUALITY CONTROL

- A. Inspect glazed canopy structure installation and installation of associated components.
- B. Test all operating items and assure proper performance.
- C. Correct deficiencies in Work which inspection indicates are not in compliance with Contract Documents.

3.7 CLEANING

- A. Remove any protective material from prefinished surfaces.
- B. Wash exposed surfaces; wipe surfaces clean.
- C. Remove excess glazing sealant by methods recommended by glazing manufacturer.
- D. Touch up damaged finishes. Remove and replace components that cannot be satisfactorily repaired.
- E. Galvanized Surfaces: Clean field welds, bolted connections, and abraded areas and apply galvanizing repair material.

END OF SECTION

SECTION 13810 - ENERGY MANAGEMENT SYSTEM (EMS)

NOTE:

This section is included herewith for information only and is not a part of this contract. The specifications contained hereafter are requirements for the Energy Management System Contractor assigned the contract by the Wal-Mart Mechanical Services Department.

For purposes of scheduling and coordination of other trades in connection with Energy Management System installation and start-up, contact Wal-Mart Mechanical Services Department, (479) 277-9078 to obtain name and phone number of the Energy Management System contractor for this project.

PART 1 - GENERAL

1.1 SUMMARY

- A. The Work of this Section is controlled by the Wal-Mart Mechanical Services Department and the Special Conditions issued by the Wal-Mart Construction Department, the Supplementary Conditions of the Contract for Construction issued by the Architect of Record, this Specification Section, and the Contract Drawings.
- B. The responsibility for purchasing equipment is defined in Section 01640 - Owner Furnished Products. The Energy Management Contractor shall receive and install Energy Management System equipment scheduled or shown on the Drawings and described in this Section.
- C. Section Includes:
 - 1. Installation of Owner furnished EMS equipment.
 - 2. Making of EMS terminations and installation of cables and conduit as applicable.
 - 3. Proper identification of systems to include labeling Owner furnished EMS equipment.
 - 4. Coordination with Structured Cabling for installation of Ethernet cable.
 - 5. Coordination of Communication with Wal-Mart Support Services for final download of system parameters.
 - 6. Performance of on-site EMS test.
 - 7. Coordination with EMS Supplier for final checkout of Energy Management System.
 - 8. Coordination with Wal-Mart Mechanical Services Department Construction Manager for Start-Up Week (Supercenters and SAM'S only)
 - 9. Warranty of Energy Management System and Components.
- D. Equipment Furnished By Owner For Installation By Contractor: Energy Management Equipment scheduled or shown on drawings and described in this section will be furnished by Owner for installation by Contractor.
 - 1. Include incurred cost for receiving and labor in installation contract price.
- E. Work Furnished and Installed Under Separate Contracts (NIC):
 - 1. Section 06100 - Rough Carpentry: Installation of 3/4-inch plywood backboard as shown on drawings.
 - 2. Section 07840 - Firestopping
 - 3. Division 16: 120 VAC control wiring.
 - 4. Division 16: Transformers, interface panels, phase loss sensor, and terminate all 120 VAC control wiring for Energy Management.
 - 5. Division 16: 120 VAC Dedicated circuit for power to system and a 480 VAC 3 phase dedicated circuit for phase monitor voltage sensing.
 - 6. Section 16405 - Electrical Distribution Center: Pre-installed equipment and wiring as part of the electrical distribution center.
 - 7. Section 16700 - Communications: RJ-11 telephone jack at Energy Management Panel Location.
- F. Contractor Responsibilities:
 - 1. Conduit, bushings, wire ties, fasteners, bolts, panduit labels, hangers, wire connectors, etc.
 - 2. Install all Energy Management equipment scheduled or shown on drawings and described in this Section.
 - 3. Coordinate release of Owner furnished equipment with Wal-Mart Mechanical Services Department.
 - 4. Make all terminations to Owner furnished equipment.

1.2 DEFINITION OF TERMS

- A. Work: Complete Installation of equipment and devices in accordance with applicable specifications and as described in the Drawings, Application Sheets, Manufacturer's legend sheets and instructions, Request for Bids, and Purchase Orders.
- B. The Owner is Wal-Mart and is identified in the Agreement as Wal-Mart Stores, Inc., Bentonville Arkansas. The term Wal-Mart as used within this Section is defined as Wal-Mart Stores, Inc., Attention: Mechanical Services Department, 2001 S.E. 10th St, Bentonville, AR, 72716-0550. The term Wal-Mart is used where Wal-Mart will furnish portions of the Work, and where Wal-Mart personnel and representatives will be interfacing with the Work of the Energy Management Contractor. The Owner's authorized representative is defined as the Wal-Mart Mechanical Services Department Construction Manager.
- C. Energy Management Contractor (or Contractor) shall mean company awarded the Bid. Energy Management Contractor shall be responsible for compliance with applicable codes, ordinances, and work permits.
- D. Possession Date: Date set by the Wal-Mart Mechanical Services Department.

1.3 DRAWINGS AND SPECIFICATIONS

- A. The Drawings and Specifications are complimentary. What is required by one shall be as binding as if required by both. Should the Drawings and Specifications be contradictory or should there be any apparent errors, discrepancies, or omissions, or should there be any doubt as to the meaning of either, the Contractor shall refer to the Wal-Mart Mechanical Services Department Construction Manager whose decision thereon shall be binding on all Parties.
- B. Neither the Contractor nor the Owner shall be responsible for oral instructions.
- C. Addenda, corrections, or letters issued during time of bidding shall take precedence over drawings and specifications.

1.4 EXAMINATION OF THE PREMISES

- A. The Contractor's bid shall take into consideration all conditions which may affect the work under this contract.
- B. Take field measurements and verify field conditions; compare such field measurements and conditions and other information known to the Contractor with the Drawings and Specifications before commencing activities. Errors, inconsistencies or omissions discovered shall be reported to the Wal-Mart Mechanical Services Department Construction Manager at once.

1.5 SUPERVISION AND CONSTRUCTION PROCEDURES

- A. Contractor shall agree to undertake all Work contained within the Contract and complete the Work according to the approved construction schedule.
- B. The Owner's schedule is critical. The Contractor shall be responsible for meeting the schedule. Complete the following items prior to schedule Substantial Completion Date.
 - 1. EMS Equipment installed and working.
 - 2. Communication between all devices and controllers.
 - 3. Sensors tested (refrigeration only).
 - 4. Confirm Ethernet communicating.
 - 5. Ensure the system is free of alarms or the alarms can be justified and documented.
- C. Furnish necessary supervision to coordinate activities of all trades to insure complete installation. Contact Wal-Mart Mechanical Services Department Construction Manager to report problems or anticipated problems which may impede progress of the project.

- D. Check new equipment against Wal-Mart Specifications and report discrepancies to Wal-Mart Mechanical Services Department Construction Manager.

1.6 WARRANTY

- A. Provide warranty and service on equipment and materials installed. Warranty shall include failures during installation and for 90 days beyond store Grand Opening date. Warranty shall include labor and parts for equipment covered under the specifications. Owner will require EMS Supplier to furnish replacement parts for failures of OEM Parts during installation period and for one year beyond store Grand Opening date. Contractor shall be responsible for obtaining replacement parts from EMS Supplier. Owner will not pay additional cost associated with repair or replacement of materials and parts during the warranty period. Additional cost attributed to equipment failures shall be handled directly with the EMS Supplier.
 - 1. In the event the Contractor fails to respond to emergency calls or fails to perform required maintenance or repairs during a warranty period, the Owner will have the right to have the repair or maintenance performed by another contractor. In this case, the Contractor agrees to pay Owner the involved amount of the services performed plus 15 percent. Maximum response time to emergency calls as follows:
 - a. Building Automation System - 24 hours
 - b. Refrigeration Control System - 8 hours
 - 2. If the Contractor subcontracts the warranty work, the 90-day warranty responsibility remains with the primary Contractor. The Contractor shall resolve all payments between the two parties. The Owner will not be involved in resolving payment issues. If the Energy Management Contractor fails to respond to warranty calls, Wal-Mart will remove that contractor from the New Store Bid List until such a time when all disputes or claims are settled.
- B. Complete Energy Management Punch List: Send completed punch list to Wal-Mart Stores Inc., 2001 SE 10th Street, Bentonville, AR 72712-0550, Attention: Mechanical Services Department Construction Manager, for verification of completion.

1.7 MANUFACTURER'S WARRANTIES AND INSTRUCTIONS

- A. Nothing shall be done by the Contractor which will void any manufacturer's warranty.
- B. Complete warranty acknowledgments or application forms supplied with equipment and forward them to Wal-Mart Stores Inc., Attention: Mechanical Services Department, for return to Manufacturers.

1.8 LAWS AND ORDINANCES

- A. Comply with laws, ordinances, rules, and regulations bearing on the Work. If the Contractor observes that Drawings or Specifications, or both are at variance therewith, the Contractor shall promptly notify the Owner in writing. If the Contractor, without written notice to the Owner, performs work, which is not in conformance with such laws, ordinances, rules and regulations, Contractor shall bear all cost arising from correction thereof.
- B. Compliance with laws, rules, and regulations shall not be used as means of justifying installations or applications of parts assemblies, or methods inferior to those specified.
- C. Comply with OSHA regulations. A copy of all appropriate M.S.D.S. sheets shall be on the job at all times.

1.9 INSPECTION OF WORK

- A. The Owner shall have access to the Work at all times for purpose of inspection.
- B. If specifications, Instructions, Inspection Coordinators, or laws, ordinances, rules, regulations or any public authority require a portion of the work to be tested, approved or inspected, Contractor shall give the Owner timely notice of its readiness for inspection.

1.10 CHANGES IN THE WORK

- A. Do not make changes, perform additional work, or pay for additional work unless authorized in writing by the Owner.

1.11 DEDUCTIONS FOR WORK NOT CORRECTED

- A. If the Owner deems it expedient to correct work not conforming to the Contract or defective work, an equitable deduction from the contract price will be made.

1.12 CORRECTION OF WORK BEFORE FINAL PAYMENT

- A. If the Owner rejects a portion of the work due to failure to conform to the Contract, the Owner will promptly notify the Contractor of such failure.
- B. Upon receipt of such notice, replace or remedy (whichever the Owner requires) the rejected work to conform to the Contract.
- C. Contractor shall bear all expenses incident to correction of non-conforming work including cost of transportation, removal of non-conforming work, correction of the work, and repairs to work of other contractors necessitated by remedial work.

1.13 WORKER'S COMPENSATION INSURANCE

- A. Contractor shall secure and keep in effect such insurance as will protect him from claims under any and all Worker's Compensation Laws.
- B. Certificates of such insurance shall be filed by the Contractor with Wal-Mart and shall be subject to Wal-Mart's approval.
- C. All subcontractors shall secure and keep in effect, similar insurance covering their employees. The Energy Management Contractor shall ascertain that all subcontractors comply with these provisions.

1.14 LIABILITY INSURANCE

- A. The Contractor shall protect, indemnify, and save Wal-Mart harmless from and against any and all liability, damage, cause of actions suits, claims, judgments, and expenses of any nature arising from injury to persons or property which arise out of or are connected with the execution of this Contract.
- B. The Contractor shall carry insurance as listed below and furnish to Wal-Mart Mechanical Services Department a certificate of insurance before construction is started. The certificate must contain the address of the location to which the contractual agreement applies. The certificate shall indicate that the insurance will not be canceled while the work specified therein is in progress without 30 days prior written notice to Wal-Mart. Wal-Mart shall be named as an additional insured on all policies of insurance. File with Wal-Mart, duplicate copies of such insurance policies.

TYPE	LIMITS OF INSURANCE	
Builders Risk (with vandalism and malicious mischief endorsement)	Total Energy Management cost amount (for total including all subcontractors)	
Worker's Compensation	Statutory Amount	
Contractor's General Liability		
Bodily Injury (Including Death)	Each Person	\$500,000
	Each Accident	\$2,000,000

Property Damage	Each Accident	\$2,000,000
Contractor's Automobile Liability		
Bodily Injury (Including Death)	Each Person	\$500,000
	Each Accident	\$2,000,000
Property Damage	Each Accident	\$2,000,000

Above amounts relative to specific Contract dollar amount.

- C. The fact that insurance coverage is required as specified herein shall not prejudice in any way Wal-Mart's claim against the Contractor for total indemnity from any and all losses herein before stated.
- D. Wal-Mart reserves the right to bond any contractor.

1.15 SEPARATE CONTRACTS

- A. The Owner reserves the right to let separate contracts in connection with this work.
- B. Inspect work performed under separate contracts where work of this Contract must interface. Promptly report, to Owner in writing, defects that may prevent work of this Contract from being performed in accordance with the documents. Contractor failure to inspect the work or report defects shall constitute an acceptance of the work performed under separate contracts. Contractor shall not be held liable for defects that could not have been detected at time of inspection.

1.16 PERMITS

- A. The Owner hereby appoints the Contractor as Owner's agent for the limited purpose of applying for and obtaining in Owner's name all permits, licenses, approvals, and certificates of inspection that may be required by governing authorities or agencies for the Project. Contractor hereby accepts the appointment to act as Owner's agent for the stated purpose. The Contractor is authorized to advance its own funds to pay all fees associated with such permits, license approvals, and certificates. The Contractor shall provide Owner with proper verification of the actual cost thereof; and following receipt of proper verifications and approval, the Contractor will be reimbursed by Owner for the actual cost for the advances. The 'Contractor Fee' for change orders will not apply to these items. Any single fee that is greater than \$1,000.00 shall be brought to the attention of the Wal-Mart Mechanical Services Department Construction Manager for review prior to payment by the Contractor. Parties agree that although the Contractor is authorized to advance its own funds to pay the fees associated with such permits, licenses, and approvals, the Contractor shall be entitled to no additional compensation for its services under this Paragraph.

1.17 PROTECTION

- A. Protect all Work from damage until final acceptance by the Owner. Damaged or defective work shall be replaced at Contractor's expense.
- B. Contractor shall be responsible for damage caused by Contractor's own forces or by Contractor's subcontractor's forces.
- C. Replace damaged work at no expense to the Owner.

1.18 OWNER'S RIGHT TO DO WORK

- A. Should the Contractor neglect to execute the Work in accordance with the Contract Documents, or fail to perform any provision of this Contract, the Owner may without prejudice to any other remedy it may have, make good such deficiencies and may deduct the cost thereof from the payment then or thereafter due the Contractor.

1.19 USE OF PREMISES

- A. Confine apparatus, storing of materials and operations of workers to limits indicated by the Owner. Do not unreasonably encumber premises with materials.
- B. Promptly remove material interfering with work of other contractors, if directed by the Owner.
- C. Enforce the Owner's policies regarding signs, advertisements, and smoking.

1.20 SUBCONTRACTORS

- A. Provide a list of subcontractors on envelope for this Bid.
- B. As soon as practical after receipt of the contract, notify the Owner in writing of the names of the subcontractors. Do not contract with any subcontractors to whom the Owner, within a reasonable time, has made objection.
- C. The Contractor shall be responsible to the Owner for the acts and omissions of Contractor's subcontractors and of persons either directly or indirectly employed by them.
- D. Subcontractors shall be approved by the Wal-Mart Mechanical Services Department Construction Manager.

1.21 TAXES

- A. Contractor shall include in his bid, costs of state or local sales or use taxes and federal taxes, charges, or duties of any nature applicable to the work incorporated under this Contract.

1.22 FINAL ACCEPTANCE AND PAYMENT

- A. The Work shall be complete and installations shall be operating in compliance with the Documents before final acceptance.
- B. Make request for payment for work in accordance with the following procedures:
 - 1. Contractor will be furnished Pay Applications from Wal-Mart Mechanical Services Department. When ready to request a draw, send 2 originals (faxes are acceptable) of each Pay Application only (no invoice) to:
Wal-Mart Stores, Inc.
Mechanical Services Department
2001 S.E. 10th St..
Bentonville, AR. 72716-0550
 - 2. Do not send to Contracts Administration, Dept. 8702
 - 3. Four draws will be permitted as follows:
 - a. Draw 1: 50 percent of total Contract, provided all materials are on the jobsite and work has been under way for 10 days.
 - b. Draw 2: 20 percent of total Contract at the end of week 5.
 - c. Draw 3: 20 percent of total Contract at Substantial Completion.
 - d. Draw 4: 10 percent retainer may be billed 90 days after Grand Opening.
 - e. Include checkout papers with final draw.
 - 4. The final 10 percent Pay Application shall be sent at end of the 90 day warranty period. The 10 percent will not be automatically released.
- C. Execute a final Release of Lien upon request of Pay Application Number 3.
- D. The Owner's representative will promptly make final acceptance inspection when notified by Contractor.
- E. Additional work shall be done via Change Order form. Use Bid Form to negotiate Change Orders with Wal-Mart Mechanical Services Department Construction Manager using Bid Form. When Change Order amount has been finalized, complete Change Order and send to Wal-Mart Mechanical Services Department Construction Manager

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with self-addressed stamped envelope. Construction Manager will sign and return pink and yellow copy to Contractor. Attach yellow copy of approved Change Order to next draw request. No Change Orders will be paid without signed yellow Change Order copy

1.23 SPECIAL DAYS

- A. Keep one qualified technician available to handle emergencies connected with Energy Management work from the time job begins until the end of the 90 day warranty. The Owner reserves the right to have the Contractor replace the technician if the Owner feels the present technician is failing to respond or is unqualified.

1.24 UNLOADING EQUIPMENT

- A. Contractor will be held liable for back charges from trucking company due to Contractor failure to meet the Owner's equipment delivery schedule.
- B. Equipment shall remain boxed until ready for installation.
- C. Notify Owner of equipment received from carrier in damaged conditions and shortages. Obtain verification of damage from carrier's truck driver.

1.25 DRAWINGS

- A. Provide in the main EDC, framed or laminated as-built drawings for Building Automation System communication loop.
- B. Provide near the refrigerated case input controller backboard, framed or laminated drawings of the layout of refrigeration sensors.

PART 2 - PRODUCTS

2.1 ENERGY MANAGEMENT SYSTEM (OWNER FURNISHED)

- A. Manufacturer: EMS Contractor will furnish energy monitoring and control system components indicated on Drawings.

2.2 MATERIALS

- A. Conduit: EMS Contractor will provide properly sized conduit for energy management system cable sets as indicated on Drawings and for the following conditions:
 - 1. Required by local electrical codes.
 - 2. Cables are installed in a plenum space used for return air.
 - 3. Cables are installed outside building.
 - 4. Cables are installed less than 15 feet AFF in stockrooms.
 - 5. Cables are subject to physical damage.
 - 6. Cables pass through any firewall.
 - 7. Cables are installed underground.
 - 8. Cables are installed in concealed area.
 - 9. Cables are installed in finished area.
 - 10. Cables are installed in finished wall.
 - 11. Cables are installed under refrigerated cases.
- B. Run conduit from zone sensor directly to junction box and use flex conduit into the roof top unit.
- C. Run conduit along bar joist for communication loop and clamp securely.
- D. Provide panduit in electrical rooms and refrigerated case input/output controller mounting area where necessary.

- E. Bushings:
 - 1. Provide properly bushed opening for raceways ending as open conduit.
 - 2. Cables shall pass through a bushing into the roof top unit.
- F. Nipples: EMS Installer will provide properly sized conduit nipples for energy management system cable sets as indicated on Drawings and for the following conditions:
 - 1. Required by local codes.
 - 2. Cables pass through wall.
 - 3. Cables pass through floor.
- G. Boxes: EMS Installer will provide properly sized boxes for open conduit systems.
- H. For replacement of damaged parts, only controls manufactured by the EMS Supplier will be accepted. For pricing and ordering information, contact EMS Supplier.
- I. Current Transducers for retrofits and new construction: Only revenue-grade current transducers will be accepted. For pricing and ordering information contact EMS Supplier.

2.3 FABRICATIONS

- A. The following describes items and/or functions necessary for field installation:
 - 1. Wire stripping and heat shrink and routing wires
 - 2. Junction boxes to mount wall temp sensors
 - 3. Override panel
 - 4. Installation of conduit
 - 5. CO2 sensors
 - 6. Light dimming
 - 7. Communication cable between controllers
 - 8. Mounting of EMS parts
 - 9. Dual-temperature switches

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install EMS components provided in this section in accordance with EMS Supplier installation instructions and make all 24 VAC control terminations required.
- B. Address EMS equipment and controllers and mark on equipment label.
- C. In portions of installation where conduit is not necessary, tie wrap cables every 36 inches or a minimum distance of the bar joist spacing. Cables shall be supported by the building structure.
- D. Provide wire ties for EMS cable. Colors shall be black UV resistant for RTU and sensor mast assembly, white for inside store in open ceilings, and any color in EDC houses and in EMS equipment.
- E. Install Energy Management Sensors where shown on drawing or to Owner's specifications to EMS Supplier installation and hardware mounting procedures.
- F. Verify proper Application Specific Controllers are installed in equipment in accordance with EMS Supplier installation and hardware mounting procedures.
- G. Generic Input/Output Controller (IOC):
 - 1. Ground IOC with #12 green awg wire.
 - 2. IOC legend shall be typed
 - 3. IOC lock down screws shall be tightened

- H. Global Network Controller (GNC):
1. Provide a solidly grounded green insulated conductor, minimum size of #12 AWG, from GNC to system ground buss at main distribution board.
 2. Mount GNC display 60 to 72 inches from finished floor, at eye level for the average height person.
 3. Provide required clearances for GNC Ethernet connection.
 4. GNC lock down screw shall be tightened.
- I. Cable:
1. Provide communication cable between all network devices.
 2. Do not splice EMS cables for EMS components inside or 5 feet or less outside the building.
 3. Splices shall be soldered, heat shrunk, and concealed in a junction box.
 4. Cables from rack house to condensers shall be in conduit or sealtite.
 5. Cables shall be sealed in roof top unit. (Duct seal, caulk, or other type of sealant.)
 6. Cable shall have heat shrink at terminating ends. (No tape allowed.)
 7. No drooping or excessive sagging cables.
 8. No cable shall run through a raw metal edge hole. Use bushings and chase nipples as needed.
 9. Fire rated and sheetrock walls that have EMS cables passing through them shall have an EMT pipe sleeve with bushings on the ends. Fire caulk will be provided by others.
- J. Outdoor Assembly:
1. Mount outdoor assembly to 1-1/4 inch rigid conduit through roof (provided by others).
 2. Install sensor assembly 5 feet above roof and a minimum of ten feet from edge of roof or from HVAC equipment.
 3. On old work when a roofer is not on site, bolt mast on back wall with 3/8" all thread. Check with Wal-Mart Construction first for direction.
- K. Conduit:
1. Installation, EMT:
 - a. The number of conductors permitted in single tubing shall not exceed the percentage fill listed in NEC
 - b. There shall be no more than the equivalent of four-quarter bends (360 degrees total) between pull points.
 - c. Bends in the tubing shall be made so that the tubing will not be damaged and the internal diameter of the tubing will not be effectively reduced.
 - d. All cut ends of tubing shall be reamed to remove rough edges.
 - e. Boxes and fittings shall comply with NEC.
 - f. Tubing shall be supported at least every 10 feet and within 3 feet of junction boxes or devices
 2. Installation, Armored Cable:
 - a. Type AC cable shall be secured by approved staples, hangers, and straps, as not to damage the cable, at intervals not more than 4 1/2 feet and within 12 inches of junction box or other device
 - b. Fittings shall be used at all ends of armored cables and meet NEC specifications.
 - c. Bends shall be made so as not to damage cable.
- L. Light Dimming:
1. All light dimming fixtures are to be tied together by conduit, flex, or box 14 gauge wire or larger.
 2. Home run to dimming control shall be 14 gauge or larger in conduit or flex.
 3. MC cable is permitted for connecting light fixtures together for low voltage control purposes.
 4. Separation between lighting power supply wiring and lighting control wiring shall comply with NEC.

3.2 IDENTIFICATION

- A. Provide electronic, permanent labels for location of each refrigeration sensor identifying circuit.
- B. Label refrigeration sensors at location in cases with electronic, permanent labels.
- C. Provide electronic, permanent labels with 3/4 inch nominal size numbers corresponding to associated rooftop unit for zone temperature sensors.

- D. Label each wire a minimum of one inch from end, identifying cable.
- E. Label breakers for Energy Management System with orange stickers: "DO NOT TURN OFF!"

3.3 CLEAN UP

- A. Promptly remove all rubbish or debris resulting from the Work.
- B. During the course of the Work, the area in which the Contractor is working shall be kept in an orderly, reasonably clean condition. Keep gang boxes, spools of wire, and boxes off of sales floor. Tools, supplies, etc. shall remain only as long as they are in use. Abide by site cleanliness policies of General Contractor for general construction.
- C. Thoroughly clean Work furnished and installed under this Contract, ready for Owner's use.

3.4 START-UP (SUPERCENTERS & SAM'S)

- A. Energy Management equipment start-up and documentation of operation shall be in accordance with Wal-Mart Specifications. Final payment will not be made until start-up reports are received and checkout paperwork is turned over to Wal-Mart Energy Management.
- B. Provide adequate number of qualified personnel for start-up period. If the Wal-Mart Mechanical Services Department Construction Manager determines that the schedule cannot be met, provide additional startup personnel for completion in that time frame.
- C. Fill out the attached checkout paperwork and send to Wal-Mart Energy Management Department.
 - 1. Pre-checkout forms: Wal-Mart Support Installation Form, HVAC Information, Cutler Hammer Module Configurations and Pre-Checkout Verification Form.
 - 2. Checkout forms: Refrigerated Case Sensor Input Verification, Pulse Meter Letter, Phase Loss Information, Operating Information and Manager's Orientation.
- D. Start-up shall include but not limited to the following:
 - 1. Verify all modules are communicating.
 - 2. Verify all terminations are correct.
 - 3. Verify all sensor locations.
 - 4. Verify, icebath, and calibrate to +/- one degree Fahrenheit if needed on all refrigeration sensors.
 - 5. Replace any modules or sensors that are defective.
- E. Coordinate with Refrigeration Construction Manager and installing Refrigeration Contractor to find out who will be handling warranty.

3.5 CHECKOUT

- A. Coordinate with Wal-Mart Support for final checkout. The Energy Management Contractor shall not receive final approval until final checkout is complete and deficiencies have been corrected. System documentation will not be complete until Energy Management Contractor has been received final checkout verification number from Wal-Mart Support.
- B. Checkout shall include, but is not limited to, the following:
 - 1. Complete Pre-checkout.
 - 2. Complete on-line checkout.
 - 3. Network status.
 - 4. Phase loss monitors.
 - 5. Override verification.
 - 6. Sensor verification.
 - 7. Address verification.
 - 8. Alarm log verification.
 - 9. Transducer verification

10. AHU sensor verification.
11. Light dimming: Dim lights from 100% down to minimum and back up to 100% to demonstrate proper operation.
12. ALS & hi/lo output verification.
13. RTU sensor verification.
14. CO2 sensor verification.
15. RTU damper/actuator verification.

WAL-MART SUPPORT INSTALLATION FORM

Store # _____ Date : _____

Address : _____

City : _____ State : _____ Zip : _____

EMS phone # _____ Store phone # _____

Poss date : _____ G.O. Date : _____

GNC Serial # _____

Ethernet adapter serial # _____

MAC address : _____ Switch: _____ Port # _____

New : _____ Store Planning: _____ Expansion : _____ Changeout : _____

EMS Contractor : _____

Contractor 24 hr # _____ Installer : _____

Time zone : _____ Daylight savings time : _____

Lighting control by: Cutler Hammer S.O.B. _____ Contactors: _____

Square-D Powerlink: _____ Cutler Hammer: _____

Number Of Phase Loss Monitors: _____

If store has light dimming ballast, is the negative (gray) control wire from dimming ballast grounded? _____

List any programming changes below

WAL-MART SUPPORT INSTALLATION FORM (continued)

EMS Phone # □□□□□ Main Store # □□□□□

Type Of Lighting Fluorescent: □□□□□ Halide: □□□□□

Light Dimming Fluorescent: Yes ☐ ☐ No ☐ ☐ High / Low: Yes ☐ ☐ No ☐ ☐
 ☐ ☐ ☐ ☐

What Panel And Circuit Breaker Feeds 120vac To GNC Transformer?
 Panel: Circuit Breaker:

What Panel And Circuit Breaker Feeds 120vac To IOC Transformer?
IOC Designation: □□□□□ Panel: □□□□□ Circuit Breaker:

What Panel And Circuit Breaker Feeds 120vac To IOC Transformer?
IOC Designation: □□□□□ Panel: □□□□□ Circuit Breaker:

What Panel And Circuit Breaker Feeds 120vac To IOC Transformer?
IOC Designation: □□□□□ Panel: □□□□□ Circuit Breaker:

What Panel And Circuit Breaker Feeds 120vac To IOC Transformer?
IOC Designation: □□□□□ Panel: □□□□□ Circuit Breaker:

What Panel And Circuit Breaker Feeds 120vac To IOC Transformer?
IOC Designation: □□□□□ Panel: □□□□□ Circuit Breaker:

If Store Has Contactors, What Panel And Circuit Feeds 120vac To Contactor?

Panel: Circuit Breaker:

If Store Has Cutler Hammer S.O.B.S, What Panels & Circuit Breakers Feed 120vac To S.O.B.S?

Panel:	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Circuit Breaker:	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Panel:	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Circuit Breaker:	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Panel:	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Circuit Breaker:	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
Panel:	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Circuit Breaker:	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

Are All EMS Circuit Breakers Marked With Orange EMS Stickers?

Yes ☐☐ If No Explain: ☐☐☐☐☐
☐

WAL-MART SUPPORT INSTALLATION FORM (continued)

SUBMIT THIS PAGE FOR FINAL DRAFT

Checkout Number: _____ Date: _____

EMS Contractor: _____

Contractor 24 hr # _____ Installer : _____

Refrigeration start-up: Signature of Wal-Mart Mechanical Services Department Construction Manager:

Date: _____

Attach completed punch list

Make 4 sets of all information and distribute to the following :

1. General Contractor after final checkout.
2. EMS supplier after all signatures are obtained
3. Wal-Mart HVAC technician (leave in package near GNC)
4. Installer's work file

Comments:

Explanations:

PRE-CHECKOUT VERIFICATION FORM

- _____ HOA switches in AUTO position for IOCs
- _____ Phase Loss Monitors wired and working properly
- _____ Sensors reading properly
- _____ No Communications Losses or Alarms exist
- _____ No Meter failed alarms
- _____ Overrides wired and working properly
- _____ Exterior lights override in off position
- _____ Verify exterior lights are working properly
- _____ Verify inside ALS is working properly by covering it and reading GNC display
- _____ Verify each CO2 sensor has its own power supply and is working properly
- _____ Verify CO2 dampers are working properly
- _____ Verify light dimming is working properly
- _____ Verify IOC outputs are working properly
- _____ Verify phone line is in, number is correct, and functioning

Each of the above lines shall be checked off with the technician's initials.

Without this Verification Form, on-line checkout will not begin.

Signed: _____

EMS Company: _____

Store #: _____ Location: _____

HVAC INFORMATION

[illegible]

HVAC INFORMATION

[illegible]

CUTLER HAMMER MODULE CONFIGURATIONS

Panel: _____ Module Address: _____
 Panel Location: _____ Number Of Circuits: _____

2P	CRK	LOAD	SOB	CRK	LOAD	SOB	2P
	1			2			
	3			4			
	5			6			
	7			8			
	9			10			
	11			12			
	13			14			
	15			16			
	17			18			
	19			20			
	21			22			
	23			24			
	25			26			
	27			28			
	29			30			
	31			32			
	33			34			
	35			36			
	37			38			
	39			40			
	41			42			

Indicate 2 pole breakers by checking “2p” box.

CUTLER HAMMER MODULE CONFIGURATIONS

Panel: _____ Module Address: _____
 Panel Location: _____ Number Of Circuits: _____

2P	CRK	LOAD	SOB	CRK	LOAD	SOB	2P
	43			44			
	45			46			
	47			48			
	49			50			
	51			52			
	53			54			
	55			56			
	57			58			
	59			60			
	61			62			
	63			64			
	65			66			
	67			68			
	69			70			
	71			72			
	73			74			
	75			76			
	77			78			
	79			80			
	81			82			
	83			84			

Indicate 2 pole breakers by checking “2p” box.

REFRIGERATED CASE SENSOR INPUT VERIFICATION

Store #

Location:

Wal-Mart Acceptance:

Date:

Tested By:

Company:

Module ID:				Module ID:				Module ID:			
S/N:				S/N:				S/N:			
Location:				Location:				Location:			
Input # Sensor ID	Sensor Input Readings			Input # Sensor ID	Sensor Input Readings			Input # Sensor ID	Sensor Input Readings		
	Pre-Cal	Post-Cal	Startup		Pre-Cal	Post-Cal	Startup		Pre-Cal	Post-Cal	Startup
1)				1)				1)			
2)				2)				2)			
3)				3)				3)			
4)				4)				4)			
5)				5)				5)			
6)				6)				6)			
7)				7)				7)			
8)				8)				8)			
9) Cir #	DT Switch Y / N			9) Cir #	DT Switch Y / N			9) Cir #	DT Switch Y / N		
Notes:				Notes:				Notes:			
Module ID:				Module ID:				Module ID:			
S/N:				S/N:				S/N:			
Location:				Location:				Location:			
Input # Sensor ID	Sensor Input Readings			Input # Sensor ID	Sensor Input Readings			Input # Sensor ID	Sensor Input Readings		
	Pre-Cal	Post-Cal	Startup		Pre-Cal	Post-Cal	Startup		Pre-Cal	Post-Cal	Star-tup
1)				1)				1)			
2)				2)				2)			
3)				3)				3)			
4)				4)				4)			
5)				5)				5)			
6)				6)				6)			
7)				7)				7)			
8)				8)				8)			
9) Cir #	DT Switch Y / N			9) Cir #	DT Switch Y / N			9) Cir #	DT Switch Y / N		
Notes:				Notes:				Notes:			

Immerse sensor in ice bath. Allow ample time for reading to stabilize. Record reading in Pre-Cal column. If sensor requires adjustment, follow calibration procedures. Record adjusted ready in Post-Cal column. Startup column is for EMS Supplier factory representative spot-check at refrigeration equipment startup.

PULSE METER LETTER

Cutler-Hammer IQ 200 Electrical Distribution System Meter

System Frequency	
Wiring Configuration	
Current Transformer Ratio	
Potential Transformer Ratio	
Demand Window	
KYZ Output Setting	
Energy per Pulse Rate	

Example:

System Frequency	60 Hz
Wiring Configuration	4 wire
Current Transformer Ratio	1200/5
Potential Transformer Ratio	N/A
Demand Window	5 min
KYZ Output Setting	KWh
Energy per Pulse Rate	1

PHASE LOSS INFORMATION

How many phase loss monitors exist in store? _____

Phase loss sensor cable wired between the common and the normally closed contacts?

Yes _____ if no, explain _____

Input to global network controller (GNC) is connected to phase loss input terminals?

Yes _____ if no, explain _____

480 volts to phase loss monitor(s)? Yes _____

What panel and circuit feed 480vac to phase loss monitor(s)?

Panel: _____	Circuit Breaker: _____
Panel: _____	Circuit Breaker: _____
Panel: _____	Circuit Breaker: _____
Panel: _____	Circuit Breaker: _____
Panel: _____	Circuit Breaker: _____

VOLTAGES	PLS #1	PLS #2	PLS #3	PLS #4	PLS #5
A To C					
B To C					
A To B					
A To Ground					
B To Ground					
C To Ground					

Phase Loss Sensor	Under-Voltage: _____	Vac
	Over-Voltage: _____	Vac
	Delay: _____	Seconds

Lighting information: Include copy of appropriate electrical drawing(s) indicating type of lighting control used, loads and their power circuits. (Use the one line drawing for the contactors, IFP(s), LCU(s) or Cutler Hammer-1000(s) from electrical drawings in plans.)

OPERATING INFORMATION

Communications established with Wal-Mart support: How many phase loss.

Yes_____ if no, explain_____

Each EMS cable is labeled and run without splice. (Include rooftop map from EM1 drawings showing any changes – use red ink on original.)

Yes_____ if no, explain_____

System cables meet material specifications.

Yes_____ if no, explain_____

Outdoor sensor assembly mounted per plas and facing north.

Yes_____ if no, explain_____

All system wiring is neatly tie-wrapped and not exposed to the elements.

Yes_____ if no, explain_____

Global network controller (GNC) batter jumper installed in proper position.

Yes_____ if no, explain_____

Ethernet communication has been established.

Yes_____ if no, explain_____

Activation of HOA switch to each position (off, on, auto) cause all loads to turn off or on according to the white label attached to the transition board of the input/output controller (IOC).

Yes_____ if no, explain_____

Demonstrate battery backup works by lifting global network controller (GNC) from its power supply then replacing it.

Yes_____ if no, explain_____

Demand pulse generator (DPG – demand meter) is functioning and global network controller (GNC) reads correct kw usage as calculated using formula on the pulse meter.

Yes_____ if no, explain_____

MANAGER'S ORIENTATION

Contractor: Initial each space.

- _____ 1. Show store manager typical zone sensor.
- _____ 2. Explain HVAC setpoints as outlined in the "Important Energy Management Information" memo to all managers.
- _____ 3. Show manager all lighting and sign control and explain how control is accomplished. Demonstrate manual override switches in the global network controller (GNC) and input/output controllers (IOC). Describe "fail-on" function of lights. Explain to the store manager that any position of the HOA switches other than auto creates an alarm condition that will cause the system to report to Wal-Mart Office Bentonville.
- _____ 4. Show manager the system power and phase loss breakers(s) location(s).
- _____ 5. Explain phase loss function. Demonstrate phase loss: all RTUs go off and lights stay on.
- _____ 6. Explain information on the load termination/operating instruction forms.
- _____ 7. Explain the remote override panel. Demonstrate each override and explain override times and loads affected.
- _____ 8. Explain store schedule and advise manager that he/she should call Wal-Mart general offices, Energy Management Department, (800) 932-3367, for any changes.
- _____ 9. Explain operation of CO2 damper controls or indoor air quality (IAQ) controls.
- _____ 10. Explain light dimming, lights will become bright and dim during the day, and that the lights will go off.
- _____ 11. Show the location of the dual temperature switches and how to identify which switch is for which case.

Date: _____ Store #: _____

Location: _____

I have participated in this orientation and understand the operation of the energy management system.

Manager's signature: _____

Note to manager: If you have any questions that have not been answered, please call Wal-Mart Support Monitoring at (800) 932-3367.

SECTION 13900 - FIRE SUPPRESSION

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Automatic sprinkler systems.
 - 2. Fire protection sprinkler piping work with feed and cross main piping, branch line piping, test valves, test connections, and sprinklers.
 - 3. Flow indicators, valves, gauges, alarms, drain piping, and supervisory switches.
 - 4. System design, installation and certification.
- B. Related Sections:
 - 1. Section 02510 - Water Distribution Systems.
 - 2. Section 09900 - Paints and Coatings.

1.2 REFERENCES

- A. ASTM International (ASTM):
 - 1. ASTM A 47 - Ferritic Malleable Iron Castings
 - 2. ASTM A 53 - Pipe, Steel, Black And Hot-Dipped, Zinc-Coated, Welded And Seamless
 - 3. ASTM A 135 - Electric-Resistance-Welded Steel Pipe
 - 4. ASTM A 234 - Piping Fittings Of Wrought Carbon Steel and Alloy Steel For Moderate And High Temperature Service
 - 5. ASTM A 536 - Ductile Iron Castings
 - 6. ASTM A 795 - Black And Hot-Dipped Zinc-Coated (Galvanized) Welded And Seamless Steel Pipe For Fire Protection Use
 - 7. ASTM A 865 - Threaded Couplings, Steel, Black Or Zinc-Coated (Galvanized) Welded Or Seamless, For Use In Steel Pipe joints
- B. American Society of Mechanical Engineers (ASME):
 - 1. ASME B 16.1 - Cast Iron Pipe Flanges And Flanged Fittings
 - 2. ASME B 16.3 - Malleable Iron Threaded Fittings
 - 3. ASME B 16.4 - Gray Iron Threaded Fittings
 - 4. ASME B 16.5 - Pipe Flanges And Flanged Fittings Nps 1/2 Through Nps 24 Metric/ Inch Standard
 - 5. ASME B 16.9 - Factory-Made Wrought Buttwelding Fittings
 - 6. ASME B 16.11 - Forged Fittings, Socket-Welding And Threaded
- C. Factory Mutual System (FM):
 - 1. Approval Guide, Latest edition.
- D. National Fire Protection Association (NFPA):
 - 1. NFPA 13, 2007 Edition - Installation of Sprinkler Systems.
 - 2. NFPA 24, 2002 Edition - Standard for the Installation of Private Fire Service Mains and their Appurtenances.
 - 3. NFPA 25, 2008 Edition - Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems.
 - 4. NFPA 70, 2007 Edition - National Electrical Code.
- E. Underwriters Laboratory (UL):
 - 1. UL Fire Protection Directory - Latest Edition.

1.3 SUBMITTALS

- A. Authorities Having Jurisdiction (AHJ)
1. Drawings and calculations have been submitted to the AHJ for code compliance at the time of the permit application.
 2. Fire Sprinkler Contractor must provide Deferred Submittals to AHJ per requirements of 01330. Drawings and calculations have not been submitted to the AHJ for code compliance by Wal-Mart's Fire Protection Consultant.
- B. Submit the following:
1. Product data
 2. Shop drawings
 3. Additional data as may be required by NFPA 13 and Wal-Mart's Fire Protection Consultant.
- C. Submittal Procedure:
1. Reference Section 01330 for general submittal procedures. Conform to provisions of Section 01330 unless otherwise specified herein.
 2. Within 21 days after award of prime contract, send submittals to Wal-Mart's Fire Protection Consultant as specified Section 01330. Allow 15 day turn-around on submittals sent to Wal-Mart's Fire Protection Consultant.
 - a. If the Contractor fails to submit a complete Fire Suppression submittal package within 21 days after award of contract, the Contractor shall pay the Owner \$250.00 per day as liquidated damages and not as a penalty, until the fully completed Fire Suppression submittal package is received by Wal-Mart's Fire Protection Consultant.
 - b. Send a copy of the Letter of Transmittal sent with the submittals to the Architect indicating date of and content of transmittal.
 3. Within 21 days after Award of Contract by Wal-Mart to Contractor, submit two copies of complete submittals to Authorities Having Jurisdiction if required by Wal-Mart's Fire Protection Consultant. Coordinate submittal with Wal-Mart's Fire Protection Consultant. Submit additional copies if required
 4. Submittals shall be complete, accurate, and in full compliance with contract requirements for proper and timely approval.
 5. Contractor shall respond to shop drawing review comments within 7 days of receipt.
 6. Maintain two copies of approved documents on site.
- D. Submittal Rejection:
1. Wal-Mart's Fire Protection Consultant will reject submittals which do not comply with Contract Documents. If submittal is rejected by Wal-Mart's Fire Protection Consultant for any reason, Wal-Mart Stores, Inc., will back-charge the Contractor \$200.00 via Change Order, to cover the processing costs of each subsequent review until submittal is approved. Submittal rejections include, but are not limited to, the following reasons:
 - a. Design Issues: Incorrect densities, design areas, equipment sprinkler spacing, hose station missing, incomplete system design, etc. No changes in design area, number of sprinklers operating, pipe sizes, number of branch lines, number of mains or deviation of water supply from that shown on the Contract Documents shall be approved by Wal-Mart's Fire Protection Consultant. This is not intended to limit the Contractor from making minor modifications to system design for coordination purposes.
 - b. Incorrect Water Test: Failure to use Wal-Mart water test found on project fire protection Construction Documents. No other water test data is permitted for system design submittals to Wal-Mart's Fire Protection Consultant.
 - c. Incorrect Material: Do not propose pipe, sprinklers or backflow preventers not indicated in Contract Documents. Products not specified in contract documents are cause for rejection.
 - d. Incorrect Valves: Do not propose OS&Y valves when wall PIV's are indicated in the Contract Documents.
 2. Rejected submittals shall be revised and resubmitted until approved. Extension of time will not be allowed for rejected submittals.
 - a. The Fire Suppression subcontractor shall revise and resubmit rejected submittals within 7 days of receipt of rejected submittals.
 - b. The Contractor shall verify that the Fire Suppression subcontractor has addressed all required revisions in the resubmittal.

- E. Contract Closeout Submittals: Submit the following under provisions of Section 01770.
1. Maintenance Data: Include components of system, servicing requirements, inspection data, and owners manuals.
 2. Training Requirements: Provide operational training to Wal-Mart. Include system control operation, Fire Pump (if provided) manual and abort functions, trouble procedures, auxiliary functions and emergency procedures.
 3. Contractors Material Test Certificates: Provide Copies of completed Underground, Overhead, and Fire Pump (if applicable) Contractor's Material Test Certificates.
 4. As-Built shop drawings indicating installed location of components, including all piping, sprinklers, hangers, valving, inspector's test stations, auxiliary drains, and hose stations (if required).
 5. Contractor's Record Letter of Conformance for Fire Suppression: Upon satisfactory Fire Sprinkler Site Observation and Acceptance Test (FPAT), Wal-Mart's Fire Protection Consultant will issue to the contractor a Contractor's Record Letter of Conformance for Fire Suppression. The Contractor shall complete the Record Letter of Conformance, obtaining all signatures (Consultant, Sub Contractor, and Contractor) and submit original for payment per Contract Documents. One Record Letter of Conformance shall be completed and submitted for all Fire Sprinkler Systems, Fire Pump Systems and Water Storage Tanks associated with the project.
 6. At Project completion, present to the Store Manager the As built Drawings enclosed in a plastic pipe tube (fixed cap at one end and a threaded-cap on the other end) for storage in the Riser Room.
 7. In addition to the copies of Documents delivered to the Store Manager, distribute additional copies of documents as indicated below:
 - a. Contractor shall deliver copies of the As-Built shop drawings and Contractor's Record Letter of Conformance for Fire Suppression and Contractor's Material Test Certificates (Underground, Overhead, and Fire Pump) in both hard copy and electronic form (*.pdf or *.plt) to Wal-Mart's Fire Protection Consultant.
 - b. Contractor shall deliver copies of the Contractor's Record Letter of Conformance for Fire Suppression and Contractor's Material Test Certificates (Underground, Overhead, and Fire Pump) in both hard copy and electronic form (*.pdf or *.plt) to

AIE
Sue Warmann
Alternatives in Engineering
1314 Hwy DD
Defiance, MO 63341
(636) 398-5288

1.4 SYSTEM DESCRIPTION

- A. System shall provide coverage for all existing and new building and expansion areas including, but not limited to, areas scheduled in this Section. Contract Documents have been prepared in accordance with NFPA 13 (working plans) except for fabrication information. The Contract Documents are prepared to a level consistent with that level required by the Authorities Having Jurisdiction to gain plan check approval. No changes in design area, number of sprinklers operating, pipe sizes, number of branch lines, number of mains or deviation of water supply from that shown on the drawings shall be approved by Fire Protection Consultant. This is not intended to limit the Contractor from making minor modifications to system design for coordination purposes. The Contractor shall review the Contract Documents for completeness and to ensure that the Construction Documents meet all Authorities Having Jurisdiction requirements. Discrepancies with NFPA or Authorities Having Jurisdiction requirements shall be brought to the attention of the Fire Protection Consultant prior to bid. The Contractor shall complete the fire protection Contract Documents to provide all final required detail such as fabrication details, final pipe cuts, hanger cuts, and other miscellaneous details not required by the Authority Having Jurisdiction for approval. Contractor is responsible to coordinate design with all trades and disciplines.
1. Fire Protection Consultant has submitted Contract Documents to Authorities Having Jurisdiction for review and approval. Contractor shall provide all other documents, qualifications, submittals and coordination necessary to obtain approval by Authorities Having Jurisdiction. All changes made to the Contract Documents by the Contractor shall be submitted to the Fire Protection Consultant for approval prior to fabrication or installation. Refer to Section 01330 for submittal requirements.

2. Provide automatic sprinkler system in new expansion building areas.
 3. Modify sprinkler system in existing building as required by work.
 4. In Sales Area, align new sprinkler heads with existing heads to provide a uniform pattern where applicable.
 5. Maintain full operational integrity of the existing fire protection systems during the construction of the project. Report any deficiencies found in the existing systems to the Wal-Mart Construction manager.
- B. Provide system complying with NFPA 13, Authorities Having Jurisdiction and Contract Documents. Densities and areas of application shown or specified have been developed based on NFPA requirements, engineering judgment and insurance carrier requirements.
 - C. Base system design on water flow test data shown on the Drawings.
 - D. Verify actual backflow preventer to ensure correct friction loss is calculated.
 - E. Provide fire department connections where required.
 - F. Sprinklers in light hazard areas shall be quick response type.
 - G. Limit each system to 52,000 square feet.
 - H. If overhead doors open in horizontal position, provide sprinklers below door when the door is in a horizontal position.
 - I. Provide hangers, supports and earthquake bracing per Contract Documents, NFPA 13, and Authorities Having Jurisdiction.
 - J. Interface sprinkler system with fire protection supervisory system.
 - K. If required by authority having jurisdiction, provide Fire Department lock-box; quantity, size, type and location as directed.

1.5 QUALITY ASSURANCE

- A. Guarantee system for a period of one year after completion of work and acceptance by Owner.
- B. Qualifications (Installer): Company specializing in performing work of this Section with minimum three years experience and a minimum of a NICET Certified Engineering Technician (Level III) Fire Sprinkler Designer on staff responsible for project.
- C. Company shall have a sprinkler contractor license issued by the Authorities Having Jurisdiction.
- D. Regulatory Requirements: Provide certificate of compliance from Authorities Having Jurisdiction indicating approval of field acceptance tests.

1.6 EXTRA MATERIALS

- A. Provide extra sprinklers under the provisions of NFPA 13. Provide suitable wrenches for each sprinkler type. Provide sprinklers as needed to meet the requirements listed below. Provide a minimum of 2 spare sprinklers for new sprinklers being added that do not match existing:
 1. 12 Sales Floor Type
 2. 4 Dry Pendent
 3. 2 each of other type present for a total of 24.
- B. If needed, provide sprinkler and sprinkler wrench cabinet per NFPA 13, adjacent to sprinkler risers.
- C. Provide hydraulic calculation placard attached to each riser on systems that are modified or added.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, and protect products to site under provisions of Section 01600.
- B. Store products in shipping containers and maintain in place until installation. Provide temporary inlet and outlet caps. Maintain caps in place until installation.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Provide UL Listed or FM Approved materials complying with NFPA 13, unless noted otherwise in Contract Documents.

2.2 FIRE PROTECTION PIPING - ABOVE GROUND

- A. Pipe: Steel pipe, conforming to the applicable requirements of NFPA 13, and ASTM A 53, ASTM A 135, or ASTM A 795, as applicable.
 - 1. Wet Pipe Systems, Utilizing Threaded Pipe:
 - a. Schedule 40 black steel pipe.
 - b. Threadable lightwall sprinkler pipe. One of the following:
 - 1) Dyna-Thread by Allied Tube and Conduit, Harvey, IL, (800) 882-5543.
 - 2) Eddy Thread 40 by Bull Moose Tube Company, Chesterfield, MO, (800) 325-4467.
 - 3) Mega-Thread by Wheatland Tube Company, Collingswood, NJ, (800) 257-8182.
 - 4) EZ-Thread by Youngstown Tube, Youngstown, OH (866) 843-8823.
 - 5) Substitutions: Not permitted.
 - c. Pipe shall have a corrosion resistance ratio of 1.0 or greater after threading.
 - d. Pipe located outdoors and piping in non-conditioned spaces shall be externally galvanized.
 - 2. Wet Pipe Systems, Utilizing Roll Grooved Pipe.
 - a. Schedule 10 black steel pipe.
 - b. Lightwall sprinkler pipe. One of the following:
 - 1) Dyna-Flow by Allied Tube and Conduit, Harvey, IL, (800) 882-5543.
 - 2) Eddy-Flow by Bull Moose Tube Company, Chesterfield, MO, (800) 325-4467.
 - 3) Fire-Flo by Youngstown Tube, Youngstown, OH (866) 843-8823.
 - 4) EZ-Flow, by Northwest Pipe Company, Portland, OR, (800) 824-9824.
 - 5) Substitutions: Not permitted.
 - c. Pipe shall have a corrosion resistance ratio of 1.0 or greater.
 - d. Pipe located outdoors and piping in non-conditioned spaces shall be externally galvanized.
 - 3. Dry Pipe Systems: Same as wet pipe systems except pipe shall be galvanized, zinc coated internally and externally.
- B. Fittings: Provide one of the following:
 - 1. Cast-Iron Threaded Flanges: ASME B16.1.
 - 2. Cast-Iron Threaded Fittings: ASME B16.4.
 - 3. Malleable-Iron Threaded Fittings: ASME B16.3.
 - 4. Steel, Threaded Couplings: ASTM A 865.
 - 5. Steel Welding Fittings: ASTM A 234, ASME B16.9, or ASME B16.11.
 - 6. Steel Flanges and Flanged Fittings: ASME B16.5.
 - 7. Steel, Grooved-End Fittings: UL-listed and FM-approved, ASTM A 47, malleable iron or ASTM A 536, ductile iron; with dimensions matching steel pipe and ends factory grooved according to AWWA C606. Roll groove only, cut groove unacceptable.
 - 8. Steel Fittings and Cast Iron fittings shall not be used for dry pipe systems.
 - 9. Fitting type shall match pipe. Galvanized fittings shall be used for dry pipe systems.
 - 10. Crimp-type couplings shall not be used.
- C. Flexible Piping Systems: At Contractor's option, UL listed and FM approved flexible piping connections to

sprinklers may be used for both suspended and sheetrock ceilings when suitable for their intended use.

1. Description: Connections shall include a fully welded (non-mechanical fittings), braided, leak-tested sprinkler drop with a minimum internal corrugated hose diameter of 1 inch, lengths of 2 ft to 6 ft., and a one-piece multi-port ceiling bracket with removable attachment hub and self-securing integrated snap-on clip-ends for attachment to ceiling grid without the need for a screw fastener.
2. Acceptable Manufacturer: Flex Head series 2000 by Flexhead Industries of Holliston, MA (800) 829-6975 or (508) 893-9596, Fax (508) 893-6020.
3. No Substitutions Permitted.

2.3 SPRINKLERS

- A. Subject to compliance with requirements, provide UL Listed or FM Approved automatic sprinklers. Provide sprinklers with nominal 5.6, 8.0, 11.2, or 16.8 K-factor. Sidewall sprinklers are not acceptable, unless noted otherwise. Provide the following sprinkler types:
 1. Areas With Exposed Structure Above: Upright or pendent sprinkler, bronze.
 2. Areas With Gypsum Board Ceilings: Pendent sprinkler, white, with two-piece white escutcheon plate.
 3. Areas With Lay-in Ceilings: Pendent sprinkler, white, with two-piece semi-recessed white escutcheon plate.
- B. Standard Sprinklers: Glass bulb sprinklers are acceptable. Sprinklers with o-rings not permitted.
- C. Dry Pendent Sprinklers shall be Concealed type Globe Model GL5681, Tyco Model TY3555, or Victaulic V3618.
 1. Substitutions: Not permitted.
- D. Dry Horizontal Sidewall Sprinklers shall be Tyco Model TY3355 or Reliable R5734.
 1. Substitutions: Not permitted.

2.4 ACCESSORIES

- A. Control Valve Supervisory Switches:
 1. Equip new post indicator valves with tamper switches, Model No. PCVS-2, as manufactured by Potter Electric Signal of St. Louis, Missouri. Wal-Mart will connect to alarm system.
 2. Equip new outside screw and yoke valves with tamper switches, Model No. OSYSU-2 as manufactured by Potter Electric Signal of St. Louis, Missouri. Wal-Mart will connect to alarm system.
 3. Provide new ball type control valves leading to alarm initiating devices, Model No. BVS, as manufactured by Potter Electric Signal of St. Louis, Missouri. Wal-Mart will connect to alarm system.
 4. All other new valves capable of controlling water to the Fire Protection Sprinkler systems shall have appropriate tamper switches. Wal-Mart will connect to alarm system.
- B. Wire Cage Sprinkler Guards:
 1. Provide guards on pendent sprinklers located within 7'-6" of finished floor, except for semi-recessed and concealed sprinklers.
 2. Provide guards on sprinklers located beneath overhead doors.
- C. Substitutions: Not permitted.

2.5 FIRE PUMP

- A. Fire Pump not permitted.

PART 3 - EXECUTION

3.1 GENERAL INSTALLATION REQUIREMENTS

- A. Install system and equipment in accordance with NFPA 13 and manufacturer's instructions.
- B. Replace with an identical K-Factor, temperature rating, and response-type any sprinkler that has signs of leakage,

paint applied other than by the sprinkler manufacturer, corrosion, damage, or loading; or is installed in the improper orientation.

3.2 INSTALLATION - ABOVE GROUND PIPING

- A. Provide piping in accordance with NFPA 13.
- B. Locate top beam clamp or thru bolt connection near joist panel points per pipe support detail.
- C. Provide piping to conserve building space. Do not interfere with use of building space and other work.
- D. Group piping whenever practical at common elevations.
- E. Prepare pipe, fittings, supports, and accessories for finish painting. Where pipe support members are welded to structural building framing, scrape, brush clean, and apply one coat of zinc rich primer to welding. Protect sprinkler to ensure sprinklers do not receive field paint. Remove protective covering after painting. Replace sprinklers having paint other than factory finish with new sprinklers. Cleaning and reuse of painted sprinklers is prohibited.
- F. Examine other work indicated on the Drawings and conditions at job site. Coordinate routing of work with other construction trades to avoid interference with other installations. Do not cut building structural members, beams, joists, etc. for routing of sprinkler piping.
- G. Seal pipe penetrations through fire rated walls or floors to achieve fire resistance equivalent to fire separation required. Provide wall plates at all penetrations. Provide zinc coated (galvanized) all-thread rod for hanging dry system piping.
- H. Provide valves with stems upright or horizontal.
- I. Route piping and locate sprinklers as required to avoid building structure, equipment, plumbing piping, heating and air conditioning piping, ductwork, lighting fixtures, electrical conduits and bus ducts, and similar work. Locate center of sprinkler a minimum of 6 inches off ceiling grid.
 - 1. Final location of lighting and exposed ductwork shall have priority over pipe routing and final sprinkler locations.
 - 2. Sprinkler piping in sales area without a ceiling and stockroom shall be located above bottom of joists. Minimum height of sprinkler piping in areas with ceilings shall be 1'-0" above ceiling.
- J. Provide pressure relief valves on gridded wet pipe systems
- K. Provide protection from freezing for sprinkler piping exposed to freezing conditions per Contract Documents and NFPA 13.
- L. Use full lengths of pipe except where needed to accommodate changes in direction or for space limitations.

3.3 IDENTIFICATION

- A. Apply signs to control, drain, test and alarm valves to identify their functions. Provide lettering sizes and styles per Authorities Having Jurisdiction. Provide hydraulic placard for each sprinkler system in accordance with NFPA 13. Stencil riser/zone numbers on risers.
- B. Provide a sprinkler zone map that clearly identify the location of all: areas protected, control valves, dry pipe valve, inspector's test valves, auxiliary drains, pumps, and tanks. Sprinkler Zone Map shall be laminated in plastic. Permanently attach to wall in fire sprinkler riser room.

3.4 FIELD QUALITY CONTROL

- A. General: Contractor shall schedule, coordinate and conduct all tests required by Authorities Having Jurisdiction and Wal-Mart's Fire Protection Consultant. Contractor shall modify, replace or retest as required by Authorities Having Jurisdiction and / or Wal-Mart's Fire Protection Consultant.
- B. Flush, test, and inspect sprinkler system according to NFPA 13 "Systems Acceptance" Chapter. Test the systems, including the underground water mains, and the aboveground piping and components to assure that equipment and components function as intended. Pressure test the systems in accordance with NFPA 13 and NFPA 24. The Contractor shall have available copies of as-built drawings.
 - 1. Above Ground Fire Protection Piping:
 - a. Test per NFPA 13.
 - b. Inspect welds and verify welder's qualifications per Authorities Having Jurisdiction.
 - c. Perform Hydrostatic tests per NFPA 13.
 - 2. Backflow Prevention Assembly Forward Flow Test.
 - 3. Operation of control valves and flowing of inspector's test connections to verify operation of alarm devices including alarm switches. After operation of control valves has been completed, assure that control valves are in the open position.
 - 4. Main Drain flow test.
- C. Fire Sprinkler System Construction Follow Up: Wal-Mart's Fire Protection Consultant (as specified in Section 01330) will conduct a Pre Construction Conference Call and Fire Sprinkler Site Observation and Acceptance Test (FPAT). The purpose of the Pre Construction Conference call is to review status of project, notify contractor of status of approvals, and review project expectations. The purpose of the Fire Sprinkler System Site Observation is to determine if the new or remodeled fire sprinkler systems are in general conformance with Contract Documents and shop drawings. The Contractor shall coordinate with Wal-Mart's Fire Protection Consultant for the time and date of the test. Scheduling for the FPAT shall begin 21 days prior to Construction End Date with FPAT being conducted one to one week prior to Construction End Date. FPAT shall occur prior to Construction End Date. A representative sample checklist is available upon request.

This construction follow up will be required on all projects in which more than a total of 2,500 square feet of the sprinkler systems (i.e. more than 25 new or relocated sprinklers are present in one store at one time) are affected.

- 1. Pre Construction Conference Call: The Contractor shall contact Wal-Mart's Fire Protection Consultant within 2 days after Contract Award to schedule the Pre Construction Conference Call with the Contractor, Fire Sprinkler Contractor, and Fire Pump Vendor (if applicable). The conference call will be held within 7 days after Award. FPAT will be preliminarily scheduled at time of Pre Construction conference call.
- 2. FPAT: Wal-Mart's Fire Protection Consultant will meet the Contractor, and Sprinkler Contractor. Contractor shall invite Alarm Central representatives to the test, but their presence is not required. At scheduled time, Contractor/Sprinkler Contractor shall be ready to initiate Acceptance tests as outlined herein. Prior to initiating tests, the following information shall be reviewed and copies provided to Wal-Mart's Fire Protection Consultant:
 - a. Contractors Materials and Test Certificate for Above Ground Piping (By System). As a minimum, the form shall contain information indicated in sample form shown in NFPA 13 (i.e. Figure 16.1 of 2002 edition). Certificate shall be complete and verify all information except Dry pipe test section and hydrostatic test section. Dry pipe section may be completed during Acceptance Test. Hydrostatic test may be completed in the future and a copy forwarded to Wal-Mart's Fire Protection Consultant at a later date.
 - b. Sprinkler Zone Map.
 - c. Approved Shop Drawings.
 - d. Fire Pump Factory Test Curve (if applicable).
- 3. After these documents have been reviewed, Acceptance Test shall be initiated by Contractor/Sprinkler Contractor in the order determined by Wal-Mart's Fire Protection Consultant. Each of these tests shall be interfaced with the fire alarm system. Contractor shall arrange for system to be put in test and arrange to be able to silence local alarms during Acceptance Test. Contractor shall coordinate with Alarm Central. The Contractor shall provide all personnel, material, equipment, lifts, air and water pumps, hand tools, and apparatus necessary to complete the above required testing. The Contractor shall notify the store management that the above tests are scheduled.

4. The following tests shall be conducted by the Contractor / Sprinkler Contractor and witnessed by Wal-Mart's Fire Protection Consultant. Generally this is the order the tests shall be conducted, but the Wal-Mart's Fire Protection Consultant may require tests be conducted in any order deemed appropriate. Determination of order will be made while on site.
 - a. Fire Pump Systems (if applicable): Sprinkler Contractor shall conduct a full NFPA 20 acceptance test, including (but not limited to) flow (churn, 100%, and 150%), manual and automatic starts, etc. Sprinkler Contractor shall provide all equipment and personnel necessary to conduct test. Verify flushing and pre-start preparation prior to test. Typically, this is the first test in the Acceptance Test.
 - b. Water Storage Tank (if applicable): Sprinkler Contractor shall drop water level, overflow tank, and operate tank heaters. Typically, this is the second test in the Acceptance Test.
 - c. Dry pipe Systems: Sprinkler Contractor shall operate dry system to verify High, and Low air pressure settings as well as water delivery time. This test typically follows the Fire Pump/Tank test depending on site conditions.
 - d. Inspector's Test: Sprinkler Contractor shall operate each Inspector's Test to verify flow switch operates within 90 seconds (preferred time is 45 seconds, minimum time is 30 seconds). This test typically follows the Dry pipe system Acceptance Test.
 - e. System Control Valves: Sprinkler Contractor shall operate each system control valve to verify functionality. This test typically follows the Inspector's Test Acceptance Test.
 - f. Antifreeze Systems (if applicable): Sprinkler Contractor shall test antifreeze mixture to verify proper solution ratio. This test typically follows the System Control Valve Acceptance Test.
 - g. Hydrostatic Test: Sprinkler Contractor shall hydrostatically test all systems simultaneously. Typically this will be the last test initiated, and depending on schedule may not be fully witnessed by Wal-Mart's Fire Protection Consultant. Contractor/Sprinkler Contractor shall certify and provide signed off copies of test certificates proving successful completion of Hydrostatic tests prior to full acceptance.
 5. After installation of all components, provide a Letter of Completion to Wal-Mart's Fire Protection Consultant. The Letter must state the date that the installation is in substantial conformance with Contract Documents and be signed by representatives from the Fire Sprinkler Contractor and Contractor. Additional documentation must be provided to the Fire Protection Consultant upon request, including photographs or Certificate of Occupancy.
- D. Replace sprinkler system components that do not pass test procedures and retest to demonstrate compliance. Repeat procedure until satisfactory results are obtained. The installation shall not be considered accepted until identified discrepancies have been corrected and test documentation is properly completed and received. If FPAT is required to be repeated or rescheduled due to unsatisfactory results rescheduling could take up to four weeks, and may result in Contractor being back charged for Wal-Mart's Fire Protection Consultant additional time and expenses.
- E. Prior to interior store finishing, test existing and new above ground pressure piping for leakage in presence of Authority Having Jurisdiction and Owner's representative. Maintain test pressure at the high end for two hours. Test pressure: 200 psi or 50 psi over normal operating pressure, whichever is greater. Conduct test in accordance with NFPA 13, Hydrostatic Tests. Submit documentation per Contract Closeout Submittals of this section and 01770.

END OF SECTION

CONTRACTOR'S RECORD LETTER OF CONFORMANCE
SECTION 13900, 13920, 13220 - FIRE SUPPRESSION

Project Location: _____ Date: _____

(City) State Store Number Project Number

Statement of Conformance:

This Record Letter of Conformance is provided as a Record Document in accordance with Section 01770 – Contract Closeout. The undersigned hereby declares that the fire sprinkler system(s) including fire pump(s) and water storage tanks (hereafter referred to as the “Systems”) is installed and is in general conformance with the Contract Documents, submitted shop drawings and submitted product data. The “Systems” have been provided and placed in operational condition in accordance with the manufacturer's published instructions and the Contract Documents. To be accepted, all signatures must be original ink signatures (copies are not allowed).

FIRE SPRINKLER SUBCONTRACTOR:

(Subcontractor Signature) Phone Number: () _____

(Subcontractor name and address)

CONTRACTOR:

Contractor Company Name Signature Title of Signatory

Recommendation of Acceptance (This Section to be completed by Wal-Mart's Fire Protection Consultant):

FPAT Required for this project: ☐ Yes ☐ No

If no is checked above, FPAT has not been conducted. In those cases where a FPAT is not conducted, this Recommendation of Acceptance from Wal-Mart's Fire Protection Consultant is only based on a review and approval of the documents provided by the Contractor .

This Recommendation of Acceptance is provided as a Record Document in accordance with Section 01770 – Contract Closeout. We recommend Wal-Mart accept the installation of the “Systems” (as referenced above). The “Systems” Installation/Design are found to be in general conformance with the Contract Documents, and Approved Shop Drawings. This recommendation is based on Shop Drawing review and Fire Sprinkler Site Observation and Acceptance Test (FPAT) conducted on _____ (Report Date), and follow up verification of identified issues conducted on _____ (Trip Date, Report Date).

While this review is an integral part of this project, it does not relieve the Contractor of their responsibility to comply with the applicable provisions of the Contract Documents along with the mandated codes and standards. These examinations shall not be construed as a check of every item nor does it prevent authorities from hereafter requiring corrections of errors in plans or installation.

WAL-MART'S FIRE PROTECTION CONSULTANT:

Signature and contact Name of Wal-Mart's Fire Protection Consultant Phone Number: () _____

(Wal-Mart's Fire Protection Consultant name and address)

SECTION 15050 - BASIC MECHANICAL MATERIALS AND METHODS

GENERAL

1.1 SUMMARY

A. Section Includes:

1. Hangers and Supports: Pipe supports.

B. Related Section:

1. Section 13900 - Fire Suppression: Fire Protection Sprinkler system piping.
2. Section 15100 - Building Services Piping: Domestic water, reverse osmosis, sanitary drain and vent, interior storm water, and condensate piping. Piping Insulation. Pipe freeze protection.

1.2 REFERENCES

- A. The publications listed below form a part of this specification to the extent referenced. Publications are referenced within the text by the basic designation only.

B. British Standards Institution (BS):

1. BS302 - Specifications for stranded steel wire ropes.

C. Cast Iron Soil Pipe Institute (CISPI):

1. Cast Iron Soil Pipe and Fittings Handbook.
- 2.

1.3 QUALITY ASSURANCE

- A. Comply with rules and regulations of public utilities and municipal department affected by connection of services.

- B. Laws, codes, and ordinances shall take precedence except where work called for by Drawings and Specifications exceeds code requirements in quality or quantity.

1.4 CONSTRUCTION DOCUMENTS

- A. Drawings and Specifications show pipe and duct sizes, general routing and location, and describe various systems. These documents describe equipment, including size, general location, usage, support, and auxiliary requirements. Contract Documents do not, however, detail certain job requirements. Drawings are intended to cover layout and design of the Work and are not to be scaled for exact measurements. Where specific detail and dimension for mechanical Work are not shown on Drawings, take measurements and make layouts as required for proper installation of mechanical Work in coordination with other Work on project.

1.5 DELIVERY, STORAGE AND HANDLING

- A. Follow manufacturer's published directions in the delivery, storage, protection, installation, piping, and wiring, and start-up of equipment and materials.

PRODUCTS

1.6 HANGERS AND SUPPORTS

- A. Pipe Hanger Schedule: Pipe hangers shall be as specified in Schedule I at the end of this Section.

- B. Multiple or Trapeze Hangers: Steel channels with angles or unistrut spacers and hanger rods.
15050-1

- C. Wall Support for Pipe Sizes to 3 Inches: Cast iron hook.
- D. Wall Support for Pipe Sizes 4 Inches and Over: Welded steel bracket and wrought steel clamp, adjustable steel yoke and cast iron roll for hot pipe sizes 6 inches and over.
- E. Vertical Support: Steel riser clamp.
- F. Provide copper plated hangers and supports for uninsulated copper piping. Provide plastic inserts for uninsulated copper piping penetrating metals studs.

1.7 WIRE ROPE HANGER SYSTEMS (CONTRACTOR'S OPTION)

- A. General: At the option of the Contractor, wire rope hanger system for piping support may be used in lieu of conventional hangers specified above.
- B. Manufacturer: Gripple Limited, Sheffield, United Kingdom. U. S. Distributor: Gripple, Inc., Batavia, IL. (630) 208-0111.
- C. Product: Hang Fast Wire Rope Hanging System by Gripple Inc.
 - 1. Substitutions: Not permitted.
- D. Wire Rope:
 - 1. Galvanized steel wire rope, manufactured to BS302.
 - 2. Standard lengths of 5, 10, 15 and 30 feet with a preformed loop at one end.
- E. Locking Mechanism:
 - 1. Zinc housing with Type 302 S26 stainless steel springs along with oil impregnated steel locking wedges.

EXECUTION

1.8 HANGERS AND SUPPORTS

- A. Support pipes throughout building, both horizontally and vertically. Attach to structure overhead by methods approved at job site. Do not use fasteners which penetrate the roof deck.
 - 1. For Projects in Seismic Zones 2, 3 or 4, provide sway bracing to comply with code seismic requirements.
- B. In areas without ceilings, secure insulation shields to insulation with pressure sensitive tape at each end of shield.
- C. Piping Support Spacing: Support horizontal piping above slab as shown in Schedules II and III at the end of this Section.
- D. Install hangers to provide minimum 1/2 inch clear space between finished covering and adjacent work.
- E. Place a hanger within one foot of each horizontal elbow.
- F. Wire Rope Hanger Systems (Gripple Hang-Fast) (Option).
 - 1. Comply with manufacturer's load ratings and recommended installation procedures.
 - 2. For insulated pipe, provide pipe saddles to protect the entire circumference of the pipe insulation.
 - 3. Support piping in accordance with Schedule IV at the end of this Section.

1.9 OPERATION PRIOR TO ACCEPTANCE

- A. Contractor may operate any equipment provided that the operation is supervised and the Contractor retains full responsibility for properly maintaining equipment and the full manufacturers warranty remains unaffected from the time of Owner possession.

1.10 SCHEDULES: Schedules below apply to all piping hung inside the building.

SCHEDULE I - PIPE HANGER SCHEDULE						
Pipe Service	Pipe Size	Hanger Type	B-Line No.	Globe No.	Grinnell No.	PHD
Uninsulated Steel or PVC or CPVC	2" & smaller	Split Ring	B-3173 with B-3224	721	108 with 114	500 with 114
	2-1/2" & larger	Clevis	B-3100	404/407	260	450
Uninsulated Copper	2" & smaller	Ring	B-3170-CT	301	CT 99	152
	2-1/2" & larger	Clevis	B-3104-CT	407	CT 65	442
Cast Iron Soil Pipe	All	Clevis	B-3102	404	260	420
Insulated Steel or PVC	2" & smaller	Clevis	B-3100 with shield	404 with shield	260 with shield	550 with shield
Insulated Copper	2" & smaller	Clevis	B-3104 with shield	411 with shield	CT 65 with shield	442 with shield
	2 1/2" & larger	Clevis	B-3100 with shield	408 with shield	260 with shield	442 with shield

SCHEDULE II - PIPING SUPPORT SCHEDULE				
Maximum Spacing In Feet				
Copper	Steel	Cast Iron	PVC	CPVC
6' max up to 1-1/4" I.D. 10' max all other	12' max	5' max, except may be 10' max where 10' lengths are installed. Min one hanger at each joint.	4' max	3' max up to 1" I.D. 4' max all other

SCHEDULE III - PIPING SUPPORT SCHEDULE (GAS PIPE) Maximum Spacing In Feet	
Pipe I.D.	Steel
1/2"	6'
3/4" or larger	8'

SCHEDULE IV - WIRE ROPE HANGER SYSTEM SCHEDULE

Pipe I.D.	Single hanger at 10 ft. spacing	Single hanger at 6 ft. spacing	Single hanger up to 4 ft. spacing
Up to 2"	No. 2	No. 2	No. 2
Up to 3"	No. 3	No. 2	No. 3
Up to 4"	No. 3	No. 3	No. 3
Up to 5"	No. 4	No. 3	No. 4
Up to 6"	No. 4	No. 4	No. 4
<p>NOTES:</p> <ol style="list-style-type: none"> 1. Maintain maximum spacing as shown above. 2. Wire diameters are based on the following sizes: Size 2= 5/64" Size 3 = 1/8" Size 4= 3/16" 3. Hanger sizes are based on vertical hanging only. Refer to manufacturer's data for load limits of hangers at angles other than vertical. 4. Schedule is based on schedule 40 steel pipes filled with water. 			

END OF SECTION

SECTION 15100 - BUILDING SERVICES PIPING

PART 1 - GENERAL

0.1 SUMMARY

A. Section Includes:

1. Under-building slab and aboveground domestic water pipes, tubes, fittings, and specialties inside the building.
2. Sanitary waste and vent piping.
3. Interior storm drainage piping.
4. Air conditioning condensate piping.
5. Waste cooking oil piping.
6. Drains, cleanouts, hose bibbs, and hydrants.
7. Water piping and drain piping specialties.
8. Grease interceptors.
9. Pipe freeze protection.
10. Piping Insulation.
11. Connection of miscellaneous equipment furnished under other Sections.
12. Testing.

B. Related Sections.

1. Section 06100 - Rough Carpentry: Preservative pressure treatment for wood blocking pipe supports.
2. Section 07530 - Elastomeric Membrane Roofing: Isolation pads for pipe supports on roofing.
3. Section 07620 - Sheet Metal Flashing and Trim: Flashing of roof penetration.
4. Section 02300 - Earthwork: Backfilling and compacting trenches.
5. Section 11140 - Vehicle Service Equipment: Automotive Center piping.
6. Section 15050 - Basic Mechanical Materials and Methods: Piping hangers and supports.
7. Section 16100 - Wiring Methods.

0.2 REFERENCES

- A. The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.
- B. American Society of Mechanical Engineers (ASME):
1. ASME A13.1 - Scheme for the Identification of Piping Systems.
 2. ASME A112.14.3 - Grease Interceptors.
- C. American National Standards Institute (ANSI):
1. ANSI B16.3 - Malleable Iron Threaded Fittings.
 2. ANSI B16.22 - Wrought Copper & Copper Alloy Solder-Joint Pressure.
- D. American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE)
1. ASHRAE 90.1 - Energy Efficient Design of New Buildings except New Low-Rise Residential Buildings.
- E. ASTM International (ASTM):
1. ASTM A53 - Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless.
 2. ASTM A74 - Hub and Spigot Cast Iron Soil Pipe and Fittings.
 3. ASTM A536 - Ductile Iron Castings.
 4. ASTM A861 - High-Silicon Iron Pipe and Fittings.
 5. ASTM A888 - Hubless Cast Iron Soil Pipe and Fittings.
 6. ASTM B88 - Seamless Copper Water Tube.
 7. ASTM B135 - Seamless Brass Tube.

8. ASTM B584 - Copper Alloy Sand Castings for General Applications.
9. ASTM C564 - Rubber Gaskets for Cast Iron Soil Pipe and Fittings.
10. ASTM C921 - Determining The Properties Of Jacketing Materials For Thermal Insulation.
11. ASTM C1277 - Shielded Couplings Joining Hubless Cast Iron Soil Pipe and Fittings.
12. ASTM C1540 - Heavy Duty Shielded Couplings Joining Hubless Cast Iron Soil Pipe and Fittings.
13. ASTM D1785 - Poly vinyl Chloride (PVC) Plastic Pipe, Schedules 40, 80, and 120.
14. ASTM D2000 - Standard Classification System for Rubber Products in Automotive Applications.
15. ASTM D2467 - Polyvinyl Chloride (PVC) Plastic Pipe Fittings, Schedule 80.
16. ASTM D2564 - Solvent Cements for Polyvinyl Chloride (PVC) Plastic Pipe and Fittings.
17. ASTM D2609 - Plastic Insert Fittings for Polyethylene (PE) Plastic Pipe.
18. ASTM D2661 - Acrylonitrile-Butadiene-Styrene (ABS) Schedule 40 Plastic Drain, Waste, And Vent Pipe And Fittings.
19. ASTM D2665 - Poly(Vinyl Chloride) (PVC) Plastic Drain, Waste, and Vent Pipe and Fittings.
20. ASTM D2855 - Making Solvent-Cemented Joints with Polyvinyl Chloride (PVC) Pipe and Fittings.
21. ASTM D3311 - Drain, Waste, and Vent (DWV) Plastic Fittings Patterns.
22. ASTM E84 - Surface Burning Characteristics of Building Materials.
23. ASTM E96 - Water Vapor Transmission Materials.
24. ASTM F439 - Chlorinated Poly (Vinyl Chloride) (CPVC) Plastic Pipe Fittings, Schedule 80.
25. ASTM F441 - Chlorinated Poly (Vinyl Chloride) (CPVC) Plastic Pipe, Schedules 40 and 80.
26. ASTM F493 - Solvent Cements For CPVC Pipe And Fittings.
27. ASTM F656 - Primers for Use in Solvents Cement Joints Of Poly (Vinyl Chloride) (PVC) Plastic Pipe and Fittings.
28. ASTM F876 - Crosslinked Polyethylene (PEX) Tubing.
29. ASTM F2014 - Non-Reinforced Extruded Tee Connections for Piping Applications.

- F. American Water Works Association (AWWA):
1. AWWA C651 - Disinfecting Water Mains.

0.3 SUBMITTALS

- A. Product Data: Submit product data and installation details for grease interceptor to Authority Having Jurisdiction for approval. Include rated capacities, operating characteristics, and accessories.
- B. Closeout Submittals: Submit the following as described in the testing and inspection requirements in Part 3 below as a part of closeout submittals in accordance with Section 01770.
1. Certification of video inspection contractor qualifications.
 2. Video inspection report.
 3. Certification of dye testing contractor qualifications.
 4. Dye testing report.
 5. Disinfection report.

PART 2 - PRODUCTS

2.1 DOMESTIC WATER PIPING

- A. Water Piping Above Grade:
1. Type "L" hard drawn, seamless copper water tube, ASTM B88.
 2. Jointing: Join with wrought copper pressure fittings, ANSI B16.22. Make joints using "lead free" solder and a non-corrosive, paste-type flux. Core solder is not permitted. Solder shall be solid string or wire type. Where soldered copper piping is connected to threaded brass piping, use cast brass adaptor.
 3. At Contractor's option, in lieu of a soldered copper piping system as specified above, any of the following copper pipe assembly systems may be used.
 - a. CTS Copper Grooved Piping System by Victaulic Company of America: Copper tubing systems from 2" through 8" shall be installed using mechanical pipe couplings of a bolted type, with pressure-responsive gaskets and grooved end copper or bronze fittings. The CTS System shall include the following components:

- 1) Copper Tube: Type "L" hard drawn, seamless copper water tube, ASTM B88.
 - 2) Mechanical Couplings: Style 606 rigid couplings 2 inch – 8 inch for copper consisting of ductile iron cast housing, a synthetic rubber gasket of a pressure-responsive design, with plated nuts and bolts to secure unit together.
 - 3) Coupling Housings: Ductile iron conforming to ASTM A536, Grade 65-45-12, with a copper color alkyd enamel paint coating.
 - 4) Gaskets: Molded of Grade "E" EPDM synthetic rubber, conforming to ASTM D2000, designation 2CA615A25B24F17Z, and recommended for potable water service within the specified temperature range of –30 to +230 degrees F. Gaskets shall conform to the copper tube size (CTS) outside diameter and coupling housing inside diameter.
 - 5) Flange Adapters: Style 641 adapters 2"-6", ductile iron ASTM A536, Grade 65-45-12, engaging directly into roll grooved copper tube and fittings and bolting directly to ANSI Class 125 cast iron and Class 150 steel flanged components; installer shall provide standard flange bolts.
 - 6) Fittings: Full flow copper fittings with grooves designed to accept Victaulic grooved end couplings. Fittings shall be copper per ASTM B75 alloy C12200; or bronze sand castings per ASTM B584 copper alloy CDA 844 (81-3-7-9) per ANSI B16.18. Use Style 47 dielectric waterways when connecting dissimilar metals in liquid systems.
 - 7) Valves: Series 608 Butterfly valves, 2-1/2" - 6", 300 psi, with grooved ends, cast bronze body to CDA-836 (85-5-5-5), rubber encapsulated ductile iron disc, ASTM A536, Grade 65-45-12. Bubble tight, dead-end or bi-directional service as required.
 - b. ProPress copper pipe fitting system by Viega.
 - c. Mechanically formed tee fitting system by T-Drill Industries in accordance with ASTM F 2014.
 - 1) Joints shall be installed (brazed) in compliance with code and the manufacturer's instructions.
 - 2) Soft solder joints shall not be used.
 4. Assembly and Quality Assurance.
 - a. Contractor shall be a certified installer of any of the optional copper piping assembly systems used.
 - b. The piping system manufacturer shall certify that the piping system is installed in accordance with its recommendations.
- B. Water Piping Below Grade (Under Slab):
1. 1-1/2 Inches and Smaller:
 - a. Crosslinked PE (PEX) tubing, ASTM F876 without joints beneath the slab.
 - b. Type 'K' soft copper without joints beneath slab.
 2. 2 Inches and Larger: Type K
- C. Chrome-Plated Seamless Brass Tube: ASTM B135.
- D. Insulation:
1. Manufacturers: Subject to compliance with requirements, provide insulation as manufactured by one of the following:
 - a. CertainTeed.
 - b. Imcoa (Nomaco K-Flex).
 - c. Knauf.
 - d. Owens-Corning.
 - e. Johns Manville.
 - f. Armacell.
 2. Provide one of the following types of insulation throughout the project:
 - a. Rigid Glass Fiber: Type ASJ/SSL, maximum k factor at 75 degrees F of 0.23 Btu-in/hr.f.sq ft, 3 lb/cu.ft density. Vapor barrier jacket shall be white kraft paper with glass fiber yarn, bonded to aluminized film conforming to ASTM C921, with a maximum moisture vapor transmission rate of 0.02 perm-inch in accordance with ASTM E96. Insulate fittings with PVC covers with glass fiber inserts.
 - b. Polymer Foam Insulation: Arctictherm by Imcoa or equal. Maximum k factor at 75 degrees F of 0.25 Btu-in/hr.f.sq ft, 1.5 lbs/cu. ft. density, maximum flame spread and smoke development of 25

- and 50, respectively per ASTM E84. Insulate fittings with pre-formed foam covers.
- c. Elastomeric Flexible Closed Cell Insulation: AP Armaflex W (white) by Armacell or equal. Maximum k factor at 75 degrees F of 0.28 Btu-in/hr.f.sq ft, maximum flame spread and smoke development of 25 and 50, respectively. Insulate fittings per manufacturer's recommendations.
- 3. Insulation Color: White.
- 4. Insulation Thickness: Provide minimum insulation thickness for water piping in compliance with ASHRAE 90.1 and the following:
 - a. Hot Water:
 - 1) Branch runouts up to 2" in diameter and less than 12 feet in length: 1/2" insulation.
 - 2) Pipes 2" in diameter and less: 1" insulation.
 - 3) Pipes 2-1/2" to 4": 1-1/2" insulation.
 - b. Cold Water: 1/2" insulation.

2.2 SANITARY WASTE AND VENT PIPING

- A. Soil, Waste, and Vent Piping: Provide any of the following as applicable:
 - 1. Cast Iron: Cast iron soil pipe and fittings, coated inside and outside, ASTM A74 or ASTM A888. Provide weight of pipe as required by code for location and duty.
 - 2. Ductile-Iron Pipe: AWWA C151 or AWWA C115 ductile-iron pipe, with AWWA C104 cement-mortar lining.
 - 3. ABS Pipe: May be used for sanitary drainage pipes (drain, waste, and vent) where permitted by Authority Having Jurisdiction.
 - a. Solid-Wall ABS Pipe: ASTM D2661, Schedule 40. Cellular (foam) core ABS not permitted.
 - b. ABS Socket Fittings: ASTM D2661, made to ASTM D3311, drain, waste, and vent patterns.
 - 4. PVC Pipe: May be used for sanitary drainage pipes (drain, waste, and vent) where permitted by Authority Having Jurisdiction.
 - a. Solid-Wall PVC Pipe: ASTM D2665, drain, waste, and vent. Cellular (foam) core PVC not permitted.
 - b. PVC Socket Fittings, ASTM D2665, made to ASTM D3311, drain, waste, and vent patterns.
 - 5. Copper Drainage Tubing (Above grade only): Copper drainage tubing conforming to ASTM B306.
- B. Joints:
 - 1. Cast Iron Pipe: Push-on compression gasketed type joint for hub and spigot, ASTM C564. No-hub mechanical joints with center stops, ASTM 1277 or ASTM C1540.
 - 2. ABS and PVC Pipe: Solvent-welded joints.
 - 3. Copper Drainage Tubing: Join with wrought copper pressure fittings, ANSI B16.22. Make joints using "lead free" solder and a non-corrosive paste type flux. Core solder shall not be used. Solder shall be solid string or wire type.
- C. Traps:
 - 1. Provide deep seal P-traps for floor drains, including drains furnished as integral parts of floor-type mop basins, and similar fixtures.

2.3 AIR CONDITIONING CONDENSATE PIPING

- A. Condensate Trap: Install trap furnished with RTU.

2.4 WASTE COOKING OIL PIPING

- A. Outlet (Discharge) and Vent Piping: ASTM A53 Schedule 40 galvanized steel pipe with 150 lb galvanized steel threaded fittings.
- B. Interior Pipe Escutcheons: Chrome-plated, stamped, steel, hinged, split-ring escutcheon, with set screw. Inside diameter shall closely fit pipe outside diameter, or outside of pipe insulation where pipe is insulated. Outside diameter shall completely cover the opening in walls.
 - 1. Manufacturers: Subject to compliance with requirements, provide escutcheon as manufactured by one of

the following:

- a. Chicago Specialty Manufacturing Company.
- b. Tubular Brass Plumbing Products, Zurn Industries, Inc.

- C. Exterior Pipe Escutcheons: 304 Stainless Steel. Inside diameter shall closely fit pipe outside diameter, or outside of pipe insulation where pipe is insulated. Outside diameter shall completely cover the opening in walls.

2.5 DRAINS, CLEANOUTS, HOSE BIBBS, AND HYDRANTS

- A. Subject to compliance with Project requirements, provide drains, cleanouts, hose bibbs, and hydrants of manufacturers, types, and model numbers as scheduled on the Drawings.

2.6 WATER PIPING SPECIALTIES

- A. Subject to compliance with Project requirements, provide piping specialties of manufacturers, types, and model numbers as indicated on the Plumbing Schedules on the Drawings. Water piping specialties shall include such items as hose bibbs, hydrants, valves, backflow preventers, vacuum breakers, mixing valves, pressure reducing (regulating) valves, expansion tanks, water hammer arresters, trap primers, and accessories therefor.

2.7 DRAINAGE PIPING SPECIALTIES

- A. Subject to compliance with Project requirements, provide piping specialties of manufacturers, types, and model numbers as indicated on the Plumbing Schedules on the Drawings. Drainage piping specialties shall include floor and roof drains, deck drains, cleanouts, and accessories therefor.

2.8 GREASE INTERCEPTORS

- A. Provide grease interceptor and associated piping as shown on the drawings and as acceptable to the Authority Having Jurisdiction. Minimum size shall be as indicated.
- B. Standard: ASME A112.14.3 for intercepting and retaining fats, oils, and greases from food-preparation or -processing wastewater.

2.9 SPECIALITY PLUMBING FIXTURES

- A. Subject to compliance with Project requirements, provide specialty plumbing fixtures of manufacturers, types, and model numbers as scheduled on the Drawings.

2.10 PIPE FREEZE PROTECTION

- A. Pipe freeze protection system shall include the following:
 - 1. Parallel circuit heating cable.
 - 2. Transformers.
 - 3. Outdoor ambient thermostat.
 - 4. Junction boxes.
 - 5. Branch circuit wiring and conduit as specified in Section 16100.
 - 6. Other items as necessary to complete system.
- B. Components:
 - 1. Heating Cable: Parallel circuit, jacketed cable, self-limiting, 120 volt. Provide XL-Trace as manufactured by Raychem or equal by Chemelex.
 - a. Provide minimum 5 watts per lineal foot (or more) as required for specified piping and insulation per manufacturer's published instructions.
 - b. Provide termination fittings for direct connection to junction boxes.

2. Junction Boxes: NEMA 5 watertight.
3. Outdoor Ambient Thermostat: Provide thermostat with adjustable contacts. Set contacts to close at 40 degrees F on decreasing temperature.

PART 3 - EXECUTION

0.1 PIPING INSTALLATION

- A. Install piping neatly and parallel with, or perpendicular to, lines of the structure. Install pipe hangers as specified in Section 15050 to maintain accurately aligned piping systems, adequately supported both laterally and vertically.
- B. Backfill and compact trenches for piping below the slab per civil specifications.
- C. Provide Schedule 40 steel pipe sleeve, minimum of one size larger than the protected pipe, for underground piping routed beneath structural footings. Extend sleeve 24 inches in both directions beyond the footing.
- D. Where practical, connect two or more vents together and extend as one vent through roof. Make vent connections to stacks by appropriate use of 45 degree wyces, long sweep quarter bends, sixth, eighth, or sixteenth bends, except that sanitary tees may be used on the vertical stacks.
- E. Extend vent piping 12 inches above roof line or more if required by Authority Having Jurisdiction. Coordinate installation with roofing.
- F. Conceal piping in chases, interior walls, furred spaces, and above ceiling.
- G. Identify nonpotable water systems by color markings or metal tags in accordance with ASME A13.1.
- H. Make piping connections to fixtures and equipment with chrome-plated seamless brass tube with cleanout plug and escutcheon.
- I. For items to be installed on split face CMU, grind surface of CMU to a smooth finish for tight installation. Seal with silicone sealant in accordance with Section 07900.

0.2 PIPING INSULATION - INSTALLATION

- A. Domestic Hot and Cold Water Lines: Insulate lines above slab. Do not insulate garden center irrigation piping nor Reverse Osmosis piping.
- B. Interior Air Conditioning Condensate Piping: Insulate condensate piping below roof.

0.3 WATER PIPING SPECIALTIES INSTALLATION

- A. Install backflow preventers in each water supply to mechanical equipment and systems and to other equipment where shown and water systems that may be sources of contamination. Comply with authorities having jurisdiction.
 1. Locate backflow preventers in same room as connected equipment or system.
 2. Install drain for backflow preventers with atmospheric-vent drain connection with air-gap fitting, fixed air-gap fitting, or equivalent positive pipe separation of at least two pipe diameters in drain piping and pipe to floor drain. Locate air-gap device attached to or under backflow preventer. Simple air breaks are not acceptable for this application.
 3. Do not install bypass piping around backflow preventers.
- B. Install water regulators with inlet and outlet shutoff valves. Install pressure gages on inlet and outlet.
- C. Install balancing valves in locations where they can easily be adjusted.

- D. Install temperature-actuated water mixing valves with check stops or shutoff valves on inlets and with shutoff valve on outlet.
 - 1. Install thermometers and water regulators if specified.
 - 2. Install cabinet-type units recessed in or surface mounted on wall as specified.
- E. Install Y-pattern strainers for water on supply side of each control valves and pressure-reducing valves.
- F. Install water hammer arresters in water piping according to PDI-WH 201.
- G. Install supply-type, trap-seal primer valves with outlet piping pitched down toward drain trap a minimum of 1 percent, and connect to floor-drain body, trap, or inlet fitting. Adjust valve for proper flow.
- H. Drawings indicate general arrangement of piping and specialties.
- I. Equipment Nameplates and Signs: Install engraved plastic-laminate equipment nameplate or sign on or near each of the following:
 - 1. Intermediate atmospheric-vent backflow preventers.
 - 2. Reduced-pressure-principle backflow preventers.
 - 3. Double-check backflow-prevention assemblies.
 - 4. Water pressure-reducing valves.
 - 5. Primary, thermostatic, water mixing valves.
 - 6. Supply-type, trap-seal primer valves.
- J. Distinguish among multiple units, inform operator of operational requirements, indicate safety and emergency precautions, and warn of hazards and improper operations, in addition to identifying unit.

0.4 DRAIN PIPING SPECIALTIES INSTALLATION

- A. Install backwater valves in building drain piping. For interior installation, provide cleanout deck plate flush with floor and centered over backwater valve cover, and of adequate size to remove valve cover for servicing.
- B. For floor cleanouts for piping below floors, install cleanout deck plates with top flush with finished floor.
- C. For cleanouts located in concealed piping, install cleanout wall access covers, of types indicated, with frame and cover flush with finished wall.
- D. Install floor drains at low points of surface areas to be drained. Set grates of drains flush with finished floor, unless otherwise indicated.
 - 1. Position floor drains for easy access and maintenance. Set floor drains below elevation of surrounding finished floor to allow floor drainage.
 - 2. Install floor-drain flashing collar or flange so no leakage occurs between drain and adjoining flooring. Maintain integrity of waterproof membranes where penetrated.
 - 3. Install individual traps for floor drains connected to sanitary building drain, unless otherwise indicated.
- E. Install roof drains at low points of roof areas according to roof membrane manufacturer's written installation instructions.
 - 1. Install roof-drain flashing collar or flange so that there will be no leakage between drain and adjoining roofing. Maintain integrity of waterproof membranes where penetrated.
 - 2. Position roof drains for easy access and maintenance.
- F. Install deep-seal traps on floor drains and other waste outlets, if indicated.
- G. Install floor-drain, trap-seal primer fittings on inlet to floor drains that require trap-seal primer connection.
 - 1. Exception: Fitting may be omitted if trap has trap-seal primer connection.
 - 2. Size: Same as floor drain inlet.

- H. Install air-gap fittings on draining-type backflow preventers and on indirect-waste piping discharge into sanitary drainage system.
- I. Install grease interceptors, including trapping, venting, and flow-control fitting, according to authorities having jurisdiction and with clear space for servicing.
 - 1. Install cleanout immediately downstream from interceptors not having integral cleanout on outlet.
 - 2. Connect inlet and outlet to unit, and connect flow-control fitting and vent to unit inlet piping. Install valve on outlet of automatic drawoff-type unit.
- J. Install traps on plumbing specialty drain outlets. Omit traps on indirect wastes unless trap is indicated.
- K. Install escutcheons at wall, floor, and ceiling penetrations in exposed finished locations and within cabinets and millwork. Use deep-pattern escutcheons if required to conceal protruding pipe fittings.

0.5 PIPE FREEZE PROTECTION

- A. Install heating cable at locations shown on drawings for pipe freeze protection.
- B. Cut heating cable to length required for pipe lengths and watt per foot requirements. Secure to pipe and install in accordance with manufacturer's published instructions.

0.6 PIPE TESTS

- A. Test underground piping prior to backfilling and before installing equipment and before insulation is applied, using specified methods and conditions. Subject piping to test for not less than 24 hours. Make necessary replacements or repairs and repeat tests until entire system, including equipment, is accepted as satisfactory.
- B. Install equipment, operate systems, clean out scale, dirt, oil, waste, and foreign matter, and correct additional leaks.
- C. Test plumbing drainage systems under 10 foot static head for a period of not less than 24 hours. Test water systems under 150 psig hydrostatic pressure.

0.7 CLEANING AND DISINFECTION

- A. Clean and disinfect potable domestic water piping as follows:
 - 1. Purge new piping and parts of existing piping that have been altered, extended, or repaired before using.
 - 2. Use purging and disinfecting procedures prescribed by authorities having jurisdiction. If methods are not prescribed, use procedures described in AWWA C651 or follow procedures described as follows:
 - a. Flush piping system with clean, potable water until dirty water does not appear at outlets.
 - b. Fill and isolate system according to either of the following:
 - 1) Fill system or part thereof with water/chlorine solution with at least 50 ppm of chlorine. Isolate with valves and allow to stand for 24 hours.
 - 2) Fill system or part thereof with water/chlorine solution with at least 200 ppm of chlorine. Isolate and allow to stand for three hours.
 - c. After the standing time, flush system with clean, potable water until no chlorine is in water coming from system.
- B. Submit water samples in sterile bottles to authorities having jurisdiction. Repeat procedures if biological examination shows contamination.
- C. Reports: Prepare disinfection reports signed by the authority having jurisdiction and submit to the Architect upon completion of the project.

0.8 GREASE/OIL INTERCEPTOR TANK DYE TEST

- A. Perform dye testing on piping scheduled to be connected to the grease or oil interceptor and show evidence that all drains are properly connected to the correct interceptor.
- B. Contractor Qualifications: Testing shall be conducted by a contractor with at least 2 years experience in the specific work involved.
- C. Certification: Provide statement of certification of the following:
 - 1. Verification of dye test contractor qualifications.
 - 2. Statement of completion that the work is in accordance with the specification requirements.
 - 3. Name and signature of the General Contractor.
 - 4. Names and signatures of the dye test subcontractor.
- D. Preparation:
 - 1. Scheduling:
 - a. Identify the AHJ presiding over the drainage system into which discharges flow and determine whether prior notification to the AHJ is required before scheduling the dye test.
 - b. Obtain approvals and permits required by the Authorities Having Jurisdiction (AHJ) for the dye testing.
 - c. Perform tests after plumbing rough-in is complete and before the floor slab is placed.
 - d. Determine if states or local jurisdictions require specific color dyes for the various drain tests.
 - 2. Drains to Be Tested: Inspect drains in the areas listed below. Test all drains where more than one drain exists in an area.
 - a. Bakery.
 - b. Rotisserie Display.
 - c. Snack Bar.
 - d. Compactor (Interior & Exterior).
 - e. Deli Processing.
 - f. Demo Room.
 - g. Fresh Meat Prep.
 - h. Produce Prep.
 - i. Auto Center Service Area.
 - 1) Trench drains typically drain to an interceptor. Test trench drains and all floor drains in the Auto Center.
- E. Procedure:
 - 1. Test each drain separately according to the procedure outlined.
 - 2. Locate drains to be tested. Locate grease and oil interceptor. Open the manholes over the grease and oil interceptor and verify that it is the correct structure.
 - 3. Station one person at the interceptor with the manhole open. Barricade the area appropriately to prevent accidental personnel or vehicular entry. Station another person at the inside drain to be tested. Connect hose to a nearby spigot (usually located in the bakery department) and remove the cover over the floor drain. Avoid spilling water on the sub-grade.
 - 4. Notify person at interceptor by radio that the test is about to begin. Add water from the hose into the floor drain and inject dye into the water stream. Notify person at interceptor that the test has begun. The person at the interceptor shall notify the person at the floor drain as soon as the dye appears at the interceptor. The dye at the interceptor should generally appear within ten minutes from the introduction of the dye into the floor drain.
 - 5. If the dye does not appear at the interceptor, continue to add dye with the running water and open cleanouts to check if any dye is apparent in the lines. Document which cleanouts do and do not have the appearance of dye. Check all other interceptors to determine presence of dye.
 - 6. If dye is not detected at any of the inspected locations, inspect the nearest manhole of the sanitary sewer system for the presence of dye. If there is a retention pond onsite, inspect the pond for the presence of dye.
 - 7. Document dye test activities including the time dye was added at each drain location and the time period between when dye was added and when it was detected. Identify any irregular occurrence of dye in the interceptors, cleanouts, or sewer lines.

8. Upon completion of testing, replace all floor drain, vault, and manhole covers. Notify the Wal-Mart Construction Manager when the testing has been completed.

F. Report:

1. Provide report (MS Word format) of drains and pipes tested and defects noted. Include the following:
 - a. Store number and location.
 - b. Name of General Contractor.
 - c. Name of plumbing Contractor and dye testing Contractor.
 - d. Test date.
 - e. Documentation of dye test activities and irregular occurrences as required above.
 - f. Plan of piping network tested. Indicate layout and size of each line tested and the point of discharge to the sanitary sewer or other location.
2. Furnish one copy of the report to the Wal-Mart Construction Manager within one week after completion of the test procedure.

0.9 UNDERGROUND PIPING VIDEO INSPECTION (AT THE DISCRETION OF THE WAL-MART CONSTRUCTION MANAGER)

- A. General: Perform video inspection of new underground sewer piping both outside the building through the mains and inside the building and through the single takeoff to each fixture.
- B. When there are problems with existing sewer piping, perform video inspection of existing sewer piping and coordinate repair of deficiencies with Wal-Mart Construction Manager. An equitable adjustment will be made in the contract price for additional work directed and performed.
- C. Contractor Qualifications: Inspection shall be conducted by a Contractor who has at least 2 years experience in the specific work involved.
- D. Certification: Provide statement of certification of the following:
 1. Verification of video inspection contractor qualifications.
 2. Statement of completion that the work is in accordance with the specified requirements.
 3. Name and signature of the General Contractor.
 4. Names and signatures of the video inspection subcontractor.
- E. Video Taping Requirements:
 1. Video camera designed for express purpose of sewer line inspection.
 2. Camera and apparatus capable of extending to all points of piping required within 2 inch to 8 inch diameter pipe.
 3. Video taping with recording on-screen distance counter.
 4. Taping shall include expert narrative of situations encountered which may be associated with improper installation or operation of the sewer. Audio commentary shall include time and date, location description in an on-to-from format, size of sewer, direction of flow, and video tape identification number.
 5. Taping shall produce clear, sharp, images in VHS or CD-ROM format.
 6. Tape shall identify date, time, and precise location of taping operations. Tape shall reveal evidence of surrounding area around each entry point.
- F. Procedure:
 1. Inspect sewer pipes with video camera no earlier than 30 days after floor slab has been poured. Sections of sewer determined to be deficient shall be uncovered and repaired or replaced to satisfaction of Owner. Retest repaired section.
 2. Adequately flush and clean sewer piping prior to video inspection.
 3. Provide additional video inspection at Contractor's expense if there are clogging problems within the first year warranty and if requested by Owner.
- G. Report:
 1. Provide summary report of pipes inspected and defects noted. Report shall be in MS Word format. The

log shall show the exact measure location of faults such as, but not limited to:

- a. Open joints.
 - b. Broken, cracked or collapsed pipe.
 - c. Accumulation of debris or obstructions.
 - d. Evidence of infiltration.
 - e. Water depth variation and sags.
 - f. Protrusions.
2. The reference location shall include the distance away from the reference point of entry such as manhole or cleanout and the position of the fault as to the bottom, top or side of the pipe. Significant faults are to warrant audio commentary on the video tape duplicating report information. Stop the camera briefly at these locations.
 3. Furnish one copy of the final report with one copy of video tapes to the Wal-Mart Construction Manager within one week after completion of the inspection.
 4. Video tapes shall be numbered and cross indexed to the report. Report shall be bound.
 5. Provide plan of piping network covered with notations and identification of corresponding tape.

0.10 ADJUSTING

- A. Set field-adjustable pressure set points of water pressure-reducing valves.
- B. Set field-adjustable flow of balancing valves.
- C. Set field-adjustable temperature set points of temperature-actuated water mixing valves.

0.11 PROTECTION

- A. Protect drains during remainder of construction period to avoid clogging with dirt or debris and to prevent damage from traffic or construction work.
- B. Place plugs in ends of uncompleted piping at end of each day or when work stops.

END OF SECTION

SECTION 15410 - PLUMBING FIXTURES

PART 1 - GENERAL

SCHEDULE 0 - SUMMARY

A. Section Includes:

0.2

Plumbing fixtures.

0.3

Plumbing fixture trim.

A. Related Sections:

0.4

Section 01600 - Product Requirements: Requirements for Pre-Negotiated Suppliers.

0.5

Section 01770 - Contract Closeout: Operation and maintenance data requirements.

0.6

Section 07900 - Joint Sealers: Sealant for fixtures at wall and floors.

SCHEDULE 1 - REFERENCES

- A. The publications listed below form a part of this specification to the extent referenced. Publications are referenced within the text by the basic designation only.

B. American Society of Mechanical Engineers (ASME):

0.2

ASME /ANSI A112.18.1 - Plumbing Fixture Fittings.

SCHEDULE 2 - SUBMITTALS

- A. Section 01770 - Contract Closeout: Procedures for Closeout Submittals.

B. Closeout Submittals:

0.2 Operation and Maintenance Data: Include manufacturer's descriptive literature, operating instructions, maintenance and repair data, and parts listing for plumbing fixtures.

SCHEDULE 3 - QUALITY ASSURANCE

A. Regulatory Requirements:

0.2 Products Requiring Electrical Connection: Listed and classified by Underwriter's Laboratories, Incorporated, and acceptable to the Authority Having Jurisdiction as suitable for the purpose specified and indicated.

0.3 Disabled Access: Conform to applicable local, State or Federal disabled access requirements for the installation, mounting heights, and operation of plumbing fixture.

SCHEDULE 4 - DELIVERY, STORAGE, AND HANDLING

- A. Section 01600 – Product Requirements: Transport, handle, store, and protect products.

- B. Accept fixtures on site in factory packaging. Inspect for damage.

- C. Protect installed fixtures from damage by securing areas and by factory packaging in place to protect fixtures and prevent use.

PART 2 - PRODUCTS

SCHEDULE 0 - PLUMBING FIXTURES (CUSTOMER RESTROOMS)

- A. All plumbing fixtures and trim, including hose bibb, as applicable to public and single toilets as shown on the Mechanical Drawings and Plumbing Fixture Schedules shall be purchased by the GC direct from a pre-negotiated supplier as follows:
0.2Pre-Negotiated Supplier Contact: Customer Service; Haines, Jones & Cadbury, phone (800) 459-7099, fax (479) 756-8998, E-mail info@hjcinc.com.

SCHEDULE 1 - PLUMBING FIXTURES (NON-CUSTOMER RESTROOMS)

- A. All plumbing fixtures and trim, including hose bibb, as applicable to toilets as shown on the Mechanical Drawings and Plumbing Fixture Schedules shall be purchased by the GC direct from a pre-negotiated supplier as follows:
0.2Pre-Negotiated Supplier Contact: Customer Service; Haines, Jones & Cadbury, phone (800) 459-7099, fax (479) 756-8998, E-mail info@hjcinc.com.

SCHEDULE 2 - MANUFACTURERS

- A. Subject to compliance with Project requirements, provide plumbing fixtures of manufacturers indicated on Drawings.

SCHEDULE 3 - FIXTURES

- A. Fixture types and model numbers shall be as scheduled on the drawings.
B. Substitutions: Not permitted.

SCHEDULE 4 - FIXTURE TRIM

- A. Provide each fixture complete with required trim. Exposed piping and trim shall be polished chrome-plated brass. Provide each fixture with chrome angle stop valves.
B. Provide flow-limiting device which limits flow to not more than 2.2 gpm for each sink except service and 3-compartment sinks. Provide devices integral with fixture trim, wherever possible, and products of same manufacturer as fixture trim.
C. Lavatory faucets for public use or within public restrooms shall be of the electronic self-closing type and shall have a maximum flow rate of 0.5 GPM in accordance with ASME/ANSI A112.18.1. Provide devices integral with fixture trim, wherever possible, and products of same manufacturer as fixture trim.
D. Flush Valves: Subject to compliance and compatible with plumbing fixtures as scheduled on the drawings. Provide flush valves that do not exceed code requirements for maximum gallons per flush.
E. Interior Escutcheons: Polished chrome-plated, wall flange with set screw.
F. Exterior Escutcheons: 304 Stainless Steel, wall flange.
G. Provide trim as required to permit scheduled lavatory to be installed for handicap use.
H. Provide bolt caps with retainer clips on water closets.
I. When specified on plans, general contractor to provide faucets and sprayers for grocery hand sinks, three compartment sinks, and prep sinks. Contact the appropriate following manufacturer for parts numbers and local suppliers.
0.2Universal Stainless, Kathleen Rodrick (Universal), Kathleen.rodrick@leggett.com (800) 223-8332.
0.3 Win-Holt, Louise Kennemer (Win-holt), lkennemer@winholt.com (800) 632-7222 ext 141.

PART 3 - EXECUTION

SCHEDULE 0 - EXAMINATION

- A. Examine surfaces and adjacent areas where products will be installed. Verify that conditions conform to product manufacturer's requirements and installation conditions. Do not proceed until unsatisfactory conditions have been corrected.
 - 0.2 Verify that walls and floor finishes are prepared and ready for installation of fixtures.
 - 0.3 Verify that plumbing piping for fixture is in the correct location and of the correct type.

SCHEDULE 1 - PREPARATION

- A. Rough-in fixture piping connections in accordance with minimum sizes indicated on Drawings for particular fixtures.

SCHEDULE 2 - INSTALLATION

- A. Install fixtures and trim in accordance with manufacturer's published instructions. Make final connections.
- B. Support each fixture in rigid manner which permits no perceptible movement of fixture by manually applied forces. Seal space between fixtures and floor or walls with silicone sealant.
- C. Install each fixture with trap which is easily removable for servicing and cleaning.
- D. Install components level and plumb. Install toilet seats on water closets.
- E. Install and secure fixtures in place with carriers and bolts.
- F. Solidly attach water closets to floor or wall as required.
- G. Seal fixtures to wall and floor surfaces with sealant as specified in Section 07900, color to match fixture.

SCHEDULE 3 - FIELD QUALITY CONTROL

- A. Inspect plumbing fixture and trim installation, attachment to building, operation, and connections. Ensure that fixtures are installed and operate in conformance with disabled access requirements.
 - 0.2 Prior to final acceptance, inspect faucets, flush valves, stop valves, and similar devices, to determine that they operate properly and discharge proper quantities of water. Correct any deficiencies as directed by Owner's representative.

SCHEDULE 4 - ADJUSTING AND CLEANING

- A. Operate and adjust stops or valves for intended water flow rate to fixtures without splashing, noise or overflow.
 - 0.2 Replace malfunctioning units.
 - 0.3 Replace washers and seals of leaking and dripping faucets and stops.
- A. Clean fixtures, trim, and accessories of foreign materials, including labels, before final acceptance.

END OF SECTION

SECTION 15480 - DOMESTIC WATER HEATERS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Domestic water heaters.
 - 2. Accessories.

1.2 REFERENCES

- A. The publications listed below form a part of this specification to the extent referenced. Publications are referenced within the text by the basic designation only.
- B. American Society of Heating, Refrigeration, and Air-Conditioning Engineers (ASHRAE):
 - 1. ASHRAE 90.1 - Energy Efficient Design Of New Buildings Except New Low-Rise Residential Buildings.

PART 2 - PRODUCTS

2.1 ELECTRIC WATER HEATERS

- A. Glass-lined electric storage-type water heater of size and capacity indicated on Drawings.
 - 1. Heating elements shall be suitable for electrical current having characteristics indicated on Drawings, and complete with necessary operating and safety controls.
 - 2. Each tank shall be equipped with magnesium anodes for corrosion protection.
 - 3. Heaters shall be UL listed and labeled, meeting efficiency requirements of ASHRAE 90.1.

2.2 ACCESSORIES

- A. Wall Bracketed Platform (Water Heaters 20 Gallon Capacity and Less): Provide water heater wall bracketed platform as indicated on the drawings.
- B. Relief Valves: Provide temperature and pressure relief valves, unless valves are furnished as integral part of water heater. Provide valves ASME or AGA stamped, of the sizes and types required to meet ASME and/or AGA Code temperature steam rating for discharge capacity.
- C. Expansion Tanks: Provide expansion tank as scheduled on the drawings. Tank shall be closed type, welded steel, design working pressure of 125 psi, with internal diaphragm to separate water from air charge.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install in accordance to requirements of Authority Having Jurisdiction, and written recommendations of equipment manufacturer's installation instructions.
- B. Set air charge, mount, and install expansion tanks in accordance with manufacturer's installation instructions.

END OF SECTION

SECTION 15600 - REFRIGERATION EQUIPMENT

Note:

This section is included herewith for information only and is not a part of this contract. The specifications contained here after are requirements for the Refrigeration Contractor assigned the contract by the Wal★Mart Mechanical Services Department.

For purposes of scheduling and coordination of other trades in connection with refrigeration installation and start-up, contact the Wal★Mart Mechanical Services Department, (479) 277-9078, to obtain name and phone number of the Refrigeration Contractor for this project.

PART 1 - GENERAL

1.1 SUMMARY

- A. The Work of this Section is controlled by the Wal-Mart Mechanical Services Department and the Special Conditions issued by the Wal-Mart Construction Department, the Supplementary Conditions of the Contract for Construction issued by the Architect of Record, this Specification Section, and the Contract Drawings.
- B. The responsibility for purchasing equipment is defined in Section 01640 - Owner Furnished Products. The Refrigeration Contractor shall receive, install, and adjust all refrigeration equipment scheduled or shown on the Drawings and described in this Section.
- C. Section Includes:
 - 1. Refrigerant piping.
 - 2. Drain Piping.
 - 3. Pipe Insulation.
 - 4. Charging and lubricating of systems.
 - 5. Adjustment of controls.
 - 6. Identification of systems.
 - 7. Refrigeration alarm systems.
 - 8. Evaporator coils.
 - 9. Compressor houses.
 - 10. Refrigerated cases.
 - 11. Self-contained cases (where indicated).
 - 12. Ice flakers (where indicated).
 - 13. Produce misting system (where indicated).

1.2 DEFINITION OF TERMS

- A. Work shall mean complete installation of equipment and devices in accordance with applicable Specifications and as described in the Drawings, Application Sheets, Manufacturer's Legend Sheets and Instructions, Request for Bids, and Purchase Orders.
- B. The Owner is Wal-Mart and is identified in the Agreement as Wal-Mart Stores, Inc., Bentonville, Arkansas. The term Wal-Mart as used within this Section is defined as Wal-Mart Stores, Inc., Attention: Mechanical Services Department, 2001 S.E. 10th St., Bentonville, AR 72716-0550. The term Wal-Mart is used where Wal-Mart will furnish portions of the Work, and where Wal-Mart personnel and representatives will be interfacing with the Work of the Refrigeration Contractor. The Owner's authorized representative is defined as the Wal-Mart Mechanical Services Construction Manager.
- C. Refrigeration Contractor (or Contractor) shall mean company awarded the bid. Refrigeration Contractor shall be responsible for compliance with applicable codes, ordinances, and work permits.
- D. Grand Opening is defined as the date set by the Wal-Mart Mechanical Services Construction Manager to coincide

with the actual retail purchase of refrigerated products.

1.3 DRAWINGS AND SPECIFICATIONS

- A. The Drawings and Specifications are complementary; what is required by one shall be as binding as if required by both. Should the Drawings and Specifications be contradictory or should there be any apparent errors, discrepancies, or omissions, or should there be any doubt as to the meaning of either, the Contractor shall refer the matter to the Wal-Mart Mechanical Services Construction Manager whose decision thereon shall be binding on all parties.
- B. Neither the Contractor nor the Owner shall be responsible for oral instructions.
- C. Addenda, corrections, or letters issued during time of bidding shall take precedence over Drawings and Specifications.

1.4 EXAMINATION OF THE PREMISES

- A. The Contractor's bid shall take into consideration all conditions that may affect the Work under this Contract.
- B. Take field measurements and verify field conditions; compare such field measurements and conditions and other information known to the Contractor with the Drawings and Specifications before commencing activities. Errors, inconsistencies, or omissions discovered shall be reported to the Wal-Mart Mechanical Services Construction Manager.

1.5 SUPERVISION AND CONSTRUCTION PROCEDURES

- A. Contractor shall agree to undertake all Work contained within the Contract and complete the Work according to the approved construction schedule.
- B. The Owner's schedule is critical. The Contractor shall be responsible for meeting the schedule. Set equipment received in any given week in its final location by Friday of that week. This includes compressors, cases, condensers, etc. Complete the following items prior to scheduled Substantial Completion date:
 - 1. Refrigeration cases cleaned (1-2 days before possession).
 - 2. Walk-in coolers and freezers thoroughly cleaned.
 - 3. Refrigeration tools and material moved out of the store.
- C. Furnish necessary supervision to coordinate activities of all trades to insure complete installation. Contact Wal-Mart Mechanical Services Construction Manager to report problems or anticipated problems that may impede progress of the Project.
- D. Check new equipment against Wal-Mart Specifications and report discrepancies to Wal-Mart Mechanical Services Construction Manager.

1.6 WARRANTY

- A. In addition to the warranty contained in the Wal-Mart Mechanical Services Contract Proposal, Contractor shall provide supplemental warranty services. The supplemental warranty service obligations shall not change or alter, but shall supplement the one year warranty obligations of the Wal-Mart Mechanical Services Contract Proposal. Contractor shall provide warranty and service on equipment and materials installed regardless of whether that equipment or materials were furnished to the project by Contractor. The supplemental warranty service obligations shall include failures during installation and for 90 days beyond store Grand Opening date. The supplemental warranty obligations shall include labor, parts, and refrigerant for repairs to equipment covered under the Specifications. Owner will require equipment manufacturer to furnish replacement parts for failures of OEM parts during installation period and for one year beyond store Grand Opening date. Contractor shall obtain replacement parts from equipment manufacturer. Owner will not pay additional costs associated with repair or replacement of materials and parts during the warranty period. Additional costs attributed to equipment failures

shall be handled directly with the manufacturer.

1. In the event the Contractor fails to respond to emergency calls or fails to perform required maintenance or repairs during warranty period, the Owner will have the right to have the repair or maintenance performed by another contractor. In this case, the Contractor agrees to pay the Owner the invoiced amount of the services performed plus 15 percent. Maximum response time to emergency calls is two hours.
 2. If the Contractor subcontracts the warranty work, the 90 day warranty responsibility remains with the primary Contractor. The Contractor shall resolve all payments between the two parties. The Owner will not involve itself in resolving payment issues. If the service contractor discontinues or drops their service level because the Contractor has failed to make payment on completed warranty work, Wal-Mart will remove that Contractor from New Stores Bid List until such time when all disputes or claims are settled.
- B. Make an inspection of installed Work 90 days after store Grand Opening date. Make necessary corrections and adjustments. Complete refrigeration punchlist. Send completed punchlist to Wal-Mart Stores, Inc., 2001 S.E. 10th St., Bentonville, AR 72716-0550, Attention: Mechanical Services Department, for verification of completion. Notify Wal-Mart Mechanical Services Construction Manager prior to inspection.
1. At 90 day inspection, include necessary lubrication, leak tests of all joints, flare nuts, and tightening of strapping as may be necessary. Perform leak test on small leak setting of GE H10B leak detector. No other leak detector is acceptable.
 2. At 90 day inspection, change suction, liquid, and oil filters. Leave oil filters and dryers in motor room for inspection by Wal-Mart Mechanical Services Construction Manager. Place in a Ziploc plastic bag to prevent setting off any leak detection system.
- C. At the end of warranty period, Contractor shall certify in a letter to the Owner that all equipment and materials installed or connected by him are functioning properly.
1. Contractor shall specifically certify that systems are free of leaks and are maintaining satisfactory temperatures at normal control adjustments.

1.7 MANUFACTURER'S WARRANTIES AND INSTRUCTIONS

- A. Nothing shall be done by the Contractor which will void any manufacturer's warranty.
- B. Complete warranty acknowledgments or application forms supplied with equipment and forward them to Wal-Mart Stores, Inc., Attention: Mechanical Services Department, for return to manufacturers.

1.8 LAWS AND ORDINANCES

- A. Comply with laws, ordinances, rules, and regulations bearing on the Work. If Contractor observes that Drawings or Specifications, or both, are at variance therewith, Contractor shall promptly notify the Owner in writing. If Contractor, without written notice to the Owner, performs Work which is not in conformance with such laws, ordinances, rules and regulations, the Contractor shall bear all costs arising from correction thereof.
- B. Compliance with laws, rules, and regulations shall not be used as means of justifying installation or application of parts, assemblies, or methods inferior to those specified.
- C. Comply with OSHA Hazard Communication Standard 29 CFR 1910.1200 and 29 CFR 1926.59. A copy of Hazard Communication Program and all appropriate M.S.D.S. sheets shall be on the job at all times.

1.9 INSPECTION OF WORK

- A. The Owner shall have access to the Work at all times for purpose of inspection.
- B. If Specifications, Instructions, Inspection Coordinators, or laws, ordinances, rules, regulations or any public authority require a portion of the Work to be tested, approved or inspected, Contractor shall give the Owner timely notice of its readiness for inspection.
- C. In order to verify use of dry nitrogen during brazing operations as specified, the Wal-Mart Mechanical Services

Construction Manager may require Contractor to cut out five randomly selected joints. Joints will be inspected for oxidation. For each joint which shows evidence of oxidation and non-compliance, another joint will be cut out. If four fittings are found oxidized, it will be assumed that all joints are defective, therefore all joints will be reworked. Rework joints removed for inspection.

1.10 CHANGES IN THE WORK

- A. Do not make changes, perform additional work, or pay for additional work unless authorized in writing by the Owner.

1.11 DEDUCTIONS FOR WORK NOT CORRECTED

- A. If the Owner deems it expedient to correct work not conforming to the Contract or defective work, an equitable deduction from the Contract price will be made.

1.12 CORRECTION OF WORK BEFORE FINAL PAYMENT

- A. If the Owner rejects a portion of the Work due to failure to conform to the Contract, the Owner will promptly notify the Contractor of such failure.
- B. Upon receipt of such notice, replace or remedy (whichever the Owner requires) the rejected work, so as to conform to the Contract.
- C. Contractor shall bear all expenses incident to correction of non-conforming work including cost of transportation, removal of non-conforming work, correction of the work, and repairs to work of other contractors necessitated by remedial work.

1.13 WORKERS' COMPENSATION INSURANCE

- A. Contractor shall secure and keep in effect such insurance as will protect him from claims under any and all Workers Compensation Laws.
- B. Certificates of such insurance shall be filed by the Contractor with Wal-Mart and shall be subject to Wal-Mart's approval.
- C. All sub-contractors shall secure and keep in effect similar insurance covering their employees. It shall be the duty of Refrigeration Contractor to ascertain that all sub-contractors comply with these provisions.

1.14 LIABILITY INSURANCE

- A. The Contractor shall protect, indemnify and save Wal-Mart harmless from and against any and all liability, damage, cause of actions suits, claims, judgments, and expenses of any nature arising from injury to persons or property which arise out of or are connected with the execution of this Contract.
- B. The Contractor shall carry insurance as listed below and furnish to Wal-Mart Mechanical Services Department a certificate of insurance before construction is started. The certificate must contain the address of the location to which the contractual agreement applies. The certification must indicate that the insurance will not be canceled while the work specified therein is in progress without thirty (30) days prior written notice to Wal-Mart. Wal-Mart must be named as an additional insured on all policies of insurance. File with Wal-Mart duplicate copies of such insurance policies.

TYPE

Builders Risk
(with vandalism and malicious mischief endorsement)

LIMITS OF INSURANCE

Total Refrigeration cost amount
(for total including all subcontractors)

Worker's Compensation

Statutory Amount

Contractor's General Liability

Bodily Injury (Including Death)	Each Person	\$500,000
	Each Accident	\$2,000,000
Property Damage	Each Accident	\$2,000,000

Contractor's Automobile Liability

Bodily Injury (Including Death)	Each Person	\$500,000
	Each Accident	\$2,000,000
Property Damage		\$2,000,000

Above amounts relative to specific Contract dollar amount.

- C. The fact that insurance coverage is required as specified herein shall not prejudice in any way Wal-Mart's claim against the Contractor for total indemnity from any and all losses herein before stated.
- D. Wal-Mart reserves the right to bond any Contractor.

1.15 SEPARATE CONTRACTS

- A. The Owner reserves the right to let separate contracts in connection with this Work.
- B. Inspect work performed under separate contracts where work of this contract must interface. Promptly report, to the Owner in writing, defects that may prevent work of this Contract from being performed in accordance with the Documents. Contractor's failure to inspect the work or report defects shall constitute an acceptance of the work performed under separate contracts. Contractor will not be held liable for defects that could not have been detected at time of inspection.

1.16 PERMITS

- A. The Owner hereby appoints the Contractor as Owner's agent for the limited purpose of applying for and obtaining in Owner's name all permits, licenses, approvals, and certificates of inspection that may be required by governing authorities or agencies for the Project. Contractor hereby accepts the appointment to act as Owner's agent for the stated purpose. The Contractor is authorized to advance its own funds to pay all fees associated with such permits, licenses approvals, and certificates. The Contractor shall provide Owner with proper verification of the actual cost thereof; and following receipt of proper verifications and approval, the Contractor will be reimbursed by Owner for the actual cost for the advances. The 'Contractor Fee' for change orders will not apply to these items. Any single fee that is greater than \$1,000.00 shall be brought to the attention of the Wal-Mart Mechanical Services Construction Manager for review prior to payment by the Contractor. Parties agree that although the Contractor is authorized to advance its own funds to pay the fees associated with such permits, licenses, and approvals, the Contractor shall be entitled to no additional compensation for its services under this Paragraph. Applications shall be made in the name of the Owner, by the Contractor as Owner's agent.

1.17 PROTECTION

- A. Protect the Work from damage until final acceptance by the Owner. Damaged or defective work shall be replaced at Contractor's expense.
- B. Contractor shall be responsible for damage caused by Contractors own forces or by Contractor's subcontractors' forces.
- C. Replace damaged work at no expense to the Owner.

1.18 OWNER'S RIGHT TO DO WORK

- A. Should the Contractor neglect to execute the Work in accordance with the Contract Documents, or fail to perform any provision of this Contract, the Owner may, without prejudice to any other remedy it may have, make good such deficiencies and may deduct the cost thereof from the payment then or thereafter due the Contractor.

1.19 USE OF PREMISES

- A. Confine apparatus, storing of materials, and operations of workmen to limits indicated by the Owner. Do not unreasonably encumber premises with materials.
- B. Promptly remove material interfering with work of other contractors, if directed by the Owner.
- C. Enforce the Owner's policies regarding signs, advertisements, and smoking.

1.20 SUBCONTRACTORS

- A. Provide list of subcontractors on envelope for this Bid.
- B. As soon as practical after receipt of the Contract, notify the Owner in writing of the names of the subcontractors. Do not contract with any subcontractor to whom the Owner, within a reasonable time, has made objection.
- C. Contractor agrees that he is fully responsible to the Owner for acts and omissions of his subcontractors and of persons either directly or indirectly employed by them as he is for the acts and omissions of persons employed directly by him.
- D. Submit to the Wal-Mart Mechanical Services Construction Manager proof of insurance for all sub-contractors (including Service Contractor for 90 day warranty).

1.21 TAXES

- A. Contractor shall include in his bid cost of state or local sales or use taxes and Federal taxes, charges, or duties of any nature applicable to the Work incorporated under this Contract.

1.22 FINAL ACCEPTANCE AND PAYMENT

- A. The Work shall be complete and installations shall be operating in compliance with the Documents before final acceptance.
- B. Make request for payment for work in accordance with the following procedures:
 - 1. Contractor will be furnished Pay Applications from Wal-Mart Contracts Administration. When ready to request a draw, send 2 originals (faxes are acceptable) of each Pay Application only (no invoice) to:
Wal-Mart Stores, Inc.
Mechanical Services Department
2001 S.E. 10th St.
Bentonville, AR 72716-0550
Do not send to Contracts Administration, Dept. 8702.
 - 2. Only 4 draws will be allowed:
 - a. Draw 1: 50 percent of total Contract, provided all materials are on the jobsite and work has been under way for 10 days.
 - b. Draw 2: 20 percent of total Contract at the end of week 5.
 - c. Draw 3: 20 percent of total Contract at Substantial Completion.
 - d. Draw 4: 10 percent retainer may be billed 90 days after Grand Opening.
 - 3. The final 10 percent will not be released without written confirmation from all sub-contractors that they have been paid in full and 90-day punch list is completed.
 - 4. The final 10 percent Pay Application should be sent at end of the 90-day warranty period. The 10 percent

will not be automatically released.

- C. Execute a final Release of Lien upon request of Pay Application Number 3.
- D. The Owner's representative will promptly make final acceptance inspection when notified by Contractor.
- E. Additional work shall be done via Change Order form. Negotiate Change Order first with Wal-Mart Mechanical Services Construction Manager using Bid Form. When Change Order amount has been finalized, complete Change Order and send to Wal-Mart Mechanical Services Construction Manager with self-addressed stamped envelope. Construction Manager will sign and return pink and yellow copy to Contractor. Attach yellow copy of approved Change Order to next draw request. No Change Orders will be paid without signed yellow Change Order copy.

1.23 SPECIAL DAYS

- A. Keep one qualified mechanic available to handle emergencies connected with refrigeration work from time start-up begins through "Grand Opening Day." The Owner reserves the right to have the Contractor replace the mechanic if the Owner feels that present mechanic is failing to respond or is unqualified.
- B. Upon start-up, submit to the Owner the name or names of local refrigeration service companies that will be authorized to handle warranty service.

1.24 UNLOADING EQUIPMENT

- A. Contractor will be held liable for back charges from trucking company due to Contractor's failure to meet the Owner's equipment delivery schedule.
- B. Provide labor and equipment to unload, uncrate, set and assemble equipment and supplies connected with these Documents.
- C. Equipment shall remain crated until ready for installation. Provide protection from damage and elements. Protect equipment stored outdoors with polyethylene.
- D. As equipment is received, verify Owner and Wal-Mart Purchase Order Receipts and forward to the Owner for processing.
- E. Notify Owner of equipment received from carrier in damaged condition and shortages. Damages will be noted on bill of lading. Contractor shall be responsible for failure to note freight damage and shortages at time of receipt of equipment.

1.25 SPECIFICATIONS FOR REFRIGERATION INSTALLATION

- A. Contractor Responsibilities:
 - 1. Tubing, fittings, insulation for refrigerant lines, unistrut, fasteners, bolts, hangers, etc.
 - 2. Install all refrigeration equipment scheduled or shown on Drawings and described in this Section.
 - 3. Coordinate release of Owner and Wal-Mart furnished equipment with Wal-Mart Mechanical Services Department. The Wal-Mart Mechanical Services Construction Manager is the sole person who can change delivery dates. Crane service (provided by Refrigeration Contractor) is available to hoist directly from truck to mounting position. Provide supervision and labor for setting Owner and Wal-Mart furnished equipment.
 - 4. Provide labor to unload and set refrigeration equipment scheduled or shown on Drawings and described in this Section.
 - 5. Make final electrical connections to Owner and Wal-Mart furnished equipment.
- B. Refrigeration Equipment Furnished by Owner and Wal-Mart for Installation by Contractor: Refrigeration equipment scheduled or shown on Drawings and described in this Section will be furnished by Owner and Wal-

Mart for installation by Contractor.

1. Include incurred cost for receiving and labor in installation contract price.

C. Work Furnished and Installed Under Separate Contracts (NIC):

1. Unloading, uncrating, setting and assembly of walk-in coolers and freezers will be performed by Owner's cooler/freezer supplier.
2. All electrical wiring except terminations and slave wires will be provided under Owner's general contract for construction.
3. Refrigeration controls and sensors will be furnished by Owner for installation under Owner's general contract for construction.
4. Structural support for refrigeration equipment will be provided under Owner's general contract for construction. See Section 07721.
5. Attachment of refrigeration equipment will be provided under Owner's general contract for construction.

1.26 DRAWINGS

- A. Provide as built piping drawings, after job completion, in 18- by 24-inch glass frame. Install on compressor room interior.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Refrigeration Piping:

1. Provide refrigeration piping of Type L hard drawn copper tubing. In portions of installation where it is necessary to use soft drawn copper tubing and such use is approved in writing by Wal-Mart Mechanical Services Construction Manager, provide Type L. All tubing shall be factory sealed ACR tubing.
2. Refrigeration Piping Elbows: Wrought copper, 90-degree long radius type. 45-degree elbows will not be permitted.
3. Run 3/4 inch copper condensate line from evaporator directly to outside of walk-in walls, and adapt to individual PVC trap and stub into common 2 inch diameter Schedule 40 white PVC condensate header. Clean markings off of PVC with solvent. Insulate and apply heat tape to condensate drains inside walk-ins below 32° with 1-inch AP Armaflex, Halstead, Aeroflex or Rubatex or approved equal. Do not insulate PVC piping.
4. Provide drain line heater for walk-ins below 32°. Provide self-regulating type heater (no thermostat) such as Frostex-RSI, Raychem, or equal. Ensure drain line and drain line heater are operating properly. Insulate freezer drain lines with 1-inch pipe insulation.
5. Support overhead refrigeration lines at 10 feet maximum intervals on Unistrut hung on galvanized all-thread rod. Attach hangers to top of bar joist only. Support suction and liquid lines at each hanger with 10 inch length of Schedule 40 PVC pipe with an I.D. equal to insulation O.D. surrounding pipe insulation, and secure to Unistrut with Panduit strap (or equal), 120 lbs. tensile strength (see support detail on Drawings).
6. Secure vertical refrigerant piping installed outside building walls to Unistrut fastening system with #022 Cush-a-Clamps. Fasten clamps directly to copper pipe, not to outside of insulation. Butt insulation tightly against clamp and insulate uncovered areas to prevent sweating. Cover exterior refrigerant pipe insulation (including heat reclaim lines) and interior prep room lines with .020 inch thickness PV jacketing and fitting covers, Proto or Zeston. Jacketing shall be vapor and weather sealed.
7. Provide 1-inch wall thickness AP Armaflex, Halstead, Aeroflex or Rubatex on low temperature suction lines; provide 1-inch thickness on medium temperature suction lines. Provide 1/2 inch thickness on produce and seafood case drain lines. Insulate liquid lines with 1/2 inch AP Armaflex, Halstead, Aeroflex or Rubatex. If local code calls for thicker insulation, comply with local code. Slip insulation over pipe before making joints. Split type insulation is acceptable on fittings only. Install insulation in conformance with manufacturer's recommendations, including glued joints.
8. All liquid line tee's must be bull headed inside all cases.
9. Install 1/4" king valve on top of inverted trap on inlet side of condensers on rack houses. Install valve at highest point in the discharge line. Provide king valves with brass or steel caps.
10. Suction lines that are tee'd into a common suction line shall be tee'd into the top.

11. Install heat reclaim lines with 1 inch thickness Certainteed one-piece fiberglass covering with fire resistant jacket with self-sealing lap, or Owens-Corning or Armstrong. Cover fittings with Zeston, Knauf, or equal premolded insulating fittings. Install insulation in professional, neat appearing manner. Poor workmanship shall be corrected at the Contractor's expense.
12. Provide branch liquid and suction line ball valves for isolation purposes as indicated on refrigeration piping plans. Coordinate location with Wal-Mart Mechanical Services Construction Manager. Install valves at fully accessible location. Do not conceal by walls, fixtures, or other equipment. Install as-built piping plan, indicating final location and identification of field installed isolation valves (one for each system) in glass frame in an appropriate location close to the system indicated. Provide ball valves as manufactured by Henry Valve Co., or Mueller Brass, of welded body construction. Bolted body valves will not be approved.

2.2 FABRICATION

- A. Size refrigeration piping in accordance with Refrigeration Schedule indicated on Drawings and as specified.
- B. Perform cutting of tubing with wheel-type cutter where possible, and reamed to original bore. Where necessary to sawcut, drag tubing clean after reaming. Before using, drag clean tubing left open on job after cutting and sanding.
- C. Make joints with use of brazing alloy containing minimum of 15 percent silver. Clean joints thoroughly before brazing and have dry nitrogen at 1/2 psi pressure flowing through tubing while joints are being brazed to avoid internal scale. If brazing alloy of less than 15 percent silver is found on job, Wal-Mart Mechanical Services Construction Manager will require all fittings be cut out and replaced with new fittings using 15 percent alloy.
- D. Install replacement parts (i.e. expansion valves, heat exchangers, sight glasses) using Harris Stay Brite #8, excluding parts in hot gas lines. Use heat dams in all instances.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Support cooler and freezer evaporators with 3/8 inch galvanized all-thread, double nutted through flat washers with galvanized Unistrut bridging three ceiling panels.
- B. Suspend refrigeration piping by Unistrut hangers or equal, space to prevent sagging. Fasten securely. Install exposed piping to provide easy access in case of leaks. Slope suction lines downward toward compressor end. Insure no oil traps are formed in piping.
- C. Under no condition shall copper pipes touch each other when necessary to cross pipes. Offset or insulate to insure no copper-to-copper contact. Refrigerant piping shall not come in contact with electrical conduit or other dissimilar grounded metals.
- D. Install oil traps before vertical risers and as recommended by Refrigeration equipment manufacturer. On risers above 16 feet, double oil traps equally spaced are required.
- E. Where refrigerant pipes penetrate building or cooler walls, insulate pipes and seal opening with suitable material.
- F. Seal penetrations into walk-ins (refrigerant pipe, condensate drains) with urethane foam and seal over with silicone caulk.
- G. For loop piping circuits - mount electronic suction pressure regulator valves, TXV valves, pump down solenoids, thermostats, and heat exchangers. Allow enough pipe at evaporator outlet to mount TXV feeler bulb insuring 100% contact.
- H. For non-loop piping circuits - mount TXV valves, pump down solenoids, thermostats, and heat exchangers.

Allow enough pipe at evaporator outlet to mount TXV feeler bulb insuring 100% contact.

- I. Trap evaporators at coil outlet and vertical suction line risers over 4 feet tall. Traps shall be one piece type at bottom of risers. Size P traps to match horizontal pipe or coil outlet pipe. Do not reduce to riser size. Take vertical risers as high as possible (just below structure). Due to the special nature of the loop piping system utilized on some projects, coordinate between the Contractor, the Wal-Mart Mechanical Services Construction Manager and the refrigeration equipment supplier, to ensure that piping system is installed as designed.
- J. Pitch horizontal suction lines minimum of one inch per twenty feet of run in direction of refrigerant flow.
- K. Install trapeze hangers no farther than two feet on each side of 90 degree turns.
- L. Install unions on condensate drains in walk-ins close to drain pan, allow clearance for pans to hinge open. Provide heat tape on condensate lines inside walk-ins with temperature 32 degrees or less and insulate. Install common condensate line outside the walk-in. Paint non-insulated copper drain lines to match walk-in box.
- M. Maintain slope of one inch per ten feet of horizontal run for condensate lines. Provide traps in condensate lines outside of walk-ins just before entering common condensate line.
- N. Do not deviate pipe routing, case, condenser, and compressor rack location from Drawings without approval from Wal-Mart Mechanical Services Construction Manager.
- O. Seal and pressure test each individual refrigerant circuit before connecting to condensing unit or refrigeration compressor rack. Line shall hold pressure without drop for 24-hour period. Testing shall be verified by Wal-Mart Mechanical Services Construction Manager. Repair leaks and repeat test until line is totally leak-free.
- P. Provide Schrader valve access on each suction line leaving evaporators and on highest point of the invert in condenser supply.
- Q. Make final electrical connections, including slave wiring, to refrigerated cases, evaporators, power defrost heaters, cooler and freezer box door lights and anti-sweat heaters, and compressor houses. Obtain services of electrical contractor experienced in electrical installation of refrigeration equipment. Make connections per wiring diagrams and instructions from equipment supplier. Wiring beyond the case or evaporator junction box shall be the responsibility of Refrigeration Contractor. Installation shall be in conformance with electrical sections of these Specifications, and with all applicable codes. Refrigeration controls and sensors will be furnished by Wal-Mart for installation under Owner's general contract for construction.

3.2 IDENTIFICATION

- A. Provide engraved plastic identification 2 inch by 3 inch tags, attached with screws or pop rivets.
- B. Provide job notebook with model and serial numbers, refrigerant charge per rack, warranty expiration date, emergency service telephone numbers in plastic envelope. Work performed after start-up, warranty or non-warranty, shall be logged in job notebook and referred to by designation number. Locate job notebook in mechanical refrigeration house. Refrigerant charge per rack shall be written in black indelible marker on each system compressor breaker panel.
- C. Identify refrigeration equipment with matching numbers. Refer to Drawings:
 - 1. Examples:
 - a. Compressor rack B, low temperature: LTB; evaporator coils, LTB-1.1, LTB-1.2, LTB-2.1, LTB-2.2, etc.
 - b. Compressor rack A, medium temperature: MTA; evaporator coils, MTA-1.1, MTA-1.2, MTA-2.1, MTA-2.2, etc.
 - 2. Tag circuits connecting to these condensing units or racks with corresponding number and circuit.
 - 3. Identify refrigeration equipment, including compressor houses, racks, walk-ins, sensor or thermostat locations, chiller tanks, heat reclaim coils, and hot water tanks.

3.3 CASE SETTING

- A. Set cases level and in line with transit. Shim at every vertical support or at maximum 4 foot intervals with galvanized plates where floor condition requires (both front and rear of case).
- B. Apply ample amounts of Butyl caulking compound at case joints. Caulking in low temperature and meat cases is especially critical. Manufacturer's seal is not sufficient. Once equipment is jointed, do not shift or move without breaking and resealing joints.
- C. Do not cut bottom case rails without Wal-Mart Mechanical Services Construction Manager approval.
- D. Hang case shelving and place pans in refrigeration cases, including door shelving in Dairy cooler.

3.4 CUTTING, PATCHING, AND DIGGING

- A. Perform cutting, fitting, or patching necessary for complete installation of the Work. Costs incurred due to defective or ill timed work shall be borne by responsible party.
- B. Contractor shall not endanger any work by cutting or digging, and shall not cut or alter work of any other contractor without consent of Wal-Mart.
- C. Owner's contractor for general construction will cut opening through outside building wall and provide weather hood.

3.5 TESTING, EVACUATION, AND CHARGING

- A. Notify Wal-Mart Mechanical Services Construction Manager 72 hours in advance of tests so that Owner's representative may be present for test if desired. Failure to notify Wal-Mart Mechanical Services Construction Manager will result in having to repeat test.
- B. When refrigeration connections have been completed, test system at minimum of 150 psig, but not to exceed 200 psig, with compressor suction and discharge valves closed, and all other valves in system open, with exception of transducers which must be kept closed during pressure testing and evacuation procedures. Comply with requirements of local codes if higher test pressures are required. Refrigeration piping will not be acceptable unless it is gas tight. If leaks are found, isolate leaks, discharge gas and repair leaks, and then repeat test. When testing has been completed, release pressure using safe procedure.
- C. Evacuate system with vacuum pump specifically manufactured for vacuum duty, having capability of pulling vacuum of 50 microns or less. Do not evacuate system by use of refrigeration compressor. Connect pump to both low and high side evacuation valves with copper tube. Compressor service valves shall remain open. Attach high vacuum gage, capable of registering pressure in microns, to system for pressure readings. Do not operate hermetic or semi-hermetic motor compressors during evacuation because of reduced electric strength of atmosphere within motor chamber. To check system pressure, provide hand valve between pressure gage and vacuum pump which can be closed to isolate system and check pressure.
- D. Evacuate each rack to an absolute pressure not exceeding 1,500 microns. Break vacuum to 2 psig with dry nitrogen. Repeat evacuation process, again breaking vacuum with dry nitrogen. Install drier of required size in liquid line. Evacuate to absolute pressure not exceeding 500 microns. Leave vacuum running for not less than two hours without interruption, valve off, and remove vacuum pump. System shall hold 500 microns for twenty-four hours. Contact Wal-Mart Mechanical Services Construction Manager for verification of system performance. Raise system pressure to 2 psig with refrigerant, and remove vacuum. NOTE: Do not pull high pressures and low vacuums on transducers.
- E. Refrigerants normally used shall be R-22 or R-404a. Use only refrigerant in equipment for which that equipment was designed by manufacturer. Use only one type of refrigerant in system.

- F. Charge refrigerant directly from original drums. Charge system by means of charging fitting in liquid line.
- G. Top off all oil charges.

3.6 CLEAN-UP

- A. Promptly remove all rubbish or debris resulting from the Work.
- B. During course of the Work, the area in which the Contractor is working shall be kept in an orderly, reasonably clean condition. Keep gang boxes off sales floor. Tools, supplies, etc., shall remain only as long as they are in use. Abide by site cleanliness policies of General Contractor for general construction.
- C. Thoroughly clean Work furnished and installed under this Contract, ready for Owner's use.

3.7 START-UP

- A. Refrigeration equipment start-up and documentation of operation shall be in accordance with Wal-Mart Specifications. Final payment will not be made until start-up reports are received and job notebook is turned over to store management.
- B. Provide adequate number of qualified personnel for start-up period. Complete system balance and start-up by the end of the fifth day. If the Wal-Mart Mechanical Services Construction Manager determines that the schedule cannot be met, provide additional start-up personnel for completion in that time frame.
- C. Fill out start-up reports and send to manufacturer (if applicable) indicated on condensing units.
- D. After compressor is started, continue charging until system has sufficient refrigerant for proper operation. Do not overcharge. During start-up, do not leave compressor operating unattended and unmatched until system is properly charged with refrigerant and oil. Charge receivers to 50 percent or more with unit in heat reclaim in 100 percent condenser all condenser fan controls set properly. Maintain these levels throughout warranty period. If at end of warranty period, receiver level has dropped, completely re-check system for leaks with G.E. H10B leak detector. Repair leaks and bring system back to specified charge level at no cost to Owner.
- E. Do not add refrigeration oil while system is short of refrigerant unless oil level is dangerously low. If oil has been added during charging, carefully check compressor crank case sight glass after reaching normal operating condition to be sure system does not contain excessive amount of oil which can cause slugging or loss of refrigeration capacity.
- F. Start-up consists of the following:
 - 1. Adjustment of E.P.R. valves, T.X. valves, liquid hold-back valves, compressor high and low pressure switches.
 - 2. Tightening electrical connections.
 - 3. Checking electrical load balances.
 - 4. Complete refrigerant and oil charge.
 - 5. Adjusting oil float levels, replacement of liquid, suction and oil line filter dryers, etc.
 - 6. Pressure and temperature gages shall be accurate.

3.8 OPERATION AND CHECK-OUT

- A. Set expansion valve superheat at 6 to 12 degrees on medium and low temperatures. This setting will be at the bottom of valve swing. Multi-plex systems must be balanced to within 2 degrees of cut out and with no more than 2 degree variation in discharge air temperature between cases.
- B. Verify and reset superheat after cases and walk-ins have been loaded with product, and temperature and humidity levels have been reached.

- C. Change liquid line filter dryers, oil system dryers, and suction line filter dryers after 24 hours of run time. Filters to be rated for wax removal.

END OF SECTION

SECTION 15700 - HEATING, VENTILATING, AND AIR CONDITIONING EQUIPMENT

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Heating, ventilating, and air conditioning systems.
 - a. Roof Exhaust Fans.
 - b. Air Curtains.
- B. Products Installed But Not Supplied Under This Section:
 - 1. Owner will furnish heating, ventilating, and air conditioning equipment as follows under provisions of Section 01640.
 - a. Roof top air conditioning units.
- C. Related Sections:
 - 1. Section 01330 - Submittal Procedures.
 - 2. Section 01455 - Mechanical Equipment Testing, Adjusting, and Balancing: Test and balance.
 - 3. Section 01600 - Product Requirements: Direct purchased products through pre-negotiated suppliers.
 - 4. Section 01640 - Owner Furnished Products.
 - 5. Section 01770 - Contract Closeout.
 - 6. Section 07815 - Mineral Fiber Fireproofing (if specified): Grease exhaust duct fireproofing.
 - 7. Section 07721 - Manufactured Curbs: Curbs for roof top heating, ventilating, and air conditioning equipment.
 - 8. Section 13810 - Energy Management Systems (EMS): Cable sets and conduit for remote temperature sensor, control wiring, and related components for energy management system.

1.2 CLOSEOUT SUBMITTAL

- A. Record Letter of Conformance: Submit Contractor's Record Letter of Conformance for the kitchen exhaust hood fire suppression system in accordance with Section 01770 and on the form attached at the end of this Section.

1.3 QUALITY ASSURANCE

- A. Certifications: Each item of equipment available with capacity ratings certified by AMCA and/or ARI, shall be furnished with capacity ratings so certified.

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Heating, Ventilating, and Air Conditioning Equipment Furnished By Owner and Installed By Contractor: Include in Contract Amount costs incurred for receiving, storage, and labor. Contractor shall be responsible for costs arising when replacement materials must be reshipped due to loss or damage on job site after acceptance of original shipment. Immediately upon award of Contract, coordinate release of units for delivery to site with contacts specified in this Section. Provide crane service to hoist HVAC units directly from truck to roof.

1.5 SCHEDULING

- A. Milestone Completion Date: Complete Work of this Section on or before Delivery date specified in Section 01640, "Items Furnished By Others Schedule."
- B. Coordinate Contract interface Work of this Section to provide for energy management system operation and testing in accordance with energy management system Milestone Completion date.
- C. Schedule testing and balancing in accordance Section 01455 after completion of system start-up requirements.

1.6 WARRANTY

- A. After acceptance by Owner, supply materials and labor warranty for components supplied under this Section, except as specifically noted for Owner furnished equipment.
- B. Owner furnished equipment shall be turned over to Owner in good working order. Prior to acceptance by Owner, equipment failures are under manufacturer's warranty. Notify equipment warranty contact specified herein for replacement or reimbursement information prior to beginning repairs. After acceptance by Owner, Contractor is not responsible for warranty repair.

1.7 SYSTEM STARTUP

- A. Follow unit manufacturer's printed installation and start-up instructions. Provide final connections for rotation sensitive compressors if motor leads are shipped unconnected. Mechanical failure, prior to acceptance by Owner, shall be repaired by Contractor through warranty agreement with manufacturer.
- B. Prior to test and balance, complete work of this section and contract interface work of Section 13810 - Energy Management Systems. Refer to Section 13810 for testing of energy management controls by energy management system installer.
- C. Schedule start-up, allowing Owner's representative to be present unless Owner directs otherwise. If start-up and testing cannot be completed due to seasonal weather conditions, perform remaining start-up at an appropriate time. Payment may be withheld until Work is complete. During start-up, operate each unit in every mode, separately and in conjunction with other units for sufficient period of time, demonstrating to Owner's satisfaction that each unit is operating properly.
- D. Record designated start-up data on forms attached at end of this Section. Retain completed form on site.

PART 2 - PRODUCTS

2.1 ROOF TOP AIR CONDITIONING UNITS (OWNER FURNISHED - CONTRACTOR INSTALLED)

- A. Roof top air conditioning units will be furnished by Owner for installation by Contractor.
- B. Roof Top Air Conditioning Units: Manufactured by, Lennox, Inc.
 - 1. Contacts:
 - a. Mary Mitchell, Lennox National Accounts (972) 497-6782.
 - b. Al White, Lennox National Accounts (972) 497-6856.
 - c. Ken Sommerhalter, Lennox National Accounts (972) 497-6927.
 - d. Jeff O'Dell, National Account Technical Coordinator and Warranty Contact (972) 497-5173.
- C. Where required for roof top units, factory mount and wire smoke detectors in roof top unit unless noted otherwise on RTU schedule on Drawings.

2.2 EXISTING ROOF TOP AIR CONDITIONING UNITS

- A. Where required, provide smoke detectors in existing roof top units.

2.3 ROOF EXHAUST FANS

- A. Roof Fans: Low contour, spun aluminum hood and base sections with curb cap, bird screen, and other accessories as scheduled on Drawings. Provide centrifugal fans with direct or belt drive motor, mounted on resilient supports with isolators between support and base. Provide motor with thermal overloads. Locate motor out of exhaust air stream. Provide UL listed and AMCA certified fans, of capacities and electrical characteristics as scheduled on Drawings.

- B. Where required, smoke detectors will be factory mounted and wired in roof top unit unless noted otherwise on desiccant wheel unit schedule on Drawings.
- C. Manufacturer will provide factory trained personnel to supervise start up and testing of equipment.

2.4 AIR CURTAINS

- A. Air curtains shall be of the model and characteristics as shown on the drawings. Air curtains shall be Contractor furnished - Contractor installed.
- B. Berner International Corp., New Castle, PA.
 - 1. Supplier Contact: Sales Dept, (800) 245-4455.
- C. Product Procurement:
 - 1. Units shall be Direct Purchase Products purchased directly by the General Contractor through a Pre-Negotiated Supplier specified above in accordance with requirements specified in Section 01600.
 - 2. Obtain equipment pricing and purchasing instructions through Pre-Negotiated Supplier Contact.
 - 3. Send purchase orders to Pre-Negotiated Supplier contact.

PART 3 - EXECUTION

3.1 INSTALLATION - GENERAL

- A. Install equipment per manufacturers instructions and requirements of Authority Having Jurisdiction.
- B. Roof Top Air Conditioning Units.
 - 1. Coordinate Work of this Section with energy management system installer for installation dates, testing dates, and completion dates.
 - 2. Label roof-top units with 6 inch black permanent paint stencil. Number units as indicated on Drawings. Locate label for each unit so it can be read from the roof hatch.
 - 3. Label roof-top units scheduled with CO2 sensors with 3 inch red permanent paint stencil. Label units "IAQ" and locate label for each unit so it can be read from the roof hatch.
 - 4. Do not set roof top equipment on curbs until installation of roofing base flashing has been completed.
- C. Air Curtains.
 - 1. Install air curtain to avoid obstructions to the air stream when the grille is directed 20 degrees to either side. Outlet nozzle shall be not more than 1 inch above the top of the door opening. If circumstances require a higher mounting, locate the unit 3/8 inch away from the wall for each inch the unit is raised above the door opening. Seal void space between air curtain and wall.

3.2 FIELD QUALITY CONTROL

- A. Field Quality Control shall be performed by the Contractor unless otherwise specified.
- B. Roof Top Air Conditioning Units:
 - 1. Testing and balancing will be performed by Owner's Independent Testing and Balancing Agency (ITBA) in accordance with Section 01455 at no cost to the Contractor.
 - 2. Full testing and balancing shall be performed only on new or relocated units or units with modified ductwork.
 - 3. Limited testing and balancing as follows shall be performed on existing units with ductwork not being modified. Record readings for inclusion into final report for Owners' use, and label the units as "Existing":
 - a. Test and record fan speeds (rpm), CFM, and full load amperes. Record voltage at each unit.
 - b. Test and adjust system for a minimum of 10% of outside air.
 - c. Test and record suction and discharge external static pressures at respective plenums. Seal access holes with rubber or metal snap-in plugs. The use of duct tape to seal access holes will not be permitted.
 - d. Test and record entering air temperatures. (Dry Bulb heating and cooling; Wet Bulb cooling.)

- e. Test and record leaving air temperature. (Dry Bulb heating and cooling; Wet Bulb cooling.)
 - f. Test and record outside air Dry Bulb and Wet Bulb temperatures.
 - g. Verify and record proper operation of all stages of gas or electric heating sections.
 - h. Verify proper control operation of unit as applicable.
- C. Air Curtains: Follow procedure outlined below to verify directional vanes are set correctly:
- 1. With air door operating and door in its full open position, verify there are no obstructions to the air flow.
 - 2. Determine the air stream split location by holding a cloth approximately 12 inches above the floor. Move the cloth back and forth in doorway to verify air is being directed to both the inside and outside. The split location is determined when the cloth is vertical with minimal or no movement. The split location shall be 6 inches outside the doorway at 12 inches above the floor.
 - 3. If split location is not correct and directional vanes need to be adjusted, disconnect power source, remove the cover housing and loosen the two vane mounting screws located on each end of the outlet nozzle. Adjust directional vanes by grasping each vane with a pair of pliers and twisting. Protect vanes with a cloth to prevent scratching with pliers. After correct adjustments have been made, retighten vane mounting screws, reassemble air curtain, and connect power supply.

END OF SECTION

AIR CONDITIONING SYSTEMS START-UP REPORT

Page ____ of ____

PROJECT _____

UNIT NO.* _____

LOCATION _____

ALTITUDE IN FEET _____

MANUFACTURER _____

SIZE _____

MODEL NO. _____

SERIAL NO. _____

CONDENSER TEST DATA	ACTUAL
Low Amb. Control - set point	
Degrees F	
Suction Pressure - Stage 1/2	/
Head Pressure - Stage 1/2	/
Crank case Htr. Amps - No. 1/2	/
Compr. Amps - Stage 1/2	
T1	/
T2	/
T3	/
Compr. Voltage - Stage 1/2	
T1 - T2	/
T2 - T3	/
T3 - T4	/
Cond. Fan Volts - Number 1/2	/
Cond. Fan Amps - Number 1/2	/

* Unit Number shall correspond to marked number on Drawings.

** Most remote unit only. Read gas pressure when equipment in building is in full operation.

GAS HEATING DATA	ACTUAL
EAT/LAT Degrees F	/
Verify Ignition-Stage 1/2	/
Gas Line Pressure, In. WC Upstream of Unit Control **	
Gas Manifold Pressure, In. WC Downstream of Appliance Regulator **	
Burner Orifice Size	

ELECTRIC HEATING DATA	ACTUAL
EAT/LAT Degrees F	/
Voltage - Stage 1/2	
T1 - T2	/
T2 - T3	/
T3 - T4	/
Amps - Stage 1/2	
T1	/
T2	/
T3	/

START-UP DATE _____ TIME _____ READINGS BY _____

VERIFIED BY _____
(General Contractor)

REMARKS: _____

_____]

MAKE-UP AIR UNIT START-UP REPORT

Page ____ of ____

PROJECT _____

UNIT NO.* _____

LOCATION _____

ALTITUDE IN FEET _____

MANUFACTURER _____

OUTPUT (BTUH/KW) _____

MODEL NO. _____

SERIAL NO. _____

GAS HEATING DATA	
EAT/LAT Degrees F	
Verify Ignition - Stage 1/2	
Gas Line Pressure, In. WC Upstream of Unit Control **	
Gas Manifold Pressure, In. WC Downstream of Appliance Regulator **	
Burner Orifice Size	
Fuel (Natural Gas or Propane)	

* Unit Number shall correspond to marked number on Drawings.

** Most remote unit only. Read gas pressure when equipment in building is in full operation.

ELECTRICAL HEATING DATA	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Stage 6	Stage 7	Stage 8	Stage 9	Stage 10	Stage 11	Stage 12	Stage 13	Stage 14	Stage 15
EAT/LAT Degrees F															
Voltage - Stage 1/2															
T-1 - T-2															
T-2 - T-3															
T-3 - T-4															
AMPS - Stage 1/2															
T1															
T2															
T3															

START-UP DATE _____ TIME _____ READINGS BY _____

VERIFIED BY _____
(General Contractor)

REMARKS: _____

ELECTRIC UNIT HEATER START-UP REPORT

Page ____ of ____

PROJECT _____ LOCATION _____

UNIT DATA	UNIT NO.*	UNIT NO.*	UNIT NO.*	UNIT NO.*	UNIT NO.*	UNIT NO.*
Manufacturer						
Area Served						
Model No.						
Serial No.						
Nameplate KW						
TEST DATA	ACTUAL	ACTUAL	ACTUAL	ACTUAL	ACTUAL	ACTUAL
Units have been cleaned (YES) (NO)						
EAT/LAT Degrees F	/	/	/	/	/	/
Voltage – Stage 1/2						
T1-T2						
T2-T3						
T3-T4						
Amps – Stage 1/2						
T1						
T2						
T3						

* Unit number shall correspond to number on Drawings.

START-UP DATE _____ TIME _____ READINGS BY _____

VERIFIED BY _____
(General Contractor)

REMARKS: _____

GAS FIRED UNIT HEATER START-UP REPORT

Page ____ of ____

PROJECT _____ LOCATION _____

ALTITUDE IN FEET _____

UNIT DATA	UNIT NO.*	UNIT NO.*	UNIT NO.*	UNIT NO.*	UNIT NO.*	UNIT NO.*
Manufacturer						
Area Served						
Model No.						
Serial No.						
Nameplate BTUH						
TEST DATA	ACTUAL	ACTUAL	ACTUAL	ACTUAL	ACTUAL	ACTUAL
Units have been cleaned (YES) (NO)						
Gas line pressure (Upstream of appliance regulator), in. W.C.**						
Gas manifold pressure (Downstream of appliance regulator, In. W.C.)**						
Orifice size used. (Verify size required with <u>Manufacturer</u> based on above pressures and altitude.)						

* Unit number shall correspond to number on Drawings.

** These gas pressures are to be read at a time when gas equipment in building is in full operation.

START-UP DATE _____ TIME _____ READINGS BY _____

VERIFIED BY _____
(General Contractor)

REMARKS: _____

AIR CURTAIN START-UP REPORT

Page ____ of ____

PROJECT _____ LOCATION _____

UNIT DATA	UNIT NO.*	UNIT NO.*	UNIT NO.*	UNIT NO.*	UNIT NO.*	UNIT NO.*
Manufacturer						
Area Served						
Model No.						
Serial No.						
Nameplate KW						
TEST DATA	ACTUAL	ACTUAL	ACTUAL	ACTUAL	ACTUAL	ACTUAL
Units have been cleaned (YES) (NO)						
Airstream split location has been verified and air vane adjusted						
Thermostat has been tested in all positions. Location of airstream split above the floor and away from door.						

* Unit number shall correspond to number on Drawings.

START-UP DATE _____ TIME _____ READINGS BY _____

VERIFIED BY _____
(General Contractor)

REMARKS: _____

CONTRACTOR'S RECORD LETTER OF CONFORMANCE
SECTION 15700 – HEATING, VENTILATION, AND AIR CONDITIONING EQUIPMENT
ANSUL HOOD SUPPRESSION SYSTEM(S)

Project Location: _____ Date: _____

(City & State)

Project Number: _____ Store Number: _____ Number of Systems: _____

Statement of Conformance:

This Record Letter of Conformance is provided as a Record Document in accordance with Section 01770 – Contract Closeout. The undersigned hereby declares that the fixed ANSUL exhaust hood suppressions systems (hereafter referred to as the “Systems”) is installed and is in general conformance with the Contract Documents, applicable Codes, and shop drawings. The “Systems” have been provided and placed in operational condition in accordance with the manufacturer's published instructions and the Contract Documents.

To be accepted, all signatures must be original ink signatures (copies are not allowed).

ANSUL AUTHORIZED INSTALLER:

(Subcontractor Signature)

(Subcontractor name and address) Phone Number: () _____

CONTRACTOR:

(Contractor Signature)

(Contractor name and address) Phone Number: () _____

Recommendation of Acceptance:

This Recommendation of Acceptance is provided as a Record Document in accordance with Section 01770 – Contract Closeout. We recommend Wal-Mart accept the installation of the “Systems” (as referenced above). The “Systems” are found to be in general conformance with the Contract Documents, and Approved Shop Drawings. This recommendation is based on ANSUL System Site Observation and Acceptance Test (FPAT) witnessed on _____ (Report Date), and follow up verification of identified issues conducted on _____ (Trip Date, Report Date).

While this review is an integral part of this project, it does not relieve the Contractor of their responsibility to comply with the applicable provisions of the Contract Documents along with the mandated codes and standards. These examinations shall not be construed as a check of every item nor does it prevent authorities from hereafter requiring corrections of errors in plans or installation.

WAL-MART’S FIRE PROTECTION CONSULTANT:

(Wal-Mart’s Fire Protection Consultant Signature)

(Wal-Mart’s Fire Protection Consultant name and address) Phone Number: () _____

15700-10

SECTION 15800 - AIR DISTRIBUTION

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Ductwork, dampers, inlets and outlets for HVAC systems.
- B. Related Sections:
 - 1. Section 07815 - Mineral Fiber Fireproofing.
 - 2. Section 08311 - Access Doors and Frames.
 - 3. Section 01455 - Mechanical Equipment Testing, Adjusting, and Balancing: Testing and balance of HVAC systems.
 - 4. Section 15700 - Heating, Ventilating, and Air Conditioning Equipment.

1.2 REFERENCES

- A. The publications listed below form a part of this specification to the extent referenced. Publications are referenced within the text by the basic designation only.
- B. The publications listed below form a part of this specification to the extent referenced. Publications are referenced within the text by the basic designation only.
- C. Air Movement and Control Association (AMCA):
 - 1. AMCA 500 - Test Methods for Louvers, Dampers And Shutters.
- D. ASTM International (ASTM):
 - 1. ASTM A653 - Steel Sheet, Zinc-Coated (Galvanized), or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot Dip Process.
 - 2. ASTM C553 - Mineral Fiber Blanket Thermal Insulation for Commercial and Industrial Applications.
 - 3. ASTM C1071 - Thermal and Acoustical Insulation (Mineral Fiber, Dust Lining Material).
 - 4. ASTM C1136 - Flexible, Low Permeance Vapor Retarders for Thermal Insulation.
 - 5. ASTM E84 - Surface Burning Characteristics of Building Materials.
 - 6. ASTM E119 - Fire Tests of Building Construction and Materials.
- E. National Fire Protection Association (NFPA):
 - 1. NFPA 90A - Installation of Air Conditioning and Ventilating Systems.
 - 2. NFPA 96 - Ventilation Control And Fire Protection Of Commercial Cooking Operations.
- F. Sheet Metal Air Conditioning Contractors National Association (SMACNA):
 - 1. SMACNA 1035 - HVAC Duct Construction Standards - Metal & Flexible.
- G. British Standards Institution (BSI):
 - 1. BS 302 - Stranded Steel Wire Ropes.

1.3 QUALITY ASSURANCE

- A. Comply with NFPA 90A unless otherwise indicated.

1.4 SCHEDULING

- A. Schedule testing and balancing in accordance Section 01455 after completion of system start-up requirements.

1.5 WARRANTY

- A. Warrant new and modified ductwork for period of one year from date of final acceptance of job, against noise and vibration under full range of operating conditions.

PART 2 - PRODUCTS

2.1 SHEET METAL DUCTWORK

- A. Sheet Metal Ductwork: Continuous hot-dip mill galvanized, minimum coating of G90, lock-forming quality steel sheets, in accordance with ASTM A653.
- B. Gages: Sheet metal gage as specified in SMACNA 1035 but not less than the following:
 - 1. Rectangular Duct: 26 gage for all sizes.
 - 2. Round Duct: Prime grade steel sheets, by United Sheet Metal Co. Inc. or equivalent.
 - a. 14 inch diameter and smaller: 26 gage.
 - b. 15 inch diameter and larger: 24 gage.
- C. Round ductwork shall be spiral seam where exposed and not insulated on sales floor area and spiral or longitudinal seam in all other areas.
- D. Ductwork connections for round duct may be made using SpiralMate self-sealing duct connection system by Ductmate Industries (800) 245-3188.

2.2 DUCTWORK INSULATION

- A. Manufacturers:
 - 1. CertainTeed.
 - 2. Knauf.
 - 3. Schuller (Manville).
 - 4. Owens/Corning.
- B. Substitutions: Not permitted.
- C. Duct Liner: ASTM C1071.
 - 1. Material fibers shall be bonded with thermosetting resin, with smooth air stream surface.
 - 2. Maximum flame spread rating of 25, ASTM E84.
 - 3. Maximum smoke developed rating of 50, ASTM E84.
 - 4. Density: 2 lb. per cu.ft. with following minimum R-values at 75 degrees F.
 - a. 1/2 inch thick liner: R=3.3.
 - b. 1 inch thick liner: R=3.7.
 - c. 1 1/2 inch thick liner: R=5.6.
 - d. 2 inch thick liner: R=7.4
- D. Duct Wrap: ASTM C553.
 - 1. Material Facing: Type II FSK or vinyl, ASTM C1136.
 - 2. Maximum flame spread rating: 25, ASTM E84.
 - 3. Maximum smoke developed rating: 50, ASTM E84.
 - 4. Density: 1 lb. per cu.ft. with following minimum R-values at 75 degrees F.
 - a. 2 inch thick duct wrap: R=7.4 (minimum out-of-package value), R=6.0 (minimum installed value).

2.3 SELF-SEALING SPIRAL DUCTWORK SYSTEM (CONTRACTOR OPTION)

- A. General:
 - 1. At the option of the Contractor, self-sealing ductwork system may be used in lieu of round built-up system.
 - 2. Meet or exceed SMACNA's Leakage Class 3 requirements with no additional sealants.

- B. Manufacturer:
 - 1. Lindab Inc., Stamford, CT (800) 797-7476.
 - C. Round Spiral Sheet Metal Ductwork System:
 - 1. SPIROsafe as manufactured by Lindab, Inc.
 - 2. Duct: Galvanized, minimum coating designation of G90, lock-forming quality steel sheets, in accordance with ASTM A653.
 - 3. Substitutions: Not permitted.
 - D. Fittings:
 - 1. SPIROsafe as manufactured by Lindab, Inc.
 - 2. End gaskets EPDM rubber, factory installed, U-profile, double lipped.
 - E. Control Dampers: SPIROsafe DSU as manufactured by Lindab, Inc.
 - F. Supply Grilles: SPIROcomfort RGS-3 as manufactured by Lindab, Inc.
- 2.4 DUCTWORK FOR REMOVAL OF GREASE AND SMOKE LADEN VAPORS
- A. Sheet Metal Ductwork: 16 gage black steel welded liquid tight.
 - B. Fire Rated Duct Wrap: Specified in Section 07815.
- 2.5 VOLUME CONTROL DAMPERS
- A. Manual Dampers: Provide manual volume-control dampers where indicated and of the type and model number as scheduled on the drawings. Frame and blades shall be galvanized steel. Provide ceiling doors where required in accordance with Section 08311.
 - 1. Manufacturers: Provide dampers by one of the following:
 - a. A.E.S. Inc, East Tallassee, AL, Contact: Chad Burt (800) 786-0402.
 - b. Sisneros Brothers Mfg, Contact: Joshua Gallegos (800) 499-0106.
 - c. Ruskin Company, Kansas City, MO, (816) 761-7476.
 - 2. Round Dampers: Dampers shall have end bearings and center locking control handle with position indicator. Control handle shall be Durodyne KL-7R or Ventlok 639. Provide 2-inch extension to protect insulation.
 - 3. Rectangular Dampers: Dampers shall have single blade or multiple inter-locked opposed blades with shaft bearings, 3/8 inch square control shaft and center locking control handle. Control handle shall be Durodyne KL7 or Ventlok 639.
 - B. Field fabricated dampers shall not be used.
 - C. Substitutions: Not permitted unless otherwise specified.
- 2.6 FIRE DAMPERS
- A. Dampers: UL labeled, constructed and installed in accordance with NFPA 90A and UL instructions. Size dampers to provide free area equal to duct dimensions.
 - B. Provide hanger design, and methods of hanging and supporting compatible with the structure.
- 2.7 AIR INLETS AND OUTLETS
- A. Grilles, registers, ceiling outlets, and ceiling inlets shall be as indicated on Drawings. Wall mounted and hard ceiling mounted air inlets and outlets shall be provided with heavy-duty sponge or soft felt gaskets.
- 2.8 DROP BOX DIFFUSERS (OWNER FURNISHED - CONTRACTOR INSTALLED)

- A. Manufacturer: Wal-Mart supplier for drop box diffusers will be as follows:
1. AES Industries, Tallassee, AL, Contact: Chad Burt (800) 786-0402.
- B. General Description: Drop boxes will be constructed of 18 gauge galvanized/galvannealed (paintable) steel sheet conforming to ASTM A 653, min. A60 coating designation, with integral 18 gauge minimum air diverters. Drop boxes shall be fully welded. Mechanical fastened seams shall not be used. Diffusers shall be fully adjustable double deflection drum louvers. Base louver in 6-way box shall be double deflection with opposed blade dampers. Provide air tight gaskets at louver connections to drop box. Drop boxes shall be insulated with 1" x 1.5 lb density duct liner glued with 100% coverage of adhesive and pin spotted to all interior surfaces per SMACNA. Provide 14 gauge mounting brackets, 2"x 2"x 1/4" pre-punched angles, 3/8" all thread rod, beam clamps, and additional nuts and washers.
- C. Accessory Package: Manufacturer shall provide mounting accessory package for each drop box consisting of the following:
1. 2" x 2" x 1/4" pre-punched angles (or Unistrut).
 2. 3/8" all thread rod (pre-cut).
 3. Beam clamps.
 4. All bolts, nuts and washers.
- D. 6-Way Drop Box Performance Criteria:

6-Way Diffuser - Louver Schedule					
Unit Size	Box Type	Total CFM	Drum Louver Size	Base Louver Size	Minimum Throw (ft)
5 Ton	6-way	2000	6 x 12	None	33
10 Ton	6-way	4000	6 x 18	None	47
20 Ton	6-way	6000 -7000	10 x 25	6 x 18	61
25 Ton	6-way	8000 - 10000	12 x 30	6 x 18	74

Base louver in 6-way box shall be double deflection with opposed blade dampers. Provide air tight gaskets at louver connections to drop box.

- E. Finish: Prime and finish coat in the shop. Paint exposed screws and fasteners to match drop box. Finish coating shall be color to match Sherwin-Williams #SW6385 "Dover White".
1. Alkyd Primer: One coat PPG Multigrip Epoxy Ester Dry Fog #6-157.
 2. Alkyd Finish: One coat PPG Speedhide Super-Tech Dry Fog Coating, Eggshell # 6-151.
- F. Identification: Paint RTU number in black 6" letters on the bottom of each drop box.

2.9 DUCT SEALERS

- A. Manufacturer: Provide duct sealers of one of the following:
1. Kingco 11376 or 10526.
 2. Ductmate PROseal.
 3. United McGill Duct-Sealer.
 4. Trans-Continental Equipment Co. - Multipurpose Duct Sealant.
 5. Hardcast #601 Iron-Grip.
 6. Hardcast Aluma-Grip Tape.
- B. Substitutions: Not permitted.

2.10 WIRE ROPE HANGER SYSTEMS (CONTRACTOR OPTION).

- A. General: At the option of the Contractor, wire rope hanger system for ductwork may be used in lieu of conventional hangers.

- B. Manufacturer: Gripple Limited, Sheffield, United Kingdom. U. S. Distributor: One of the following:
 - 1. Ductmate Industries, E. Monongahela, PA, (800) 245-3188.
 - 2. Gripple, Inc., Batavia, IL., (630) 208- 0111.
- C. Product: Gripple Hang-Fast Wire Rope Hanging System.
 - 1. Substitutions: Not permitted.
- D. Wire Rope:
 - 1. Galvanized steel wire rope conforming to BSI BS 302.
 - 2. Standard lengths of 5, 10, 15 and 30 feet with a preformed loop at one end.
- E. Locking Mechanism:
 - 1. Zinc housing with Type 302 S26 stainless steel springs along with oil impregnated steel locking wedges.

PART 3 - EXECUTION

3.1 FABRICATION

- A. Fabrication requirements apply to new and modified ductwork.
- B. Fabricate, erect, and install ductwork for heating, ventilating, and air conditioning systems per SMACNA 1035 and the requirements of the Authority Having Jurisdiction.
- C. Make joints air tight on supply, return, and exhaust ducts. Seal transverse and longitudinal joints with duct sealer unless otherwise noted. Seal exhaust ducts with exterior seal as required to assure positive seal.

3.2 DUCT INSULATION

- A. Insulate ducts in accordance with SMACNA 1035. Do not insulate exhaust ductwork unless otherwise shown or specified.
- B. Rectangular Duct:
- C. Round Duct: Insulate the following with 2-inch wrap. Overlap facing and staple securely.
 - 1. Supply and return duct in receiving areas.
 - 2. Supply and return duct above finished ceilings.

3.3 AIR INLETS AND OUTLETS

- A. Locations of outlets indicated on Drawings are approximate. Coordinate with other trades to make symmetrical patterns. Determine locations by established pattern of lighting fixtures, or architectural reflected ceiling plan.
- B. Install fire radiation dampers and other devices at air inlets and outlets where required by codes and regulations of governing authorities. Dampers shall be UL labeled, constructed and installed in accordance with NFPA 90A and UL instructions.

3.4 DROP BOX DIFFUSERS

- A. Install drop boxes in accordance with the manufacturer's installation instructions and as detailed on the drawings.
- B. Provide duct transitions and return air plenums as required to complete the installation of drop boxes. Insulate duct transitions with 1" x 1.5 lb density duct liner glued and spot welded to interior surfaces.
- C. Labeling: Contractor shall label drop box diffusers by painting the appropriate RTU number in black 6" letters on the bottom of each drop box.

3.5 DUCT SUPPORTS

- A. Duct support requirements apply to new and modified ductwork.
- B. Support horizontal and vertical sheet metal duct work in accordance with Schedule I or II at the end of this section.
- C. Wire Rope Hanger System (Gripple Hang-Fast) (Contractor Option).
 - 1. Comply with SMACNA 1035, Duct Construction Standards (DCS) with the following exceptions:
 - a. Use is not restricted to the SMACNA DCS diametrical limits for single wires.
 - b. Wire rope system shall not be used for hanging risers nor for two-tier trapeze hanging method.
 - 2. Provide stress distribution saddles as required when a single wire rope is passed continuously under round and rectangular duct as required to retain duct shape.
- D. Do not use fasteners which penetrate roof deck.
- E. Provide sway bracing to comply with seismic requirements per local codes and Authority Having Jurisdiction.
- F. Install approved fire dampers in air ducts or air inlets and outlets where required by codes and regulations of governing authorities. Install access doors in ducts at all fire dampers.

3.6 PROTECTION

- A. Protect work, equipment and material to prevent obstruction, damage or breakage. Close pipe openings with caps or plugs during installation. Cover and protect equipment against dirt, water, chemical or mechanical injury. At the completion of work, thoroughly clean all equipment and deliver the entire system in an unblemished condition.

3.7 TESTING

- A. Prepare systems for test and balance as specified in Section 01455.
- B. In coordination with Section 01455, make changes in pulleys, belts, ductwork, and dampers as required for correct balance as recommended by air balance and testing agency.

3.8 SCHEDULES

SCHEDULE I – DUCT SUPPORT SCHEDULE

Minimum Hanger Size

RECTANGULAR DUCTWORK

Maximum Half of Duct Perimeter*	Pair at 10 ft Spacing		Pair at 8 ft spacing		Pair at 5 ft spacing		Pair at 4 ft spacing	
	Strap	Rod	Strap	Rod	Strap	Rod	Strap	Rod
P/2 = 30"	1" x 22 ga	10 ga	1" x 22 ga	10 ga	1" x 22 ga	12 ga	1" x 22 ga	12 ga
P/2 = 72"	1" x 18 ga	3/8"	1" x 20 ga	1/4"	1" x 22 ga	1/4"	1" x 22 ga	1/4"

* Perimeter = Sum of Sides

ROUND DUCTWORK

Diameter	Maximum Spacing	Rod	Strap
24" and less	10'	1/4"	1" x 22 ga
25"-36"	10'	3/8"	1" x 20 ga

SCHEDULE II - WIRE ROPE HANGER SYSTEM SCHEDULE - OPTION

Minimum Hanger Size

RECTANGULAR DUCTWORK

Maximum Half of Duct Perimeter*	Single Loop at 10 ft Spacing	Single Loop at 8 ft Spacing	Single Loop at 5 ft Spacing	Single Loop at 4 ft Spacing
P/2 = 12"	No. 2	No. 2	No. 2	No. 2
P/2 = 20"	No. 3	No. 3	No. 2	No. 2
P/2 = 28"	No. 3	No. 3	No. 2	No. 2
P/2 = 52"	No. 4	No. 4	No. 3	No. 3
P/2 = 68"	No. 4	No. 4	No. 3	No. 3
Maximum Half of Duct Perimeter*	Pair at 10 ft Spacing	Pair at 8 ft Spacing	Pair at 5 ft Spacing	Pair at 4 ft Spacing
P/2 = 12"	No. 2	No. 2	No. 2	
P/2 = 20"	No. 2	No. 2	No. 2	No. 2
P/2 = 28"	No. 3	No. 2	No. 2	No. 2
P/2 = 52"	No. 3	No. 3	No. 2	No. 2
P/2 = 68"	No. 3	No. 3	No. 3	No. 3
P/2 = 108"	No. 4	No. 4	No. 3	No. 3

ROUND DUCTWORK

Maximum Diameter	10 ft Spacing	8 ft Spacing	5 ft Spacing
8"	No. 2	No. 2	No. 2
10"	No. 3	No. 2	No. 2
12"	No. 3	No. 2	No. 2
20"	No. 4	No. 3	No. 2
24"	No. 4	No. 3	No. 2
Maximum Diameter	Pair at 10 ft Spacing	Pair at 8 ft Spacing	Pair at 5 ft Spacing
26"	No. 3	No. 2	No. 2
36"	No. 3	No. 3	No. 2

NOTES:

1. Wire diameters are based on the following sizes:

Size No. 2= 5/64"

Size No. 3 = 1/8"

Size No. 4= 3/16"

2. Schedule is based on 16 gauge maximum ductwork.

3. Hanger sizes are based on vertical hanging only. Refer to manufacturer's data for load limits of hangers at angles other than vertical.

END OF SECTION

SECTION 16050 - BASIC ELECTRICAL MATERIALS AND METHODS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Electrical Identification
 - 2. Hangers and Supports
 - 3. Conduit Sleeves
 - 4. Grounding and Bonding
- B. Related Sections
 - 1. Section 09900 - Paints and Coatings: Field painting of hangers and supports.
 - 2. Section 13810 – Energy Management System (EMS)
 - 3. Section 16100 – Wiring Methods
 - 4. Section 16405 – Electrical Distribution Centers
 - 5. Section 16452 – Track Busway System
 - 6. Section 16500 – Lighting
 - 7. Section 16700 – Communication

PART 2 - PRODUCTS

2.1 ELECTRICAL IDENTIFICATION (Non EDC Items)

- A. Nameplates: Provide laminated plastic nameplates with 3/4 inch minimum contrasting-color engraved letters.

2.2 HANGERS AND SUPPORTS

- A. Manufacturers:
 - 1. Unistrut Metal Framing, Unistrut Corporation, Wayne, MI, (800) 521-7730 or contact Steve Goldstein 800-243-1054 ext 111.
 - 2. ERICO, Solon, OH, (440) 349-2630.
 - 3. Minerallac Fastening Systems, Hampshire, IL, (877) 285-2200.
- B. Conduit and Equipment Supports: Hangers shall be Series P3000 or P3300 channels by Unistrut depending on load and span involved. Use Pipe Hangers by Minerallac , or Caddy Clips by ERICO only where impractical to install Unistrut Hangers.
- C. Attach hangers and supports to structure overhead by methods approved at job site. Do not use fasteners which penetrate the roof deck.

2.3 CONDUIT SLEEVES

- A. Sleeves: Galvanized, black steel or schedule 40 PVC pipe.

2.4 GROUNDING AND BONDING

- A. Insulated Grounding Bushing: Steel with feed-thru lugs.
- B. Insulated Equipment Ground Wire: Copper.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install specified materials in accordance with manufacturer's recommendations and as indicated on Drawings.
- B. Cutting and Patching: Where cutting is required through walls, floors, or ceilings, make openings no larger than required and repair affected surfaces to match adjacent surfaces.
- C. Nameplates: Bolt or pop-rivet nameplates to equipment. Clearly identify equipment or equipment served, such as "BALER", "COMPACTOR," etc. Install nameplates for each safety switch, contactor, time switch, pushbutton and other similar equipment.
- D. Electrical Equipment Supports: Support electrical equipment with hangers and supports specified above or in another approved manner where details are not indicated.
- E. Sleeves: Install where conduits pass through concrete floors. Caulk sleeves through outside walls above grade with sealant as specified in Section 07900.
- F. Fastening and Anchoring: Fasten conduit straps, disconnect switches, panelboards, and other equipment secured to walls and slabs with cadmium plated screws or bolts and lead cinch anchors or expansion bolts and install in holes drilled with proper size masonry drill. Properly size anchors in accordance with manufacturer's recommendations for load to be supported.
- G. Torque all conductor connection terminations including those in EDC to manufacturer's recommended values. Inspect panelboards for physical damage, proper alignment, anchorage, and grounding. Check proper installation and tightness of connections for circuit breakers, fusible switches, and fuses.

3.2 GROUNDING

- A. General: Ground all metallic conduits, supports, cabinets, equipment, system neutrals, metal building structures, and other items required to be grounded in accordance with the NEC and other applicable codes and as indicated on drawings.
- B. Equipment Grounding:
 - 1. Make conduits electrically continuous using proper fittings, connections, grounding bushings, etc.
 - 2. Install insulating grounding bushings on all conduit connections 1 1/4 inch and larger and where indicated on Drawings.
 - 3. Install an insulated equipment ground wire as shown on drawings.
- C. Metal Underground Cold Water Pipe: Connect to electrical system if available and permitted by local codes. Install jumpers around water meters, valves, or other devices which might cause an interruption of continuity during service.
- D. Concrete Encased Electrodes: Where indicated on the Drawings, furnish and install electrodes, jumpers, and approved fittings in accordance with Grounding Electrode Detail .
- E. Ground Rods: If ground rods are required, install two 5/8 inch minimum diameter Copperweld rods driven vertically not less than 12 feet apart and each with 8 feet of length in contact with the soil.

3.3 TESTING

- A. Upon completion of installation, perform continuity tests on power and equipment branch circuit conductors. Inspect wire and cable for physical damage. Verify proper phasing connections.
- B. Measure ground resistance from system neutral connection at service entrance to convenient ground point on building water pipe using suitable ground testing equipment.

- C. Test receptacles with circuit tester to ensure proper polarity, grounding, and continuity of circuits.
- D. Load test GFCI receptacles.

END OF SECTION

SECTION 16100 - WIRING METHODS

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Wire and Cable.
 - 2. Conduit
 - 3. Outlet boxes and Conduit Fittings.
 - 4. Nonmetallic Floor Boxes
 - 5. Wiring Devices.
 - 6. Wire Connectors.
 - 7. Fire Alarm/Security Alarm System Rough-In
- B. Products Provided Under Separate Contract: Under provisions of section 01640, Owner will furnish and install fire and security alarm system
 - 1. Contractor shall provide rough-in as specified herein.

1.2 REFERENCES

- A. National Fire Protection Association (NFPA):
 - 1. NFPA 70 - National Electrical Code (NEC).
 - 2. NFPA 72 - National Fire Alarm Code
- B. American Society for Testing Material (ASTM)
 - 1. ASTM D698 - Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft
 - 2. ASTM D1557 - Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-bf/ft3)
- C. Underwriters Laboratories (UL)
 - 1. UL 1569 - Metal Clad Cables

PART 2 PRODUCTS

2.1 WIRE AND CABLE

- A. Electrical Components and Devices: Listed and labeled as defined in NFPA 70, Article 100, by a nationally recognized testing agency and marked for use.
- B. Wire and cable shall bear UL label and shall conform to standards established for such materials by nationally recognized agencies.
- C. Provide code gauge, soft annealed copper wire, not less than 98 percent conductivity and of 600 volt class.
- D. Aluminum Alloy Conductors: Shall not be used in new circuits.
- E. Conductors:
 - 1. Insulation type shall be one of the following:
 - a. THHN
 - b. THWN
 - c. XHHW
 - d. XHHW-2
 - 2. Type:
 - a. #10 and smaller - stranded or solid.
 - b. #8 and larger - stranded

- F. Interlocked Armor Metal Clad (MC) Cable: Contractor's option as allowed by authorities having jurisdiction. MC cable shall have the following characteristics:
1. Standard MC.
 2. Minimum size conductor, #12 AWG copper, including green insulated equipment ground, sized in accordance with the NEC.
 3. Overall moisture resistant tape.
 4. Galvanized steel or aluminum interlocked cladding.
 5. Manufactured in accordance with UL 1569.
- G. Wire smaller than #12 AWG not permitted unless otherwise noted. #14 AWG, type MTW or TFF permitted for signal and pilot control circuits unless otherwise noted.
- H. Color code:
- 1.

SYSTEM VOLTAGE	NEUTRAL COLOR	PHASE	GROUND	ISOLATED GROUND
208/120V	white	A-black B-red C-blue	green	green W/ yellow tracer
480/277V	lt. gray or white with colored stripe other than yellow	A-brown B-orange C-yellow	green	green W/ yellow tracer

- I. Color code #8 AWG and smaller phase and neutral conductors by continuous outer covering. Conductors #6 AWG and larger may be color coded by tape. Tape shall have minimum of two complete wraps around conductor at 6 inches from terminations, splices, and junction points.
- J. Identify circuit numbers with synthetic cloth or plastic labels at splice and junction points.

2.2 CONDUIT

- A. Conduit types shall be as follows and shall bear UL or ETL label:
1. Galvanized Rigid Metal Conduit (GRC): Hot-dip galvanized.
 2. Intermediate Metal Conduit (IMC): Hot-dip galvanized.
 3. Electrical Metallic Tubing (EMT): Hot-dip galvanized.
 4. Schedule 40 heavy-wall PVC for all underground conduit runs.
 5. Flexible Metal Conduit: Zinc-coated steel or Aluminum.
 6. Liquid Tight Flexible Steel Conduit with PVC jacket.
 7. MC Cable: Steel or Aluminum Cladding.
- B. Conduit Sizes: Size conduit in accordance with NEC unless noted otherwise on Drawings, but not less than the following:
1. Alarm and Data Systems: 3/4 inch.
 2. Flexible Metal Conduit: For connection of recessed light fixtures in suspended ceilings, 3/8 inch. For connection of other equipment subject to vibration: 1/2 inch.
 3. Underground Conduit in Parking Lot: 1 inch.
 4. Other Uses: 1/2 inch.

2.3 OUTLET BOXES AND CONDUIT FITTINGS

- A. Outlet boxes and conduit fittings shall bear UL or ETL label.
- B. Boxes: Comply with NEC in regard to maximum allowable number of conductors.

1. Interior Boxes: Hot-dip galvanized, 4 inches minimum octagon or square, unless otherwise noted. Provide single or multiple gang outlet boxes as required for flush installation in drywall construction. Provide masonry boxes for outlets installed flush in concrete unit masonry. Provide single surface-mounted outlet boxes for utility type boxes.
2. Outlet Boxes: Suitable for supporting lighting fixtures if intended for that purpose.
3. Ceiling Fan Boxes: Rated and listed for mounting ceiling fans.

C. Conduit Fittings:

1. Indoor EMT Fittings: Diecast or steel set screw type.
2. Outdoor EMT Fittings: Steel Compression type.
3. Outdoor GRC, IMC, or EMT Box Connectors: Weather-tight hubs.
4. Threadless GRC or IMC Fittings: Not permitted.
5. Indoor GRC or IMC connectors.
6. PVC Fittings: Solvent weld type for PVC conduit.
7. Locknuts and bushings

2.4 WIRING DEVICES

A. Branch Circuit Switches: Specification grade rated 20A 120/277V AC as follows:

1. Single Pole:
 - a. Hubbell HBL1221I.
 - b. Pass and Seymour PS20AC1-I.
 - c. Cooper 2221V.
 - d. Leviton 1221-2I.
 - e. Bryant 4901I.
2. Double Pole:
 - a. Hubbell HBL1222I.
 - b. Pass and Seymour PS20AC2-I.
 - c. Cooper 2222V.
 - d. Leviton 1222-2I.
 - e. Bryant 4902I
3. Three Way:
 - a. Hubbell HBL1223I.
 - b. Pass and Seymour PS20AC3-I
 - c. Cooper 2223V.
 - d. Leviton 1223-2I.
 - e. Bryant 4903I.
4. Four Way:
 - a. Hubbell HBL1224I.
 - b. Pass and Seymour PS20AC4-I.
 - c. Cooper 1224-I2224V.
 - d. Leviton 1224-2I.
 - e. Bryant 4904I
5. Dimmers:
 - a. Lutron NT-600-S-NFB-IV-120.
6. Single Pole Occupancy Sensor:
 - a. Hubbell WS277I.
 - b. Sensor Switch WSD-I.
7. Double Pole Occupancy Sensor:
 - a. Hubbell WS1277W2.
 - b. Sensor Switch WSD-2P-I.
8. Three Way Dimmer:
 - a. Leviton IP710-DLW-I
 - b. Lithonia ISD-BC-120/277-IV
 - c. Hunt PS-010-3W-IV-227V

B. Receptacles - Straight Blade Nylon Grounding - Type Outlet Devices: Specification grade as follows:

16100-3

1. Clock Receptacle 15A 125V (5-15R):
 - a. Hubbell HBL5235.
 - b. Pass and Seymour S3733-SS.
 - c. Cooper 93632.
 - d. Leviton 5261-CH.
 - e. Bryant 2828GS.
2. Single Receptacle 15A 125V (5-15R):
 - a. Hubbell HBL5261I.
 - b. Pass and Seymour 5261-I.
 - c. Cooper 5261V.
 - d. Leviton 5261-I.
 - e. Bryant 5261I.
3. Duplex Receptacle 15A 125V (5-15R):
 - a. Hubbell HBL5262I.
 - b. Pass and Seymour 5262-I.
 - c. Cooper 5262V.
 - d. Leviton 5262-I.
 - e. Bryant BRY5262I.
4. Duplex Receptacle 15A 125V Isolated Ground (5-15R):
 - a. Hubbell IG5262.
 - b. Pass and Seymour IG6200.
 - c. Cooper IG5262RN.
 - d. Leviton 5262-IG.
 - e. Bryant BRY5262IG.
5. GFCI Duplex Receptacle 15A 125V (5-15R):
 - a. Hubbell GF5252I.
 - b. Pass and Seymour 1594-I.
 - c. Cooper GF15V.
 - d. Leviton .6599-I
 - e. Bryant .GF52IA
6. Single Receptacle 20A 125V (5-20R):
 - a. Hubbell HBL5361I.
 - b. Pass and Seymour 5361-I.
 - c. Cooper 5361V.
 - d. Leviton 5361-I.
 - e. Bryant 5361I.
7. Duplex Receptacle 20A 125V (5-20R):
 - a. Hubbell HBL5362I.
 - b. Pass and Seymour 5362-I.
 - c. Cooper 5362V.
 - d. Leviton 5362-I.
 - e. Bryant BRY5362I.
8. Duplex Receptacle 20A 125V Isolated Ground (5-20R):
 - a. Hubbell IG5362.
 - b. Pass and Seymour IG6300.
 - c. Cooper IG5362RN.
 - d. Leviton 5362-IG.
 - e. Bryant BRY5362IG.
9. GFCI Duplex Receptacle 20A 125V (5-20R):
 - a. Hubbell GF5352I.
 - b. Pass and Seymour 2094-I.
 - c. Cooper GF20V.
 - d. Leviton .6899-I
 - e. Bryant .GF53IA
10. Single Receptacle 15A 250V 2 pole 3 Wire Grounded (6-15R):
 - a. Hubbell HBL5661I.
 - b. Pass and Seymour 5671-I.

- c. Cooper 5661V.
- d. Leviton 5661-I.
- e. Bryant 5661I.
- 11. Single Receptacle 20A 250V 2 pole 3 Wire Grounded (6-20R):
 - a. Hubbell HBL5461I.
 - b. Pass and Seymour 5871-I.
 - c. Cooper 5461V.
 - d. Leviton 5461-I.
 - e. Bryant 5461I.
- 12. Single Receptacle 30A 250V 2 pole 3 Wire Grounded (6-30R):
 - a. Hubbell HBL9330.
 - b. Pass and Seymour 3801.
 - c. Cooper 5700N.
 - d. Leviton 5372.
 - e. Bryant 9630FR.
- 13. Single Receptacle 50A 250V 2 pole 3 Wire Grounded (6-50R):
 - a. Hubbell HBL9367.
 - b. Pass and Seymour 3804.
 - c. Cooper 5709N.
 - d. Leviton 5374.
 - e. Bryant 9650FR.
- 14. Single Receptacle 20A 125/250V 3 pole 4 Wire Grounded (14-20R):
 - a. Hubbell HBL8410.
 - b. Pass and Seymour 3820.
 - c. Cooper 5759.
 - d. Leviton NOT AVAILABLE.
 - e. Bryant NOT AVAILABLE.
- 15. Single Receptacle 30A 125/250V 3 pole 4 Wire Grounded (14-30R):
 - a. Hubbell HBL9430A.
 - b. Pass and Seymour 3864.
 - c. Cooper 5744N.
 - d. Leviton 278.
 - e. Bryant 9430FR.
- 16. Single Receptacle 50A 125/250V 3 pole 4 Wire Grounded (14-50R):
 - a. Hubbell HBL9450A.
 - b. Pass and Seymour 3894.
 - c. Cooper 5754N.
 - d. Leviton 279.
 - e. Bryant 9450FR.
- 17. Single Receptacle 20A 3 Phase 250V 3 pole 4 Wire Grounded (15-20R):
 - a. Hubbell HBL8420.
 - b. Pass and Seymour NOT AVAILABLE.
 - c. Cooper NOT AVAILABLE.
 - d. Leviton NOT AVAILABLE.
 - e. Bryant NOT AVAILABLE.
- 18. Single Receptacle 30A 3 Phase 250V 3 pole 4 Wire Grounded (15-30R):
 - a. Hubbell HBL8430A.
 - b. Pass and Seymour 5740.
 - c. Cooper 8430N.
 - d. Leviton 8430.
 - e. Bryant 8430FR.
- 19. Single Receptacle 50A 3 Phase 250V 3 pole 4 Wire Grounded (15-50R):
 - a. Hubbell HBL8450A.
 - b. Pass and Seymour 5750.
 - c. Cooper 8450N.
 - d. Leviton 8450.
 - e. Bryant 8450FR.

- 20. Single Receptacle 60A 3 Phase 250V 3 pole 4 Wire Grounded (15-60R):
 - a. Hubbell HBL8460A.
 - b. Pass and Seymour 5760.
 - c. Cooper 8460N.
 - d. Leviton 8460.
 - e. Bryant 8460FR.
- C. Receptacles - Locking Nylon Grounding - Type Outlet Devices: Specification grade as follows:
 - 1. Single Locking Receptacle 15A 125V (L5-15R):
 - a. Hubbell HBL4710.
 - b. Pass and Seymour 4710.
 - c. Cooper CWL515R.
 - d. Leviton 4710.
 - e. Bryant 4710.
 - 2. Single Locking Receptacle 15A 125V Isolated Ground (L5-15R):
 - a. Hubbell IG4710.
 - b. Pass and Seymour IG4710.
 - c. Cooper IGL515R.
 - d. Leviton 4710-IG.
 - e. Bryant 4710IG.
 - 3. Duplex Locking Receptacle 15A 125V (L5-15R):
 - a. Hubbell HBL4700.
 - b. Pass and Seymour 4700.
 - c. Cooper 4700.
 - d. Leviton 4700.
 - e. Bryant 4700DR.
 - 4. Duplex Locking Receptacle 15A 125V Isolated Ground (L5-15R):
 - a. Hubbell IG4700A.
 - b. Pass and Seymour IG4700.
 - c. Cooper IG4700.
 - d. Leviton 4700-IG.
 - e. Bryant 4700DRIG.
 - 5. Single Locking Receptacle 20A 125V (L5-20R):
 - a. Hubbell HBL2310.
 - b. Pass and Seymour L520-R.
 - c. Cooper CWL520R.
 - d. Leviton 2310.
 - e. Bryant 70520FR.
 - 6. Single Locking Receptacle 20A 125V Isolated Ground (L5-20R):
 - a. Hubbell IG2310.
 - b. Pass and Seymour IGL520-R.
 - c. Cooper IGL520R.
 - d. Leviton 2310-IG.
 - e. Bryant 70520IG.
 - 7. Single Locking Receptacle 30A 125V (L5-30R):
 - a. Hubbell HBL2610.
 - b. Pass and Seymour L530-R.
 - c. Cooper CWL530R.
 - d. Leviton 2610.
 - e. Bryant 70530FR.
 - 8. Single Locking Receptacle 20A 250V 2 Pole 3 Wire Grounded (L6-20R):
 - a. Hubbell HBL2320.
 - b. Pass and Seymour L620-R.
 - c. Cooper CWL620R.
 - d. Leviton 2320.
 - e. Bryant 70620FR.
 - 9. Single Locking Receptacle 30A 250V 2 Pole 3 Wire Grounded (L6-30R):

- a. Hubbell HBL2620.
 - b. Pass and Seymour L630-R.
 - c. Cooper CWL630R.
 - d. Leviton 2620.
 - e. Bryant 70630FR.
10. Single Locking Receptacle 20A 125/250V 3 pole 4 Wire Grounded (L14-20R).
- a. Hubbell HBL2410.
 - b. Pass & Seymour L1420-R.
 - c. Cooper CWL1420R.
 - d. Leviton 2410.
 - e. Bryant 71420FR.
11. Single Locking Receptacle 30A 125/250V 3 pole 4 Wire Grounded (L14-30R).
- a. Hubbell HBL2710.
 - b. Pass & Seymour L1430-R.
 - c. Cooper CWL1430R.
 - d. Leviton 2710.
 - e. Bryant 71430FR.
12. Single Locking Receptacle 30A 3 Phase 250V 3 pole 4 Wire Grounded (L15-30R).
- a. Hubbell HBL2720.
 - b. Pass & Seymour L1530-R.
 - c. Cooper CWL1530R.
 - d. Leviton 2720.
 - e. Bryant 71530FR.
13. Single Locking Receptacle 50A 250V 2 pole 3 Wire Grounded (Non-Nema):
- a. Hubbell HBL3771.
 - b. Pass and Seymour 3771.
 - c. Cooper 3771.
 - d. Leviton 3771.
 - e. Bryant 3771.
14. Single Locking Receptacle 50A 125/250V 3 pole 4 Wire Grounded (Non-Nema):
- a. Hubbell CS6369.
 - b. Pass and Seymour CS6369.
 - c. Cooper CS6369.
 - d. Leviton CS63-69.
 - e. Bryant CS6369N.
- D. Connectors - Cord mounted Locking Nylon Grounding - Type to match Plugs as follows:
1. Locking Connector 15A 125V (L5-15R):
- a. Hubbell HBL4729C.
 - b. Pass and Seymour L515-C.
 - c. Cooper 4731N.
 - d. Leviton 4729-C.
 - e. Bryant 4732NC.
2. Locking Connector 20A 125V (L5-20R):
- a. Hubbell HBL2313.
 - b. Pass and Seymour L520-C.
 - c. Cooper CWL520C.
 - d. Leviton 2313.
 - e. Bryant 70520NC.
3. Locking Connector 15A 250V 2 Pole 3 Wire Grounded (L6-15R):
- a. Hubbell HBL4579C.
 - b. Pass and Seymour L615-C.
 - c. Cooper 6566N.
 - d. Leviton 4579-C.
 - e. Bryant 70615NC.
4. Locking Connector 20A 3 Phase 250V 3 Pole 4 Wire Grounded (L15-20R):
- a. Hubbell HBL2423.

- b. Pass and Seymour L1520-C.
 - c. Cooper CWL1520C.
 - d. Leviton 2423.
 - e. Bryant 71520NC.
- E. Connectors - Cord mounted Corrosion Resistant Locking Nylon Grounding - Type to match Plugs as follows:
 - 1. Corrosion Resistant Locking Connector 20A 125V (L5-20R):
 - a. Hubbell HBL23CM13.
 - b. Pass and Seymour CRL520-C.
 - c. Cooper CRL520C.
 - d. Leviton 23CM-13.
 - e. Bryant 70520NCCR.
 - 2. Corrosion Resistant Locking Connector 20A 125/250V 3 Pole 4 Wire Grounded (L14-20R):
 - a. Hubbell HBL24CM13.
 - b. Pass and Seymour CRL1420-C.
 - c. Cooper CRL1420C.
 - d. Leviton NOT AVAILABLE.
 - e. Bryant NOT AVAILABLE.
 - 3. Corrosion Resistant Locking Connector 20A 3 Phase 250V 3 Pole 4 Wire Grounded (L15-20R):
 - a. Hubbell HBL24CM23.
 - b. Pass and Seymour NOT AVAILABLE.
 - c. Cooper CRL1520C.
 - d. Leviton NOT AVAILABLE.
 - e. Bryant NOT AVAILABLE.
 - 4. Corrosion Resistant Locking Connector 30A 3 Phase 120/208V 4 Pole 5 Wire Grounded (L21-30R):
 - a. Hubbell HBL28CM13.
 - b. Pass and Seymour NOT AVAILABLE.
 - c. Cooper NOT AVAILABLE.
 - d. Leviton NOT AVAILABLE.
 - e. Bryant NOT AVAILABLE.
- F. Plugs - Cord mounted Nylon Grounding - Type to match Outlet Devices as follows:
 - 1. Plug 20A 125V 2 Pole 3 Wire Grounded (5-20P):
 - a. Hubbell HBL5366CA.
 - b. Pass and Seymour 5366-X.
 - c. Cooper 5366AN.
 - d. Leviton 5366-CA.
 - e. Bryant 5395.
 - 2. Plug 20A 250V 2 Pole 3 Wire Grounded (6-20P):
 - a. Hubbell HBL5466CA.
 - b. Pass and Seymour 5466-X.
 - c. Cooper 5466AN.
 - d. Leviton 5466-C.
 - e. Bryant 5475N.
 - 3. Plug 20A 3 Phase 250V 3 Pole 4 Wire Grounded (15-20P):
 - a. Hubbell HBL8421C.
 - b. Pass and Seymour NOT AVAILABLE.
 - c. Cooper NOT AVAILABLE.
 - d. Leviton NOT AVAILABLE.
 - e. Bryant NOT AVAILABLE.
 - 4. Plug 30A 3 Phase 250V 3 Pole 4 Wire Grounded (15-30P):
 - a. Hubbell HBL8432C.
 - b. Pass and Seymour 5741-AN.
 - c. Cooper 8432AN.
 - d. Leviton 8432-P.
 - e. Bryant 8432ANPB.
 - 5. Plug 50A 3 Phase 250V 3 Pole 4 Wire Grounded (15-50P):

- a. Hubbell HBL8452C.
 - b. Pass and Seymour 5751-AN.
 - c. Cooper 8452AN.
 - d. Leviton 8452-P.
 - e. Bryant 8452ANPB.
 - 6. Plug 60A 3 Phase 250V 3 Pole 4 Wire Grounded (15-60P):
 - a. Hubbell HBL8462C.
 - b. Pass and Seymour 5761-AN.
 - c. Cooper 8462AN.
 - d. Leviton 8462-P.
 - e. Bryant 8462ANPB.
- G. Plugs - Cord mounted Locking Nylon Grounding - Type to match Outlet Devices as follows:
- 1. Locking Plug 15A 125V 2 Pole 3 Wire Grounded (L5-15P):
 - a. Hubbell HBL4720C.
 - b. Pass and Seymour L515-P.
 - c. Cooper 4721N.
 - d. Leviton 4720-C.
 - e. Bryant 4721NP.
 - 2. Locking Plug 20A 125V 2 Pole 3 Wire Grounded (L5-20P):
 - a. Hubbell HBL2311.
 - b. Pass and Seymour L520-P.
 - c. Cooper CWL520P.
 - d. Leviton 2311.
 - e. Bryant 70520NP.
 - 3. Locking Plug 15A 250V 2 Pole 3 Wire Grounded (L6-15P):
 - a. Hubbell HBL4570C.
 - b. Pass and Seymour L615-P.
 - c. Cooper 6565N.
 - d. Leviton 4570-C.
 - e. Bryant 70615NP.
 - 4. Locking Plug 20A 250V 2 Pole 3 Wire Grounded (L6-20P):
 - a. Hubbell HBL2321.
 - b. Pass and Seymour L620-P.
 - c. Cooper CWL620P.
 - d. Leviton 2321.
 - e. Bryant 70620NP.
 - 5. Locking Plug 30A 250V 2 Pole 3 Wire Grounded (L6-30P):
 - a. Hubbell HBL2621.
 - b. Pass and Seymour L630-P.
 - c. Cooper CWL630P.
 - d. Leviton 2621.
 - e. Bryant 70630NP.
 - 6. Locking Plug 20A 3 Phase 250V 3 Pole 4 Wire Grounded (L15-20P):
 - a. Hubbell HBL2421.
 - b. Pass and Seymour L1520-P.
 - c. Cooper CWL1520P.
 - d. Leviton 2421.
 - e. Bryant 71520NP.
 - 7. Locking Plug 30A 3 Phase 250V 3 Pole 4 Wire Grounded (L15-30P):
 - a. Hubbell HBL2721.
 - b. Pass and Seymour L1530-P.
 - c. Cooper CWL1530P.
 - d. Leviton 2721.
 - e. Bryant 71530-NP.
 - 8. Locking Plug 50A 250V 2 Pole 3 Wire Grounded (Non-Nema):
 - a. Hubbell HBL3763C.

- b. Pass and Seymour 3763-M.
 - c. Cooper 3763N.
 - d. Leviton 3763-C.
 - e. Bryant 3763N.
- 9. Locking Plug 50A 125/250V 3 Pole 4 Wire Grounded (Non-Nema):
 - a. Hubbell CS6365C.
 - b. Pass and Seymour CS6365.
 - c. Cooper CS6365N.
 - d. Leviton CS63-65C.
 - e. Bryant CS6365N.
- H. Plugs - Cord mounted Corrosion Resistant Locking Nylon Grounding - Type to match Outlet Devices as follows:
 - 1. Corrosion Resistant Locking Plug 20A 125V 2 Pole 3 Wire Grounded (L5-20P):
 - a. Hubbell HBL23CM11.
 - b. Pass and Seymour CRL520-P.
 - c. Cooper CRL520P.
 - d. Leviton 23CM-11.
 - e. Bryant 70520NPCR.
 - 2. Corrosion Resistant Locking Plug 20A 125/250V 3 Pole 4 Wire Grounded (L14-20P):
 - a. Hubbell HBL24CM11.
 - b. Pass and Seymour CRL1420-P.
 - c. Cooper CRL1420P.
 - d. Leviton NOT AVAILABLE.
 - e. Bryant NOT AVAILABLE.
 - 3. Corrosion Resistant Locking Plug 20A 3 Phase 250V 3 Pole 4 Wire Grounded (L15-20P):
 - a. Hubbell HBL24CM21.
 - b. Pass and Seymour NOT AVAILABLE.
 - c. Cooper CRL1520P.
 - d. Leviton NOT AVAILABLE.
 - e. Bryant NOT AVAILABLE.
 - 4. Corrosion Resistant Locking Plug 30A 3 Phase 120/208V 4 Pole 5 Wire Grounded (L21-30P):
 - a. Hubbell HBL28CM11.
 - b. Pass and Seymour NOT AVAILABLE.
 - c. Cooper NOT AVAILABLE.
 - d. Leviton NOT AVAILABLE.
 - e. Bryant NOT AVAILABLE.
- I. Pin & Sleeve - Insulated Water Tight - Type Outlet Devices: Specification grade as follows:
 - 1. Water Tight Receptacle 30A 250V 2 Pole 3 Wire Grounded (Non-Nema):
 - a. Hubbell HBL330R6W.
 - b. Pass and Seymour PS330R6W.
 - c. Cooper CW330R6W.
 - d. Leviton 330R6W.
 - e. Bryant 330R6W.
 - 2. Water Tight Receptacle 60A 250V 2 Pole 3 Wire Grounded (Non-Nema):
 - a. Hubbell HBL360R6W.
 - b. Pass and Seymour PS360R6W.
 - c. Cooper CW360R6W.
 - d. Leviton 360R6W.
 - e. Bryant 360R6W.
- J. Boots: Weatherproof Boots for Locking Plug and Connector Bodies - Type to match Devices as follows:
 - 1. Corrosion Resistant Locking Plug and Connector 20A 125V (L5-20):
 - a. Hubbell HBL60CM31 & HBL60CM32.
 - b. Pass and Seymour CRL2030-RBC & CRL2030-RBP.
 - c. Cooper BM1 & BM2.
 - d. Leviton 6031-Y & 6032-Y.

- e. Bryant 72002BP & 72002BC.
- 2. Corrosion Resistant Locking Plug and Connector 20A 125/250V 3 Pole 4 Wire Grounded (L14-20):
 - a. Hubbell HBL60CM35 & HBL60CM36.
 - b. Pass and Seymour CRL2030-RBC & CRL2030-RBP.
 - c. Cooper BL1 & BL2.
 - d. Leviton NOT AVAILABLE.
 - e. Bryant NOT AVAILABLE.
- 3. Corrosion Resistant Locking Plug and Connector 20A 3 Phase 250V 3 Pole 4 Wire Grounded (L15-20):
 - a. Hubbell HBL60CM35 & HBL60CM36.
 - b. Pass and Seymour CRL2030-RBC & CRL2030-RBP.
 - c. Cooper BL1 & BL2.
 - d. Leviton NOT AVAILABLE.
 - e. Bryant NOT AVAILABLE.
- 4. Corrosion Resistant Locking Plug and Connector 30A 3 Phase 120/208V 4 Pole 5 Wire Grounded (L21-30):
 - a. Hubbell HBL60CM35 & HBL60CM36.
 - b. Pass and Seymour CRL2030-RBC & CRL2030-RBP.
 - c. Cooper BL1 & BL2.
 - d. Leviton NOT AVAILABLE.
 - e. Bryant NOT AVAILABLE.

K. Cover Plates:

- 1. Nylon cover plates for flush mounted devices.
- 2. Galvanized steel plates where devices are installed on exposed fittings or boxes.
- 3. Single Gang GFCI Receptable Weatherproof, While-In-Use, Lockable Vertical Metallic Cover Plate:
 - a. Red Dot CKMGV
 - b. Hubbell WP26M
 - c. Intermatic WP1010MC
- 4. Single Gang GFCI Receptacle Weatherproof, While-In-Use, Lockable Horizontal Metallic Cover Plate:
 - a. Red Dot CKMG
 - b. Hubbell WP26MH
 - c. Intermatic WP1010HMC
- 5. Single Gang Deep Box Twistlock Receptacle Weatherproof, While-In-Use, Lockable Vertical Metallic Cover Plate:
 - a. Red Dot CKLSVL
 - b. Hubbell WP7D
- 6. Double Gang Two GFCI Receptacles Weatherproof, While-In-Use, Lockable Vertical Metallic Cover Plate:
 - a. Red Dot 2CKG
 - b. Intermatic WP1030MC
- 7. Double Gang GFCI Feed-Thru With Simplex Receptacle Weatherproof, While-In-Use, Lockable Vertical Metallic Cover Plate:
 - a. Red Dot 2CKSG
 - b. Intermatic WP1030MC
- 8. 302 stainless steel cover plates for recessed outlet boxes in masonry walls.
- 9. Blank cover plate on all boxes without device.

L. Colors:

- 1. Unless otherwise noted, wiring devices and cover plates shall be ivory nylon.
- 2. Blank Cover Plates: On boxes without devices or fixtures, provide same type and color as those installed on devices in the same room or area.
- 3. Isolated ground receptacles: Orange nylon cover plates with circuit number engraved in plate.
- 4. Cover plates for wiring devices mounted in FRP panels in grocery shall match the color of FRP panels.

2.5 WIRE CONNECTORS

A. Splices:

1. #8 AWG and Smaller: Ideal Wingnut, 3M Scotchlok, or equal connectors of proper size. 3M No. 567 in-line self-stripping connectors will be permitted only at ballast lead connections in fluorescent light rows.
2. #6 AWG and Larger: Solderless lugs and connectors.

2.6 FIRE AND SECURITY ALARM SYSTEM ROUGH-IN

- A. Fire Alarm/Security Alarm Conduit System: Provide conduit system with pull string and outlet box including remote conduit to fire pump, control valve supervisory switches (PIV valves) or tank as indicated on Drawings and outlined below.
 1. If shut off valve is located remote from store building, provide 3/4 inch conduit with pull string from remote location to building entrance location.
 2. If pump and pump controls are located remote from store building, provide 2 inch conduit with pull string from the remote location to building entrance location.
 3. If tank and tank indicators are located remote from store building, provide 2 inch conduit with pull string from remote location to building entrance location.

PART 3 EXECUTION

3.1 INSTALLATION - GENERAL

- A. Install specified materials in accordance with manufacturer's recommendations.
- B. Where switches operating at 277 volts are on same circuit and are ganged, provide permanently installed steel barriers between switches. Where switches operating at 277 volts are on separate circuits and are ganged, provide separate boxes and separate coverplates for each circuit.
- C. Access to Equipment: Coordinate access doors to allow for easy access of equipment for repair and maintenance.
- D. Trenching:
 1. Use caution when digging around any underground conduit system.
 2. Contact local utility companies before excavation begins. Dig trench at proper width and depth for laying pipe, conduit, or cable. Cut trench banks vertical, if possible, and remove stones from bottom of trench as necessary to avoid point-bearing. Overexcavate wet or unstable soil, if encountered, from trench bottom as necessary to provide suitable base for continuous and uniform bedding.
 3. Remove excavated materials not required or not suitable for backfill in accordance with governing regulations. Dispose of structures discovered during excavation as specified herein. .
 4. Transport materials removed from excavation with appropriate vehicles and dispose off-site to areas which are approved for disposal by governing authorities and appropriate property owners.
 5. Conform to applicable regulatory procedures when hazardous or contaminated materials are discovered.
 6. Prevent surface water from flowing into trenches or other excavations by temporary grading or other methods, as required. Remove accumulated water in trenches.
 7. Open pumping with sumps and ditches shall be allowed, provided it dose not result in boils, loss of fines, softening the ground, or instability of slopes.
 8. Trench width below top of pipe shall not be less than 12-inches or more than 18-inches wider than outside surface of pipe or conduit that is to be installed.
 9. Trench depth requirements measured from finished grade or paved surface shall be 24-inches minimum to top of conduit or meet all applicable codes and ordinances, whichever is more stringent.
 10. Accurately cut trenches for pipe or conduit that is to be installed, 4-inches below bottom of pipe and to the width as specified herein. Place 4-inches of bedding material, compact in bottom of trench, and accurately shape to conform to lower portion of pipe barrel.
 11. Place geotextile fabric where required for additional stabilization prior to placement of base course as specified herein.
 12. Geotextile Fabric for Stabilization
 - a. Mirafi 500X or 600X
 - b. Phillips 66 Supac 6WS
 - c. Dupont Tygar 3401 and 3601

- d. Trevira S1114 and S1120
 - e. Tensar SS-1 and SS-2
 - f. Exxon GTF-200 or 350
 - g. TerraTex HD and GS
13. Backfill after pipe or conduit has been installed. Backfill trench with sand or aggregate materials with No. 4 maximum size aggregate.
 14. Backfill trenches to existing contours and elevations with unfrozen materials. Match finished surface with same material as surrounding surface.
 15. Systematically backfill to allow maximum time for natural settlement. Do not backfill over porous, wet, frozen, or spongy subgrade surfaces.
 16. Fill materials shall be placed in lifts or layers not to exceed 8-inches loose measure and compacted to 95 percent of maximum density, in accordance with ASTM D 698, (or 92 percent of the maximum density, in accordance with ASTM D 1557) at moisture content of not less than 1 percent below and not more than 3 percent above optimum moisture content. Exercise proper caution when compacting immediately over top of pipes or conduits. Water jetting or flooding is not permitted as method of compaction.
 17. Pavement replacement shall match existing adjacent pavement profile.

E. Aluminum Alloy Conductors: Shall not be used in new circuits.

3.2 WIRE

A. Tie wrap groups of conductors in switchboards and panel boards.

3.3 CONDUIT

A. Installation:

1. Install conduit concealed, except in unfinished areas and where indicated on Drawings.
2. Support conduit by means of specified hangers.
3. Clean PVC conduit per manufacturer's recommendations before application of solvent cement.
4. Coordinate flashings where conduit penetrates roof membrane.
5. Paint metallic conduit under concrete slab or where installed in contact with earth. Apply two 6 mil coats of PVC or Asphalt paint continuously along entire length of conduit prior to installation below grade. Do not run conduit in concrete slab.
6. Install flexible metal conduit or liquid tight flexible metal conduit for final connections to dry-type transformers, baler, air compressors, HVAC equipment, motors and other vibrating equipment.
7. Coordinate installation of conduit in masonry work.
8. Do not install conduit under slab unless indicated on Drawings. Conduit installed below slab shall be galvanized rigid metal (GRC), intermediate metal conduit (IMC), or Schedule 40 PVC. Provide exterior coated GRC bends and elbows for all under ground conduit.
9. Route above grade conduit parallel or perpendicular to building lines.
10. Maintain minimum of 6 inches clearance at flues and heat sources.
11. Install GRC conduit penetrating above grade outdoors or penetrating concrete slabs, Including elbow.
12. Install GRC elbow on all conduit runs that have 45° bends or greater.
13. Install double locknut and bushings when terminating GRC or IMC conduit, except where conduit terminates in threaded hub.

B. Location:

1. Galvanized Rigid Metal Conduit (GRC): Permitted for general exposed or concealed work above or below grade.
2. Intermediate Metal Conduit (IMC): Permitted for general exposed or concealed work above or below grade.
3. Electrical Metallic Tubing (EMT): Permitted for general exposed or concealed work above grade.
4. PVC Rigid Nonmetallic Conduit (PVC) Unless Noted Otherwise on Drawings: Permitted for below-grade use when permitted by local governing codes.
5. Flexible Metal Conduit: Permitted in attic spaces and exposed in lengths of 6 feet or less for connections to equipment in dry areas. Not permitted for general exposed or concealed work. For connection of recessed light fixtures in suspended ceilings and connection of other equipment subject to vibration.

6. Liquid tight Flexible Metal Conduit: Permitted exposed in lengths of 6 feet or less for connections to food service equipment, refrigeration equipment and other vibrating equipment in damp locations where rigid connections are not suitable.
7. MC Cable: Permitted only where concealed inside partitions and above finished ceilings. Cable exposed on walls or in open bar joist areas will not be permitted. Cut cable with manufacturer's recommended armor stripping tool. Provide manufacturers approved connectors.

3.4 WIRING DEVICES

- A. Replace outlets or devices improperly located or installed. Set outlets and devices plumb or horizontal and extend to, but not project above, finished surface.
- B. Unless otherwise noted, receptacles, switches, and other wiring devices shall not be mounted back-to-back.

3.5 WIRE CONNECTIONS

- A. Make final connection of motors, starters, disconnects, and other items furnished under other Sections.

3.6 FIRE AND SECURITY ALARM SYSTEM ROUGH-IN

- A. Install fire alarm/security alarm conduit system, raceways, 120 volt supply connections, and fire alarm grounding conductor.

END OF SECTION

SECTION 16135 - CABLE TRAYS

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Cable Tray.
- B. Related Sections:
 - 1. 16050 - Basic Electrical Materials and Methods. Hangers and Supports.

1.2 REFERENCES:

- A. National Electrical Manufacturers Association (NEMA)
 - 1. NEMA VE1 - Metallic Cable Tray Systems.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Provide a complete system by one of the following:
 - 1. Wiremold
 - 2. Chalfant
 - 3. Cablofil E-Z Tray

2.2 CABLE TRAY

- A. Description: NEMA VE 1, basket style, wire mesh, or solid bottom cable tray.
- B. Material: Steel.
- C. Finish: Prime coated.
- D. Inside Width: 12 inches.
- E. Inside Depth: 4 inches.
- F. Provide manufacturer's standard clamps, hangers, brackets, splice plates, blind ends, barrier strips, connectors, and grounding straps.

PART 3 EXECUTION

3.1 INSTALLATION

- A. Install in accordance with manufacturer's instructions and NEMA VE 1.
- B. Provide supports at each connection point, flat elbows, vertical transitions, at the end of each run, and at other points to maintain spacing between supports of 10 feet maximum.

END OF SECTION

SECTION 16265 - STATIC UNINTERRUPTIBLE POWER SUPPLY

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Uninterruptible power supply (UPS) provided by Wal-Mart.
- B. Related Sections:
 - 1. Section 01640 - Owner Furnished Products: General procedures related to Owner furnished products.

1.2 DELIVERY, STORAGE, AND HANDLING

- A. Section 01600 - Product Requirements: Transport, handle, store, and protect products.
- B. Milestone Delivery Date: UPS system vendor will deliver equipment to job site for Contractor to receive in accordance with Delivery date specified in Section 01640, "Products Furnished By Others Schedule."
- C. Delivery Date Revisions: Wal-Mart contact will revise delivery date for products if Milestone Delivery date does not conform to Contractor construction scheduling:
 - 1. Wal-Mart Asset Administration (479) 277-3167 or (479) 277-3161.
- D. Equipment Packaging: UPS & UPS equipment will be packaged in a crate and sit on 1 pallet, each pallet weighing approximately 870 pounds.
- E. Acceptance at Site: Receive equipment as specified in Section 01640. Place pallets in final location as indicated on Drawings. Do not uncrate UPS equipment.

PART 2 - PRODUCTS

Not Used.

PART 3 - EXECUTION

- A. Electrical system for UPS shall be complete and ready to energize before delivery of UPS system. This includes all panels and branch circuits on primary and secondary side of UPS.

END OF SECTION

SECTION 16402 - LOW VOLTAGE SERVICE AND DISTRIBUTION

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Electrical service and distribution equipment.
- B. Products Covered Under This Section:
 - 1. The Contractor shall provide the following following electrical service and distribution equipment.
 - a. Switchboards
 - b. Panelboards
 - c. Transformers
 - d. Contactors
 - e. Motor Starters
 - f. Fuses
 - g. Control Panels
- C. Related Sections:
 - 1. 16050 - Basic Electrical Materials and Methods. For installation of equipment.

1.2 REFERENCES

- A. National Fire Protection Association (NFPA)
 - 1. NFPA 70 - National Electrical Code (NEC)

1.3 DELIVERY, STORAGE, AND HANDLING

- A. Storage and Protection: Provide proper facilities for handling and storage of materials to prevent damage. Keep materials dry, fully protected from weather.

1.4 SEQUENCING AND SCHEDULING

- A. The responsibility of Work under this Section includes, but is not limited to, the following:
 - 1. Coordinate and schedule delivery of equipment to site.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Items of electrical distribution system shall be manufactured by one of the following, unless otherwise indicated on Drawings.
 - 1. Cutler Hammer.
 - 2. General Electric.
 - 3. Seimens (ITE).
 - 4. Square D.
- B. Equipment shall bear name and trademark of manufacturer as listed above.

2.2 SERVICE ENTRANCE EQUIPMENT

- A. In general, service entrance equipment will be as indicated and/or scheduled on Drawings. Service entrance equipment will be U.L. labeled as suitable for use as service equipment.

- B. Install service entrance rated switchboard assembly as indicated on Drawings. Configure switchboard as scheduled on Drawings, including voltage, amperage, bus bracing and interrupting ratings. Install main lugs only (MLO), main circuit breaker (MCB), or main fusible switch (MFS) and branch devices as indicated on Schedule. Switchboard will be of same manufacturer as downstream distribution equipment.
- C. Install service entrance rated panelboard(s) as indicated on Drawings. Configure panelboard(s) as scheduled on Drawings including voltage, amperage, bus bracing and interrupting ratings. Install main lugs only (MLO), main circuit breaker(s) (MCB), or main fusible switch(es) (MFS) and branch devices as indicated on Schedule. Panelboard(s) will be of same manufacturer as downstream distribution equipment.
 - 1. Where service entrance Panelboard Schedule(s) call for main fusible switch(es) integral with panelboard assembly, separate fusible safety switches are acceptable if mounting space limitations indicated on Drawings and applicable code requirements are complied with. Identify switches as "Service Disconnect", "for", "Panel", "***" in accordance with Section 16050, Part 2.
- D. Service entrance switchboards or panelboards with main circuit breakers, main fusible switches or branch devices rated 1000 amperes or above will be equipped with ground fault protection.
- E. Equip main fusible switches or fusible switch type branch devices with rejection type fuse holders and current limiting fuses as indicated on Drawings. No substitutions permitted.

2.3 TRANSFORMERS

- A. Transformers for general use at 600 volts and below shall be metal enclosed, two winding dry-type, with provisions for conduit connections. Transformers will be rated for full-load operation at maximum of 150°C temperature rise above a 40°C ambient, unless otherwise indicated on Drawings.
- B. Transformers will have (2) 2-1/2 percent, voltage taps above and below, on primary windings and will conform to NEMA Standard. Transformers manufactured by one of the following:
 - 1. Cutler Hammer / Eaton.
 - 2. General Electric.
 - 3. Siemens (ITE).
 - 4. Square D.

2.4 FUSES

- A. Install fuses as indicated on Drawings.
- B. Subject to compliance with project requirements, provide fuses as manufactured by one of the following:
 - 1. Bussmann.
 - 2. Gould-Shawmut.
 - 3. Littlefuse.

C. Acceptable Fuse Types:

Size	Manufacturer	Model No.	UL Listed
601 Amperes and Above, 480 Volt	Bussman	Hi-Cap, KRP-C	Class L
	Gould-Shawmut	A4BY	Class L
	Littlefuse	KLLU	Class L
600 Amperes and Below, 480 Volt	Bussman	LPS-R-SP	RK1
	Gould-Shawmut	A6D	RK1
	Littlefuse	KLSR	RK1
600 Amperes and Below, 250 Volt	Bussman	LPN-RK-SP	RK1
	Gould-Shawmut	A2D	RK1
	Littlefuse	KLNR	RK1

Motor Loads, Transformers (Circuits with Heavy Inrush), 600 Amperes and Below	Bussman	FRN-R, 250V	RK5
		FRS-R, 600V	RK5
	Gould-Shawmut	TR, 250V	RK5
		TRS, 600V	RK5
	Littlefuse	FLNR, 250V	RK5
		FLSR, 600V	RK5

2.5 CONTROL PANELS

- A. Control Devices: Install as indicated on Drawings.
- B. Control wiring and Energy Management System interface wiring: Provide as indicated on Drawings for switched loads.
- C. Termination for parking lot lighting circuits to accommodate a wire range of #10 AWG to #4 AWG.
- D. Control devices as follows:
 - 1. Contactors:
 - a. Asco.
 - b. Cutler Hammer / Eaton.
 - c. Siemens (ITE).
 - d. Square D.
 - e. GE
 - 2. Lighting Control Units:
 - a. Novar Controls "LCU" with General Electric RR7 low voltage relays (Owner Furnished - Contractor installed).

PART 3 EXECUTION

3.1 INSTALLATION

- A. Install materials in accordance with manufacturer's recommendations, power company requirements, and as indicated on Drawings.
- B. Branch circuits shall be connected exactly as indicated on Panel Schedule.

3.2 ELECTRICAL SERVICE

- A. Perform Work in compliance with the local utility's requirements.

3.3 TEMPORARY POWER

- A. Provide temporary power during construction in accordance with Section 01500.

END OF SECTION

SECTION 16410 - ENCLOSED SWITCHES AND CIRCUIT BREAKERS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Safety disconnect switches.
- B. Related Sections:
 - 1. 16100 - Wiring Methods.

PART 2 - PRODUCTS

2.1 SAFETY SWITCHES

- A. Switch Interior:
 - 1. Dead-front construction with hinged arc suppressor and switch blades which are fully visible in the off position and with door open.
- B. Switch Mechanism:
 - 1. Quick-make and quick-break operating handle and mechanism with a delete dual cover interlock to prevent unauthorized opening of the switch door in the "on" position or closing the switch mechanism while the door is open.
 - 2. Provide electrical interlock switch to de-energize control wiring as required.
 - 3. Line and load terminals of the device rated 100 amperes or less shall be rated for 75 degrees C.
 - 4. Provide operating handle with provisions for installation of a padlock in "off" or "on" positions.
- C. Ratings:
 - 1. Switches horsepower rated for 600 volts, 60 Hz, heavy-duty type.
 - 2. Where switches are indicated to be fused, furnish with provisions for fuses.
- D. Enclosures:
 - 1. NEMA 1, code gauge sheet steel with hinged cover, except where exposed to weather.
 - 2. If exposed to weather, provide NEMA 3R enclosure.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install motor and circuit disconnect in accordance with manufacturer's recommendations. Applicable Codes shall take precedence over drawing details.

END OF SECTION

SECTION 16442 - BRANCH CIRCUIT PANELBOARDS**PART 1 - GENERAL****1.1 SUMMARY**

- A. Section Includes:
 - 1. Tenant lighting/appliance panelboards.
- B. Related Sections:
 - 1. Section 16050 - Basic Electrical Materials and Methods. Grounding

1.2 REFERENCES

- A. Work under this Section shall comply with the following:
 - 1. Latest edition of the National Electrical Code (NFPA-70), and interim amendments in effect.
 - 2. Comply with local and state, utility regulations and laws.

1.3 SYSTEM DESCRIPTION

- A. Electrical System Voltages: The following voltages shall apply unless otherwise noted.
 - 1. Receptacle and Small Power Systems: 208Y/120 volt, 3 phase, 4 wire wye, 60 Hz, solid grounded neutral.

PART 2 - PRODUCTS**2.1 MANUFACTURERS**

- A. Panelboards manufactured by one of the following, unless otherwise indicated on Drawings.
 - 1. Cutler Hammer Challenger.
 - 2. General Electric.
 - 3. Seimens (ITE).
 - 4. Square D.
- B. Equipment will bear name and trademark of manufacturer as listed above. Substitutions not permitted.

2.2 TENANT LIGHTING/APPLIANCE PANELBOARDS

- A. Panelboards: Install as scheduled on Drawings, including voltage, amperage, bus bracing, and interrupting ratings.
 - 1. Main lugs only (MLO), main circuit breaker (MCB), or main fusible switch (MFS) panelboard and branch devices as indicated on Schedule.
 - 2. Branch Circuit Protective Devices: Plug-on or bolted type thermal magnetic center-trip circuit breakers for alternating current, each with single-handle common trip. Tandem or half-sized circuit breakers or load center type construction not permitted. Circuit breaker Amp Interrupting Capacity (AIC) no less than values indicated on Drawings. Circuit breakers feeding emergency lights, night lights, time clock motors, etc. will be equipped with handle-locks where indicated on drawings, or required by NFPA 70.
 - 3. Cabinets: Zinc-coated sheet steel with knock-outs, UL listed and labeled. Trims and doors to have suitable primer coat and finish coat of manufacturer's standard color. Trims to be fitted with hinged doors having combined lock and latch. Locks will be keyed alike and furnished with two keys for each panelboard.
- B. Directory Holder: Contractor shall provide legible typewritten circuit directory properly identifying load(s) on each circuit mounted under clear plastic cover. Branch circuits shall be connected exactly as indicated on Panel Schedule.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine surfaces and adjacent areas in which Work under this Section is to be performed. Report in writing to Wal-Mart Construction Manager prevailing conditions that may adversely affect satisfactory execution of Work. Do not proceed with Work until unsatisfactory conditions have been corrected.
- B. Starting Work constitutes acceptance of the existing conditions and the Contractor shall then, at his expense, be responsible for correcting all unsatisfactory and defective Work encountered.

3.2 INSTALLATION

- A. Install materials in accordance with manufacturer's recommendations and as indicated on Drawings.

END OF SECTION

SECTION 16452 – TRACK BUSWAY SYSTEMS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Owner furnished track busway systems.
- B. Products Installed But Not Supplied Under This Section:
 - 1. The track busway system will be furnished by the Owner's supplier for installation by the Contractor.
- C. Related Sections:
 - 1. Section 01640 - Owner Furnished Products General procedures related to Owner furnished products.
 - 2. Section 16050 – Basic Electrical Materials and Methods.

1.2 REFERENCES

- A. Underwriters Laboratories (UL)
 - 1. UL 857 - Busways
- B. National Electrical Manufacturers Association (NEMA)
 - 1. NEMA AB1 - Molded Case Circuit Breakers and Molded Case Switches.

1.3 QUALITY ASSURANCE

- A. Track busway and electrical components will bear a UL Label.

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Storage and Protection: Provide proper facilities for handling and storage of materials to prevent damage to edges, ends, and surfaces. Keep materials dry and protected from weather. Track busway showing signs of rust or weathering shall be replaced at Contractors expense.
- B. Contact vendor at least 4 weeks prior to desired delivery date to arrange for delivery of track busway.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. The Owner's supplier will be as follows:
 - 1. Starline Track Busway - Contact Bruce Henry or Randy Mathews, (501) 821-6200 or (866) 730-4816.

2.2 TRACK BUSWAY SYSTEM (OWNER FURNISHED)

- A. Description and Ratings: The Track Busway System shall be as indicated on the drawings and in accordance with the following:
 - 1. Voltage Ratings: 300V, 480V or 600V.
 - 2. Frequency: 60 Hz.
 - 3. Ampacity: 40A, 50A, 60A, 100A, 160A or 225A.
 - 4. Conductors: Copper, 100% continuous rating at ambient temperatures below 40 degrees C / 104 degrees F, electrically isolated from the housing.
 - 5. Grounding: Aluminum housing at 100% or optional isolated ground bus.
 - 6. System shall comply with UL 857.

B. System Designations:

Frame Size	Track Busway Type	Amperage	Neutral Amps	Voltage Rating	Poles	Iso Ground	lbs/ft	Standard AIC
Small	B40	40	40	480	2,4	No	1.25	5K
Small	B50	50	50	480	2,4	No	1.25	5K
Small	B60C	60	60	480	2,4	No	1.25	5K
Medium	B60	60	60	300 & 600*	2,4	No	1.25	10K
Medium	B100C	100	100	600	2,3,4	No	1.75	10K
Large	B100A	100	100	600	3,4	No	2.75	22K
Large	B100G	100	100	300 & 600*	3,4	Yes	3.25	22K
Large	B100NG	100	200	300 & 600*	3,4	Yes	3.25	22K
Large	B160	160	160	600	3,4	No	3.25	22K
Large	B160G	160	160	300	3,4	Yes	3.25	22K
Large	B225	225	225	600	3,4	No	3.25	22K
Large	B225G	225	225	300	3,4	Yes	3.25	22K

*Track Busway available in 300 volt rating (used on 120/208V systems) and 480/600 volt rating (used on 277/480V systems)

C. Frame and Enclosure:

1. Extruded aluminum housing acting as 100% ground.
2. Housing lengths shall be 5, 10, or 20 foot standard.
3. Housing shall be slotted to receive mounting hangers for suspension from structure.
4. Housing shall be open on the bottom to accept plug-in units anywhere along its length.

D. Plug-in Units:

1. Units shall be polarized to avoid incorrect installation.
2. Units shall utilize circuit breakers for branch circuit protection, complying with NEMA AB1.
3. Units shall have locking clips or bolt-on tabs to secure units to the busway.
4. Units utilizing drop cords shall be manufactured with cord grips and receptacles as indicated on the drawings.
5. Units shall have an indicator light mounted to the bottom of the plug-in unit for each circuit breaker. The indicator light shall light up when the circuit breaker loses power.
6. Units shall have labels indicating circuit description and phasing.
7. Units shall be shipped after final power plans are issued.

E. Provide hardware required for a complete installation such as nuts, bolts, threaded rods, and unistrut channels.

PART 3 EXECUTION

3.1 INSTALLATION (BY CONTRACTOR)

- A. Install track busway system in accordance with manufacturer's installation instructions and as indicated on the drawings.
- B. Track busway sections shall be connected in accordance with the manufacturer's recommendations utilizing connectors furnished by the manufacturer.
- C. Install manufacturer furnished end pieces and end caps at the ends of each run and as indicated on the drawings.

END OF SECTION



SECTION 16500 - LIGHTING

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Lighting fixtures.
 - 2. Pharmacy Lighting Panel
- B. Products Under This Section:
 - 1) Contractor shall provide light fixtures, lamps and Protect-A-Lamp covers, as indicated on Drawings.
 - 2) Lithonia T-6 Specialty Lighting furnished by Owner, installed by Contractor, as indicated on Drawings.
- C. Related Sections:
 - 1. Section 00800 - Supplementary Conditions: Procedures and requirements for warranties.



1.2 QUALITY ASSURANCE

- A. Fixtures and their electrical components will bear a UL Label.

1.3 DELIVERY, STORAGE, AND HANDLING

- A. Storage and Protection: Provide proper facilities for handling and storage of materials to prevent damage to edges, ends and surfaces. Keep materials dry, fully protected from weather.
- B. Contact selected distributor upon award of contract prior to desired delivery date to arrange for delivery of lighting fixtures.

PART 2 - PRODUCTS

2.1 LIGHT FIXTURES

- A. Approved Lighting Vendors:
 - 1. Lithonia (800) 207-0363, Chad Simpson (Chad.Simpson@AcuityBrands.com)
 - 2. Hunzicker Brothers, (800) 324-1026
 - 3. Harris Lighting, (800) 331-2216, fax (800) 527-1221.
- B. Owner's T-6 Specialty Lighting Vendor:
 - 1. Lithonia (800) 447-2422, Cherryl Bruce (cbruce@lithonia.com)

2.2 ACRYLIC LIGHTING PANEL (CONTRACTOR FURNISHED AND INSTALLED)

- A. Prismatic White Acrylic Lighting Sheet, Item #1A20084A, 23-3/4" x 47-3/4", by Plaskolite, Ind., Columbus, OH, (800) 848-9124.

PART 3 - EXECUTION

3.1 INSTALLATION

16500-1

- A. Install lighting fixtures, lamps, lighting panels, and connections in accordance with manufacturer's recommendations and as indicated on Drawings.
- B. Coordinate exact mounting location of light fixtures with building structure and other trades prior to installation. Continuous rows shall be installed straight and true.
- C. Recessed fixtures installed in lay-in ceiling grid systems shall have four to six feet of flexible conduit from outlet boxes supported from building structural system to fixtures. Fixtures shall be attached to ceiling grid.
- D. Maintain all light fixtures and lamps during construction, and coordinate replacement of any defective lamps with Owner's lighting vendor prior to Certification of Substantial Completion. Notify Owner's lighting vendor immediately of any damaged fixtures or lamps delivered to the jobsite and make arrangements to have them replaced.
- E. Verify ceiling and wall details. Install fixtures complete with proper mounting arrangements for ceiling or wall construction encountered.
- F. Where indicated on Drawings, install Protect-A-Lamp covers and caps.
- G. Lighting fixtures and lamps shall be clean and free of building paint over-spray one week prior to possession.
- H. Provide all additional hardware required to complete installation such as nuts, bolts, threaded rods and Unistrut channels.

END OF SECTION

SECTION 16700 - COMMUNICATIONS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Wal-Mart Furnished and Installed Satellite Dish Equipment.
 - 2. Wal-Mart Furnished and Installed Voice/Data System.
 - 3. Contractor Furnished and Installed Door Buzzer at Truck Dock and Stockroom.
- B. Related Sections:
 - 1. 01640 - Owner Furnished Products: General procedures related to Owner furnished products.
 - 2. 16100 - Wiring Methods: Outlet boxes and conduit fittings

1.2 SEQUENCING AND SCHEDULING

- A. Satellite Dish Milestone Completion Date: Complete installation of conduit, power, and interface work for satellite dish mounting on or before Delivery date.
- B. Voice/Data Milestone Completion Date: Complete installation of Voice/Data/EFP system ground conductor, Voice/Data/EFP conduit system, and interface work on or before Delivery date.

PART 2 - PRODUCTS

2.1 SATELLITE DISH EQUIPMENT

- A. Equipment: Furnished and installed under separate contract.
- B. Cabling: Satellite Dish Communication (IFL) Cable will be furnished, installed, and terminated under separate contract.
 - 1. Provide #14 AWG soft iron pull wire or heavy nylon cord in each conduit for pulling satellite cable to each termination point.

2.2 VOICE/DATA SYSTEM

- A. Voice/Data cable equipment will be provided under separate contract.

2.3 SIGNAL SYSTEMS

- A. Door buzzer at truck dock and stockroom.
 - 1. Provide Hubbell Catalog No. 1281MO momentary switch in flush switch box with Hubbell Cat. No. 1795 weatherproof cover at truck dock personnel door and Edwards Cat. No. 1065-N5, 120 volt AC buzzer in flush switch box with Slater Cat. No. S-771N louvered cover plate in Stockroom as indicated on Drawings. Signal system wiring shall be No. 12AWG unless otherwise indicated on Drawings.
- B. Meat Prep Customer service bell.
 - 1. Provide Edwards Catalog No. 854 push button in a handy box with an Edwards Catalog No. 149-1 push button coverplate at meat prep counter and Edwards Catalog No. 340A-N5, 120 volt AC buzzer in flush switch box in Meat Prep Room as indicated on Drawings. Signal system wiring shall be No. 12 AWG unless otherwise indicated on the Drawings.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install Voice/Data conduit system, Voice/Data grounding conductor, and signal systems as indicated on Drawings.
- B. Install satellite dish electrical conduit, power to satellite dish mounting, and satellite cable conduit system as indicated on Drawings.
- C. Install signal system as indicated on Drawings. Install flush mounted, single gang masonry boxes for mounting of push buttons and bells in masonry walls.
- D. Plywood Mounting Panel: Install as indicated on drawings.
- E. Voice/Data System Grounding Conductors: Install #6 AWG, copper grounding conductor from Voice/Data service equipment to electrical service grounding electrode system or dry type transformer grounding electrode system.
- F. Voice/Data Conduit System: Install conduit system as indicated on Drawings, including:
 - 1. Voice/Data service conduit.
 - 2. Other conduits as indicated on Drawings. Install #14 AWG soft iron pull wire or heavy nylon cord in each conduit for pulling the Voice/Data cable to each termination point.
 - 3. Install outlet boxes conforming to requirements of Section 16100. Include cover plates.

END OF SECTION