# WALGREENS REMODEL SPECIFICATIONS

ISSUED: January 4, 2021

FACILITIES DEVELOPMENT
106 WILMOT ROAD
DEERFIELD, IL 60015

**WALGREENS REMODEL SPECIFICATIONS**
**JANUARY 4, 2021**
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SECTION 01 11 00 - SUMMARY OF WORK

PART I - GENERAL

1.01 GENERAL REQUIREMENTS

A. The "General Conditions of the Contract for Construction" AIA #A201, Latest Edition, Supplementary Conditions and General Requirements apply to the work and all specification sections and all are complimentary.

B. Construction, demolition or existing debris of any form, regardless of its origin, shall be completely removed from the site and shall be legally disposed of off site.

C. Permits and Certificates: All required permits, and certificates shall be obtained and paid for by the Contractor.

1.02 INSURANCE

A. Indemnification Insurance: (Contractor's Expense).

1. Contractor shall indemnify and hold harmless Walgreen Co. and their agents and employees from and against all claims, damages, losses and expenses including attorney's fees arising out of or resulting from the performance of the work.

2. In any and all claims against Walgreen Co. or any of their agents or employees, by any employees of the Contractor, anyone directly or indirectly employed by any of them, or anyone for whose acts any of them may be liable, the indemnification obligation under this Specification shall not be limited in any way by any limitation on the amount or type of damages, compensation or benefits payable by or for the Contractor under workmen's compensation acts, disability benefit acts or other employee benefit acts.

B. Contractor's Liability Insurance: (Contractor's Expense)

1. Contractor shall not commence Walgreen's work without obtaining all insurance hereunder. The insurance shall include Walgreens as an "additional insured". Approval by Walgreen Co. shall not relieve or decrease the liability of the Contractor.

2. The Contractor shall submit to Walgreen Co., before commencing work, evidence of the above-required insurance, which shall contain certification by the insurance companies that such insurance shall not be canceled or materially changed without 30 days prior notification to Walgreen Co.

1.03 SUPPLEMENTARY CONDITIONS

A. Contractor shall examine the project site, all drawings and specifications. If discrepancies or differences exist between drawings, specifications, site conditions, or Walgreens requirements, promptly notify Architect for resolution. No later claims to Walgreen Co. shall be made for extra labor, equipment, or materials, which could have been foreseen by examination of site and project documents.

B. Code Compliance - All work must comply with all applicable codes, shall be structurally sound and fit for Walgreens intended use. Deviation from plans and specifications necessary for compliance shall be reported to Architect. All changes are subject to

Architect's approval.

C. Workmanship and Installation - All work shall be performed by skilled experienced workman to properly complete the installation for a neat and finished appearance.

Walgreens shall decide if the finished work is satisfactory. The Contractor shall replace or reinstall any materials or equipment not properly installed or finished in a manner satisfactory to Walgreens, without cost to Walgreens.

D. Guarantee/Warranty - The Contractor warrants that work performed conforms to the Contract documents aand is free of any defect in equipment, materials or design furnished or workmanship performed by the Contractor or Subcontractor of any tier. This warranty shall last as long as permitted by the Statue of Limitations or Repose of the State in which the project is constructed, but in no case shall the warranty period be less than one year. Guarantees and Warranties shall commence on the date of acceptance by Walgreens.

1.04 PROJECT COORDINATION

A. Drawing Coordination - All Contractors shall review drawings and specifications of all trades and coordinate their work with others. Corrections of conflicts in documents, or field errors shall be made at no extra cost to Walgreen Co.

B. Large Equipment - When possible, equipment which is to be installed in the building that may be too large to pass through stairways, doorways, or shafts, shall be brought on the job and placed in the proper space before the enclosing structure is completed, otherwise arrange with other Contractors to permit access at a later date, at no additional cost to Walgreens.

1.05.1 SUBMITTALS

A. Specific submittal requirements for individual units of work are specified in the applicable specification sections. Comply with the requirements specified herein for each type of submittal.

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B. Submit to Architect shop drawings, product data and/or samples for items listed below, indicating method of construction, detail layouts, dimensions, diagram, schedules, brochures, color selection charts or chips, and other data as required to fully explain the intended material, and installation to allow selection of color or finishes.
The required submittals are as follows:

a. Fire Retardant Treatment for Wood.
b. Roll-up entry grille.
c. Automatic Entrances.
d. Landscape Irrigation.
e. Roofing submittal form from Section 07 50 00 and related documents.
f. Fire Suppression System.
g. Non-criteria Plumbing Fixtures & Trim.
h. Non-criteria HVAC Equipment.
i. Non-criteria Refrigeration Equipment.
j. Non-criteria Energy Management Systems.
k. Non-criteria Lighting Fixtures.
l. Non-criteria Power Distribution Equipment (Panelboards).

C. Submittal Preparation:

1. Shop Drawings: Provide one correctable reproducible print.

2. Product Data: Provide two copies of manufacturer's standard printed recommendations for application and use, installation coordination, testing, operation and dimensions.

3. Samples: Provide two samples of appropriate size for visual review of color pattern, texture and final check of coordination of these characteristics with related work. Samples may be used for quality control comparison of the completed installation.

D. All submittals must receive the Contractor's and Architect's review and actions markings, plus Mechanical and Electrical Engineers action markings, as appropriate, prior to submission to Walgreens.

Walgreens shall, at its discretion, require copies of all Quality Control test reports. Work that does not conform to the design criteria shall be replaced at no cost to Walgreens.

1.06 SUBSTITUTIONS

A. Material or equipment indicated by manufacturers name indicates Walgreens preference and expected quality and installation. Substitutions are not encouraged except for extreme cases.

B. To be considered, the Contractor shall submit a written request for any or all substitutions to Architect The request must include a point by point comparison between the proposed substitute and the specified manufacturer and model. Such a request shall be accompanied with complete descriptive and technical data for all items (manufacturer, brand name, catalog number, descriptive literature, and capacity tables). The request shall state in each case what addition to or deduction from the main bid is to be made if such alternates are accepted. The comparison must confirm that the proposed substitute is equal to or exceeds the quality of the specified products. Incomplete submittals will not be considered.

C. Where such substitutions alter the design or space requirements indicated on the plans, the Contractor shall include all items of cost for the revised design and construction including cost of all allied trades involved.

D. Requests resulting from failure to allow sufficient time to order and receive material will not be considered.

E. The Contractor shall pay all Architects and Consultant fees resulting from the review of substitutions.

F. Acceptance or rejection of the proposed substitutions shall be subject to approval of Walgreen Co., and if specific approval in writing is not received, it is understood that the requirements as outlined in the Walgreen Co. plans are to be met.

1.07 PROJECT CLOSE-OUT

A. Project closeout refers to certain requirements indicating project completion and that are to be fulfilled prior to final acceptance by Walgreens.

B. Final inspection: Upon request from the Contractor, Walgreens personnel will either proceed with inspection or advise the Contractor of unfilled prerequisites. Results of the

final inspection will be the “punch-list” for final acceptance.

C. Cleaning - Remove all rubbish regularly. Remove marks, stains, soil, and fingerprints from all completed work including plumbing, electrical, mechanical equipment and all finish surfaces and glass.

D. Warranties: Submit required warranties in three ring two inch vinyl binders organized into the appropriate divisions.

E. Other Close-Out Documentation: Submit electronic copies of operating manuals, cut sheets, manufacturer’s maintenance instructions and other necessary information on CD’s organized into the appropriate divisions. Information shall include but not be limited to the following and must also include any non-standard or non-criteria equipment or improvements:

Division 01: List all required annual municipal/state required inspections and renewable licenses (related to building systems).
Division 03: Polished Concrete - gloss and static coefficient of friction test results certified by the Concrete Polishing, Processing and Finishing Contractor.
Division 06: Fire retardant treatments.
Division 07: Foam insulation systems.
Division 08: Automatic entrance doors, revolving doors, insulated glass types, hurricane/impact resistant glazing systems,
Division 09: Anti-graffiti coatings.
Division 14: Elevators/escalators.
Division 21: Fire Pumps, LP gas, automatic sprinklers, accessories (alarm bells, flow switches, etc.).
Division 22: Water heaters, water coolers, recirculating pumps, trap primers, backflow preventers, water meters, etc.)
Division 23: Exhaust fans, rooftop heating, ventilation, and air conditioning units, entrance heaters, air curtains, non-criteria HVAC equipment, non-criteria refrigeration equipment.
Division 26: Non-criteria site lighting fixtures and/or poles, non-criteria interior lighting fixtures, generators**,** UPS.

Division 33: Lift stations, underground storm water retention/detention/filtration systems, oil/water separators, septic systems, sump pumps, ejector pumps, landscape irrigation pumps/wells and associated equipment, monitoring wells and remediation equipment and permeable paving systems.

F. Attic Stock: Turn over the following attic stock to Walgreens Construction Superintendent for storage at the store. See specification section for quantity:
Acoustic Ceiling Tiles
Resilient Flooring
E.I.F.S. Finish Coat

END OF SECTION

SECTION 01 45 00 – QUALITY CONTROL

PART 1 – GENERAL

1.01 DESCRIPTION

A. This specification section defines the minimum Quality Control Services to be performed by an Approved Quality Control Testing Firm, hereafter referred to as QC Firm.

1. Quality Control Services (QC Services) include laboratory and field-performed testing of materials prior to, during and after installation to verify compliance, visual observations, inspections and reporting. Scope of QC Services shall be defined in bid documents administered by Walgreens.

2. Specific quality control requirements for individual units of work are specified in the Unified Design Standards (UDS) Specifications section for that individual element of the work. These requirements cover production of standard products, fabrication of customized work, minimum material requirements and quality control of installation procedures.

3. Provisions of this section do not limit requirements to provide QC Services as required by the Architect/Engineer-Of-Record (AOR/EOR), specific product vendors, governing authorities or other authorized entities.

4. Local building codes, requirements and testing standards of local governing authorities, when present, shall be followed.

5. The complete agenda of required QC Services shall be prescribed by the QC Firm, based upon their review of the specific site, the geotechnical report, design drawings and the UDS Drawings and Specifications.

B. The primary Walgreens contact for QC Services and related work scope shall be the Field Project Manager (FPM); the Architectural Manger (AM) may serve as a secondary contact.

C. At any time before taking possession, Walgreens reserves the right to reject materials or installations not complying with the requirements of the design drawings, UDS Drawings and Specifications or the contract documents.

1.02 APPROVED QUALITY CONTROL TESTING FIRMS

A. Walgreens has entered into a national account agreement with the following companies as the only agents approved to perform QC Services. Based upon the location of the project, Developers shall contract with the QC Firms shown on Figure 1 and listed alphabetically below:

CTI Consultants, Inc.
Approved Territory: DE, MD, VA
Contact : Cliff Thomas ○ 703-803-641 ○ cthomas@cti-consultants.com
14221-B Willard Road ○ Suite 100 ○ Chantilly, VA 20151

French & Parrello Associates
Approved Territory: NJ, Eastern PA and New York City, NY
Contact: David Calnan ○ 732-312-9800 ○ david.calnan@fpaengineers.com
1800 Route 34 ○ Suite 101 ○ Wall, NJ 07719

IMTL – Independent Materials Testing Laboratories, Inc.
Approved Territory: CT and MA
Contact: Dave Aiudi ○ 860-747-1000 ○ daiudi@imtlct.com

57 North Washington Street ○ P.O. Box 74 ○ Planville, CT 06062

Kleinfelder
Approved Territory: AZ, CA, CO, ID, MT, ND, NE, NM, NV, OK, OR, SD, UT, WA, WY
Contact: Mark Klaver ○ 916-366-1701 ○ mklaver@kleinfelder.com
3077 Fite Circle ○ Sacramento, CA 95827

Krazan and Associates, Inc.
Approved Territory: CA, OR, WA
Contact: Jay Martin ○ 253-939-2500 ○ jaymartin@krazan.com
922 Valley Ave. NW ○ Suite 110 ○ Puyallup, WA 98372

Miller Engineering & Testing, Inc.
Approved Territory: CT, MA, ME, NH, RI, VT
Contact: Howard Goddard ○ 603-668-6016 ○ hgoddard@millerengandtesting.com
100 Sheffield Road ○ Manchester, NH 03103-2315

PSI Inc.
Approved Territory : AR, IN, KY, LA, MI, MN, MS, OH, WI, Western PA, WV
Contact: William Hogg ○ 770-424-6200 ○ bill.hogg@psiusa.com
95 Chastain Road ○ Suite 301 ○ Kennesaw, GA 30144

Quality Inspection Services Inc.
Approved Territory: NY (excluding New York City)
Contact: Ian Muir ○ 585-458-2170 ○ imuir@QISI.com
1679 Lyell Ave ○ Rochester, NY 14606

Salem Engineering Group, Inc.
Approved Territory: CA, ID, MT, NV, OR, UT, WA
Contact: Sammy Salem ○ 559-271-9700 ○ Sammy@SalemEngGroup.com
4055 West Shaw Ave. ○ Suite 110 ○ Fresno, CA 93722

S&ME, Inc.
Approved Territory: AL, GA, SC, TN
Contact: Adam Marr ○ 770-476-3555 ○ amarr@smeinc.com
11420 Johns Creek Parkway ○ Duluth, GA 30097

Tectonic Engineering
Approved Territory: NY and New York City, NY
Contact: James Duesel ○ 845-563-9081 ○ jduesel@tectonicengineering.com
280 Little Britian Road ○ Building 2 ○ Newburgh, NY 12550

Terracon Consulting Engineers & Scientists
Approved Territory: AZ, CO, IA, IL, KS, MO, NC, NM, TX
Contact: Matt Beheshti ○ 800-593-7777 x432 ○ mbeheshti@terracon.com
16000 College Blvd. ○ Lenexa, KS 66219

Universal Engineering Sciences
Approved Territory: FL
Contact: Jim Sargeant ○ 407-423-0504 ○ jsargeant@uesorl.com
3522 Maggie Blvd. ○ Orlando, FL 32811

B. Union labor or unique situations:

1. In locations where union labor must be used or other unique situations may prevent the approved QC Firm from being contracted, contact the FPM to discuss the possibilities of using an alternate firm. Alternate firms will only be allowed when absolutely necessary, as determined by Walgreens discretion.

    a. The FPM shall be allowed a 4 week period to review and select an alternate firm.

    b. Alternate firms may only be used when approved in writing by the FPM.

    c. Any additional costs that may be incurred by using an alternate firm shall be the responsibility of the Developer.

1.03 RESPONSIBILITIES

A. Except where specifically mandated by the local governing authority, all QC Services shall be performed by the QC Firm.

B. Pre-Work Meetings

1. The General Contractor shall be responsible for arranging pre-work meetings to ensure coordination among the different parties, identify potential challenges to completing the work and to define the QC Services that will be required.

    a. Pre-work meetings shall occur between 1 and 2 weeks before the proposed activity is scheduled to begin.

    b. Invites to the meeting shall be sent out no less than 1 week before the meeting date.

    c. Meetings shall be conducted onsite.

    d. Onsite attendance shall be mandatory for the General Contractor, Contractors or Subcontractors who will be responsible for performing the Work, and QC Firm. The AOR/EOR (architect, engineer or other design professional who completed the design documents) may attend as requested by Walgreens.

    e. A call-in number shall be provided for those who may not be able to attend the onsite meeting.

    f. The General Contractor shall assemble Meeting Notes for each Pre-work Meeting. At a minimum the Meeting Notes shall define:

        (i) The Scope of Work

        (ii) Company name, primary contact name, email and phone number of the General Contractor, QC Firm, AOR/EOR, Contractors or Subcontractors and Walgreens FPM.

        (iii) Detailed schedule of work to be performed.

        (iv) Listing of the anticipated QC Services, as defined by the QC Firm.

        (v) Identification of any hazards or challenges to safety or successful completion of the Work. If none, so state.

    g. The General Contractor shall email Meeting Notes to all participants within 24-hours for comments.

h. At a minimum, the following Pre-Work meetings shall be held. Meeting discussion should not be limited to the items listed below, but should be tailored to each specific site.

(i) Pre-Construction Kick-Off

- Review of the project's overall scope of work and any unique or challenging construction activities.
- Review all permitting requirements.
- Review of the General Contractor's proposed schedule and identification of any critical tasks.
- Review of the required QC Services, as defined by the QC Firm.

(ii) Pre-Grading/Earthwork/Utilities

- Review of the geotechnical report, soil types, ground water table, materials to be hauled offsite and fill materials to be hauled onsite.
- Review of any environmental concerns.
- Review of all utilities to be installed including: electrical power, natural gas, sanitary sewage, storm sewer and stormwater detention/infiltration.
- Review of the General Contractor's proposed schedule and identification of any critical tasks.
- Review of the required QC Services, as defined by the QC Firm.
- Verify that all required erosion and sediment control devices have been properly installed.

(iii) Pre-Retaining Wall Meeting - All jobs with a retaining wall greater than 3-feet in height shall conduct a Pre-Retaining Wall Meeting.

- Review of the geotechnical report, retaining wall design drawings, materials and installation techniques.
- Verify, with the design engineer onsite, any design assumptions that may have been used to design the retaining wall; record the conformation in the Meeting Notes.
- Verify coordination between the retaining wall design and site/civil design.
- Review of the General Contractor's proposed schedule and identification of any critical tasks.
- Review of the required QC Services, as defined by the QC Firm.

(iv) Pre-Foundation Meeting

- Review of proposed foundation type (spread footings and columns, piles, etc.).
- Review of materials, such as concrete mix design or reinforcing steel shop drawings.
- As applicable, review of vapor barrier, concrete admixture usage, plan for curing concrete, utility stub-ups, etc.
- Review of the General Contractor's proposed schedule and identification of any critical tasks.
- Review of the required QC Services, as defined by the QC Firm.

(v) Pre-Slab Meeting - When the slab pour is part of the foundation installation and is not delayed until the building shell is completed, the Pre-Slab Meeting may be combined with the Pre-Foundation Meeting.

- Review of materials, such as concrete mix design or reinforcing steel shop drawings.
- Review of concrete slab joint plan.
- Review of any utility stub-ups, drains, etc.

- Discuss the required base compaction, necessary compaction equipment and length of time between compaction and the concrete pour.
- Review of the proposed store flooring and associated concrete requirements.
- Review of the General Contractor's proposed schedule and identification of any critical tasks.
- Review of the required QC Services, as defined by the QC Firm.

(vi) Pre-Masonry Meeting

- Review of exterior wall cross-section construction and materials.
- Verify the foundation condition and readiness for masonry.
- Review of the General Contractor's proposed schedule and identification of any critical tasks.
- Review of the required QC Services, as defined by the QC Firm.

(vii) Pre-Paving Meeting

- Review requirements of the geotechnical report, pavement design, pavement mix design and required weather conditions for paving.
- Discuss the condition and quality of the subgrade, condition and quality of any base materials already in-place, required base compaction, necessary compaction equipment and length of time between compaction and paving.
- Discuss the use of any geotextiles, geogrids, soil separators or soil strengthening materials if specified by the EOR.
- Review of the General Contractor's proposed schedule and identification of any critical tasks.
- Review of the required QC Services, as defined by the QC Firm.

C. Design Drawing Distribution

1. The Contractor shall be responsible for ensuring that both the Subs, QC Firm and Walgreen's FPM have the current drawing set.

   a. Provide a complete preliminary drawing set to the QC Firm as a part of the Request For Proposal, so that the Scope of Work may be accurately assessed and bid.

   b. Provide drawings sets issued for construction as they are completed, but no less than 2 weeks before the scheduled work date.

   c. Provide construction drawing revisions as they are completed, but no less than 1 week before the scheduled work date.

2. A complete and up-to-date copy of all design drawings shall be kept on site, and made accessible, by the General Contractor at all times.

D. Notification and Coordination of QC Services

1. The General Contractor and all of their Subcontractors shall cooperate with the QC Firm performing the required inspections, tests and similar services.

2. The construction schedule shall reasonably adhere to that set forth during the Pre-Work Meeting.

3. The General Contractor shall be responsible for notifying the QC Firm of when work will be completed and scheduling the QC services.

4. The General Contractor shall be responsible for:

   a. Providing the QC Firm with no less than 48 hours advanced notification of when testing will be required.

   b. Providing access to the Work.

   c. Reasonable assistance with taking samples.

   d. Security and protection of samples and test equipment at the project site.

1.04 NONCOMPLIANT WORK

The following process shall be followed when a test, observation, inspection or other QC activity identifies Work that is not in compliance with the contract documents.

A. The QC Firm shall submit an Incident Report Form to the Walgreens FPM and AM within 24 hours of discovery of the noncompliant work.

   1. The QC Firm shall not provide design guidance or input to repair or correct a noncompliant work area. The General Contractor, Installation Contractor and EOR/AOR shall provide all corrective means and measures.

B. The Contractor shall correct all deficiencies identified by the noncompliant test, observation or QC activity. All noncomplying materials shall be replaced or reworked to comply with the contract documents.

   1. Any corrective measures to repair noncompliant work which vary from the design drawings, specifications or contract documents must be approved in writing by both the AOR/EOR and Walgreens FPM prior to being implemented.

C. Once corrected, the noncompliant installation area shall be retested, observed or inspected as required to confirm compliance.

   1. All costs associated with retesting shall be the Contractor's responsibility.

   2. All retesting (tests, observations, inspections or other QC Services) shall be performed by the approved QC Firm. Reports from other firms shall not be used to show compliance of the Work and will be rejected.

D. Once the Work has been deemed compliant, the Contractor shall submit a Corrective Actions Report to Walgreens FPM and AM.

1.05 SCHEDULE OF QC SERVICES

A. The following schedule of inspections, tests and similar services represents the minimum scope of QC Services to be performed. The AOR/EOR, local governing authorities or QC Firm shall specify additional QC Services as required for each specific project.

   Division 03 Sections

   Concrete compressive strength testing.

Concrete slump testing.
Floor flatness/levelness testing.
Concrete moisture vapor emission rate testing.
Concrete moisture content testing.
Polished Concrete static coefficient of friction (SCOF) testing

Division 04 Sections
Reinforced masonry grouting.

Division 05 Sections
Weld testing.
Moment connection weld testing (when applicable).
Bolt torque testing.

Division 07 Sections
Thermal scans (for foamed-in-place insulation).
Density, thermal conductivity and open cell content of foamed-in-place insulation.

Division 09 Sections
Moisture vapor emission rate testing.
Concrete alkalinity testing.

Division 21 Sections (See 1.03, B)
Sprinkler system leak test.

Division 22 Sections (See 1.03, B)
Domestic water system leak tests.
Domestic water cleaning and disinfection
Sewer system hydrostatic tests.

Division 31 Sections
Verify suitable soil bearing capacity and subgrade modulus.
Field density testing, compaction testing.
Optimum moisture/maximum density testing.

Division 32 Sections
Pavement proof rolling.
Pavement surface smoothness testing.

Division 33 Sections (See 1.03, B)
Fire service water pressure tests
Domestic water pressure tests
Domestic water cleaning and disinfection
Sewer system hydrostatic tests.

B. QC Services for Divisions 21, 22 and 33:

1. QC Services as listed for Divisions 21, 22 and 33 are often performed by the local governing authority as part of their permitting process. When all of the required QC Services are performed by the local governing authority, Walgreens will accept those tests in place of tests performed by the QC Firm. However, the minimum acceptance criterion per the Walgreens specification must be met (if more stringent than that of the local governing authority's requirements).

2. The Contractor shall be responsible for providing test reports for QC Services performed by the local governing authority to the Walgreens FPM.

3. Walgreens will only accept test results for QC Services performed by the local governing authority for the QC Services associated with Divisions 21, 22 and 33. All other QC Services must be performed by the approved QC Firm.

4. Regardless of whether QC Services are performed by the local governing authority or the QC Firm, all costs shall be the responsibility of the Developer.

1.06 QUALIFICATIONS FOR QC FIRMS

A. QC Firms shall comply with “Guidelines for Effective Practice for Materials Engineering Laboratories” by the American Council of Independent Laboratories, and which specialize in the types of inspections and tests to be performed.

B. The QC Firm shall assign a responsible Testing Engineer to review the design drawings and specifications, determine if any additional QC Services are required beyond those listed in this specification, attend the Pre-Work Meetings, manage the Field Inspectors, coordinate QC Services, review all test results and daily reports, provide commentary on noncompliant installations and be available to discuss and help resolve potential problems.

    1. The Responsible Testing Engineer shall be licensed as a Professional Engineer in the State in which the project is located in.

    2. The QC Firm shall provide staff with other professional and technical certifications as required to support the Work.

C. The QC Firm’s Field Inspectors shall have adequate formal academic training and no less than 3 years field experience in the QC services they are performing. Field Inspectors shall be knowledgeable of the local permit requirements and regulations, certified on all testing equipment and trained in site safety.

D. QC Firms shall self-perform all QC services. Specific tasks may only be subcontracted with the FPM’s written approval.

E. QC Firms shall abstain from providing engineering judgment or design/installation recommendations; all design issues shall be directed to the Developer and AOR/EOR.

1.07 SUBMITTALS

A. All submittals shall be in PFD format.

B. Report Data: Written reports of each inspection, test, observation or similar service shall include, but not be limited to the following:

- Name of QC Firm or testing laboratory.
- Dates and locations of samples, test, observations or inspections.
- Notation of ambient conditions (weather, temperature, time, etc.) at the time of sample taking and testing.
- Names of individuals performing the test, observations or inspections.
- Photographs as applicable.
- Complete inspection report or test data.
- Test results.
- Interpretations of test results.
- Comments or professional opinion as to whether inspected or tested work complies with requirements of the contract documents.
- Recommendations on retesting, if applicable.

C. Incident Report Form

    1. Within 24 hours (regardless of the day of the week) of a noncompliant QC service an Incident Report Form shall be completed by the QC Firm and emailed to the Walgreens FPM and AM, the AOR/EOR and the Developer.

        a. The template included at the end of this specification section shall be used for the Incident Report Form.

D. Corrective Action Reports

1. For any portions of the work which test as noncompliant, the Developer shall submit a Corrective Action Report to describe the efforts made to bring the Work into compliance.

2. The Corrective Action Report Shall include:

   a. A description of the noncompliant area.

   b. Identification of the root cause of the noncompliance.

   c. Reference to the QC Firm's Incident Report form, Attach form within PDF.

   d. The solution used to correct the deficiency

   e. Additional design drawings, specifications or engineer recommendations as applicable.

   f. A copy of the retest report verifying compliance.

E. Biweekly QC Services Report

1. With the exception of Incident Report Forms, daily field reports, test results and other QC activities do not need to be distributed to the Walgreens FPM and AM daily. The QC Firm shall collect, compile and organize all reports, test results and other QC actives as part of an ongoing report. The continuously updated report shall be emailed out to the Walgreens FPM and AM and the Developer every two weeks.

   a. The template included at the end of this specification section shall be used for the QC Services Report.

2. The FPM may request daily updates.

F. Final QC Services Report

1. After the project has been completed, the continuously updated report shall be finalized and issued to Walgreens FPM and AM.

   a. The template included at the end of this specification section shall be used for the QC Services Report.

2. The Final QC Services Report shall be certified (signed and sealed) by the QC Firm's Responsible Testing Engineer.

3. The Final QC Services Report shall be issued no later than 2 weeks before store possession to allow adequate review and inspection time by Walgreens.

G. Approval of the Final QC Services Report

1. The Contractor shall submit all Biweekly QC Services Report and the Final QC Services Report to the AOR/EOR and all other design professionals.

2. The Contractor shall submit all signed letters to the Walgreens FPM and AM no less than one week before store possession.

PART II – PRODUCTS (Not Applicable)

PART III – EXECUTION

3.01 REPAIR AND PROTECTION

General: Upon completion of inspection, testing, sample-taking and similar QC Services repair damaged work and restore substrates and finishes to eliminate all deficiencies. Repair and protection is the Developer's responsibility, regardless of the assignment of responsibility for inspection, testing or similar QC Services.

END OF SECTION

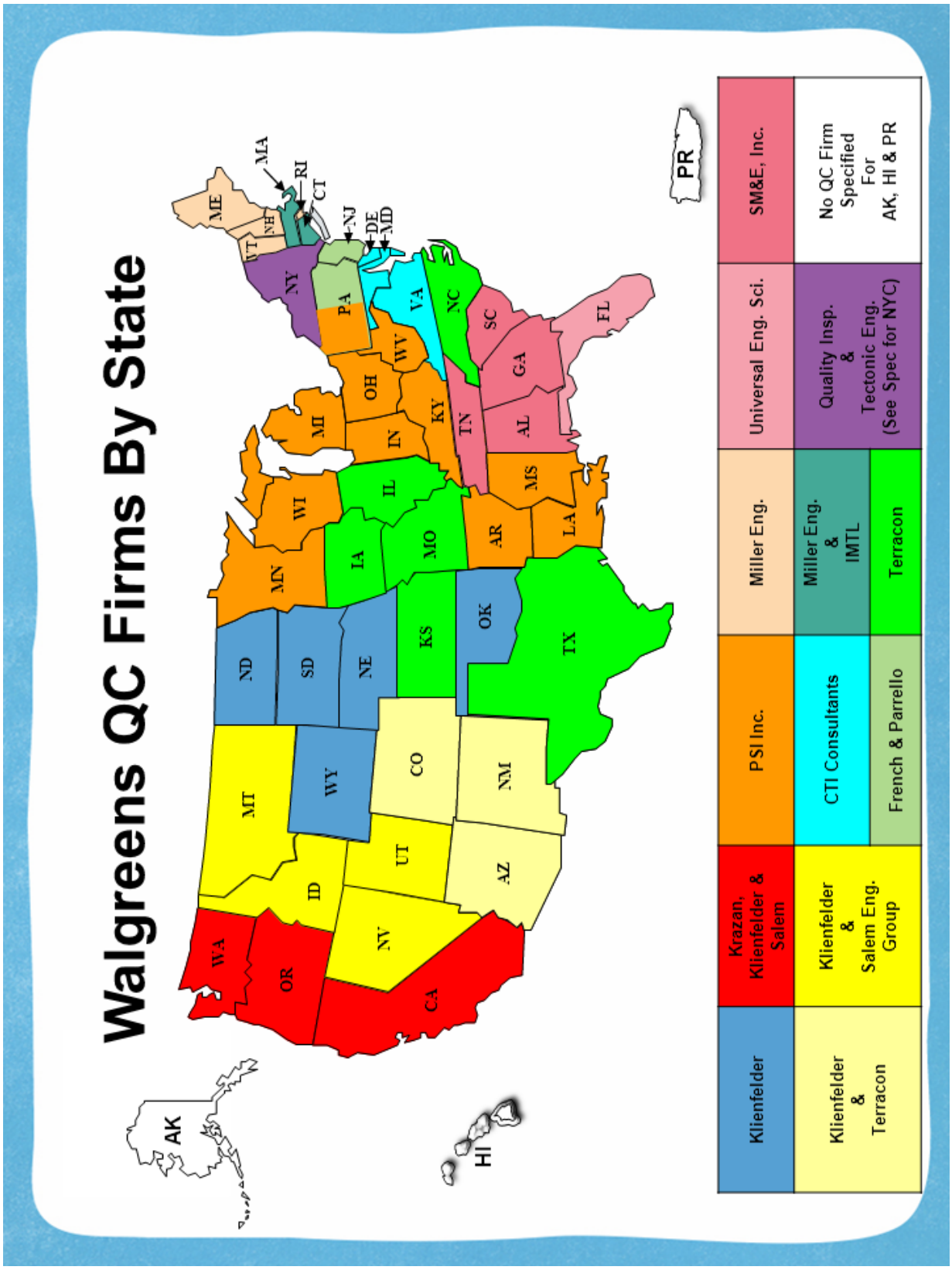
Walgreens QC Firms By State
Klienfelder
Klienfelder & Terracon
Krazan, Klienfelder & Salem
Klienfelder & Salem Eng. Group
PSI Inc.
CTI Consultants
French & Parrello
Miller Eng.
Miller Eng. & IMTL
Terracon
Universal Eng. Sci.
Quality Insp. & Tectonic Eng. (See Spec for NYC)
SM&E, Inc.
No QC Firm Specified For AK, HI & PR
AK
HI
PR

**Figure 1**

# Incident Report Form

| | |
|---|---|
| Store No: ##,### | Report #: QCIR-Store No-XX |
| Address: ### Main St, City, State, Zip | Date: MM/DD/YY |

| |
|---|
| Title: |

| |
|---|
| QC Firm: |
| Developer: |
| General Contractor: |
| Installation Contractor: |

| |
|---|
| Scope of Work being Tested/Observed: |
| Related Drawings and Specifications: |
| Acceptance Criteria: |
| Test/Observation Method: |
| Test/Observation Result: |
| Provide a short summary of the failure and, if possible, hypothesis as to the underlying cause of the failure: |

Include photos as applicable:

# QC Services Report

| | |
|---|---|
| Store No: ##,### | Report #: QC-Store No-XX |
| Address: ### Main St, City, State, Zip | Date: MM/DD/YY |

| | |
|---|---|
| Report Status: ☐ Biweekly Update ☐ Final Report | *Seal, Sign & Date Here* |
| QC Firm: | |
| Developer: | |
| General Contractor: | |
| Installation Contractor: | |

Complete Incident Report Form History

| Report # | Title | Deficiency repaired/corrected to be in compliance | |
|---|---|---|---|
| | | ☐ Yes | ☐ No |
| | | ☐ Yes | ☐ No |
| | | ☐ Yes | ☐ No |

QC Services NOT Performed (Final Report Only)

| QC Service | Work Area | Explanation |
|---|---|---|
| | | |
| | | |
| | | |

QC Firm Notes and Comments:

Attachments

| | |
|---|---|
| Attachment 1 | Incident Report Forms |
| Attachment 2 | Daily Field Reports |
| Attachment 3 | Laboratory Tests |
| Attachment 4 | QC Firm may add additional attachments as required |

SECTION 024119 - SELECTIVE DEMOLITION

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Demolition and removal of selected portions of building or structure.
2. Demolition and removal of selected site elements.
3. Salvage of existing items to be reused or recycled.

1.2 DEFINITIONS

A. Remove: Detach items from existing construction and dispose of them off-site unless indicated to be salvaged or reinstalled.

B. Remove and Salvage: Detach items from existing construction, in a manner to prevent damage, and store.

C. Remove and Reinstall: Detach items from existing construction, in a manner to prevent damage, prepare for reuse, and reinstall where indicated.

D. Existing to Remain: Leave existing items that are not to be removed and that are not otherwise indicated to be salvaged or reinstalled.

E. Dismantle: To remove by disassembling or detaching an item from a surface, using gentle methods and equipment to prevent damage to the item and surfaces; disposing of items unless indicated to be salvaged or reinstalled.

1.3 MATERIALS OWNERSHIP

A. Unless otherwise indicated, demolition waste becomes property of Contractor.

1.4 PREINSTALLATION MEETINGS

A. Predemolition Conference: Conduct conference at Project site.

1. Inspect and discuss condition of construction to be selectively demolished.
2. Review structural load limitations of existing structure.
3. Review and finalize selective demolition schedule and verify availability of materials, demolition personnel, equipment, and facilities needed to make progress and avoid delays.
4. Review requirements of work performed by other trades that rely on substrates exposed by selective demolition operations.
5. Review areas where existing construction is to remain and requires protection.

1.5 INFORMATIONAL SUBMITTALS

A. Proposed Protection Measures: Submit report, including Drawings, that indicates the measures proposed for protecting individuals and property, for environmental protection, for dust control and, for noise control. Indicate proposed locations and construction of barriers.

B. Schedule of Selective Demolition Activities: Indicate the following:

1. Detailed sequence of selective demolition and removal work, with starting and ending dates for each activity. Ensure Owner's on-site operations are uninterrupted.
2. Interruption of utility services. Indicate how long utility services will be interrupted.
3. Coordination for shutoff, capping, and continuation of utility services.
4. Use of elevator and stairs.
5. Coordination of Owner's continuing occupancy of portions of existing building and of Owner's partial occupancy of completed Work.

C. Predemolition Photographs or Video: Show existing conditions of adjoining construction, including finish surfaces that might be misconstrued as damage caused by demolition operations.

D. Statement of Refrigerant Recovery: Signed by refrigerant recovery technician responsible for recovering refrigerant, stating that all refrigerant that was present was recovered and that recovery was performed according to EPA regulations. Include name and address of technician and date refrigerant was recovered.

E. Warranties: Documentation indicating that existing warranties are still in effect after completion of selective demolition.

1.6 CLOSEOUT SUBMITTALS

A. Inventory: Submit a list of items that have been removed and salvaged.

1.7 FIELD CONDITIONS

A. Conditions existing at time of inspection for bidding purpose will be maintained by Owner as far as practical.

B. Notify Architect of discrepancies between existing conditions and Drawings before proceeding with selective demolition.

C. Hazardous Materials: It is not expected that hazardous materials will be encountered in the Work.

1. Hazardous materials will be removed by Owner before start of the Work.
2. If suspected hazardous materials are encountered, do not disturb; immediately notify Architect and Owner. Hazardous materials will be removed by Owner under a separate contract.

D. Storage or sale of removed items or materials on-site is not permitted.

E. Utility Service: Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations.

1. Maintain fire-protection facilities in service during selective demolition operations.

1.8 COORDINATION

A. Arrange selective demolition schedule so as not to interfere with Owner's operations.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Regulatory Requirements: Comply with governing EPA notification regulations before beginning selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.

B. Standards: Comply with ASSE A10.6 and NFPA 241.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify that utilities have been disconnected and capped before starting selective demolition operations.

B. Review Project Record Documents of existing construction or other existing condition and hazardous material information provided by Owner. Owner does not guarantee that existing conditions are same as those indicated in Project Record Documents.

C. Perform an engineering survey of condition of building to determine whether removing any element might result in structural deficiency or unplanned collapse of any portion of structure or adjacent structures during selective building demolition operations.

1. Perform surveys as the Work progresses to detect hazards resulting from selective demolition activities.

D. Verify that hazardous materials have been remediated before proceeding with building demolition operations.

E. Survey of Existing Conditions: Record existing conditions by use of measured drawings and preconstruction photographs.

1. Inventory and record the condition of items to be removed and salvaged. Provide photographs of conditions that might be misconstrued as damage caused by salvage operations.

3.2 PREPARATION

A. Refrigerant: Before starting demolition, remove refrigerant from mechanical equipment according to 40 CFR 82 and regulations of authorities having jurisdiction.

## 3.3 UTILITY SERVICES AND MECHANICAL/ELECTRICAL SYSTEMS

A. Existing Services/Systems to Remain: Maintain services/systems indicated to remain and protect them against damage.

B. Existing Services/Systems to Be Removed, Relocated, or Abandoned: Locate, identify, disconnect, and seal or cap off utility services and mechanical/electrical systems serving areas to be selectively demolished.

1. Arrange to shut off utilities with utility companies.
2. If services/systems are required to be removed, relocated, or abandoned, provide temporary services/systems that bypass area of selective demolition and that maintain continuity of services/systems to other parts of building.
3. Disconnect, demolish, and remove fire-suppression systems, plumbing, and HVAC systems, equipment, and components indicated on Drawings to be removed.

    a. Piping to Be Removed: Remove portion of piping indicated to be removed and cap or plug remaining piping with same or compatible piping material.
    b. Piping to Be Abandoned in Place: Drain piping and cap or plug piping with same or compatible piping material and leave in place.
    c. Equipment to Be Removed: Disconnect and cap services and remove equipment.
    d. Equipment to Be Removed and Reinstalled: Disconnect and cap services and remove, clean, and store equipment; when appropriate, reinstall, reconnect, and make equipment operational.
    e. Equipment to Be Removed and Salvaged: Disconnect and cap services and remove equipment and deliver to Owner.
    f. Ducts to Be Removed: Remove portion of ducts indicated to be removed and plug remaining ducts with same or compatible ductwork material.
    g. Ducts to Be Abandoned in Place: Cap or plug ducts with same or compatible ductwork material and leave in place.

## 3.4 PROTECTION

A. Temporary Protection: Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.

1. Provide protection to ensure safe passage of people around selective demolition area and to and from occupied portions of building.
2. Provide temporary weather protection, during interval between selective demolition of existing construction on exterior surfaces and new construction, to prevent water leakage and damage to structure and interior areas.
3. Protect walls, ceilings, floors, and other existing finish work that are to remain or that are exposed during selective demolition operations.
4. Cover and protect furniture, furnishings, and equipment that have not been removed.

B. Temporary Shoring: Design, provide, and maintain shoring, bracing, and structural supports as required to preserve stability and prevent movement, settlement, or collapse of construction and finishes to remain, and to prevent unexpected or uncontrolled movement or collapse of construction being demolished.

1. Strengthen or add new supports when required during progress of selective demolition.

C. Remove temporary barricades and protections where hazards no longer exist.

## 3.5 SELECTIVE DEMOLITION, GENERAL

A. General: Demolish and remove existing construction only to the extent required by new construction and as indicated. Use methods required to complete the Work within limitations of governing regulations and as follows:

1. Proceed with selective demolition systematically, from higher to lower level. Complete selective demolition operations above each floor or tier before disturbing supporting members on the next lower level.
2. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. Use hand tools or small power tools designed for sawing or grinding, not hammering and chopping. Temporarily cover openings to remain.
3. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
4. Do not use cutting torches until work area is cleared of flammable materials. At concealed spaces, such as duct and pipe interiors, verify condition and contents of hidden space before starting flame-cutting operations. Maintain portable fire-suppression devices during flame-cutting operations.
5. Maintain adequate ventilation when using cutting torches.
6. Remove decayed, vermin-infested, or otherwise dangerous or unsuitable materials and promptly dispose of off-site.
7. Remove structural framing members and lower to ground by method suitable to avoid free fall and to prevent ground impact or dust generation.
8. Locate selective demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.
9. Dispose of demolished items and materials promptly.

B. Site Access and Temporary Controls: Conduct selective demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.

C. Removed and Reinstalled Items:

1. Clean and repair items to functional condition adequate for intended reuse.
2. Pack or crate items after cleaning and repairing. Identify contents of containers.
3. Protect items from damage during transport and storage.
4. Reinstall items in locations indicated. Comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make item functional for use indicated.

D. Existing Items to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by Architect, items may be removed to a suitable, protected storage location during selective demolition and reinstalled in their original locations after selective demolition operations are complete.

## 3.6 SELECTIVE DEMOLITION PROCEDURES FOR SPECIFIC MATERIALS

A. Concrete: Demolish in small sections. Using power-driven saw, cut concrete to a depth of at least 3/4 inch at junctures with construction to remain. Dislodge concrete from reinforcement at perimeter of areas being demolished, cut reinforcement, and then remove remainder of concrete. Neatly trim openings to dimensions indicated.

B. Masonry: Demolish in small sections. Cut masonry at junctures with construction to remain, using power-driven saw, and then remove masonry between saw cuts.

C. Concrete Slabs-on-Grade: Saw-cut perimeter of area to be demolished, and then break up and remove.

D. Resilient Floor Coverings: Remove floor coverings and adhesive according to recommendations in RFCI's "Recommended Work Practices for the Removal of Resilient Floor Coverings."

E. Roofing: Remove no more existing roofing than what can be covered in one day by new roofing and so that building interior remains watertight and weather tight.

1. Remove existing roof membrane, flashings, copings, and roof accessories.
2. Remove existing roofing system down to substrate.

## 3.7 DISPOSAL OF DEMOLISHED MATERIALS

A. Remove demolition waste materials from Project site and dispose of them in an EPA-approved construction and demolition waste landfill acceptable to authorities having jurisdiction.

1. Do not allow demolished materials to accumulate on-site.
2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
3. Remove debris from elevated portions of building by chute, hoist, or other device that will convey debris to grade level in a controlled descent.

B. Burning: Do not burn demolished materials.

## 3.8 CLEANING

A. Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations. Return adjacent areas to condition existing before selective demolition operations began.

END OF SECTION

SECTION 03 30 00 – CAST IN PLACE CONCRETE

PART 1 - GENERAL

1.01 DESCRIPTION

A. The extent of concrete work is shown on drawings.

B. Concrete curbs, gutters, pavement and walkways are included where applicable.

C. Concrete curing is included.

D. Concrete slab patching as required.

1.02 QUALITY ASSURANCE

A. Comply with the current edition of the following codes, specifications and standards:

1. ACI 301 "Specifications for Structural Concrete for Buildings".

2. ACI 302.1R “Guide for Concrete Floor and Slab Construction”.

3. ACI 304 "Guide for Measuring, Mixing, Transporting and Placing Concrete".

4. ACI 318 “Building Code Requirements for Reinforced Concrete”.

5. ACI 117 “Specifications for Tolerances for Concrete Construction and Materials”.

6. Concrete Reinforcing Steel Institute (CRSI), "Manual of Standard Practice".

7. Floor slabs must be designed to support a minimum 125 PSF live load at stock rooms and a minimum 100 PSF live Load at all other areas and shall not be less than 4 inches thick. Floor slab design shall be in conformance with all applicable Codes.

8. ASTM C 94 “Standard Specification for Ready Mix Concrete”.

9. ASTM C 157 “Standard Test Method for Length Change of Hardened Hydraulic-Cement, Mortar and Concrete”.

10. ASTM E 1155-Latest Edition “Standard Test Method for Determining Floor Flatness and Levelness Using the F-Number System”.

11. ASTM F 710 - Latest Edition “Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring”.

12. ASTM F 1869-Latest Edition “Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride”.

13. ASTM C 979-Latest Edition “Pigments for Integrally Colored Concrete”.

14. ASTM E 96-Latest Edition “Standard Test Methods for Water Vapor Transmission of Materials”.

15. ASTM E 154-Latest Edition “Standard Test Methods for Water Vapor Retarders Used in Contact with Earth Under Concrete Slabs”.

16. ASTM E 1643-Latest Edition “Standard Practice for Installation of Water Vapor Retarders Used in Contact with Earth or Granular Fill Under concrete Slabs”.

17. ASTM E 1745-Latest Edition “Standard Specification for Plastic Water Vapor Retarders Used in Contact with Soil or Granular Fill Under Concrete Slabs”.

18. AASHTO T 318 “Standard Method of Test for Water Content of Freshly Mixed Concrete Using Microwave Oven Drying”.

19. ASTM C 171 - Latest Edition "Standard Specification for Sheet Materials for Curing Concrete".

20. ASTM F 2170 - Latest Edition "Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using *in situ* Probes".

B. Testing: Employ at the Contractor’s expense, a testing laboratory, acceptable to Walgreens, to perform the following testing. Slump, air content, water content and temperature tests must be performed with each set of compression test cylinders.

1. Compressive strength testing. Comply with ASTM C 31, ASTM C 172-Latest Edition, ASTM C 39, and as follows:

a. Provide 4 cylinders minimum from each day’s pour.

b. Provide 4 cylinders for each fifty- (50) cubic yards or fraction thereof poured on each date for slabs and foundations. Provide 4 cylinders for each one-hundred fifty (150) cubic yards or fraction thereof poured on each date for concrete paving and sidewalks.

c. Samples shall be tested and reports provided for concrete samples, 1 sample at 7 days, 2 at 28 days and 1 to hold.

2. Slump testing: Comply with ASTM C 143.

3. Water content testing: Comply with AASHTO T318.

4. Flatness/Levelness Testing. Comply with ASTM E 1155, but provide a minimum of one line of sampling in two perpendicular directions through each structural bay.

a. Perform testing using a “Dipstick Profiler” within 72 hours of concrete placement.

5. Concrete not conforming to Walgreens Criteria or which fails required Quality Assurance testing, including Flatness/Levelness requirements, shall be removed and replaced at Walgreens discretion.

1.03 SUBMITTALS

A. Submit concrete mix designs to Architect/Engineer of Record for approval with copies to the Quality Control Testing Consultant.

PART II - PRODUCTS

2.01 FORMWORK

A. Construct formwork for all concrete, with plywood, metal or other panel-type materials to provide continuous, straight, smooth surfaces.

B. For site concrete: Use steel, wood or other suitable materials, free of distortion/defects of size/strength to resist movement and maintain vertical and horizontal alignment during placement.

1. Curves shall be uniform and free of form marks.

C. Form coatings: Use non-staining release agents that will not discolor, deface or impair finish or treatment of concrete.

2.02 REINFORCEMENT

A. Reinforcing Bars: ASTM A 615, grade 60, deformed.

B. Epoxy - Coated Reinforcing Bars: ASTM A 775.

C. Welded Wire Fabric Reinforcement: ASTM A 185 welded steel wire fabric, sheets only, rolled fabric prohibited.

D. Reinforcement supports: Use chairs, spacers & bolsters complying with CRSI

1. For slabs on grade use reinforcing support to ensure proper clearance/cover. Do not lift or pull reinforcing through placed concrete.

E. Joint Filler: Provide preformed joint filler at slab expansion joints, joints between floor slabs and walls and other isolation joints. Provide one of the following:

1. Precompressed impregnated open cell foam.

2. Asphalt saturated fiberboard complying with ASTM D 1751.

3. Granulated cork between saturated felt or glass fiber felt complying with ASTM D 1752 type H.

2.03 CONCRETE MATERIALS

A. Portland Cement: ASTM C 150, Type I or Type II.

B. Fly Ash: ASTM C 618, Type C or F, not to exceed 20% of cement content by weight. Do not use when ambient air temperatures are expected to be below 35 degrees F during the first 48 hours after placement. At interior slabs to receive concrete polishing, fly ash shall not exceed 12% of cement content by weight.

C. Aggregates: Normal weight: ASTM C 33 Light weight: ASTM C 330. Combined aggregate gradation shall be 8% to 18% for large topsize aggregates (1 ½ inches) or 8% to 22% for smaller topsize aggregates (1 in. or ¾ in.) retained on each sieve below the topsize and above the No. 100.

D. Water: Drinkable.

E. Air Entraining Admixture: ASTM C 260.

F. Calcium Chloride: Any admixtures containing more than 0.1% chloride ions content by weight are not permitted.

G. Water Vapor Retarder: Decay resistant materials with Permeance of less than 0.01 Perms per ASTM E 96, maintain Permeance of less than 0.02 Perms after mandatory conditioning tests per ASTM E 154 and water vapor Permeance not exceeding 0.10 perms per ASTM E 1745 Class A. Provide polyethylene sheet not less than 15 mils thick, Raven Industries "VaporBlock 15, Stego Industries 15 mil "Stego Wrap™" or W.R. Meadows Sealtight 15 mil "Perminator®".

H. Densifier (Hardner/Sealer): At Stores with Polished Concrete Floors, Densifier shall be installed by Concrete Polishing Contractor.

1. QuestMark 7923 DiamondGuard II

2. National Polymers, Inc. NP7936 one component water based, lithium based solution.

3. National Polymers, Inc. NP7937 one component water based, lithium based solution.

4. Convergent Concrete Technologies, LLC Pentra-Sil NL water based, lithium based solution

5. Lythic Solutions, Inc. Lythic Densifier, Colloidal Silica Concrete Hardener and Densifier.

6. Prosoco, Inc. Consolideck LS Lithium Silicate densifier.

7. The Euclid Chemical Company UltraSil Li+ water based lithium silicate densifier, and sealer.

8. Concrete Polishing Solutions Armor Densifier, aqueous Lithium polysilicate solution.

9. W. R. Meadows, Inc. Liqui-Hard Ultra water based lithium silicate densifier and hardener.

I. Chemical Admixtures: Type A water-reducing, Type F and Type G high-range water-reducing admixtures shall comply with ASTM C 494. Do not use in cold weather conditions.

2.04 CONCRETE DESIGN/PROPORTIONING

A. Provide normal weight concrete as required by drawings as follows:

1. 3,000 PSI minimum 28 day compressive strength or stronger as required by architect/engineer of record.

2. At interior slabs, provide concrete with ultimate shrinkage less than 0.05% at 28 days as tested per ASTM C-157. Provide laboratory test results indicating the design (or comparable) mix meets the ultimate shrinkage requirements with the mix design submittal.

B. Air Entrainment: Use air-entraining admixture resulting in concrete with air content at point of placement as follows:

1. Concrete exposed to freezing/thawing, deicer chemicals, or hydraulic pressure:

   4.5% (moderate exposure); 5.5% (severe exposure) 1-1/2" max. aggregate.

   4.5% (moderate exposure); 6.0% (severe exposure) 1" max. aggregate.

   5.0% (moderate exposure); 6.0% (severe exposure) 3/4" max. aggregate.

   5.5% (moderate exposure); 7.0% (severe exposure) 1/2" max. aggregate.

2. Other Concrete/Steel troweled interior floors: 3% maximum air.

C. Water-Cementitious Ratio: Provide concrete with maximum water-cementitious (W/Cm) ratios as follows:

1. Subjected to freezing and thawing; W/Cm 0.50.

2. Subjected to deicers/watertight, interior floor W/Cm 0.45.

D. Slump Limits: Provide concrete with slump at point of placement as follows:

1. Ramps and sloping surfaces: Not more than 3".

2. Reinforced foundation systems: Not less than 2" and not more than 5".

3. Slabs and other concrete: Not more than 5".

Concrete containing HRWR admixture shall have a maximum slump of 6”. The concrete shall arrive at the job site at a slump of 2” to 3”, is verified, then high-range water-reducing admixture added to increase slump to approved level.

E. Portland Cement Paving, Sidewalks and Curbs: 3,000 psi after 28 days curing.
Air Entrainment: 4% to 7%.
Slump: Not more than 4”.
Water/Cement Ratio: Per article 2.04.C above.

PART III - EXECUTION

3.01 REINFORCEMENT

A. Clean reinforcement of rust, mill scale, ice or materials that will reduce bond with concrete.

B. Place reinforcement to obtain proper concrete coverage in top third of slab or 2 inches below top surface.

3.02 CONCRETE PLACEMENT

A. Place concrete on/in properly prepared base or forms. Place concrete slabs directly on water vapor retarder. Provide not less than 6 inches of compacted base between water vapor retarder and ground unless otherwise recommended by the Geotechnical Engineer and approved by the Walgreens Project Architect and the Walgreens Regional Construction Manager.

1. Install water vapor retarder in compliance with manufacturer's instructions and ASTM E 1643.

2. Lap joints 6 in. and seal with manufacturers adhesive or tape.

3. Seal around all penetrations with manufacturers pipe boot or by wrapping with vapor retarder and taping.

4. Repair all punctures and cuts using vapor retarder material lapped 6 inches beyond damaged area and taped.

5. Provide photo documentation of proper installation of vapor retarder.

B. Construct slabs to correct level, maintain reinforcing in proper position.

1. Float slabs with a highway straight edge in lieu of a conventional bull float.

C. Do not place concrete on/in frozen substrate or forms.

D. Pumping Concrete: Concrete may be placed by pumping if first approved in writing the Architect/Engineer of Record for the proposed location. Pumped concrete shall only be placed in the presence of the Landlords Testing/Inspecting Agent.

1. Equipment: Pumping equipment shall be of the size and design that ensures a continuous flow of concrete at the delivery end without separation of materials. Do not pump concrete through aluminum pipes.

2. Concrete Mix: Shall conform to the architect of record’s specified design requirements, except that mix may contain chemical admixtures to allow proper pumping. Include the specified high-range or mid-range water reducing admixture in the mix. Unless strictly controlled and anticipated in the development of the design mix, the addition of admixtures at the job site should be prohibited.

3.03 JOINTS

A. Contraction joints at interior slabs shall be formed by saw cuts within 4 to 12 hours after finishing and before random shrinkage cracks form. Concrete surface shall not be torn or damaged by the blade. Joint spacing shall not exceed 30 times the slab thickness in feet. Joint patterns shall be generally square. Joint depth shall be ¼ slab thickness.

B. Isolation joints; provide full depth at all locations where slabs adjoin walls, columns, foundations, drain piping, sprinkler mains, existing concrete or pavement, and other immovable objects. Provide “pinwheel” isolation joints at columns.

3.04 FINISHING/CURING

A. Provide a floor surface which is true and level and achieves “F Numbers” of $F_F = 50$ and $F_L = 35$ minimum overall composite and $F_F = 35$ and $F_L = 24$ minimum at any individual section, when tested in accordance with ASTM E 1155. Remove surface irregularities to provide a continuous smooth finish free of trowel marks and trowel patterns.

B. All interior slabs to receive a smooth trowel finish. Interior slabs to receive concrete polishing shall be finished with plastic blades or pans to avoid surface "burning".

C. Provide moisture retaining wet curing covers on interior slabs for 3 days minimum using cover materials that promote water retention and meet the performance requirements of ASTM C -171- Latest Edition. Use cover materials that will not stain or impart any texture to the concrete surface.

D. Apply non-slip broom finish to exterior platforms, walks, steps, ramps and curbs. Tool all edges to 1/2" radius unless noted otherwise.

E. Apply densifier at approximately 200 square feet per gallon using a stiff, long bristled broom. Cover the entire work area liberally and allow to soak for ten (10) minutes. Re-apply to areas where the densifying impregnator has soaked in and allow to sit for an additional thirty (30) minutes. Squeegee or AutoScrub excess material off of floor. Allow 1-2 hours to dry before proceeding. Apply concrete densiifer (hardener/sealer) to exposed interior floors and exterior slab at recessed entrance.

F. Floors to receive resilient flooring shall be tested for moisture vapor emission from the substrate per ASTM F 1869 or relative humidity within the substrate per ASTM F 2170. Floors to receive resilient flooring shall be tested for alkalinity of the substrate (pH testing) per ASTM F 710. Refer to Section 09 65 00 - Resilient Flooring for specific moisture vapor emission, relative humidity and alkalinity testing and compliance requirements.

G. Patch all form holes resulting from removal of form ties. Form ties ends shall be sealed or coated to prevent future rusting from spalling of the concrete patch.

3.05 REPAIRS

A. Repair or replace broken, defective and stained concrete, and replace non-conforming concrete, all as directed by Walgreens.

END OF SECTION

SECTION 04 20 00 – UNIT MASONRY & STONE

PART 1 - GENERAL

1.01 DESCRIPTION

A. Masonry work includes concrete unit masonry, brick masonry, calcium silicate masonry units and cast stone.

1.02 QUALITY ASSURANCE

A. All work shall conform to the standards of the Brick Institute of America and to codes having jurisdiction.

B. The project shall be bid to include cold-weather practices if project is to be constructed when temperatures could fall below 40°F (4°C).

C. All brick shall be from a single manufacturer's production run.

D. Calcium silicate or cast stone products, depending on which is selected, shall be provided by a single manufacturer.
   1. Use only one product throughout the project.
   2. The color of all stone products must match.
   3. Do not combine calcium silicate and cast stone products on the same project.

E. Comply with ASTM C 1364 – Architectural Cast Stone and the Cast Stone Institute Technical Manual.

F. Mortar and Grout Testing:
   1. Test grout in each type of wall construction in conformance with ASTM C 1019-02.
   2. Inspect cores of fully grouted masonry reinforcing.

1.03 JOB CONDITIONS

A. Protection of Work:
   1. Cover top of wall or partially completed work with waterproof membrane at end of each day.
   2. Extend cover 24 inches minimum down both sides, hold securely in place.

B. Cold Weather Protection:
   1. Preparation: remove ice or snow from masonry bed by applying heat until top surface is dry to the touch.
   2. Remove all frozen or damaged masonry work.
   3. Do not use wet or frozen units.

C. Construction Requirements While Work is Progressing:
   1. Air temperatures 40°F (4°C) to 32°F (0°C):
      a. Heat sand or mixing water to produce mortar temperatures between 40°F (4°C) and 120°F (49°C).
   2. Air temperatures 32°F (0°C) to 25°F (-4°C):
      a. Heat sand and mixing water to produce mortar temperatures between 40°F (4°C) and 120°F (49°C).
      b. Maintain mortar temperatures above freezing.
   3. Air temperatures 25°F (-4°C) to 20°F (-7°C):

a. Heat sand and mixing water to produce mortar temperatures between 40°F (4°C) and 120°F (49°C).
b. Maintain mortar temperatures above freezing.
c. Provide heat sources on both sides of wall during construction.
d. Provide windbreaks when wind exceeds 15 mph.

4. Air temperatures 20F (-7C) and below:
a. Heat sand and mixing water to produce mortar temperatures between 40°F (4°C) and 120°F (49°C).
b. Provide enclosures and heat to maintain air temperature above 32°F (0°C).
c. Minimum temperature of units when laid; 20°F (-7°C).

D. Protection requirements for completed work:
1. Mean daily air temperature 40°F (4°C) to 32°F (0°C);
a. Protect masonry from rain or snow with weather-resistive covering for 24 hours.
2. Mean daily air temperature32°F (0°C) to 25°F (-4°C):
a. Completely cover masonry with weather-resistive covering for 24 hours.
3. Mean daily air temperature 25°F (-4°C) to 20°F (-7°C):
a. Completely cover masonry with insulating blankets or equal protection for 24 hours.
4. Mean daily air temperature 20°F (-7°C) and below:
a. Maintain masonry temperature above 32°F (0°C) for 24 hours by using enclosures and supplementary heat or with electric heating blankets.

1.04 SUBMITTALS

A. Shop Drawings: Submit calcium-silicate unit and/or architectural cast stone manufacturers shop drawings, including profiles, cross sections, modular unit lengths, reinforcement if required, exposed faces, anchors and annotation of cast stone types and locations if required by Architect of Record.

1.05 DELIVERY AND STORAGE

A. Cast Stone and Calcium Silicate units; Store units in accordance with manufacturer's instructions to prevent damage or staining.
1. Protect with waterproof covers and prevent condensation under covers.
2. Prevent contact with dirt and splashing.

PART II - PRODUCTS

2.01 FACE BRICK (allow 8 weeks minimum lead time)

A. Provide units complying with the following from each manufacturer:
1. ASTM C 216.
2. Size: Standard utility 3 5/8" x 3 5/8" x 11 5/8".
3. Grade: SW
4. Type: FBS

B. National Accounts: Walgreens has established National Accounts with Carolina Ceramics Brick Co., Mutual Materials Co. and Yankee Hill Brick. Each manufacturer has been assigned a specific geographic region to supply. Obtain brick in each region from the following manufacturers:

| | |
|---|---|
| Carolina Ceramics Brick Co: | Jean Brklich<br>1-866-788-1916 x124 |
| Mutual Materials Co: | Steve Hubbard<br>1-800-477-7137 |
| Yankee Hill Brick: | Jeff Meyer<br>1-402-330-2751 |

1. Carolina Ceramics Brick Co.
   a. Product; (Type 1) Color: “Colonial Gray”, Finish: Velour
      (Type 2) Color: “Shadow Gray”, Finish: Velour
   b. Territory; East and South:
      East; Michigan (LP), Indiana, Ohio, Kentucky, West Virginia, Virginia, Pennsylvania, New York, Massachusetts, Maryland, Connecticut, New Jersey. Vermont, New Hampshire, Maine, Delaware, and Rhode Island.
      South; North Carolina, South Carolina, Georgia, Tennessee, Alabama, Mississippi, Arkansas, and Louisiana.

2. Mutual Materials Co.
   a. Product; (Type 1) Color: “Redondo Gray”, Finish: Mission Texture Wirecut
      (Type 2) Color: “Sea Gray”, Finish: Wirecut
   b. Territory; West: Washington, Oregon, Idaho, Wyoming, Utah, Colorado, Montana, Nevada, California, Arizona and New Mexico.

3. Yankee Hill Brick.
   a. Product; (Type 1) Color: “G3”, Finish: Velour
      (Type 2) Color: “Creighton Gray”, Finish: Velour
   b. Territory; Midwest: North Dakota, South Dakota, Minnesota, Wisconsin, Illinois, Iowa, Michigan (UP), Nebraska, Kansas, Oklahoma, and Missouri.

C. Provide special shapes at all non 90-degree corners.

D. Provide solider units with adjacent side finish at end units.

E. At remodel, renovation or repair work, salvage existing units to the degree possible or obtain matching units.

2.02 HOLLOW BRICK MASONRY (Thru-Wall Units): Provide masonry units as manufactured by Carolina Ceramics, or as manufactured by Mutual Materials, or Walgreens approved equal. Color and Finish of masonry units shall match products listed above (Type 1 and Type 2). Conform to ASTM C652.

Size: As required by the architect/engineer of record, but not less than 8” w x 4” h x 12” l.
Grade: SW
Type: HBS
Class: H60V

2.03 CONCRETE MASONRY UNITS: Provide hollow load bearing block complying with ASTM C90, normal weight.

Size: Nominal 16" long x 8" high

A. Concrete Masonry Units for Single Wythe Exterior Wall systems:
   1. Size: Nominal 8"width min. x 8" high x 16" long.

2. Units shall have Integral Water Repellant Admixture: Grace Masonry Products DRY-BLOCK™ or ACM Chemistries, RainBloc®.

2.04 SPLIT FACE CONCRETE MASONRY UNITS: Provide hollow load bearing block complying with ASTM C90, normal weight.

Size: Nominal 16" long x 8" high.
Integral Water Repellant Admixture: Grace Masonry Products DRY-BLOCK™ or ACM Chemistries, RainBloc®.
Style/Color: Northern and Chicago Prototype; Northfield Block Company standard #21 or 205, CEMEX "Biltmore Tan #3546" or Walgreen approved equal.
Southern Prototype; Demaco "Tse Tan" by Old castleCoastal, or Walgreen approved equal.

2.05 CALCUIM SILICATE UNITS

A. Provide Renaissance® Masonry Units manufactured by Arriscraft International, Inc. or Walgreens approved equal.

B. Calcium Silicate Units: ASTM C 73, Grade SW; solid units, pressure formed and autoclaved, 3 5/8" x 11 5/8" x 23 5/8", sandblasted and rocked finish (as indicated) on exposed faces and ends, "Nutmeg" or "Oyster" color.
1. Compressive Strength: 6600 psi, to ASTM C 170.
2. Absorption: 8.8 percent to ASTM C 97.
3. Density: 129 lbs/ft$^3$ to ASTM C 97.
4. Modulus of Rupture: 770 psi to ASTM C 99.

C. Fabricate calcium silicate masonry units to the following tolerances:
1. Unit Length: plus-or-minus 1/16".
2. Unit Height: plus-or-minus 1/16".
3. Deviation from Square: plus-or-minus 1/16" with measurement taken using longest edge as base.
4. Bed Depth: plus-or-minus 1/8.

2.06 CAST STONE

A. Provide RockCast Architectural Series units manufactured by RockCast, Division of Reading Rock, Inc. or Select Stone series units manufactured by Continental Cast Stone Manufacturing, Inc.

B. Cast Stone Units: ASTM C 90, machine cast, 3 5/8" x 11 5/8" x 23 5/8", smooth face and split face finish (as indicated) on exposed faces and ends, RockCast "Buffstone" or Continental Stone color #1105".
1. Compressive Strength: ASTM C 140, > 5,000 psi at 28 days.
2. Absorption: ASTM C 140, < 5.0 percent at 28 days.
3. Linear Shrinkage: ASTM C 426, < 0.065 percent.
4. Density: ASTM C 140, > 120 lbs/ft$^3$.
5. Freeze-thaw: ASTM C 666, < 4.0 percent.
6. Curing: in exposed chamber at 95 percent RH and 95 to 120 degrees F for 12 to 18 hours or yard cure for 350 degree-days.

C. Cast Stone Materials
1. Portland Cement: ASTM C 150, Type I or III, white or gray as required to match specified color.

2. Coarse Aggregates: ASTM C 33 except for gradation, granite, quartz or limestone.
3. Fine Aggregates: ASTM C 33 except for gradation, manufactured or natural sands.
4. Pigments: ASTM C 979, except do not use carbon black pigments, inorganic iron oxide.
5. Water Reducing, Retarding and Accelerating Admixtures: ASTM C 494.
6. Water: drinkable.
7. Reinforcing Bars: ASTM A 615, deformed steel bars, galvanized when less than 1 1/2" of material.
   a. Galvanized Coating: ASTM A 767.

D. Fabricate Cast Stone units to the following tolerances:
1. Comply with the Cast Stone Institute Technical Manual.
2. Cross Section: plus-or-minus 1/8".
3. Unit Length: do not exceed length/360 or plus-or-minus 1/8" whichever is greater.
4. Warp, Bow or Twist: do not exceed length/360 or plus-or-minus 1/8" whichever is greater.

2.07 MORTAR AND GROUT:

A. Provide mortar and grout complying with ASTM C 270 or ASTM C476 (for reinforced masonry) and requirements of architect of record. Type N based on proportion specification, unless type S is required by the engineer of record.

B. Mortar shall be pre-blended and pre-packaged to produce mortar with the required properties when dispensed from a silo type dispensing system. On site batching of individual mortar materials is prohibited.

C. MORTAR MATERIALS:
1. Portland cement: ASTM C 150, type I.
2. Masonry cement: ASTM C 91.
3. Hydrated lime: ASTM C207, type S.
4. Sand: ASTM C 144.
5. Aggregates for grout ASTM C 404.
6. Mortar color pigment: none.
7. Admixture: Comply with ASTM C-270. Anti-freeze compounds or those containing chlorides are prohibited.
   a. Provide Grace Masonry Products DRY-BLOCK™ mortar admixture at all single wythe concrete masonry unit manufactured with DRY-BLOCK™.
   b. Provide ACM Chemistries, RainBloc® mortar admixture at all single wythe concrete masonry units manufactured with RainBloc®.
   c. Grace masonry products DRY-BLOCK or ACM Chemistries RainBloc® mortar admixture shall be used at all hollow brick masonry walls.
8. Water: drinkable.

2.08 ACCESSORIES

A. Joint Reinforcement: Provide ASTM A 82 cold drawn steel wire with ASTM A 153, Class B2 hot-dipped galvanized coating, anchor type as required by the architect of record. Corrugated wall ties are prohibited.

1. Provide Type 304 stainless steel anchors in coastal areas and highly corrosive environments.
2. Cavity Walls with Insulation: provide units with adjustable double wire/eye or clips to hold insulation tight against block back up.

B. Miscellaneous Materials: Flashing, weep products, control/expansion joint materials as required by architect of record.
1. Acceptable concealed flexible flashing: 3 oz copper sheet bonded between two layers of asphalt waterproofed creped kraft paper, EPDM thru-wall flashing (40 mil min.).
2. Acceptable weep products (brick masonry): Rectangular plastic tubes with insect screen and cotton wick, cotton wick cords, Mortar Net weep vent.
3. Acceptable weep products (hollow brick masonry): cotton wick cords, Masonry Technology, Inc. “Core Vent”.
4. Cavity drainage system; provide Mortar Net™ at brick masonry and Mortar Net Block™ at block or hollow brick masonry walls.
5. Single Wythe Concrete Masonry Unit Drainage System: Blok-Flash CMU Drainage System as manufactured by Mortar Net™ USA LTD. System includes drainage pans with weep spouts, web spacer/bridge units, drainage mattes and bug guards.

C. Bituminous Dampproofing: Provide Dampproofing on cavity face of interior wythe of masonry cavity walls.
1. Proceed with dampprooffing work only when weather conditions comply with manufacturer’s recommendation, and will permit the materials to be applied in accordance with the recommendations.
2. Dampproofing Compound: A water emulsion of asphalt formulated for spraying or brushing, and for use on green or slightly dampened walls.
   a. Karnak Chemical Corp., “Karnak 100 AF Non-fibered Emulsion dampproffing.”
   b. BASF Building Systems, “Hydrocide 700B”
   c. Texmastic International Inc., “Texmastic Spray Mastic #712-B”
   d. Grace Construction Products, “Grace Procor 75”
   e. Or Approved Equal.

D. Cleaner: Prosoco Sure Klean® “600 Detergent” or “VanaTrol”.

E. Water Repellent: Prosoco Sure Klean® Weather Seal Siloxane WB, Prosoco Sure Klean® Weather Seal Siloxane PD or Hydrozo Enviroseal® 7.

PART III - EXECUTION

3.01 INSTALLATION

A. Cut masonry units using motor-driven wet saws to provide clean, sharp, unchipped edges. Cut units as required to provide continuous pattern and to fit adjoining work. Use full-size units without cutting where possible.
1. Pre-soak calcium silicate units using clean water, prior to cutting. Allow units to dry prior to placement.

B. Vertical Reinforcement; Provide inspection ports at all locations where vertical reinforcing is to be fully grouted within the unit core to allow confirmation that cores have been fully grouted. Following inspection, close all inspection ports and make flush with surrounding masonry.

C. Increase quantity of wall ties around perimeter of openings, at wall terminations and corners. Place wall ties within 8” of openings and edges of masonry.

D. Pull calcium silicate and cast stone units from multiple cubes to minimize variation in color.

3.02 CONSTRUCTION TOLERANCES

A. Variation from Plumb: Vertical lines, surfaces or columns, walls do not exceed 1/4" in 10' nor 1/2" up to 40'. For external corners, expansion joints, control joints and other conspicuous lines, do not exceed 1/4" in any story of 20' maximum. Vertical alignment of head joints not to exceed 1/4" in 10'.

B. Variation from Level: For bed joints, parapets, horizontal grooves and other conspicuous lines, do not exceed 1/4" in any bay or 20' maximum.

C. Variation of Linear Building Line: Do not exceed 1/2" in any bay or 20' maximum, nor 3/4" in 40' or more.

D. Variation in Mortar Joint Thickness: Do not exceed joint thickness indicated by more than plus or minus 1/8".

3.03 LAYING MASONRY WALLS:

A. Pattern Bond: Lay brick masonry in ⅓ running bond for utility size brick. Do not use units with less than nominal 4" horizontal face dimensions at corners or jambs.
   1. Lay exposed Concrete Masonry Units, Split Faced Masonry Units, Calcium Silicate units and Rock Cast units in running bond.

B. Tool exposed joints slightly concave.

C. Keep cavity in cavity walls clean of mortar drippings and debris.

D. Hollow Brick Masonry Units (Thru-wall units):
   1. Shall be laid with full face and head joints to increase resistance to water penetration.
   2. Shall be flashed and weeped at wall base, below and above all wall openings and at tops of walls.

E. Calcium Silicate and Cast Stone Units:
   1. Set in full bed of mortar.
   2. Fully bond intersections, external corners and vertical joints.
   3. Do not adjust units after laying. Where resetting is required, remove, clean units and reset in new mortar.
   4. Surface efflorescence and cracking are cause for rejection of individual delivered units.
   5. Do not apply sealer to calcium silicate units.

F. Single Wythe Exterior Concrete Masonry Walls:
   1. Shall be laid in running bond.
   2. Shall be laid with full face and head joints to increase resistance to water penetration. Tool joints slightly concave.
   3. Shall be flashed continuously above grade with Blok-Flash CMU Drainage System. Install Blok-Flash Drainage Mattes in each core above the Blok-Flash flashing course. Install bug guards at each drainage spout.

4. Shall be stained by field application of a water repellant/color treatment. See Section 09 90 00 for Color Treatment specification.

3.04 CLEANING

A. After mortar is thoroughly set and cured, clean masonry completely using the “bucket and brush hand cleaning” method. Use only cleaning solutions approved by manufacturer of masonry units being cleaned. Apply cleaning solution in strict accordance with solution manufacturers written instructions. Do not use metallic tools to remove large mortar particles. Do not use muriatic acid. Do not sandblast.

B. Test cleaning method on small inconspicuous area of each type of masonry to be cleaned, before full cleaning, to confirm masonry will not be damaged or discolored.

C. Apply water repellant to Hollow Clay Masonry Units, Single Wythe Concrete Masonry Walls and Cast Stone Units after installation, cleaning and acceptance.

END OF SECTION

SECTION 05 10 00 - STRUCTURAL METAL FRAMING

PART 1 - GENERAL

1.01 DESCRIPTION

A. The work includes but is not limited to structural steel, steel studs, and miscellaneous fabrications.

B. Miscellaneous Fabrications include but are not limited to railings, ladders, elevator hoisting beams (if applicable) and roof opening frames.

1.02 QUALITY ASSURANCE

A. Comply with AISC "Code of Standard Practice for Steel Buildings and Bridges", latest edition. AWS D1.1 "Structural Welding Code".

B. Comply with AISI “Specification for the Design of Cold-Formed Structural Members”.

C. Comply with requirements of architect of record.

D. Field alterations of structural steel are not allowed without written approval of the Engineer of Record.

E. Quality Control Testing: A certified AWS Weld Inspector shall inspect 100% of welded moment connections and 10% of all other welded connections. Manually torque test 10% of all bolted connections to verify correct tightness.

1.03 SUBMITTALS

A. Submit shop drawings to architect of record.

PART II - PRODUCTS

2.01 MATERIALS

A. Structural Steel Shapes, Plates, Bars; ASTM A36 ASTM A992.

B. Steel Pipe; ASTM A 501.

C. Steel Tubing; Cold-Formed ASTM A 500, grade B; hot-formed ASTM A 501.

D. Anchor bolts and fasteners, ASTM A 325 as required by architect of record. ASTM A 307 anchor bolts are acceptable in non-tension applications.

E. Primer; Fabricators standard rust inhibiting primer.

F. Steel studs and C joists, ASTM A 653, Structural Quality, grade 33.

PART III - EXECUTION

3.01 ERECTION

A. Set frames accurately to lines and elevations indicated. Level and plumb individual members within AISC tolerances. Comply with AISC specifications for bearing, alignment and welds.

B. Touch-up paint all exposed and/or abraded areas after erection.

C. Welds of all metal fabrications shall be ground smooth and prepared for final painting.

D. All structural steel encased in concrete, masonry or in contact with earth shall be painted with bituminous paint.

E. Hoisting beams for elevators shall be furnished and installed by General Contractor.

END OF SECTION

SECTION 06 10 00 - CARPENTRY

PART 1 - GENERAL

1.01 DESCRIPTION

A. The work includes but is not limited to rough carpentry, wood trusses, finish carpentry and casework.

1.02 QUALITY ASSURANCE

A. Wood Trusses; Comply with Truss Plate Institute recommendations and publications as applicable.

B. Casework: Comply with Architectural Woodwork Institute "Architectural Woodwork Quality Standards" latest edition, section 400 as applicable, custom grade.

1.03 SUBMITTALS

A. Wood trusses; submit shop drawings to architect of record.

B. Casework; submit shop drawings to architect of record.

C. Fire Retardant Treatment for Wood: Submit to architect of record and Walgreens; manufacturer, name of process and warranty terms.

PART 2 - PRODUCTS

2.01 LUMBER AND TRUSSES

A. Comply with PS 20 "American Softwood Lumber Standard".

B. Factory mark each piece of lumber with grade stamp evidencing compliance with grading rules and moisture content.

C. Dress lumber; dressed S4S.

D. Provide lumber with 19% moisture content at time of dressing.

E. Provide grade and species as required by the architect of record.

F. Provide treated lumber for exterior framing and as required by local codes.

2.02 SHEATHING & PANELS

A. Roof Sheathing: Provide 5/8” minimum thickness plywood, APA rated for exterior use. Oriented Strand Board (OSB) is not acceptable.

B. Wall Sheathing:

1. Plywood: APA rated for exterior exposure, 5/8” minimum thickness. Oriented Strand Board (OSB) is not acceptable.

2. Glass Mat Gypsum Boards: Dens-Glass Gold or Dens-Glass Gold Fireguard, by Georgia-Pacific Corp., or GlasRock™ by BPB America, Inc., 5/8” minimum thickness.

3. Fiberock® Brand Sheathing, 5/8” minimum thickness, by U.S. Gypsum Company.

C. Plywood backing for telephone/electrical, APA grade C-D plugged, with exterior glue, 3/4" minimum thickness, install with “C” face exposed.

2.03 WOOD TREATMENT

A. Preservation Treatment: Comply with applicable standards of AWPA C2 (lumber) and C9 (plywood) and AWPB listed below:

1. Pressure-treat above ground items with water-borne preservatives complying with AWPB LP-2. After treatment, kiln-dry lumber and plywood to a maximum moisture content, respectively, of 19% and 15%.

2. Pressure-treat ground or water contacting members complying with AWPB LP-22.

B. Fire Retardant Treatment: Comply with AWPA C-27 as applicable. Process shall not promote premature degradation of wood products in the conditions in which fire-treated lumber/panels will be installed.

1. Provide materials with maximum moisture content, after treatment, of 15% or less.

2. Manufacturer:

a. Interior applications: provide "Dricon FRT" or “Hoover Pyro-Guard” with current warranty.

b. Exterior applications: provide “Dricon FRX exterior FRT wood or “Hoover Exterior Fire-X”.

C. Fasteners: Provide stainless steel or hot-dipped-galvanized connectors/fasteners. Hot-dipped fasteners/connectors shall be continuous galvanized G185 or G90 HDG per ASTM A-653, batch/post HDG per ASTM A-123 (connectors) ASTM A-153 (fasteners) or mechanical galvanizing per ASTM B-695, class 55 or better.

2.04 PLASTIC LAMINATE FABRICATIONS

A. All fabrications to be self edged with plastic laminate.

B. Countertops and sills: Comply with AWI standard 400, custom grade.

C. Plastic Laminate: nominal 1/16" thick (0.048" +/- 0.005" minimum thickness), except as otherwise noted, materials as follows:

1. Sill at pharmacy wall & sales area: Wilsonart Type 107, #D354-60 “Designer White”, matte finish.

2. Employee Room countertop with rolled back splash and separate side splash: Wilsonart Organic Cotton 4945-38 Fine Velvet Texture finish.

3. Employee Room cabinets (lower and upper): Wilsonart North Sea D90-60 matte finish, thickness 0.028” + 0.001” – 0.004”.

4. Storefront stool: Wilsonart Type 107, #D354-60 “Designer White”, matte finish.

5. Drive-Thru Casework: Laminate panel at drive-thru window removable knee wall, countertop, side and back panels: Wilsonart High Wear Laminate Type 107HW, #D354-60 “Designer White”, matte finish.

2.05 MISCELLANEOUS

A. Closet/Storage Shelving: Comply with AWI 600, custom grade, and paint finish.

B. Miscellaneous wood trim; Comply with AWI 300, custom grade, and paint finish.

C. Building Paper: ASTM D 226, Type I, 15 LB, non-perforated asphalt saturated felt.

D. Hardboard: Opaque, grade II, tempered smooth one side, 1/4” thick.

E. Cedar Fence: Western Red Cedar or White Cedar with band sawn textured surface.

1. Posts: Galvanized steel posts, concealed on the show side (facing neighbors) by a wood board/picket. Provide ASTM A-90 zinc coating, Type I. Line posts shall be min. 2.375” (nom. o.d.). Corner and terminal posts shall be min. 3.0” (nom. o.d.).

2. Rails: Grade: Standard or Better per NLGA 122b, c, WCLIB 122b, c and WWPA 40.11.

3. Boards: Grade: Custom Knotty per WRCLA.

4. Sealer: Olympic Maximum™ Clear Waterproofing Sealant or Walgreen approved equal.

PART 3 - EXECUTION

3.01 GENERAL

A. Securely and properly support and anchor all work to accurate fit, lines, level, and plumb without distortion.

B. Install fire-retardant treated materials in environments with proper ventilation to prevent degradation of wood materials.

C. Metals in contact with pressure treated wood i.e.; blocking at metal deck, etc., shall be separated by a #15 felt paper.

D. Do not cut or alter wood trusses members.

E. Condition woodwork/casework to average prevailing humidity conditions in installation area prior to installing.

END OF SECTION

SECTION 07 21 00 – THERMAL INSULATION

PART 1 - GENERAL

1.01 DESCRIPTION

A. Insulation work includes:
1. Insulation under slabs on grade.

2. Foundation wall insulation.

3. Board-type wall insulation, concealed.

4. Sound attenuating batts specified in section 09 29 00.

5. Roof deck insulation specified in section 07 50 00.

6. EIFS insulation specified in section 07 24 00.

7. Batt insulation at tilt-up concrete walls, Southern Prototype wall sections and Thru-Wall clay masonry wall sections.

1.02 QUALITY ASSURANCE

A. Comply with code required fire-resistance, flammability and insurance ratings.

B. Construction assemblies shall achieve minimum aged "R" values as follows:
1. Roof: See Sections 07 51 00, 07 52 00, 07 53 00 or 07 54 00 as applicable. Insulation applied to back of suspended ceiling system is prohibited. Batt insulation shall not be attached to nor suspended below the roof deck. Required “R-value” shall be achieved in the construction above the roof deck.

2. Walls - R-10 minimum. Install vapor retarders where required by state or local codes.

PART II - PRODUCTS

2.01 MATERIALS

A. Bead board insulation is not acceptable.

B. Extruded Polystyrene Board Insulation (cavity wall & foundation): Rigid, closed-cell, board complying with ASTM C-578 Type IV with the following properties:
1. Compressive Strength: 25 psi minimum.

2. Flexural Strength: 50 lbs/in.$^2$ min. (ASTM C 203).

3. Thermal Resistance: 5 year aged R-values of 5.4 and 5.0 min. °F-ft$^2$-h/Btu$^2$ /inch at 40°F and 75°F respectively (ASTM C 518).

4. Water Absorption: max. 0.1% by volume (ASTM C 272).

5. Water Vapor Permeance: 1.1 perm-inch max.

6. Dimensional Stability: 2% max. linear change (ASTM D 2126).

7. Flame Spread: 5 (ASTM E 84).

8. Smoke Developed: 45 to 165 (ASTM E 84).

9. Size: manufacturer's standard lengths and widths.

C. Extruded Polystyrene Board Insulation (Z-furring): Rigid, closed-cell, board complying with ASTM C-578 Type X with the following properties:

1. Compressive Strength: 15 psi minimum.

2. Flexural Strength: 40 lbs/in.$^2$ min. (ASTM C 203).

3. Thermal Resistance: 5 year aged R-values of 5.4 and 5.0 min. °F-ft$^2$ -h/Btu$^2$ /inch at 40°F and 75°F respectively (ASTM C 518).

4. Water Absorption: max. 0.1% by volume (ASTM C 272).

5. Water Vapor Permeance: 1.1 perm-inch max.

6. Dimensional Stability: 2%max. linear change (ASTM D 2126).

7. Flame Spread: 5 (ASTM E 84).

8. Smoke Developed: 45 to 165 (ASTM E 84).

9. Size: 23-7/8” manufacturer's standard lengths.

D. Glass Fiber Batt Insulation: Inorganic (non asbestos) fibers formed into semi-rigid batts; ASTM C665, Type III, Class B, reflective foil faced, with the following properties:

1. Water vapor permeance $\leq$ 0.05 perms per ASTM E 96.

2. Water vapor sorption, 0.5% max. by weight ASTM C1104, R-value 11.

3. Flame-Spread Rating/Smoke Developed: Provide rating of 25/50 respectively, ASTM E 84.

4. Fire-Resistance Ratings: Where units are included in rated wall/ceiling/floor construction, provide mineral wool units, which have been tested and rated as required for the indicated assembly.

2.02 AUXILIARY INSULATING MATERIALS

A. Polyethylene Vapor Retarder: Film of thickness shown on drawings with vapor transmission rating of 0.2 perms.

PART III - EXECUTION

3.01 INSTALLATION

A. Extend insulation full thickness over entire area to be insulated. Cut and fit tightly around obstructions.

B. Set vapor barrier faced insulation units with vapor barrier to warm side of construction, except as otherwise shown. Do not obstruct ventilation spaces, except for firestopping.

C. Rigid board insulation shall be installed only in concealed locations.

3.02 VAPOR RETARDERS

A. Extend vapor retarders to extremities of areas to be protected. Secure in place. Extend vapor barriers to cover miscellaneous voids in insulated substrates.

B. Repair punctures and tears in vapor retarders before concealment by other work.

END OF SECTION

SECTION 07 24 00 - EXTERIOR INSULATION & DIRECT APPLIED FINISH SYSTEMS

PART 1 - GENERAL

1.01 DESCRIPTION

A. The extent of E.I.F.S. and Direct Applied Finish Systems is shown on drawings.

1.02 QUALITY ASSURANCE

A. The system applicator shall have 5 years minimum experience in successfully installing EIFS and be trained by E.I.F.S. manufacturer in correct application of Class PB EIFS. Submit manufacturers “Applicators Training Certificate” with bid.

B. All materials shall be obtained from a single manufacturer.

C. All work shall be installed in strict conformance to the manufacturers latest published details and specifications.

D. Substrate deflection shall not exceed L/240.

E. Provide “Sto Essence-Ultra” “Hi-Impact System” at all EIFS applications placed less than 10’-0” above grade.

1.03 JOB CONDITIONS

A. Store all materials at temperatures above 40 degree F.

B. Ambient and wall temperature shall be 40 degree F minimum and remain so far minimum 24 hours after installation.

1.04 SUBMITTALS

A. Submit 1'x1' sample for each finish, color and texture.

1.05 GUARANTEE

A. Provide manufacturers five- (5) year (minimum) standard materials and labor warranty.

PART II - PRODUCTS

2.01 MATERIALS

A. Provide "Essence" class PB, EIFS system manufactured by Sto Corp.

B. Adhesive:
1. Cementitious Adhesives: Sto Primer/Adhesive B, one component polymer modified cement adhesive.

C. Insulation Board: Nominal 1.0-lb/ft$^3$ expanded polystyrene (EPS) insulation board in compliance with ASTM C-578 Type I and EIMA “Guideline Specification for Expanded Polystyrene (EPS) Insulation Board” produced by a company specifically approved by the EIFS manufacturer.

D. Base Coat:

1. Cementitious Base Coat: Sto Primer/Adhesive B, one component polymer modified, cement-based, factory blended. .

2. Waterproof Base Coat: Sto Flexyl (or Sto Watertight coat), two component fiber reinforced acrylic based waterproof base coat mixed with Portland cement; to be used on all horizontal surfaces such as sills, washes, etc.

E. Reinforcing Mesh:

1. Standard Mesh: Sto nominal 4.5 oz./yd$^2$ , symmetrical, interlaced open-weave glass fiber fabric made with alkaline resistant coating for compatibility with EIFS materials (achieves standard impact classification).

2. Ultra-High Impact Mesh: Sto Armor Mat, nominal 15 oz/yd$^2$ ultra-high impact, double strand, interwoven, open-weave glass fiber fabric with alkaline resistant coating for compatibility with EIFS materials. Required for all EIFS less than 10'- 0" above grade. At areas where Armor Mat is used, Sto Std. mesh shall be applied over Armor Mat to provide Ultra-High Impact System.

F. Finish Coat: Sto Essence DPR Finish, acrylic based textured wall coating with graded marble aggregate.

1. Texture: Medium Sand.

2. Integral Color: field color-#NA00-0035.

G. Integral Colors:

1. Field color: match Benjamin Moore Paint color #951 (Southern Prototype).

2. Accent color: match Benjamin Moore Paint color #AC-8 "Butte Rock" (Southern Prototype)

2.02 ALTERNATE MANUFACTURERS

A. Color and textures from alternate manufacturers must match those specified for "Sto "Essence".

B. Alternate Manufacturers: Dryvit "Outsulation system" type PB EIFS (Color; "Buckskin" #449). Parex "Standard System ". Senergy "Senerflex class PB EIFS". Alternate manufactures finishes shall match Sto "medium sand".

C. Backer Rods: Provide closed cell units.

D. Sealant: Provide ASTM C-1382, low modulus sealant to suit project conditions and manufacturers recommendations.

2.03 MISCELLANEOUS MATERIALS

A. Soffit Vents: Continuous stucco soffit vent. Provide gauge and ventilation area to suit conditions.

1. Acceptable manufacturers:
   a. Superior Products, SFT series, galvanized steel ventilation screed. Color: Paint to match adjoining EIFS.
   b. Alcoa, "Vent-a-Strip", model 70 or 79, color: white.
   c. Amico "Vinyl Soffit Screed Ventilator", insert style AMSVI-300 or sheathing style AMSV-300-50.
   d. Stockton Products "Soffitvent/reveal screed".

PART III - EXECUTION

3.01 INSTALLATION

A. Install in strict compliance with manufacturer requirements.

B. Backwrapping: Treat exposed edges of insulation board, including those forming substrates of sealed joints within system or between system and other work, by encapsulating with base coat, Reinforcing Fabric and Finish.

C. Protect all exterior sheathing from weather damage or deterioration during construction.

3.02 INSULATION BOARDS INSTALLATION

A. Stagger vertical joints in successive courses to produce running bond pattern.

B. Offset joints of insulation from joints in substrates.

C. Interlock ends at external corners.

D. Abut boards tightly at joints within and between each course to produce a flush, continuously even surface without gaps or raised edges between insulation boards. If gaps occur, fill with insulation cut to fit gaps exactly; insert without use of adhesive.

E. Rasp flush any irregularities in surfaces of insulation projecting more than 1/16" with care not to create hollows.

F. Provide proper joint through insulation where expansion joints occur in substrates. Provide closed cell backer rods at all expansion and control joints.

G. Coordinate installation with contiguous construction to produce a wall system, which does not allow water to penetrate behind exterior insulation and finish system during or after installation.

3.03 BASE/FINISH COAT

A. Use EIFS manufacturer’s waterproof basecoat on all horizontal surfaces including but not limited to sills, washes, wall projections, etc. EIFS wall caps or parapet caps are prohibited

B. Repair/replace any irregular, untrue, deformed or damaged areas.

C. Protect adjacent finishes from spills, splatters and damage from E.I.F.S.

D. Do not paint over any sealant joints.

3.04 ATTIC STOCK

A. Provide five gallons of finish coat material.

END OF SECTION

SECTION 07 46 00 - METAL SIDING, SOFFITS AND TRIM

PART I - GENERAL

1.01 DESCRIPTION

A. THE WORK INCLUDES:
B. METAL COUNTER FLASHING.
C. REGLETS
D. METAL WALL FLASHING, ROOF EDGE, AND COPING.
E. MISCELLANEOUS ROOF ACCESSORIES.

1.02 QUALITY ASSURANCE

A. All panels and accessories are to be factory formed, finished and packaged.

B. Applicator shall have five years minimum experience applying these types of panels.

C. COMPLY WITH RECOMMENDATIONS OF S.M.A.C.N.A. (LATEST EDITION).
D. UNFINISHED SHEET METAL IS NOT ACCEPTABLE FOR USE ON ANY ROOFING COMPONENT. ONLY NON-CORROSIVE, PRE-FINISHED OR ZINC COATED METALS, AS SPECIFIED BELOW, SHALL BE ALLOWED.
E. METAL ROOF EDGE SYSTEMS (INCLUDING COPINGS), SHALL COMPLY WITH ANSI/SPRI ES- 1 STANDARDS AND APPLICABLE CODES.
F. FABRICATE FOR WATERPROOF AND WEATHER-RESISTANT PERFORMANCE; WITH EXPANSION PROVISIONS FOR RUNNING WORK, SUFFICIENT TO PERMANENTLY PREVENT LEAKAGE, DAMAGE OR DETERIORATION OF THE WORK. FORM EXPOSED SHEET METAL WORK WITHOUT BUCKLING WITH EXPOSED EDGES FOLDED BACK TO FORM HEMS.
G. SEPARATIONS: PROVIDE FOR SEPARATION OF METAL FROM NON-COMPATIBLE METAL OR CORROSIVE SUBSTRATES, WITH BITUMINOUS COATING OR OTHER PERMANENT SEPARATION

1.03 FLASHING AND SHEET METAL MATERIALS

A. ZINC-COATED STEEL: COMMERCIAL QUALITY, ASTM A 525, G90 HOT-DIP GALVANIZED, (24 GAUGE) EXCEPT AS OTHERWISE INDICATED, PRE-FINISHED WITH KYNAR 500/HYLAR 5000 COATING. COLORS AS NOTED ON DRAWINGS.
B. COPINGS UP TO 18” GIRTH; USE 24 GAUGE
C. COPINGS OVER 18: GIRTH; USE 22 GAUGE.
D. ALL COUNTERFLASHINGS SHALL BE 24 GAUGE.

1.04. MISCELLANEOUS FLASHING AND SHEET METAL ACCESSORIES

A. SOLDER: FOR USE WITH STEEL OR COPPER, PROVIDE 50 - 50 TIN/LEAD SOLDER (ASTM B 32), WITH ROSIN FLUX.
B. FASTENERS: SAME METAL AS FLASHING/SHEET METAL. MATCH FINISH OF EXPOSED HEADS WITH MATERIAL BEING FASTENED.
C. MASTIC SEALANT: POLYISOBUTYLENE; NON-HARDENING, NON-SKINNING, NON-DRYING, NON-MIGRATING SEALANT.
D. ADHESIVES: TYPE RECOMMENDED BY FLASHING SHEET MANUFACTURER FOR WATERPROOF/WEATHER-RESISTANT SEAMING AND ADHESIVE APPLICATION OF FLASHING SHEET
E. REGLETS: METAL OR PLASTIC UNITS, COMPATIBLE WITH FLASHING INDICATED, NON-CORROSIVE
F. METAL ACCESSORIES: PROVIDE SHEET METAL CLIPS, STRAPS, ANCHORING DEVICES AND ALL ACCESSORY UNITS AS REQUIRED FOR INSTALLATION OF

WORK, MATCHING OR COMPATIBLE WITH MATERIAL BEING INSTALLED, NONCORROSIVE.

1.03 WARRANTY

A. Provide manufacturers standard twenty year finish warranty.

B. Installer shall issue a two year weather tight and workmanship guaranty.

1.04 SUBMITTALS

A. Submit complete shop drawings, details, product data and material sample to Architect of Record.

PART II - PRODUCTS

PART III - EXECUTION

3.01 INSTALLATION – Soffits

A. System shall be installed level and true to line.

B. Panel system shall not come in contact with dissimilar materials, which will cause harmful reactions between the metals and/or finish.

C. Panels shall be fully interlocked with its adjacent panel.

D. Install system to prevent bending, buckling, twisting, abrasion, scratching, denting, etc. Only minor scratches may be touched-up in field.

3.02 INSTALLATION - Siding

A. Separate dissimilar metals with coat of bituminous paint, concealed on one or both sides.

B. Anchor components securely in place. Use fasteners recommended by panel manufacturer. Accommodate thermal and structural movement. Use gasketed fasteners to prevent electrolytic action between metals.

C. Tolerances: Erect work level and plumb with variance not exceeding 1/4 inch in 20 ft in any direction.

D. Align vertical joints where Drive-Thru gable end panels adjoin fascia band immediately below.

3.03 PERFORMANCE

A. Load Capacity: Normal uniform loading of 20 psf inward and outward without failure or as required by local authorities/conditions.

B. Deflection: Maximum of 1/180 for simple span, loaded as indicated or as required by local authorities/conditions.

C. Water Penetration: No uncontrolled leakage under spray test and 4 psf air pressure differential.

3.04 CLEANING

A. Completed system shall be clean and free from grease, stains and finger marks.

3.05 PROTECTION

A. Protect work to be free from damage at time of Walgreens acceptance and completion of entire project.

END OF SECTION

SECTION 07 90 00 - JOINT PROTECTION

PART 1 - GENERAL

1.01 QUALITY ASSURANCE

A. Applicator Qualifications: Applicator shall have a minimum of 5 years experience successfully installing sealants.

B. Compatibility; Applicator shall be responsible for verifying that sealants used are compatible with joint substrates.

C. Guarantee; Sealant joints shall be guaranteed against adhesives and cohesive failure and water penetration through the sealed joint for 5 years.

D. Apply sealants in strict compliance with manufacturer instructions.

PART II -PRODUCTS

2.01 SEALANTS

A. Extreme Movement Sealants (+100% or -50% movement capability)
1. Vertical/horizontal joint, such as expansion joints; use reference #S-6.

B. Significant Movement Sealants (+25% or -25% movement capability)
1. Vertical or inclined joints such as panel, coping, expansion, and sloped pavement; use reference #S-1, 3 or 6.

2. Horizontal joints not exposed to fuel or gas spillage; use reference #S-1, 2, 3, 4, 6 or 7.

C. Minimal Movement Sealants (+25% or -25% movement capability)
1. Vertical or inclined joints such as perimeters of doors, windows, wall penetrations; use reference # S-1, 3, 4, or 6.

2. Horizontal joints not exposed to fuel or gas spillage; use reference # S-2, or 5.

D. Interior Sealants and Caulking
1. General; use reference # C-1.

2. Special
a. Toilet rooms; use reference #S-8.

2.02 REFERENCE NUMBERS

| REF # | ASTM SPEC | FED. SPEC | PRODUCT DESCRIPTION |
|---|---|---|---|
| S = Sealant | | | |
| S-1 | C-920-05<br>Type M<br>Class 25<br>Grade NS | | -Two component, non-sag,<br>Polyurethane or<br>Polysulfide sealant<br>-Shore A hardness of 20-40<br>-Joint movement range of +/-25% |

| | | | |
|---|---|---|---|
| S-2 | C-920-05<br>Type M<br>Class 25<br>Grade P | | -Two component, self leveling, polyurethane or polysulfide sealant<br>-Shore A hardness of 25-40<br>-Joint movement range of +/-25% |
| S-3 | C-920-05<br>Type S<br>Grade 25<br>Grade NS | | -Low modulus, one component, non-sag, polyurethane or polysulfide sealant<br>-Shore A hardness of 15-25<br>-Joint movement range of +/-50%<br>-Minimum elongation of 700% |
| S-4 | C-920-05<br>Type S<br>Class 25<br>Grade NS | | -One component, non-sag, polyurethane or polysulfide sealant<br>-Shore A hardness of 25-40<br>Joint movement range of +/-25% |
| S-5 | C-920-05<br>Type S<br>Class 25<br>Grade P | | -One component, self leveling, polyurethane or polysulfide sealant<br>-Shore A hardness of 15-45<br>-Joint movement range of +/-25% |
| S-6 | C-920-05<br>Type S<br>Class 25<br>Grade NS | TT-S-001543(a)<br>and/or<br>TT-S-00230<br>Class A | -Low modulus, one component, non-sag, neutral cure, silicone sealant<br>-Shore A hardness of 15-20<br>-Joint movement range of +100% to -50%<br>-Joint size may be as little as two times joint movement<br>-Minimum elongation of 1200% |
| S-7 | C-920-05<br>Type S<br>Class 25<br>Grade NS | TT-S-001543 (a)<br>and/or<br>TT-S-00230<br>Class A | -One component, neutral cure, non-sag, silicone sealant<br>-Shore A hardness of 25-30<br>-Joint movement range of +/-25% |
| S-8 | C-920-05<br>Type S<br>Class 25<br>Grade NS | TT-S-001543 (a)<br>and/or<br>TT-S-00230<br>Class A | -One component, non-sag, mildew resistant silicone sealant<br>-Shore A hardness of 25-30 |

C = Caulking

| | | | |
|---|---|---|---|
| C-1 | C-834-05 | N/A | -One component acrylic latex caulking minimum 75% recovery per ASTM C-736-00<br>-Maximum joint movement of +/-7.5% |

2.03 PRIMER

A. Provide type recommended by sealant manufacturer for project conditions.

2.04 BACKER ROD

A. Open or closed cell (non-gassing) polyethylene or polyurethane as recommended by sealant manufacturer.
   1. Closed cell or closed skin open cell backer rods shall be used within EIFS joints.

PART III - EXECUTION

3.01 INSTALLATION

A. Clean joints to eliminate all detrimental substances.

B. Install joint filler and backing without gaps between ends.

C. Prevent 3-sided bonding within the joint. Use bond breaker tape as recommended by sealant manufacturer if needed.

D. Sealant depth shall be ½ of joint width with a minimum depth of ¼" and a maximum of ½" unless otherwise required by the sealant manufacturer.

E. Do not install sealant on damp, dirty or oily surfaces. Do not install sealant when temperatures are below 40°F unless specifically allowed by manufacturer's instructions.

F. Color: Sealant color shall match the color of the materials at each side of the joint. If materials change along the length of a continuous joint, the color shall change to match the surrounding materials. Sealant in horizontal joints in masonry shall match the color of the surrounding mortar. When materials differ on each side of the joint, install as follows. For combinations not listed below, consult Walgreens Project Architect.
   1. Masonry and Storefront Systems; match storefront.

   2. Masonry and Hollow Metal; match hollow metal final finish.

   3. Masonry and Prefinished Metal; match prefinished metal.

   4. Horizontal Concrete and Masonry; match concrete.

   5. EIFS/Plaster and Masonry; match EIFS/Plaster.

3.02 CLEANING AND PROTECTION

A. Clean off excess sealants or smears adjacent to joints without damaging adjacent surface or finishes.

B. Protect sealants from damage and contaminants until fully cured. Damaged or contaminated sealants shall be cut out and replaced.

END OF SECTION

SECTION 08 11 00 - METAL DOORS AND FRAMES

PART 1 - GENERAL

1.01 QUALITY ASSURANCE

A. Provide doors and frames complying with ANSI A250.8, SDI 100 "Recommended Specifications Standard Steel Doors and Frames".

B. Regulatory Requirements: Conform to applicable local building codes for fire rated requirements of all door and frame assemblies.

1. Provide assemblies complying with NFPA 252, “Fire Tests of Door Assemblies”, UL 10B, “Fire Tests of Door Assemblies”, and UL 10C “Positive Pressure Fire Tests of Door Assemblies”.

1.02 DELIVERY, STORAGE AND HANDLING

A. Handle, store and protect products in accordance with the manufacturers printed instructions.

B. Do not store under non-vented plastic or canvas shelters.

C. Remove wrappers immediately if they become wet.

PART II - PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

A. Subject to compliance with requirements, provide steel doors and frames by one of the following:

- Amweld/Div. American Welding & Mfg. Co.
- Ceco Corp.
- Curries
- Fleming Steel Doors and Frames, an Assa Abloy Group Company
- Steelcraft/Div. American Standard Co.

2.02 MATERIALS

A. Hot-Rolled Steel Sheets and Strip: Commercial quality carbon steel, pickled and oiled, complying with ASTM A 1011.

B. Cold-Rolled Steel Sheets: Commercial quality carbon steel, complying with ASTM A 1008.

C. Galvanized Steel Sheets: Zinc-coated carbon steel sheets, complying with ASTM A-653, G60 zinc coating, mill phosphatized.

D. Supports and Anchors: Fabricate of not less than 18-gage galvanized sheet steel.

E. Inserts, Bolts, and Fasteners: Manufacturer's standard units, except hot-dip galvanize items to be built into exterior walls, complying with ASTM A 153, Class C or D as applicable.

2.03 SHOP APPLIED PAINT

A. Primer: Rust-inhibitive enamel or paint, either air-drying or baking, suitable as a base for specified finish paints.

2.04 FABRICATION

A. Comply with SDI-100 requirements as follows:

1. Interior Doors: SDI-100, Grade II, heavy-duty, Model 1, minimum 18-gage faces, 1 ¾" thick.

2. Exterior Doors: SDI-100, Grade III, extra heavy-duty Model 2, minimum 16-gage faces, 1 ¾" thick.

B. Fabricate exposed faces of doors from only cold-rolled steel.

C. Fabricate frames with 12-gage concealed stiffeners, reinforcement, edge channels, louvers, and moldings from either cold-rolled or hot-rolled steel (at fabricator's option).

D. Fabricate exterior doors, panels, and frames from galvanized sheet steel. Close top and bottom edges of exterior doors as integral part of door construction or by addition of minimum 16-gage inverted steel channels.

E. Exposed Fasteners: Unless otherwise indicated, provide countersunk flat Phillips heads for exposed screws and bolts.

F. At exterior locations provide thermal insulating door and frame assemblies, tested in accordance with ASTM A-1363.

G. Provide assemblies with U factor of 0.41 BTU/Hr. Ft. squared/deg. F or better.

H. Finish Hardware Preparation: Doors and frames to receive mortised and concealed finish hardware. Comply with applicable requirements of ANSI A115 series specifications.

2.05 STANDARD STEEL FRAMES

A. Provide metal frames for doors, of types and styles as shown on drawings. Conceal fastenings, unless otherwise indicated.

B. Exterior Frames:

1. Exterior doorframes shall be minimum 16-gage cold-rolled furniture steel.

2. Fabricate frames with mitered corners continuously welded full depth and face of frames.

3. Factory weld all frames, except where knock down or slip-on frames used in remodels.

4. Field welding is prohibited.

C. Interior Frames:

1. Interior doorframes shall be minimum 18-gage cold-rolled furniture steel.

2. Fabricate frames with mitered corners, K-D (knock down) type.

D. Form exterior frames of hot-dip galvanized steel.

E. Door Silencers: Except on weather-stripped frames, drill stops to receive 3 silencers on strike jambs.

PART III - EXECUTION

3.01 EXAMINATION

A. Verify that substrate conditions are acceptable for installation of doors and frames in accordance with manufacturer's installation instructions, including installation tolerances and other conditions affecting performance of standard steel doors and frames.

3.02 INSTALLATION

A. Install in accordance with the manufacturer's instructions

B. Install frames in accordance with SDI-105 "Recommended Erection Instructions For Steel Frames".

C. Install doors in accordance with SDI-100.

D. Frames: In masonry construction, locate 3 wall anchors per jamb at hinge and strike levels.

E. At in-place concrete or masonry construction, set frames and secure to adjacent construction with machine screws and masonry anchorage devices.

F. Install fire-rated doors and frames in accordance with NFPA Std. No. 80 and local code authority requirements.

G. All frames other than slip-on types shall be fastened to the adjacent structure to retain their position and stability.

1. In metal stud partitions, install at least 3 wall anchors per jamb at hinge and strike levels. In open steel stud partitions, place studs in wall anchor notches and wire tie. In closed steel stud partitions, attach wall anchors to studs with tapping screws.

2. Drywall slip-on frames shall be installed in prepared wall openings, and shall use pressure type and sill anchors to maintain stability.

F. K-D (knock down) and Slip-On Frames to be installed in accordance with manufacturer's written instructions.

G. Final adjustments: Check and readjust operating finish hardware items, leaving steel doors and frames undamaged and in complete and proper operating condition.

3.03 ADJUSTING AND CLEANING

A. Adjust hardware and door movement for smooth, quiet and balanced door movement.

END OF SECTION

SECTION 08 14 00 - WOOD DOORS

PART 1 - GENERAL

1.01 DESCRIPTION

A. Types:

1. Solid core flush wood doors with veneer faces.

2. Solid core flush wood doors with high pressure decorative laminate faces.

B. Shop priming of wood doors is included.

C. Louvers for wood doors (furnished and installed) are included.

1.02 QUALITY ASSURANCE

A. WDMA I.S. 1A, 2011 – Window and Door Manufacturers Association.

B. Product Performance: Provide documents showing compliance to the following WDMA attributes, validating the specified WDMA Performance Duty Level:

1. Adhesive Bonding Durability: WDMA TM-6

2. Cycle Slam: WDMA TM-7

3. Hinge Loading: WDMA TM-8

4. Screw Holding: WDMA TM-10

a. Door Face

b. Vertical Door Edge

c. Horizontal Door Edge (applies when hardware is attached)

C. Fire-Rated Wood Doors: Provide wood doors which match units tested in door and frame assemblies per ASTM E 2074 and UL 10C and which are labeled and listed for ratings indicated by UL, other testing and inspection agency acceptable to authorities having jurisdiction.

D. Manufacturer: Obtain doors from a single manufacturer unless noted otherwise.

E. Door Manufacturer's Warranty: Submit door manufacturer's standard, signed by Manufacturer, Installer and Contractor, agreeing to repair or replace defective doors.

1. Solid Core Flush Interior Doors: Life of installation.

PART II - PRODUCTS

2.01 MANUFACTURERS

A. Subject to compliance with requirements, provide products of one of the following:

1. Algoma Hardwoods, Inc.

2. Eggers Industries

3. Graham® Wood Doors

4. Oshkosh Architectural Door Company

5. Marshfield DoorSystems, Inc. (formerly Weyerhauser Company)

6. Mohawk Flush Doors, Inc.

2.02 INTERIOR FLUSH WOOD DOORS

A. Grade: WDMA I.S. 1-A Performance Grade Extra Heavy Duty.

B. Core types to be selected:

1. Stave Lumber Core (SLC) Doors:

a. Provide low density wood blocks, kiln dried, not more than 2 ½ inches wide, random lengths, joints well staggered.

2. Wood-Base Particleboard Core (PC) Doors:

a. Provide PC with a minimum density per ANSI A208.1. Grade LD-2 as required to meet WDMA performance duty level specified without added blocking.

3. Structural-Composite-Lumber-Core (SCLC) Doors:

a. Provide SCLC as required to meet WDMA Performance Level specified.

b. Provide SCLC for all doors with exception of 45-90 minute fire rated and sound rated doors.

C. Door Faces:

1. Door with Opaque Finish, all interior doors:

a. Faces: Any closed-grain standard thickness hardwood of mill option or medium density overlay (MDO).

b. Grade: Custom. Apply MDO directly to high-density fiberboard crossbands.

c. Construction: Five plies. Stiles and rails are bonded to core, and then entire unit is abrasive planed before veneering.

b. Grade: Custom

c. Construction: Stiles and rails are bonded to core then entire unit is abrasive planed before faces are applied, finally, edge bands after faces.

D. Door thickness 1 ¾ inches.

E. Fire-Rated Solid Core Doors. Comply with the following requirements:

1. Faces and WDMA Grade: Match non-rated doors in same area of building, unless otherwise indicated.

2. Construction: Manufacturer's standard core construction as required to provide fire-resistance rating indicated.

2.03 LOUVERS AND LIGHT FRAMES:

A. Louvers: Door manufacturer's standard metal louvers, of size indicated, formed of 18 gage cold-rolled steel, factory primed for finish painting.

B. Frames for Light Openings in Fire-rated Doors: Manufacturer’s standard frame formed of 18-gage cold-rolled steel, factory-primed for paint, and approved for use in door of fire rating indicated.

2.04 FABRICATION

A. Openings: Cut and trim openings through doors and panels as shown. Comply with applicable requirements of referenced standards for kind(s) of doors required.

1. Light Openings:

a. Factory cut openings. Provide 18-gage cold rolled metal frames. Primed for painted doors.

b. At all pharmacy doors, the removable stops shall be placed on the pharmacy side of door. Non-removable stops shall be placed at opposite side of pharmacy door. Finish of metal frames is comparable to satin chrome US26D.

c. Fire rated doors with light openings shall have UL listed wire glass.

1. Factory install glass as required.

2. Louvers: Factory install louvers in prepared openings.

2.05 SHOP-PRIMING:

A. Door for Opaque finish: Before delivery of doors shop-prime all six faces as follows:

1. Paint Finish: Prime with one coat of wood primer; interior enamel under coat (FS-TT-E-543).

2. Moore's alkyd enamel under body.

2.06 PREFITTING AND PREPARATION FOR HARDWARE (Contractor’s option)

A. Prefit and pre machine wood doors at factory.

PART III -EXECUTION

3.01 INSTALLATION

A. Condition doors to average prevailing humidity in installation area prior to hanging. Seal cut surface after fitting and machining.

B. Fitting Clearances: For non-rated doors provide clearances of 1/8" at jambs and heads; and 1/8" from bottom of door to top of decorative floor finish or covering. Where threshold is shown or scheduled, provide 1/4" clearance from bottom of door to top of threshold.

For fire-rated doors, provide clearances complying with NFPA 80.

Bevel non-rated doors 1/8" in 2" at lock and hinge edges.

Bevel fire-rated doors 1/8" in 2" in lock edge; trim stile rails only to extent permitted by labeling agency.

3.02 OPERATION

A. Rehang or replace doors, which do not swing or operate freely, as directed by Architect.

END OF SECTION

SECTION 08 41 00 - STOREFRONTS

PART 1 – GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.
B. Automatic entrances, swing doors, and revolving door coordination and connection to storefront system.

1.02 DESCRIPTION

A. Aluminum storefronts include the following:

1. Storefront framing systems

2. Interior storefront systems

3. Storefront doors and automatic swing door openers

B. Electrical connections are specified in Division 26

C. Stores with Revolving doors (section 08 34 00): Furnish and install a swing door with a low energy electric operator and pushbutton switch located as shown on drawings.

1.03 REFERENCES

A. General: Standards listed by reference, including revisions by issuing authority, form a part of this specification section to extent indicated. Standards listed are identified by issuing authority, authority abbreviation, designation number, title or other designation established by issuing authority. Standards subsequently referenced herein are referred to by issuing authority abbreviation and standard designation.

D. Underwriters Laboratories (UL):
1. UL 325 – Standard for Door, Drapery, Gate, Louver, and Window Operators and Systems.

E. American National Standards Institute (ANSI) / Builders' Hardware Manufacturers Association (BHMA):
1. ANSI/BHMA A156.10: Standard for Power Operated Pedestrian Doors.
2. ANSI/BHMA A156.5: Standard for Auxiliary Locks and Associated Products
3. ANSI A117.1: Guidelines for Accessible and Useable Buildings and Facilities

F. American Society for Testing and Materials (ASTM):
1. ASTM B221 – Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods , Wire, Profiles, and Tubes
2. ASTM B209 – Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate.

G. American Association of Automatic Door Manufacturers (AAADM):
1. AAADM Inspector Certification Program

H. National Fire Protection Association (NFPA):
1. NFPA 101 - Life Safety Code
2. NFPA 70 - National Electric Code

I. International Code Council (ICC):
   1. IBC: International Building Code

H Building Officials and Code Administrators International (BOCA), 1999

I International Organization for Standardization (ISO):
   1. ISO 9001 - Quality Management Systems

J. National Association of Architectural Metal Manufacturers (NAAMM):
   1. Metal Finishes Manual for Architectural and Metal Products.

K American Architectural Manufacturers Association (AAMA):
   1. AAMA 607.1 - Clear Anodic Finishes for Architectural Aluminum.
   2. AAMA 611 Voluntary Specification for Anodized Architectural Aluminum.
   3. AAMA 701 Voluntary Specification for Pile Weatherstripping and Replaceable Fenestration Weatherseals.

L. Americans with Disabilities Act of 1990 (ADA): Accessibility Guidelines for Buildings and Facilities

1.04 PERFORMANCE REQUIREMENTS

A. General: Provide storefront assemblies that have been designed and fabricated to comply with performance characteristics listed below.

   1. Wind loading: System shall withstand uniform pressure of 30 PSF (1440 Pa) with maximum deflection of 1/175 of span and allowable stress with a safety factor of 1.65.

   2. Air infiltration: Tested in accordance with ASTM E-283-04 shall not exceed .06 CFM/SQ. FT. of fixed area.

   3. Water infiltration: Tested in accordance with ASTM E-331-00 shall allow no penetration at 8 PSF pressure.

   4. Thermal: All framing members shall incorporate a thermal barrier eliminating direct contact between exterior and interior aluminum sections.

   5. Entrance Operator: Provide operators which will open and close doors and maintain them in fully closed position when subject to the 30 MPH wind velocity or equivalent inward differential pressures.

B. Hurricane Resistant Systems: Provide when required by local codes/ordinances and in the states of Texas, Louisiana, Mississippi, Alabama, Florida, Georgia, South Carolina and North Carolina for all store locations ten (10) miles or less from all salt water coastlines, bays, tributaries, etc. Such systems shall have reinforced frames, connectors, impact resistant glass and other features as required to comply with the local hurricane wind design requirements.

1.05 QUALITY ASSURANCE

A. Source Limitations:
   1. Each type of system is based on one manufacturers system respectively.

a. Acceptable alternate manufacturers are listed but must conform in every way to the base system.

2. Any deviation from Walgreens required finishes, colors, etc. must be approved by Walgreens and fully coordinated with all similar and related systems.

B. Installer Qualification:

1. Storefront : An installer which has had successful experience with installation of the same or similar units required for the project and other projects of similar size and scope.
2. Automatic Door: Installer must be installed by an AAADM Certified installer with 5 years experience in the installation of the specified product.

C. All storefront installations, including glazing, shall be NFRC Certified as required by local codes/ordinances.

D. Storefront swing doors shall be UL listed and comply with all codes, safety requirements, and A.D.A. requirements.

E. Manufacturer Qualifications: Automatic door Operator shall be manufactured by an AAADM registered manufacturer.

F. Automatic low energy swing door operators (when used) shall comply with the following standards:

1. ANSI/BHMA A159.19: American National Standard for Power Assist and Low Energy Power Operated Doors.
2. UL Standard 325
3. UL Standard 228

1.06 SUBMITTALS

A. Submit shop drawings

1.07 PROJECT CONDITIONS

A. Field Measurements: General Contractor shall verify openings to receive storefront assemblies by field measurements before fabrication and indicate measurements on Shop Drawings.

B. Mounting Surfaces: General Contractor shall verify all surfaces to be plumb, straight and secure; substrates to be of proper dimension and material.

C. Other trades: General Contractor shall advise of any inadequate conditions or equipment.

1.08 Warranty

A. Manufacturer’s Warranty: Submit, for Owner’s acceptance, manufacturer’s standard warranty.

1. Storefront: Warranty Period: Two (2) years from Date of Substantial Completion of the project provided however that the Limited Warranty shall begin in no event later than six months from date of shipment by manufacturer.

2. Automatic swing doors: All automatic door components are warranted to be free of defects in materials or workmanship under normal use for a period of one year from the date of substantial completion.

PART II - PRODUCTS

2.01 ACCEPTABLE STOREFRONT MANUFACTURER

A. Storefront Systems (base system): Kawneer Company #Trifab VG 451-T-CG, thermally broken, center glazed, flush glazed system 2" x 4-1/2" profile with shear block, to receive 1" insulating glass.

Color: Clear Anodized, AA-M12C22 A41, Class I Anodic coating.

B. Alternate Storefront Manufacturers:

1. Arcadia Incorporated Series AG451T, thermally broken.

2. Vistawall Architectural Products/Oldcastle BuildingEnvelope™, Series 3000, Thermal Flush Glaze

3. Trulite Glass and Aluminum Solutions, #IGS 450, thermal broken, center glazed.

C. Glass tower (where applicable) and interior vestibule partition (where applicable) shall receive ¼" thick glass set in 1 ¾" x 4 ½" profile, center glazed, flush glazed system, shear block construction.

1. Kawneer Trifab II 450.

2. Arcadia Incorporated Series A450.

3. Vistawall Architectural Products/Oldcastle BuildingEnvelope™, Series 2000.

4. Trulite Glass and Aluminum Solutions, Series FG 450 EZ

Color: Clear anodized AA-M12C22 A41 Class 1 Anodic coating.

2.02 ACCEPTABLE LOW ENERGY SWING DOOR AND OPERATOR MANUFACTURERS

A. Manufacturers:
1. Record USA Inc.
2. DORMA
3. LCN
4. Stanley

B. The door operator is to provide a dual purpose: Easy access for persons requiring assistance *and* normal entrance access for regular traffic. System components include:

1. Operator: Electromechanical, completely self-contained, powered by 120 VAC, 15 Amp circuit.

2. Motor: DC permanent magnet, variable speed, and reversible.

3. Control: Actuating relay, solid state circuitry, time-delay and speed adjustments.

4. Closing and opening: Adjustable opening and closing speed; opening and closing not to exceed 15 pounds measured 1" from lock stile. Closing shall be by spring force generated by a high quality compression spring(s). Time delay before closing shall be 2-30 seconds, variable. Operator is to have a safety feature that will allow unit to recycle at any closing point. Temporary power shut-off shall occur in the event that an obstruction is sensed during the open cycle. Manual operation (with speed adjustment) shall be with power on or off and without damaging the operator or components.

5. Actuating device: Opening cycle shall be activated by press wall switches with the international symbol of accessibility and "PRESS TO OPERATE DOOR" engraved on the faceplate.

    a. Provide Stanley Magic-Force Low Energy Swing door Operator (or Walgreens approved Equal)
    b. Provide Horton model number C521-2 or C1260-4, (or Walgreens approved equal).

PART III - EXECUTION

3.01 PREPARATION

A. Field Measurement: Take field measurements prior to preparation of shop drawings and fabrication, to ensure proper fitting of work.

1. Contractor shall provide rough opening to receive Walgreens standard size automatic entrance doors. See drawings for other sizes that apply to stores with liquor departments or vestibules. Walgreens Project Architect must approve non-standard sizes in writing.

3.02 INSTALLATION

A. Comply with manufacturer's specifications and recommendations.

B. Set units plumb, level and true to line, without warp or rack of frames or doors. Anchor securely in place. Separate aluminum and other corrodible metal surfaces from sources of corrosion or electrolytic action at points of contact with other materials.

C. Set sill members in a bed of sealant or with joint fillers or gaskets to provide weathertight construction.

D. Install complete door operator system in accordance with manufacturer's instructions, including piping (if any), controls, control wiring, and remote power units (if any).

E. Glass and Glazing: See Section 08 80 00.

F. Guide rails to be set in cored holes and grouted in place.

3.03 ADJUST AND CLEAN

A. Adjust operating devices and hardware to function properly, without binding, and to provide tight fit at contact points and weather-stripping.

B. Clean aluminum surfaces promptly after installation. Remove excess glazing and sealant compounds, dirt and other substances.

END OF SECTION

SECTION 08 42 29 - SLIDING AUTOMATIC ENTRANCES

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.02 SUMMARY

A. This Section includes the following types of automatic entrances:

1. Exterior and interior, sliding automatic entrance system, including single slide entrances, fixed center lites, interior storefront system and integral transoms.

B. Related Sections:

1. Division 7 Sections for caulking to the extent not specified in this section.
2. Division 8 Section “Storefronts” furnished separately in Division 8.
3. Division 8 Section “Door Hardware” for hardware to the extent not specified in this Section.
4. Division 8 Section “Glazing” for materials and installation requirements of glazing for automatic entrance doors.
5. Division 26 and 28 Sections for electrical connections including conduit and wiring for automatic entrance door operators and access control devices.

C. Stores with revolving doors (section 08 34 00): Furnish and install a swing door (Section 08 41 00) with a low energy electric operator and pushbutton switch located as shown on drawings.

1.03 REFERENCES

A. General: Standards listed by reference, including revisions by issuing authority, form a part of this specification section to extent indicated. Standards listed are identified by issuing authority, authority abbreviation, designation number, title or other designation established by issuing authority. Standards subsequently referenced herein are referred to by issuing authority abbreviation and standard designation.

B. Underwriters Laboratories (UL):

1. UL 325 – Standard for Door, Drapery, Gate, Louver, and Window Operators and Systems.

C. American National Standards Institute (ANSI) / Builders’ Hardware Manufacturers Association (BHMA):

1. ANSI/BHMA A156.10: Standard for Power Operated Pedestrian Doors.
2. ANSI/BHMA A156.5: Standard for Auxiliary Locks and Associated Products
3. ANSI A117.1: Guidelines for Accessible and Useable Buildings and Facilities

D. American Society for Testing and Materials (ASTM):

1. ASTM B221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.
2. ASTM B209 - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate

E. American Association of Automatic Door Manufacturers (AAADM):
1. AAADM Inspector Certification Program

F. National Fire Protection Association (NFPA):

1. NFPA 70 – National Electric Code.
2. NFPA 101 – Life Safety Code.

G. International Code Council (ICC):

1. IBC: International Building Code

H. Building Officials and Code Administrators International (BOCA), 1999:

I. International Organization for Standardization (ISO):

1. ISO 9001 - Quality Management Systems

J. National Association of Architectural Metal Manufacturers (NAAMM):

1. Metal Finishes Manual for Architectural and Metal Products.

K. American Architectural Manufacturers Association (AAMA):

1. AAMA 607.1 - Clear Anodic Finishes for Architectural Aluminum.
2. AAMA 611 Voluntary Specification for Anodized Architectural Aluminum.
3. AAMA 701 Voluntary Specification for Pile Weather stripping and Replaceable Fenestration Weather seals.

L. Americans with Disabilities Act of 1990 (ADA): Accessibility Guidelines for Buildings and Facilities

## 1.04 DEFINITIONS

A. Activation Device: Device that, when actuated, sends an electrical signal to the door operator to open the door.

B. Safety Device: Device that prevents a door from opening or closing, as appropriate.

C. For automatic door terminology, refer to BHMA A156.10 for definitions of terms.

## 1.05 PERFORMANCE REQUIREMENTS

A. General: Provide automatic entrance door assemblies capable of withstanding loads and thermal movements based on testing manufacturer's standard units in assemblies similar to those indicated for this Project.

1. Thermal Movements: Provide automatic entrances that allow for thermal movements resulting from the following maximum change (range) in ambient

and surface temperatures by preventing buckling, opening of joints, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects. Base engineering calculation on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.

a. Temperature Change (Range): 120 deg F (67 deg C), ambient; 180 deg F (100 deg C), material surfaces.

2. Operating Range: Minus 30 deg F (Minus 34 deg C) to 130 deg F (54 deg C).

3. Opening-Force Requirements for Egress Doors: Force shall be adjustable; but, not more than 50 lbf (222 N) required to manually set swinging egress door panel(s) in motion.

4. Closing-Force Requirements: Not more than 30 lbf (133 N) required to prevent door from closing.

5. Wind loading: System shall withstand uniform pressure of 30 PSF (1440 Pa) with maximum deflection of 1/175 of span and allowable stress with a safety factor of 1.65.

6. Entrance Operator: Provide operators which will open and close doors and maintain them in fully closed position when subjected to the 30 MPH wind velocity or equivalent inward differential pressures.

7. Air infiltration: Tested in accordance with ASTM E-283-04 shall not exceed .06 CFM/SQ. FT. of fixed area.

8. Water infiltration: Tested in accordance with ASTM E-331-00 shall allow no penetration at 8 PSF pressure.

9. Thermal: All framing members shall incorporate a thermal barrier eliminating direct contact between exterior and interior aluminum sections.

B. Hurricane Resistant Systems: Provide when required by local codes/ordinances and in the states of Texas, Louisiana, Mississippi, Alabama, Florida, Georgia, South Carolina and North Carolina for all store locations ten (10) miles or less from all salt water coastlines, bays, tributaries, etc. Such systems shall have reinforced frames, connectors, impact resistant glass and other features as required to comply with the local hurricane wind design requirements.

1.06 QUALITY ASSURANCE

A. Manufacturer Qualifications: A qualified manufacturer with a company certificate issued by AAADM indicating that manufacturer has a certified inspector on staff.

1. Manufacturer shall have in place a national service dispatch center providing 24 hours a day, 7 days a week, emergency call back service.

B. Installer Qualifications: Manufacturer's authorized representative, who is trained and approved for installation and maintenance of units required for this Project.

1. Installers shall be certified and recognized by and in accordance with the AAADM Inspector Certification Program, and trained for installation and maintenance of units required for this Project.

2. Maintenance Proximity: Not more than two (2) hours normal travel time from installers place of business to Project site.

C. Source Limitations: Obtain complete automatic entrance door assemblies from a single manufacturer.

1. Each type of system is based on one manufacturers system respectively.
   a. Acceptable alternate manufacturers may be listed but must conform in every way to the Basis of Design.
2. Any deviation from Walgreens required finishes, colors, etc. must be approved by Walgreens and fully coordinated with all similar and related systems.

D. Certifications: Automatic sliding door systems shall be certified by the manufacturer to meet performance design criteria in accordance with the following standards:

1. ANSI/BHMA A156.10.
2. NFPA 101.
3. UL 325 listed.
4. IBC 2015 or 2018
5. BOCA

E. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

F. Emergency-Exit Door Requirements: Comply with requirements of authorities having jurisdiction for automatic entrances serving as a required means of egress.

G. Powered Door Operators shall comply with:

1. UL 325
2. ANSI/ BHMA A156.10, “Powered Pedestrian Doors”

H. Automatic entrances shall be UL listed as an exitway and comply with A.D.A. requirements.

I. All storefront installations, including glazing, shall be NFRC Certified as required by local codes/ordinances.

1.07 PROJECT CONDITIONS

A. Field Measurements: General Contractor shall verify openings to receive automatic entrance door assemblies by field measurements before fabrication and indicate measurements on Shop Drawings.

B. Mounting Surfaces: General Contractor shall verify all surfaces to be plumb, straight and secure; substrates to be of proper dimension and material.

C. Other trades: General Contractor shall advise of any inadequate conditions or equipment.

1.08 DELIVERY, STORAGE AND HANDLING

A. Product Delivery: Automatic Entrance Door manufacturer shall deliver products to site and install products.

B. Product Packaging: Automatic Entrance Doors shall be delivered in manufacturer's standard packaging, with identification markings on each component or package.

1.09 COORDINATION

A. Templates: Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing automatic entrances to comply with indicated requirements.

B. Electrical System Roughing-in: Coordinate layout and installation of automatic entrance door assemblies with connections to power supplies.

1.10 WARRANTY

A. Submit written warranty, executed by the manufacturer, agreeing to repair automatic entrance assemblies that fail in either material or workmanship within the specified warranty period. Failures include, but are not limited to, the following:

1. Structural failures including, but not limited to, excessive deflection.
2. Faulty operation of operators, controls, and hardware.
3. Excessive air leakage
4. Deterioration of metals, metal finishes, and other materials beyond normal weathering and use.

B. Warranty Period:
1. Stanley, Three (3) years from date of store opening.
2. record-USA, Five (5) years from date of store opening.

C. Include annual planned and preventative maintenance, repair or replacement of working or defective components, lubrication, cleaning, and adjusting as required for proper entrance door operation at rated speed and capacity. Provide parts and supplies as used in the manufacture and installation of original equipment.

1. To be performed at first, second and third anniversaries from date of store opening.

D. Include coverage of complete system for failure to meet specified requirements.

1. Include cost of material and labor for repairs and adjustments

E. During the warranty period the Owner shall engage a factory-trained technician to perform service and affect repairs. A safety inspection shall be performed after each adjustment or repair, and prior to the end of maintenance period, any additional work noted shall be performed, and a completed inspection form shall be submitted to the Owner.

F. During the warranty period all warranty work, including emergency callback service, shall be performed during the hours of 8:00 am and 4:30 pm (local time), at no additional cost to Walgreens.

1. For any Warranty work requested outside of these hours, only Overtime Premium is to be charged.

G. Warranty shall not deprive the Owner of other rights or remedies the Owner may have under other provisions of the Contract Documents, and is in addition to and shall run

concurrent with, other warranties made by the Contractor under requirements of the Contract Documents.

H. Automatic Entrance Doors shall be free of defects in material and workmanship for a period of One (1) year from the date of substantial completion.

I. Manufacturer shall have in place a dispatch procedure that shall be available 24 hours a Day, 7 Days a week for emergency call back service.

1.11 SUBMITTALS

A. General: Submit shop drawings for each type of system.

1. Include plans, elevations, sections, details, hardware mounting heights, and attachments to other work.

B. Closeout Submittals:

1. Operation and Maintenance Data: For automatic entrances, safety devices and control systems, to include in Owner's operation and maintenance manuals.
2. Warranties.

PART II - PRODUCTS

2.01 AUTOMATIC ENTRANCE MANUFACTURER (National Accounts)

A. Automatic Sliding Entrance System (**Basis of Design**):

1. Stanley Access Technologies sliding entrance system with Dura-Glide™ 2000 Series sliding automatic entrances.

2. record-USA with 5100 Series automatic entrances, Use 5400 Series for Impact Door Package as required.

3. For non-prototypical configurations, i.e.; vestibules, narrow openings, etc., confirm "Walgreens package" number with each manufacturer's National Accounts Representative.

4. See Article 2.01.B regarding Walgreens National Account Program.

B. National Accounts: Walgreens has established National Accounts with the following Manufacturers:

1. Stanley Access Technologies:
Contact: Stanley Access Technologies
National Accounts Project Manager, Walgreens
65 Scott Swamp Rd
Farmington, CT 06032
Attn: Glenn Hood
O: 860-679-6406
F: 860-679-6436
Email: glen.hood@sbdinc.com
2. record USA:
Contact record-USA Automatic Doors

National Account Project Manager, Walgreens
4324 Phil Hargett Court
Monroe, NC 28110
Cell: 704-315-7392
Attn: David Pickers
Email: davidpickers@recorddoors.com

2.02 AUTOMATIC ENTRANCE DOOR ASSEMBLIES

A. General: Provide manufacturer's standard automatic entrance door assemblies including doors, sidelights, framing, headers, carrier assemblies, roller tracks, door operators, activation and safety devices, and accessories required for a complete installation.

B. Sliding Automatic Entrances:

1. Configuration: Sliding automatic entrance system, including two (2) single slide entrances with common header, fixed center lites, and integral transoms.
2. Sliding Entrances: One sliding leaf and one full sidelight; single slide.
3. Traffic Pattern: Two-way.
4. Emergency Breakaway Capability: Sliding leaves only.
5. Mounting: Between jambs.

2.03 MATERIALS

A. Aluminum: Alloy and temper recommended by manufacturer for type of use and finish indicated.

1. Headers, stiles, rails, and frames: 6063-T6.
2. Extruded Bars, Rods, Profiles, and Tubes: ASTM B 221.
3. Sheet and Plate: ASTM B 209.

B. Sealants and Joint Fillers: Performed under Division 7 Section "Joint Protection".

1. Set continuous sill members and flashing in a full sealant bed to provide weathertight construction, unless otherwise indicated.
2. Seal frame perimeter to provide weathertight construction

2.04 COMPONENTS

A. Framing and Transom Members: Manufacturer's standard extruded aluminum reinforced as required to support imposed loads.

1. Nominal Size: 1 3/4 inch by 4 1/2 inch (45 by 115 mm).
2. Concealed Fastening: Framing shall incorporate a concealed fastening pocket, and continuous flush insert cover, extending full length of each framing member.
3. Transoms shall be integral to sliding automatic entrance framing system and shall be flush glazed.

B. Stile and Rail Panels and Lites: Manufacturer's standard 1 ¾ inch (45 mm) thick glazed doors thick extruded-aluminum tubular stile and rail members. Incorporate concealed tie-rods that span full length of top and bottom rails.

1. Glazing Stops and Gaskets: Snap-on, extruded-security aluminum stops and preformed gaskets.

2. Stile Design: Narrow stile; 2 1/8 inch (51 mm) nominal width.
3. Bottom Rail Design: Minimum 10 inch (254 mm) nominal height.
4. Muntin Bars: Horizontal tubular rail member for each door;
   a. Mid Rail: 4 1/4 inch (108 mm) nominal height in sliding panels and sidelights.
   b. Lower Rail: 2 inch (51 mm) nominal height in all panels.

C. Glazing: Furnished under Division 8 Section Glazing. All Glazing furnished under separate section shall be as follows:

1. Sliding Panels: 1/4 inch (6 mm) tempered.
2. All Other Panels and Transoms: 1 inch (25 mm) insulated glazing units with not less than ½ inch (13 mm) hermetically sealed, dehydrated, air space.
3. All glass below 7'-0" A.F.F. to be laminated for security and safety.

D. Headers: Fabricated from extruded aluminum and extending full width of automatic entrance door units to conceal door operators, carrier assemblies, and roller tracks. Provide hinged or removable access panels for service and adjustment of door operators and controls. Secure panels to prevent unauthorized access.

1. Mounting: Concealed, with one side of header flush with framing.
2. Capacity: Capable of supporting up to 220 lb (100 kg) per panel, up to four panels, over spans up to 14 feet (4.3 m) without intermediate supports.

E. Carrier Assemblies and Overhead Roller Tracks: Manufacturer's standard carrier assembly that allows vertical adjustment of at least 1/8 inch (3 mm); consisting of urethane with precision steel lubricated ball-bearing wheels, operating on a continuous roller track. Support panels from carrier assembly by load wheels and anti-riser wheels with factory adjusted cantilever and pivot assembly.

1. Rollers: Minimum of two ball-bearing load wheels and two anti-rise rollers for each active leaf. Minimum load wheel diameter shall be 2 1/2 inch (64 mm); minimum anti-rise roller diameter shall be 2 inch (51 mm).

F. Thresholds: Manufacturer's standard thresholds as indicated below:

1. Continuous standard tapered extrusion double bevel.
2. All thresholds to conform to details and requirements for code compliance.

G. Fasteners and Accessories: Manufacturer's standard corrosion-resistant, non-staining, non-bleeding fasteners and accessories compatible with adjacent materials.

H. Signage: Provide signage in accordance with ANSI/BHMA A156.10.

I. Keys:

1. Provide five (5) sets

J. Include all Walgreens required decals, including "Caution Automatic Door".

2.05 DOOR OPERATORS

A. General: Provide door operators and controls, which include activation and safety devices, according to BHMA standards, for condition of exposure; and for long-term, maintenance free operation under normal traffic load for type of occupancy indicated.

B. Electromechanical Operators: Self-contained overhead unit powered by a permanent-magnet DC motor of size recommended by manufacturer for door size, weight, and movement (minimum of 1/8 horsepower), with gear reduction drive, microprocessor controller; and encoder.

1. Operation: Power opening and power closing.
2. Features:
   a. Adjustable opening and closing speeds.
   b. Adjustable back-check and latching.
   c. Adjustable braking.
   d. Adjustable hold-open time between 0 and 30 seconds.
   e. Obstruction recycle.
   f. On-Off/ Hold Open switch to control electric power to operator.
   g. Energy conservation switch that reduces door-opening width.
   h. Closed loop speed control with active braking and acceleration.
   i. Adjustable obstruction recycle time delay.
   j. Self adjusting stop position.
   k. Self adjusting closing compression force.
   l. Onboard sensor power supply.
   m. Onboard sensor monitoring.
   n. Optional Switch to open/Switch to close operation.
   o. Presence sensor monitoring
3. Mounting: Concealed.
4. Drive System: Synchronous belt type.

C. Operator shall convert to free manual operation of door during power failure.

D. Product shall be listed to UL 325.

E. Electrical service to door operators shall be provided under Division 16 Electrical. Minimum service to be 120 VAC, 5 amps.

## 2.06 ELECTRICAL CONTROLS

A. Electrical Control System: Electrical control system shall include a microprocessor controller and position encoder. The encoder shall monitor revolutions of the operator shaft and send signals to microprocessor controller to define door position and speed. Systems utilizing external magnets and magnetic switches are not acceptable.

B. Controller Protection: The microprocessor controller shall incorporate the following features to ensure trouble free operation:

1. Automatic Reset Upon Power Up.
2. Main Fuse Protection.
3. Electronic Surge Protection.
4. Internal Power Supply Protection.
5. Auto-Resetting sensor supply protection.
6. Motor Protection, over-current protection.

C. Soft Start/Stop: A “soft-start” “soft-stop” motor driving circuit shall be provided for smooth normal opening and recycling.

D. Obstruction Recycle: Provide system to recycle the sliding panels when an obstruction is encountered during the closing cycle. If an obstruction is detected, the system shall search for that object on the next closing cycle by reducing door closing speed prior to

the previously encountered obstruction location, and will continue to close in check speed until doors are fully closed, at which time the doors will reset to normal speed. If obstruction is encountered again, the door will come to a full stop. The doors shall remain stopped until obstruction is removed and operate signal is given, resetting the door to normal operation.

E. Programmable Controller: Microprocessor controller shall be programmable and shall be designed for connection to a local configuration tool. Local configuration tool shall be a software driven handheld interface. The following parameters may be adjusted via the configuration tool.

1. Operating speeds and forces as required to meet ANSI/BHMA A156.10.
2. Adjustable and variable features as specified in 2.5, B., 2.
3. Reduced opening position.
4. Fail Safe/Secure control.
5. Firmware update.
6. Trouble Shooting
    a. I/O Status.
    b. Electrical component monitoring including parameter summary.

## 2.07 ACTIVATION AND SAFETY DEVICES

A. Motion/ Presence Sensors:

1. Motion Sensors: Units shall be self-contained and programmable for bi-directional or uni-directional operation and shall incorporate K-band microwave frequency to detect all motion in both directions.
    a. Sensors shall be mounted on each side of door header to detect pedestrians in the activating zone, and to provide a signal to open doors in accordance with ANSI/BHMA A156.10.
2. Presence Sensors: Units shall be self-contained, fully adjustable, and shall function accordingly with motion sensors provided. The sensor shall be enabled simultaneously with the door-opening signal and shall emit an elliptical shaped infrared presence zone, centered on the doorway threshold line.
    a. Units shall be provided on each side of door to sense people or objects in the threshold safety zone in accordance with ANSI/BHMA A156.10.
    b. Presence sensors shall be capable of selectively retuning to adjust for objects which may enter the safety zone; tuning out, or disregarding, the presence of small nuisance objects and not tuning out large objects regardless of the time the object is present in the safety zone. The door shall close only after all sensors detect a clear surveillance field.
    c. Sensors shall remain active at all times.
    d. Presence sensor monitoring required per ANSI/BHMA A156.10.
3. Provide units with remote control programmability.
4. Thermal Range Requirements: Provide sensors that can be used in all climates, allow for thermal range from minus 14 degrees F to 131 degrees F (-10 degrees C to 55 degrees C)
5. Color, all units: Black

B. Photoelectric Beams: In addition to the threshold sensor include a minimum of two (2) doorway holding beams. Photoelectric beams shall be pulsed infrared type, including sender receiver assemblies for recessed mounting. Beams shall be monitored by electrical controls for faults and shall fail safe.

1. Beams shall not be active when doors are fully closed.

2.08 HARDWARE

A. General: Provide units in sizes and types recommended by automatic entrance door and hardware manufacturers for entrances and uses indicated.

B. Emergency Breakaway Feature: Provide release hardware that allows panel(s) to swing out in direction of egress to full 90 degrees from any position in sliding mode. Maximum force to open panel shall be 50 lbf (222 N) according to ANSI/BHMA A156.10. Interrupt powered operation of panel operator while in breakaway mode.

1. Emergency breakaway feature shall include at least one adjustable detent device mounted in the top of each breakaway panel to control panel breakaway force.
2. Panel Closer: Provide factory installed concealed hydraulic door closer in each breakaway panel.

C. Deadlocks: Manufacturer's standard deadbolt operated by exterior cylinder and interior thumb turn; with minimum 1 inch (25 mm) long throw bolt; ANSI/BHMA A156.5, Grade 1.

1. Cylinders: Provide lock cylinders by BEST Access Systems, with core and key with cylinder guard. Where multiple cylinders are provided, cylinders are keyed alike.
2. Hook Latch: Laminated-steel hook, mortise type.

D. Control Switch: Provide manufacturer’s standard header mounted rocker switches and door position switch to allow for full control of the automatic entrance door. Controls to include, but are not limited to:

1. One-way traffic
2. Reduced Opening
3. Open/Closed/Automatic

E. Power Switch: Sliding automatic entrances shall be equipped with a two position “On/Off” illuminated rocker switch to control power to the door.

F. Key Switch: Where scheduled, provide exterior mounted key switch with momentary action for control of sliding automatic entrance. Key switch shall be jamb stile, designed for mounting in standard aluminum storefront framing, and shall include a heavy duty housing, concealed security attachment hardware, weather resistant cover, and standard 1 ¼ inch mortise cylinder. Switch shall be SPDT with momentary action contacts rated at a minimum of 5 amps. Key switch shall be equal to or better than Locknetics 653-05-NS.

G. Record USA only:

The master control shall be capable of being programmed by either the S.M.A.R.T. panel installed as standard on all 5100 series sliding doors or by a hand held programmer. Both the S.M.A.R.T. panel and the hand held programmer will be capable of programming all swinging, sliding and folding doors within the record product offering. The master control shall have only digitally adjustable parameters (for repeatability purposes, potentiometers as a method of setting parameters shall not be allowed).

1. Opening and Closing speeds
2. Acceleration
3. Door open time delay
4. Remote door open time delay

5. Partial opening size
6. Reverse adjust sensitivity
7. Fire alarm signals
8. Directional traffic flow
9. Locking

The microprocessor shall also have the capability of, but not limited to:
Detect faults and deal with them according to method of programming including sending data to the S.M.A.R.T. panel, indicating that there is a fault, what the fault is from one of the 90+ stored error screens, it will also provide a user programmed telephone contact on the display. Updates to the software can be uploaded and updated, using the hand held programmer

H. Sliding Weather Stripping: Manufacturer's standard replaceable components complying with AAMA 701; made of wool, polypropylene, or nylon woven pile with nylon-fabric or aluminum-strip backing.

I. Weather Sweeps: Manufacturer's standard adjustable nylon brush sweep mounted to underside of door bottom.

J. Pulls: Where scheduled, provide manufacturer’s standard flush cup pulls in mid rail of sliding automatic entrance.

K. Guide Rails: Guide rails shall be provided manufactured from 1 7/8 inch (22 mm) 304 stainless steel tube. Length and height shall be as required for compliance with ANSI A156.10.

1. Mounting shall be recessed with escutcheon plate.
2. Units shall include two (2) 1 inch (25 mm) rubber bumpers at lead end, and color Kydex® panels; “black”.
3. Stainless steel finish shall be mirror.

2.09 FABRICATION

A. General: Factory fabricates automatic entrance door assembly components to designs, sizes, and thickness indicated and to comply with indicated standards.

1. Form aluminum shapes before finishing.
2. Use concealed fasteners to greatest extent possible.
   a. Where fasteners are subject to loosening or turning out from thermal and structural movements, wind loads, or vibration, use self-locking devices.
   b. Reinforce members as required to receive fastener threads.

B. Framing: Provide automatic entrances as prefabricated assemblies.

1. Fabricate tubular and channel frame assemblies with manufacturer's standard mechanical or welded joints. Provide sub-frames and reinforcement as required for a complete system to support required loads.
2. Perform fabrication operations in manner that prevents damage to exposed finish surfaces.
3. Form profiles that are sharp, straight, and free of defects or deformations.
4. Prepare components to receive concealed fasteners and anchor and connection devices.
5. Fabricate components with accurately fitted joints with ends coped or mitered to produce hairline joints free of burrs and distortion.

C. Doors: Factory fabricated and assembled in profiles indicated. Reinforce as required to support imposed loads and for installing hardware.

D. Door Operators: Factory fabricated and installed in headers, including adjusting and testing.

E. Glazing: Fabricate framing with minimum glazing edge clearances for thickness and type of glazing indicated.

F. Hardware: Factory install hardware to the greatest extent possible; remove only as required for final finishing operation and for delivery to and installation at Project site.

2.10 ALUMINUM FINISHES

A. General: Comply with NAAMM Metal Finishes Manual for Architectural and Metal Products for recommendations for applying and designing finishes. Finish designations prefixed by AA comply with system established by Aluminum Association for designing finishes.

B. Class II, Clear Anodic Finish: AA-M12C22A31 Mechanical Finish: as fabricated; Chemical Finish: etched, medium matte; Anodic Coating: Architectural Class II, clear coating 0.40 mils minimum complying with AAMA 611-98, and the following:

1. AAMA 607.1
2. Applicator must be fully compliant with all applicable environmental regulations and permits, including wastewater and heavy metal discharge.

PART III - EXECUTION

3.01 INSPECTION

A. Examine conditions for compliance with requirements for installation tolerances, header support, and other conditions affecting performance of automatic entrances. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 INSTALLATION

A. General: Do not install damaged components. Fit frame joints to produce joints free of burrs and distortion. Rigidly secure non-movement joints.

B. Entrances: Install automatic entrances plumb and true in alignment with established lines and grades without warp or rack of framing members and doors. Anchor securely in place.

1. Install surface-mounted hardware using concealed fasteners to greatest extent possible.
2. Set headers, carrier assemblies, tracks, operating brackets, and guides level and true to location with anchorage for permanent support.

C. Door Operators: Connect door operators to electrical power distribution system as specified in Division 26 Sections.

D. Glazing: Performed under Division 8 Section "Glazing" in accordance with sliding automatic entrance manufacturer's instructions.

3.03 FIELD QUALITY CONTROL

A. Testing Services: Factory Trained Installer shall test and inspect each automatic entrance door to determine compliance of installed systems with applicable ANSI standards.

3.04 ADJUSTING

A. Adjust door operators, controls, and hardware for smooth and safe operation, for tight closure, and complying with requirements in ANSI/BHMA A156.10.

3.05 CLEANING AND PROTECTION

A. Clean glass and aluminum surfaces promptly after installation. Remove excess glazing and sealant compounds, dirt, and other substances. Repair damaged finish to match original finish. Comply with requirements in Division 8 Section "Glazing", for cleaning and maintaining glass.

END OF SECTION

SECTION 08 70 00 - HARDWARE

PART 1 - GENERAL

1.01 DESCRIPTION

A. The extent of finish hardware required is shown on drawings and schedules.

B. Types of required hardware:

Butt Hinges
Door Pulls and Push Plates
Locks, Latch Sets and Rim Cylinders
Keyless Combination Lock
Vertical Rod Assembly
Security/Panic Bar
Closers
Wall and Floor Bumpers
Silencers
Thresholds, Sweeps and Weather-stripping
One-Way Viewer
Door Protection and Kick Plates

1.02 QUALITY ASSURANCE

A. Obtain each type of hardware from a single manufacturer.

B. Hardware supplier shall have warehousing facilities and shall have been furnishing finish hardware for not less than three years.

C. Fire-Rated Openings: Provide hardware complying with NFPA 80 and local codes and ordinances. Furnish units with "UL" or "FM" labels as required.

D. Accessibility: Provide hardware complying with the requirements of the "Americans With Disabilities Act".

E. Discrepancies: Furnish proper types, finishes, fasteners, and quantities based on codes, requirements, etc. in effect at time of installation.

1.03 SUBMITTALS

A. Hardware Schedule: Final hardware schedule fully coordinated with other work, frames and operation.

Indicate type, style, function, finish, fastening location and manufacturer for each hardware item.

B. Templates: Furnish templates to each fabricator of doors, frames, and work factory prepared to receive hardware.

PART II - PRODUCTS

2.01 SCHEDULED HARDWARE

A. Requirements for design, grade, function, finish, size, etc. are indicated on the criteria drawings.

B. Manufacturers; Provide hardware from manufacturers listed in the schedule (on drawings) or the comparable products of the alternate manufacturers listed below;

| Item: | Alternate Manufacturers: |
|---|---|
| Butt Hinges | Hager or McKinney |
| Door Pulls and Push Plates | Hager or Rockwood |
| Lock Sets, Latch Sets, Rim Cylinders | Arrow, Sargent or Yale |
| Keyless Combination Locks | None |
| Alarm Locks | None |
| Vertical Rod Assemblies | None |
| Security/Panic Bar | None |
| Closers | LCN, Yale or Sargent |
| Wall/Floor Bumpers | Hager or Rockwood |
| Silencers | Hager or Rockwood |
| Thresholds and Sweeps | National Guard or Pemko |
| Weather-stripping | Pemko, Reese or Zero |
| One-Way Viewer | Rockwood or Stanley |
| Door Protection and Kick Plates | Hager |

2.02 MATERIALS & FABRICATION

A. Hand of Door: Drawings show swing of each door leaf. Furnish each hardware item for proper installation and operation of door movement.

B. Manufacturers Nameplates: Shall not be visible except for required UL labels.

C. Fasteners: Conform to templates, prepared for machine screw installation. Provide Phillips flat-head screws (unless noted otherwise), finish to match hardware. Provide concealed fasteners when available. Do not use exposed thru-bolts (unless noted otherwise). Thru-bolts allowed at Sur-Lock and Trident hardware.

2.03 HINGES

A. Screws: Phillips flat-head machine screws except furnish Phillips flat-head wood screws for installation into wood. Screw finish to match hinge.

B. Hinge Pins: Exterior doors, non-removable pins with security studs. All other interior doors, non-rising pins (unless noted otherwise).

2.04 LOCK CYLINDERS & KEYING

A. Keying: Locks shall not be master keyed. Provide keying as indicated on the hardware schedule on sheet A-610.

2.05 LOCKS, LATCHES, BOLTS

A. Strikes: Provide manufacturer's standard wrought box strike for each latch or lock bolt, with curved lip extended to protect frame, finished to match hardware set.

B. Lock Throw: Provide 5/8" minimum. Comply with UL for rated doors.

2.06 PUSH/PULL UNITS

A. Provide manufacturers standard exposed fasteners.

2.07 CLOSERS

A. Comply with manufacturer's recommendations for closer size, door size, exposure and use. Thru-bolt fasteners shall be used only at interior wood doors.

B. Access-free doors: Where installation must be handicapped accessible, comply with A.D.A. regarding opening force and delayed action.

2.08 DOOR TRIM UNITS

A. Protection Plates and Kick Plates; Stainless steel (US 32D finish), 20 ga., fabricated to dimensions indicated on Criteria Drawings. Provide protection plates with overlapping wrap around door edges.

Mount with manufacturer's standard exposed fasteners.

2.09 WEATHERSTRIPPING

A. Jambs and heads: Continuous extruded aluminum walls and flanges with bumper type, replaceable, flexible bulb/loop vinyl insert.

B. Door sweep: Extruded aluminum with loop type replaceable rubber insert.

2.10 SECURITY BAR

A. See drawings for model numbers. For Sur-Lock, contact LockNet, Thomas Downs (800) 887-4307 ext. 116 or email to ThomasD@locknet.com. For Trident, contact Marc Kapelus at Kaploss Security, Inc. (800) 548-7486 ext. 103 or email to mkapelus@kaploss.com.

PART III - EXECUTION

3.01 INSTALLATION

A. Mounting height for devices required for accessible door passage, including, but not limited to lever handles, knobs, push plates, pull handles, alarm locks, cylinder locks etc. shall not exceed 48" above finish floor (a.f.f.) or as required to comply with Americans With Disabilities Act. Unless required otherwise by code, mount hardware as noted below.

1. 40 5/16” a.f.f. to centerline of strike for latches, locks, knobs, levers, cross bar exit devices.

2. 42” a.f.f. to centerline of door pulls.

3. 45” a.f.f. to centerline of dead bolts, push plates.

B. Set units plumb, true to line and location, attached as required for proper operation.

C. Set thresholds for exterior doors in a full bed of butyl rubber or polyisobutylene sealant.

3.02 ADJUST AND CLEAN

A. Replace units which cannot be adjusted for proper operation.

B. Final adjustment must occur within one week of occupancy by tenant.

END OF SECTION

SECTION 08 80 00 – GLAZING

PART 1 - GENERAL

1.01 DESCRIPTION

A. Glass and glazing work includes:

1. Vestibule storefronts.

2. Entrance glazing, not indicated as pre-glazed.

3. Interior laminated glass.

4. Glazed vision lites in doors

1.02 SYSTEM PERFORMANCE

A. Provide glass and glazing that will withstand normal temperature changes, wind loading, impact loading, etc. without breakage of glass, failure of seals and loss of air-tightness and water-tightness.

B. See other Division 08 Sections for related performance requirements.

1.03 DEFINITIONS

A. Sealed insulation glass unit surfaces:
Side 1 - Exterior surface of outer pane.
Side 2 - Interior surface of outer pane (facing airspace).
Side 3 - Interior surface of inner pane (facing airspace).
Side 4 - Exterior surface of inner pane.

1.04 QUALITY ASSURANCE

A. Comply with recommendations of the Flat Glass Marketing Association “Glazing Manual” and “Sealant Manual”.

B. Comply with Insulated Glass Manufacturer’s Association (IGMA) #65-7-2.

C. Comply with ASTM C 1036 or ASTM C 1048 (tempered), ASTM C 1172 (laminated glass) and CPSC 16 CFR Part 1201 (safety glazing) and ASTM C 1376 Standard Specification for Pyroletic and Vacuum Deposition Coatings on Flat Glass.

D. Hurricane/Impact Resistant Glazing System: Must pass Dade and Broward County hurricane cycling and impact tests plus, comply with ANSI Z97.1 and CPSC Category II.

E. Warranty: Provide written warranty covering manufacturing defects, signed by the manufacturer, for the periods stated below after substantial completion.

1. Insulated Glass: Manufacturers standard, ten-year minimum period.

2. Float Glass: Manufacturers standard five-year minimum period.

3. Laminated Glass: Manufacturers standard, four-year minimum period.

4. Mirrors: Manufacturers Standard five-year period protecting against silver spoilage.

PART II - PRODUCTS

2.01 MANUFACTURERS

A. Subject to compliance with requirements, provide products by :

Zeledyne Glass products
Pilkington Building Products.
Saflex
PPG Industries, Glass Group
Guardian Industries Corp.
Viracon Inc.

B. Hurricane/Impact Resistant Glass: Subject to compliance with requirements provide products by:

Trulite Glass and Aluminum Solutions
Glasslam N.G. I., Inc.
Insulgard Corp.
Interpane
Saflex
Viracon

2.02 GLASS PRODUCTS - GENERAL

A. Provide Primary glass complying with FS DD-G-451 and Heat-Treated glass complying with FS DD-G-1403.

B. Fabricate to sizes and thickness recommended by glass manufacturers for application indicated.

C. Heat Strengthening: If climatic, or shading conditions exist which will cause increased thermal stresses in the glass, increasing the possibility of thermal breakage, provide heat strengthened glass complying with ASTM C 1048, Kind HS.

D. Glazing below 7’-0” A.F.F. to be laminated for security and safety.

2.03 GLASS PRODUCTS:

A. Clear Tempered Float Glass: Grade B (fully tempered), style I (uncoated surfaces), type I (float), quality q3, class 1.

B. Laminated Safety Glass: Two panes of equal thickness, laminated together with a 0.030” thick plastic interlayer for total thickness of 1/4” complying with the following:

1. Plastic Interlayer: Glass manufacturer’s standard clear polyvinyl butyral interlayer which shall not show tendency to bubble, discolor or lose physical or mechanical properties after laminating.

2. Glass: Clear float glass HS, both panes (tempered if required by code).

C. Mirrors: 1/4" polished plate glass panels, silver coated and hermetically sealed with a uniform coating of electrolytic copper plating.

D. Transparent Mirror: ¼" thick, with pyrolitic coating applied to gray tint glass. Visible transmittance 12%, visible reflectance 60%.

E. Translucent White Laminated Glass (65% visible light transmittance): Two panes of equal thickness, laminated together with a minimum .015 thick plastic interlayer for a total thickness of ¼" complying with the following:

1. Plastic Interlayer: Glass manufacturer's standard translucent white polyvinyl butyral interlayer which shall not show tendency to bubble, discolor or lose physical or mechanical properties after laminating.

2. Glass: Clear float glass, both panes (tempered if required by code).

F. Spandrel Glass: ¼" thick, Lead-free ceramic frit enamel coated ASTM C-1048, Condition B (spandrel glass, one surface coated), Type 1 (transparent glass, flat), Quality q3.

1. Apply coating to #2 side of an insulated assembly.

2. Provide blue, subdued gray or green opaque finish to compliment color of insulating tinted glass on remainder of store. Submit samples to Walgreens Project Architect for approval.

G. Wired Glass: 1/4" thick, UL listed, clear polished flat rolled glass complying with ANSI-Z97.1, reinforced with diamond pattern wire mesh.

2.04 GLAZING SEALANTS (Interior Applications)

A. General: Comply with recommendations of sealant and glass manufacturers for selection of glazing sealants with performance and compatibility characteristics suitable for application and conditions indicated.

B. Colors: Match color of frame finish.

2.05 GLAZING GASKETS/TAPE

A. Glazing Gaskets: ASTM C864, resilient polyvinyl chloride, extruded shape to fit glazing channel retaining slot; black color.

B. Glazing Tape: Closed cell polyvinyl chloride foam, maximum water absorption by volume 2 percent, designed for 25 percent compression for air barrier vapor retarder seal, black color, coiled on release paper over adhesive on two sides; widths required for specified installation.

C. Glazing Tape: Butyl compound tape with integral resilient tube spacer, 10 to 15 Shore durometer hardness, black color, coiled on release paper, widths required for specific installation.

2.06 MISCELLANEOUS GLAZING MATERIALS

A. Compatibility: All materials shall be compatible with surfaces contacted in installation.

B. Cleaners, Primers and Sealers: As recommended by sealant/gasket manufacturer.

C. Setting Blocks: ASTM C 864 neoprene, 80 to 90 Shore A durometer hardness; length 4 inches, width of glazing rabbet space less 1/16 inch, height required for glazing method, pane weight and pane area.

D. Spacers: Shims: ASTM C 864: neoprene, 50 to 60 Shore durometer hardness; length 3 inches, one half height of glazing stop, thickness required for application, one face self-adhesive.

E. Glazing Splines: ASTM C 864, resilient polyvinyl chloride, extruded shape to fit glazing channel retaining slot; black color.

2.07 FABRICATION

A. Sealed Insulating Glass Units: Fabricate in accordance with ASTM E 2190.

1. Components:

a. Outer Pane: As indicated above.

b. Air Space: Thickness as indicated above, hermetically sealed, dehydrated air space.

c. Inner Pane: As indicated above.

d. Provide unit edge seals meeting requirement of ASTM E 2190, with aluminum spacers having mitered corners and silicone sealant for glass-to-spacer seals.

PART III - EXECUTION

3.01 PREPARATION / INSTALLATION

A. Clean glazing/framing members immediately before glazing to remove all detrimental substances.

B. Adjust glazing channel dimensions as required by conditions for proper bite, edge/face clearances, and seal thickness.

C. Install properly sized setting blocks in sill rabbet at one quarter of glass width from each corner, but not closer than 6” unless noted. Set blocks in thin course of sealant suitable for heel bead use.

D. Provide spacers and edge blocks, correctly sized for conditions. Provide 1/8” minimum bite of spacers on glass.

E. Miter cut wedge-shaped gaskets at corners, prevent pull away at corners, seal corner and butt joints as recommended by gasket manufacturer.

F. Trim sight exposed tape flush with stop and finish sealant flush with sight line.

G. Install transparent mirror with mirror coating facing “subject” side.

3.02 PROTECTION AND CLEANING

A. Protect glass from contaminating substances.

B. Remove and replace broken, chipped, cracked, abraded or damaged glass.

C. Remove labels and wash glass on both faces prior to final acceptance as directed by Walgreens.

D. Remove glazing materials from finish surfaces.

END OF SECTION

SECTION 09 22 00 – METAL SUSPENSION SYSTEMS

PART I - GENERAL

1.01 DESCRIPTION

A. Metal suspension systems for suspended gypsum drywall ceilings. The extent of suspended gypsum drywall ceilings is shown on the drawings.

1.02 QUALITY ASSURANCE

A. Fire Performance Characteristics: Provide components identical to those tested according to ASTM, UL as listed and as acceptable to authorities having jurisdiction.
   1. Surface Burning: ASTM E 84
      a. Flame Spread: 25 or less.
      b. Smoke Developed: 50 or less.

   2. Fire-Resistance Ratings: Provide systems with ratings as required by authorities having jurisdiction.

B. Comply with ASTM C 635, ASTM C 636 and Ceilings and Interior Systems Contractors Association (CISCA).

C. Single-Source Responsibility: To ensure proper interface, all drywall furring components shall be produced or supplied by a single manufacturer.

D. Contact Armstrong Installation Specialist for design application and field support. Pre-construction drawings for submittals are recommended for complex projects.

E. All accessory components from other manufacturers shall conform to ASTM standards.

F. Fire Resistance Ratings: As indicated by reference to design designations in UL Fire Resistance Directory, for types of assemblies in which drywall ceilings function as a fire protective membrane and tested per ASTM E 119. Installation in accordance with the UL Design being referenced.

G. Coordination of Work:

H. Coordinate drywall furring work with installers of related work including, but not limited to acoustical ceilings, building insulation, gypsum board, light fixtures, mechanical systems, electrical systems, and sprinklers.

I. All work above the ceiling line should be completed prior to installing the drywall sheet goods. There should be no materials resting against or wrapped around the suspension system, hanger wires or ties.

1.03 REFERENCES

A. American Society for Testing and Materials (ASTM):

   1. ASTM A 641 Standard Specification for Zinc-Coated (Galvanized) Carbon Steel Wire.

   2. ASTM A 653 Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) by the Hot-Dip Process.

3. ASTM A 1008 Standard Specification for Steel, Sheet, Cold Rolled, Carbon, Structural, High-Strength Low-Alloy and High-Strength Low-Alloy with Improved Formability"

4. ASTM D 610 Standard Test Method for Evaluating Degree of Rusting on Painted Steel Surfaces

5. ASTM B 117 Standard Practice for Operating Salt Spray (Fog) Apparatus

6. ASTM C 635 Standard Specification for Metal Suspension Systems for Acoustical Tile and Lay-in Panel Ceilings.

7. ASTM C 636 Recommended Practice for Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-in Panels.

8. ASTM C 1858 Standard Practice for Design, Construction, and Material Requirements for Direct Hung Suspended T-bar Type Ceiling Systems Intended to Receive Gypsum Panel Products in Areas Subject to Earthquake Ground Motions

9. ASTM C 645 Standard Specification for Nonstructural Steel Framing Members

10. ASTM C 754 Installation of Steel Framing Members to Receive Screw-Attached Gypsum Board

11. ASTM C1002 Standard Specification for Steel Drill Screws for the Application of Gypsum Board or Metal Plaster Bases.

12. ASTM E 119 Standard Test Method for Fire Tests of Building Construction and Material (if applicable).

13. NOA #07-0119.02 Miami/Dade Wind Uplift.

14. NAO #09-0512.02 Miami/Dade Impact.

15. ESR-1289 ICC-ES Evaluation Report.

A.

PART II - PRODUCTS

2.01 MANUFACTURERS
Suspension Systems: Armstrong World Industries, Inc. Contact your local Armstrong Sales Representative for support.

2.03 METAL SUSPENSION SYSTEMS

A. A. Structural Classification:

1. Main Beam shall be heavy duty per ASTM C 635.

2. Classification can require wires to be closer together for additional loading when used to support double layer gypsum, verticals, slopes, circles, soffits, canopies, and step conditions which call for loading or unusual designs and shapes in drywall construction.

3. Deflection of fastening suspension system supporting light fixtures, ceiling grilles, access doors, verticals and horizontal loads shall have a maximum deflection of 1/360 of the span.

B. Components:

1. Main Beam: Shall be double-web construction (minimum 0.0179 inch prior to protective coating, ASTM C645), hot dipped galvanized (per ASTM A653).

    a. **HD8906/HD890610**: 1-11/16 inch web height, 1-1/2 inch flange, available with G40 or G90 hot dipped galvanization.

2. Primary Cross Tees: Shall be double-web steel construction (minimum 0.0179 inch prior to protective coating, ASTM C645), hot dipped galvanized (minimum G40 or G90 per ASTM A653)

    a. **XL8945P**: 48 inch, web height 1-1/2 inch with rectangular bulb and pre-finished 1-1/2 inch knurled flange

    b. **XL8965**: 72 inch, web height 1-1/2 inch with rectangular bulb and pre-finished 1-1/2 inch knurled flange.

    c. **XL7936G90**: 36 inch web height 1-1/2 inch with rectangular bulb and pre-finished 1-1/2 inch knurled flange.

3. Framing Angles as required:

    a. **LAM-12**: 12 foot Locking Angle Molding, 1-1/4 inch x 1-1/4 inch with pre-engineered locking tabs punched 8 inches on center, knurled surface, screw stop hem, pre-punched holes in top flange, 4" O.C., .018 mil. 25g.

    b. **KAM -12**: 12 foot Knurled Angle molding, 1-1/4 inch x 1-1/4 inch, knurled surface, screw stop hem, pre-punched holes in top flange, 4" O.C., .018 mil. 25g.

    c. **KAM-10**: 10 foot Knurled Angle molding, 1-1/4 inch x 1-1/4 inch, knurled surface, screw stop hem, pre-punched holes in top flange 4" O.C., .018 mil. 25g.

    d. **KAM1510B:** 10 foot Knurled Angle molding, 1-1/2 inch x 1-1/2 inch, knurled surface, screw stop hem, pre-punched holes in top flange 4" O.C., .018 mil. 25g

    e. **KAM1512B:** 12 foot Knurled Angle molding, 1-1/2 inch x 1-1/2 inch, knurled surface, screw stop hem, pre-punched holes in top flange 4" O.C., .018 mil. 25g

    f. **KAM151020:** 10 foot Knurled Angle molding, 1-1/2 inch x 1-1/2 inch, knurled surface, screw stop hem, pre-punched holes in top flange 4" O.C., .033 mil. 20g

    g. **KAM151020E:** 10 foot Knurled Angle molding, 1-1/2 inch x 1-1/2 inch, knurled surface, screw stop hem, pre-punched holes in top flange 4" O.C., .028 mil. 22g

    h. **KAM151220E:** 12 foot Knurled Angle molding, 1-1/2 inch x 1-1/2 inch, knurled surface, screw stop hem, pre-punched holes in top flange 4" O.C., .028 mil. 22g

    i. **KAM21025**: 10 foot Knurled Angle molding, 2 inch x 2 inch, knurled surface, pre-punched holes in top flange 4" O.C., .018 mil. 25g.

    j. **KAM21020**: 10 foot Knurled Angle molding, 2 inch x 2 inch, knurled surface, pre-punched holes in top flange 4" O.C., .028 mil. 22g.

k. **KAM21020G90**: 10 foot Knurled Angle molding, 2 inch x 2 inch, knurled surface, pre-punched holes in top flange 4" O.C., .028 mil. 22g. G90 hot dipped galvanized.

l. **KAM20120EQ**: 10 foot Knurled Angle molding, 2 inch x 2 inch, knurled surface, pre-punched holes in top flange 4" O.C., .028 mil. 22g.

m. **7838**: Hot dipped galvanized (minimum G40), unhemmed channel molding, ¾ inch x 1-9/16 inch x 1-1/4 inch flange.

n. **7858**: Reverse angle molding (minimum G40), unhemmed channel molding, 144 inch x 15/16 inch x 1-9/16 inch.

4. Axiom Aluminum extrusion Pre-Painted Armstrong Global White integral acoustical flange and drywall taping flange.

    a. **AXTR7910**: 1" transition from suspended drywall system to suspended gypsum board system

    b. **AX4SPLICEB**: Splice Plate.

    c. **AXTBC**: T-Bar Connector Clip.

    d. **AXBT**: Drywall Bottom Trim

    e. Armstrongceilings.com has available sizes, air slots and accessories

5. Accessories / Clips:

    a. **MBAC**: Main Beam Adapter Clip

    b. **IIC**: Sound Isolation Clip (for use with HD8906IIC Main Runner)

    c. **DWACS, DW50, DW58**: Drywall Attachment Clip for transitions to acoustical ceilings

    d. **DW58LT**: Transition Clip for 5/8" drywall with Locking Tabs.

    e. **DW50LT**: Transition Clip for 5/8" drywall with Locking Tabs.

    f. **MBSC2**: Main Beam Spacer Clip.

    g. **GSC9**: Adjustable Grid Spacer Clip, 9 inch.

    h. **GSC12**: Adjustable Grid Spacer Clip, 12 inch.

    i. **GSC14**: Adjustable Grid Spacer Clip, 14 inch.

    j. **DW30C**: 30 degree, Drywall Angle Clip

    k. **DW45C**: 45 degree, Drywall Angle Clip

    l. **DW60C**: 60 degree, Drywall Angle Clip

    m. **DW90C**: 90 degree, Drywall Angle Clip

    n. **XTAC**: Cross Tee Adapter Clip.

    o. **DDC**: Double Drywall Clip.

p. **DLCC**: Direct Load Ceiling Clip.

q. **DWC**: Drywall Clip.

r. **RC2**: Radius Clip required to cover all pre-cut facets, including those not being clipped.

s. **QSUTC**: Uptight Clip.

6. Screws for wallboard application shall be bugle head screws in accordance with thickness of material used.

7. Framing screws for mechanical fastening metal components shall be galvanized 7/16" pan head or wafer head Phillips drive with sharp point or self-drilling points depending on the metal to be fastened.

8. Metal Trim or Plastic Members (by others):

a. Corner bead: Minimum #26 gauge, zinc alloy or plastic square edge type with expanded flanges.

b. Casing bead: Minimum #24 gauge, zinc alloy or plastic square edge type with expanded flanges.

c. Control Joints: Minimum #26 gauge, roll-formed zinc alloy, extruded aluminum or plastic with expanded flanges.

B. Hanger Wire: Provide not less than 12 gauge galvanized carbon steel ASTM A 641, soft temper.

F. Seismic Areas: When required by authorities having jurisdiction provide "Heavy Duty "systems approved by local authorities.
1. Compression Posts: as required.

2. Edge Molding: conforming to local requirements.

PART III - EXECUTION

3.01 INSTALLATION

A. Install systems in compliance with ASTM C 636, governing regulations and fire-resistance requirements. Support hangers only from structural members. Do not attach or suspend hangers from metal deck. Locate hangers not less than 6" from each end and spaced 4ft. o.c. along main runner. Locate hangers at 4 ft. o.c. each direction if main runners are spaced greater than 4 ft. o.c. Level to within 1/8" in 12ft. Limit deflection to 1/360 of span length in inches.

B. Install hangers plumb and free from contact with objects that are not part of structural or ceiling system. Wire connections shall be capable of supporting a 100 lb. allowable load.

C. Provide main runners or continuous cross tees in line with the long dimension of each side of recessed lights. Provide a hanger wire at the midpoint of each cross tee located on the long dimension of a recessed light fixture. 4 ft. cross tees supporting light fixtures is prohibited. Entire suspension system shall be completely connected forming a homogeneous frame. Independent/unattached fields are prohibited.

E. Provide trim and moldings as required to conceal edges of acoustic tiles.

F. Suspended ceiling system shall not be used to support ductwork, plumbing, sprinklers, insulation, etc.

G. Install hanger wire as required with necessary on center spacing to support expected ceiling load requirements, following local practices, codes and regulations. Provide additional wires at light fixtures, grilles, and access doors where necessary. A pigtail knot shall be used with three tight wraps at top and bottom fastening locations

H. Add additional wire as needed when using compatible clips and accessories.

I. Control Joints: Roll formed zinc alloy, aluminum, or plastic as required for expansion and contraction as shown on drawings.

J. Expansion Joints: Roll formed zinc alloy, aluminum, or plastic as required for expansion and contraction as shown on drawings.

K. Main beams shall be suspended from the overhead construction with hanger wire, spaced as required for expected ceiling loads, along the length of the main beams.

L. Install cross tees at on center spacing as specified by the drywall manufacturer. Typical drywall cross tee spacing:

M. 16 inches on center with 5/8 or 1/2 inch gypsum board

N. 24 inches on center with 5/8 inch gypsum board

O. Other items such as wood, sheet metal, or plastic panels should be screwed to comply with deflection limit equivalent to that of the ceiling installation.

P. Use channel molding or angle molding to interface with Drywall Grid System to provide perimeter attachment or to obtain drop soffits, verticals, slopes, etc.

Q. For light fixtures (Type G, Type F) use secondary framing cross tees as required to frame opening.

R. Single cross tees in a route hole to be secured by 7/16 inch framing screw or alternative methods

S. Install main beams and cross tees at the on center spacing required for ceiling loading, and location of in-ceiling services.

T. Additional bracing as required by code

3.02 ADDITIONAL SEISMIC REQUIREMENTS

A. General: Comply with requirements of authority having jurisdiction in the respective seismic zone.

1. Provide vertical compression posts or struts as required by local authorities.

B. The ceiling system cannot be used to provide lateral support for walls or partitions.

C. Perimeter closure angles must provide a min. 7/8", support ledge. Terminal ends of grid or tile must rest on ledge with min. 3/8" clearance from wall.

1. For support ledges smaller than 7/8", terminal ends of cross or main runners shall be independently supported within 8" from each wall or ceiling

discontinuity. This support must prevent grid from falling. This support should not be out of plumb greater than 1 in 6. Maintain 3/8" end clearance from wall.

2. All penetrations ie; columns, sprinklers, etc. and independently supported fixtures are considered perimeter closures that must allow noted clearances.

F. At wall closure ledges, cross and main runners must be prevented from spreading apart. Permanent attachment for grid alignment purposes is prohibited.

3.03 ADJUST AND CLEAN

A. Clean exposed surfaces of panels, moldings and trim. Remove and replace work that cannot be cleaned to permanently eliminate evidence of damage.

END OF SECTION

SECTION 09 29 00 - GYPSUM BOARD

PART I - GENERAL

1.01 DESCRIPTION

A. Types of work include:
1. Gypsum drywall including screw-type metal support system.

2. Gypsum backing boards for application of other finishes.

3. Exterior gypsum drywall materials.

4. Drywall finishing.

1.02 QUALITY ASSURANCE

A. Fire-resistance ratings: Where fire-resistance ratings are indicated, provide materials/ assemblies complying with ASTM E 119-00a and as required by local authorities.

B. Comply with recommendations of Gypsum Association GA-216.

C. Comply with ASTM C 1396, “Specification for Gypsum Board”. Only use gypsum board manufactured in the United States.

PART II - PRODUCTS

2.01 METAL SUPPORT MATERIALS

A. Ceiling support systems: Size components to comply with ASTM C 754.
1. Main runners: Hot or cold-rolled steel channels with rust inhibitive paint.

2. Hanger wire: ASTM A 641, soft, Class 1 galvanized.

B. Furring members: ASTM C 645; 25 ga. min. thickness, hat-shaped or C-shaped (spans over 4 ft.).

2.02 WALL/PARTITION SUPPORT MATERIALS

A. Studs: ASTM C 645; 22 gauge, 3-5/8” or 6” as noted. Provide heavier ga. if required by Architect of Record or by manufacturer’s span table for allowable gauge minimums.

B. Runners: Match studs, use type recommended by stud manufacturer for conditions.

C. “Z”-Furring members: Screw-type galvanized steel, ASTM A 653, G 60, 24 ga. min. thickness designed for mechanical attachment of insulation boards to masonry and concrete walls.

D. Fasteners: Type and size recommended by stud/furring manufacturer for conditions.

E. Deflection Track: ASTM A-653, galvanized steel sheet deep leg track, provide: “SLP-TRK” by Sliptrack Systems, Inc., “Deep Leg Track w/Slip Clip” by Fire Trak Corp., “Deflection Track” by Marino/Ware® or “VertiClip SLD” series by Steel Network, Inc.

2.03 GYPSUM BOARD

A. Gypsum Wallboard: ASTM C 1396, regular types unless noted otherwise. Provide Type X for fire-resistant rated assemblies.
   1. Thickness: 5/8" minimum.

   2. Edges: Tapered.

B. Water-Resistant Backing Board (WR): ASTM C 1396, regular types unless noted otherwise. Provide Type X for fire-resistant rated assemblies.
   1. Thickness: 5/8" minimum.

   2. Edges: Tapered.

C. Exterior Gypsum Ceiling and/or Soffit Board: ASTM C 1396, Type X, "Fireshield" or "Firecode Core" for fire-resistant rated assemblies. Provide manufacturers standard edges.
   1. Acceptable products; USG "Sheetrock Brand Exterior Gypsum Ceiling Board", National Gypsum "Gold Bond Brand Exterior Soffit Board".
   2. Thickness: 5/8" minimum.

2.04 TRIM ACCESSORIES

A. Provide manufacturers standard galvanized corner-beads, L-type edge trim beads, U-type edge trim beads, and one-piece control joint beads.

2.05 JOINT TREATMENT

A. ASTM C 475 as recommended by manufacturer for application intended.

B. Joint Tape: Paper reinforcing tape.

C. Joint Compound: Vinyl-type powder or ready-mixed for interior use, except as noted otherwise below.
   1. Grade: Single multi-purpose grade for entire application.

   2. Water-resistant Board Joint Compound: Special water-resistant type. Treat joints, fastener heads and cut edges. Use USG Sheetrock Setting-Type (Durabond 45 or 90), or approved equal.

   3. Exterior Gypsum Board Joint Compound; Use USG Sheetrock Setting-Type (Durabond), Durabond LC, Sheetrock Lightweight (Easy-Sand), or approved equal.

2.06 MISCELLANEOUS MATERIALS

A. Comply with gypsum board manufacturer recommendations.

B. Gypsum Board Screws: Comply with ASTM C-1002-01.

C. Sound Attenuating Blankets: FS HH-I-521 Type I; semi-rigid mineral fiber blankets, Class 25 flame spread, full thickness of stud.

D. Security Mesh: ASTM A-1011, ASTM F-1267, Type I, Class 1,2, and 3, Grade A, 16 gauge carbon steel, expanded to form a 3/4 inch diamond mesh.

E. Rodent Protection: Provide 16 gauge metal flashing on both sides (when allowed) of demising wall studs a minimum of 12" high (verify height with Walgreens) under gypsum drywall when demising wall is not masonry and when directed by Walgreens.

F. Exterior Soffit Vents: Continuous vent. Provide gauge and ventilation area to suit

1. Acceptable manufacturers:
   a. Superior Products, SFT series, galvanized steel ventilation screed. Color: Paint to match adjoining EIFS.
   b. Alcoa, "Vent-a-Strip", model 70 or 79, color: white.
   c. Amico "Vinyl Soffit Screed Ventilator", insert style AMSVI-300 or sheathing style AMSV-300-50.
   d. Stockton Products "soffit vent/reveal screed.

PART III - EXECUTION

3.01 INSTALLATION OF METAL SUPPORT SYSTEMS

A. Installation Standard: ASTM C 754.

B. DO NOT BRIDGE building expansion joints with support system.

C. Ceiling Support Systems: Secure hangers to structural support by direct connection where possible. DO NOT ANCHOR support systems to metal roof deck.
1. Level main runners to tolerance of 1/4" in 12'-0" measured in any direction.

2. Attach metal wall track/angle wherever system meets vertical surfaces. Mechanically join support members, butt-cut to fit wall track.

3. Install auxiliary trim/framing at termination of drywall work, at light fixtures, etc., for proper support of drywall and other work.

3.02 WALL/PARTITION SUPPORT SYSTEMS

A. Install supplementary framing, blocking and bracing at terminations in work for support of fixtures, equipment, grab bars, toilet accessories, etc.
1. At partitions which: adjoin another tenant (demising walls), support soffits or decor wall fixtures, provide 22 ga. 6" studs at 24" o.c., attached to structure. Extend drywall up to metal deck.

2. Demising Walls: Provide security mesh behind gypsum board fastened to studs on Walgreens side.

B. Isolate stud system from transfer of structural loading.
Space control joints: 30-ft. o.c. or less at partitions.
50 ft. o.c. or less at ceilings.

If top track of partition is secured to roof deck, provide "deflection track" with 2" flange and install continuous bridging within 1 ft. of track. Do not attach stud to deflection track to accommodate allowable roof deflection.

C. Install studs and furring vertically. Space studs 24" o.c. unless noted otherwise. Space furring members at 24" o.c. unless noted otherwise.

D. Provide Type X gypsum board at walls which: adjoin other tenants, separate General Sales from Stock.

E. Provide water-resistant (WR) gypsum board at all plumbing walls.

F. Erect thermal insulation vertically and hold in place with Z-furring members spaced 24" o.c.

3.03 GYPSUM BOARD INSTALLATION

A. Application and Finishing Standards: ASTM C-840, GA 216 and GA 214 (latest edition).

B. Locate exposed end butt joints as far from center of walls and ceilings as possible. Avoid butt ends when possible.

C. Do not install imperfect, damaged or damp boards.

D. Locate ends/edges over supports. Do not place tapered edges against cut edges. Stagger vertical joints over different studs on opposite sides of partition.

E. At wet areas, apply un-cut long edge of WR board at bottom of work. Seal all ends, cut edges and penetrations.

F. Fasten all gypsum board to supports with screws.

G. Exterior Soffits: Install exterior gypsum board perpendicular to supports, with end joints staggered over supports.

3.04 DRYWALL TRIM ACCESSORIES

A. Install metal trim as follows:
   1. Corner beads at external corners.

   2. Edge trim where gypsum board edge would be exposed or semi-exposed.
      a. L-type where work abuts other work.
      b. U-type at exposed edges, reveals, gasketed or sealant-filled joints.

3.05 DRYWALL FINISHING

A. Prepare work as required for decoration (textured finishes prohibited).

B. Apply joint tape at joints except where trim accessories occur.

C. Apply joint compounds in 3 coats and sand between last 2 coats and after last coat.
   1. Level 4 Finish; shall be applied to all surfaces to receive paint, wall covering, mirrors or wainscoting.
   2. Level 3 Finish; shall be applied to Toilet Room and Porter area surfaces to receive water-resistant gypsum board, ceramic tile and fiberglass polyester panels.
   3. Level 2 finish; may only be applied to surfaces located behind gondolas, not exposed to view.
   4. Level 1 Finish; may only be applied to surfaces located in ceiling plenums not exposed to view, if acceptable to local code authorities. Level 1 finish shall begin not less than 12 inches above finished ceiling.

D. All joints to be taped, filled and sanded.

END OF SECTION

SECTION 09 31 00 - THIN SET TILING

PART 1 - GENERAL

1.01 DESCRIPTION

A. Extent of glazed porcelain tile and trim is shown on drawings and schedules.
B. Patch/repair existing tiling as required where affected by work.

1.02 QUALITY ASSURANCE

A. All work shall be installed in compliance with ANSI standards and the latest edition of the Tile Council of America's "Handbook for Ceramic Tile Installation".

B. Ceramic tile materials shall comply with ANSI A137.1 "Standard Specifications for Ceramic Tile" and shall be further classified as impervious with water absorption 0.5% or less.

C. Install grout and tile sealer in restrooms in strict conformance with manufacturer's instructions.

PART 2 - PRODUCTS

2.01 PORCELAIN TILE

A. Restrooms within Labcorp suite:

1. Mid-america porcelain Yura, Lead Gray – R38304 3" x 12" x 3/8"

2. Color: Lead Gray R38304

3. Type: Glazed Porcelain.

4. Size: 12" x 12" x 3/8" thick

5. Bullnose Base and Wall Edge: Lead Gray R38304 3" x 12" x 3/8"

2.02 MORTAR

A. Rapid-setting, Polymer-modified, Flexible mortar: Product shall meet or exceed ANSI A118.4 standards. Acceptable product: Mapei Corp. Ultraflex LFT (Use Ultraflex LFT Rapid on remodel locations with operating store)

1. Moisture vapor emission from the substrate shall not exceed 11 lbs. per 1,000 sq. ft. per 24 hour period. Testing shall be performed in conformance with ASTM F-1869.

2. Relative Humidity within the substrate, measured by in-situ probes at not less than 40% of the slab depth, shall not exceed 95%. Testing shall be performed in conformance with ASTM F-2170. Provide three tests for the first 1,000 sq. ft. and one test for each additional 1,000 sq. ft.

3. Alkalinity testing shall be performed per ASTM F-710. Alkalinity of the substrate shall not exceed 9 on the ph scale. Alkalinity testing shall include, but

not be limited to, any area where concrete has been ground to ensure that the alkalinity does not exceed requirements.

2.03 GROUT

A. Fast Setting, Polymer-modified, Color-consistent, Non-shrinking, Efflorescence-free grout: Product shall meet or exceed ANSI A118.7 standard. Acceptable product: Mapei Corp. Ultracolor® Plus FAColor: #47 Charcoal.

2.04 GROUT & TILE SEALER

A. When required (due to non-Standard tile or grout), furnish and install one of the following invisible penetrating sealer products: Bostik Findley water-based acrylic "Grout & Tile Sealer™", Custom Building Products water-based "SurfaceGard®", "TileLab® Grout & Tile Sealer" or "TileLab® Grout Sealer".

2.05 EXPANSION AND CONTROL JOINT SEALANT

A. One Component, Non-sag, Mildew-resistant Silicone Sealant.

2.06 ACCESSORIES

A. Coved Shaped Base Transition – Schluter Systems Dilex-AHK 1S 100AE

PART 3 - EXECUTION

3.01 INSTALLATION

A. Comply with applicable part of ANSI 108 for tile installation.

B. Comply with applicable parts of TCA "Handbook for Ceramic Tile Installation".

1. Floor Tile: TCA F 113-95, Dry-Set Mortar or Latex-Portland Cement Mortar.

2. Wall Tile: TCA W 223-95 and W 244-95 Dry-Set Mortar or Latex-Portland Cement Mortar.

C. Extend tile work into recesses and behind fixtures. Terminate work without disrupting pattern or joint alignment.

D. Fit tiles closely to penetrations so that collars/covers overlay tile.

E. Jointing: Lay tile in grid pattern, with 3/16" joint in restrooms. Lay tile in stack bond pattern, with 1/8" joint at Sales Floor.

F. Grout tiles in conformance with ANSI A108.10.

G. Cove base shall be installed with mitered ends at all inside corners with sealant at corner joints matching grout color and special piece for outside corners.

H. Expansion and Control Joints: Provide control or expansion joints as located in contract drawings and as indicated below.

1. Substrate joints must carry through, full width, to surface of tile.

2. Install expansion joints in tile over construction/cold joints in substrates.

3. Install expansion joints where tile abut restraining surfaces (such as perimeter walls, curbs, and columns), changes in plane and corners.

4. Joint width and spacing - comply with applicable parts of TCA “Handbook for Ceramic Tile Installation”.

   a. Joint width: match substrate joint width, minimum 1/8", 1/4" preferred.

   b. Joint width to depth ratio - 2:1 but joint depth shall be minimum 1/8" and maximum 1/2".

## 3.02 CLEANING AND PROTECTION

A. Clean all completed porcelain tile surfaces to be free of foreign matter.

B. Finish installation shall be free of cracked, broken, chipped, unbonded, misaligned or other defective tile work.

END OF SECTION

SECTION 09 51 00 - ACOUSTIC CEILINGS

PART I - GENERAL

1.01 DESCRIPTION

A. The extent of acoustic panel ceilings with exposed suspension, with integrated recessed fluorescent lighting, is shown on the drawings.

1.02 QUALITY ASSURANCE

A. Fire Performance Characteristics: Provide components identical to those tested according to ASTM, UL as listed and as acceptable to authorities having jurisdiction.
   1. Surface Burning: ASTM E 84
      a. Flame Spread: 25 or less.
      b. Smoke Developed: 50 or less.

   2. Fire-Resistance Ratings: Provide systems with ratings as required by authorities having jurisdiction.

B. Comply with ASTM C 635, ASTM C 636 and Ceilings and Interior Systems Contractors Association (CISCA).

PART II - PRODUCTS

2.01 ACOUSTICAL CEILING UNITS

A. General: Provide manufacturers standard units complying with FS SS-S-118 including all accessories required for applications encountered.

B. Walgreens has established a National Account with Armstrong for ceiling tile and grid for all stores. Armstrong contacts are listed below.
   1. For Armstrong systems: Contact the Strategic Account Group 800-442-4212 (select option 1).

2.02 ACOUSTIC PANELS

A. Provide Type III, Form 2 panels, color: white, size; 24”x 48”x 5/8”,edge; square-cut lay-in from one of the following:
   1. Armstrong “Fine Fissured Humiguard” #1728.

2.03 METAL SUSPENSION SYSTEMS

A. General: Double-web, direct hung system complying with ASTM C-635.
   1. Structural Classification: Intermediate duty.

   2. Metal: Hot-dipped-galvanized steel 0.015” thick x 1-1/2” high x 15/16” face.

   3. Color: White

B. Hanger Wire: Provide not less than 12 gauge galvanized carbon steel ASTM A 641, soft temper.

B. Edge Moldings and trim: Manufacturers standard metal of types and profiles required for all applications encountered. Fabricate to fit all penetrations exactly.

C. Hold-Down Clips: Provide at 2 ft. o.c. on cross tees for interior panels subject to wind uplift or weighing less than 1 lb. /sq.ft.

D. Acceptable Manufacturers: Armstrong “Prelude XL” exposed tee, color; white.

F. Seismic Areas: When required by authorities having jurisdiction provide “Heavy Duty “systems approved by local authorities: Armstrong “Prelude XL” with stab-in cross tees.
1. Compression Posts: USG’s, Donn Corporation #VSA 12, 24 or 47 as required.

2. Edge Molding: Manufacturers 2 inch wide unit conforming to local requirements.

PART III - EXECUTION

3.01 INSTALLATION

A. Install systems in compliance with ASTM C 636, governing regulations and fire-resistance requirements. Support hangers only from structural members. Do not attach or suspend hangers from metal deck. Locate hangers not less than 6” from each end and spaced 4ft. o.c. along main runner. Locate hangers at 4 ft. o.c. each direction if main runners are spaced greater than 4 ft. o.c. Level to within 1/8” in 12ft. Limit deflection to 1/360 of span length in inches.

B. Install hangers plumb and free from contact with objects that are not part of structural or ceiling system. Wire connections shall be capable of supporting a 100 lb. allowable load.

C. Provide main runners or continuous cross tees in line with the long dimension of each side of recessed lights. Provide a hanger wire at the midpoint of each cross tee located on the long dimension of a recessed light fixture. 4 ft. cross tees supporting light fixtures is prohibited. Entire suspension system shall be completely connected forming a homogeneous frame. Independent/unattached fields are prohibited.

D. Pop rivets shall be minimized. Use only when manufacturer does not make an accessory to secure the system in the condition encountered.

E. Provide trim and moldings as required to conceal edges of acoustic tiles.

E. Install panels to fit accurately at borders and penetrations.

F. Suspended ceiling system shall not be used to support ductwork, plumbing, sprinklers, insulation, etc.

3.02 ADDITIONAL SEISMIC REQUIREMENTS

A. General: Comply with requirements of authority having jurisdiction in the respective seismic zone.

B. Individual light fixtures or other attachments to the ceiling system, with a combined weight of 56 lbs. or less shall have two 12 gauge wire hangers attached, with slack, at diagonal corners of the fixture to prevent drop out.
1. Any fixture or attachment weighing greater than 56 lbs. must be independently supported from the structure.

C. The minimum connection strength for main and cross runner intersection/splices shall be 60 lbs. in compression and tension (must allow 5 degree offset in any direction).

1. Ceiling system actual weight, including grid, panel, light fixtures and air terminals to be 2.5 lbs./sq. ft. or less. All other services must be independently supported from structure.

2. For ceiling weighing more than 2.5 lbs./sq. ft. consult local authorities for requirements.

3. Provide vertical compression posts or struts as required by local authorities.

D. The ceiling system cannot be used to provide lateral support for walls or partitions.

E. Perimeter closure angles must provide a min. 7/8", support ledge. Terminal ends of grid or tile must rest on ledge with min. 3/8" clearance from wall.

1. For support ledges smaller than 7/8", terminal ends of cross or main runners shall be independently supported within 8" from each wall or ceiling discontinuity. This support must prevent grid from falling. This support should not be out of plumb greater than 1 in 6. Maintain 3/8" end clearance from wall.

2. All penetrations ie; columns, sprinklers, etc. and independently supported fixtures are considered perimeter closures that must allow noted clearances.

F. At wall closure ledges, cross and main runners must be prevented from spreading apart. Permanent attachment for grid alignment purposes is prohibited.

3.03 ADJUST AND CLEAN

A. Clean exposed surfaces of panels, moldings and trim. Remove and replace work that cannot be cleaned to permanently eliminate evidence of damage.

3.04 ATTIC STOCK

A. Provide two bundles (24 tiles minimum) of acoustic ceiling tiles.

END OF SECTION

SECTION 09 65 00 - RESILIENT FLOORING

PART 1 - GENERAL

1.01 DESCRIPTION

A. Types:

1. Vinyl composition tile flooring.

2. Luxury Vinyl Tile

3. Vinyl wall base and floor finishing accessories.

B. Extent of resilient flooring is shown on drawings and schedules.

C. Tiles and adhesives shall be provided and installed by General Contractor unless specifically identified otherwise below.

1.02 QUALITY ASSURANCE

A. Provide resilient flooring complying with the following fire performance criteria.

1. Smoke Density: Less than 450 per ASTM E 662.

2. Critical Radiant Flux (CRF): Not less than 0.45 watts/sq. cm. per ASTM E 648 - Class I.

B. Moisture vapor emission from the substrate shall not exceed 3 lbs. per 1,000 sq. ft. per 24 hour period for solid vinyl and vinyl sheet flooring; nor 5 lbs. per 1,000 sq. ft. per 24 hour period for vinyl composition tile and luxury vinyl tile. Testing shall be performed in conformance with ASTM F 1869.

C. Relative Humidity within the substrate, measured by in-situ probes at not less than 40% of the slab depth, shall not exceed 90% for floors to receive vinyl composition tile, shall not exceed 85% for floors to receive luxury vinyl tile, and shall not exceed 80% for floors to receive solid vinyl or vinyl sheet flooring. Testing shall be performed in conformance with ASTM F 2170. Provide three tests for the first 1,000 sq. ft. and one test for each additional 1,000 sq. ft.

D. Calcium Chloride tests (ASTM F 1869) and Relative Humidity tests (ASTM F 2170) may be used alone or concurrently. If both tests are conducted concurrently, both must satisfy the specification requirements.

E. Alkalinity of the substrate shall not exceed 9 on the ph scale. Test the ph of any area where concrete has been ground to ensure that alkalinity does not exceed requirements.

F. Install resilient flooring in conformance with flooring manufacturer’s instructions.

G. Comply with ASTM F-710 “Standard Practice for Preparing Concrete to Receive Resilient Flooring”.

1.03 DELIVERY STORAGE & HANDLING

A. Deliver tiles and installation accessories to Project site in manufacturer's original unopened containers, each bearing names of product and manufacturer, Project identification, and shipping and handling instructions.

B. Protect and store finished flooring products for not less than 72 hours in the ambient conditions in which they will be installed and maintained during permanent use.

## PART 2 - PRODUCTS

### 2.01 VINYL COMPOSITION TILE FLOORING (VCT)

Provide VCT flooring as indicated on drawings for patching and replacement.

1. Manufacturer: Armstrong Flooring Company Vinyl Composition Tile: ASTM F 1066 (Latest Edition), Size: 12" x 12" x 1/8". 1. Color #1: a. Armstrong Standard Excelon, Imperial Texture, Color: 51911 Classic White.

2.02 LUXURY VINYL TILE (LVT)

Provide LVT flooring as indicated on drawings.

1. Centiva American Cherry #3305 – 6” x 36”.

2.03 ACCESSORIES

A. Wall base: Provide as indicated on drawings

1. Johnsonite # 63 Burnt Umber

2. Johnsonite # 20 Charcoal

3. Style : Top set cove

4. Height: 6”

5. Thickness: 1/8”.

B. Resilient Edge Strips: (At transition to concrete) 1/8” thick, 1” wide, homogenous vinyl, tapered or bullnose edge, color to match flooring.

C. Adhesives: Water-resistant stabilized type as recommended by flooring manufacturer or as indicated below.

1. Vinyl Composition Tile: SprayLock 9500, 9500 Platinum, 9500 Elite (Type as recommended by manufacturer based on vapor emissions, RH, and PH.).

2. Vinyl Wall Base: Johnsonite 960 Acrylic Cove Base Adhesive.

3. High moisture: Use Armstrong adhesive #S-240 in areas that are consistently wet.

4. Scribing Felt: Per manufacturer approved adhesives.

D. Leveling and Patching Compounds: Fast Setting Cement-Based Patch Coat or portland cement based latex types as recommended by flooring manufacturer.

E. Scribing Felts: Gray cellulosic synthetic fiber felt.

PART 3 - EXECUTION

3.01 GENERAL

A. Inspect to ensure satisfactory substrate surfaces. Satisfactory means smooth and free from cracks, holes, ridges, and coatings preventing adhesive bond, detrimental moisture vapor emissions and other defects impairing performance or appearance.

3.02 INSTALLATION

A. Scribe, cut and fit resilient flooring to permanent fixtures, built-in furniture, pipes, outlets, columns and walls.

B. Tightly cement flooring to subbase without open cracks, voids, raising or puckering at joints or telegraphing.

C. Avoid use of cut widths less than 1/2 tile at room perimeters. Lay tile square to room axis.

D. Lay tiles as follows:

1. Interlocking tiles

a. Tiles will have directional arrows illustrated on the back of each tile.

b. Use 3M spray adhesive

c. Allow a ¼" space around the room perimeter for the PharmEze interlocking tiles expansion.

2. Luxury Vinyl Tile

a. Tiles shall be laid with grain running in one direction.

E. Provide flash cove base (turned up vinyl sheet) if required by local Health Dept. at select areas of the store.

F. VCT Protective Coat: General Contractor shall use floor cleaning company approved and recommended by Diversey Inc.

Following tile installation (preferably within 24-48 Hours, the floor should be swept, damp mopped with Revive Plus SC and allowed to thoroughly dry.

G. Flooring system initial cleaning and preparation: General Contractor shall use floor cleaning company approved and recommended by Diversey Inc. for the proposed flooring system. Email request to Diversey Inc. at nasalesop.retail_foodservice@sealedair.com. Identify the proposed flooring system and ask for the Walgreen's New Store Coordinator to obtain an approved Building Service Contractor. The cleaning contractor is responsible for providing equipment, cleaning chemicals, finish materials and labor to complete requested service. He will also agree to carry Workmen's Compensation, public liability and property damage insurance in form and amount acceptable to The Walgreen Company.

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3.03 ACCESSORY INSTALLATION

A. Scribing Felts: When installing thinner gauge material next to thicker materials, install thicker material first.

1. Butt 12-inch wide piece of Scribing Felt against thicker material and adhere with specified adhesive.

2. Use leveling or patching compound to feather edge of scribing felt to level of substrate.

3. Allow patch to dry completely before installing flooring.

B. Apply base in longest possible lengths. Miter or cope inside corners, make non-penetrating "v-cut" on backside to form outside corners.

C. Place edge strips tightly butted to flooring at locations where tile edges would otherwise be exposed.

D. Walgreens wood fixtures, except for the Beauty checkout with pre-finished base, shall receive a 6-inch vinyl base:

1. General Sales Checkout
2. Well Connected Checkout
3. Pharmacy Checkout
4. Pharmacy work counter
5. Consult Room cabinets

E. Do not install vinyl base joints directly over wall panel or wall covering joints.

3.04 CLEANING AND PROTECTION

A. Remove excess adhesive and other surface blemishes.

B. Protect flooring from construction damage as recommended by flooring manufacturer.

3.05 ATTIC STOCK

A. Provide one box (44 s.f.- minimum) of each type of tile flooring.

END OF SECTION

SECTION 09 77 00 - SPECIAL WALL SURFACING

PART 1 - GENERAL

1.01 DESCRIPTION

A. The extent of Fiberglass Reinforced Panels (FRP), Corner Guards, and Column Covers is shown on schedules and drawings.

1.02 QUALITY ASSURANCE

A. Fire Performance: Products shall comply with the following when tested according to ASTM E-84:
   1. Flame Spread: Marlite Induro FRP, Class C, less than 200.
      Marlite Class C "FRP", less than 200.

   2. Smoke Developed: Marlite Induro FRP. Class C, less than 450.
      Marlite Class C "FRP", less than 450.

1.03 WARRANTY

A. Marlite panels: Furnish one year guarantee against defects in material and workmanship.

1.04 SUBMITTALS

A. Contractor shall submit the Marlite panels shop drawings to the Architect of Record. Submit elevations of each wall showing location of paneling and trim members with respect to all discontinuities in the wall elevations.

PART 2 - PRODUCTS

2.01 CORNER GUARDS

A. Provide 16 or 18 gauge stainless steel, type 304 or 430, #4 finish.

B. Acceptable Manufacturers:

   1. Retail Specialty Incorporated

      a. 14026 Simone Dr., Shelby Twp., MI 48315, 586-566-7716.

   2. Tubular Specialties, Inc.

      a. 13011 South Spring St., Los Angeles, CA 90061, 800-225-5876.

   3. Wilkinson Company, Inc.

      a. 1530 Commerce Drive, Stow, Ohio 44224-1781, 800-686-6726.

END OF SECTION

SECTION 09 90 00 - PAINTING AND WALLCOVERING

PART 1 - GENERAL

1.01 DESCRIPTION

A. Work includes paint, wallcovering and finish of exposed surfaces using the combination of materials as specified herein, and as needed for complete and proper installation

1. Extent of painting and vinyl wallcovering is shown on drawings and schedules.

2. Work includes painting and finishing of interior and exterior surfaces as indicated.

3. Painting of mechanical/electrical work as specified in MEP sheets.

B. Related Work: Primary or priming and finishing of certain surfaces may be specified to be factory-performed or installer performed under pertinent other sections

1.02 QUALITY ASSURANCE

A. Use work force, trained and experienced in the necessary skills familiar with the specified requirements and the methods needed for proper performance of the work.

1. High impact wall covering Installer Qualifications: Installer should have a minimum of three years' experience in installation of systems similar in complexity to those required for this project.

B. Paint Coordination:

1. Where applicable, provide finish coats which are compatible with the prime coats actually used.

2. Review other sections of these specifications as required, verifying the prime coats to be used and assuring compatibility of the total coating system for the various substrate.

3. Upon request, furnish information on the characteristics of the specific finish materials to assure that compatible prime coats are used.

4. Provide barrier coats over non-compatible primers or remove the primer and re-prime as required.

C. Fire hazard classification: Provide vinyl wallcovering materials with the following classifications per ASTM E-84, Class A.

1. Flame spread not more than 25.

2. Smoke Developed

a. Paint and vinyl wallcovering not more than 45.

b. Vinyl acrylic wall covering not more than 450.

D. Install all work in accordance with manufacturer's instructions.

1.03 WARRANTY

A. Paint: Provide a seven year non-prorated material and labor warranty related to defects in material.

B. Vinyl Wall Covering: Provide a one (1) year warranty against manufacturer's defects only.

C. High Impact Wall Covering: Provide a Five (5) year Limited Warranty.

D. Color Treatment for Single Wythe Concrete Masonry Unit Exterior Walls: Provide a 25 year manufacturer's warranty against manufacturer's defects.

E. Anti-Graffiti Coating: Provide a limited 10 year performance warranty.

1.04 DELIVERY, STORAGE AND HANDLING

A. Store materials not in use in tightly covered containers in well-ventilated areas with ambient temperatures continuously maintained at not less than 45° F.

1.05 PROJECT CONDITIONS

A. Apply paints only when the temperature of the product, surfaces to be painted and the ambient air temperatures are between 50° and 90° F, unless otherwise permitted by the manufacturer's printed instructions, and as approved by Walgreens.

B. Weather Conditions:

1. Do not apply paints in snow, rain, fog, or mist; or when the relative humidity exceeds 85 percent; or to damp or wet surfaces unless otherwise permitted by the manufacturer's printed instructions and as approved by Walgreens.

2. Applications may be continued during inclement weather within the temperature limits specified by the paint manufacturer as being suitable for use during application and drying periods.

PART 2 - PRODUCTS

2.01 PAINT

A. Provide paint obtained through National Accounts as produced by Benjamin Moore or Pittsburgh Paints (see Part III for schedule). Substitutes are subject to Walgreens approval only where Benjamin Moore or Pittsburgh Paints are unavailable. National Account contacts are:

1. Benjamin Moore: Mary Hoffman 815-919-0209 or Michael Ecke 201-783-7658
Direct order line: 877-623-8484

2. PPG: Rick Z. Garlin 317-318-5800 or
PPG National Accounts 866-298-7245, www.ppgcorpaccts.com.

B. Undercoats and Thinners:

1. Where applicable, provide undercoat paint produced by the same manufacturer as the finish coat.

2. Use only thinners recommended by the paint manufacturer and use only to the recommended limits.

3. To the extent practical, use undercoat, finish coat and thinner material as part of a unified system of paint finish.

C. Application Equipment:

1. For application of the approved paint, use only such equipment as is recommended for application of the particular paint by the manufacturer of the particular paint.

2. Prior to actual use of application equipment, verify that the proposed equipment is actually compatible with the material to be applied and that the integrity of the finish will not be jeopardized by use of the proposed equipment.

2.02 VINYL WALL COVERING

A. Vinyl wallcovering: Type II, medium duty, Class A, complying with FS CCC-W-408. Obtain vinyl wallcoverings through Walgreens National Account.

1. See drawings and schedules for pattern numbers.

2. Contact D.L. Couch Wallcoverings, Jacquie Guerrieri or Charla Keiser at (800) 433-0790 ext. 1000 or CKeiser@DLCouch.com. Reference the following information when ordering:

a. 20 oz. Vinyl with Osnaburg backing.

b. 53/54” inch wide

3. Stores in Puerto Rico, Florida, South Carolina, Georgia, Alabama, Mississippi, Louisiana, Arkansas, Tennessee, east Oklahoma and east Texas (East of 99° W Longitude) shall receive perforated vinyl wall covering. Reference perforated wallcovering add “P” after pattern number when ordering.

B. Adhesive shall be heavy duty, clay based and mildew resistant. Acceptable products:

1. Roman Decorating Products, Extra Strength™, Pro-732

2. Gardner-Gibson Dynamite™ #433 Heavy Duty Strippable Clay Wallcovering Adhesive

3. Perforated wallcovering adhesive shall be Roman Decorating Products ECO-888

C. Primers (clear). Acceptable products:

1. Gardner-Gibson Dynamite #221 Acrylic Primer & Sizing

2. Roman Decorating Products, Vinyl Prep®, PRO-909

3. Rust-Oleum Co. Zinsser ”Shieldz®Clear”

4. Perforated wallcovering primer shall be Roman Decorating Product ECO-988.

2.03 VINYL ACRYLIC WALL COVERING

A. Acceptable manufacturer: Grand Entrance. Contact (888) 424-6287, e-mail GEorders@c-sgroup.com, or fax (908) 849-4295 to order the complete packaged system, containing primers and adhesive.

B. Product: Acrovyn® 4000 .060N High-Impact Wall Covering.

1. Color: See drawings and schedule

2. Texture: Suede

3. Size: 4’ x 8’, 4’x10’ and/or 4’x12’ sheets. Verify available sizes and select the longest length sheets to maximize the spacing of seams.

4. Thickness: nominal 0.060”

C. Trim in General Sales:

1. Acrovyn Vertical Joint Trim; Color #949 White

a. Vertical Joint Trim shall not be used between sheets of #716 Neon Red around entrance.

2. Acrovyn Brushed Aluminum Wainscot/Top Cap Trim (NOT to be used at vertical edge)

3. Acorvyn Brushed Aluminum 90° Inside Corner Trim and 90° Outside Corner Trim

4. Acrovyn Brushed Aluminum 135° Inside Corner Trim is available when it is required.

D. Trim in Employee Room:

1. Acrovyn Wainscot/Top Edge, Vertical Joint, 90° Inside Corner and 90° Outside Corner Trim: Color to match the vinyl acrylic wallcovering.

E. Caulk: Color to match the vinyl acrylic wallcovering, except for #716 Neon Red which shall have Clear Silicone Caulk.

F. Adhesive: Grand Entrance Acrovyn Heavy-Duty Water-Base Mastic Freeze-Thaw

G. Primer: Grand Entrance Acrovyn Water-Base Mastic Primer

2.04 MISCELLANEOUS PRODUCTS

A. Anti-Graffiti Coating (if required): Provide “Graffiti Solution System®” manufactured by GSS Coatings LLC. System components include GSS Barrier, GSS-10 Anti-Graffiti Top Coat Protectant and GSS Erasol®. Contract Gordon Daw at (801) 255 -9505 extension 1 or fax at (801) 255-7123 for approved local installers. Apply to a height of 15'-0" above finished first floor or as directed by Walgreens project architect.

B. Color Treatment for Single Wythe Concrete Masonry Unit (CMU) Exterior Walls:

1. Provide Nawkaw Corporation NWRT-91 Dual-purpose color/water repellant application. System is a water based, multiple polymer formulation of resin solids and color pigments, is UV resistant, light-fast and mold, mildew and fungus resistant.

2. Color: Formulate to match adjacent face brick as approved by architect through verification samples of product applied to identical concrete masonry units from which the wall was constructed.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Examine the areas and conditions under which work of this section will be performed. Correct conditions detrimental to timely and proper completion of the work. Do not proceed until satisfactory conditions are corrected.

1. Do not paint over dirt, rust, scale, grease, moisture or other conditions detrimental to formation of a durable paint film.

2. Prior to installation of wall covering, all gypsum board substrate must be clean, smooth, dry and free of dust, dirt, debris and loose particles which may affect proper adhesive bonding. Perform additional preparation procedures as required by manufacturer’s instructions.

3.02 PREPARATION

A. Schedule the cleaning and painting so that dust and other contaminants from the cleaning process will not fall onto wet, newly painted surfaces.

B. Remove hardware, accessories, plates, light fixtures and other items not to be painted or wall covered.

1. If removal is impractical or impossible, provide surface –applied protection before surface preparation and painting.

2. Do not paint over code required labels or those of independent testing agencies, or equipment name, identification, performance rating, or nomenclature plates.

3. Following completion of painting and wallcovering work in each space or area, reinstall removed items by using work force skilled in the necessary trades.

C. Clean substrates of substances that could impair bond of primers, adhesives or paints, including dirt, oil, grease, and incompatible paints and encapsulates.

D. When existing interior doors are to be reused and repainted (remodel), prepare door surface as follows: Surface to be coated must be dry, clean, sound and free from all contamination including loose and peeling paint, dirt, grease, oil, wax, concrete curing agents and bond breakers, caulk,

efflorescence, mildew, rust, product fines, and dust. Remove loose paint, caulk, and efflorescence by brushing, scraping, sanding, and or pressure washing. Putty all nail holes and caulk all cracks and open seams, sand all glossy, rough and patched surfaces, Feather back all rough edges to sound surfaces by sanding.

E. When existing non-painted interior wall surfaces (wall covering, melamine, laminate) are to be painted, surface to be coated must be dry, clean, sound and free from all contamination including dirt, grease, oil, wax, concrete curing agents and bond breakers, caulk, efflorescence, mildew, product fines, and dust. Patch all holes in surfaces with product compatible with existing materials.

F. When existing interior/exterior window frames are to be painted, surface to be coated must be dry, clean, sound and free from all contamination including loose and peeling paint, dirt, grease, oil, wax, concrete curing agents and bond breakers, caulk, efflorescence, mildew, rust, product fines, and dust. Remove loose paint, caulk, and efflorescence by brushing, scraping, sanding, and or pressure washing. Patch all holes in surfaces with product compatible with window material and appropriate for exterior conditions when applicable. Feather back all rough edges to sound surfaces by sanding. Sand all glossy, rough, and patched surfaces, Follow Manufacturers requirements for weather conditions prior to painting exterior surfaces.

G. Prime and seal surfaces to receive wall covering in accordance with manufacturer recommendations.

H. When existing E.I.F.S is to be painted, surface to be coated must be dry, clean, sound and free from all contamination including dirt, grease, oil, wax, concrete curing agents and bond breakers, caulk, efflorescence, mildew, product fines, and dust. Patch all holes in surfaces with product compatible with existing materials. When painting only small area due to patching of wall, paint wall to surface break line or joint. Match existing adjacent color. When painting EIFS with new color, paint all EIFS. Verify Color with Walgreens.

3.03 PAINT APPLICATION

A. Apply paints to produce surface films without cloudiness, spotting, holiday's laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections.

1. Apply additional coats until surfaces are completely covered and cured film has a uniform paint finish, color and appearance.

B. Allow sufficient drying time between coats. Modify the period as recommended by the material manufacturer to suit adverse weather conditions.

C. Paint surfaces behind movable equipment.

D. Paint interior surfaces of ducts where visible through the diffuser, with flat, non-specular black paint.

E. Paint grilles and registers at ceilings and walls to match adjacent surfaces.

F. Paint all doors on tops, bottoms, sides and faces.

G. Completed Work: Refinish or repaint work not in compliance with specified requirements.

H. Paint all ferrous metal.

1. Paint exposed exterior natural gas piping.

2. Paint bollards to match highway yellow color.

3.04 VINYL WALLCOVERING INSTALLATION

A. Install seams plumb and 6” minimum from corners. Horizontal seams are prohibited, except as otherwise noted. Remove air bubbles, wrinkles, blisters and other defects.

B. Trim selvages to assure color uniformity and pattern match.

C. Remove excess adhesive from seams.

3.05 VINYL ACRYLIC WALLCOVERING

A. Install sheets in accordance with the manufacturer’s instructions.

B. Sheet Installation:

1. Temperature at the time of installation must be between 65 to 75°F and be maintained for at least 48 hours after the installation to allow for proper adhesive set up.

2. Relative humidity shall not exceed 80%.

3. Do not expose wall covering to elevated temperature or direct sunlight during or after installation. This will cause the surface temperature to rise which in turn will cause bubbles and delamination.

4. All drywall must be sealed/primed at least 24 hours before installation of the wall covering.

5. For suede texture, solid color sheets only: Installation shall minimize the number of vertical seams by orienting the sheets to maximize the spacing of seams. Horizontal joint seams are not permitted.

6. For linen textures or non-solid color patterns sheets shall be installed so patterns or textures are all oriented in the same direction.

7. Do not install the sheet edge tight against adjacent sheet or trim. Provide space per manufacture Thermal Movement Chart to allow thermal movement.

8. Provide a minimum 1/16” space for thermal expansion against door jambs and ceiling.

9. Wainscot Height Installation: Extend sheet 2” below top of the wall base.

C. Trim Installation:

1. Notch back of the wainscot trim where it intersects any vertical trim.

2. Terminate vertical trim at wall base top to avoid ripples in the wall base.

3. Vertical joint trim shall not be used between sheets of #716 Neon Red. Install with 1/16” gap between sheets and apply clear silicone caulk to fill gap.

3.06 APPLICATION OF COLOR TREATMENT FOR SINGLE WYTHE CMU WALLS

A. Verify that new masonry has cured at least twenty-one (21) days prior to starting work.

B. Verify that surfaces to receive work have a neutral pH.

C. Notify Architect of unsatisfactory conditions before proceeding.

D. Do not proceed when ambient temperatures are less than 25 degrees F or greater than 110 degrees F.

E. Verify color uniformity after twelve (12) hours of application. Recoat areas where blotches, blemishes, or imperfections are present.

F. Protect shrubs, metal, wood trim, glass, paving, equipment, light fixtures, hardware and other adjacent surfaces and materials from overspray during application.

3.07 CLEANING AND PROTECTION

A. As work proceeds, and upon completion, clean paint spatters from window glass, equipment and other paint spattered surfaces.

1. Do not scratch or damage adjacent finished surfaces.

B. Protect work of others against damage from painting and wallcovering work. Repair, repaint or replace damaged surfaces as acceptable to Walgreens.

C. Vinyl acrylic wall covering: Remove excess adhesive immediately. Use soap and water to clean any areas that may have adhesive residue. Do not use cleaner which contains Methyl Ethyl Ketone (MEK) or similar solvent on vinyl acrylic wall covering. Do not use Scotch Brite Pads, steel wool or similar cleaning pad on vinyl acrylic wall covering.

3.08 PAINTING SCHEDULE

A. Sales Areas (gypsum wallboard) including Pharmacy Waiting, Soffits and Glass Tower (where applicable):

1. Prime Coat. Acceptable products:
    a. Benjamin Moore: None Required (finish coats are self-priming)
        1) Exception: Soffits incorporating finish coats of color require use of Aura Color Foundation/ Prime Coat in order to achieve maximum hide and desired finish coat color.
    b. PPG: None Required (finish coats are self-priming)

2. Finish Coat. See drawings and schedules for color. Acceptable products:
    a. 2 coats, Benjamin Moore Aura Matte Finish Latex (#522).
    b. 2 coats, PPG Paints Manor Hall Interior Eggshell Finish Latex (83-310 series).
        1) Tinted to match the Benjamin Moore (B-M) specified color.

3. Unless otherwise noted on drawings, soffit undersides tinted to match B-M’s specified color "Decorators White I-04".

4. Glass Tower walls and ceiling (where applicable) interior tinted to match B-M’s specified color "Decorators White I-04”.

B. Existing Wall Surfaces: Wall Covering (Store Remodel) Verify local VOC requirements.

1. Prime coat:

a. Gardz Problem Surface Sealer GDZ-01, (VOC <100g/L) (recommended to test small area prior to full covering)

b. PPG Paints:: Seal Grip Primer 17-921XI (VOC <50 g/L) (recommended to test small area prior to full covering)

2. Finish Coat

a. 2 coats, Benjamin Moore: Aura Matte Finish Latex (#522) (VOC 0 g/L)

b. 2 coats, PPG Paints: Manor Hall Interior Eggshell Finish Latex (82-310 series). (<50 VOCg/L)

C. Existing Wall Surfaces: Melamine and Laminate (Store Remodel). Verify local VOC requirements.

1. Prime coat Acceptable products:

a. Benjamin Moore: Fresh Start Multi-Purpose Latex Primer N (VOC 44g/L)

b. PPG Paints: Seal Grip Primer 17-921XI (VOC <50 g/L)

2. Finish Coat

a. 2 coats, Benjamin Moore: Aura Waterborne interior Matte Finish 522 (VOC 0 g/L)

b. 2 coats, PPG Paints Manor Hall Interior Eggshell Finish Latex (82-310 series). (<50 VOCg/L)

D. Stockroom, Passages, Rubbish Room and other rooms not otherwise noted (gypsum wallboard):

1. Prime Coat. Acceptable products:

a. Benjamin Moore: None Required (finish coats are self-priming).

b. PPG: None Required (finish coats are self-priming).

2. Finish Coat. See drawings and schedules for color. Acceptable products:

a. 1 coat, Benjamin Moore Aura Matte Finish Latex (#522).

b. 1 coat, PPG Paints Manor Hall Interior Eggshell Finish Latex (82-300 series).

1) Tinted to match B-M’s specified color.

E. Office, Employee, Multipurpose and Training rooms (gypsum wallboard):

1. Prime Coat. Acceptable products:

a. Benjamin Moore: None Required (finish coats are self-priming).

b. PPG: None Required (finish coats are self-priming).

2. Finish Coat. See drawings and schedules for color. Acceptable products:

a. 2 coats, Benjamin Moore Aura Matte Finish Latex (#522).

b. 2 coats, PPG Paints Manor Hall Interior Eggshell Finish Latex (83-310 series).

1) Tinted to match B-M’s specified color.

F. Pharmacy Area (gypsum wallboard):

1. Prime Coat. Acceptable products:
    a. Benjamin Moore: None Required (finish coats are self-priming).
    b. PPG: None Required (finish coats are self-priming).
2. Finish Coat. See drawings and schedules for color. Acceptable products:
    a. 2 coats, Benjamin Moore Aura Matte Finish Latex (#522).
    b. 2 coats, PPG Paints Manor Hall Interior Eggshell Finish Latex (83-310 series).
        1) Tinted to match B-M's specified color.

G. Consult PSC Suite and Clinic rooms (gypsum wallboard):

1. Prime Coat. Acceptable products:
    a. Benjamin Moore: None Required (finish coats are self-priming).
    b. PPG: None Required (finish coats are self-priming).
2. Finish Coat. See drawings and schedules for color. Acceptable products:
    a. 2 coats, Benjamin Moore Aura Matte Finish Latex (#522).
    b. 2 coats, Pittsburgh Paints Manor Hall Interior Eggshell Finish Latex (83-310 series).
        1) Tinted to match B-M's specified color.

H. Interior Wood Doors, Hinges, Door Frames:

1. Prime Coat. Acceptable products:
    a. Benjamin Moore Advance Waterborne Interior Alkyd Primer (#0790) .
    b. PPG Paints Seal Grip Primer Sealer 17-921.
2. Finish Coat. See drawings and schedules for color. Acceptable products:
    a. 2 coats, Benjamin Moore Advance Waterborne Interior Alkyd Satin (#0792)
    b. 2 coats, PPG Paints Interior Speed Hide Alkyd Satin 6-1410.
        1) Tinted to match B-M's specified color.
3. In areas where VOC regulations prohibit use of the above, use the following system:
    a. Prime Coat. Acceptable products:
        1) PPG Paints Speedhide Interior Acrylic Enamel Undercoater 17-951.
    b. Finish Coat. See drawings and schedules for color. Acceptable products:
        1) 2 coats, PPG Paints Speedhide 0 Interior Semi-Gloss Latex Enamel 6-4510XI
            a) Tinted to match B-M's specified color.

I. Existing Interior Metal or Wood Doors and Frames to be Refinished and repainted (Store Remodel)

1. Finish Coat (Primer not required unless patching material was used)
    a. 2 coats, PPG Paints Break-Through V51-410 for Low VOC<50g/l

J. Existing Interior and Exterior prefinished metal window, mullion or storefront framing (Store Remodel).

1. Prime coat
    a. Benjamin Moore: Super Spec HP Acrylic Metal Primer P04 (VOC 48g/L)
    b. PPG paints: Seal Grip Primer 17-921XI (VOC <50 g/L)
2. Finish Coat. Acceptable products
    a. 2 coats, Benjamin Moore: Ultra Spec EXT Satin Finish N448 (VOC 46 g/L)
    b. 2 coats, PPG paints: Break-Through V51-410 Satin ( VOC < 50 g/L)

K. Exterior Metal Doors, Hinges and Frames:

1. Prime Coat. Acceptable products:
    a. Benjamin Moore Super Spec HP Acrylic Metal Primer P04.
    b. PPG Paints Pitt-Tech Plus 4020PF DTM Primer.
2. Finish Coat. Color shall match adjacent wall color. Utilize one solid color when there are multiple color adjacencies. Acceptable products:
    a. 2 coats, Benjamin Moore Super Spec HP Acrylic Semi-Gloss Enamel P29.
    b. 2 coats, PPG Paints Pitt-Tech Plus SG 4216 PF

L. Fire Retardant Wood (where required by code):

1. Prime Coat. Acceptable products:
    a. Benjamin Moore Ultra Spec 500 Zero VOC Interior Latex Primer N534.
    b. PPG Paints Speedhide Interior Acrylic Enamel Undercoater 17-951.
2. Finish Coat. Acceptable products:
    a. 2 coats, Benjamin Moore Insl-X Latex Fire Retardant Paint LFR-1100.
    b. 2 coats, PPG Paints Speedhide Interior Fire Retardant Flat Latex (42-7).

M. Concrete Block, Concrete, Masonry (Interior):

1. Prime Coat. Acceptable products:
    a. Benjamin Moore Super Spec Masonry Interior/Exterior Acrylic High Build Masonry Primer N068.
    b. PPG Paints Speedhide Seal Grip (17-921, masonry), (6-7, concrete block).
2. Finish Coat. Acceptable products:
    a. 2 coats, Benjamin Moore Ultra Spec 500 Zero VOC Interior Flat Finish N536
        1) Color “Decorators White I-04” Premixed Color.
    b. 2 coats, PPG Paints Speedhide 0 Interior Flat Latex (6-4110XI)
        1) Tinted to B-M’s “Decorators White I-04”.

N. Existing E.I.F.S (remodel)

1. Prime coat: Acceptable products

   a. Benjamin Moore Ultra Spec Masonry 100% Acrylic Sealer 0609

   b. PPG Paints 4-808 Perma Crete Sealer, 100% Acrylic

2. Finish Coat: Acceptable Products

   a. 2 Coats, Benjamin Moore Ultra Spec Exterior Low Lustre N455 100% Acrylic Latex paint

   b. 2 Coats, PPG Paints 76-110XI Exterior Satin 100% Acrylic Latex paint

O. Ferrous Metal:

1. Interior, including Sales Area structural columns:
   a. Prime Coat. Acceptable products:
      1) Benjamin Moore Super Spec HP Acrylic Metal Primer P04.
      2) PPG Paints Industrial Pitt-Tech DTM Primer 90-712.

   b. Finish Coat. Acceptable products:
      1) 2 coats, Benjamin Moore Ultra Spec 500 Zero VOC Interior Semi- Gloss Finish N539
         a) Color “Decorators White I-04” Premixed Color.
      2) 2 coats, PPG Paints Speedhide 0 Interior Semi-Gloss Latex (6-4510XI)
         a) Tinted to B-M’s “Decorators White I-04”.

2. Exterior:
   a. Prime Coat:
      1) Self-priming on properly prepared surfaces.
   b. Finish Coat. Acceptable products:
      1) 2 coats, Benjamin Moore Super Spec HP Acrylic Semi-Gloss Enamel P29.
      2) 2 coats, PPG Paints Pitt-Tech One Pack Satin Industrial Enamel (90-474 Series).

P. High Performance Coating (Exterior Structural Steel Entry Canopy)

1. Spot Prime. Acceptable products:
   a. Benjamin Moore COROTECH Acrylic Metal Primer V110
   b. PPG Paints Pitt-Guard All Weather DTR Epoxy 97-946
2. Intermediate Coat (5.0 Mils Dry Film Thickness). Acceptable products:
   a. Benjamin Moore COROTECH Aliphatic Acrylic Urethane Semi-Gloss V510
   b. PPG Paints Auqapon Epoxy HB Polyamide 97-131 Line

3. Top Coat (4.0 Mils Dry Film Thickness). Acceptable products:
   a. Benjamin Moore COROTECH Aliphatic Acrylic Urethane Semi-Gloss V510

b. PPG Paints Pitthane Ultra-Gloss Urethane, 95-8880 Series

4. Protective Coat. (1.5 Mils Dry Film Thickness). Acceptable products:
   a. Benjamin Moore COROTECH Aliphatic Acrylic Urethane Gloss Clear V500
   b. PPG Paints Pitthane 35 Gloss Urethane Enamel, 95-850 Series

5. Unless otherwise noted on drawings. Color:
   a. Benjamin Moore's (#1594) 'Shaker Gray'
   b. PPG Paints (#517-5) 'Phoenix Fossil'

Q. Tilt-up Concrete (Southern Prototype exterior of Puerto Rico stores only):

1. Prime Coat. Acceptable products:
   a. Pittsburg Paints (PPG) "Perma-Crete" Interior/Exterior alkali Resistant Primer (4-603).
   b. Sherwin-Williams Company "Loxon" Exterior Acrylic Primer A24W300.

2. Intermediate Coat (use only if using the SW prime and finish coats)
   a. Sherwin-Williams Company "UltraCrete" Texture Coating Medium #A44W811.

3. Finish Coat. Acceptable products:
   a. Pittsburg Paints (PPG) "Perma-Crete Texture Coatings 100% Acrylic (4-60) medium.
   b. Sherwin-Williams Company "A-100 Exterior Latex Flat A6 series.

4. END OF SECTION

SECTION 10 28 00 - TOILET PARTITIONS AND ACCESSORIES

PART 1 - GENERAL

1.01 DESCRIPTION

A. The extent of toilet partitions and accessories is shown on drawings.

B. Provide floor mounted, headrail braced toilet partitions and wall hung screens.

C. Types of toilet accessories include:

Paper towel dispensers
Waste receptacles
Feminine napkin disposal
Toilet tissue dispenser
Soap Dispenser
Grab bars
Mirrors
Diaper Changing Station
Shelf
Coat Hook

1.02 QUALITY ASSURANCE

A. Coordination: Furnish inserts and blocking to support toilet partitions and accessories.

B. All toilet accessories shall be from the same manufacturer except Walgreens furnished.

C. Hardware and door openings shall be fabricated to comply with requirements of the Americans with Disabilities Act, and ANSI A117-1. (Latest Edition)

PART 2 - PRODUCTS

2.01 TOILET PARTITIONS AND SCREENS (where indicated on drawings in public toilets)

A. Toilet Partition: headrail braced with baked enamel finish.

B. Acceptable Manufacturers:

1. Accurate Partitions Corp., Floor Anchored/Overhead Braced series, powder coated steel color #945 Charcoal

2. American Sanitary Partition Corp., headrail braced “Full Flush Type”, baked enamel. Custom color to match Accurate Partitions #945 Charcoal

3. AMPCO Products, Inc., overhead braced toilet compartment, baked enamel color “Concrete”

4. Flush-Metal Partition Corp., headrail braced “Flushite” series, color #76 Dark Gray.

5. General Partitions Mfg. Corp., headrail braced “Series 40”. Custom color to match Accurate Partitions #945 Charcoal.

6. Global Steel products Corp., Floor Anchored/Overhead Braced series. Custom color to match Accurate Partitions #945 Charcoal.

7. Hadrian Manufacturing, Inc., headrail braced, floor mounted system, color #621 slate.

8. Knickerbocker Partition Corp., headrail braced “Metropolitan” series, color #1125 Medium Grey.

9. Bradley Corporation, "Sentinel" floor mounted, overhead braced, series 400, baked enamel. Custom color to match Accurate Partitions #945 Charcoal.

C. Urinal Screens: By same manufacturer and in same color as toilet partitions.

1. Size: 18” x 42”.

D. Hardware: Manufacturers standard heavy duty, chrome plated; self-closing hinges, lever handle latch with emergency access, door pull, doorkeeper with bumpers, coat hook with bumper and stainless steel pilaster shoes.

E. Headrail: Manufacturers standard anti-grip style.

2.02 TOILET PARTITION/SCREEN MATERIALS

A. Sheets for baked enamel finish; ASTM A 591, Class C, galvanized-bonderized.

1. Pilasters: 20 gauge.

2. Panels and screens: 20 gauge.

3. Doors: 22 gauge.

B. Partition Core Materials: 1” finished thickness with sound-deadening honeycomb core. Pilasters shall be 1-1/4” thick.

C. Pressure laminate seamless face sheets to core material and steel edges with continuous interlocking strip. Weld edges and corners and grind smooth.

2.03 TOILET ACCESSORIES

A. Manufacturer: Basis of Design product by Bobrick Washroom Equipments, Inc., unless noted otherwise. Producet provided

1. Public toilet rooms: Recessed roll paper towel dispenser and waste receptacle: Bradley #2277.
   a. Acceptable Alternate Manufacturers: Bobrick Washroom Equipments, Inc.

2. Surface mounted paper towel dispenser in Employee Room (furnished and installed by Walgreens)

3. Public toilet rooms: Feminine napkin disposal: #B-270.
   a. Acceptable Alternate Manufacturers: Bradley Corporation.

4. Public toilet rooms: Toilet tissue dispenser: Tork #T24, twin bath tissue roll dispenser, translucent high impact plastic (furnished and installed by Walgreens).
   a. Color: Smoke.

5. Grab Bars: (1) B-6806 x 36 and (1) B-6806 x 42, (located in each handicap accessible stall). (1) B-6806 x 18 vertical grab bar where required by code or local jurisdiction.
   a. Acceptable Alternate Manufacturers: Bradley Corporation.

6. Mirror: B-165-1836.
   a. Acceptable Alternate Manufacturers: Bradley Corporation.

7. Public toilet rooms: Surface mounted toilet seat cover dispenser: RMC #25132000, plastic (furnished and installed by Walgreens).
   a. Color: White

8. Public toilet rooms: Surface mounted soap dispenser: Diversey #5494 (furnished and installed by Walgreens).

9. Public toilet rooms: Surface mounted soap dish: Bradley #901 (furnished and installed by Walgreens).
   a. Acceptable Alternate Manufacturers: Bobrick Washroom Equipments, Inc.

10. Public toilet rooms: Stainless Steel Shelf: Bradley # 755-18-5" deep. Provide solid wood 2x blocking behind drywall to support.

11. Public toilet rooms: Surface-Mounted Utility Hook: B-6707

2.04 TOILET ACCESSORY MATERIALS

A. Unless otherwise noted herein, toilet accessory materials are as follows:

1. Stainless Steel: AISI Type 302/304, with polished no. 4 finish, 22-gauge minimum.

2. Mirror Glass: FS DD-G-451, Type I, Class 1, Quality q2, 1/4" thick with silver coating, copper protective coating and non-metallic paint coating.

2.05 DIAPER CHANGING STATION (as indicated on drawings in public toilet rooms):

A. Provide Rubbermaid Baby Changing Station #7818-88. Wall mounted horizontal design. Meets all applicable ASTM, ADA, FDA, and EN global safety regulations and standards. 33.5" x 21.5" x 4" (when shut).

1. Mounting supports: per manufacturer's recommendations

2. Features antimicrobial protection

3. Color : LPLAT

4. Station Liner holder built in. Liners: #7817-88

5. Provide and locate any identifying signage as required by local ordinances.

2.06 FABRICATION:

A. Keys: Provide universal keys for intimal access to accessories for servicing and resupplying. Provide a minimum of four (4) keys to Owner.

PART 3 - EXECUTION

3.01 INSTALLATION

A. Install toilet partitions and accessories plumb, level and securely anchored.

B. Install accessories according to manufacturer's written instructions, using concealed vandal proof fasteners appropriate to substrate indicated and as recommended by unit manufacturer. Install unites level, plumb and firmly anchored in location and at heights indicated on drawings.

3.02 ADJUST AND CLEAN

A. Adjust hardware and accessories for proper operation.

B. Toilet partition doors to swing open approx. 30 degrees when unlatched.

C. Clean toilet partition surfaces and accessories. Replace all defective or damaged items.

END OF SECTION

SECTION 10 44 00 - FIRE PROTECTION SPECIALTIES

PART 1 - GENERAL

1.01 DESCRIPTION

A. Wall mounted fire extinguishers and accessories.

B. Recessed Key Lock Boxes (provide only when required by local codes/officials).

1.02 QUALITY ASSURANCE

A. Comply with applicable requirements of NFPA 10 and ADA Accessibility Guidelines.

B. Provide UL listed and FM approved fire extinguishers, which bear the UL listing mark for the type, rating and class of fire extinguisher indicated.

C. Obtain products from one manufacturer.

PART II - PRODUCTS

2.01 FIRE EXTINGUISHERS

A. Multi-Purpose Dry Chemical Type: UL rated 4A: 60B:C. or as required by local authority.

B. Finish: Manufactures standard factory applied RED.

C. Provide not less than six (6) fire extinguishers (more if required by local authorities).

D. Manufacturers: JL Industries Inc. Larsen's Manufacturing Co. Potter-Roemer.

2.02 ACCESSORIES

A. Mounting brackets: Manufacturer's standard for the fire extinguisher furnished.

B. Signs: provide signs identifying the locations of fire extinguishers as required by local authorities.

2.03 KEY LOCK BOX (provide only when required by local codes/officials)

A. Recessed unit with dark bronze finish; Knox Box #3200-R, or approved equal.

PART III - EXECUTION

3.01 INSPECTION

A. Verify servicing, charging and tagging of all fire extinguishers.

3.02 INSTALLATION

A. Install fire extinguishers and identifying signs in compliance with local authorities and ADA guidelines.

B. Provide blocking and anchoring devices capable of supporting specified fire extinguishers.

C. Install Recessed Key Lock Box, if required as directed by local fire officials.

END OF SECTION

SECTION 12 48 00 – FLOOR MATS AND FRAMES

PART 1 - GENERAL

1.01 DESCRIPTION

A. The extent of floor mat installation (surface and recessed) is shown on Walgreens Fixture Plan and drawings.

B. Floor mats will be furnished and installed by Walgreens. This section describes the product and the responsibilities and quality of related work to be provided by the General Contractor.

A. General Contractor shall be responsible for the following:

1. Notify Distributor when awarded project with contact information as well as timeline of construction schedule.

2. The General Contractor shall be responsible for installing the vestibule recess and floor drain in stores designated to receive an entry vestibule.

a) At recessed installations, install floor drain and prepare recess in accordance with Walgreens Criteria details. Slope recess to drain located at center of recessed area.

3. Where vestibule recess is required, GC is to contact Distributor for field measurements when recess installation is complete. Floor mats will be available for installation 2 weeks after field verification.

4. It is the responsibility of the GC to submit any RFI's required during this process.

B. Distributor shall be responsible for the following:

1. Review project specific drawings. If any issues noted on drawings, notify architect immediately.

2. Communicate with GC to confirm timelines and notifications required.

a) Coordinate fabrication schedule with construction progress to avoid delaying the Work.

3. Field Measurements: Where required, and when notified by GC that conditions are such that field verification is possible, visit the store within 48 hours to verify all field dimensions before fabrication.

4. Schedule installation with GC.

1.02 QUALITY ASSURANCE

A. Flame/Smoke Resistance Standards: Walgreens supplied materials comply with the following:

1. Pill Test (Carpet Tile): For flammability, complies with ASTM D 2859, <1inch.

B. Surfaces designated to receive floor mats shall be constructed in accordance with the manufacturer's instructions.

PART II - PRODUCTS

2.01 DISTRIBUTOR

A. The Matworks Company LLC.
11900 Old Baltimore Pike
Beltsville, MD 20705

B. Contact at Matworks:

Name: Dawn M. Keyerleber
Phone: 1- (800) 523-5179
Email: DKeyerleber@thematworks.com

C. Substitutions: Permitted with prior written approval from: Walgreens Standards Team, 106 Wilmot Rd. (MS 1620), Deerfield, IL 60015.
See Specification section 01-11-00 for substitution requirements.

2.02 FLOOR MAT (provided by Walgreens)

A. Entrance Grid: Recessed or surface mounted, with aluminum "divider " frame

1. Style: Powerlinks Grid

2. Type: Entrance grid.

3. Size: 3 ft. or 4 ft. wide x custom lengths up to 30 ft.

4. Thickness: 15/32

5. Color: Black.

B. Carpet Tile:

1. Style: Enterprise Tile

2. Color: Anthracite.

3. Adhesive: Matworks 3M Spray Adhesive

4. Edging: Black PVC reducer.

5. Size: 19-11/16 inch x 19-11/16 inch square

PART III - EXECUTION

3.01 INSTALLATION (by Walgreens)

3.02 PRE-INSTALLATION REQUIREMENTS (by General Contractor)

A. Surface mounted floor mats shall be installed on top of resilient flooring or polished concrete.

B. Clear away debris and scrape up cementitious deposits from surfaces to receive floor mats.

C. Protect installed floor mats from damage during remaining construction.

D. Ensure that floor mat will be undamaged at time of acceptance by Walgreens.

END OF SECTION

SECTION 20 05 00 – COMMON WORK RESULTS FOR MECHANICAL

PART I - GENERAL

1.01 MECHANICAL GENERAL REQUIREMENTS

A. Section 01 11 00 Summary of Work shall be considered a part of these specifications.

B. This section applies to all mechanical work. The Contractors involved shall check all sections of the specifications in addition to the particular section covering their specific trade. Each distinct section of the specifications aimed for one trade may have detailed information with regard to other trades. Therefore, it is imperative that all sections be reviewed to get a complete picture of all other trades' functions and work required.

C. The Walgreen Co. drawings, which constitute an integral part of this contract, shall serve as the working plans. They indicate the general layout of the complete mechanical systems.

1. Field verification of scaled dimensions on plans is advised since actual locations, distances, and levels will be governed by actual field conditions. All measurements shall be verified at the site.

2. The Mechanical Contractor shall check architectural, structural, plumbing; heating, ventilation and air conditioning; fire suppression and electrical plans to avoid possible installation conflicts. Should drastic changes from original plans be necessary to resolve such conflict, the Contractor shall notify the architect and Walgreen Co. - Facilities Design, Planning and Development Department, and secure written approval and agreement on necessary adjustment before the installation is started.

3. Discrepancies shown between plans, or, between plans and actual field conditions, or between plans and specifications, shall be brought promptly to the attention of Walgreen Co. for a decision.

4. Drawings and specifications are intended to cover the completed installation of systems to function as described. The omission of the expressed reference to any item of labor and material necessary to comply with practice codes, ordinances, etc. shall not relieve the Contractor from providing such additional labor and material.

5. The contract drawings serve as working drawings for the general layout of the various services. However, layout of equipment accessories, specialties, piping systems, and conduit runs are diagrammatic unless specifically dimensioned and do not necessarily indicate every required valve, fitting, transition, turning vane, junction box, pull box, conduit size, etc. It is the Contractor's responsibility to provide all systems complete and operable. The Contractor to make field verification of all services, systems, etc. as part of the total work required. The cost to be included in this base bid.

D. Accessibility: Do not locate traps, controls, unions, pull boxes, etc. in any system at a location that will be inaccessible after construction has been completed. Maintain accessibility for all components in mechanical, electrical, and plumbing systems.

E. Cutting and Patching: All required cutting shall be done by the Contractor whose work is involved, without extra cost to Walgreen Co. All patching and restoration, including the furnishing and installation of access panels in ceiling, walls, etc. within the building lines, shall be done by the respective, responsible Contractor. No cutting of structural steel, concrete, or wood shall be done without prior approval and explicit directions from the architect and Walgreen Co. All duct openings in walls, floors, ceiling, and roof shall be cut and patched by the respective, responsible Contractor.

F. Relocation of Existing Ducts, Conduits, Pipes, and Utilities: The Contractor, under whose jurisdiction the work may fall, shall provide labor, material, and tools required to cut, repair, protect, cap, or relocate existing pipes, conduits, or utilities interfering with or uncovered during work, per regulations of the authorities having jurisdiction.

G. Excavation and Backfill: Excavation and removal of material, shoring, dewatering, and backfilling required for the proper laying of all pipes and conduits inside the building and premises, and outside as may be necessary, shall be done by the Contractor whose work is involved, without incurring extra cost to Walgreen Co.

H. Vibration Eliminators: Rotating or reciprocating equipment, ducts, piping, etc. shall be isolated from the structure by means of approved vibration absorbing units as provided or recommended by the equipment manufacturer or architect.

I. Sleeves: Each Contractor shall furnish sleeves at pipe penetrations through walls and floors. Sleeves shall be extended 2 inches above the floor. Sleeves shall be Schedule 40 galvanized steel pipe and of the required size. Provide a 0.25 inch minimum annular space between sleeve and pipe or pipe insulation. The space between the pipe and sleeve shall be caulked with oakum and sealed with mastic cement or other approved material. Use an elastic watertight sealant for pipe penetrations below ground

J. Electric Motors: Each Contractor shall provide all electric motors for their respective work. Verify building voltage prior to ordering motors. Motors shall comply with NEMA Standard MG-1, Motors and Generators and be designed for quiet operation and of ample size to operate at their proper load and full speed continuously without causing undue noise or vibration. The motors shall be open drip-proof or TEFC construction and have ball bearings. Provide all belted motors with guide rails, adjusting screws, anchor bolts, and cast iron bed plates. Furnish standard size V belts and pulleys.

K. Damage to Other Work: Each Contractor shall be held rigidly responsible for all damages to their own or any other trades' work resulting from the execution of the involved Contractor's work.

L. Concrete Foundation: Concrete foundation for all mechanical equipment shall be provided by the General Contractor, but the respective Mechanical Contractor shall furnish foundation bolts and all essential information and shall check the work prior to the pouring of concrete to insure acceptable results. The foundation shall be as indicated or as recommended by the equipment manufacturer.

M. Rough-in for Connection to Equipment: It shall be the responsibility of each Contractor to study the architectural, structural, electrical, and mechanical drawings, confer with the various trades involved, and check with the supplier of equipment in order to properly rough-in for all equipment.

N. Material and Equipment: All material and equipment shall be new and of the best quality used for the purpose in good commercial practice, and shall be the standard product of

reputable manufacturers. The material and equipment must meet approval of state and local codes in the area it is being used.

O. Performance of Work: All work outlined in the various mechanical and electrical sections shall be done by the Contractor under whose jurisdiction the work may fall. See drawings and specifications.

P. Roof decks shall not be used to support piping, conduit, equipment, devices, etc. Bar joist panel points and beams shall be used to support loads unless otherwise directed by the structural engineer.

Q. Installation: All equipment and materials shall be installed according to manufacturer's instructions unless otherwise specifically directed by the Trade Contract Documents. All piping, valves, connections, and other like items recommended by the manufacturer or required for proper operation shall be provided without additional cost to Walgreens.

R. Electrical Wiring: See Electrical Specifications, Division 26.

S. Testing: All testing results shall be documented in the form of written reports.

1.02 SUPPLEMENTARY CONDITIONS

A. Existing Conditions: Each Contractor shall examine the project site to verify dimensions and existing conditions of mechanical, fire suppression and plumbing systems, and will thoroughly acquire information regarding grades, space conditions, limitations, and peculiarities of construction required for the building and site and will give due consideration to same in preparation of proposal. No exceptions will be considered after award of a contract, nor will the Contractor be entitled to any extra compensation for their failure to verify conditions at the site.

B. Permits, Inspections, and Tests: All work is to be executed in compliance with, and each Contractor is to observe and abide by, all applicable laws, regulations, ordinances, and rules of the national, state, county, and local governing agencies or any other duly constituted public authority. Each Contractor shall, at all times, maintain proper facilities and provide safe access for inspection to all parts of the work and to the shops wherein the work is in preparation. No work shall be enclosed or covered until approved by the architect, and should any work be enclosed or covered before all necessary inspections are completed, same will be opened for examination at the Contractor's expense. All fees, licenses, tests costs, etc. are the Contractor's responsibility.

C. Codes, Standards and Regulations:

1. All work shall conform to all applicable federal, state, and local codes.

2. All material and equipment shall conform to the standards, where available, of the American Gas Association (AGA), American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE), American Water Works Association (AWWA). National Electrical Manufacturers Association (NEMA), National Fire Protection Association (NFPA), National Electrical Code (NEC), Sheet Metal and Air Conditioning Contractor's National Association (SMACNA), and Underwriters Laboratories (UL).

3. All work shall conform to utility companies' regulations.

D. Cooperation: There shall be complete cooperation with all trades in the matter of planning and execution of the work. Every reasonable effort shall be made to prevent conflict as to space requirements, dimensions, locations, leaving of opening, or other matters that would obstruct or delay the work.

1.03 DELIVERY, STORAGE AND HANDLING

A. The materials, equipment, ductwork and insulation deliveries shall be inspected for cleanliness by the General Contractor before accepting delivery on site. Ductwork shall remain wrapped until installation occurs.

B. Deliver sealant and firestopping materials to site in original unopened containers or bundles with labels indicating manufacturer, product name and designation, color, expiration period for use, pot life, curing time, and mixing instructions for multicomponent materials.

C. Store and handle sealant and firestopping materials according to manufacturer's written recommendations.

D. All material shall be segregated upon receipt and stored in an orderly manner. Materials shall be kept clean and elevated above grade or floor by timbers, structural steel or other suitable method. Store and protect materials at the site from damage, deterioration and corrosion. Materials stored outside shall be protected from damage due to weather or mechanical conditions. If necessary, store materials in weather tight enclosures.

E. Stainless steel components shall not be stored in contact with carbon steel, storage rack bins or other carbon steel items. All basic material groups shall be segregated according to material type (carbon steel, stainless steel, copper, etc.).

F. Deliver and store stainless-steel sheets with mill-applied adhesive protective paper maintained through fabrication and installation.

G. Packaged materials shall be stored in their original unbroken container.

H. In the event of damaged items or previously opened packaged materials, immediately repair or replace such items.

I. If there is an accumulation of mud, dirt and other foreign substances, clean or replace prior to installation.

END OF SECTION

SECTION 20 07 00 – MECHANICAL INSULATION

PART 1 - GENERAL

1.01. DESCRIPTION

A. Section 01 11 00 Summary of Work and Section 20 05 00 Common Work Results for Mechanical shall be considered a part of these specifications.

B. The insulation work includes:

1. Piping insulation, jackets, and accessories.

2. Ductwork insulation, jackets, and accessories.

PART 2 - PRODUCTS

2.01. FLEXIBLE ELASTOMERIC CELLULAR

A. Material: Flexible expanded closed-cell structure with smooth skin on both sides. Comply with ASTM C 354, Type I for tubular materials and ASTM C 354, Type II for sheet materials.

B. Thermal Conductivity: 0.30 average maximum at 75 deg. F.

C. Coating: Water based latex enamel coating recommended by insulation manufacturer.

D. Products: AP Armaflex & AP Armaflex FS by Armacell or Rubatex Insultube-180 by RBX Corporation.

2.02. GLASS FIBER

A. Material: Inorganic glass fibers, bonded with a thermosetting resin.

B. Jacket: All-purpose, factory-applied, laminated glass-fiber reinforced, flame-retardant Kraft paper and aluminum foil having self-sealing lap.

C. Board: ASTM C 612, Class 2, semi-rigid jacketed board. Thermal Conductivity: 0.26 average maximum, at 75 deg. F mean temperature. Density: 6 pcf average.

D. Blanket: ASTM C 553, Type II, Class F-1, jacketed flexible blankets. Thermal Conductivity: 0.32 average maximum, at 75 deg. F. mean temperature.

E. Preformed Pipe Insulation: ASTM C 547, Class 1, rigid pipe insulation, jacketed. Thermal Conductivity: 0.32 average maximum, at 75 deg. F mean temperature.

F. Adhesive: Produced under the UL Classification and follow-up service.

G. Type: Non-flammable, solvent-based.

H. Service Temperature Range: Minus 20 to 180 deg. F.

I. Vapor Barrier Coating: Waterproof coating recommended by insulation manufacturer for outside service.

J. Manufacturers: CertainTeed Corporation, John Manville, Knauf Insulation, or Owens-Corning.

2.03. POLYOLEFIN

A. Material: Unicellular, polyethylene thermal plastic insulation. Comply with ASTM C 534 or ASTM C 1427, Type I, Grade 1 for tubular materials and Type II, Grade 1 for sheet materials.

B. Products: Aerocel by Aeroflex USA.

2.04. PHENOLIC

A. Preformed pipe insulation of rigid, expanded, closed-cell structure. Comply with ASTM C 1126, Type III, Grade 1.

B. Products: Koolphen K by Kingspan Tarec Industrial Insulation NV.

2.05. PVC JACKET

A. High-impact-resistant, UV-resistant PVC complying with ASTM D 1784, Class 16354-C; 20 mils thick ready for shop or field cutting and forming.

B. Products: Subject to compliance with requirements, provide the following:

1. Johns Manville; Zeston.
2. P.I.C. Plastics, Inc.; FG Series.
3. Proto PVC Corporation; LoSmoke.
4. Speedline Corporation; SmokeSafe.

C. Adhesive: As recommended by jacket material manufacturer.

D. Color: As selected by Architect.

E. Factory-fabricated fitting covers to match jacket if available; otherwise, field fabricate.

F. Shapes: 45- and 90-degree, short- and long-radius elbows, tees, valves, flanges, unions, reducers, end caps, soil-pipe hubs, traps, mechanical joints, and P-trap and supply covers for lavatories.

2.06. PLUMBING AND HVAC PIPING INSULATION

A. Insulate all interior domestic cold water piping, condensate drain piping from HVAC roof-top units, and waste water pump discharge with ½" thick flexible elastomeric, polyolefin, phenolic or preformed rigid glass fiber insulation.

B. Insulate roof drain bodies and horizontal rainwater leaders of storm water piping with ½" thick flexible elastomeric, polyolefin, phenolic or preformed rigid glass fiber insulation.

C. Insulate water lines, sanitary drains and traps exposed at fixtures for disabled as indicated on Plumbing Fixture Schedule for LAV-1 on drawing P-610.

D. Insulate interior domestic hot water and recirculated hot water piping 1 ¼" and smaller with 1" thick flexible elastomeric, polyolefin, phenolic or preformed rigid glass fiber insulation.

E. Insulate interior domestic hot water 1 ½" and larger with 1.5" thick flexible elastomeric, polyolefin, phenolic or preformed rigid glass fiber insulation.

F. All joints shall be sealed with approved manufacturers' adhesive.

G. Exposed insulated piping in General Sales shall be covered with 20 mils PVC jacket. PVC jacket color shall be selected by the Architect.

2.07. REFRIGERANT PIPING INSULATION

A. Cooler/Freezer suction piping and freezer liquid piping (with hot gas defrost) (Inside Walk-In's) shall be insulated.

B. Refrigeration lines outside of refrigerated compartments shall be insulated back to refrigeration condensing unit with closed cell elastomeric insulation.

C. Medium temperature suction line minimum insulation thickness shall be 1" inside the building.

D. Low temperature suction line minimum insulation thickness shall be 1" inside the building.

E. Liquid lines (in hot gas defrost applications) minimum insulation thickness shall be 3/4" inside the building.

F. All refrigeration suction lines outside the building shall be insulated with a minimum thickness of 2".

1. All insulation outside the building shall be protected from weather and UV by a PVC jacket or two coats of manufacturer's approved finish.

G. All insulation joints shall be sealed with approved manufacturer's adhesive.

H. Exposed insulated piping in General Sales shall be covered with 20 mils PVC jacket. PVC jacket color shall be selected by the Architect.

I. Condensate Piping Insulation for Walk-in Cooler/Freezer:

1. Inside the Walk-In freezer, insulate the entire condensate drain line with 1" thick close-cell flexible elastomeric insulation. Apply insulation after the drain line heater installation.

2. Inside the Walk-In cooler it is not necessary to insulate the condensate line and trap.

3. Outside the Walk-In cooler/freezer, insulate all condensate drain lines with a minimum of ½" thick close-cell flexible elastomeric insulation.

2.08. DUCTWORK INSULATION

A. All concealed ductwork inside the building, and all ductwork outside the building shall be insulated, including but not limited to supply, return, and transfer. Exhaust ductwork located within 10 feet of the building exterior penetration shall be insulated as well.

B. Internally lined ductwork is not acceptable in any supply ductwork including main drops from HVAC roof-top units.

C. Internally lined ductwork is acceptable in the exposed return ductwork in the General Sales for sound attenuation. Refer to Section 23 30 00 “HVAC Air Distribution”.

D. Concealed ductwork inside the building: The insulation shall consist of all service fiber glass duct wrap 1 1/2” thick with 0.75 lbs /cu. ft. density, with an installed R-value of 4.2, FSK jacket and a vapor barrier.

E. Products: Subject to compliance with requirements, provide one of the following:

1. Owens Corning; SOFTR Type 75 All-Service Duct Wrap.
2. CertainTeed Corp.; SoftTouch Duct Wrap.
3. Johns Manville; Microlite.
4. Knauf Insulation; Friendly Feel Duct Wrap.

F. Exposed ductwork in General Sales: When required, the insulation shall be fiberglass duct wrap 1 1/2” thick with 0.75 lbs /cu. ft. density, with an installed R-value of 4.2 and a vapor barrier white, gray or black metalized polypropylene-scrim kraft (PSK) or vinyl facing instead of foil-scrim kraft (FSK) facing. Facing color (white, gray or black) shall be selected by the Architect to match other finishes. No painting is necessary.

G. Products for the exposed ductwork in General Sales: Subject to compliance with requirements, provide one of the following:

1. Knauf Insulation; Friendly Feel Duct Wrap, white PSK facing.
2. CertainTeed Corp.; white or gray vinyl facing.
3. Johns Manville; white vinyl facing.

H. Supply ductwork outside the building: For Climate Zones 1 through 5 the insulation shall be 6 psf duct board with 2” thick insulation with an installed R-value of 6.0 and a waterproof jacket. For Northern Climates (climate zones 6, 7 & 8) the insulation shall be 3” thick with an installed R-value of 8.3. These climates are defined by ASHRAE Standard 90.1-2010, Figure B-1 "U.S. map showing DOE climate zones" & Table B-1”US Climate Zones”.

I. Return ductwork above roof: The insulation shall be 6 psf duct board with 1 1/2” thick insulation with an installed R-value of 4.2 and a waterproof jacket.

2.09. INSULATION RATINGS

A. Flame spread shall be 25 or less.

B. Smoke developed shall be 50 or less.

PART 3 - EXECUTION

3.01. INSTALLATION

A. Install materials in accordance with the manufacturer’s instructions.

END OF SECTION

SECTION 20 08 00 - MECHANICAL SYSTEMS COMMISSIONING

PART 1 - GENERAL

1.01 DESCRIPTION

A. The purpose of this section is to specify Division 22 and Division 23 Contractors' responsibilities in the commissioning process.

B. The systems to be commissioned are listed in Section 01 91 00.

C. Commissioning requires the participation of Division 22 and Division 23 Contractors to ensure that all systems are operating in a manner consistent with the Contract Documents. The general commissioning requirements and coordination are detailed in Section 01 91 00. Division 22 and Division 23 Contractors shall be familiar with all parts of Section 01 91 00 and the commissioning plan issued by the Commissioning Authority (CxA) and shall execute all commissioning responsibilities assigned to them in the Contract Documents.

1.02 DEFINITIONS

A. Refer to Section 01 91 00.

1.03 RESPONSIBILITIES

A. Mechanical, Refrigeration, Controls and TAB Contractors. The commissioning responsibilities applicable to each of the mechanical, refrigeration, controls and TAB contractors of Division 22 and Division 23 are as follows (all references apply to commissioned equipment only):

1. Construction and Acceptance Phases

a. Include and itemize the cost of commissioning in the contract price.

b. In each purchase order or subcontract written, include requirements for submittal data, commissioning documentation, O&M data and training.

c. Attend a commissioning scoping meeting and other meetings necessary to facilitate the Cx process.

d. Contractors shall provide the CxA with normal cut sheets and shop drawing submittals of commissioned equipment.

e. Provide additional requested documentation, prior to normal O&M manual submittals, to the CxA for development of start-up and functional testing procedures.

1) Typically this will include detailed manufacturer installation and start-up, operating, troubleshooting and maintenance procedures, full details of any owner-contracted tests, fan and pump curves, full factory testing reports, if any, and full warranty information, including all responsibilities of the Owner to keep the warranty in force clearly identified. In addition, the installation, start-up and checkout materials that are actually shipped inside the equipment and the actual field checkout sheet forms to be used by the factory or field technicians shall be submitted to the Commissioning Authority.

2) The CxA may request further documentation necessary for the commissioning process.

3) This data request may be made prior to normal submittals.

f. Provide a copy of the O&M manuals and submittals of commissioned equipment, through normal channels, to the CxA for review and approval.

g. Contractors shall assist (along with the design engineers) in clarifying the operation and control of commissioned equipment in areas where

the specifications, control drawings or equipment documentation is not sufficient for writing detailed testing procedures.

h. Provide limited assistance to the CxA in preparing the specific functional performance test procedures as specified in the draft Construction Phase Commissioning Plan. Contractors shall review test procedures to ensure feasibility, safety and equipment protection and provide necessary written alarm limits to be used during the tests.

i. Develop a full start-up and initial checkout plan using manufacturer's start-up procedures and the prefunctional checklists from the CxA for all commissioned equipment. Submit to CxA for review and approval prior to startup. Refer to Section 01 91 00 for further details on start-up plan preparation.

j. During the startup and initial checkout process, execute the mechanical-related portions of the prefunctional checklists for all commissioned equipment.

k. Perform and clearly document all completed startup and system operational checkout procedures, providing a copy to the CxA.

l. Address current Construction Observer punch list items before functional testing. Air and water TAB shall be completed with discrepancies and problems remedied before functional testing of the respective air- or water-related systems.

m. Provide skilled technicians to execute starting of equipment and to execute the functional performance tests. Ensure that they are available and present during the agreed upon schedules and for sufficient duration to complete the necessary tests, adjustments and problem-solving.

n. Perform functional performance testing under the direction of the CxA for specified equipment in Construction Phase Commissioning Plan and 01 91 00. Assist the CxA in interpreting the monitoring data, as necessary.

o. Correct deficiencies (differences between specified and observed performance) as interpreted by the CxA and A/E and retest the equipment.

p. Prepare O&M manuals according to the Contract Documents, including clarifying and updating the original sequences of operation to as-built conditions.

q. Prepare red-line as-built drawings for all drawings and final as-builds for contractor-generated coordination drawings.

r. Provide training of the Owner's operating personnel as specified.

s. Coordinate with equipment manufacturers to determine specific requirements to maintain the validity of the warranty.

2. Warranty Period

a. Execute seasonal or deferred functional performance testing, witnessed by the CxA, according to the specifications.

b. Correct deficiencies and make necessary adjustments to O&M manuals and as-built drawings for applicable issues identified in any seasonal testing.

B. Mechanical Contractor. The responsibilities of the mechanical contractor, during construction and acceptance phases in addition to those listed in (A) are:

1. Provide startup for all HVAC equipment, except for the energy management system.

2. Assist and cooperate with the TAB contractor and CxA by:

a. Putting all HVAC equipment and systems into operation and continuing the operation during each working day of TAB and commissioning, as required.

b. Including cost of sheaves and belts that may be required by TAB.
c. Providing test holes in ducts and plenums where directed by TAB to allow air measurements and air balancing. Providing an approved plug.
d. Providing temperature and pressure taps according to the Construction Documents for TAB and commissioning testing.

3. List and clearly identify on the as-built drawings the locations of all air-flow stations.
4. Prepare a preliminary schedule for Division 22 and 23 equipment start-up and TAB start and completion for use by the CxA. Update the schedule as appropriate.
5. Notify the GC or CxA depending on protocol, when startup of each piece of equipment and TAB will occur. Be responsible to notify the GC or CxA, ahead of time, when commissioning activities not yet performed or not yet scheduled will delay construction. Be proactive in seeing that commissioning processes are executed and that the CxA has the scheduling information needed to efficiently execute the commissioning process.

C. Refrigeration Contractor. The responsibilities of the refrigeration contractor, during construction and acceptance phases in addition to those listed in (A) are:
1. Provide startup for all commercial refrigeration equipment including refrigeration controls.
2. Assist and cooperate with the CxA by:
a. Putting all refrigeration equipment and systems into operation and continuing the operation during each working day of commissioning, as required.
3. Prepare a preliminary schedule for Division 23 refrigeration equipment start-up completion for use by the CxA. Update the schedule as appropriate.
4. Notify the GC or CxA depending on protocol when startup of each piece of equipment will occur. Be responsible to notify the GC or CxA, ahead of time, when commissioning activities not yet performed or not yet scheduled will delay construction. Be proactive in seeing that commissioning processes are executed and that the CxA has the scheduling information needed to efficiently execute the commissioning process.

D. Controls Contractor. The commissioning responsibilities of the controls contractor, during construction and acceptance phases in addition to those listed in (A) are:
1. Sequences of Operation Submittals. The Controls Contractor's submittals of control drawings shall include complete detailed sequences of operation for each piece of equipment, regardless of the completeness and clarity of the sequences in the specifications. They shall include:
a. An overview narrative of the system (1 or 2 paragraphs) generally describing its purpose, components and function.
b. All interactions and interlocks with other systems.
c. Detailed delineation of control between any packaged controls and the energy management system, listing what points the BAS monitors only and what BAS points are control points and are adjustable.
d. Written sequences of control for packaged controlled equipment. (Equipment manufacturers' stock sequences may be included, but will generally require additional narrative).
e. Start-up sequences.
f. Warm-up mode sequences.
g. Normal operating mode sequences.
h. Unoccupied mode sequences.
i. Shutdown sequences.
j. Capacity control sequences and equipment staging.
k. Temperature and pressure control: setbacks, setups, resets, etc.

l. Detailed sequences for all control strategies, e.g., economizer control, optimum start/stop, staging, optimization, demand limiting, etc.
m. Effects of power or equipment failure with all standby component functions.
n. Sequences for all alarms and emergency shut downs.
o. Seasonal operational differences and recommendations.
p. Initial and recommended values for all adjustable settings, setpoints and parameters that are typically set or adjusted by operating staff; and any other control settings or fixed values, delays, etc. that will be useful during testing and operating the equipment.
q. Schedules, if known.
r. All sequences shall be written in small statements, each with a number for reference. For a given system, numbers will not repeat for different sequence sections, unless the sections are numbered.

2. Control Drawings Submittal
   a. The control drawings shall have a key to all abbreviations.
   b. The control drawings shall contain graphic schematic depictions of the systems and each component.
   c. The schematics will include the system and component layout of any equipment that the control system monitors, enables or controls, even if the equipment is primarily controlled by packaged or integral controls.
   d. Provide a full points list with at least the following included for each point:
      1) Controlled system
      2) Point abbreviation
      3) Point description
      4) Display unit
      5) Control point or setpoint (Yes / No)
      6) Monitoring point (Yes / No)
      7) Intermediate point (Yes / No)
      8) Calculated point (Yes / No)
      9) Point Description: DB temp, airflow, etc.
      10) Control or Setpoint: Point that controls equipment and can have its setpoint changed (OSA, SAT, etc.)
   e. Intermediate Point: Point whose value is used to make a calculation which then controls equipment (space temperatures that are averaged to a virtual point to control reset).
   f. Monitoring Point: Point that does not control or contribute to the control of equipment, but is used for operation, maintenance, or performance verification.
   g. Calculated Point: "Virtual" point generated from calculations of other point values.
3. The Controls Contractor shall keep the CxA informed of all changes to this list during programming and setup.
4. An updated as-built version of the control drawings and sequences of operation shall be included in the final controls O&M manual submittal.
5. Assist and cooperate with the TAB contractor in the following manner:
   a. Meet with the TAB contractor prior to beginning TAB and review the TAB plan to determine the capabilities of the control system toward completing TAB. Provide the TAB any needed unique instruments for setting terminal unit boxes and instruct TAB in their use (handheld control system interface for use around the building during TAB, etc.).
   b. For a given area, have all required prefunctional checklists, calibrations, startup and selected functional tests of the system completed and approved by the CxA prior to TAB.

c. Provide a qualified technician to operate the controls to assist the TAB contractor in performing TAB, or provide sufficient training for TAB to operate the system without assistance.

6. Assist and cooperate with the CxA in the following manner:
   a. Execute the functional testing of the controls system, mechanical equipment, electrical equipment and trend logs as specified in the Construction Phase Commissioning Plan and Section 01 91 00.
7. The controls contractor shall prepare a written plan indicating in a step-by-step manner, the procedures that will be followed to test, checkout and adjust the control system prior to functional performance testing, according to the process in Section 01 91 00. At minimum, the plan shall include for each type of equipment controlled by the automatic controls:
   a. System name.
   b. List of devices.
   c. Step-by-step procedures for testing each controller after installation, including:
      1) Process of verifying proper hardware and wiring installation.
      2) Process of downloading programs to local controllers and verifying that they are addressed correctly.
      3) Process of performing operational checks of each controlled component.
      4) Plan and process for calibrating valve and damper actuators and all sensors.
      5) A description of the expected field adjustments for transmitters, controllers and control actuators should control responses fall outside of expected values.
   d. A copy of the log and field checkout sheets that will document the process. This log must include a place for initial and final read values during calibration of each point and clearly indicate when a sensor or controller has "passed" and is operating within the contract parameters.
   e. A description of the instrumentation required for testing.
   f. Indicate what tests on what systems should be completed prior to TAB using the control system for TAB work. Coordinate with the CxA and TAB contractor for this determination.
8. Provide a signed and dated certification to the CxA and GC upon completion of the checkout of each controlled device, equipment and system prior to functional testing for each piece of equipment or system, that all system programming is complete as to all respects of the Contract Documents, except functional testing requirements.
9. Beyond the control points necessary to execute all documented control sequences, provide monitoring, control and virtual points as specified.
10. List and clearly identify on the as-built duct and piping drawings the locations of all static and differential pressure sensors (air, water and building pressure).

E. TAB Contractor. The duties of the TAB contractor, in addition to those listed in (A) are:
1. Six weeks prior to starting TAB, submit to the GC the qualifications of the site technician for the project, including the name of the contractors and facility managers of recent projects the technician on which was lead. The Owner will approve the site technician's qualifications for this project.
2. Submit the outline of the TAB plan and approach for each system and component to the CxA, GC and the controls contractor six weeks prior to starting the TAB. This plan will be developed after the TAB has some familiarity with the control system.
3. The submitted plan will include:

a. Certification that the TAB contractor has reviewed the construction documents and the systems with the design engineers and contractors to sufficiently understand the design intent for each system.
b. An explanation of the intended use of the building control system. The controls contractor will comment on feasibility of the plan.
c. All field checkout sheets and logs to be used that list each piece of equipment to be tested, adjusted and balanced with the data cells to be gathered for each.
d. Discussion of what notations and markings will be made on the duct and piping drawings during the process.
e. Final test report forms to be used.
f. Detailed step-by-step procedures for TAB work for each system and issue: terminal flow calibration (for each terminal type), diffuser proportioning, branch / sub-main proportioning, total flow calculations, rechecking, diversity issues, expected problems and solutions, etc. Criteria for using air flow straighteners or relocating flow stations and sensors will be discussed. Provide the analogous explanations for the water side.
g. List of all air flow, water flow, sound level, system capacity and efficiency measurements to be performed and a description of specific test procedures, parameters, formulas to be used.
h. Details of how *total* flow will be determined (Air: sum of terminal flows via BAS calibrated readings or via hood readings of all terminals, supply (SA) and return air (RA) pitot traverse, SA or RA flow stations. Water: pump curves, circuit setter, flow station, ultrasonic, etc.).
i. The identification and types of measurement instruments to be used and their most recent calibration date.
j. Specific procedures that will ensure that both air and water side are operating at the lowest possible pressures and provide methods to verify this.
k. Confirmation that TAB understands the outside air ventilation criteria under all conditions.
l. Details of whether and how minimum outside air cfm will be verified and set and for what level (total building, zone, etc.).
m. Details of how building static and exhaust fan / relief damper capacity will be checked.
n. Proposed selection points for sound measurements and sound measurement methods.
o. Details of methods for making any specified coil or other system plant capacity measurements.
p. Details of any TAB work to be done in phases (by floor, etc.), or of areas to be built out later.
q. Details regarding specified deferred or seasonal TAB work.
r. Details of any specified false loading of systems to complete TAB work.
s. Details of all exhaust fan balancing and capacity verifications, including any required room pressure differentials.
t. Details of any required interstitial cavity differential pressure measurements and calculations.
u. Plan for hand-written field technician logs of discrepancies, deficient or uncompleted work by others, contract interpretation requests and lists of completed tests (scope and frequency).
v. Plan for formal progress reports (scope and frequency).
w. Plan for formal deficiency reports (scope, frequency and distribution).

4. A running log of events and issues shall be kept by the TAB field technicians. Submit hand-written reports of discrepancies, deficient or uncompleted work by others, contract interpretation requests and lists of completed tests to the CxA and GC at least twice a week.
5. Communicate in writing to the controls contractor all setpoint and parameter changes made or problems and discrepancies identified during TAB which affect the control system setup and operation.
6. Provide a draft TAB report within two weeks of completion. A copy will be provided to the CxA. The report will contain a full explanation of the methodology, assumptions and the results in a clear format with designations of all uncommon abbreviations and column headings. The report should follow the latest and most rigorous reporting recommendations by Associated Air Balance Council (AABC), National Environmental Balancing Bureau (NEBB) or ASHRAE Standard 111.
7. Provide the CxA with any requested data, gathered, but not shown on the draft reports.
8. Provide a final TAB report for the CxA with details, as in the draft.
9. Conduct functional performance tests and checks on the original TAB as specified for TAB in the Construction Phase Commissioning Plan and Section 01 91 00.

1.04 RELATED WORK

A. Refer to Section 01 91 00 for a listing of all sections where commissioning requirements are found, systems to be commissioned and functional testing requirements.

PART 2 - PRODUCTS

2.01 TEST EQUIPMENT

A. Division 22 and Division 23 Contractors shall provide all test equipment necessary to fulfill the testing requirements of this section.
B. Refer to the Construction Phase Commissioning Plan and Section 01 91 00 for additional Division 22 and Division 23 requirements.

PART 3 - EXECUTION

3.01 SUBMITTALS

A. Division 22 and Division 23 Contractors shall provide submittal documentation relative to commissioning as required in this section and Section 01 91 00.

3.02 STARTUP

A. The mechanical and controls contractors shall follow the start-up and initial checkout procedures listed in the Responsibilities list in this section and in 01 91 00. Division 22 and Division 23 Contractors have start-up responsibility and are required to complete systems and sub-systems so they are fully functional, meeting the design objectives of the Contract Documents. The commissioning procedures and functional testing do not relieve or lessen this responsibility or shift that responsibility partially to the CxA or Owner.
B. Functional testing is intended to begin upon completion of a system. Functional testing may proceed prior to the completion of systems or sub-systems at the discretion of the CxA and GC. Beginning system testing before full completion does not relieve the Contractor from fully completing the system, including all prefunctional checklists as soon as possible.

3.03 TAB

A. Refer to the TAB responsibilities in Part 1.03 above.

3.04 FUNCTIONAL PERFORMANCE TESTS

A. Refer to Section 01 91 00 for a list of systems to be commissioned and a description of the process. Refer to the Construction Phase Commissioning Plan for specific details on the required functional performance tests.

3.05 TESTING DOCUMENTATION, NON-CONFORMANCE AND APPROVALS

A. Refer to Section 01 91 00 for specific details on non-conformance issues relating to prefunctional checklists and tests and issues relating to functional performance tests.

3.06 OPERATION AND MAINTENANCE (O&M) MANUALS

A. The following O&M manual requirements do not replace O&M manual documentation requirements elsewhere in these specifications.
   1. Division 22 and Division 23 Contractors shall compile and prepare documentation for all equipment and systems covered in Division 22 and Division 23 and deliver this documentation to the GC for inclusion in the O&M manuals, according to this section and Section 01 91 00, prior to the training of owner personnel.
   2. The CxA shall receive a copy of the O&M manuals for review.

B. Systems Concepts and Operations Manual that consists of the following: Owner Objectives (by owner); Design Narrative and Basis of Design (by designer); Performance metrics, if completed during design; space and use descriptions, single line drawings and schematics for major systems (by designer); control drawings, sequences of control (by contractor); and a table of all set points and implications when changing them, schedules, instructions for operation of each piece of equipment for emergencies, seasonal adjustment, startup and shutdown, instructions for energy savings operations and descriptions of the energy savings strategies in the facility, recommendations for recommissioning frequency by equipment type, energy tracking recommendations, and recommended standard trend logs with a brief description of what to look for in them (all by CxA).

C. Special Control System O&M Manual Requirements. In addition to documentation that may be specified elsewhere, the controls contractor shall compile and organize at minimum the following data on the control system in labeled 3-ring binders with indexed tabs.
   1. Three copies of the controls training manuals in a separate manual from the O&M manuals.
   2. Operation and Maintenance Manuals containing:
      a. Specific instructions on how to perform and apply all functions, features, modes, etc. mentioned in the controls training sections of this specification and other features of this system. These instructions shall be step-by-step. Indexes and clear tables of contents shall be included. The detailed technical manual for programming and customizing control loops and algorithms shall be included.
      b. Full as-built set of control drawings (refer to Submittal section above for details).
      c. Full as-built sequence of operations for each piece of equipment.
      d. Full print out of all schedules and set points after testing and acceptance of the system.
      e. Marking of all system sensors and thermostats on the as-built floor plan and mechanical drawings with their control system designations.
      f. Maintenance instructions, including sensor calibration requirements and methods by sensor type, etc.
      g. Control equipment component submittals, parts lists, etc.
      h. Warranty requirements.
      i. Copies of all checkout tests and calibrations performed by the Contractor (not commissioning tests).

3. The manual shall be organized and subdivided with permanently labeled tabs for each of the following data in the given order:
    a. Sequences of operation
    b. Control drawings
    c. Points lists
    d. Controller / module data
    e. Thermostats and timers
    f. Sensors and DP switches
    g. Dampers and damper actuators
    h. Program setups (software program printouts)
4. Field checkout sheets and trend logs should be provided to the CxA for inclusion in the Commissioning Record Book.

D. Special TAB Documentation Requirements. The TAB will compile and submit the following with other documentation that may be specified elsewhere in the *Specifications.*
1. Final report containing an explanation of the methodology, assumptions, test conditions and the results in a clear format with designations of all uncommon abbreviations and column headings.
2. The TAB shall mark on the drawings where all traverse and other critical measurements were taken and cross reference the location in the TAB report.

E. Review and Approvals. Review of the commissioning related sections of the O&M manuals shall be made by the A/E and by the CxA. Refer to Section 01 91 00.

3.07 TRAINING OF OWNER PERSONNEL

A. The GC shall be responsible for training coordination and scheduling and ultimately to ensure that training is completed. Refer to Section 01 91 00 for additional details.

B. The CxA shall be responsible for overseeing and approving the content and adequacy of the training of Owner personnel for commissioned equipment. Refer to Section 01 91 00 for additional details.

C. Training manuals. The standard operating manual for the system and any special training manuals will be provided for each trainee, with three extra copies left for the O&M manuals. In addition, copies of the system technical manual will be demonstrated during training and three copies submitted with the O&M manuals. Manuals shall include detailed description of the subject matter for each session. The manuals will cover all control sequences and have a definitions section that fully describes all relevant words used in the manuals *and* in all software displays. Manuals will be approved by the CxA. Copies of audiovisuals shall be delivered to the Owner.

D. Mechanical Contractor. The mechanical contractor shall have the following training responsibilities:
1. Provide the CxA with a training plan two weeks before the planned training according to the outline described in Section 01 91 00.
2. Provide designated Owner personnel with comprehensive orientation and training in the understanding of the systems and the operation and maintenance of each piece of HVAC equipment including, but not limited to, pumps, boilers, furnaces, chillers, heat rejection equipment, air conditioning units, air handling units, fans, terminal units, controls and water treatment systems, etc.
3. Training shall normally start with classroom sessions followed by hands-on training on each piece of equipment, which shall illustrate the various modes of operation, including startup, shutdown, fire/smoke alarm, power failure, etc.
4. During any demonstration, should the system fail to perform in accordance with the requirements of the O&M manual or sequence of operations, the system will be repaired or adjusted as necessary and the demonstration repeated.
5. The appropriate trade or manufacturer's representative shall provide the instructions on each major piece of equipment. This person may be the start-up technician for the piece of equipment, the installing contractor or manufacturer’s representative. Practical building operating expertise as well as in-depth

knowledge of all modes of operation of the specific piece of equipment is required. More than one party may be required to execute the training.

6. The controls contractor shall attend sessions other than the controls training, as requested, to discuss the interaction of the controls system as it relates to the equipment being discussed.
7. The training sessions shall follow the outline in the Table of Contents of the operation and maintenance manual and illustrate whenever possible the use of the O&M manuals for reference.
8. Training shall include:
    a. Use of the printed installation, operation and maintenance instruction material included in the O&M manuals.
    b. A review of the written O&M instructions emphasizing safe and proper operating requirements, preventative maintenance, special tools needed and spare parts inventory suggestions. The training shall include start-up, operation in all modes possible, shut-down, seasonal changeover and any emergency procedures.
    c. Discussion of relevant health and safety issues and concerns.
    d. Discussion of warranties and guarantees.
    e. Common troubleshooting problems and solutions.
    f. Explanatory information included in the O&M manuals and the location of all plans and manuals in the facility.
    g. Discussion of any peculiarities of equipment installation or operation.
    h. The format and training agenda in The HVAC Commissioning Process, ASHRAE Guideline 1, latest edition.
    i. Classroom sessions shall include the use of overhead projections, slides, video/audio-taped material as might be appropriate.
9. Hands-on training shall include start-up, operation in all modes possible, including manual, shut-down and any emergency procedures and preventative maintenance for all pieces of equipment.
10. The mechanical contractor shall fully explain and demonstrate the operation, function and overrides of any local packaged controls, not *controlled* by the central control system.
11. Training shall occur after functional testing is complete, unless approved otherwise by the Walgreens Field Project Manager.

E. Controls Contractor. The controls contractor shall have the following training responsibilities:

1. Provide the CxA with a training plan four weeks before the planned training.
2. The controls contractor shall provide designated Owner personnel training on the control system in this facility. The intent is to clearly and completely instruct the Owner on all the capabilities of the control system.
3. The training sessions will be tailored to the needs and skill-level of the trainees.
4. The trainers will be knowledgeable on the system and its use in buildings. For the on-site sessions, the most qualified trainer(s) will be used. The Owner shall approve the instructor prior to scheduling the training.
5. During any demonstration, should the system fail to perform in accordance with the requirements of the O&M manual or sequence of operations, the system will be repaired or adjusted as necessary and the demonstration repeated.
6. The controls contractor shall attend sessions other than the controls training, as requested, to discuss the interaction of the controls system as it relates to the equipment being discussed.

F. TAB The TAB contractor shall have the following training responsibilities:

1. TAB shall meet with facility staff after completion of TAB and instruct them on the following:
    a. Go over the final TAB report, explaining the layout and meanings of each data type.

b. Discuss any outstanding deficient items in control, ducting or design that may affect the proper delivery of air or water.
c. Identify and discuss any terminal units, duct runs, diffusers, coils, fans and pumps that are close to or are not meeting their design capacity.
d. Discuss any temporary settings and steps to finalize them for any areas that are not finished.
e. Other salient information that may be useful for facility operations, relative to TAB.

3.08 DEFERRED TESTING

A. Unforeseen Deferred Tests. If any check or test cannot be completed due to the building structure, required occupancy condition or other deficiency, execution of checklists and functional testing may be delayed upon approval of the Walgreen Field Project Manager. These tests will be conducted in the same manner as the seasonal tests as soon as possible. Services of necessary parties will be negotiated.

3.09 WRITTEN WORK PRODUCTS

A. Written work products of Contractors will consist of the start-up and initial checkout plan described in Section 01 91 00 and the filled out start-up, initial checkout and prefunctional checklists.

END OF SECTION

SECTION 21 10 00 – WATER-BASED FIRE-SUPPRESSION

PART I - GENERAL

1.01 DESCRIPTION

A. Section 01 11 00 Summary of Work and Section 20 05 00 Common Work Results for Mechanical shall be considered a part of these specifications.

B. The fire suppression system work includes, but is not limited to, the following:

1. Furnish and install complete, operable fire suppression system, with all related items. System shall be designed, fabricated and installed by a firm regularly engaged in this type of work and employing those skilled in the work involved.

2. Systems shall be in accordance with the applicable standards of the National Fire Protection Association (NFPA) and requirements of any authorities having jurisdiction.

1.02 SUBMITTALS

A. Submit Fire Suppression Plan, product data, and complete shop drawings of the entire Fire Suppression System before starting work.

B. Product Data for the following:

- Piping materials, including dielectric fittings, flexible connections, and sprinkler specialty fittings.
- Pipe hangers and supports including seismic restraints (when required).
- Valves, including listed fire-protection valves, unlisted general-duty valves, and specialty valves and trim.
- Sprinklers, escutcheons, and guards. Include sprinkler flow characteristics, mounting, finish, and other pertinent data.
- Fire hydrants.
- Fire department connection.
- Alarm devices, including electrical data.

C. Shop Drawings: Diagram power, signal, and control wiring.

D. Fire-hydrant flow test report.

E. Approved Sprinkler Piping Drawings: Working plans, prepared according to NFPA 13, that have been approved by authorities having jurisdiction.

F. Hydraulic calculations.

PART II - PRODUCTS

2.01 GENERAL

A. All materials and devices essential to the successful operation of the Fire Suppression System shall be UL Listed with the exception of steel pipe. Steel pipe shall conform to NFPA 13 Table 6.3.1.1. Backflow preventers shall be UL Listed.

2.02 FIRE DEPARTMENT CONNECTION

A. Provide flush brass-bodied 2-way connection with hose threads, drain, brass inlet caps with chains as approved by local fire jurisdiction.

2.03 AUTOMATIC SPRINKLERS

A. Assemblies shall be Tyco as specified on Walgreen Unified Design Standards (U.D.S.) drawing F-510 “Fire Suppression Details & Schedules”, Reliable Automatic Sprinkler Co or Viking. Cooler/freezer dry pendent sprinklers shall be Tyco or Viking.

B. The manufacturer shall warrant assemblies for ten (10) years against defects in material and workmanship. Temperature rating of sprinkler shall be based on the maximum ambient temperature of the environment in which it is installed.

C. Listed corrosion-resistant sprinklers shall be installed in locations where chemicals, moisture or other corrosive vapors sufficient to cause corrosion of such devices exist.

2.04 ACCESSORIES

A. Provide fire alarm indicating devices, valves, drains, flow switches and all other items required for a complete system.

B. Provide fire alarm indicating devices (horn/strobe), Wheelock AS Series, MT Series, and RSS Series when a fire alarm system is not required.

C. Provide permanently marked, waterproof metal or rigid plastic identification signs or placards secured with corrosion-resistant chain at all valves.

PART III - EXECUTION

3.01 INSTALLATION

A. General: Installation of the private service main shall conform to local requirements and shall be in accordance with requirements of Section 31 23 00, Site Work/Excavation/Fill, Section 33 10 00, Site Mechanical Utilities, and Section 22 10 00, Plumbing.

B. Protection: Underground piping cover shall be measured from top of pipe to finished grade with due consideration given to future or final grade and nature of soil. Top of pipe shall be no less than one foot below local frost line. Minimum cover shall be 3 feet below pavements. No piping shall run under buildings except for fire service main shall be permitted to enter the building adjacent to the foundation. Back filling shall be tamped in layers to prevent lateral movement or settlement and shall contain no ashes, cinders, refuse, organic, corrosive, or frozen materials. In trenches cut through rock, tamped granular backfill shall be provided a minimum of 6 inches under and around piping with a minimum of 2 feet of granular cover.

C. Contamination: All system components shall be free of rust and other contaminants and clean inside and out.

D. System Entrance: Installation of the riser and trim for all its components shall be as compact as possible to conserve floor space.

E. Fire Department Coordination: No exterior component of the Fire Suppression System shall be located within any fenced or walled area and shall be readily visible from the parking lot. Coordinate the locations of the fire department connection and exterior alarm device with the local fire jurisdiction and Architect of Record.

F. Piping: Design layout shall allow for suitable venting and drainage. Installation shall be coordinated with all other items in the construction and shall not obstruct lights, air outlets, dampers, valves, access doors and other items requiring access. Piping in areas having ceilings shall be concealed. Piping may be exposed elsewhere but kept as high as possible with all consideration for the Walgreen Co. plan layout. Piping passing through walls, floors and other building components must be sleeved. Piping penetrating finished spaces shall be fitted with chrome split-ring escutcheons. Sleeves shall be patched and sealed as required to maintain fire ratings where applicable. Install flow switches, tamper switches, alarms and any other required electrical components within the piping system. Coordinate with Architect of Record for locations of inspector's test and main drain discharge points to ensure visibility, access, and hard surface to receive and direct water to pavement for drainage.

G. Cutting: All openings for piping should be anticipated and indicated on the approved shop drawings. Any additional cutting or openings must have the written approval of the Architect of Record.

H. Access: Install hinged access panels for access to valves or similar operable components concealed in finished areas. Label panel door with identity of item concealed.

I. Sprinklers: Installation and location of sprinklers shall be coordinated with all other items in the construction and shall not obstruct lights, air outlets, access doors and other items requiring access. Sprinklers at finished ceilings shall form a symmetrical pattern carefully integrated into the ceiling layout as shown on Walgreen approved drawings. Provide proper protection of automatic sprinklers. Sprinklers that have had paint applied to them, by other than the sprinkler manufacturer, or otherwise damaged, shall be replaced with new listed sprinklers of the same orifice size, thermal response, and water distribution.

J. Furnish and install, in close proximity to system riser, an emergency cabinet containing a minimum of two sprinklers of all types and ratings (with the exception of dry pendent sprinkler for freezer/cooler) used in the system and one head wrench for each head type. One spare dry pendent sprinkler and sprinkler boot within manufacturer's shipping containers shall be attached to the sprinkler riser by nylon zip ties.

## 3.02 TESTING, INSPECTION AND ACCEPTANCE

A. Flushing: Underground, or other water supply piping, shall be completely flushed before connection is made to downstream fire suppression system piping. The flushing operation shall be continued for a sufficient time to ensure thorough cleaning. Minimum rate of flow shall be not less than the hydraulically calculated water demand rate of the system, including any hose requirements, the flow necessary to provide a velocity of 10 feet per second or the maximum flow rate available to the system under fire conditions.

B. System test: Purge system of air prior to filling with supply water. After completion of the installation, the entire system shall be tested and inspected to meet the approval of the authorities having jurisdiction. A contractor's material and test certificate should be completed in accordance with NFPA 13.

C. Fire Department Connection: Inspect for visibility and accessibility. Firmly secure caps to resist casual vandalism. Verify that swivels have freedom of movement, hose threads are clean and in good condition, and that the check valve in the connection piping is not obstructed or leaking.

D. System drainage: Verify exterior discharge points of main drain and inspector's test station for visibility, access and hard surface for conveying discharge water to pavement for drainage.

E. System documentation: Complete hydraulic design placard information and affix to system riser. Complete all component identification signage. Collect system documentation, including, but not limited to, approved shop drawings, hydraulic calculations, material and test certificates and acceptance letters. Insert all documents in holder.

END OF SECTION

SECTION 22 10 00 - PLUMBING

PART I - GENERAL

1.01 DESCRIPTION

A. Section 01 11 00 Summary of Work, Section 20 05 00 Common Work Results for Mechanical, and Section 20 07 00 Mechanical Insulation shall be considered a part of these specifications.

B. Codes, Ordinances and Permits: All permits, connection fees, tap fees, licenses, approvals and other arrangements, including plumbing and riser diagrams, if required, shall be obtained by the Plumbing Contractor at his expense. Should any changes be necessary in the drawings or specifications to secure such approval, this Contractor shall include in his bid all costs for such changes to comply with these departments without extra costs to Walgreen Co. It will be this Contractor's responsibility to provide all systems complete and operable.

C. Scope of Work: Contractor shall furnish all materials, tools, equipment, labor and services and pay all costs of whatever nature, as may be necessarily expended, for a proper workmanlike and fully operable installation, and completion of all plumbing and related work. The Plumbing Contractor shall provide the following within, beneath and up to 5 feet beyond the building(s).

1. Complete system of sanitary, soil, waste, and vent piping connecting each and every plumbing fixture or other piece of equipment requiring same, with sanitary sewer including pipe, fittings, and other necessary appurtenances.

2. Complete system of storm water drainage including downspouts, roof drains, pipe, fittings and other necessary appurtenances.

3. Complete systems shall be connected to adequate source of supply or disposal of the local public utility company or municipality commonly serving the area. It will be the Contractor's responsibility to provide all systems complete and operable.

4. Complete system of cold water supply and distributing piping of hot and cold water connecting to every plumbing fixture, cooling tower, evaporative condenser, or other pieces of equipment requiring same, including isolation valves for each piece of equipment, hangers, supports, and other necessary appurtenances.

5. Funnel or other drains for air conditioning units, refrigeration, and fire protection piping.

6. All floor and wall sleeves.

7. All plumbing fixtures, except as hereinafter noted.

8. Water heaters.

9. Water coolers.

10. Connections to the supply lines of the fixtures and outlets for equipment furnished by Walgreen Co.

11. Backflow preventer and water meter for the irrigation system.

1.02 SUBMITTALS

A. This Contractor shall submit product data for all plumbing fixtures, trim and accessories.

1.03 QUALITY ASSURANCE

A. At Walgreens discretion, any store where the sewer/drainage system operation, installation or material is considered "suspect" shall be inspected, at the Landlord's/Contractor's expense, using a sewer line video camera. All necessary repairs shall be made at the Landlord's/Contractor's expense.

PART II - PRODUCTS

2.01 PIPING & VALVES

A. See section 33 10 00 of the specifications for pipe more than 5 feet outside of the building.

B. Drain tile shall be standard form tile to conform to ASTM standards. Drain tile shall be placed with open joints and wrapped with building paper, set true to grade, and pitched to drain to sump. All tile shall be encased with a minimum of 6 inch clean gravel.

C. All underground sanitary and storm sewers shall be standard weight cast iron soil pipe with hub and spigot fittings conforming to ASTM A74 and C564.

D. Above ground sanitary sewer and vent 2 1/2 inches and larger shall be standard weight cast iron soil pipe with no-hub couplings conforming to CISPI 301 and ASTM A888.

E. All rough-ins for plumbing fixtures, including all waste lines and all branch soil pipe below floor from plumbing fixtures, shall be standard weight cast iron pipe.

F. All waste and vent piping above floor, 2 inches and smaller, can be either type "M" copper with wrought copper fittings, soldered connection or galvanized carbon steel with threaded connections.

G. All inside downspouts, 2" and smaller from roof drains to point 6 inches above floor can be either type "M" copper with wrought copper fittings, soldered connection or galvanized carbon steel with threaded connections.

H. Where such use is acceptable to the authority having jurisdiction, all storm and sanitary lines and fittings, below and above floor, may be schedule 40 PVC DWV with solvent welded joints per ANSI/ASTM D2665 and D3311. All piping, valves, fittings and solvent shall be furnished by the same manufacturer.

I. Underground water main 2 ½ inch diameter and larger shall be class 150 ductile iron pipe, AWWA C151, with mechanical joint or bell and spigot ends, AWWA C110 or C153.

J. Underground water main 2 inch diameter and smaller shall be ASTM B88 Type "K" copper pipe with wrought copper fittings and soldered joints.

K. All above floor hot and cold water piping within the building shall be ASTM B88 Type "L" copper with wrought copper fittings. All fittings shall be soldered.

L. Provide dielectric fittings between ferrous and copper piping.

M. Isolation valves on domestic water shall be ball type Jomar T/S100, Nibco T-685-80-LF or Milwaukee UPBA 400/500.

N. Balancing valves shall be the same as above with a memory stop.

2.02 PLUMBING FIXTURES

A. Contractor shall furnish and install all plumbing fixtures as indicated on plumbing drawings.

2.03 WATER HEATING

A. Storage Type:

1. Water Heater: Provide water heater with all accessories including ASME rated combination temperature and pressure relief valve as shown on plumbing drawings and meeting local code requirements.

2. Pipe relief outlets to drain.

3. Provide a thermometer on hot water supply from water heater. Range: 30 to 240 F.

2.04 WATER METER

A. Water meter provided by the water utility or Contractor shall be of diaphragm type, rotary type or turbine type as approved by the water utility. Furnish with optional pulse or 4-20mA output suitable for remote flow rate indication and flow totalization by an Energy Management System.

PART III - EXECUTION

3.01 INSTALLATION

A. Cold Water Supply: If water pressure on domestic service exceeds 80 PSI, this Contractor shall furnish and install pressure reducing valve on main domestic service line set for 65 PSI.

B. Piping in General: All pipes shall be run with proper grades to provide for easy draining. They must be thoroughly reamed and cleaned before installation. This Contractor shall consult and cooperate with other piping Contractors as to obtain the proper grouping of pipes and to avoid interference. Pipes run overhead shall be placed as close to the roof deck as possible to maintain proper headroom and to present a neat appearance, all consistent with the correct pitching of pipes. The Plumbing Contractor shall consult with the Construction Superintendent before installation of any pipe lines which will reduce the proper headroom in any way. Piping shall be run as shown on the drawings, but the Construction Superintendent reserves the right to make slight changes (without extra charge) to avoid conflict with other work.

C. Protection: Underground water piping cover shall be measured from top of pipe to finished grade with due consideration given to future or final grade and nature of soil. Top of pipe shall be no less than one foot below local frost line. Minimum cover shall be 3 feet below

pavements. No piping shall run under buildings except for fire service main shall be permitted to enter the building adjacent to the foundation. Back filling shall be tamped in layers to prevent lateral movement or settlement and shall contain no ashes, cinders, refuse, organic, corrosive, or frozen materials. In trenches cut through rock, tamped granular backfill shall be provided a minimum of 6 inches under and around piping with a minimum of 2 feet of granular cover.

D. Vent Pipes: All vent pipes that pass through roof openings shall be kept at a reasonable distance from the walls to permit proper application of built-up roofing and base and counter-flashings. All vent pipes shall be flashed.

E. Cooler/Freezer Wastes: Condenser wastes from refrigeration equipment shall discharge into a minimum 3 inch drain connected to the sewer.

F. Floor Drains: Furnish and install all floor drains.

G. Cleanouts: Full-sized brass screw plugs, cleanout plugs shall be furnished and installed at the foot of all soil and waste stacks, internal downspouts and at all points where necessary to permit the entire drainage system to be rodded out easily. Provide cleanouts at the end of each branch, changes in directions greater than 45 degrees, and as required by Code. All cleanouts shall be visible and accessible.

H. Connections to Equipment Furnished by Walgreen Co.: This Contractor shall rough-in and connect all fixtures and equipment to be furnished by Walgreen Co. This shall include all hot and cold water, waste, and vent piping required to connect completely to equipment.

3.02 TESTING

A. Domestic Hot and Cold Water Systems: 100 PSI (minimum) air for one hour without leakage.

B. Sewer Systems: 10 feet (minimum) hydrostatic for one hour without leakage.

3.03 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 either AWWA C651 or AWWA C652 or follow procedures described below:

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. Flush system with clean, potable water until no chlorine is in water coming from system after the standing time.

d. Submit water samples in sterile bottles to authorities having jurisdiction. Repeat procedures if biological examination shows contamination.

B. Prepare and submit reports of purging and disinfecting activities.

C. Clean interior of domestic water piping system. Remove dirt and debris as work progresses.

END OF SECTION

SECTION 23 08 00 – TESTING, ADJUSTING AND BALANCING

PART 1 – GENERAL

1.01 DESCRIPTION

A. The Test and Balance (TAB) Contractor shall furnish the testing, adjusting and balancing of the Heating, Ventilation and Air Conditioning (HVAC) system as a part of the HVAC rooftop units purchase from the rooftop equipment manufacturer. The rooftop equipment manufacturer shall incorporate the services of a certified national TAB firm for all of the stores in their assigned territories.

B. TAB firm shall be certified by Associated Air Balance Council (AABC), National Environmental Balancing Bureau (NEBB), or Testing Adjusting and Balancing Bureau (TABB).

C. All work shall be performed under the direction of a Certified Test and Balance Engineer. The Contractor's technicians shall meet the qualifications of the Contractor's certification agency (AABC, NEBB or TABB).

D. All TAB Work shall be performed in accordance with the latest edition of ASHRAE Standard 111, “Practices for Measurement, Testing, Adjusting and Balancing of Building Heating, Ventilation, Air Conditioning and Refrigeration Systems”; and either AABC “National Standards for Total System Balance”, NEBB's "Procedural Standards for Testing, Adjusting, and Balancing of Environmental Systems" or SMACNA's "HVAC Systems - Testing, Adjusting, and Balancing." In case of conflict, ASHRAE Standard 111 shall govern.

E. Certification of TAB Reports: Certify TAB field data reports. This certification includes the following:
   a. Review field data reports to validate accuracy of data and to prepare certified TAB reports.
   b. Certify that TAB team complied with the procedures specified and referenced in this Specification.

F. Instrumentation Type, Quantity, and Accuracy: As described in AABC's "National Standards for Testing and Balancing Heating, Ventilating, and Air Conditioning Systems, or NEBB's "Procedural Standards for Testing, Adjusting, and Balancing of Environmental Systems," Section II, "Required Instrumentation for NEBB Certification."

G. Instrumentation Calibration: Calibrate instruments at least every six months or more frequently if required by instrument manufacturer.
   a. Keep an updated record of instrument calibration that indicates date of calibration and the name of party performing instrument calibration.

H. Data Required for Recordkeeping: Every quarter, the TAB firm shall provide an export file containing store number and a summary containing rooftop unit number, area served, model number and serial number of HVAC equipment serving that store for import into Walgreens database.

I. Additional Services: TAB firm will provide an HVAC system inspection and punch list as outlined in Section 1.03 and 1.06 below.

1.02 SCHEDULING

A. This work shall be scheduled to be performed after the HVAC system has been started by the mechanical contractor and prior to fixture date. The TAB firm shall be responsible for scheduling the testing, adjusting, and balancing directly with the Walgreens Field Project Manager at least two weeks in advance. Walgreens Construction will provide an updated project list and Field Project Manager contact list with e-mail addresses and cell phone numbers to the HVAC manufacturer and TAB firm on a regular basis via e-mail.

B. The TAB firm will e-mail a checklist to the Walgreens Field Project Manager with a copy to the Senior Regional Construction Manager to obtain project completion status and to schedule the site visit. Checklist to be filled out by the General Contractor (GC) to assure that the HVAC system shall be fully ready before TAB firm arrives at site. Completed checklist must be sent via e-mail with items addressed in a "YES or NO" format with explanation provided as necessary. The following must be complete prior to the TAB firm's visit:
   1. All rooftop units along with all field mounted accessories must be installed and economizer/outside air dampers installed and wired.
   2. All exhaust fans must be installed, wired and operational.
   3. Units must be properly tagged per design drawings, including exhaust fans.
   4. Gas piping completed and gas turned on.
   5. All power wiring completed, disconnects mounted and permanent power turned on.
   6. All fans checked for proper rotation.
   7. All control wiring completed including thermostats, sensors and smoke detectors.
   8. All duct work with balancing dampers and diffusers fully installed.
   9. Clean filters installed.
   10. All doors and windows installed and ceiling tiles in place.
   11. Additional items as deemed necessary.

C. The TAB firm will request project design mechanical drawings (M-111, M-510, M-610 and M-620 as CAD files via e-mail) and specifications from the GC two weeks prior to site visit.

D. The Walgreens Field Project Manager shall notify the GC of the scheduled balancing date. The GC shall coordinate with the Mechanical and Electrical Contractors in order to have the appropriate tradesmen on site to correct any deficiencies in wiring, ductwork, or equipment start-up.

E. If, for any reason, the HVAC system is not operational in time for the TAB firm to schedule the work prior to fixture date, the GC shall be responsible for any and all additional costs incurred by rescheduling the TAB firm.

F. Each Friday the TAB firm shall be responsible for sending out a list of all stores that are on their schedule for the upcoming week via email to Walgreens. The intent is to communicate with Construction and field maintenance staff so that they can perform an audit of TAB activities while TAB technician is on site.

1.03 HVAC SYSTEM INSPECTION AND PUNCH LIST

A. The TAB technician shall inspect the HVAC system and notify the GC and Walgreens Field Project Manager of any deficiencies needing immediate attention. Verify and record the following as part of the HVAC system inspection:

   GENERAL
   1. Inquire about any design, equipment, and installation problems.

2. Compare installed system to design mechanical plans for the specific store.

ROOFTOP INSPECTION

1. Inspect rooftop units and document any deficiencies.
2. Verify units are properly tagged for ease of identification.
3. Checks disconnect switches and covers.
4. Check for obstructions to unit access panels such as conduit, gas piping or condensate drains.
5. Check for correct fan rotation (including condenser fans).
6. Check belt tension and pulley alignment.
7. Check any fan noise and vibration.
8. Check position of outside and return air dampers.
9. Check distance between outside air intakes in relation to exhaust fans, flues, water heater vent, and plumbing vents.
10. Check conditions of filters.
11. Check conditions of coils.
12. Check condensate drain seal (CostGard) and condensate line installation.
13. Check gas lines for proper installation. Verify that gas piping is painted.
14. Check heating/cooling, and economizer modes of RTU's.
15. Check smoke detectors for proper installation. (if applicable)
16. Cycle power exhaust. (if applicable)
17. Check hurricane tie-downs. (if applicable)
18. Check for evaporator coil coating. (if applicable)
19. Check exhaust fans for correct fan rotation, belt tension, pulley alignment and any fan noise or vibration.
20. Check exhaust fans for installation and proper operation of backdraft dampers.
21. Check that fan blower wheels are clean and free of damage.
22. Check entrance heater for proper installation.
23. Check ductwork above roof for insulation. (if applicable)

ABOVE CEILING INSPECTION

1. Check proper installation and accessibility of all volume dampers.
2. Check for proper installation of flexible ducts for bends, lengths and clamps.
3. Check that ductwork is insulated and ensure that insulation is properly secured, where applicable.
4. Verify that internally lined ductwork has not been used except as allowed in sales area return drops.
5. Check that exposed ductwork in the sales area is painted or insulated.
6. Check that supply grilles on exposed ductwork in the sales area have 6” minimum 90 degree straight tap fittings.
7. Check that supply grilles on exposed ductwork in the sales area are installed 22.5 degrees down from horizontal.
8. Check for insulation on the tops of diffusers.

BELOW CEILING INSPECTION

1. Check air curtain(s) for proper installation.
2. Record air curtain nameplate data.
3. Check thermostats and sensors (temperature, humidity, CO2) for proper wiring and settings.
4. Check thermostats and sensors for proper location.
5. Verify thermostats and sensors are properly tagged for the unit they control.
6. Verify controls for exhaust fans are installed and function properly.
7. Verify diffuser material, aluminum or steel, as specified on design mechanical plans.
8. Verify return/exhaust grilles and registers have inside pans painted black.
9. Check supply diffuser locations at entrance.

10. Check return registers above the communication cabinets in office and pharmacy for proper location.
11. Check electric wall heaters for quantity, capacity, locations and proper operation.

B. Provide HVAC punch list to Walgreens Field Project Manager and/or GC and Mechanical Contractor before leaving the site. Include punch list in the final Test and Balance Report. E-mail a rough draft HVAC punch-list of the following items to Walgreens Field Project Manager and Walgreens Senior Regional Construction Manager:
1. Any HVAC items not completed as of air balance date. (RTU's, exhaust fans, ductwork, dampers, diffusers, insulation, heaters, etc.)
2. Any incorrect installations that need to be addressed.
3. Any items omitted or revised from the design drawings.
4. If TAB firm needs to be re-scheduled due to incompleteness of the systems.
5. Include copy of the checklist of system completion received by TAB firm.

1.04 TESTING, ADJUSTING AND BALANCING

A. The purpose of testing, adjusting, and balancing the HVAC system is to ensure optimal performance, comfort, and energy efficiency for the Owner's benefit. This service covers all heating, air-conditioning and exhaust ventilation systems.

B. Air quantities shall be balanced to within +/-10% of design as a general rule. However, in some cases, the air quantities may need to be adjusted differently in order to ensure acceptable comfort levels, positive building pressure, noise consideration etc. Any excessive variation at certain diffusers (over 10%) must be reported with explanations if they cannot be balanced as required. However the total RTU supply CFM must be within +/- 10% of design.

C. The TAB technician shall notify the GC and the Walgreens Field Project Manager of any deficiencies needing immediate attention. The GC shall have the Mechanical and Electrical Contractors available to promptly correct any such problems (i.e. replace burned out motors, failed thermostats, incorrect wiring, bad circuit breakers and starters, dirty filters, missing dampers, undersized RTU outside air intakes).

D. The TAB work shall be completed in accordance with the following checklist:

GENERAL
1. Compare installed system to design mechanical plans for the specific store.
2. Document design specifications for report.
3. Record unit nameplate data.

TEST, ADJUST AND BALANCE THE HVAC SYSTEM
1. Measure and adjust diffuser supply, return and exhaust airflows using balancing dampers, and locking them in that position (when applicable). Mark damper balance positions.
   a. Adjust damper airflows at branch take-offs first and at diffusers second.
2. Adjust RPM as necessary to achieve design.
   a. Check actual amps versus motor FLA for evaporator fan, compressors and condenser fans.
   b. Note adjustments made on pulleys.
   c. Measure final RPMs.
3. Measure space temperature, supply air temperature and return air temperature for the following areas: front checkout, pharmacy, office, general stock, sales area (three spot temperatures minimum). Temperature readings shall be recorded after the system has been running for at least eight hours and thermostats have been properly set.

4. Measure outside air temperature and relative humidity.
5. Check for drafts and hot/cold spots.
6. Adjust to provide design outside air flow with and without Demand Control Ventilation.
7. Ensure slightly positive building pressure.
    a. Fine tune position of outside air dampers.
    b. Measure final building pressure.

FINAL WRAP-UP AT SITE

1. Review data for completeness.
2. Discuss findings and results with Walgreens Field Project Manager and/or GC and Mechanical Contractor.

F. In the event that the TAB firm is unable to perform a complete TAB of the entire system due to deficiencies in the completion of items outlined above, the Walgreens Field Project Manager may request that the TAB firm schedule a follow up visit to test and balance portions of the system that could not be completed on the initial visit. The GC shall be responsible to issue a purchase order and reimburse the HVAC manufacturer for the additional cost incurred, including travel and applicable expenses.

1.05 TEST AND BALANCE REPORT

A. A certified report shall be submitted to the Walgreens Field Project Manager (2 copies), the GC, and the Mechanical Contractor within two weeks of completion. The TAB firm shall also post the report on its website to be accessible by Walgreens.

B. Final test report shall include the following sections listed below:

C. FIELD SUMMARY & HVAC PUNCH LIST
Provide a field summary report outlining all appropriate observations and punch list items.

D. INSTRUMENT CALIBRATION RECORD
Provide record of instrument calibration including make, model, serial number, date of calibration and the name of party performing calibration for all instrumentation used in the TAB site survey.

E. PHOTOGRAPHS
Provide digital photographs of rooftop equipment and any other items that would help in understanding the items reported as deficient.

F. HVAC SYSTEM INSPECTION REPORT
Provide a full report for all items listed in the HVAC System Inspection check list included in the output forms on Walgreen's web site.

G. BUILDING AIR BALANCE
Provide a tabulated summary of outside air and exhaust air. Include building balance in CFM and final building pressure reading.

H. RTU DATA
Provide a tabulated summary of the following for each RTU:

1. Design RTU data listing make, model #, catalog # (when applicable), nominal tons, external static pressure, evaporator fan HP, unit voltage/phase, supply air in CFM, return air in CFM, outside air in CFM, outside air ratio, etc.
2. Installed RTU data listing make, model #, serial #, catalog # (when applicable), nominal tons, filter sizes and MERV rating, etc.

a. Provide evaporator fan motor data including make, model #, HP, RPM, voltage, FLA.

3. Startup data including initial evaporator fan RPM, unit voltage and amperage.
4. Final data including evaporator RPM, calculated BHP, pulley and belt sizes, unit voltage and amperage.
5. Final data for external static pressure, total static pressure, supply air in CFM, return air in CFM, outside air in CFM, outside air ratio.

I. EXHAUST FAN DATA

Provide a tabulated summary of the following for each exhaust fan:

1. Design exhaust fan data including make, model #, motor HP, airflow in CFM, external static pressure and voltage/phase.
2. Installed exhaust fan data including make, model #, serial #.
   a. Provide motor data included make, model #, HP, RPM, voltage, FLA, overload protection.
3. Startup data for each exhaust fan including initial RPM, voltage and amperage.
4. Final data for each exhaust fan including airflow in CFM, RPM, calculated BHP, voltage, amperage, pulley and belt sizes.

J. AIR BALANCE REPORT

1. Provide air balance report for each diffuser, RTU and exhaust fan to include design and actual airflow in CFM.
2. Provide summary of space temperatures, supply air temperatures, return air temperatures and outside air temperature measured during TAB site visit.

L. ADDITIONAL EQUIPMENT

Provide a tabulated summary of the following for any additional HVAC equipment:

WALL HEATERS

1. Location and design heating capacity in kW.
2. Installed make, model, serial number and heating capacity in kW.

AIR CURTAINS

1. Design airflow in CFM and heater capacity in kW.
2. Installed make, model, serial number, heater capacity in kW.
3. Airflow measurement in CFM.

M. THERMOSTAT SETTINGS

A. Provide a tabulated summary of design and actual thermostat settings for both occupied and unoccupied modes.
B. Include time settings for occupied and unoccupied modes.
C. Include installed make and model of all thermostats.

N. HVAC PLAN SHOWING DIFFUSER & EQUIPMENT LAYOUT

Provide a store plan with diffuser, RTU and exhaust fan locations and tags matching the Air Balance Report.

O. ADDITIONAL INFORMATION (if any)

Include any additional information not listed above that might be useful for the specific store in understanding above report.

1.06 CLOSEOUT

A. Provide photo verification of punch list items as a part of the TAB service. For each discrepancy that is not severe enough to warrant a return visit, TAB firm shall require the Contractor to submit photos to the TAB firm showing the item corrected to Walgreens U.D.S./industry standards.

B. Upon acceptance of all corrected discrepancies the TAB firm shall issue a closeout letter which shall be a part of the project closeout documents. Without the letter from TAB firm, Contractor retainage is withheld making the TAB a critical part of the closeout.

END OF SECTION

SECTION 23 30 00 – HVAC AIR DISTRIBUTION

PART 1 - GENERAL

1.01 DESCRIPTION

A. Section 01 11 00 Summary of Work, Section 20 05 00 Common Work Results for Mechanical Section 20 07 00 Mechanical Insulation, shall be considered a part of these specifications.

B. Scope of Work: The HVAC air distribution work includes, but is not limited to, the following:

1. Air conditioning outside air ducts, supply air ducts, return air ducts, insulation, diffusers grilles, supply fans, motors, manual dampers and fire dampers.

2. Exhaust/ventilation system fans, blowers, ducts, grilles, diffusers, dampers, etc.

3. Furnishing of roof curbs required for supply and exhaust fans.

1.02 DELIVERY, STORAGE AND HANDLING

A. All self-adhesive labels for part identification are to be applied to external surfaces only.

B. All ductwork and fittings shall be sealed either by blanking or capping duct ends, bagging small fittings, surface wrapping or shrink wrapped in plastic to prevent dust and dirt from touching the internal surfaces during delivery and storage.

C. The material deliveries shall be inspected for cleanliness by the General Contractor before accepting delivery on site. The materials shall remain wrapped until installation occurs. The open end of installed ductwork and fittings shall remain sealed until receiving the next connection piece. Unsealed openings during construction will require the entire ductwork system to be cleaned and resealed.

PART 2 - PRODUCTS

2.01 PERFORMANCE REQUIREMENTS

A. Ducts, fittings and joints shall be constructed of galvanized steel and installed in accordance with the latest edition of the SMACNA HVAC Duct Construction Standards Metal and Flexible for a static pressure class of not less than +/- 2.0 inches of water column.

B. Airstream Surfaces: Surfaces in contact with airstream shall comply with requirements in ASHRAE 62.1.

C. ASHRAE Compliance: Applicable requirements in ASHRAE 62.1, Section 5 - "Systems and Equipment," and Section 7 - "Construction and System Startup."

D. ASHRAE/IES Compliance: Applicable requirements in ASHRAE/IES 90.1, Section 6.4.4 - "HVAC System Construction and Insulation."

E. Duct Dimensions: Unless otherwise indicated, all duct dimensions indicated on Drawings are inside clear dimensions and do not include insulation, liner, or duct wall thickness.

## 2.02 SHEET METAL DUCTWORK

A. Longitudinal Seams: Select seam types and fabricate in accordance with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," for static-pressure class, applicable sealing requirements, materials involved, duct-support intervals, and other provisions in SMACNA's "HVAC Duct Construction Standards - Metal and Flexible."

B. Round Tees and Laterals: Select types and fabricate in accordance with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Figure 3-5, "90 Degree Tees and Laterals," and Figure 3-6, "Conical Tees," for static-pressure class, applicable sealing requirements, materials involved, duct-support intervals, and other provisions in SMACNA's "HVAC Duct Construction Standards - Metal and Flexible.

C. Round or Oval Elbows, 90 degrees, shall be long radius and die formed construction to 12 inch diameter and 5 segment for larger than 12 inch. Elbows, 45 degrees, shall be die formed construction to 12 inch diameter and 3 segment for larger than 12 inch. Pleated and adjustable elbows are not acceptable. Seams in fittings which are not spiral locked shall be welded.

D. Rectangular Elbows, Transitions, Offsets, Branch Connections, and Other Duct Construction: Select types and fabricate in accordance with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Ch. 4, "Fittings and Other Construction," for static-pressure class, applicable sealing requirements, materials involved, duct-support intervals, and other provisions in SMACNA's "HVAC Duct Construction Standards - Metal and Flexible."

E. Loose taps are not acceptable.

F. Exposed un-insulated ductwork in General Sales will be painted A60 dull gray coating (galvannealed).

G. Acceptable manufacturers of spiral products: Accuduct Manufacturing, Eastern Sheet Metal, Lindab, Omni Duct Systems, Semco and United McGill, providing they have been manufacturing these spiral products for at least 10 years. All round and oval ducts and fittings shall be manufactured by the same company. Factory fabricated fittings shall be used.

H. Fiber ductwork is not acceptable.

I. Internal lining is not acceptable in the supply ductwork. Internal lining is acceptable only in the exposed return ductwork in the General Sales for sound attenuation

1.02 FLEXIBLE ROUND DUCTWORK

A. Flexible round ductwork shall be shall be a factory made with a liner duct permanently bonded to a corrosion resistant spring steel wire helix supporting a fiberglass insulating blanket with an R-value not less than 4.2 and an ADC thermal certification seal. Ducts shall be UL listed 181 Class 1, complying with NFPA 90A, NFPA 90B, and all other codes having jurisdiction.

B. Flexible round ductwork shall be by ATCO, Thermaflex, or equal.

1.03 DUCT SEALANT:

A. Sealant shall be United Duct Sealer as manufactured by United-McGill Corporation or #6 mastic with red glasscoat as manufactured by RCD Corporation. Install per manufacturers and UL 181A & B recommendations.

B. Shrink bands, manufactured by Raychem and applied in accordance with manufacturer's instructions are acceptable on round ducts.

C. Foil mastic tape, Polyken 360-17, applied in accordance with manufacturer’s instructions, is acceptable on round ducts. Sealant is not required for spiral gasketed ductwork.

2.03 DUCT LINER

A. Fibrous-Glass Duct Liner: Comply with ASTM C 1071, NFPA 90A, or NFPA 90B; and with NAIMA AH124, "Fibrous Glass Duct Liner Standard."

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. CertainTeed Corporation; Insulation Group.
b. Johns Manville.
c. Knauf Insulation.
d. Owens Corning.

2. Maximum Thermal Conductivity:

a. Type I, Flexible: 0.27 Btu x in./h x sq. ft. x deg F at 75 deg F mean temperature.

b. Type II, Rigid: 0.23 Btu x in./h x sq. ft. x deg F at 75 deg F mean temperature.

3. Antimicrobial Erosion-Resistant Coating: Apply to the surface of the liner that will form the interior surface of the duct to act as a moisture repellent and erosion-resistant coating. Antimicrobial compound shall be tested for efficacy by an NRTL and registered by the EPA for use in HVAC systems.

4. Water-Based Liner Adhesive: Comply with NFPA 90A or NFPA 90B and with ASTM C 916.

B. Flexible Elastomeric Duct Liner: Preformed, cellular, closed-cell, sheet materials complying with ASTM C 534, Type II, Grade 1; and with NFPA 90A or NFPA 90B, 1 inch thick.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Aeroflex USA Inc.
b. Armacell LLC.
c. Rubatex International, LLC

2. Surface-Burning Characteristics: Maximum flame-spread index of 25 and maximum smoke-developed index of 50 when tested according to UL 723; certified by an NRTL.

3. Liner Adhesive: As recommended by insulation manufacturer and complying with NFPA 90A or NFPA 90B.

C. Insulation Pins and Washers:

1. Cupped-Head, Capacitor-Discharge-Weld Pins: Copper- or zinc-coated steel pin, fully annealed for capacitor-discharge welding, 0.106-inch diameter shank, length to suit depth of insulation indicated with integral 1-1/2-inch galvanized carbon-steel washer.

2. Insulation-Retaining Washers: Self-locking washers formed from 0.016-inch thick galvanized steel; with beveled edge sized as required to hold insulation securely in place but not less than 1-1/2 inches in diameter.

D. Shop Application of Duct Liner: Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Figure 2-19, "Flexible Duct Liner Installation."

1. Adhere a single layer of indicated thickness of duct liner with at least 90 percent adhesive coverage at liner contact surface area. Attaining indicated thickness with multiple layers of duct liner is prohibited.

2. Apply adhesive to transverse edges of liner facing upstream that do not receive metal nosing.

3. Butt transverse joints without gaps, and coat joint with adhesive.

4. Fold and compress liner in corners of rectangular ducts or cut and fit to ensure butted-edge overlapping.

5. Do not apply liner in rectangular ducts with longitudinal joints, except at corners of ducts, unless duct size and dimensions of standard liner make longitudinal joints necessary.

6. Secure liner with mechanical fasteners 4 inches from corners and at intervals not exceeding 12 inches transversely; at 3 inches from transverse joints and at intervals not exceeding 18 inches longitudinally.

7. Secure transversely oriented liner edges facing the airstream with metal nosings that have either channel or "Z" profiles or are integrally formed from duct wall. Fabricate edge facings at the Intervals of lined duct preceding unlined duct.

8. Terminate inner ducts with buildouts attached to fire-damper sleeves, dampers, turning vane assemblies, or other devices. Fabricated buildouts (metal hat sections) or other buildout means are optional; when used; secure buildouts to duct walls with bolts, screws, rivets, or welds.

PART 3 - EXECUTION

3.01 INSTALLATION

A. Branch Configuration:

1. Rectangular Duct: Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Figure 4-6, "Branch Connection."

a. Rectangular Main to Rectangular Branch: 45-degree entry.
b. Rectangular Main to Round Branch: Conical spin in.

2. Round and Flat Oval: Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Figure 3-5, "90 Degree Tees and Laterals," and Figure 3-6, "Conical Tees." Saddle taps are permitted in existing duct.

a. Velocity 1000 fpm (5 m/s) or Lower: 90-degree tap.
b. Velocity 1000 to 1500 fpm (5 to 7.6 m/s): Conical tap.
c. Velocity 1500 fpm (7.6 m/s) or Higher: 45-degree lateral.

B. HANGER AND SUPPORT INSTALLATION

a. Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Chapter 5, "Hangers and Supports."

b. Building Attachments: Concrete inserts, powder-actuated fasteners, or structural-steel fasteners appropriate for construction materials to which hangers are being attached.

1) Where practical, install concrete inserts before placing concrete.
2) Install powder-actuated concrete fasteners after concrete is placed and completely cured.
3) Use powder-actuated concrete fasteners for standard-weight aggregate concretes or for slabs more than 4 inches (100 mm) thick.
4) Do not use powder-actuated concrete fasteners for lightweight-aggregate concretes or for slabs less than 4 inches (100 mm) thick.
5) Do not use powder-actuated concrete fasteners for seismic restraints.

c. Hanger Spacing: Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Table 5-1 (Table 5-1M), "Rectangular Duct Hangers Minimum Size," and Table 5-2, "Minimum Hanger Sizes for Round Duct," for maximum hanger spacing; install hangers and supports within 24 inches (610 mm) of each elbow and within 48 inches (1220 mm) of each branch intersection.

d. Hangers Exposed to View: Threaded rod and angle or channel supports.

e. Support vertical ducts with steel angles or channel secured to the sides of the duct with welds, bolts, sheet metal screws, or blind rivets; support at each floor and at a maximum intervals of 16 feet (5 m).

f. Install upper attachments to structures. Select and size upper attachments with pull-out, tension, and shear capacities appropriate for supported loads and building materials where used.

C. SEISMIC-RESTRAINT-DEVICE INSTALLATION

a. Install ducts with hangers and braces designed to support the duct and to restrain against seismic forces required by applicable building codes. Comply with [**SMACNA's "Seismic Restraint Manual: Guidelines for Mechanical Systems."**] [**SMACNA's "Seismic Restrain Manual: Guidelines for Mechanical Systems - OSHPD Edition."**] [**ASCE/SEI 7.**]

1) Space lateral supports a maximum of [**40 (12)**] <**Insert dimension**> feet (m) o.c., and longitudinal supports a maximum of [**80 (24)**] <**Insert dimension**> feet (m) o.c.
2) Brace a change of direction longer than 12 feet (3.7 m).

D. CONNECTIONS

a. Make connections to equipment with flexible connectors complying with Section 233300 "Air Duct Accessories."

Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible" for branch, outlet and inlet, and terminal unit connections

E. The open end of installed ductwork and fittings shall remain sealed until receiving the next connection piece. Unsealed openings during construction will require the entire ductwork system to be cleaned and resealed.

F. Ductwork shall be installed in sizes and in location as indicated on plans. Where square corners are used, they shall be provided with turning vanes. Spiral ductwork joints shall have sheet metal screws in connections.

G. The drawings do not attempt to show all offsets that are necessary for the required installation. Those offsets and similar items shall be provided at no additional cost to Walgreens.

H. The ductwork system throughout the building shall be rigidly supported and so constructed as to eliminate vibration or any objectionable noise while the ventilation machinery is in operation.

I. Where ducts pass through walls or floor openings, they shall be kept free of direct contact of building construction by supporting each side of opening. The space between duct and opening shall be sealed and caulked in place, to comply with local fire codes, ordinances, etc.

J. Volume Controls for Balancing: Provide manual volume dampers for balancing the ventilation systems. On each manual volume damper, provide a regulator to lock the damper in a fixed position, where accessible through access panel. Where not accessible through panel, provide a key-operated Young regulator with indicator and ceiling plate.

K. Flexible Connections: Furnish and install on the suction and discharge side of all fans and units, at least 4 inches of 10 oz. canvas or equivalent vinyl with heavy clamping bands. Canvas connection to all HVAC roof-top units shall be as close to unit as possible, just below roof curb.

L. Fire Dampers: Provide fire dampers in duct locations where required by local authority having jurisdiction. Ducts shall be enlarged where fire dampers are installed to maintain the same airflow through damper frame as unobstructed run of duct. Provide access doors to service fire dampers.

M. Access Doors: Provide tight sheet metal access doors (with gasket, hinges, and locks), or where access to plenum spaces or ducts is necessary. Access doors shall be of adequate size and installed per local codes.

N. Louvers for exhaust and outside air shall be equipped with motorized dampers with a maximum leakage rate of 3 cfm/ft at 1.0 w.g. when tested in accordance with AMCA Standard 500. Such dampers shall be closed when fans are off.

## 3.02 DUCT SEALING

a. Seal ducts for duct static-pressure, seal classes, and leakage classes specified in "Duct Schedule" Article in accordance with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible."

b. Seal ducts at a minimum to the following seal classes in accordance with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible":

1) Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible."
2) Outdoor, Supply-Air Ducts: Seal Class A.
3) Outdoor, Exhaust Ducts: Seal Class C.
4) Outdoor, Return-Air Ducts: Seal Class C.
5) Unconditioned Space, Supply-Air Ducts in Pressure Classes 2-Inch wg (500 Pa) and Lower: Seal Class B.
6) Unconditioned Space, Supply-Air Ducts in Pressure Classes Higher Than 2-Inch wg (500 Pa): Seal Class A.
7) Unconditioned Space, Exhaust Ducts: Seal Class C.
8) Unconditioned Space, Return-Air Ducts: Seal Class B.
9) Conditioned Space, Supply-Air Ducts in Pressure Classes 2-Inch wg (500 Pa) and Lower: Seal Class C.
10) Conditioned Space, Supply-Air Ducts in Pressure Classes Higher Than 2-Inch wg (500 Pa): Seal Class B.
11) Conditioned Space, Exhaust Ducts: Seal Class B.
12) Conditioned Space, Return-Air Ducts: Seal Class C.

## 3.03 INSTALLATION OF EXPOSED DUCTWORK

A. Protect ducts exposed in finished spaces from being dented, scratched, or damaged.

B. Trim duct sealants flush with metal. Create a smooth and uniform exposed bead. Do not use two-part tape sealing system.

C. Maintain consistency, symmetry, and uniformity in arrangement and fabrication of fittings, hangers and supports, duct accessories, and air outlets.

D. Repair or replace damaged sections and finished work that does not comply with these requirements.

## 3.04 DUCT CLEANING

a. Apply the following section when duct cleaning is required after documented site inspection

b. Use duct cleaning methodology as indicated in NADCA ACR.

c. Use service openings for entry and inspection.

1) Provide openings with access panels appropriate for duct static-pressure and leakage class at dampers, coils, and any other locations where required for inspection and cleaning access. Provide insulated panels for insulated or lined duct. Patch insulation and liner as recommended by duct liner manufacturer. Comply with Section 233300 "Air Duct Accessories" for access panels and doors.
2) Disconnect and reconnect flexible ducts as needed for cleaning and inspection.
3) Remove and reinstall ceiling to gain access during the cleaning process.

d. Particulate Collection and Odor Control:

1) When venting vacuuming system inside the building, use HEPA filtration with 99.97 percent collection efficiency for 0.3-micron-size (or larger) particles.
2) When venting vacuuming system to outdoors, use filter to collect debris removed from HVAC system, and locate exhaust downwind and away from air intakes and other points of entry into building.

e. Mechanical Cleaning Methodology:

1) Clean metal duct systems using mechanical cleaning methods that extract contaminants from within duct systems and remove contaminants from building.
2) Use vacuum-collection devices that are operated continuously during cleaning. Connect vacuum device to downstream end of duct sections so areas being cleaned are under negative pressure.
3) Use mechanical agitation to dislodge debris adhered to interior duct surfaces without damaging integrity of metal ducts, duct liner, or duct accessories.
4) Clean fibrous-glass duct liner with HEPA vacuuming equipment; do not permit duct liner to get wet. Replace fibrous-glass duct liner that is damaged, deteriorated, or delaminated or that has friable material, mold, or fungus growth.
5) Clean coils and coil drain pans in accordance with NADCA ACR. Keep drain pan operational. Rinse coils with clean water to remove latent residues and cleaning materials; comb and straighten fins.
6) Provide drainage and cleanup for wash-down procedures.
7) Antimicrobial Agents and Coatings: Apply EPA-registered antimicrobial agents if fungus is present. Apply antimicrobial agents in accordance with manufacturer's written instructions after removal of surface deposits and debris.

END OF SECTION

SECTION 23 80 00 – DECENTRALIZED HVAC EQUIPMENT

PART 1 - GENERAL

1.01. DESCRIPTION

A. Section 01 11 00 Summary of Work and 20 05 00 Common Work Results for Mechanical, shall be considered a part of these specifications.

B. Work under this section of the specifications includes the furnishing of all labor and material to provide a complete and operating, heating, ventilating, and air conditioning system.

C. All components of equipment in this section and all devices installed on those units shall be accessible for service.

D. Duct smoke detectors, unit mounted, shall be furnished by this Section. The duct smoke detector(s) shall be factory installed. Manufacturers that cannot install duct smoke detector in the factory, shall ship the specified duct smoke detectors, sensing tubes, remote test station and other accessories with the unit for field installation under this Section of the specifications.

1.02. SUBMITTALS

A. This contractor shall submit product data of the packaged roof-top HVAC units and entrance heater before starting work.

1.03. WARRANTIES

A. All warranties shall be at a minimum of the length indicated and commence from the date of acceptance by Walgreen Co.

B. One (1) year on the packaged units and electric strip heaters.

C. Five (5) years on the compressors.

D. Five (5) years on the condenser coils with protective coating.

E. Ten (10) years on natural gas heat exchangers in all HVAC equipment.

1.04. DELIVERY, STORAGE AND HANDLING

A. The equipment shall be delivered to the job site suitably packaged and protected for overland trucking and for storing the equipment outside exposed to the weather. Duct connection openings shall be covered and sealed with either by blanking or capping duct ends with plywood or sheet metal caps, or surface wrapping or shrink wrapped in plastic to prevent dust and dirt from touching the internal surfaces during delivery and storage. Pipe connection openings shall be covered and sealed with caps.

B. Filters shall be stored in sealed containers to avoid contamination.

C. Equipment shall be inspected for cleanliness by the General Contractor before accepting delivery on site.

D. The openings shall remain sealed and capped until being installed and connected.

PART 2 - PRODUCTS

2.01. PERFORMANCE REQUIREMENTS.

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by an NRTL, and marked for intended location and application.

B. NFPA Compliance: Comply with NFPA 90A for design, fabrication, and installation of RTUs and components.

C. ASHRAE 62.1 Compliance: Applicable requirements in ASHRAE 62.1, Section 5 - "Systems and Equipment" and Section 7 - "Construction and Startup."

D. ASHRAE 15 Compliance: For refrigeration system safety.

E. ASHRAE/IES 90.1 Compliance: Applicable requirements in ASHRAE/IES 90.1, Section 6 - "Heating, Ventilating, and Air-Conditioning."

F. UL Compliance: Comply with UL 1995.

G. Delegated Design: Engage a qualified professional engineer, as defined in Section 014000 "Quality Requirements," to design mounting and restraints for RTUs, including comprehensive engineering analysis.

1. Design RTU supports to comply with wind and seismic (as needed) performance requirements as dictated by local code.

H. Heating and Cooling coils to comply with AHRI 410

I. Gas fired equipment to comply with ANSI Z21.47/CSA 2.3 and NFPA 54.

J. Steel to comply with:

1. ASTM A36/A36M for carbon structural steel.
2. ASTM A568/A568M for steel sheet.

K. Stainless Steel to comply with:

1. Manufacturer's standard grade for casing.
2. Manufacturer's standard type, ASTM A240/A240M for bare steel exposed to airstream or moisture.

L. Galvanized Steel to comply with ASTM A653/A653M.

M. Aluminum to comply with ASTM B209 (ASTM B209M).

N. Comply with Section 230546 "Coatings for HVAC" for corrosion-resistant coating.

O. Corrosion-Resistant Coating according to ASTM B117.

1. Standards:

a) ASTM B117 for salt spray.
b) ASTM D2794 for minimum impact resistance of 100 in-lb (11.3 N-m).
c) ASTM B3359 for cross-hatch adhesion of 5B.

2. Application: Immersionor Spray.
3. Thickness: **1 mil (0.025 mm)**
4. Gloss: Minimum gloss of 60 on a 60-degree meter.

P. Install electrical devices furnished by manufacturer, but not factory mounted, according to NFPA 70 and NECA 1.
1.

2.02. ROOFTOP HEATING, VENTILATION, AND AIR CONDITIONING UNITS

A. Units shall be packaged combination heating and cooling type, consisting of compressor section, air-cooled condenser section, cooling section, heating section, fan section, and mixing box/filter section assembled on a common base. Provide units complete with control panel. Units shall be prepiped and prewired.

B. Approved Manufacturers: Trane and York alternates must be approved by Walgreens Engineering.

C. All compressor motors shall have factory installed and wired thermal overload and phase monitoring protection with an automatic restart to protect motors and compressors against problems caused by phase loss, phase imbalance and phase reversal indication.

D. Furnish factory installed non-fused electrical disconnect switches.

E. Housings shall be painted and weatherproofed with gasketed hinged access doors and factory insulation.

F. Airstream Surfaces: Surfaces in contact with airstream shall comply with requirements in ASHRAE 62.1.

G. All units shall be installed level, secured to roof and elevated 14” high or code requirement whichever is higher. If roof curb is utilized curbs shall include a wood nailer, a galvanized sheet metal cap with space between for at least 3/8 inch thick roof flashing material. Refer to architectural drawing(s) for details.

H. The supply air blower shall be adjustable belt drive. If belt drive is not available then adjustable direct drive motor is acceptable. The manufacturers of the HVAC equipment shall furnish the proper adjustable pulleys and belts necessary to achieve the specified design conditions be they factory installed, shipped loose, provided later, or any combination thereof.

I. Gas fired units shall be AGA approved and be a complete automatic heater. Controls furnished with the unit shall be supplied for the specific gas type and specification and in accordance with local utility regulations.

J. The heat exchanger shall be an integral, completely welded aluminized steel unit composed of venturi-shaped, baffle-free sections welded to top and bottom header plates. Flue gases shall be power vented. Separated combustion type shall be used when indicated with integral exhaust/combustion air inlet and concentric adapter. Minimum number of steps to be 2.

K. Controls to include fan and limit controls, electronic ignition, pressure regulator, and shut-off cocks.

L. Unit shall be capable of fully automatic operation with ambient temperatures down to (standard with manufacturer) 25 degree F for refrigeration cycle. Provide low ambient controls when needed based on manufacture recommendations.

M. External High-Low pressure cut-outs factory installed are required on all rooftop units.

N. Provide all necessary contactors, relays, motor starters, etc. for a complete operating unit.

O. For all projects in Puerto Rico and those projects in the 50 United States, 5 miles (or less) from all salt water coastlines, bays, tributaries, etc. furnish condenser coil(s) corrosion resistant coil treatment.

P. Unit sizes 7 1/2 ton and above shall be two-stage heating (medium and high) and two- or more stage cooling, complete with multiple refrigeration circuits and time delay.

Q. Provide two (2) sets of throwaway type filters not less than MERV 8, with one set to be used during construction and the second set to be installed after substantial completion of construction.

R. Rooftop units shall have factory-installed airside economizers meeting applicable Walgreens unified design standards (UDS) drawing and schedules.

S. Furnish all required sensors specified on applicable UDS drawings.

1. Thermostats shall be programmable electronic type compatible with the RTU equipment. They shall be capable of properly controlling 2-stage cooling and 2-stage heating. The heating and cooling set points shall be individually adjustable for both "Occupied" and "Unoccupied" periods, programmable 24 hours per day and 7 days a week.

2. In the "Occupied" mode of operation, the outside air damper shall be open to achieve the design outside air CFM indicated on the RTU Equipment Schedule on drawing M-610. In the "Unoccupied" mode, the outside air damper shall be closed.

3. The thermostat shall contain a manual selection for the evaporator fan as follows: In "ON" the evaporator fan shall run continuously. In "AUTO" the fan shall operate intermittently and run only when there is a call for cooling or heating with a short time delay. The fan operation shall be continuous during the "Occupied" periods except as noted otherwise.

4. Remote dry bulb temperature sensors shall be furnished where specified on the drawings. The HVAC equipment shall be controlled from this remote sensor or the temperature sensor within the thermostat, as manually selected or programmed at the thermostat.

5. The thermostat shall select the optimum time to begin building warm-up or cool down based on set points and the occupied program.

6. Supplemental electric resistance heat shall be controlled at 2 degrees F. below the heating set point heat pump systems.

T. Furnish a relative humidity sensor with each RTU that has the hot gas reheat option, to be mounted and wired in the field at location indicated on drawing M-111 and specified on drawings M-620. The compressor(s) shall run and lower the room relative humidity until the relative humidity set point is satisfied and then the hot gas reheat coil shall warm the supply air until the space dry bulb temperature is satisfied.

U. Furnish a CO2 sensor with each RTU that has the Demand Controlled Ventilation (DCV) option, to be mounted in occupied space and wired in the field, as specified on drawing M-620. The outside air intake damper shall remain at the minimum CFM position shown on the RTU Equipment Schedule unless the CO2 level reaches the set point, then the outside air intake damper shall open further to the design outside air CFM shown on the RTU Equipment Schedule, both shown on drawing M-610.

V. Furnish duct smoke detector (SD) where indicated on the equipment schedule, typically when the evaporator fan is greater than 2000 cfm and/or required by the governing building code and authorities having jurisdiction. Include an accessible wiring termination board for each unit with the smoke detectors. Duct smoke detectors and accessories shall comply with the requirements of Section 28 31 00.

W. Electric Resistance Heating Coils: Minimum Stages: 2

X. Internal Vibration Isolation: Internal components are to be internally isolated on independent mountings.

Y. Condensate Drain Pans: Single Wall, noncorrosive polymer or stainless steel meeting ASHRAE 62.1 slope and length recommendations.

2.03. Dampers: To be low leakage, double skin and airfoil-blade. CONDENSATE DRAIN

A. This contractor shall furnish and install a condensate control device (Costgard) from each RTU. Costgard device system kit is manufactured by Trent Technologies, Inc., Tyler, Texas, Telephone # (903) 509-4843.

B. Condensate piping shall be Schedule 40 min. PVC or ABS unless code requires otherwise. Condensate piping and components located outside the building shall be weather, sunlight, and UV resistant and recognized by UL as suitable for outdoor use.

2.04. ROOF CURBS

A. Materials: Insulated, Galvanized steel with corrosion-protection coating, watertight gaskets, and factory-installed wood nailer; complying with NRCA standards.

B. Curb Height: Curb to be 14” or code minimum whichever is larger.

2.05. REFRIGERANT SYSTEM CHARGING

A. Follow manufacturer’s recommended charging procedure for both refrigerant and refrigerant oil.

B. Replace any refrigerant or oil lost from the system during the guarantee (one year) period at no expense to Walgreen Co.

PART 3 - EXECUTION

3.01. DUCTWORK CONNECTIONS

A. Comply with duct installation requirements specified in other HVAC Sections. Drawings indicate general arrangement of ducts. The following are specific connection requirements:

2. Install ducts to termination at top of roof curb.

3. Remove roof decking only as required for passage of ducts. Do not cut out decking under entire roof curb.

4. Connect supply ducts to RTUs with flexible duct connectors.

5. Install return-air duct continuously through roof structure.

3.02. TESTING REFRIGERANT PIPING SYSTEM

A. Manufacturer to factory pressure test units and provide documentation upon request. Expansion valves and compressor crankcases are not to be pressure tested.

3.03. CONDENSATE DRAIN SYSTEM INSTALLATION

A. For units delivered without a drain connection provide drain connections in the field. Detailed installation instructions are provided with each shipment of Costgard drain seal.

B. For locations west of 99° longitude or north of 33° latitude, run condensate piping 8" beyond the roof curb and discharge in the direction of the roof pitch. Locate discharge so that condensate runs away from RTU. Refer to architectural drawing for the required "splash block on walkway pad below water discharge".

C. For locations both east of 99° longitude and south of 33° latitude, run condensate piping from RTU to an approved receptor. Condensate drain piping is to be run above the roof supported on 6"x6" black polycarbonate pipe supports, model No. 1.5 by Miro Industries, telephone (800) 768-6978. Provide stainless steel screws and strap to permit pipe movement. Position the support piping not more than 6'-0" apart. Secure the pipe support to roof membrane in a manner approved by the membrane manufacturer.

D. Run condensate piping below the roof if code or local authorities prohibit piping above the roof or if discharging onto the roof is not allowed. Penetrate the roof through a pipe portal. Provide a higher than normal roof curb to raise the RTU high enough to make this scheme work.

E. Condensate piping shall be supported as per manufacturers' recommendations.

F. Condensate piping, drainage fittings and cleanouts shall be sized per manufacture recommendation and industry best practice..

G. Locate condensate drain piping so it will not interfere with the required access to the RTU.

3.04. CLEANING

After completing system installation and testing, adjusting, and balancing RTUs and air-distribution systems, clean RTUs internally to remove foreign material and construction dirt and dust. Clean fan wheels, cabinets, dampers, coils, and filter housings, and install new, clean filters.

END OF SECTION

SECTION 26 05 00 – COMMON WORK RESULTS FOR ELECTRICAL

PART I - GENERAL

1.01 ELECTRICAL GENERAL REQUIREMENTS

A. Section 01 11 00 Summary of Work shall be considered a part of these specifications.

B. This section applies to all electrical work. The Contractors involved shall check all sections of the specifications in addition to the particular section covering their specific trade. Each distinct section of the specifications aimed for one trade may have detailed information with regards to other trades. Therefore, it is imperative that all sections be reviewed to get a complete picture of all other trades' functions and work required.

C. The Walgreen Co. drawings, which constitute an integral part of this contract, shall serve as the working plans. They indicate the general layout of the complete electrical system.

1. Field verification, of scaled dimensions on plans, is directed since actual locations, distances and levels will be governed by actual field conditions. All measurements shall be verified at the site.

2. The Electrical Contractor shall check architectural, structural, plumbing, heating, ventilation and air conditioning; and fire suppression plans to avert possible installation conflicts. Should drastic changes from original plans be necessary to resolve such conflict, the Contractor shall notify the architect and Walgreen Co. - Facilities Design, Planning, & Development Department, and secure written approval and agreement on necessary adjustment before the installation is started.

3. Discrepancies shown between plans, or between plans and actual field conditions, or between plans and specifications shall be brought promptly to the attention of Walgreen Co. for a decision.

4. Drawings and specifications are intended to cover the completed installation of systems to function as described. The omission of the expressed reference to any item of labor and material necessary to comply to practice codes, ordinances, etc. shall not relieve the Contractor from providing such additional labor and material.

5. The contract drawings serve as working drawings for the general layout of the various services. However, layout of equipment accessories, specialties, piping systems, and conduit runs are diagrammatic unless specifically dimensioned and do not necessarily indicate every required valve, fitting, transition, turning vane, junction box, pull box, conduit size, etc. It will be the Contractor's responsibility to provide all systems complete and operable. The Contractor is to make field verification of all services, systems, etc. as part of the total work required and the cost to be included in his base bid.

D. Accessibility: Do not locate traps, controls, unions; pull boxes, etc. in any system at a location that will be inaccessible after construction is completed. Maintain accessibility for all components in mechanical, electrical, and plumbing systems.

E. Cutting and Patching: All cutting required shall be done by the Contractor whose work is involved, without extra cost to Walgreen Co. All patching and restoration including the furnishing and installation of access panels in ceiling, walls, etc. within the building lines

shall be done by the respective, responsible Contractor. No cutting of structural steel, concrete, or wood shall be done without prior approval and explicit directions of the architect and Walgreen Co. All duct openings in walls; floors, ceiling, and roof shall be cut and patched by the respective, responsible Contractor.

F. Relocation of Existing Duct, Conduits, Pipes and Utilities: The Contractor, under whose jurisdiction the work may fall, shall provide labor, material, and tools required to cut, repair, protect, cap, or relocate existing pipes, conduits, or utilities interfering with or uncovered during work, per regulations of the authorities having jurisdiction.

G. Excavation and Backfill: Excavation and removal of material, shoring, and backfilling required for the proper laying of all pipes and conduits inside the building and premises, and outside as may be necessary, shall be done by the Contractor whose work is involved, without extra cost to Walgreen Co.

I. Sleeves: Each Contractor shall furnish sleeves at conduit penetrations through walls and floors. Sleeves shall be extended 2 inches above the floor. Sleeves shall be Schedule 40 galvanized steel pipe and of the required size.

J. Electric Motors: Each Contractor shall provide all electric motors for their respective work. Verify building voltage prior to ordering motors. Motors shall comply with NEMA Standard MG-1, Motors and Generators and be designed for quiet operation and of ample size to operate at their proper load and full speed continuously without causing undue noise or vibration. The motors shall be open drip-proof or TEFC construction and have ball bearings. Provide all belted motors with guide rails, adjusting screws, anchor bolts, and cast iron bed plates. Provide full voltage magnetic starters for all three-phase motor-driven equipment. (Allen-Bradley Bul. 709 or General Electric equivalent.)

K. Electrical Wiring: The Electrical Contractor shall furnish all wiring required for the operation of motors and controls.

L. Damage to Other Work: Each Contractor will be held rigidly responsible for all damages to their own or any other trades' work resulting from the execution of the involved Contractor's work.

M. Concrete Foundation: Concrete foundation for all electrical equipment shall be provided by the General Contractor, but the respective Electrical Contractor shall furnish foundation bolts and all essential information and shall check the work prior to the pouring of concrete to insure acceptable results. The foundation shall be as indicated or as recommended by the equipment manufacturer.

N. Rough-in for Connection to Equipment: It shall be the responsibility of each Contractor to study the architectural, structural, electrical, and mechanical drawings, conferring with the various trades involved and checking with the supplier of equipment in order to properly rough-in for all equipment.

O. Material and Equipment: All material and equipment shall be new and of the best quality used for the purpose in good commercial practice, and shall be the standard product of reputable manufacturers. The material and equipment must meet approval of state and local codes in the area it is being used.

P. Performance of Work: All work outlined in the various mechanical and electrical sections shall be done by the Contractor under whose jurisdiction the work may fall. See drawings and specifications.

Q. Roof decks shall not be used to support piping, conduit, equipment, devices, etc. Bar joist panel points and beams shall be used to support loads unless otherwise directed by the structural engineer.

R. Installation: All equipment and materials shall be installed according to manufacturer's instructions unless otherwise specifically directed by the Trade Contract Documents. All items recommended by the manufacturer or required for proper operation shall be provided without additional cost to Walgreens.

S. Testing: All testing results shall be documented in the form of written reports.

1.02 SUPPLEMENTARY CONDITIONS

A. Existing Conditions: Each Contractor shall examine the project site to verify dimensions and existing conditions of electrical systems, and shall thoroughly acquire information regarding grades, space conditions, limitations, and peculiarities of construction required for the building and site and shall give due consideration to same in preparation of proposal. No exceptions shall be considered after award of a contract, nor shall the Contractor be entitled to any extra compensation for their failure to verify conditions at the site.

B. Permits, Inspections, and Tests: All work is to be executed in compliance with, and each Contractor is to observe and abide by, all applicable laws, regulations, ordinances, and rules of the national, state, county, and local governing agencies or any other duly constituted public authority. Each Contractor will, at all times, maintain proper facilities and provide safe access for inspection to all parts of the work and to the shops wherein the work is in preparation. No work will be enclosed or covered until approved by the architect, and should any work be enclosed or covered before all necessary inspections are completed, same will be opened for examination at the Contractor's expense. All fees, licenses, tests, costs, etc. are Contractor's responsibility.

C. Codes, Standards and Regulations:

1. All work shall conform to all applicable federal, state, and local codes.

2. All material and equipment shall conform to the standards, where available, of the National Electrical Manufacturers Association (NEMA), National Fire Protection Association (NFPA), National Electrical Code (NEC), and Underwriters Laboratories (UL).

3. All work shall conform to utility companies' regulations.

D. Cooperation: There shall be complete cooperation with all trades in the matter of planning and execution of the work. Every reasonable effort shall be made to prevent conflict as to space requirements, dimensions, locations, leaving of opening, or other matters that would obstruct or delay the work.

END OF SECTION

SECTION 26 10 00 – ELECTRICAL DISTRIBUTION

PART I - GENERAL

1.01 DESCRIPTION

A. Section 01 11 00 Summary of Work and Section 26 05 00 Common Work Results for Electrical, shall be considered a part of these specifications.

B. Codes, Ordinances, and Permits: All permits, licenses, stamping, approvals, and other arrangements for work shall be obtained by the electrical contractor. All expenses shall be included in the base bid. All electrical work shall be executed in strict accordance with the National Electrical Manufacturers Association (NEMA), National Board of Fire Underwriters (NBFU), National Electrical Code (NEC), Underwriters Laboratories (UL), all electrical ordinances of the city, county, and state, and all others applicable to all codes and are of the minimum requirements. Any conflict between drawings, local power company, codes, etc., shall be brought to the attention of Walgreen Co. by this contractor at the time the bids are submitted.

C. Scope of Work: The work covered by this specification shall include furnishing all labor, tools, material, equipment, and services to construct and install the complete electrical system as shown on the accompanying plans and as specified herein. This work includes, but is not limited to, the following:

1. Service entrance equipment bus to be standard aluminum alloy, including main distribution equipment, metering, secondary distribution equipment. Transformers with aluminum windings are acceptable. Service entrance conductors to be aluminum (when allowed by utility and/or authority having jurisdiction) unless otherwise noted. The electrical utility company metering shall include a demand and pulse meter available for billing purposes and energy management.

2. Complete distribution system bus of standard aluminum alloy for lighting and power, including the necessary transformers, distribution panel boards, disconnect switches, control switches, and receptacles. All feeders (to distribution panelboards) and branch circuit wiring shall be copper.

3. Empty raceways as required.

4. Furnish and install a complete emergency lighting and/or exit lighting system if required by local codes.

5. Furnish and install electrical duct heaters and/or electric wall heaters.

6. Install air curtain furnished by mechanical contractor.

7. Provide power to mechanical, plumbing and refrigeration equipment including RTU’s, entrance heater, exhaust fans, domestic hot water recirculating pump, electric water cooler, condensing units (Refrigeration), etc. Disconnects for RTU’s, entrance heater, exhaust fans and condensing units (refrigeration) are furnished by equipment manufacturers.

1.02 SUBMITTALS

A. This contractor shall submit product data for power distribution equipment before starting work.

PART II - PRODUCTS

2.01 MAIN DISTRIBUTION PANELBOARDS

A. Panelboards shall be manufactured by Siemens or Square D.

B. Panelboards shall be molded case main circuit breaker type with factory installed service entrance type UL label. **Bus in all panelboards shall be standard aluminum alloy.** Panelboards and devices contained therein shall have **fully rated** interrupting rating as shown on the drawings but **in no case less than 65,000 amperes rms.** Panelboard shall be labeled with UL short circuit withstand rating. Panelboards shall be assembled complete with bolt-on circuit breakers and spares. Circuit breakers include with thermal and magnetic trip elements and shall be quick-make, quick-break and trip indicating. Circuit breaker type, ampere rating and interrupting rating at common application voltages shall be marked on the circuit breaker in a manner that will be durable and visible after installation.

C. Equipment shall be enclosed in cabinets with proper gutter supports and hinged doors. Provide a laminated bakelite nameplate on the front of each panel and one at each branch circuit device.

D. Panelboard enclosures shall be marked per the latest edition of the NEC, Art.110-22 to indicate the downstream lighting panelboards fed from MDP have been applied with a series combination interrupting rating. The following typically readily visible label shall be permanently installed by the manufacturer on panel MDP enclosure:

**"CAUTION"**
**SERIES RATED SYSTEM**
To Maintain UL Series Combination Interrupting Rating
of Downstream Panelboards Replace Only with
**Siemens 200 A Type Circuit Breakers.**

E. The following safety sign shall be provided on Panel MDP enclosure:

**"CAUTION"**
**Only Qualified Technician Shall Reclose Circuit Breaker**

F. Panelboard shall be equipped with an integral surge protective device (SPD).
The SPD shall be UL1449, 3rd Edition listed.
The SPD shall be factory installed as close as possible to the neutral bus.
The SPD shall satisfy the following minimum requirements:

1. Nominal discharge current: 20 KA
2. Seven modes of protection
3. Status LED's
4. Audible alarm
5. Dry contact for remote monitoring

6. 5 year warranty

The following SPD shall be utilized by the current vendors:
Siemens: TPS3C1115D (120/208 V, 3 ph, 4 W).
Square D: HL2IMA12C (120/208 V, 3 ph, 4 W), HL3IMA12C (120/240 V, 3 ph, 4 W).

2.02 PANELBOARDS

A. Panelboards shall be manufactured by Siemens, or Square D.

B. Panelboards shall be main lug only, assembled complete with circuit breakers and spares. **Bus in all panelboards shall be standard aluminum alloy.** Circuit breakers shall be rated at 10,000 amperes rms for 120/240 volt system. Panelboards shall also have additional series combination interrupting rating equal to the rating of the main distribution panel MDP by utilizing **UL tested and certified** circuit breaker combinations. Each panelboard shall be marked per the latest edition of the NEC, Art. 110-22 and 240-86 to indicate that the series combination interrupting rating is applied. It shall also indicate **additional UL series combination interrupting rating** of the panelboard and type and size of replacement upstream and branch devices. The following typical readily visible label shall be permanently installed by the manufacturer on panel dead front:

**"CAUTION"**
**SERIES RATED SYSTEM**
To Maintain UL Series Combination Interrupting Rating
of Downstream Panelboards Replace Only with
**Siemens Type Circuit Breakers.**
Short Circuit Rating: **65,000 Amperes RMS Symmetrical**
Feeder Breaker in MDP: **Siemens 200 A Type**

C. Circuit breakers shall include thermal/magnetic trip, quick-make/quick-break and trip-free handles. For circuits that are not to be turned off, use handle lock-on. Breakers for either 120/240 or 120/208 volt shall be similar to Siemens bolted in type as furnished in panels. Circuit breaker type, ampere rating and interrupting rating at common application voltages shall be marked on the circuit breaker in a manner that will be durable and visible after installation.

D. Provide a laminate bakelite nameplate on the front of each panel.

2.03 DISCONNECT SWITCHES

A. Disconnect switches shall be of positive action, quick-make/quick-break type with inter-locking cover that prevents opening door when the external operating handle is in the "on" position. Switches outside the building shall be NEMA type 3R rain tight enclosures. 240 volt switches shall be general duty, for voltages above 240 V switches shall be heavy duty.

2.04 OUTLET BOXES

A. All pull boxes and junction boxes shall be standard galvanized steel type.

2.05 RACEWAYS

A. Conduit, unless otherwise noted, shall be either rigid electrical metallic tubing (EMT) or rigid steel. All appropriate requirements for raceways must be met by the authority having jurisdiction.

B. EMT to be used above grade, where permitted by code, except for service and in moist areas. EMT shall be thoroughly protected from corrosion by electro-galvanizing, hot-dipped galvanizing, or appropriate plating.

C. Rigid steel conduit shall be used within sub base material (and below vapor barrier ) of ground bearing floor slabs, where subject to damage, in moist or outdoor areas, and for underground installations, except where another type of raceway is specified. Rigid steel conduit, conduit bends, elbows, couplings, and nipples shall be hot-dipped galvanized. All conduit joints shall be cut square, threaded, reamed smooth, and drawn up tight. Bends or offsets shall be made with standard conduit els, field bends made with an approved bender or hickey, or hub-type conduit fittings. Number of bends per run shall conform to NEC limitations.

D. Plastic conduit (PVC) and fittings are acceptable below sub-base material of ground bearing floor slabs and direct earth burial. Type of PVC conduit must be UL listed for application and acceptable to the authority having jurisdiction. Minimum cover shall be as required by the NEC. When PVC conduit is utilized, it must be transitioned to rigid steel conduit within the sub-base material of the floor slab (prior to stubbing out of slab). See electrical details for further description.

E. Hot-dipped flexible steel conduit shall be used for connections to vibrating or motorized equipment. In areas where such connections will be exposed to oil, grease, water, or weather, flexible liquid-tight conduit shall be used.

F. Conduit shall be sized as indicated on drawings, or required by the National Electrical Code for number and size of conductors installed.

G. BX, nonmetallic cable (NMC/ROMEX) or pre-wired flexible conduit systems are not acceptable.

1. Steel MC cable allowed above slab, color coded style W, when acceptable to the local code authority. Contact AFC @ (630) 968-8914 for more information.

2. MC cable shall be properly secured and supported at intervals not exceeding 6 feet, per the latest edition of the NEC, article 330.

3. Aluminum MC cable is <u>not</u> acceptable.

H. Power Poles:

1. Power pole shall be one or two individual channels for power and communication distribution and/or raceway routing. The communications compartment shall allow for a minimum of a 1-inch bending radius.

2. Power pole shall be metal, snap-together, constructed for strength and rigidity. Color shall be Appliance White or Satin Anodized where required.

3. Power pole shall extend to the structural ceiling and be attached to structure as required by the pole manufacturer. Available accessory kits shall include:
    a. foot bracket for mounting securing the power pole in the floor or flat surface with foot bracket painted white,
    b. “T” bar bracket that fits in a 2-foot spacing in grid ceiling,
    c. mounting bracket required for mounting power poles in a grid ceiling, and
    d. ceiling trim providing a clean appearance after the pole is installed in a grid ceiling with trim painted white

4. Power pole shall be UL or ETL listed.

5. Where required options for “hardwiring” to devices within the power pole shall be available. Devices shall include specification grade 20-amp duplex receptacles and/or isolated ground type with various quantities and available voltages.

6. Power pole shall be available in 10’-6” and 15’-6” length. Acceptable manufacturer includes RELOC Wiring Solutions, HUBBELL Wiring Device-Kellems, or LEGRAND Electrical Wiring Systems.

## 2.06 CONDUCTORS

A. All wire and cable for feeder and branch circuits shall conform to the requirements of the latest edition of the NEC.

B. All conductors shall be soft drawn copper and unless otherwise noted on the drawings, branch circuit conductors shall be type “THHN” and/or “THWN” insulated.

## 2.07 WIRING DEVICES

A. Wiring devices shall include all general purpose receptacles, Receptacles circuited from LP-CR and wall switches with high impact nylon cover plates, white in color. Provide a label on the cover plate indicating panel “LP-CR” and circuit number using a P-Touch labeling machine.

B. Light switches shall be white in color. Hubbell (A.C. rated) 1200 or 1220 series. Acceptable Alternate Manufacturers: Pass and Seymour (P&S), General Electric Co. (G.E. Co.) or Leviton.

C. General purpose receptacles shall be white in color, unless otherwise noted. Acceptable Manufacturers: Hubbell, Pass and Seymour (P&S), General Electric Co. (G.E. Co.) or Leviton.

D. Receptacles circuited from LP-CR shall be white in color, unless noted otherwise. Acceptable Manufacturers: Hubbell and Pass and Seymour (P&S)
    1. Simplex Receptacle: Cat. No. Hubbell HBL5361W
    2. Duplex Receptacle: Cat. No. Hubbell HBL5252W or P&S 5262AW

E. Surge Protection Device (SPD) duplex receptacles, white in color, shall be as manufactured by Pass and Seymour (P&S). (No substitutions.)
   1. SPD duplex Receptacle: Cat. No. 8200-WSP

PART III - EXECUTION

3.01 INSTALLATION

A. Temporary Light and Power: Electrical contractor shall furnish all labor and material required to provide temporary light and power. The general contractor shall pay all charges for electric current used for temporary lighting and power.

B. Electrical Service: Electrical service and meters shall be installed and shall conform to the requirements of serving utility and codes. The type and voltage must be checked with serving utility and any conflict between drawings and utility shall be immediately brought to the attention of Walgreen Co.

C. Main Distribution Panelboards, Panelboards, and Cabinets: Electrical contractor shall furnish and install the main distribution boards, power and lighting panelboards, and cabinets.

D. Disconnect and Safety Switches: Electrical contractor shall furnish and install fusible and/or non-fusible safety switches.

E. Electric Heaters: Electrical contractor shall furnish and install all electric-type heaters.

F. The electrical contractor shall install all starters, switches, and electrical equipment furnished under other contracts and shall furnish and install all disconnect switches and electrical that is required for the completion of the job.

G. Conduit shall be installed concealed and tight to bar joist wherever possible, except where otherwise indicated. Install the conduit exposed in stock areas or similar spaces. Conduit shall be separated by at least 12 inches from parallel runs of steam or hot water piping.

H. Conduits shall be continuous from outlet to outlet, from outlets to cabinets, pull, or junction boxes, and shall be secured to all boxes with locknuts and bushings (insulating type) in such a manner that each system shall be electrically continuous throughout. Conduit ends shall be capped to prevent entrance of foreign materials during construction. Conduits shall be securely and rigidly supported.

I. Furnish and install pull boxes and junction boxes where necessary in the raceway system to facilitate conductor installation (allow for pulling tension and other NEC criteria).

J. Receptacle Circuits:

   1. No wire smaller than #12 shall be used for any branch circuit supplying convenience outlets. Branch circuit wiring shall be sized to limit the voltage drop to NEC requirements. All wire to be copper.
   2. Receptacle circuits shall be circuit breaker controlled.
   3. Receptacles for specific areas shall be of the size and type required.

K. Lighting Circuits:

1. No wire smaller than #12 shall be used for any lighting branch circuit.

2. Branch circuit wiring shall be sized to limit the voltage drop to NEC requirements.

3. No 120 volt lighting circuit shall exceed 1600 watts. No 277 volt lighting circuit shall exceed 3600 watts.

L. Panel 'LP-CR' Feeder and branch circuit conductors must be run separate from other panel conductors. **DO NOT** run through a common raceway or trough.

M. Lighting Controls: Certain circuits in lighting panels LP-1, LP-SP and LP-2 shall be remotely controlled to control individual lighting circuits. Power wiring between relays and circuit breakers (when required) shall be furnished by the manufacturer. Refer to lighting control system drawings E-610, E-620, E-630 and E-640.

N. Critical Loads: Provide lock-on hardware for all critical loads (such as: cooler/freezer equipment, computers, cash registers, etc.).

O. All conduit for mechanical equipment, unit heaters, circulating pumps, air conditioning equipment, and ventilation fans shall be installed by the electrical contractor.

P. Equipment Connections: All equipment provided under this section of the specifications or other sections of these specifications requiring electrical service, including all equipment furnished and installed by Walgreen Co. shall be completely wired and connected under this section.

Q. Labeling: All circuits shall be labeled. Panel schedules shall be typed and securely mounted on the inside of the electrical panel box doors.

R Uninterruptible Power Supply: For all projects in Colorado, Florida, Hawaii, Louisiana, Puerto Rico, and the Gulf coast of Texas (within 100 miles of the coastline) the electrical contractor shall furnish and install a central U.P.S. system (10kVA in the continental United States and 20 kVA in Hawaii and Puerto Rico) ahead of the cash register panel, "LP-CR". See U.D.S. Materials (Supplementals) at http://facilities.walgreens.com/ae/prototype/supplementals.html for further information.

S. Engine Generator Set: For all projects in Puerto Rico and the Florida Keys, the electrical contractor shall furnish and install a full load engine generator set. See U.D.S. Reference Materials (Supplementals) at http://facilities.walgreens.com/ae/prototype/engineering_supplementals.html for further information.

T. Power Poles, for use in store remodel or with prior Walgreens approval:

1. Power poles to be secured to building structure at top and bottom. Attach top to roof joists directly or with Unistrut. Attach bottom to floor or wall, or to fixture that is secured to floor or wall.

2. Power Pole installation shall follow current NEC requirements.

3. Power to sales floor gondolas shall be located along the last 3'-0" section of the gondola run farthest from the front entrance

i. Within the 3’-0” gondola section, the conduit shall be located between the end panel and the telescopic upright located in the middle of the gondola top cap.

ii. All power poles along adjacent gondolas shall be arranged in a neat and organized fashion in a continuous line along the entire length of the sales floor wherever possible.

iii. Power pole to be installed from top of sales floor gondola to ceiling.

iv. Install power pole so that seams do not face front of store or in the primary view of customer.

4. Power and data for the Beauty Welcome Center shall be routed from above to top of Beauty Welcome Center Fixture. Power pole to be placed after monitor mount installation. Power pole to be located between front of fixture and monitor mount pole, centered laterally on the centerline of the monitor mount pole, and terminating on top of the monitor mount plate. Drill the monitor mount plate on the top and underside of the work surface to allow pass through for power and data.

5. Power for the front checkout cooler (See D-111 fixture plan for location) shall be located directly adjacent to cooler and routed from ceiling to floor with final placement considering customer view and access to cooler doors. Side of power pole with factory installed duplex receptacle to face cooler.

6. In walls, power will be routed via Wiremold raceway on wall surface. Raceway to be painted same color as the wall.

3.02 TESTING

A. After wires are in place and connected to devices and equipment, the system shall be tested for shorts and grounds. All hot wires, if shorted or grounded, shall be removed and replaced if trouble is within circuit.

B. Any wiring device or apparatus furnished under this contract, if grounded or shorted, shall be removed and the trouble rectified by replacing all defective parts of materials as directed.

END OF SECTION

SECTION 26 50 00 - LIGHTING

PART I - GENERAL

1.01 DESCRIPTION

A. Section 01 11 00 Summary of Work and Section 26 05 00 Common Work Results for Electrical, shall be considered part of these specifications.

B. The electrical contractor shall furnish and install a complete lighting system consisting of, but not limited to, fixtures complete with power supply, LED modules, auxiliaries, and electrical wiring.

C. The electrical contractor shall furnish all labor and materials required to install all lighting fixtures including those furnished by others.

D. Fixture Labels: UL listed and labels IBEW-AF of L.

E. No substitution of light fixtures will be accepted.

F. Outdoor Lighting - Building and Parking Areas: See U.D.S. drawing E-101 for specific foot-candle and uniformity requirements.

1.02 SUBMITTALS

A. This contractor shall submit product data for all light fixtures before starting work.

1.03 GUARANTEE

A. Provide a one (1) year guarantee against mechanical defects in manufacture.

PART II - PRODUCTS

2.01 LUMINAIRES

A. Luminaire shall be as listed on the Luminaire Schedule.

PART III - EXECUTION

3.01 INSTALLATION

A. Install luminaires and accessories in accordance with the manufacturer's instructions. Individual light fixtures or other attachments to the ceiling system, with a combined weight of 56 lbs. or less shall have two 12 gauge wire hangers attached, with slack, at diagonal corners of the fixture to prevent drop out.

1. Any fixture or attachment weighing greater than 56 lbs. must be independently supported from the structure.

B. Exit Lights and Emergency Lighting System: Furnish and install a complete emergency lighting and/or exit lighting system. System and provisions shall comply with local requirements and codes.

C. Exterior Signs:

1. Exterior signs shall be furnished and installed by Walgreen Co. sign contractor, who shall make final connections to same.

2. The electrical contractor shall provide junction boxes for low voltage cabling on interior of building to the exterior face of the building or canopy for exterior signage.

D. Pylon Sign: The electrical contractor shall furnish and install electrical requirements to the base of pylon sign from Walgreen Co. sign panel, "LP-SP," for lighting required.

3.02 TESTING

A. Any lighting fixture furnished under this contract, if grounded or shorted, shall be removed and the trouble rectified by replacing all defective parts of materials as directed.

END OF SECTION

SECTION 27 10 00 - SPECIAL SYSTEMS

PART I - GENERAL

1.01 DESCRIPTION

A. Section 01 11 00 Summary of Work and Section 26 05 00 Common Work Results for Electrical, shall be considered a part of these specifications.

B. Furnish and install, complete with all related items, the preparation rough-in wiring and partial installation for the following special systems:

1. Ethernet
2. Satellite
3. Burglar alarm
4. Closed circuit television (CCTV)
5. Telephone
6. Sound

C. All work shall be done under the supervision of an accredited installation company in the low voltage systems specified.

D. This contractor shall furnish all labor, materials, tools, and the necessary appurtenances to install the special system.

E. For plenum ceiling installations, all appropriate requirements for raceways and cable of the authority having jurisdiction shall be met.

F. Install the aforementioned special systems consisting of conduits, boxes, wiring, and equipment.

G. Except where a conduit only system is specified, the system shall be completely wired (in conduit except where otherwise shown or specified) and operating, any items required to achieve this shall be provided whether or not they are specifically mentioned herein. Wiring shall be in accordance with the manufacturer's recommendations and/or wiring diagrams approved by Walgreen Co.

H. Wherever conduit is required or used, it shall be concealed and outlets shall be flush except as otherwise directed. "Conduit only" system(s) shall have nylon fish wire for future installation of wiring.

I. Tests, where required, shall be made in cooperation with the representatives of Walgreen Co. as directed. The contractor shall provide all labor and materials required for such tests.

J. All wiring within pieces of equipment shall be point-to-point with appropriate terminal connections for every wire and component termination.

PART II - PRODUCTS (NOT USED)

PART III - EXECUTION

3.01 ETHERNET SYSTEM INSTALLATION

A. Ethernet cables are furnished and installed by Walgreen Co. Contractor. For precautions, wiring methods, procedures, and pertinent information refer to the drawings.

3.02 SATELLITE ANTENNA SYSTEMS INSTALLATION

A. The satellite antenna system, including all cables, interfacilities link (IFL), and other related cables to be furnished by Walgreen Co. and installed by the electrical contractor.

B. Final connections to all equipment shall be the responsibility of Walgreen Co.

C. A.C. power and cable rough-in provisions shall be the responsibility of this contractor.

3.03 BURGLAR ALARM SYSTEM INSTALLATION

A. Furnish and install cables to the Walgreen-furnished burglar alarm system.

B. Final connections of the equipment and devices shall be the responsibility of Walgreen Co.

C. For specifications of cable, refer to the criteria drawings. Cables shall be furnished as a landlord responsibility.

3.04 COVERT CLOSED CIRCUIT TV (CCTV) SYSTEM INSTALLATION

A. Walgreens Contractor shall furnish and install cable and connectors.

B. Walgreens Contractor shall provide all final connections under the direction of Walgreen Co.

C. CCTV equipment & devices are furnished by Walgreen Co.

3.05 TELEPHONE SYSTEM INSTALLATION

A. The furnishing and installing of telephone equipment and instruments shall be the responsibility of Walgreen Co.

B. Provide 200 watt outlet (fed from panel LP-CR) located at the telephone terminal board.

C. Coordinate with the local telephone company on installation, details, schedule, etc.

E. Provide the conduit from the telephone terminal board location to the property line for the utility company’s incoming service lines.

F. Walgreens Contractor shall furnish and install all telephone wiring. Provide a three (3) pair telephone cable from the telephone terminal board location to each telephone outlet.

3.06 SOUND SYSTEM INSTALLATION

A. Sound system (music and paging) equipment shall be furnished and installed by Walgreen Co.

B. Walgreens contractor shall furnish and install all sound system wiring.

C. For designs involving plenum ceilings, conduit and back boxes are required and shall be furnished and installed by the electrical contractor.

END OF SECTION

SECTION 28 31 00 - FIRE DETECTION AND ALARM

PART I - GENERAL

1.01 STANDARDS

A. Furnish and install complete, electrically supervised, closed circuit fire alarm system when required by the local authority having jurisdiction.

B. The fire alarm system shall conform to the requirements in this specification, Section 26 05 00, Common Work Results for Electrical, and comply with the latest adopted edition of the following:

1. NFPA 72 (Chapters 1-7 as applicable)
2. NFPA 90A
3. Local building & fire codes (as applicable)

C. All equipment comprising the fire alarm system shall be listed, labeled, or approved by Underwriters Laboratories, Inc. for use as fire alarm equipment.

1.02 DESCRIPTION OF WORK

A. Provide a complete, supervised fire alarm system including conduit (by the electrical contractor), wire, boxes, control panel, smoke detectors, pull stations, audio/visual signal devices, sprinkler water flow switch and the valve supervisory switch(es).

B. When a fire alarm system is not required by the local code, ordinance or the authority having jurisdiction, refer to Section 21 10 00 of the specification for the wiring between water flow switch, valve tamper switch and the horn/strobe.

C. When a fire alarm system is not required, refer to Section 23 80 00 of the specifications, for the duct smoke detectors.

D. Walgreens Security Operations Center (SOC) shall monitor the fire alarm system, unless there are additional monitoring requirements per the local authority having jurisdiction.

E. The following Walgreen's preferred fire alarm vendors shall be used for all installations and modifications to existing fire alarm systems:

a. Academy Fire – Nationwide
Contact:
ANDRE FELIX
NATIONAL ACCOUNT MANAGER
AFELIX@ACADEMYFIRE.COM
M: 646.321.7360
O: 347.473.7217
D: 800.773.4736

b. Cintas – Nationwide

Contact:
Timothy J. Hill
Global Account Manager| Central Region
Cintas Fire Protection
M: 630-878-1338
E: Hillt3@cintas.com

c. AFA – East Coast
Contact:
Barry A. Smith
AFA Protective Systems Inc.
National Account Mgr.
Nicet II #115712
O: 516-496-2322 Ext: 1272
M: 516-680-7328
E: Bsmith@afap.com

F. The selected fire alarm vendor will need to have at least one of their employees on staff with a minimum NICET Level II certification who is on site during the installation and testing of the fire alarm system to confirm the proper installation of the system.

G. It is mandatory that the fire alarm monitoring be done by Walgreens Security Operations Center at (866) 207-5629, unless otherwise required by the local authority having jurisdiction. The fire alarm service vendors will provide a full turnkey price on the fire alarm system. They will require a copy of the layout (in pdf format) shown on the E-161 be emailed to the firegroup@walgreens.com, please include your company letterhead, contact person, store number, city and state for each new location. The fire alarm vendor requires at least five days to provide fire alarm price. Their Fire Supervisors will contact the local authority having jurisdiction to determine the exact minimum requirements.

H. When a wireless connect network and/or direct connect is required, or if a local code authority indicates specific monitor of the fire signals is required, then Walgreens SOC will be wired as an auxiliary monitoring of that store. All materials and labor required to meet local fire safety regulations, codes, adopted ordinances, and local requirements of the local authority having jurisdiction, whether enumerated herein, shown on plans, or not, shall be furnished.

I. A duct smoke detector (SD) is required in each HVAC unit (RTU and entrance heater) having a capacity greater than 2000 cfm. Locate on the return and/or supply as required by the governing building code and authority having jurisdiction. Include smoke sampling tube(s) as required for proper smoke detection.

J. Furnish and install additional smoke detectors if necessary to provide a complete operating fire alarm system that fully complies with applicable codes, ordinances, the local fire department, local inspectors and other authorities having jurisdiction.

K. Provide an operational remote test/reset station for all duct smoke detectors.

L. Provide power wiring (24 volt) to all smoke detectors.

M. Each duct smoke detector shall be wired to stop the respective fan upon detecting the presence of smoke. The SD shall not be powered from the HVAC unit.

N. Where an approved fire alarm system is installed in the building, all duct smoke detectors shall be connected to the fire alarm system as required by NFPA. Wire and arrange the HVAC units to shut down on an alarm output from the fire alarm panel, when required by code.

O. If approved by the local authority having jurisdiction, the fire alarm system supplier may eliminate conduit and run approved type open wiring above suspended ceilings and within exposed bar joists. Where wiring is required down exposed walls in warehouse or stock areas, wiring is to be installed in EMT to the height of 15 feet above floor level. All wiring supports and installation shall conform to the latest edition of the NEC.

. Walgreens SOC must be contacted at least eight (8) weeks prior to final inspection for commencement of the fire alarm monitoring; the following items are required by the Fire Alarm supplier:

1. Reprogram contract must be signed and returned a minimum of 60 days before scheduling on site.
2. The entire fire alarm installed completely, including wiring to fire panel, and a full acceptance test by the fire contractor.
3. Fire Alarm supplier is required to send Walgreens SOC copies of the permit, approved drawings with riser diagram, battery calculations, voltage drops, Zone Mapping, Master Pass Codes to the fire panel, wire legend and any other requirements the Authority having Jurisdiction requires to:

   Walgreens
   MS# 1450
   104 Wilmot Rd. Deerfield, IL 60015-5213
   Fax (847) 964-8804

   A Certificate of Completion (use NFPA 72 form) form shall be completed.

4. Fire Alarm supplier is responsible for Final Fire Inspection, after Walgreens SOC is monitoring the location.

1.03 QUALITY ASSURANCE

A. Provide products which have been tested, listed, and labeled by Underwriters Laboratories, Inc., which comply with NEMA standards, and are approved by Factory Mutual Research.

1.04 SUBMITTALS

A. This contractor shall submit product data of the fire alarm system equipment before starting work.

PART II - PRODUCTS

2.01 FIRE ALARM DEVICES

A. A fire alarm control panel shall be Silent Knight 5208, Silent Knight 6808, Fire Lite ES200X, Fire Lite MS-5UD, Fire Lite MS-10UD, including dual battery harness, dual phone line switches, and two 8-foot telephone cords (if required). Telephone jacks (if required) shall be RJ31X, ground GND. -.

B. Communication Paths: Primary path of communication for the fire alarm panel will be cellular. Secondary path of communication will be IP network or phone line if required.

C. The fire alarm control shall include battery backup, BP-BP17-12-T2, BP-BP7-12-T2, BP-BP26-12-T2; Fire Lite BB-17, Fire Lite BB55 (if required); Silent Knight model 5217, zone expander module, Silent Knight model 5495, Fire Lite FCPS-24FS6 (if required), and direct connect module, Silent Knight model 5235 (if required).

D. Fire alarm annunciator shall be Remote keypad/Annunciator, Silent Knight model 5235, Fire Lite LCD-80F, or LED-10 (if required).

E. Manual pull station shall be Fire Lite, model BG12LX, BG12 (if required).

F. Smoke detectors shall be Sentrol SE-429CT, Sentrol SE-449CT, Fire Lite SD355. Included shall be one (1) End of Line power supervision relay, Silent Knight model EOL-1224RLY for each zone of smoke detectors (if required).

G. Heat detectors shall be Edwards ED-280B-PL, or Fire Lite H355 (if required).

H. Duct smoke detector shall be System Sensor Innovair Flex model D4120. Duct smoke detector includes operating temperature range of -4 to 158 degrees F. and auxiliary contacts for future EMS interface. Included with each detector shall be one (1) Remote Indicator/Test Switch, System Sensor model RTS151, one (1) set of sampling tubes, System Sensor models DST5 or DST10. Included shall be one (1) End of Line power supervision relay, Silent Knight model 160150, for each zone of detectors. Acceptable Alternate: GE/Telaire Series TSD.

I. Cellular Module: The fire vendor shall contact the Walgreen Co. at firegroup@walgreens.com to order a BOSCH B465 cellular module. The fire vendor will need to contact the firegroup@walgreens.com at least 4 weeks prior to installation of the fire alarm system.

J. Refer to Section 21 10 00 (Water Based Fire-Suppression) for the water flow and valve tamper switches and alarm indicating devices (horn/strobe).

PART III - EXECUTION

3.01 INSTALLATION

A. The fire alarm control panel shall be mounted where shown on drawings provided by the Fire alarm contractor. A dedicated 120 VAC, 20 ampere circuit, termination to the Fire alarm control panel shall be provided by the Section 26 10 00 (electrical) Contractor. Coordinate connection to the telephone lines (2) provided by Walgreens. The remote keypad/annunciator shall be mounted where required by local code and/or authority having jurisdiction.

B. The fire alarm system shall be installed under the supervision of a factory trained supervisor. Prior to final inspection, the supervisor shall test all operating features and consequently make all necessary adjustments and corrections to the equipment comprising the fire alarm system provided as work under this section.

C. Install complete wiring system as required for the fire alarm system. Conceal wiring except in stockrooms and areas where other conduit and piping are exposed.

D. Code all conductors appropriately and permanently, by number and/or color, for the purpose of identification and servicing of the fire alarm system within the control panel, and at each point of termination outside the control panel.

3.02 TEMPORARY DISCONNECTION OF FIRE ALARM (REMODEL), ONE DAY DISCONNECTION & RECONNECTION PROCEDURE

A. Contractor shall advise the store manager when Fire Alarm requires disconnection.
B. The store manager shall contact Walgreens Security Operations Center (SOC) at 866-207-5629. Choose the option on the call for Fire Alarm and follow the steps to speak with someone. The SOC will put the store on "Test" which will take the store system off line for 6 hours. If the alarm needs to be disconnected longer than 6 hours another call to SOC will need to be made. Contractor to advise store manager if more than 6 hours is required.
C. Contractor to photograph existing wiring condition prior to disconnection of wires. Contractor to mark existing wiring arrangement prior to disconnection in order to properly reconnect.
D. Once the alarm is reconnected, the Contractor will advise the Manager when the Fire Alarm is reconnected. Store manager to place another call to SOC in order to bring the store back on line and for SOC to test that system is operating properly.
E. Contractor must not leave site until Store Manager advises that Fire Alarm is operating properly.
    a. If operating properly, Manager will advise Contractor that they can leave job.

3.03 TEMPORARY DISCONNECTION OF FIRE ALARM (REMODEL), MULTIPLE DAY DISCONNECTION & RECONNECTION PROCEDURE. THE BELOW REQUIREMENTS ARE IN ADDITION TO THE ABOVE ONE DAY DISCONNECTION/RECONNECTION PROCEDURE

A. If alarm disconnection is required over multiple days, the alarm needs to be reconnected at the end of the contractors work session and Store Manager needs to call SOC each daytime to bring Fire Alarm back on line.
    a. The store should not be off line while store is not occupied after hours.
    b. The Contractor should not leave job without Fire Alarm being back on line.
B. The Store Manager will need to call SOC the following day if Fire Alarm needs to be disconnected again. This process will repeat tor each separate work session.

END OF SECTION