ADDENDUM NO. 1
for
FIRE STATION TWO ADDITION
CITY OF GRAND ISLAND, NEBRASKA

DECEMBER 2020

TO: All Bidders

RE: Addendum to Contractor's Bid Documents & Specifications

LETTING DATE: December 22, 2020

TECHNICAL SPECIFICATIONS:

1. Architect Specifications

   Architect Specifications added.

Each Bidder must acknowledge receipt of all addenda in the space provided on the Bid Form.

Cory Schmidt
Fire Chief

CITY OF GRAND ISLAND - FIRE STATION #2 ADDITION
1720 NORTH BROADWELL STREET **WEBB & COMPANY ARCHITECTS**
GRAND ISLAND, NEBRASKA **GRAND ISLAND, NE APRIL 2020**
RE-ISSUED 10-23-2020

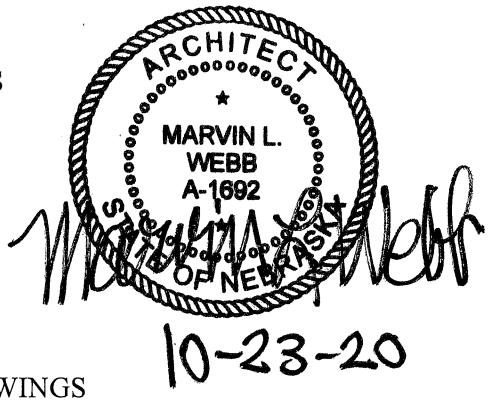
SPECIFICATION SECTIONS - TABLE OF CONTENTS

Division Section Title

DIVISION 0 BIDDING REQUIREMENTS AND CONTRACT FORMS
BY CITY OF GRAND ISLAND

DIVISION 1 - GENERAL REQUIREMENTS
BY CITY OF GRAND ISLAND

ARCHITECTURAL



STRUCTURAL – ALL SPECIFICATIONS ON STRUCTURAL DRAWINGS

MECHANICAL - ALL SPECIFICATIONS ON MECHANICAL DRAWINGS
ELECTRICAL - ALL SPECIFICATIONS ON ELECTRICAL DRAWINGS
END OF SPECIFICATION SECTIONS - TABLE OF CONTENTS

SECTION 03 39 00 - CONCRETE CURING AND SEALING

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

A. Submittals: Product Data.

PART 2 - PRODUCTS

2.1 REMOVABLE MEMBRANE FORMING CONCRETE CURING COMPOUND

A. Membrane forming concrete curing compound shall be type that can be easily removed from concrete surfaces any time after application. Unlike curing compounds that use "dissipating" technology, exposure to UV light, traffic, and a long dissipation time are not required to facilitate removal of the membrane forming curing compound.

B. The Membrane forming concrete curing compound shall be a ready - to - use, removable curing compound for use on new interior horizontal concrete surfaces. The compound shall be designed to be easily removed by the application of a cleaner / remover for all slabs that will subsequently receive sealers, densifiers, coatings, or adhesives. For interior use only since wetting will make it difficult to remove.

C. Product shall conform to: ASTM C 309, Types 1, Class A & B and AASHTO M 148, Types 1, Class A & B and Manufacturer shall have ISO 9001 Quality Certification.

D. Acceptable Manufacturer: "KUREZ RC" - The Euclid Chemical Co.

2.2 MEMBRANE FORMING CONCRETE CURING COMPOUND REMOVER

A. Membrane forming concrete curing compound remover is a biodegradable liquid cleaner specifically formulated to quickly and easily remove membrane forming concrete curing compounds at any time after application. Membrane forming concrete curing compounds are unlike traditional dissipating curing compounds in that exposure to UV light, traffic, and time to dissipate are not required for their removal. The blend of detergents in membrane forming concrete curing compound remover are specifically formulated to cut through membrane forming concrete curing compound, destroying the integrity of the curing compound, allowing it to be removed from the surface and rinsed away. After removal, floors cured with membrane forming concrete curing compound are clean and ready for the application of a sealer or other covering.

B. Membrane forming concrete curing compound remover shall be compatible with the membrane forming concrete curing compound used.

C. Acceptable Manufacturer: "KUREZ RC - off" - The Euclid Chemical Co.

2.3 CONCRETE HARDENING AND DUSTPROOFING COMPOUND

A. Concrete Hardening and Dustproofing Compound that is a clear water - soluble, sodium - silicate - based hardening and dustproofing compound. It is easy to apply,

leaves no residue, dries quickly, and is available with fugitive red dye for even application.

B. Acceptable Manufacturer: BASF - MasterKure HD 100WB

2.4 CONCRETE SEALER

A. Concrete Sealer: water based, low odor, ultra-high gloss, metal cross-linked, concentrated synthetic polymer floor polish..

B. Acceptable Manufacturer: Dura - Polish Systemspec as manufactured by Specialty Concrete Products, Inc, 1327 Lake Dogwood Drive, West Columbia, South Carolina 29170; Phone: 1-800-533-4702.

PART 3 - EXECUTION

3.1 PREPARATION OF THE MEMBRANE FORMING CONCRETE CURING COMPOUND

A. At the completion of final troweling and when the surface will not be marred, apply an approved membrane forming concrete curing compound.

B. Examine concrete surfaces to receive curing compound. Notify Contractor and Owners Representative if surfaces are not acceptable. Do not begin surface preparation or application until unacceptable conditions are corrected.

C. Ensure surfaces are clean and free of standing water.

3.2 APPLICATION OF THE MEMBRANE FORMING CONCRETE CURING COMPOUND

A. For the best cure of freshly placed concrete, apply membrane forming concrete curing compound as soon as possible after Metallic - Aggregate Neutral Dry - Shake Surface Hardener and finishing operations and immediately after the disappearance of the "sheen" of surface moisture.

B. Apply curing compound to concrete surfaces in accordance with manufacturer's written instructions. There should be no bleed water on the surface at the time of application.

C. Apply compound at uniform coverage rate in accordance with manufacturer's written instructions.

D. Coverage of specified material is recommended at 300 - 400 square feet per gallon, depending on surface texture and porosity. Do not apply heavier than recommended, as thick or uneven application can make removal difficult.

E. Mixing: Stir well before use to ensure a uniform consistency. Do not dilute curing compound.

F. Application - Apply with uniform coverage by spray or roller. Product may be sprayed with a handheld pump up sprayer or an airless industrial sprayer. When spraying, backroll overlap areas to eliminate heavy streaks of product. Do not apply thicker than the suggested coverage rates allow. Heavy or uneven application can result in difficult removal of membrane forming concrete curing compound.

G. After drying, protect hardened surface by covering it with a scuff - proof, non - staining builder paper.

H. After membrane forming concrete curing compound has been applied and before removal, the floor must be kept dry. Ideally, the concrete will be under roof when the membrane forming concrete curing compound is applied. Do not allow water to stand or puddle on membrane forming concrete curing compound. Allowing standing or puddled water to dry on membrane forming concrete curing compound may result in difficult removal.

I. Keep floors covered and free of traffic and loads for a minimum of 10 days after completion.

J. Maintain ambient temperature at 50 degrees F or above during the curing period.

K. Precautions / Limitations of membrane forming concrete curing compound:

1. Do not allow containers of this product to freeze.

2. Store between 40 Degrees F to 100 Degrees F.

3. For best application results, product temperature should be between 50 Degrees F to 90 Degrees F with ambient and surface temperatures between 45 Degrees F to 100 Degrees F.

4. Do not apply at temperatures below 40 Degrees F.

5. Do not subject to rain or other sources of water after application.

L. Do not thin this product with water or other solvents.

1. Do not moist cure or cure with polyethylene.

3.3 APPLICATION OF JOINTS IN CONCRETE

A. Install Semi - Rigid Epoxy Joint Filler after a minimum of 90 days, apply a semi - rigid epoxy joint filler, as specified in Joint Sealants section of the specifications found elsewhere in Division 07, in all non - dynamic control and saw - cut construction joints. Place the joint filler in compliance with manufacturer's instructions. Refer to ACI 302R-96, Chapter 9.10. Delay the installation of the joint filler as long as possible to allow the slabs to adequately cure. Proper curing will reduce the amount of separation between the slab and the joint filler.

3.4 PREPARATION AND APPLICATION OF THE MEMBRANE CONCRETE CURING COMPOUND REMOVER

3.5 PREPARATION OF THE MEMBRANE FORMING CONCRETE CURING COMPOUND REMOVER

A. It is the intent of the design that the membrane forming concrete curing compound stay in place until the project is nearing completion. This will allow the floors to be protected as long as possible before the membrane forming concrete curing compound is removed and the penetrating sealer systems are installed.

B. When the construction schedule dictates, Membrane Forming Concrete Curing Compound shall be removed with compatible Membrane Forming Concrete Curing Compound Remover so that the floor can be sealed with specified penetrating sealer system. Detergents, cleaners, or strippers typically are not effective at removing Membrane Forming Concrete Curing Compounds so a compatible remover shall be required.

C. Remove construction debris and "open" the Membrane Forming Concrete Curing Compound surface by dry sweeping with stiff bristle brushes affixed to a floor scrubbing machine. Brushes or pads with grit may be beneficial.

3.6 APPLICATION OF THE MEMBRANE FORMING CONCRETE CURING COMPOUND REMOVER

A. Before using, dilute Membrane Forming Concrete Curing Compound Remover at a ratio of 1 part Membrane Forming Concrete Curing Compound Remover to 4 parts water by volume. Using undiluted Membrane Forming Concrete Curing Compound Remover will not be as effective. Spray the diluted Membrane Forming Concrete Curing Compound Remover onto the concrete surface at 300 square feet per gallon. Allow the Membrane Forming Concrete Curing Compound Remover solution to dwell on the concrete for 30 minutes, adding more diluted Membrane Forming Concrete Curing Compound Remover if necessary to keep the floor wet during the entire dwell time. A wet scrub with a stiff bristle brush or open pad on during the dwell time will facilitate the removal process. After the dwell and wet scrub, follow with a second scrubbing pass. Remove all excess Membrane Forming Concrete Curing Compound Remover solution from the surface, then rinse the floor with clean water. Inspect for complete removal of the Membrane Forming Concrete Curing Compound. If residue remains, repeat the entire process above.

B. Allow the concrete to dry completely after the clean water rinse, in accordance with the project specification, before applying a sealer, coating, or installing flooring materials.

3.7 SURFACE PREPARATION FOR CONCRETE HARDENING AND DUSTPROOFING COMPOUND

A. Remove all dirt, dust, oil, grease, asphalt, foreign matter, and curing compounds. Use detergents or caustics as needed.

B. Rinse and then remove surface water.

C. Before application, complete finishing operations and allow visible surface water to disappear.

D. Surface must be able to bear foot traffic without marring or damaging the concrete.

3.8 APPLICATION FOR CONCRETE HARDENING AND DUSTPROOFING COMPOUND

A. Apply Concrete Hardening and Dustproofing Compound by brush, squeegee, or hand sprayer. Use spray application for best results. Always apply to form a continuous, uniform film over the surface. Brush out puddles and runs immediately.

B. Coverage is influenced by surface conditions and porosity, as well as job requirements. It is the responsibility of the Contractor to adjust the curing rate to properly regulate the hydration of the concrete.

C. Two applications may be required. The rates shall be provided by the manufacturer of the product used. Each application must be thoroughly dried before the next is applied. When used as a curing aid, apply to edges after forms are removed. Each application must penetrate thoroughly before proceeding.

D. Concrete Hardening and Dustproofing Compound must completely dry before accepting any traffic. Allow 24 hours before subjecting to heavy traffic.

E. Protect Concrete Hardening and Dustproofing Compound from freezing. In event of freeze/thaw, stir or agitate to uniformity before using.

F. Applications under high humidity conditions may produce a slippery film. This may be removed with clean water and a stiff bristled broom.

G. For subsequent coating applications, perform proper surface preparation and consult the coatings manufacturer for more instructions.

3.9 SURFACE PREPARATION FOR CONCRETE SEALER

A. Surface must be sound, dry, and properly finished. Concrete shall be a minimum of 28 days old. All grease, oil, bondbreaker and curing compound residue and any other contaminants shall be adequately removed from the surface prior to application.

B. Level out spots gouged out by trades

C. Surface is application ready when it can no longer be marred by foot traffic.

D. Do not apply when air or substrate temperatures are below 40 degrees F. Protect material from freezing.

3.10 APPLICATION FOR CONCRETE SEALER

A. Request current product literature, labels and material safety data sheets from the manufacturer and read thoroughly before use of product.

B. Mix as necessary and as per manufacturer's written directions.

C. Apply with a mop, sponge applicator or low pressure hand pump sprayer.

1. When using a sprayer immediately follow with a sponge applicator before product dries on the surface.

2. Application rates vary according to the density and texture of the concrete. Contact Manufacturer for rates based on existing substrate conditions.

D. Additional coats may be required to achieve the desired appearance.

1. Do not apply additional coats until the previous application has completely dried.

E. Keep treated surface dry for 24 hours following application or as recommended by the manufacturer.

3.11 CLEAN UP AND PROTECTION

A. Clean brushes, tools, and equipment and flush sprayers with clean water immediately after use.

B. Make certain the most current versions of product data sheet and MSDS are being used.

END OF SECTION 03 39 00

SECTION 06 10 00 - ROUGH CARPENTRY - FOR BLOCKING & FRAMING AS REQUIRED FOR THIS PROJECT

PART 1. - GENERAL

.1 SECTION REQUIREMENTS

A. None

PART 2. - PRODUCTS

.2 LUMBER, GENERAL

A. Dressed lumber, S4S,15 percent maximum moisture content for 2-inch (38-mm) thickness or less, marked with grade stamp of inspection agency.

.3 TREATED MATERIALS

A. Preservative-Treated Materials: AWPA C2 lumber and AWPA C9 plywood, labeled by an inspection agency approved by ALSC's Board of Review. After treatment, kiln-dry lumber, and plywood to 19 and 15 percent moisture content, respectively. Treat indicated items and the following:

1. Wood members in connection with roofing, flashing, vapor barriers, and waterproofing.
2. Concealed members in contact with masonry or concrete.
3. Wood framing members less than 18 inches (460 mm) above grade.
4. Wood floor plates installed over concrete slabs directly in contact with earth.

.4 LUMBER

A. Dimension Lumber: The following grades per inspection agency indicated.

1. Framing Other Than Non-Load-Bearing Partitions: Construction, Stud, or No. 3.

B. Timbers 5-Inch Nominal (117-mm) Actual Size and Thicker: Douglas fir-larch, Select Structural per NLGA, WCLIB, or WWPA rules.

C. Concealed Boards: 19 percent maximum moisture content: Northern species: No. 3 Common or Standard per NLGA rules.

D. Miscellaneous Lumber: No. 3 or Standard grade of any species for nailers, blocking, and similar members.

.5 PANEL PRODUCTS

A. Wood-Based Structural-Use Panels: DOC PS 2. Provide plywood complying with DOC PS 1, where plywood is indicated.

1. Factory mark panels evidencing compliance with grade requirements.
2. Provide panels with span ratings required by support spacing indicated.

.6 MISCELLANEOUS PRODUCTS (AS REQUIRED FOR THIS PROJECT)

A. Fasteners: Size and type indicated. Where rough carpentry is exposed to weather, in ground contact, or in area of high relative humidity, provide fasteners with a hot-dip zinc coating per ASTM A 153 or of Type 304 stainless steel.

1. Power-Driven Fasteners: CABO NER-272.
2. Bolts: Steel bolts complying with ASTM A 307, Grade A (ASTM F 568, Property Class 4.6); with ASTM A 563 (ASTM A 563M) hex nuts and, where indicated, flat washers.

B. Metal Framing Anchors: Hot-dip galvanized steel of structural capacity, type, and size indicated.

C. Adhesives for Field Gluing Panels to Framing: APA AFG-01.

PART 3. - EXECUTION

.7 INSTALLATION

A. Fit rough carpentry to other construction, scribe, and cope for accurate fit. Correlate location of furring, blocking, and similar supports to allow attachment of other construction.

B. Install sill seal in accordance with manufacturer's recommendations. Install under all wood sills in contact with concrete slabs.

C. Installation of Structural-Use Panels: Comply with applicable recommendations contained in APA Form No. E30 and as follows:

1. Sheathing: Nail to framing.

END OF SECTION 06 10 00

SECTION 06 41 00 - CASEWORK

1PART - GENERAL

1.1 SECTION REQUIREMENTS

A. Submittals: Product Data, Shop Drawings, and material Samples.

B. Comply with ANSI 161.1. Standards

C. Comply with ANSI Standards 161.2 for plastic-laminate countertops.

D. Verify dimensions by field measurements; measure for countertops after base cabinets are installed

2PART - PRODUCTS

2.1 CASEWORK – Relocate Existing Locker Cabinets into new Sleep Rooms.

2.2 LAMINATED PLASTIC WORK

A. Acceptable manufacturers

1. Formica Corporation
2. Wilsonart
3. Nevamar

B. Plastic-Laminate Desk Countertops and Splashes: As follows:

1. Plastic Laminate: NEMA LD 3, Grade 41 (HCS, Nominal Thickness .051") through-color plastic laminate.
2. Substrate: Particleboard, ANSI A208.1, Grade M-2 or exterior plywood, PS 1, Grade C-C Plugged, touch sanded. Use exterior plywood at vanities and tops with sinks.
3. Backing: Plastic laminate backer sheet, NEMA LD 3, Grade BKL
4. Color and pattern to be selected by Owner and Architect.

C. Countertop Configuration: As follows:

1. Front Style: Square edge
2. 4" Backsplash: Curved or waterfall shape
3. End Splash: where tops meet with wall (as applicable)
4. All countertop ends to have end caps of matching color and design.

3PART - EXECUTION

3.1 INSTALLATION

A. Install cabinets with no variations in flushness of adjoining surfaces by using concealed shims. Where casework abuts other finished work, scribe and cut for accurate fit. Provide filler strips, scribe strips, and moldings in finish to match casework face.

B. Install cabinets without distortion so doors and drawers fit openings properly and are aligned.

C. Install level and plumb to a tolerance of 1/8 inch in 8 feet (3.2 mm in 2.4 m).

D. Fasten each cabinet to adjacent unit and to structural members of wall construction. Fasten wall cabinets through back, near top and bottom, at ends and not less than 24 inches (600 mm) o.c.

E. Fasten plastic-laminate countertops by screwing through corner blocks in base units into underside of countertop. Spline and glue joints in countertops and use concealed mechanical clamps.

F. Fasten solid surface countertops by screwing through corner blocks in base units into underside of countertop. Align adjacent surfaces. Form seams 1/8 inch (3.2 mm) wide and adhere with manufacturer's recommended joint adhesive in color to match countertop. Dress joints smooth, remove surface scratches, and clean entire surface.

END OF SECTION 06 41 00

SECTION 07 21 00 – SOUND BATT INSULATION

PART 1. - GENERAL

1.1 SECTION REQUIREMENTS

A. Submittals: Product Data for each type of insulation product specified.

B. Surface-Burning Characteristics: ASTM E 84, flame-spread ratings of 10 or less and smoke-developed ratings of 10 or less.

PART 2. - PRODUCTS

1.2 SOUND BATT INSULATION PRODUCTS

A. Sound Attenuation Fiberglass Batt Wall Insulation: ASTM C 665, Type I and ASTM E 136, unfaced with fibers manufactured from glass, 3-1/2 inch thickness R-value of 13, as manufactured by Owens Corning. This is to be installed in the 3-5/8 inch interior wood stud walls in locations noted on the Drawings. Sound Transmission Coefficient (STC) of 55.

1.3 ACCESSORIES (As required for proper installation)

PART 3. - EXECUTION

INSTALLATION

A. Install insulation in areas and in thicknesses indicated or required to produce R-values indicated. Cut and fit tightly around obstructions and fill voids with insulation.

B. Extend vapor retarder to extremities of areas to be protected from vapor transmission. Secure in place with adhesives or other anchorage.

END OF SECTION 07 21 00

SECTION 07 92 00 - JOINT SEALANTS

PART 1. - GENERAL

A. The work required under this heading shall include all labor, materials, equipment and serviced necessary and incidental to provide all sealants, caulking and work as shown on the Drawings and as specified herein.

B. Description of Work. In general, the locations and situations requiring sealing and caulking shall include, but not be limited to, the following:

1. Flashing and retainers.

2.. Joints between soffit and walls, exterior.

3. Joints at penetrations through exterior walls by pipes, louvers, and other equipment.

4. Joints at exterior door and window frames.

5. Joints at interior door and window frames.

6. Control joints in interior concrete floors.

7. Joints where horizontal concrete walks abut buildings, exterior:

8. Joints in exterior concrete walks:

9. Misc. Exterior Joints:

10. Misc. Interior Joints:

11. And other situations as detailed or noted on the Drawings and in Specifications.

C. Provide backer rod of the size and type required for the joints encountered and shall be compatible with the joint sealer furnished.

D. Caulking Specified in Other Sections

PART 2. - MATERIALS

A. Color: Provide color selected from manufacturers standard colors to match the adjacent surface or as selected by the Owner.

B. Compatibility: Submit two (2) copies of manufacturer's specifications, recommendations, and installation instructions for each type of sealant, caulking, and associated miscellaneous material required for the job. Include certificate indicating that each material (manufacturer's recommended variation of the specified material) complies with the requirements, is intended generally for the application shown, and is fully compatible with the actual installation condition.

The sealant, backer rod, primers, and solvents used within a joint shall be fully compatible.

C. Approved Manufacturers: Dap, Inc., Pecora, Sonneborn, Tremco, W. R. Meadows, Mameco.

D. Grade of Sealant: For each application, provide the grade of sealant (non-sag, self-leveling, no-track, knife grade, preformed, etc.) as recommended by the manufacturer for the particular condition of installation (location, joint shape, ambient temperature, and similar conditions) to achieve the best possible overall performance. Grades specified herein for normal condition of installation.

D. Backer Rods shall be closed cell neoprene or expanded polyethylene rope, compatible with joint sealant.

E. Types of Sealants:

1. Flashing and retainers:

a. Multi - Component General Purpose Polyurethane Sealant complying with ASTM C902, Type M, Grade NS, Class 25 **OR** Single - Component General Purpose Polyurethane Sealant complying with ASTM C902, Type S, Grade NS, Class 25.

2.. Joints between soffit and walls, exterior:

a. Multi - Component General Purpose Polyurethane Sealant complying with ASTM C902, Type M, Grade NS, Class 25 **OR** Single - Component General Purpose Polyurethane Sealant complying with ASTM C902, Type S, Grade NS, Class 25.

3. Joints at penetrations through exterior walls by pipes, louvers, and other equipment:

a. Multi - Component General Purpose Polyurethane Sealant complying with ASTM C902, Type M, Grade NS, Class 25 **OR** Single - Component General Purpose Polyurethane Sealant complying with ASTM C902, Type S, Grade NS, Class 25.

4. Joints at exterior door and window frames:

a. Multi - Component General Purpose Polyurethane Sealant complying with ASTM C902, Type M, Grade NS, Class 25 **OR** Single - Component General Purpose Polyurethane Sealant complying with ASTM C902, Type S, Grade NS, Class 25.

5. Joints at interior door and window frames:

a. Siliconized Acrylic Latex Sealant complying with ASTM C 834 that accommodates joint movement of not more than 12.5 percent of the minimum joint width.

6. Control joints in interior concrete floors:

a. Two - component Flexible Epoxy Joint Filler.

8. Joints where horizontal concrete walks abut buildings, exterior:
a. Single - Component Moisture Curing Modified Polyurethane Sealant complying with

ASTM C902, Type S, Grade NS, Class 25 **OR** Single - Component High Performance Polyurethane Sealant complying with ASTM C902, Type S, Grade NS, Class 25.

9. Joints in exterior concrete walks:

   a. Multi - Component Deck Joint Polyurethane Sealant complying with ASTM C902,

10. Misc. Exterior Joints:

    a. Multi - Component General Purpose Polyurethane Sealant complying with ASTM C902, Type M, Grade NS, Class 25 **OR** Single - Component General Purpose Polyurethane Sealant complying with ASTM C902, Type S, Grade NS, Class 25.

11. Misc. Interior Joints:

    a. Siliconized Acrylic Latex Sealant complying with ASTM C 834 that accommodates joint movement of not more than 12.5 percent of the minimum joint width.

PART 3. - APPLICATION OF CAULKING AND SEALANTS

A. No caulking or sealing shall be done when the temperature is below 35 degrees F. All joints shall be prepared, primed, filled and finished in strict conformity with manufacturer's printed instructions. Comply with ASTM C 1193.

B. Joint surfaces must be structurally sound, clean, dry, and free of all foreign materials.

C. Prime all surfaces recommended by the manufacturer. Prevent primer from getting on exposed surfaces of adjacent materials.

D. Provide backer rod in joints where indicated or required.

E. Mask surface areas adjacent to joints with masking tape if necessary, to assure neat job. Remove tape after tooling.

F. Applying caulking compound and sealants using nozzles of proper size to fit the various widths of joints. The compound shall be applied with sufficient pressure to completely fill the joint. Joints shall be made smooth and compressed into joint using steel pointing tools; joints, in general, shall be slightly concave.

G. Install two-part flexible epoxy joint filler in concrete floor control joints in accordance with manufacturers written instructions. Trim excess sealant within 24 hours of installation. Coordinate installation with floor sealer system. Install prior to final sealer being installed.

H. Exercise care to prevent caulking compound and sealants from getting on adjacent surfaces. Clean adjacent surfaces immediately as recommended by the manufacturer of the materials.

PART 4 - GUARANTEE

A. Submit two (2) copies of written guarantee agreeing to repair or replace joint sealers which fail to perform as watertight joints; or fail in joint adhesion, cohesion, abrasion resistance, weather resistance, extrusion resistance, migration resistance, strain resistance, or general durability; or appear to deteriorate in any other manner not clearly specified by submitted manufacturer's dates an inherent quality of the material for the exposure indicated. Provide guarantee signed by the installer and contractor. Guarantee period is two (2) years.

END OF SECTION 07 92 00

SECTION 08 11 00 - METAL DOORS AND FRAMES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SCOPE

A. Provide all labor, materials, tools, and equipment necessary for provision and installation, complete of all metal doors and frames as shown or scheduled on drawings or specified, in accordance with provisions of the Contract Documents and completely coordinated with work of other trades. Include all transoms, side - lites, borrow - lites and other similar formed and hollow metal work indicated.

B. Although such work is not specifically shown or specified all supplementary or miscellaneous items, appurtenances, and devices incidental to or necessary for a sound, secure and complete installation shall be provided and installed as apart of this work.

1.3 RELATED WORK

A. Finish Hardware is specified elsewhere in Division 08.

B. Glass is specified elsewhere in Division 08.

C. Painting of doors and frames is specified elsewhere in Division 09.

1.4 CODES, SPECIFICATIONS AND STANDARDS

A. Publications listed below form a part of this specification to extent referenced. Publications are referenced in the text by basic designation only. Any material or operation specified by reference to the published specifications of a manufacturer or other referenced specification or standard shall comply with the requirements of the latest edition. In case of a conflict between a referenced specification or standard and these project specifications the more stringent requirement shall govern.

B. Comply with the applicable provisions of the following codes, specifications and standards to the extent indicated by reference thereto.

1. American National Standards Institute - ANSI A 224.1 “Test Procedure and Acceptance Criteria for Prime Painted Steel Surfaces for Steel Doors and Frames”.

2. American National Standards Institute - ANSI A 250.4 “Test Procedure and Acceptance Criteria for Physical Endurance for Steel Doors and Hardware Reinforcings”.

3. American Society for Testing and Materials - ASTM C 236 "Standard Test Method for Steady - State Thermal Performance of Building Assemblies by Means of a Guarded Hot Box".

4. American Society for Testing and Materials - ASTM E 90 "Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions".

5. Steel Door Institute - ANSI / SDI - 100 Recommended Specifications "Standard Steel Doors and Frames".

6. Steel Door Institute - SDI - 117 "Manufacturing Tolerances Standard Steel Doors and Frames".

7. Steel Door Institute - SDI - 105 "Recommended Erection Instructions for Steel Frames".

8. Steel Door Institute - SDI - 113 "Test Procedure and Acceptance Criteria for Apparent Thermal Performance for Steel Door and Frame Assemblies".

9. Steel Door Institute (SDI - 114 Test Procedure and Acceptance Criteria for Acoustical Performance for Steel Door and Frame Assemblies).

10. Steel Door Institute - ANSI / SDI - 119 "Proposed Performance Test Procedures for Steel Door Frames and Frame Anchors".

11. Underwriters Laboratories - UL - 1784 "Air Leakage Tests for Door Assemblies".

12. National Fire Protection Association - NFPA 80 "Standard for Fire Doors and Fire Windows".

13. Steel Door Institute - ANSI / SDI - 111 "Recommended Standard Details for Steel Door Frames".

14. American Society for Testing and Materials - ASTM E 2074 - 00 "Standard Test Method for Fire Tests of Door Assemblies, including Positive Pressure Testing of Side - Hinged and Pivoted Swinging Door Assemblies".

15. Underwriters Laboratories - UL 10 C "Positive Pressure Fire Test of Door Assemblies".

1.5 FIRE DOORS AND FRAMES

A. Wherever a fire - resistance classification (3 hour, 1½ hours, 1 hour, etc., or "A", "B", etc.) is shown or scheduled for hollow metal work, provide fire - rated hollow metal doors and frames tested and listed as a fire door assembly. Identify each fire door and frame with labels, indicating applicable fire rating of both door and frame, the manufacturers name and the third party inspection service. Doors and Frames shall meet positive pressure requirements, Category A or B Assembly. Only UL or Warnock Hersey labels will be accepted.

B. Construct and install assemblies to comply with NFPA Standard No. 80, and as herein specified.

C. Comply with NFPA 252 - Fire Tests for Door Assemblies (National Fire Protection Association). After 5 minutes into the test the neutral pressure plane shall be at 40 inches or less above the sill.

D. Comply with ASTM E 2074 - 00 - Fire Test.

E. Comply with UL 10 C Positive Pressure Fire Test.

1.6 NON RATED DOORS AND FRAMES

A. Comply with UL 10 B Fire Tests of Door Assembly Requirements.

B. Comply with NFPA 252 requirements.

C. Test doors and frames under atmospheric pressure conditions.

1.7 SUBMITTALS

A. Submit copies of manufacturer's specifications for fabrication, shop painting and installation, including data substantiating that products comply with requirements and with referenced standards.

B. Submit shop drawings for fabrication and erection of steel doors and frames. Provide door and frame schedule in accordance with SDI - 111.

C. Submit certification that doors meet or exceed requirements of SDI - 100 and these specifications.

D. Submit letter from manufacturer that frames and doors are galvanized as specified before delivery.

E. Provide schedule of doors and frames using same reference numbers for details and openings as indicated in the contract drawings.

1.8 QUALITY ASSURANCE

A. Acceptable Manufacturers

1. Provide steel doors and frames manufactured by a single firm unless otherwise acceptable to Architect. Subject to compliance with requirements for both doors and frames specified, products of following manufacturers are approved for use:

a. Curries Mfg. Incorporated

b. Deansteel Manufacturing Company, Inc.

c. Republic

d. Or approved equal

1.9 DELIVERY, STORAGE AND HANDLING

A. Doors shall be shipped individual packed. Ship frames with angle spreaders at door opening bottoms. Store doors and frames on the building site, in an upright position, under cover, on wood sills or floors, in a manner that prevents rust or damage. Ventilate canvas or plastic covers to prevent moisture traps. After installation, protect doors and frames from damage during subsequent construction activities. Damaged work will be rejected and shall be replaced with new work.

B. Provide 1/4 inch space between stacked doors to allow air circulation.

1.10 JOB CONDITIONS

A. Examine structure, substrates and conditions under which work is to be installed for conditions detrimental to correct and timely completion. Do not proceed until unsatisfactory conditions have been corrected. Installation assumes responsibility for performance.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Steel Sheet and Strip: Commercial quality carbon steel, hot rolled, pickled, and oil steel shall comply with ASTM A 568 and ASTM A 569. Cold rolled steel shall conform to ASTM A 366 or ASTM A 620 and ASTM A 568.

B. Galvanized Steel Sheets: Zinc - coated carbon steel sheets of commercial quality, complying with ASTM A 526, and in conformance with ASTM A 525, G60 zinc coating, mill phosphatized.

C. Supports and Anchors: Fabricate of not less than 16 gauge sheet steel. Galvanize units to be built into exterior walls after fabrication in accordance with ASTM A153, Class B.

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

E. Apply shop applied prime paint finish after fabrication. For steel surfaces, use rust - Inhibitive enamel or paint, air - drying or baked, suitable as a base for specified finish paints complying with ANSI A 224.1. Retouch damaged galvanized surfaces with zinc dust, zinc oxide primer. Apply shop primer of even consistency ready to receive field - applied paint.

2.2 FABRICATION - GENERAL

A. Fabricate units rigid, neat in appearance and free from defects. Form metal to required sizes and profiles. Wherever practicable, fit and assemble units in shop. Identify work that cannot be permanently shop assembled before shipment, to assure proper assembly at site. Weld exposed joints continuously, grind, dress, and make smooth, flush, and invisible. Do not use metallic filler to conceal manufacturing defects.

B. Exposed Fasteners: Limit use to extent possible. Unless otherwise indicated, provide countersunk flat Phillips or Jackson head screws and bolts.

C. Perform finish hardware preparation including cutouts, reinforcing, drilling, and tapping in accordance with final Hardware Schedule and templates provided by hardware supplier.

D. Drilling and tapping for surface - applied finish hardware may be done at project site.

E. Locate finish hardware as indicated on final shop drawings, or if not indicated, in accordance with "Recommended Locations for Builder's Hardware", by National Builders' Hardware Association.

2.3 FABRICATION - HOLLOW METAL DOORS – SEE DOOR SCHEDULE

A. Provide hollow steel doors of types indicated with minimum 16 gauge face sheets.

B. Exterior Doors: Provide SDI Physical Performance Level A, Extra Heavy - Duty 1 3/4 inch, Model 2 Seamless, hot dipped A60 galvanized doors, 1 3/4 inches thick, fully insulated. Maximum apparent U factor when tested with frame in accordance with ASTM C 236 and SDI 113 shall be 0.24 BTU per hour per square feet per degrees F. Seams shall be continuously welded shut and ground smooth. Provide doors with corrosion resistant factory prime paint.

C. Interior doors not fire - rated; provide SDI Physical Performance Level A, Extra Heavy - Duty 1 3/4 inch, Model 2 Seamless, hot dipped A60 galvanized doors, 1 3/4 inches thick, sound insulated to STC of 25 or better when tested in accordance with SDI - 114 and ASTM E 90. Seams shall be continuously welded shut and ground smooth. Provide doors with corrosion resistant factory prime paint.

D. Fire - rated Interior Doors: Provide SDI Physical Performance Level A, Extra Heavy - Duty 1 3/4 inch, Model 2 Seamless, hot dipped A60 galvanized, 1 3/4 inches thick, constructed and installed to comply with NFPA No. 80, bearing UL Label indicating rating, the letter "S", manufacturer's name and third party inspection service. Seams shall be continuously welded shut and ground smooth. Provide doors with corrosion resistant factory prime paint.

E. Door Performance: Standard 3 feet by 7 feet door shall meet requirements of ANSI A250.4 procedure for level C doors for 250,000 cycles.

F. Fabricate steel doors in accordance with SDI - 117.

G. Light Openings in doors shall be fabricated with integral formed fixed square corner profile steel exterior stop on all opening edges and with removable interior square corner profile formed steel loose stops secured with evenly spaced oval head countersunk metal screws. Fit removable stops flush with the door edge and with tight butt joints at the corners. Aluminum and pressed steel overlay projecting profile lite opening frames are not acceptable.

H. Vertical edges shall be a minimum 14 gauge continuous channels (12 gauge continuous "C" channels at hinge edges) with each face sheet wrapped around the channels meeting at the center of the edge, with the resulting seam closed and continuously welded shut. Seams shall be in the center of the door edges.

I. Top and bottom edges shall be 14 gauge continuous steel channels. Back of channel shall align with the top of face sheets and shall be smooth, flush, and sealed watertight for exterior doors except at weep holes. Inverted channels (legs down) shall be used as door bottoms. Provide weep holes or equivalent to allow internal moisture to escape from exterior doors.

J. Face sheets shall be 16 gauge, cold rolled stretcher leveled steel galvannealed on all doors, internally welded to steel stiffeners of sufficient strength and spacing to support the face sheets against impact and to assure flat face surfaces, or shall be bonded to a rigid polystyrene or polyurethane core. If steel stiffeners are used, doors shall be filled with mineral rock wool or fiberglass.

K. Prepare doors and frames hardware to comply with applicable requirements of ANSI A115 series specifications. Doors shall be reinforced, drilled, and tapped for scheduled concealed hardware and reinforced for scheduled surface applied hardware.

L. Coordinate the undercut of interior doors with floor finishes and the undercut of exterior doors with heights of thresholds.

M. Door Reinforcement for all Doors:

1. Closer / Holder Stop: Minimum 12 gauge tubular 5 inch by 18 inch length, or as required.

2. Hinge: As described elsewhere in this Section of the Specification.

3. Other: Per Steel Door Institute Standards unless noted otherwise in this Section of the specification.

2.4 FABRICATION - STEEL FRAMES

A. Provide steel frames of types indicated for doors, transoms, side - lights, borrow - lights and other openings as indicated on drawings. Conceal all fastenings unless otherwise shown. All frames shall be welded unit type. Split - type, knocked down (KD) frames are not acceptable. Frames shall have all joints continuously welded including frames forming corner assemblies and cased openings.

B. All "Exterior hollow metal frames" and "Interior - Fire Rated, hollow metal frames" shall have an 1/8 inch integral kerf formed into the frame soffit to receive a gasket

composed of a cellular modified foam core and is clad in an embossed, non vinyl, paint - resistant liner which is U.V. stabilized. Frames shall comply with N.F.P.A. 105 smoke and draft control door assemblies, U.L. 1784 air leakage test of door assemblies, A.S.T.M. E 283 air infiltration, and can be U.L. listed fire door frames up to and including 3 hour ratings. Frames to be mortised, reinforced, and drilled and tapped for mortise hardware compatible with kerf frame profile. Provide all exterior frames with continuous weatherproof gasket on both sides and head of frames. Provide all interior fire rated frames with continuous smoke seal gasket on both sides and head of frames.

C. Fabricate exterior and interior frames of minimum 14 gauge steel. Frames for exterior and interior doors shall be from hot - dip A60 galvanized steel and shall be factory corrosion resistant prime painted. Interior door frames shall be factory corrosion resistant prime painted.

D. Fabricate all frames of fully - welded construction.

E. Fabricate all frames in accordance with SDI - 117.

F. Fabricate and install fire - rated frames to comply with NFPA No. 80, bearing UL or Warnock Hersey label.

G. Provide 26 gauge steel plaster guards or mortar boxes, welded to frame, at back of all hardware cutouts.

H. In interior - non - fire rated frames drill stops to receive 3 silencers on strike jambs of single - swing frames and 2 silencers on heads of double - swing frames. Install plastic plugs to keep holes clear during construction. Provide and install silencers.

I. Additional frame requirements:

1. Install 1 inch by 2 inches by length required, foam insulation where grouted frames must be penetrated by machine or sheet metal screws for attachment of closers, rim panic strikes, or jamb weatherstrip. Attach securely with tape or adhesive as required.

2. Apply "Rusco Permanent Sealer" to all joints and seams of exterior frames.

3. Plaster guard covers are to be welded in place over all drilled reinforcements of frames.

J. Jamb Anchors: Frames shall have adjustable anchors of 16 gauge corrugated steel, permanently fastened to frame, for setting into masonry partitions or other appropriate anchors for conditions shown. Anchor each jamb to the floor with an adjustable base anchor. Provide other types of anchors when required for other conditions. Provide a minimum of three anchors per jamb for frames up to 90 inches high.

K. Frame Reinforcing for Exterior and Interior Openings:

1. Hinge: Minimum 3/16 inch thick steel bar reinforcement extending continuous one piece from top to bottom of door frame. High frequency hinge reinforcement at all hinges will also be acceptable.

2. Closer / Holder: Minimum 12 gage steel plate.

3. Strike: 14 gauge steel.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install steel frames, doors, and accessories in accordance with approved shop drawings and as herein specified.

B. Place frames prior to construction of enclosing walls and ceilings. Plumb align and brace securely until permanent anchors are set. After wall construction is completed, remove temporary braces and spreaders leaving surfaces smooth and undamaged. Comply with SDI - 105 and SDI - 110 for proper installation procedures.

C. Locate and install minimum of 3 wall anchors per jamb at hinge and strike levels. Anchors shall be of type appropriate to wall construction. Minimum acceptable anchors 16 gauge, 1 inch wide corrugated steel. Provide (2) 12 gauge, adjustable 3 inch wide, flanged floor clips per frame jamb, punched for anchoring. Provide removable spreaders at bottom and mid - height of frame. Coordinate building - in of anchors and grouting of frames with other trades.

D. Install and fit labeled (fire - rated) frames in accordance with NFPA No. 80.

E. Fit doors to ANSI / SDI 100 clearances with the exception of undercuts. Undercuts shall be coordinated with floor finishes and thresholds. Undercuts shall not be greater than 1/4 inch above floor finishes. Undercuts at thresholds shall provide for a complete tight seal with bottom of door.

F. Provide grout in all frames set in masonry walls unless otherwise noted on drawings "Not to be grouted". Grout head and jambs full and coat interior of frames with a bituminous coating approved by the door frame manufacturer.

G. Immediately after erection, sand smooth areas of prime coat which are rusted or damaged and apply touch - up of compatible primer. Leave smooth for finish painting.

H. Verify that door frames are rigidly anchored and are not more than 1/16 inch out of level, plumb, planar alignment ore member twist.

3.2 ADJUSTMENT, DEFECTIVE WORK, CLEANING AND PROTECTION

A. Verify that hardware supplier checks and readjusts operating finish hardware items just prior to final inspection. Leave work in complete and proper operating condition. Remove and replace defective work.

B. Doors or frames which are not manufactured to specified size and planar tolerances to be removed from site and replaced without charge to Owner.

C. Frames that are not installed within specified plumb, level and planar tolerances shall be removed from site and replaced without charge to Owner.

D. After installation protect doors and frames from damage during subsequent construction activities. Damaged work will be rejected and shall be replaced with new work. All doors and frames shall be properly cleaned, etc., and left in a suitable and acceptable condition for the finished painting work by others. Where doors where galvanized finish has been scratched shall have a zinc - rich primer applied to the galvanized coating area that has been damaged prior to the finish field paint coating being applied.

E. At completion of project, verify frames, doors and hardware are installed as required by Contract Documents and by approved changes during construction. Correct if noncompliant.

F. Inspect new door frames as soon after installation as possible, for not more than 1/16 inches out of square, plumb, planar alignment, or member twist. Inspect anchoring for rigid attachment. If any parameter does not meet this specification, contact installer to rectify and re-inspect, after corrections are made.

G. Inspect all doors and frames upon which work is performed for loose or poor - fitting hardware or components. Tighten or otherwise adjust or replace as required for proper operation. Inspect meeting stiles, head jambs and thresholds for evidence of binding or poor fitting doors and frames.

3.3 TESTING FOR ALL DOORS

A. When building environmental systems are operating as specified, conduct simple tests to ensure each completed door system will close and latch or otherwise secure properly, without assistance. Closer tests (for doors so equipped):

1. Full open test: Open door to full width. Release door. Door to completely close and latch fully. If door is equipped with magnetic locks, magnetic lock armature to completely bond to lock with bonding sensor indicating secure.

2. Mid - point close to latch test: Open door halfway. Release door. Door to completely close and latch fully. If door is equipped with magnetic locks, magnetic lock armature to completely bond to lock with bonding sensor indicating secure.

3. Close to latch test: Open door to full width, then permit door to re - close until lock's latch bolt touches strike lip and hold. When magnetic locks are used, permit door to return so that strike armature is within one inch of magnetic lock. Release door. Door to completely close and latch fully. If door is equipped with magnetic locks, magnetic lock armature to completely bond to lock with bonding sensor indicating secure.

B. Latch Bolt Release Test: Measure force to release latch bolt using a door force gage located 1 inch from end of lever handle or located at center of exit device push pad.

1. For interior fire doors and exterior doors, latch shall release when lever is subjected to a force not more than 15 pounds.

C. Latch Bolt Security Test: With door closed and properly latched, pull sharply on door, in direction of swing. Door to remain secure.

1. Door pairs only: With both doors closed and properly latched, pull sharply on active leaf in direction of swing while simultaneously pushing on inactive door. Door to remain secure.

D. Latch Bolt Dead Latch Test:

1. With door closed and latched, insert dead latch test tool, and engage latch bolt. Pull sharply. Latch bolt should not retract.

2. With door open, and latch bolt and dead latch in view, hold dead latch in with your finger and rapidly and intermittently push (rattle) latch bolt. Latch bolt should not retract.

E. Lock Function Test: With proper key to operate lock cylinder, perform all functions lockset is capable of, and insure they operate properly.

F. Closer Tests: Preparation 1 - Adjust spring speed from 1.5 to 2 seconds when closing from 70 degrees to closed position. Preparation 2 - Adjust closer speed from 5 to 6 seconds when closing from 90 degrees to 12 degrees. Preparation 3 - Adjust closer power to the lowest value within the following ranges that consistently passes the following tests, measuring with a door force gage located 1 inch from latch edge of door.

1. Interior non - fire doors - Force required to push door to open position: not more than 5 pounds

2. Interior fire doors, exterior doors, and manually operated low energy power operated doors: Force required to unlatch door: not more than 15 pounds; Force required to set door in motion: not more than 30 pounds; Force required to push door to open position: not more than 15 pounds.

END OF SECTION 08 11 00

SECTION 08 14 00 - FLUSH WOOD DOORS

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

A. Quality Standard: NWWDA I.S.1-A.

B. Fire-Rated Wood Doors: Labeled by a testing and inspecting agency (Underwriters label or Warnock - Hersey International) acceptable to authorities having jurisdiction based on testing per NFPA 252. Test at atmospheric pressure.

C. All doors shall be warranted against manufacturing defects which would render them unserviceable for their normal recommended use and against warpage exceeding 1/4 inch in 3 feet 0 inches x 7 feet 0 inches section. Furnish written warranty as specified for each type of door from date of installation.

D. Contractor shall observe all handling and installation requirements of the manufacturer's warranty. In case of failure, doors shall be replaced complete in operation and finish at no cost to the Owner.

PART 2 - PRODUCTS

2.1 FLUSH WOOD DOORS – ALSO 6 PANEL OAK STILE and RAIL DOOR

A. Manufacturers:
1. Marshfield Door Systems, Neenah, Wisc.
2. Eggers Industries, Neenah, Wisc.
3. Alagoma Hardwoods, Inc. Algoma, Wisc.
4. Graham Manufacturing Corp., Mason City, Iowa
5. VT Industries, Inc., Holstein, Iowa
6. Bayer Built, Inc. (6 Panel OakA6 – PKA6 Wood Doors), See Door Schedule on Drawings
6. Or Architect approved equal.

B. Doors for Transparent Finish: Premium grade.

1. Faces: Red oak, plain sliced.
2. Veneer Matching: Book and balance match.
3. Pair matching and set matching.

C. Interior Veneer-Faced Solid Core Doors: Five-ply, particleboard core.

D. Blocking for Doors with Particleboard Cores: Top rail blocking at closers, mid-rail blocking at exit devices, bottom rail blocking at kick plates, and bottom rail blocking at exterior doors.

E. Fire-Rated Solid Core Doors: Core construction to provide fire-rating indicated, faces and grade to match non-fire-rated doors.

1. Composite blocking where required to eliminate through-bolting hardware.

2. Laminated-edge construction.

3. Formed-steel edges and astragals for pairs of fire-rated doors.

2.2 FABRICATION AND FINISHING

A. Stain and varnish on job site under manufacture temperature and humidity requirements.

B. Factory fit doors to suit frame-opening sizes indicated and to comply with referenced quality standard.

1. Comply with NFPA 80 for fire-resistance-rated doors.

C. Factory machine doors for hardware that is not surface applied.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install doors to comply with referenced quality standard.

1. Install fire-rated doors to comply with NFPA 80.

B. Doors shall be accurately machined from hardware manufacturer's templates by U.L. approved door manufacturer. Improperly prepared doors shall be rejected. Repairs will not be allowed.

C. A plus or minus 1/32 inch tolerance will be allowed on hinge preparation cutouts. A plus 1/32 inch, minus 0 inch tolerance will be allowed on lock front preparation cutouts.

D. Doors shall have a clearance of 1/8 inch to the jamb on the sides and top and above the finish flooring unless otherwise noted on the door schedule. A plus 1/16 inch or minus 1/32 inch tolerance will be allowed on the edge clearances. Door sides shall be beveled 3 degrees.

E. Doors shall fit accurately in the plane of the door frame. In the completed installation the door strike edge in the closed position shall not rest more than 1/4 inches from the face of door frame stop.

END OF SECTION 08 14 00

SECTION 08 54 13

FIBERGLASS CASEMENT AND FIXED WINDOWS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Fiberglass casement and fixed windows.

1.2 RELATED SECTIONS

A. Section 07 27 00 - Air Barriers: Water-resistant barrier.

B. Section 07 92 00 - Joint Sealants: Sealants and caulking.

1.3 REFERENCES

A. American Architectural Manufacturers Association (AAMA):
   1. AAMA 623 - Voluntary Performance Requirements and Test Procedures for Organic Coatings on Fiber Reinforced Thermoset Profiles.

B. American Society for Testing and Materials (ASTM):
   1. ASTM C 1036 - Flat Glass.
   2. ASTM C 1048 - Heat-Treated Flat Glass--Kind HS, Kind FT Coated and Uncoated Glass.
   3. ASTM E 283 - Rate of Air Leakage Through Exterior Windows, Curtain Walls and Doors Under Specified Pressure Difference Across the Specimen.
   4. ASTM E 547 - Water Penetration of Exterior Windows, Curtain Walls and Doors by Cyclic Static Air Pressure Differential.
   5. ASTM E 1105 – Standard Test Method for Field Determination of Water Penetration of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference.

C. Window and Door Manufacturers Association (WDMA):
   1. ANSI/AAMA/NWWDA 101/I.S.2 - Voluntary Specifications for Aluminum, Vinyl (PVC) and Wood Windows and Glass Doors.

1.4 PERFORMANCE REQUIREMENTS

A. Windows shall meet a rating of LC, PG 50 specifications in accordance with ANSI/AAMA/NWWDA 101/I.S.2/A440-08.

B. Window Air Leakage, ASTM E 283: Window air leakage when tested at 1.57 psf (25 mph) shall be 0.05 cfm/ft^2 of frame or less.

C. Window Water Penetration, ASTM E 547: No water penetration through window when tested under static pressure of 7.5 psf (42 mph) after 4 cycles of 5 minutes each, with water being applied at a rate of 5 gallons per hour per square foot.

1.5 SUBMITTALS

A. Submit in accordance with Division 1 requirements.

B. Product Data: Submit manufacturer's product data, including installation instructions.

C. Shop Drawings: Submit manufacturer's shop drawings, indicating dimensions, construction, component connections and locations, anchorage methods and locations, hardware locations, and installation details.

D. Samples: Submit partial full-size sample of window illustrating glazing system, quality of construction, and color of finish.

1.6 QUALITY ASSURANCE – NOT REQUIRED

1.7 DELIVERY, STORAGE, AND HANDLING

A. Delivery: Deliver materials to site undamaged in manufacturer's or sales branch's original, unopened containers and packaging, with labels clearly identifying manufacturer and product name. Include installation instructions.

B. Storage:
1. Store materials in accordance with manufacturer's instructions.
2. Store materials off ground and under cover.
3. Protect materials from weather, direct sunlight, and construction activities.

C. Handling: Protect materials and finish during handling and installation to prevent damage.

PART 2 PRODUCTS

2.1 MANUFACTURER – SEE WINDOW SCHEDULE ON DRAWINGS

A. Pella Corporation, 102 Main Street, Pella, Iowa 50219. Toll Free (800) 54-PELLA. Phone (641) 621-1000. Website www.pella.com.

2.2 FIBERGLASS CASEMENT AND FIXED WINDOWS

A. Casement and Fixed Windows: Pella Impervia.
1. Factory-assembled fiberglass windows with outward-opening sash installed in frame.
2. Frame and Sash Material: Duracast. 5-layer, pultruded-fiberglass material, reinforced with interlocking mat.

B. Frame:
1. Type: Standard Nail Fin.
2. Interior and Exterior Frame: Pultruded, fiberglass composite with foam inserts.
3. Overall Frame Depth: 3-1/4 inches.
4. Nominal Wall Thickness of Fiberglass Members: 0.050 inch to 0.070 inch.
5. Frame Corners:
   a. Mitered.
   b. Joined and bonded with thermoset polyurethane adhesive, with corner lock.
6. Window frame color interior & exterior: Factory Pella White

C. Sash:
   1. Sash Corners:
      a. Mitered.
      b. Bonded and sealed with injected thermoset polyurethane adhesive.

D. Glazing:
   1. Float Glass: ASTM C 1036, Quality 1.

   2. Type: Polyurethane reactive (PUR) hot-melt glazed, 11/16-inch thick, insulating glass, clear multi-layer Low-E coated with argon.

2.3 OPTIONS

A. Insect Screens:
   1. Compliance: ASTM D 3656 and SMA 1201.
   2. Screen Cloth: Black Vinyl-coated fiberglass, 18/16 mesh.
   3. Set in aluminum frame fitted to inside of window.
   4. Complete with necessary hardware.
   5. Screen Frame Finish: Baked enamel.
      a. Color: White.

2.4 HARDWARE

A. Operator:
   1. Steel worm-gear operator with hardened gears.
   2. Operator Base: Zinc die cast with painted finish.
   3. Operator Linkage, Hinge Slide, and Hinge Arms: 300 series stainless steel.
   4. Exposed Fasteners: Stainless steel.
   5. External Hardware Salt Spray Exposure, ASTM B 117: Exceed 1,000 hours.

B. Crank Handle Finish
   1. Integrated Folding Crank: Baked enamel, White.

C. Locking System: SureLock System.
   1. Single-handle locking system.
   2. Operate positive-acting arms that reach out and pull sash into locked position.

   3. Casement Windows: One installed on sash 27.5 inches and smaller in frame height, 2 unison operating locks installed on sash over 27.5 inches in frame height.

   4. Lock Handle Finish: Baked enamel, White.

2.5 TOLERANCES

A. Windows shall accommodate the following opening tolerances:
   1. Vertical Dimensions Between High and Low Points: Plus 1/4-inch, minus 0 inch.
   2. Width Dimensions: Plus 1/4-inch, minus 0 inch.
   3. Building Columns or Masonry Openings: Plus or minus 1/4-inch from plumb.

2.6 FINISH

A. Exterior and Interior Duracast Finish: Factory-applied powder-coat paint, comply with AAMA 623.

1. Color: White.

2.7 INSTALLATION ACCESSORIES

A. Flashing/Sealant Tape: Pella SmartFlash.
   1. Aluminum-foil-backed butyl window and door flashing tape.
   2. Maximum Total Thickness: 0.013 inch.
   3. UV resistant.
   4. Verify sealant compatibility with sealant manufacturer.

B. Interior Insulating-Foam Sealant: Low-expansion, low-pressure polyurethane insulating window and door foam sealant.

C. Exterior Perimeter Sealant: "Pella Window and Door Installation Sealant" or equivalent high quality, multi-purpose sealant as specified in the joint's sealant section.

D. Block Frame Installation Accessories: Vinyl installation fin.

PART 3 EXECUTION

3.1 EXAMINATION

A. Examine areas to receive windows. Notify Architect of conditions that would adversely affect installation or subsequent use. Do not proceed with installation until unsatisfactory conditions are corrected.

3.2 INSTALLATION

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

B. Install windows to be weather-tight.

C. Maintain alignment with adjacent work.

D. Secure assembly to framed openings, plumb and square, without distortion.

E. Integrate window system installation with exterior water-resistant barrier using flashing/sealant tape. Apply and integrate flashing/sealant tape with water-resistant barrier using watershed principles in accordance with window manufacturer's instructions.

F. Place interior seal around window perimeter to maintain continuity of building thermal and air barrier using insulating foam sealant.

G. Seal window to exterior wall cladding with sealant and related backing materials at perimeter of assembly.

3.3 FIELD QUALITY CONTROL – NOT USED

3.4 CLEANING

A. Clean window frames and glass in accordance with Division 1 requirements.

B. Do not use harsh cleaning materials or methods that would damage finish or glass.

C. Remove labels and visible markings.

3.5 PROTECTION

A. Protect installed windows to ensure that, except for normal weathering, windows will be without damage or deterioration at time of substantial completion.

END OF SECTION 08 54 13

SECTION 08 71 00 – DOOR HARDWARE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes commercial door hardware for the following:

1. Swinging doors.

B. Door hardware includes, but is not necessarily limited to, the following:

1. Mechanical door hardware.

C. Related Sections:

1. Division 08 Section "Hollow Metal Doors and Frames".
2. Division 08 Section "Flush Wood Doors".

D. Codes and References: Comply with the version year adopted by the Authority Having Jurisdiction.

1. ANSI A117.1 - Accessible and Usable Buildings and Facilities.
2. ICC/IBC - International Building Code.
3. NFPA 70 - National Electrical Code.
4. NFPA 80 - Fire Doors and Windows.
5. NFPA 101 - Life Safety Code.
6. NFPA 105 - Installation of Smoke Door Assemblies.
7. State Building Codes, Local Amendments.

E. Standards: All hardware specified herein shall comply with the following industry standards:

1. ANSI/BHMA Certified Product Standards - A156 Series
2. UL10C – Positive Pressure Fire Tests of Door Assemblies

1.3 SUBMITTALS

A. Product Data: Manufacturer's product data sheets including installation details, material descriptions, dimensions of individual components and profiles, operational descriptions and finishes.

B. Door Hardware Schedule: Prepared by or under the supervision of supplier, detailing fabrication and assembly of door hardware, as well as procedures and diagrams. Coordinate the final Door Hardware Schedule with doors, frames, and related work to ensure proper size, thickness, hand, function, and finish of door hardware.

1. Format: Comply with scheduling sequence and vertical format in DHI's "Sequence and Format for the Hardware Schedule."

2. Organization: Organize the Door Hardware Schedule into door hardware sets indicating complete designations of every item required for each door or opening. Organize door hardware sets in same order as in the Door Hardware Sets at the end of Part 3. Submittals that do not follow the same format and order as the Door Hardware Sets will be rejected and subject to resubmission.

3. Content: Include the following information:

a. Type, style, function, size, label, hand, and finish of each door hardware item.
b. Manufacturer of each item.
c. Fastenings and other pertinent information.
d. Location of door hardware set, cross-referenced to Drawings, both on floor plans and in door and frame schedule.
e. Explanation of abbreviations, symbols, and codes contained in schedule.
f. Mounting locations for door hardware.
g. Door and frame sizes and materials.
h. Warranty information for each product.

4. Submittal Sequence: Submit the final Door Hardware Schedule at earliest possible date, particularly where approval of the Door Hardware Schedule must precede fabrication of other work that is critical in the Project construction schedule. Include Product Data, Samples, Shop Drawings of other work affected by door hardware, and other information essential to the coordinated review of the Door Hardware Schedule.

C. Keying Schedule: After a keying meeting with the owner has taken place prepare a separate keying schedule detailing final instructions. Submit the keying schedule in electronic format. Include keying system explanation, door numbers, key set symbols, hardware set numbers and special instructions. Owner must approve submitted keying schedule prior to the ordering of permanent cylinders/cores.

D. Operating and Maintenance Manuals: Provide manufacturers operating and maintenance manuals for each item comprising the complete door hardware installation in quantity as required in Division 01, Closeout Procedures.

1.4 QUALITY ASSURANCE

A. Manufacturers Qualifications: Engage qualified manufacturers with a minimum 5 years of documented experience in producing hardware and equipment similar to that indicated for this Project and that have a proven record of successful in-service performance.

B. Installer Qualifications: A minimum 3 years documented experience installing both standard and electrified door hardware similar in material, design, and extent to that indicated for this Project and whose work has resulted in construction with a record of successful in-service performance.

C. Door Hardware Supplier Qualifications: Experienced commercial door hardware distributors with a minimum 5 years documented experience supplying both mechanical and electromechanical hardware installations comparable in material, design, and extent to that indicated for this Project. Supplier recognized as a factory direct distributor by the manufacturers of the primary materials with a warehousing facility in Project's vicinity. Supplier to have on staff a certified Architectural Hardware Consultant (AHC) available during the course of the Work to consult with Contractor, Architect, and Owner concerning both standard and electromechanical door hardware and keying.

D. Each unit to bear third party permanent label demonstrating compliance with the referenced standards.

E. Keying Conference: Conduct conference to comply with requirements in Division 01 Section "Project Meetings." Keying conference to incorporate the following criteria into the final keying schedule document:

1. Function of building, purpose of each area and degree of security required.
2. Plans for existing and future key system expansion.
3. Requirements for key control storage and software.
4. Installation of permanent keys, cylinder cores and software.
5. Address and requirements for delivery of keys.

F. Pre-Submittal Conference: Conduct coordination conference in compliance with requirements in Division 01 Section "Project Meetings" with attendance by representatives of Supplier(s), Installer(s), and Contractor(s) to review proper methods and the procedures for receiving, handling, and installing door hardware.

1. Prior to installation of door hardware, conduct a project specific training meeting to instruct the installing contractors' personnel on the proper installation and adjustment of their respective products. Product training to be attended by installers of door hardware (including electromechanical hardware) for aluminum, hollow metal and wood doors. Training will include the use of installation manuals, hardware schedules, templates and physical product samples as required.
2. Inspect and discuss electrical roughing-in, power supply connections, and other preparatory work performed by other trades.
3. Review sequence of operation narratives for each unique access controlled opening.
4. Review and finalize construction schedule and verify availability of materials.
5. Review the required inspecting, testing, commissioning, and demonstration procedures

G. At completion of installation, provide written documentation that components were applied to manufacturer's instructions and recommendations and according to approved schedule.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Inventory door hardware on receipt and provide secure lock-up and shelving for door hardware delivered to Project site. Do not store electronic access control hardware, software or accessories at Project site without prior authorization.

B. Tag each item or package separately with identification related to the final Door Hardware Schedule, and include basic installation instructions with each item or package.

C. Deliver, as applicable, permanent keys, cylinders, cores, access control credentials, software and related accessories directly to Owner via registered mail or overnight package service. Instructions for delivery to the Owner shall be established at the "Keying Conference".

1.6 COORDINATION

A. Templates: Obtain and distribute to the parties involved templates for doors, frames, and other work specified to be factory prepared for installing standard and electrified hardware. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing hardware to comply with indicated requirements.

B. Door and Frame Preparation: Doors and corresponding frames are to be prepared, reinforced and pre-wired (if applicable) to receive the installation of the specified electrified, monitoring, signaling and access control system hardware without additional in-field modifications.

1.7 WARRANTY

A. General Warranty: Reference Division 01, General Requirements. Special warranties specified in this Article shall not deprive Owner of other rights Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by Contractor under requirements of the Contract Documents.

B. Warranty Period: Written warranty, executed by manufacturer(s), agreeing to repair or replace components of standard and electrified door hardware that fails in materials or workmanship within specified warranty period after final acceptance by the Owner. Failures include, but are not limited to, the following:

1. Structural failures including excessive deflection, cracking, or breakage.
2. Faulty operation of the hardware.
3. Deterioration of metals, metal finishes, and other materials beyond normal weathering.
4. Electrical component defects and failures within the systems operation.

C. Standard Warranty Period: One year from date of Substantial Completion, unless otherwise indicated.

D. Special Warranty Periods:
1. Seven years for heavy duty cylindrical (bored) locks and latches.
2. Twenty five years for manual surface door closer bodies.
3. Twenty five years for manual surface door closer bodies.

4. Twenty five years for manual surface door closer bodies.

1.8 MAINTENANCE SERVICE

A. Maintenance Tools and Instructions: Furnish a complete set of specialized tools and maintenance instructions as needed for Owner's continued adjustment, maintenance, and removal and replacement of door hardware.

PART 2 - PRODUCTS

2.1 SCHEDULED DOOR HARDWARE

A. General: Provide door hardware for each door to comply with requirements in Door Hardware Sets and each referenced section that products are to be supplied under.

B. Designations: Requirements for quantity, item, size, finish or color, grade, function, and other distinctive qualities of each type of door hardware are indicated in the Door Hardware Sets at the end of Part 3. Products are identified by using door hardware designations, as follows:

1. Named Manufacturer's Products: Product designation and manufacturer are listed for each door hardware type required for the purpose of establishing requirements. Manufacturers' names are abbreviated in the Door Hardware Schedule.

C. Substitutions: Requests for substitution and product approval for inclusive mechanical and electromechanical door hardware in compliance with the specifications must be submitted in writing and in accordance with the procedures and time frames outlined in Division 01, Substitution Procedures. Approval of requests is at the discretion of the architect, owner, and their designated consultants.

2.2 HANGING DEVICES

A. Hinges: ANSI/BHMA A156.1 certified butt hinges with number of hinge knuckles and other options as specified in the Door Hardware Sets.

1. Quantity: Provide the following hinge quantity:

a. Two Hinges: For doors with heights up to 60 inches.
b. Three Hinges: For doors with heights 61 to 90 inches.
c. Four Hinges: For doors with heights 91 to 120 inches.
d. For doors with heights more than 120 inches, provide 4 hinges, plus 1 hinge for every 30 inches of door height greater than 120 inches.

2. Hinge Size: Provide the following, unless otherwise indicated, with hinge widths sized for door thickness and clearances required:

a. Widths up to 3'0": 4-1/2" standard or heavy weight as specified.

b. Sizes from 3'1" to 4'0": 5" standard or heavy weight as specified.

3. Hinge Weight and Base Material: Unless otherwise indicated, provide the following:

a. Exterior Doors: Heavy weight, non-ferrous, ball bearing or oil impregnated bearing hinges unless Hardware Sets indicate standard weight.
b. Interior Doors: Standard weight, steel, ball bearing or oil impregnated bearing hinges unless Hardware Sets indicate heavy weight.

4. Hinge Options: Comply with the following:

a. Non-removable Pins: Provide set screw in hinge barrel that, when tightened into a groove in hinge pin, prevents removal of pin while door is closed; for the all out-swinging lockable doors.

5. Manufacturers:

a. Ives (IV).

2.3 CYLINDERS AND KEYING

A. General: Cylinder manufacturer to have minimum (10) year's experience designing secured master key systems and have on record a published security keying system policy.

B. Cylinders: Original manufacturer cylinders complying with the following:

1. Mortise Type: Threaded cylinders with rings and cams to suit hardware application.
2. Rim Type: Cylinders with back plate, flat-type vertical or horizontal tailpiece, and raised trim ring.
3. Bored-Lock Type: Cylinders with tailpieces to suit locks.
4. Mortise and rim cylinder collars to be solid and recessed to allow the cylinder face to be flush and be free spinning with matching finishes.
5. Keyway: Match Facility Standard.

C. Keying System: Each type of lock and cylinders to be factory keyed.

1. Conduct specified "Keying Conference" to define and document keying system instructions and requirements.
2. Furnish factory cut, nickel-silver large bow permanently inscribed with a visual key control number as directed by Owner.
3. Existing System: Field verify and key locks to match Owner's existing system.

2.4 MECHANICAL LOCKS AND LATCHING DEVICES

A. Cylindrical Locksets, Grade 1 (Heavy Duty): ANSI/BHMA A156.2, Series 4000, Grade 1 certified.

1. Furnish with solid cast levers, standard 2 3/4" backset, and 1/2" (3/4" at rated paired openings) throw brass or stainless steel latchbolt.

2. Locks are to be non-handed and fully field reversible.

3. Extended cycle test: Locks to have been cycle tested in ordinance with ANSI/BHMA 156.2 requirements to 2 million cycles.

4. Manufacturers:

   a. Schlage (SC) – ND Series.

2.5 DOOR CLOSERS

A. All door closers specified herein shall meet or exceed the following criteria:

1. General: Door closers to be from one manufacturer, matching in design and style, with the same type door preparations and templates regardless of application or spring size. Closers to be non-handed with full sized covers including installation and adjusting information on inside of cover.

2. Standards: Closers to comply with UL-10C for Positive Pressure Fire Test and be U.L. listed for use of fire rated doors.

3. Cycle Testing: Provide closers which have surpassed 15 million cycles in a test witnessed and verified by UL.

4. Size of Units: Comply with manufacturer's written recommendations for sizing of door closers depending on size of door, exposure to weather, and anticipated frequency of use. Where closers are indicated for doors required to be accessible to the physically handicapped, provide units complying with ANSI ICC/A117.1.

5. Closer Arms: Provide heavy duty, forged steel closer arms unless otherwise indicated in Hardware Sets.

6. Closers shall not be installed on exterior or corridor side of doors; where possible install closers on door for optimum aesthetics.

7. Closer Accessories: Provide door closer accessories including custom templates, special mounting brackets, spacers and drop plates as required for proper installation. Provide through-bolt and security type fasteners as specified in the hardware sets.

B. Door Closers, Surface Mounted (Large Body Cast Iron): ANSI/BHMA A156.4, Grade 1 surface mounted, heavy duty door closers with complete spring power adjustment, sizes 1 thru 6; and fully operational adjustable according to door size, frequency of use, and opening force. Closers to be rack and pinion type, one piece cast iron body construction, with adjustable backcheck and separate non-critical valves for closing sweep and latch speed control.

1. Manufacturers:

a. LCN Closers (LC) - 4040XP Series.

2.6 DOOR STOPS AND HOLDERS

A. General: Door stops and holders to be of type and design as specified below or in the Hardware Sets.

B. Door Stops and Bumpers: ANSI/BHMA A156.16, Grade 1 certified door stops and wall bumpers. Provide wall bumpers, either convex or concave types with anchorage as indicated, unless floor or other types of door stops are specified in Hardware Sets. Do not mount floor stops where they will impede traffic. Where floor or wall bumpers are not appropriate, provide overhead type stops and holders.

1. Manufacturers:

a. Ives (IV).

2.7 ARCHITECTURAL SEALS

A. General: Thresholds, weatherstripping, and gasket seals to be of type and design as specified below or in the Hardware Sets. Provide continuous weatherstrip gasketing on exterior doors and provide smoke, light, or sound gasketing on interior doors where indicated. At exterior applications provide non-corrosive fasteners and elsewhere where indicated.

B. Smoke Labeled Gasketing: Assemblies complying with NFPA 105 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for smoke control ratings indicated, based on testing according to UL 1784.

1. Provide smoke labeled perimeter gasketing at all smoke labeled openings.

C. Fire Labeled Gasketing: Assemblies complying with NFPA 80 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for fire ratings indicated, based on testing according to UL-10C.

1. Provide intumescent seals as indicated to meet UL10C Standard for Positive Pressure Fire Tests of Door Assemblies, and NPFA 252, Standard Methods of Fire Tests of Door Assemblies.

D. Sound-Rated Gasketing: Assemblies that are listed and labeled by a testing and inspecting agency, for sound ratings indicated.

E. Replaceable Seal Strips: Provide only those units where resilient or flexible seal strips are easily replaceable and readily available from stocks maintained by manufacturer.

F. Manufacturers:

1. Zero (ZE).

2.8 FABRICATION

A. Fasteners: Provide door hardware manufactured to comply with published templates generally prepared for machine, wood, and sheet metal screws. Provide screws according to manufacturers recognized installation standards for application intended.

2.9 FINISHES

A. Standard: Designations used in the Hardware Sets and elsewhere indicate hardware finishes complying with ANSI/BHMA A156.18, including coordination with traditional U.S. finishes indicated by certain manufacturers for their products.

B. Provide quality of finish, including thickness of plating or coating (if any), composition, hardness, and other qualities complying with manufacturer's standards, but in no case less than specified by referenced standards for the applicable units of hardware

C. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine scheduled openings, with Installer present, for compliance with requirements for installation tolerances, labeled fire door assembly construction, wall and floor construction, and other conditions affecting performance.

B. Notify architect of any discrepancies or conflicts between the door schedule, door types, drawings and scheduled hardware. Proceed only after such discrepancies or conflicts have been resolved in writing.

3.2 PREPARATION

A. Hollow Metal Doors and Frames: Comply with ANSI/DHI A115 series.

B. Wood Doors: Comply with ANSI/DHI A115-W series.

3.3 INSTALLATION

A. Install each item of mechanical and electromechanical hardware and access control equipment to comply with manufacturer's written instructions and according to specifications.

1. Installers are to be trained and certified by the manufacturer on the proper installation and adjustment of fire, life safety, and security products including: hanging devices; locking devices; closing devices; and seals.

B. Mounting Heights: Mount door hardware units at heights indicated in following applicable publications, unless specifically indicated or required to comply with governing regulations:

1. Standard Steel Doors and Frames: DHI's "Recommended Locations for Architectural Hardware for Standard Steel Doors and Frames."
2. Wood Doors: DHI WDHS.3, "Recommended Locations for Architectural Hardware for Wood Flush Doors."
3. Where indicated to comply with accessibility requirements, comply with ANSI A117.1 "Accessibility Guidelines for Buildings and Facilities."
4. Provide blocking in drywall partitions where wall stops or other wall mounted hardware is located.

C. Retrofitting: Install door hardware to comply with manufacturer's published templates and written instructions. Where cutting and fitting are required to install door hardware onto or into surfaces that are later to be painted or finished in another way, coordinate removal, storage, and reinstallation of surface protective trim units with finishing work specified in Division 9 Sections. Do not install surface-mounted items until finishes have been completed on substrates involved.

D. Thresholds: Set thresholds for exterior and acoustical doors in full bed of sealant complying with requirements specified in Division 7 Section "Joint Sealants."

E. Storage: Provide a secure lock up for hardware delivered to the project but not yet installed. Control the handling and installation of hardware items so that the completion of the work will not be delayed by hardware losses before and after installation.

3.4 FIELD QUALITY CONTROL

A. Field Inspection (Punch-Out Report): Reference Division 01 Section "Closeout Procedures". Final inspect installed door hardware and state in report whether work complies with or deviates from specification requirements, including whether door hardware is properly installed, operating and adjusted.

3.5 ADJUSTING

A. Initial Adjustment: Adjust and check each operating item of door hardware and each door to ensure proper operation or function of every unit. Replace units that cannot be adjusted to operate as intended. Adjust door control devices to compensate for final operation of heating and ventilating equipment and to comply with referenced accessibility requirements.

3.6 CLEANING AND PROTECTION

A. Protect all hardware stored on construction site in a covered and dry place. Protect exposed hardware installed on doors during the construction phase. Install any and all hardware at the latest possible time frame.

B. Clean adjacent surfaces soiled by door hardware installation.

C. Clean operating items as necessary to restore proper finish. Provide final protection and maintain conditions that ensure door hardware is without damage or deterioration at time of owner occupancy.

3.7 DEMONSTRATION

A. Instruct Owner's maintenance personnel to adjust, operate, and maintain mechanical and electromechanical door hardware.

3.8 DOOR HARDWARE SETS

A. The hardware sets represent the design intent and direction of the owner and architect. They are a guideline only and should not be considered a detailed hardware schedule. Discrepancies, conflicting hardware and missing items should be brought to the attention of the architect with corrections made prior to the bidding process. Omitted items not included in a hardware set should be scheduled with the appropriate additional hardware required for proper application and functionality.

B. The supplier is responsible for handing and sizing all products and providing the correct option for the appropriate door type and material where more than one is presented in the hardware sets. Quantities listed are for each pair of doors, or for each single door.

C. Manufacturer's Abbreviations:

1. OT - Other
2. IV - Ives
3. SC - Schlage
4. LC - LCN Closers
5. ZE - Zero International Inc

Hardware Sets

Set: 1.0
Doors: 101A

3	Hinge	5BB1 4-1/2" x 4-1/2" NRP	630	IV
1	Entrance/Office Lock	ND50 RHO	619	SC
1	Surface Closer	4040XP SCUSH	AL	LC
1	Kick Plate	8400 8" x 2" LDW	US15	IV
1	Threshold	655A x Dr Width		ZE
1	Gasketing	326AA (head & jambs)		ZE
1	Rain Drip	142AA (dr width + 4")		ZE
1	Sweep	8197AA		ZE

Set: 2.0
Doors: 109

1	Pre-hung Door Hinges	by Door System Supplier	619	OT
1	Storeroom Lock	ND80 RHO	619	SC
1	Wall Stop	WS407CCV	619	IV
1	Gasketing	188S-BK (head & jambs)		ZE

Notes:
* Verify lock strike required for pre-hung door.

Set: 3.0
Doors: 101, 102

1	Pre-hung Door Hinges	by Door System Supplier	619	OT
1	Entrance/Office Lock	ND50 RHO	619	SC
1	Wall Stop	WS407CCV	619	IV

Notes:
* Verify lock strike required for pre-hung door.

Set: 4.0
Doors: 112

3	Hinge	5BB1 4-1/2" x 4-1/2"	619	IV
1	Passage Latch	ND10S RHO	619	SC
1	Surface Closer	4040XP REG	AL	LC
1	Kick Plate	8400 8" x 2" LDW	US15	IV
1	Wall Stop	WS407CCV	619	IV
1	Threshold	544A x Dr Width		ZE
1	Gasketing	188S-BK (head & jambs)		ZE
1	Door Bottom	355AA x Dr Width		ZE

Set: 5.0
Doors: 110, 111

3	Hinge	5BB1 4-1/2" x 4-1/2"	619	IV
1	Entrance/Office Lock	ND50 RHO	619	SC
1	Surface Closer	4040XP SCUSH	AL	LC
1	Kick Plate	8400 8" x 2" LDW	US15	IV
1	Threshold	544A x Dr Width		ZE
1	Gasketing	188S-BK (head & jambs)		ZE
1	Door Bottom	355AA x Dr Width		ZE

Set: 6.0
Doors: 103, 104, 105, 106, 107, 108

1	Pre-hung Door Hinges	by Door System Supplier	619	OT
1	Privacy Lock	ND40S RHO	619	SC
1	Wall Stop	WS407CCV	619	IV
1	Gasketing	188S-BK (head & jambs)		ZE

Notes:
* Verify lock strike required for pre-hung door.

Door / Hardware Set Schedule

Mark	Hardware	Mark	Hardware	Mark	Hardware
101	3.0	105	6.0	110	5.0
101A	1.0	106	6.0	111	5.0
102	3.0	107	6.0	112	4.0
103	6.0	108	6.0		
104	6.0	109	2.0		

END OF SECTION 087100

SECTION 08 80 00 - GLAZING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SCOPE

A. Work under this section consists of providing all labor, materials and equipment necessary for and incidental to the complete and proper installation of all glass, glazing and related work as shown on the drawings or specified herein, and in accordance with all applicable requirements of the Contract Documents. Work within this Section shall be completely coordinated with work of other trades.

B. The material and installation shall conform to the applicable local building code requirements, and all authorities having jurisdiction.

C. Where glass is indicated to be furnished and / or installed by other Sections, quality standards and installation methods and materials indicated herein pertain to such work.

D. Definitions: "Glass" includes prime glass, processed glass, and fabricated glass products. "Glass products" is hereby defined to include glazing plastics. "Glazing" includes glass and glass product installation and materials used to install glass and glass products.

1.3 SUMMARY

A. Types of work in this section include glass and glazing for:

1. All Doors identified and designated on the Door and Frame Schedule found on Sheet A2.1.

1.4 RELATED WORK

A. Hollow metal doors and frames are specified elsewhere in Division 08.

B. Packaged mirror units are also specified in Toilet and Bath Accessories specified elsewhere in Division 10.

1.5 CODES, SPECIFICATIONS AND STANDARDS

A. Publications listed below form a part of this specification to extent referenced. Publications are referenced in the text by basic designation only. Any material or operation specified by reference to the published specifications of a manufacturer or other referenced specification or standard shall comply with the requirements of the latest edition. In case of a conflict between a referenced specification or standard and these project specifications the more stringent requirement shall govern.

B. Comply with the applicable provisions of the following codes, specifications and standards to the extent indicated by reference thereto.

1. American Architectural Manufacturers Association - AAMA 800 "Voluntary Specifications and Test Methods for Sealants".

2. American National Standards Institute - ANSI Z97.1 "American National Standard for Safety Glazing Materials Used in Buildings - Safety Performance Specifications and Methods of Test".

3. American Society for Testing and Materials - ASTM C 509 "Standard Specification for Elastomeric Cellular Preformed Gasket and Sealing Material".

4. American Society for Testing and Materials - ASTM C 864 "Standard Specification for Dense Elastomeric Compression Seal Gaskets, Setting Blocks, and Spacers".

5. American Society for Testing and Materials - ASTM C 920 "Standard Specification for Elastomeric Joint Sealants".

6. American Society for Testing and Materials - ASTM C 1036 "Standard Specification for Flat Glass".

7. American Society for Testing and Materials - ASTM C 1048 "Standard Specification for Heat - Treated Flat Glass - Kind HS, Kind FT Coated and Uncoated Glass".

8. American Society for Testing and Materials - ASTM E 774 "Standard Specification for the Classification of the Durability of Sealed Insulating Glass Units".

9. American Society for Testing and Materials - ASTM E 2074 "Standard Test Method for Fire Tests of Door Assemblies, Including Positive Pressure Testing of Side - Hinged and Pivoted Swinging Door Assemblies".

10. Flat Glass Marketing Association - FGMA 01 "Glazing Manual".

11. Underwriters Laboratories - UL 10C "Positive Pressure Fire Tests of Door Assemblies".

12. United States Consumer Product Safety Commission - CPSC 16 CFR 1201 Category 2.

13. International Building Code (IBC) 2009 Edition.

1.6 QUALIFICATIONS

A. Glazier Qualifications: Engage an experienced glazier who has completed glazing similar in material, design, and extent to that indicated for project with a record of successful in - service performance.

1.7 SUBMITTALS

A. Manufacturer's Data; Glass / Glazing: Submit glass / glazing manufacturer's product data specifications and installation instructions for each type of glass / glazing required, including other data as may be required to show compliance with specified requirements. Transmit copy of each instruction to the installer. Provide certificates attesting that materials meet requirements and tests specified herein. Glazing sealant manufacturer shall submit preparation data that is based on previous testing of current sealant products for adhesion to and compatibility with submitted glazing materials.

B. Samples; Glass / Glazing: Glass sample, nominal 10 inch x 12 inch of each specified type, class thickness and finish shall be provided for inspection and approval. Completely identify samples listing glass, glazing compound, tape, setting blocks and other glazing materials.

C. Warranty; Glass / Glazing: Submit written agreement for warranties signed by the Manufacturer and Installer, in accordance with specified warranties found elsewhere in this specification section starting on the date of Substantial Completion as defined in the Contract Documents.

1.8 JOB CONDITIONS

A. Examine framing or glazing channel surfaces, backing, stop design, and conditions under which glazing is to be performed. Do not proceed until unsatisfactory conditions have been corrected.

B. Do not proceed with installation of sealants or glazing under adverse weather conditions, or when temperatures are below or above manufacturer's recommended limitations for installation.

1.9 DELIVERY, STORAGE AND HANDLING

A. Manufactured glass units shall be delivered and stored until installation in the manufacturer's container's and shall be clearly marked on the exterior as to type, and quantity of units.

B. Protect glass in accordance with the manufacturer's recommendations.

1.10 WARRANTY

A. Warranty on Hermetic Seals: Provide insulating glass manufacturer's written warranty, agreeing to, provide and replace insulating glass units which have defective hermetic seals for a period of ten (10) years after the date of Substantial Completion, as defined in the Contract Documents. Defective hermetic seals shall be defined to include intrusion of moisture or dirt, internal condensation at temperatures above minus twenty

(-20) degrees F, deterioration of internal glass coatings, and other visual evidence of seal failure except for glass breakage.

PART 2 - PRODUCTS

2.1 GLASS MATERIALS GENERAL

A. Acceptable Prime Glass Manufacturers: Subject to compliance with requirements, manufacturers offering products for each type / color / pattern of glass which may be incorporated in the Work include, but are not limited to, the following:

1. AFG Glass
2. Cardinal Glass Industries
3. Globe Amerada Glass Company
4. Guardian Industries
5. Interpane Glass Company
6. Laminated Glass Corporation
7. Pilkington Building Products
8. PPG Glass Group
9. SAFTI Glass Company
10. Southwall Technologies
11. Viracon, Inc.

B. Glass which shall be subject to wind pressure shall conform to the glass manufacturer's recommendations for maximum allowable areas.

C. Insulating Glass: NOT APPLICABLE Two sheets of 1/4 inch thick glass as specified separated by a 1/2 inch thick sealed space containing dry air with minus twenty (-20) degrees F dew point, with Class A sealant - type edge construction to maintain a hermetic seal.

2.2 GLASS SCHEDULE

A. Glass Type 1: Clear, Tempered Float Glass - 1/4 inch thick complying with ASTM C 1048, Type I, Quality q3, Class 1 and Kind FT. For use in Door 121 & Door 121A.

2.3 GLAZING SEALANTS AND COMPONENTS

A. General: Provide color of exposed sealant / compound to match frame units from manufacturer's standard colors. Comply with manufacturer's recommendations for selection of hardness, depending upon the location of each application, conditions at time of installation, and performance requirements as indicated. Select materials, and variations or modifications, carefully for compatibility with surfaces contacted in the installation. Sealant / compound shall not stain or discolor frame units or glass / glazing.

B. Glazing Sealant: One - Component, High Performance, Medium Modulas, Neutral - Curing Silicone Glazing Sealant: Elastomeric silicone sealant complying with ASTM C 920, Type S, Grade NS, Class 25, non - sag. Provide acid type recommended by manufacturer where only nonporous bond surfaces are contacted; provide nonacid type recommended by manufacturer where one or more porous bond surfaces are contacted.

C. Vinyl Foam Glazing Tape: Closed cell, flexible, self - adhesive, non - extruding, polyvinyl chloride foam tape; recommended by manufacturer for exterior, exposed, watertight installation of glass, with only nominal pressure in the glazing channel; comply with AAMA 800.

D. Cleaners, Primers and Sealers: Type recommended by sealant or gasket manufacturer.

2.4 GLAZING GASKETS

A. Dense Wedge Molded Neoprene Glazing Gaskets: Molded or extruded neoprene gaskets of the profile and hardness required for watertight construction; comply with ASTM C 864.

B. Soft Compression Cellular Neoprene Glazing Gaskets: Extruded / molded, closed - cell, integral - skinned neoprene of profile required to maintain watertight seal; comply with ASTM C 509, Type II.

2.5 MISCELLANEOUS GLAZING MATERIALS

A. Setting Blocks: Neoprene or EPDM, 70 - 90 durometer hardness, with proven compatibility with sealants used. Thickness shall be approximately the same as the glass - edge clearance dimension; the length shall be 4 inches minimum.

B. Spacers: Neoprene or EPDM, 40 - 50 durometer hardness with proven compatibility with sealants used. Spacers shall be 2 to 3 inches long with thickness and height to suit the application.

C. Compressible Filler: Closed - cell or waterproof - jacketed rod stock of synthetic rubber or plastic foam, proven to be compatible with sealants used, flexible and resilient, with 5 - 10 pounds per square inch compression strength for 25 percent deflection.

D. Provide shims, clips, springs, angles, beads, attachment screws and other miscellaneous items indicated or required.

2.6 CLEANING SOLUTIONS

A. All cleaning solutions shall be compatible with the glazing materials and as recommended by the glass manufacturer or fabricator.

PART 3 - EXECUTION

3.1 GENERAL

A. Glass shall be installed in accordance with the manufacturer's written instructions.

B. Field cutting, or nipping or grinding the edges of glass will not be permitted.

C. Sheet glass shall be installed with the wave horizontal.

D. Sizes of glass shown on drawings are approximate. Sizes and proper edge clearances shall be determined by measuring the actual unit to receive glass. Except where specified otherwise, each piece of glass shall bear the manufacturer's label to identify its type as well as thickness and quality. Labels shall not be removed until final approval is obtained.

3.2 TEMPERATURE AND ATMOSPHERIC CONDITIONS

A. Glazing materials shall not be installed when the ambient temperature is below forty (40) degrees F or above one hundred (100) degrees F.

B. Exterior glazing shall not be performed in damp or rainy weather.

3.3 STANDARDS AND PERFORMANCE

A. Watertight and airtight installation of each glass product is required, except as otherwise shown or noted. Each installation must with stand normal temperature changes, wind loading, impact loading (for operating sash and doors), without failure including loss or breakage of glass, failure of sealants or gaskets to remain watertight and airtight, deterioration of glazing materials and other defects.

B. Protect glass from edge damage during handling and installation, and subsequent operation of glazed components of the work. During installation, discard units with significant edge damage or other imperfections.

C. Glazing channel dimensions as shown are intended to provide for necessary bite on glass, minimum edge clearance, and adequate sealant thicknesses, with reasonable tolerances. Adjust as required by job conditions at time of installation. Contractor is responsible for correct glass size for each opening, within tolerances and dimensions established.

D. Comply with combined recommendations and technical reports by manufacturers of glass and glazing products as used in each glazing channel, and with recommendations of Flat Glass Marketing Association "Glazing Manual", except where more stringent requirements are indicated.

E. Install insulating glass units to comply with recommendations by Sealed Insulating Glass Manufacturers Association and Insulating Glass Certification Council, except as otherwise specifically indicated or recommended by glass and sealant manufacturers.

3.4 PREPARATION FOR GLAZING

A. Clean glazing channel and other framing members to receive glass, immediately before glazing. Remove coatings which are not firmly bonded to substrate. Remove lacquer from metal surfaces where elastomeric sealants are used.

3.5 GLAZING

A. Install setting blocks of proper size in sill rabbet, located 1/4th of the glass width from each corner. Set blocks in thin heel bead of glazing compound.

B. Provide spacers inside and out, of proper size and spacing, for glass sizes larger than 50 united inches, except where gaskets or pre - shimmed tapes are used for glazing. Provide 1/8 inch minimum bite of spacers on glass and use thickness equal to sealant width, except with sealant tape use thickness slightly less than final compressed thickness of tape.

C. Apply primer or sealant to joint surfaces where recommended by sealant manufacturer.

D. Set units of glass in each series with uniformity of pattern, draw, bow and similar characteristics.

E. Voids and Filler Rods: Prevent exudation of sealant or compound by forming voids or installing filler rods in channel at heel of jambs and head (do not leave voids in sill channels), except as otherwise indicated and depending on light size, thickness and type of glass, and complying with manufacturer's recommendations.

F. Force sealants into channel to eliminate voids and to ensure complete "wetting" or bond of sealant to glass and channel surfaces. Elastomeric sealing - compound components shall be mixed. Compound shall be gun - applied to fill the cavity without air pockets.

G. Tool exposed surfaces of glazing liquids and compounds to provide a substantial "wash" away from glass. Install pressurized tapes and gaskets to protrude slightly out of channel, so as to eliminate dirt and moisture pockets.

H. Glazing Tape: Compress glazing tape slightly to obtain a positive bond and neatly mitered or butted at corners. Backing paper shall be removed prior to installation of glass.

I. Clean and trim excess glazing materials from glass and stops or frames promptly after installation, and eliminate stains and discolorations.

J. Where wedge - shaped gaskets are driven into one side of channel to pressurize sealant or gasket on opposite side, provide adequate anchorage to ensure that gasket will not "walk" out when installation is subjected to movement. Anchor gasket to stop with

matching ribs, or by proven adhesives, including embedment of gasket tail in cured heel bead.

K. Gasket Glazing: Miter cut and bond ends together at corners where gaskets are used for channel glazing, so that gaskets will not pull away from corners and result in voids or leaks in glazing system.

3.6 CURE, PROTECTION AND CLEANING

A. Protect exterior glass from breakage immediately upon installation, by use of crossed streamers attached to framing and held away from glass. Do not apply markers to surfaces of glass. Remove nonpermanent labels and clean surfaces. Cure sealants for high early strength and durability.

B. Remove and replace glass which is broken, chipped, cracked, abraded, or damaged in other ways during construction period, including natural causes, accidents, and vandalism.

C. Wash and polish glass on both faces not more than 4 days prior to date scheduled for inspections intended to establish date of substantial completion in each area of project. Comply with glass product manufacturer's recommendations for final cleaning. Glass shall be free of glazing compounds, sealants, smears, and other defacement.

D. Temporary labels shall be removed immediately after the glass and glazing work has been approved and prior to final cleaning.

END OF SECTION 08 80 00

SECTION 09 21 16 - GYPSUM BOARD ASSEMBLIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SCOPE

A. Work required under this section includes all labor, materials, tools, and equipment necessary for and incidental to the complete and proper provision and installing of all gypsum board drywall systems as shown on the drawings or described in the specifications. Work within this section shall be completely coordinated with work of other trades.

B. Although such work is not specifically shown or specified, provide, and install supplementary or miscellaneous items, appurtenances, and devices incidental to or necessary for a sound, secure and complete installation.

C. Work within this section includes, but is not necessarily limited to the following:

1. Ceiling gypsum board screw - attached to steel grid suspension members.

2. Gypsum board ceiling finish.

1.3 CODES, SPECIFICATIONS AND STANDARDS

A. Publications listed below form a part of this specification to extent referenced. Publications are referenced in the text by basic designation only. Any material or operation specified by reference to the published specifications of a manufacturer or other referenced specification or standard shall comply with the requirements of the latest edition. In case of a conflict between a referenced specification or standard and these project specifications the more stringent requirement shall govern.

B. Comply with the applicable provisions of the following codes, specifications and standards to the extent indicated by reference thereto.

1. American Iron and steel Institute - A.I.S.I. "Specification for the Design of Cold - Formed Steel Structural Members" 1996 Edition

2. American National Standards Institute - A 108.11 "Interior Installation of Cementitious Backer Units".

3. American National Standards Institute - A 118.9 "Cementitious Backer Units".

4. American Society of Testing and Materials - ASTM A 123 "Standard Specification for Zinc (Hot - Dip Galvanized) Coatings on Iron and Steel Products".

5. American Society of Testing and Materials - ASTM A 153 / A 153M "Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware".

6. American Society of Testing and Materials - ASTM A 641 / A 641M "Standard Specification for Zinc-Coated (Galvanized) Carbon Steel Wire".

7. American Society of Testing and Materials - ASTM A 653 / A653M "Standard Specification for Steel Sheet, Zinc - Coated (Galvanized) or Zinc - Iron Alloy - Coated (Galvannealed) by the Hot - Dip Process".

8. American Society of Testing and Materials - ASTM A 924 / A 924M "Standard Specification for General Requirements for Steel Sheet, Metallic - Coated by the Hot - Dip Process".

9. American Society of Testing and Materials - ASTM B 221 "Standard Specification for Aluminum and Aluminum - Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes".

10. American Society of Testing and Materials - ASTM C 11 "Standard Terminology Relating to Gypsum and Related Building Materials and Systems".

11. American Society of Testing and Materials - ASTM C 36 "Standard Specification for Gypsum Wallboard".

12. American Society of Testing and Materials - ASTM C 79 "Standard Specification for Treated Core and Nontreated Core Gypsum Sheathing Board".

13. American Society of Testing and Materials - ASTM C 423 "Standard Test Method for Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method".

14. American Society of Testing and Materials - ASTM C 475 "Standard Specification for Joint Compound and Joint Tape for Finishing Gypsum Board".

15. American Society of Testing and Materials - ASTM C 514 "Standard Specification for Nails for the Application of Gypsum Board".

16. American Society of Testing and Materials - ASTM C 557 "Standard Specification for Adhesives for Fastening Gypsum Wallboard to Wood Framing".

17. American Society of Testing and Materials - ASTM C 630 / C 630M "Standard Specification for Water-Resistant Gypsum Backing Board".

18. American Society of Testing and Materials - ASTM C 645 "Standard Specification for Nonstructural Steel Framing Members".

19. American Society of Testing and Materials - ASTM C 754 "Standard Specification for Installation of Steel Framing Members to Receive Screw - Attached Gypsum Panel Products".

20. American Society of Testing and Materials - ASTM C 834 "Standard Specification for Latex Sealants".

21. American Society of Testing and Materials - ASTM C 840 "Standard Specification for Application and Finishing of Gypsum Board".

22. American Society of Testing and Materials - ASTM C 919 "Standard Practice for Use of Sealants in Acoustical Applications".

23. American Society of Testing and Materials - ASTM C 931 / C 931M "Standard Specification for Exterior Gypsum Soffit Board".

24. American Society of Testing and Materials - ASTM C 954 "Standard Specification for Steel Drill Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Steel Studs from 0.033 in. (0.84 mm) to 0.112 in. (2.84 mm) in Thickness".

25. American Society of Testing and Materials - ASTM C 1002 "Standard Specification for Steel Self - Piercing Tapping Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Wood Studs or Steel Studs".

26. American Society of Testing and Materials - ASTM C 1047 "Standard Specification for Accessories for Gypsum Wallboard and Gypsum Veneer Base".

27. American Society of Testing and Materials - ASTM C 1177 / C 1177M "Standard Specification for Glass Mat Gypsum Substrate for Use as Sheathing".

28. American Society of Testing and Materials - ASTM C 1178 / C 1178M "Standard Specification for Coated Glass Mat Water-Resistant Gypsum Backing Panel".

29. American Society of Testing and Materials - ASTM C 1186 "Standard Specification for Flat Non - Asbestos Fiber - Cement Sheets".

30. American Society of Testing and Materials - ASTM C 1288 "Standard Specification for Discrete Non - Asbestos Fiber - Cement Interior Substrate Sheets".

31. American Society of Testing and Materials - ASTM C 1396 / C 1396M "Standard Specification for Gypsum Board".

32. American Society of Testing and Materials - ASTM D 226 "Standard Specification for Asphalt - Saturated Organic Felt Used in Roofing and Waterproofing".

33. American Society of Testing and Materials - ASTM D 1667 "Standard Specification for Flexible Cellular Materials - Vinyl Chloride Polymers and Copolymers (Closed-Cell Foam)".

34. American Society of Testing and Materials - ASTM E 72 "Standard Test Methods of Conducting Strength Tests of Panels for Building Construction".

35. American Society of Testing and Materials - ASTM E 84 "Standard Test Method for Surface Burning Characteristics of Building Materials".

36. American Society of Testing and Materials - ASTM E 90 "Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements".

37. American Society of Testing and Materials - ASTM E 119 "Standard Test Methods for Fire Tests of Building Construction and Materials".

38. American Society of Testing and Materials - ASTM E 413 "Classification for Rating Sound Insulation".

39. American Society of Testing and Materials - ASTM E 488 "Standard Test Methods for Strength of Anchors in Concrete and Masonry Elements".

40. American Society of Testing and Materials - ASTM E 814 "Standard Test Method for Fire Tests of Through - Penetration Fire Stops".

41. American Society of Testing and Materials - ASTM E 1190 "Standard Test Methods for Strength of Power-Actuated Fasteners Installed in Structural Members".

42. Factory Mutual - "FM Approval Guide, Building Products".

43. Gypsum Association - GA 214 "Recommended Levels of Gypsum Board Finish".

44. Gypsum Association - GA 216 "Application and Finishing of Gypsum Board".

45. Gypsum Association - GA 600 "Fire Resistance Design Manual".

46. International Building Code - IBC 2009

47. Underwriter Laboratory - UL 263 "Fire Tests of Building Construction and Materials".

48. Underwriter Laboratory - UL 2079 "Tests for Fire Resistance of Building Joint Systems".

49. Underwriter Laboratory - "UL Fire Resistance Directory".

1.4 RELATED WORK:

A. Sealants for other than work included herein are specified in Division 07.

B. Schedule of Finishes is specified elsewhere in Division 09.

1.5 DEFINITIONS

A. Gypsum Board Terminology: Refer to ASTM C 11 for definitions of terms for gypsum board assemblies not defined in this Section or in other referenced standards.

1.6 QUALITY ASSURANCE

A. Fire - Test - Response Characteristics: For gypsum board assemblies with fire - resistance ratings, provide materials and construction identical to those tested in assembly indicated according to ASTM E 119 by an independent testing and inspecting agency acceptable to authorities having jurisdiction.

B. Fire - Resistance - Rated Assemblies: Indicated by design designations from FM's "Approval Guide, Building Products.", UL's "Fire Resistance Directory." OR GA - 600, "Fire Resistance Design Manual.".

1.7 SUBMITTALS

A. Manufacturer's Data - Gypsum Drywall Systems: Submit manufacturer's specifications and installation instructions for each type of gypsum drywall systems component, including other data as may be required to show compliance with these specifications.

1.8 PRODUCT HANDLING

A. Coordinate delivery with installation to minimize storage periods at the project site. Deliver in manufacturer's unopened containers, bundles, or packages, fully identified with manufacturer's name, brand, type, and grade.

B. Store gypsum drywall materials inside, under cover and keep them dry and protected against damage from weather, direct sunlight, surface contamination, corrosion, construction traffic and other causes. Neatly stack gypsum boards flat to prevent sagging.

C. Store metal framing materials off ground in a dry, well - ventilated area, covered or otherwise protected from physical damage. Support products in a manner to prevent bending or a deflection set.

D. Handle gypsum boards to prevent damage to edges, ends, and surfaces. Do not bend or otherwise damage metal corner bead and trim.

1.9 JOB CONDITIONS

A. Examine all parts of supporting structure and conditions under which gypsum board is to be installed. Do not proceed with installation until unsatisfactory conditions have

been corrected. Coordinate installation with work of other trades to allow time for correct installation of their work.

B. Establish and maintain environmental conditions for application and finishing gypsum board to comply with ASTM C 840 and with gypsum board manufacturer's written recommendations whichever are more stringent.

C. Minimum Room Temperatures: For non - adhesive attachment of gypsum board to framing, maintain not less than 60 degree F. For adhesive attachment and finishing of gypsum board, maintain not less than 60 degree F for 48 hours prior to application and continuously thereafter until drying is complete.

D. Ventilate building spaces to remove water not required for drying joint treatment materials. Avoid drafts during dry, hot weather to prevent materials from drying too rapidly.

PART 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS OF MATERIALS

A. Acceptable Manufacturers: Subject to compliance with requirements, manufacturers offering products which may be incorporated in the Work include, but are not limited to, the following:

1. Gypsum Board and Related Products:

a. American Gypsum Company

b. BPB America Incorporated

c. Georgia - Pacific Gypsum Corporation

d. National Gypsum Company

e. Temple - Inland Company

f. United States Gypsum Corporation

2.2 INTERIOR STEEL GRID SUSPENDED CEILING – **NOT USED, SEE SECTION 09 51 00**

A. Grid Suspension System for Interior Ceilings: ASTM C 645, direct - hung system composed of main beams and cross - furring members that interlock.

1. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the following:

a. Fire Front 650 / 670 System - Chicago Metallic Corporation

b. Or Approved Equal.

2.3 INTERIOR GYPSUM WALLBOARD – INSTALL 5/8" RESILIENT CHANNELS ON SOUND WALLS, SEE DRAWINGS

A. Panel Size: Provide in maximum lengths and widths available that will minimize joints in each area and correspond with support system indicated.

B. Gypsum Wallboard (Type X): Comply with ASTM C 36.

1. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the following:

a. Fire Bloc - American Gypsum Company

b. Pro Roc Type X - BPB America Incorporated

c. Tough Rock Fireguard - Georgia - Pacific Gypsum Corporation

d. GoldBond Fire - Shield Wallboard - National Gypsum Company

e. Fire - Rated Gypsum Wallboad - Temple - Inland Company

f. SHEETROCK BRAND - Firecode - United States Gypsum Corporation

2. Thickness: 5/8 inch Type X.

3. Long Edges: Tapered for pre - filling.

2.4 GYPSUM BOARD JOINT TREATMENT MATERIALS

A. General: Comply with ASTM C 475.

B. Joint Tape:

1. Interior Gypsum Wallboard: Paper.

C. Joint Compound for Interior Gypsum Wallboard: For each coat use formulation that is compatible with other compounds applied on previous or for successive coats.

1. Pre - filling: At open joints, rounded or beveled panel edges, and damaged surface areas, use setting - type taping compound.

2. Embedding and First Coat: For embedding tape and first coat on joints, fasteners, and trim flanges, use setting - type taping compound or drying - type, all - purpose compound.

a. Use setting - type compound for installing paper - faced metal trim accessories.

3. Fill Coat: For second coat, use setting - type, sandable topping compound or drying - type, all - purpose compound.

4. Finish Coat: For third coat, use setting - type, sandable topping compound or drying - type, all - purpose compound.

2.5 MISCELLANEOUS MATERIALS

A. Fastening of components shall be with self - drilling screws or welding. Screws or welds shall be of sufficient size to insure the strength of the connection. All welds of galvanized steel shall be touched up with a zinc - rich paint. All welds of carbon sheet steel shall be touched up with paint. Wire tying of components shall not be permitted.

B. Gypsum Board Screws: Comply with ASTM C1002 unless otherwise indicated.

1. Use Type S - for fastening of gypsum board to light gage steel framing and furring.

PART 3 - EXECUTION

3.1 EXAMINATION

A. General: Install materials listed in accordance with manufacturer's specifications and recommendations when not in conflict with specific directions included herein.

B. Installation shall be done by experienced craftsmen trained to this type of work. Examine substrates to which drywall construction attaches or abuts, preset hollow metal frames, cast - in - anchors and structural framing, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of drywall construction. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Suspended Ceilings: Coordinate installation of ceiling suspension systems with installation of overhead structure to ensure that inserts and other provisions for anchorages to building structure have been installed to receive ceiling hangers at spacing required to support ceilings and that hangers will develop their full strength.

1. Furnish concrete inserts and other devises indicated to other trades for installation in advance of time needed for coordination and construction.

B. When outdoor temperature is below 60 degrees F., heat shall be maintained in the building continuously and uniformly at not less than 60 degrees F. from one week prior to beginning of installation until the wallboard application and joint treatment is completed.

C. Ventilation, either natural or supplied by fans, circulators, or air conditioning system, shall be provided to remove excess moisture during joint treatment.

3.3 INSTALLATION OF SUSPENDED CEILING GRID – **NOT USED**

A. Suspend ceiling hangers from building structure as follows:

1. Install hangers plumb and free from contact with insulation or other objects within ceiling plenum that are not part of supporting structural or ceiling suspension system. Splay hangers only where required to miss obstructions and offset resulting horizontal forces by bracing, countersplaying, or other equally effective means.

2. Where width of ducts and other construction within ceiling plenum produces hanger spacings that interfere with the location of hangers required to support standard suspension system members, install supplemental suspension members and hangers in form of trapezes or equivalent devices. Size supplemental suspension members and hangers to support ceiling loads within performance limits established by referenced standards.

3. Secure wire hangers by looping and wire - tying, either directly to structures or to inserts, eyescrews, or other devices and fasteners that are secure and appropriate for substrate, and in a manner that will not cause them to deteriorate or otherwise fail.

4. Secure hangers to structure, including intermediate framing members, by attaching to inserts, eyescrews, or other devices and fasteners that are secure and appropriate for structure and hanger, and in a manner that will not cause hangers to deteriorate or otherwise fail.

5. Do not support ceilings directly from permanent metal forms. Furnish cast - in - place hanger inserts that extend through forms.

6. Do not attach hangers to steel deck tabs.

7. Do not attach hangers to steel roof deck. Attach hangers to structural members.

8. Do not connect or suspend steel framing from ducts, pipes, or conduit.

B. Installation Tolerances: Install steel framing components for suspended ceilings so members for panel attachment are level to within 1/8 inch in 12 feet measured lengthwise on each member and transversely between parallel members.

C. Sway - brace suspended steel framing with hangers used for support.

D. Wire - tie, or clip furring channels to supports.

E. Install suspended steel framing components in sizes and spacings indicated, but not less than that required by the referenced steel framing and installation standards.

1. Hangers: 24 inches on center.

2. Carrying Channels (Main Runners): 24 inches on center.

F. Grid Suspension System: Attach perimeter wall track or angle where grid suspension system meets vertical surfaces. Mechanically join main beam and cross - furring members to each other and butt - cut to fit into wall track.

3.4 INSTALLATION OF GYPSUM WALLBOARD GENERAL

A. Gypsum Board Application and Finishing Standard: Install and finish gypsum board to comply with ASTM C840 and GA - 216.

B. Tolerances for Drywall Work: Do not exceed a variation of 3/16 inch in 8 feet, and 1/8 inch in 4 feet, from plumb, level and flat (all directions); and do not exceed 1/16 inch offset of planes at joints between panels, shim panels as necessary to comply with tolerances. Architect shall require replacement of drywall systems which exceed the above allowable tolerances.

C. Ceiling board shall not be installed until the building is enclosed and watertight. Ceiling board damaged by water prior to final acceptance shall be totally removed and replaced at no additional cost to the Owner.

D. Install ceiling board panels across framing to minimize the number of abutting end joints and to avoid abutting end joints in the central area of each ceiling. Stagger abutting end joints of adjacent panels not less than one framing member.

E. Space fasteners in gypsum panels according to referenced gypsum board application and finishing standard and manufacturer's written recommendations.

1. Space screws a maximum of 12 inches on center for vertical applications.

F. Space fasteners in panels that are tile substrates a maximum of 8 inches on center.

3.5 PANEL APPLICATION METHODS

A. Single - Layer Application:

1. On ceilings, apply gypsum panels before wall / partition board application to the greatest extent possible and at right angles to framing, unless otherwise indicated.

B. Single - Layer Fastening Methods: Apply gypsum panels to supports with steel drill screws. Install and space according to UL Listed Method to achieve the fire rating listed for the assembly.

C. Install exposed gypsum board with face side out. Do not install imperfect, damaged, or damp boards. Butt boards together for a light contact at edges and ends with not more than 1/16 inch open space between boards. Do not force into place. Fit neatly and carefully.

D. Locate either edge or end joints over supports, except in horizontal applications where intermediate supports or gypsum board back - blocking is provided behind end joints. Position boards so that like edges abut, tapered edges against tapered edges and mill - cut or field - cut ends against mill - cut or field - cut ends. Do not place tapered edges

against cut edges or ends. Stagger vertical joints over different studs on opposite sides of partitions.

E. Hold wallboard in firm contact with support while fasteners are being driven. Proceed with attachment from center of board toward ends and edges.

F. When it is necessary to field cut ends or edges, scribe and make cutouts neatly.

3.6 FINISHING GYPSUM BOARD ASSEMBLIES

A. General: Treat gypsum board joints, interior angles, edge trim, control joints, penetrations, fastener heads, surface defects, and elsewhere as required to prepare gypsum board surfaces for decoration. Promptly remove residual joint compound from adjacent surfaces.

B. Pre - fill open joints, rounded or beveled edges, and damaged surface areas.

C. Apply joint tape over gypsum board joints, except those with trim having flanges not intended for tape.

D. Gypsum Board Finish Levels: Finish panels to levels indicated below, according to ASTM C 840, for locations indicated:

1. Level 4: Embed tape and apply separate first, fill, and finish coats of joint compound to tape, fasteners, and trim flanges at panel surfaces. Level 4 finish shall be used at all areas exposed to view, unless otherwise indicated on drawings.

3.7 CLEANING AND PATCHING

A. Clean exposed drywall surfaces free of soil and stain that would affect finish.

B. Repair, or remove and replace defective work.

C. Remove all excess materials and debris from the site.

D. Provide final protection and maintain conditions, in a manner suitable to Installer, which ensures gypsum drywall construction being without damage or deterioration at time of Final completion.

END OF SECTION 09 21 16

SECTION 09 30 50
TILE SETTING MATERIALS AND ACCESSORIES

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Edge-protection and transition profiles for floors.

B. Movement joint and cove-shaped profiles.

C. Uncoupling membrane.

1.2 RELATED SECTIONS

A. Section 03 30 00 - Cast-in-Place Concrete.

B. Section 05 55 00 - Metal Stair Treads and Nosings.

C. Section 06 10 00 - Rough Carpentry.

D. Section 07 90 00 - Joint Protection.

E. Section 09 29 00 - Gypsum Board.

F. Section 09 30 00 - Tiling.

G. Section 10 26 13 - Corner Guards.

H. Section 22 30 00 - Plumbing Equipment.

1.3 REFERENCES

A. CSA B79-08: Floor, Area, and Shower Drains, and Cleanouts for Residential Construction.

B. IAPMO IGC 195: Interim Guide Criteria for Floor Drain with Integrated Bonding Flange.

C. Tile Council of North America (TCNA) Handbook for Ceramic Tile Installation.

D. Terrazzo, Tile and Marble Association of Canada (TTMAC) Specification Guide 09300 Tile Installation Manual.

E. American National Standard Specifications for the installation of ceramic tile A108 / A118 / A136.1.

1.4 SUBMITTALS

A. Submit under provisions of Section 01 30 00.

B. Product Data: Manufacturer's data sheets on each product to be used, including:
1. Preparation instructions and recommendations.

2. Storage and handling requirements and recommendations.
3. Installation methods.

C. Verification Samples: For each finish product specified, two samples, minimum size 6 inches (150 mm) long, representing actual product, color, and finish.

D. Manufacturer's Certificates: Certify products meet or exceed specified requirements.

1.5 QUALITY ASSURANCE

A. Installer Qualifications: Company specializing in performing the work of this section with minimum five years' experience.

B. Source Limitations for Setting Materials and Accessories: Obtain product of a uniform quality for each application condition from a single manufacturer.

C. Mock-Up: Provide a mock-up for evaluation of surface preparation techniques and application workmanship.
1. Finish areas designated by Architect.
2. Do not proceed with remaining work until workmanship, color, and sheen are approved by Architect.
3. Refinish mock-up area as required to produce acceptable work.

D. Preinstallation Conference: Conduct conference at the Project site.
1. Convene one week prior to commencing work of this section.
2. Require attendance of installation material manufacturer, tile supplier, tile installer and installers of related work. Review installation procedures and coordination required with related work.
3. Meeting agenda includes but is not limited to:
   a. Surface preparation.
   b. Tile and installation material compatibility.
   c. Edge protection, transition, and pre-fabricated movement joint profiles.
   d. Waterproofing techniques.
   e. Crack isolation techniques.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Store products in manufacturer's unopened packaging until ready for installation.

B. Protect materials from exposure to moisture. Do not deliver until after wet work is complete and dry.

C. Store materials in a dry, warm, ventilated weathertight location.

1.7 PROJECT CONDITIONS

A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.

1.8 COORDINATION

A. Coordinate Work with other operations and installation of floor finish materials to avoid damage to installed materials.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturer: Schluter Systems, L.P., 194 Pleasant Ridge Road, Plattsburgh, NY 12901-5841. ASD. Tel: (800) 472-4588. Fax (800) 477-9783. E-mail:specassist@schluter.com. Web:www.schluter.com.

B. Acceptable Manufacturer: Schluter Systems (Canada) Inc., 21100 Chemin Ste-Marie, Ste-Anne-de-Bellevue, QC H9X 3Y8. Tel: (800) 667-8746. Fax (514) 336-2410. E-mail:specassist@schluter.com. Web:www.schluter.ca.

C. Requests for substitutions will be considered in accordance with provisions of Section 01 60 00.

2.2 EDGE-PROTECTION AND TRANSITION PROFILES FOR FLOORS

A. Schluter-SCHIENE
1. Description: L-shaped profile with 1/8 inch (3.2 mm) wide visible surface integrated trapezoid-perforated anchoring leg, and integrated grout joint spacer.
2. Anchoring Leg:
a. Provide with straight anchoring leg.

2.3 MOVEMENT JOINTS AND COVE-SHAPED PROFILES

A. Schluter-DILEX-BWS – Maximum 25' spacing or less for interior control joints, see plans
1. Description: profile with integrated rigid, recycled PVC, trapezoid-perforated anchoring legs, connected by a 3/16 inch (5 mm) wide soft CPE movement zone that forms the visible surface.

B. Schluter-DILEX-KSA
1. Description: profile with integrated trapezoid-perforated anchoring leg and 3/8 inch (10 mm) wide replaceable thermoplastic rubber movement zone with self-adhesive backing strip, which together form the visible surface.
2. Anchoring Legs Material:

2.4 UNCOUPLING MEMBRANE

A. Schluter-DITRA
1. Description: 1/8 inch (3 mm) thick, orange, high-density polyethylene membrane with a grid structure of 1/2 inch by 1/2 inch (12 mm by 12 mm) square cavities, each cut back in a dovetail configuration, and a polypropylene anchoring fleece laminated to its underside. Conforms to definition for uncoupling membranes in the Tile Council of North America Handbook for Ceramic Tile Installation and is listed by cUPC to meet or exceed the requirements of the "American national standard specifications for load bearing, bonded, waterproof membranes for thin-set ceramic tile and dimension stone installation A118.10 and is listed by cUPC, and is evaluated by ICC-ES (see Report No. ESR-2467).

PART 3 EXECUTION

3.1 EXAMINATION

A. Do not begin installation until substrates have been properly prepared.

B. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.2 PREPARATION

A. Clean surfaces thoroughly prior to installation.

B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

3.3 INSTALLATION

A. Install in accordance with manufacturer's instructions.

3.4 PROTECTION

A. Protect installed products until completion of project.

B. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION 09 30 50

SECTION 09 31 00 - CERAMIC TILE

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

A. Submittals: Product Data and Nominal 12" and 6" square samples of each color & type of tile.

B. Floor Tiles: Static coefficient of friction not less than 0.6, per ASTM C 1028.

PART 2 - PRODUCTS

2.1 CERAMIC TILE

A. Ceramic tile that complies with standard grade requirements of ANSI A137.1, "Specifications for Ceramic Tile."

B. Paver Floor Tile: Porcelain mosaics tile, "Non-Slip" ADA approved finish.

1. Crossville Ceramics (Color Blox Series, Price Group III), American Olean, Florida Tile or architect approved equal.
2. Facial Dimensions: 11-3/4 by 11-3/4 inches.
3. Thickness: 3/8" inch.
4. Color: As selected by Architect or Owner.

C. Glazed Wall Base Tile: Porcelain mosaics tile.

1. Crossville Ceramics (Color Blox Mosaics Series), American Olean, Florida Tile or approved equal.
2. Module Size: 6"x6"
3. Thickness" 1/4" or 3/8"
4. Color: As selected by Architect or Owner.
5. Tiles mounted, by manufacturer's standard method, into sheets and grouted with silicone rubber grout complying with ANSI A118.6.

D. Tile trim units that match characteristics of adjoining flat tile. Bullnose trim and cove base, 6" x 6". Provide all outside bullnose corner pieces as required.

E. Where indicated, protect exposed surfaces of tile against adherence of mortar and grout by factory precoating them with a hot-applied continuous film of petroleum paraffin wax. Do not coat unexposed tile surfaces.

F. Furnish thirty (30) extra tile in a box to Owner at end of the job, of each selected colors.

2.2 INSTALLATION MATERIALS

A. Tile Grouting Materials: Comply with material standards in ANSI's "Specifications for the Installation of Ceramic Tile" that apply to materials and methods indicated.

1. L&M Surco, L&M Acid-R Grout; Upco Hydroment Ceramic Tile Grout; TEC, Joint Filler Floor Grout with Acrylic Grout Additive or approved equal.
2. Grout Color: As selected by Architect or Owner.
3. Sealant for control joints: one part silicone rubber white or natural stone, Dow Corning 708 or approved equal

B. Tile Setting Materials:

1. Bond Coat: Laxtex Portland Cement mortar meeting ANSI-118.4.
2. Portland Cement Mortar: provide portland cement mortar bed which complies with ANSI 108.1. Provide reinforcing wire fabric 2 inches x 2 inches x 16/16 gauge welded wire mesh or equivalent for all portland cement mortar setting beds.

C. Cementitious Backer Units: Complying with ANSI A118.9, of thickness indicated.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Comply with tile installation standards in ANSI's "Specifications for the Installation of Ceramic Tile" that apply to materials and methods indicated.

B. Comply with TCA's "Handbook for Ceramic Tile Installation."

1. Floor Tile Installation Method: F113 (thin-set mortar bonded to concrete)
2. Wall Tile Installation Method: TCA W243 (thin-set mortar bonded to gypsum board)

C. Lay tile in grid pattern, unless otherwise indicated. Align joints where adjoining tiles on floor, base, walls, and trim are the same size.

D. Perform cutting and drilling of tile without marring visible surfaces. Carefully grind cut edges of tile abutting trim, finish, or built-in items for straight aligned joints. Fit tile closely to electrical outlets, piping, fixtures, and other penetrations so plates, collars, or covers overlap tile.

E. Application of tile shall be constructed as acceptance of the surface that the tile is being applied to. Report all unacceptable surfaces.

F. Use all products in strict accordance with manufacture's directions.

G. Align all floor joints to give straight uniform grout lines parallel with walls.

H. Near floor drains, deep floor tile level, dishing slightly near the drains.

I. Provide control joints where floor tile meets wall base at internal corners of base. Rake out joint and fill with sealant. Provide joints where recommended by the Tile Council of America in the Handbook for Ceramic Tile Installation EJ171.

J. Clean tile surface as thoroughly as possible on completion of grouting.

K. Protect finish tile work from construction dirt and traffic.

L. Fit tile carefully against trim, pipes, and electrical boxes.

END OF SECTION 09 31 00

SECTION 09 51 00 - ACOUSTICAL CEILINGS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SCOPE

A. Work under this Section consists of furnishing all labor, materials and equipment necessary for and incidental to the complete and proper furnishing and installation of all acoustical ceilings and suspension systems therefore and related work as shown on the drawings or specified herein, and in accordance with all applicable requirements of the Contract Documents. Work within this section shall be completely coordinated with work of all other trades.

B. Extent of each type of acoustical ceiling is shown or scheduled on drawings.

C. The types of acoustic ceilings specified herein include only exposed grid lay - in ceilings.

D. The material and installation shall conform to the applicable local building code requirements, and all authorities having jurisdiction.

E. Notwithstanding reference to any manufactured or produced item or material in this specification that contains asbestos, materials or items that contain asbestos are not acceptable. In the event that any of the materials or items specified herein contains asbestos, the Architect shall be promptly notified in writing and the Architect will select a suitable substitute material or item which shall be furnished at no additional cost to the Owner.

1.3 QUALITY ASSURANCE

A. Installer: Firm with not less than three years of successful experience in installation of acoustical ceilings similar to requirements for this project and which is acceptable to manufacturer of acoustical units, as shown by current written statement from manufacturer.

B. Provide acoustical materials which have been tested, rated, and labeled by UL for a maximum of 25 for flame spread; 50 for fuel contributed, and 50 for smoke developed as listed in Underwriters Laboratories Building Materials Directory of latest edition.

1.4 CODES, SPECIFICATIONS AND STANDARDS

A. Publications listed below form a part of this specification to extent referenced. Publications are referenced in the text by basic designation only. Any material or operation specified by reference to the published specifications of a manufacturer or other referenced specification or standard shall comply with the requirements of the

latest edition. In case of a conflict between a referenced specification or standard and these project specifications the more stringent requirement shall govern.

B. Comply with the applicable provisions of the following codes, specifications and standards to the extent indicated by reference thereto.

1. American Society of Testing and Materials - ASTM A 641 "Standard Specification for Zinc-Coated (Galvanized) Carbon Steel Wire".

2. American Society of Testing and Materials - ASTM C 635 "Standard Specification for the Manufacture, Performance, and Testing of Metal Suspension Systems for Acoustical Tile and Lay-in Panel Ceilings".

3. American Society of Testing and Materials - ASTM C 636 "Standard Practice for Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-In Panels".

4. American Society of Testing and Materials - ASTM E 1264 "Standard Classification for Acoustical Ceiling Products".

1.5 SUBMITTALS

A. Product Data: Manufacturer's product specifications and installation instructions for each acoustical ceiling material required, and for each suspension system, including certified laboratory test reports and other data as required to show compliance with these specifications. Include manufacturer's recommendations for cleaning and refinishing acoustical units, including precautions against materials and methods which may be detrimental to finishes and acoustical performances.

1.6 JOB CONDITIONS

A. Space Enclosure: Do not install interior acoustical ceilings until space enclosed and weatherproof, and until wet - work in space completed and nominally dry, and until work above ceilings completed, and until ambient conditions of temperature and humidity will be continuously maintained at values near those indicated for final occupancy.

1.7 DELIVERY AND STORAGE

A. Schedule deliveries to avoid delays in the work.

B. Deliver and store materials in their original, unopened containers bearing the manufacturer's label.

C. Store materials off the floor to assure proper protection from water and cover if necessary.

PART 2 - PRODUCTS

2.1 ACOUSTICAL TILE 1; “C - 1.”

A. Shown on the drawings and in the Room Finish Schedules as "C - 1": Lay - in, type 24 inch x 48 inch x 7/8 inch, specifically recommended by manufacturer for high noise reduction, square edge. High NRC range 0.75, CAC 35, Light reflectance over 85 percent per ASTM E 1264, density not less than 15 pounds per cubic foot, color shall be white.

B. Provide one of the following subjects to compliance with the specifications:

1. Armstrong - Fine Fissured High NRC #1755

2. USG Interiors, Inc. - Radar High-NRC Panel #22311

3. CertainTeed Ceilings – Performa Fine Fissured High NRC #HHF-497 HNRC

4. Or Approved Equal

2.2 CEILING SUSPENSION MATERIALS

A. General: Comply with ASTM C 635, as applicable to type of suspension system required for type of ceiling units indicated. Coordinate with other work supported by or penetrating through ceilings, including light fixtures and HVAC equipment. Structural Class: Light - duty system for C - 1.

B. Attachment Devices: Size for 5 times design load indicated in ASTM C 635, Table 1, Direct Hung.

C. Type of System: Either direct - hung or indirect - hung suspension system, at Contractor's option.

D. System Manufacturer: Subject to compliance with specification, provide one of the following exposed tee systems for "ATC - 1":

1. 15/16 inch wide "AL Prelude Plus XL" - Armstrong

2. 15/16 inch wide "Donn - AX 26 and Donn AX 224" - USG Interiors, Inc.

3. Or Approved Equal

E. High Humidity Finishes: Where suspension system supports ceilings indicated as "C - 1" or as "High Humidity" area of project, comply with ASTM C 635 requirements for "Severe Environment Performance": for "High Humidity Test".

F. Hanger Wires: Galvanized carbon steel, ASTM A 641, soft temper, pre - stretched, yield - stress load of at least 3 times design load, but not less than 12 gauge (0.106 inch). Provide soft stainless steel wire hangers for use in wet areas where "ATC - 1" is specified.

G. Carrying Channels: 1-1/2 inch high steel channels, hot - rolled or cold - rolled.

H. Main and Cross Runners: Double web steel, electro - galvanized, with smooth, matte (low gloss) white finish on all exposed surfaces. Provide main runners having abutting

sections which join with splices, interlocking ends, tab locks, pin locks or other suitable connection. Provide cross runners which match and interlock with main runners.

I. Wall Trim Angle: Hemmed edge matte (low gloss) white. Use at all edges and penetrations of ceiling. Provide complete exposed series system as required. Provide with pre - manufactured inside and outside corner accessory pieces.

PART 3 - EXECUTION

3.1 INSPECTION

A. Installer must examine conditions under which acoustical ceiling work is to be performed and must notify Contractor in writing of unsatisfactory conditions. Do not proceed with work until unsatisfactory conditions have been corrected in manner acceptable to Installer.

3.2 PREPARATION

A. Provide all hangers and inserts necessary to support acoustical ceilings, and rough suspension systems. Provide in time to avoid delay in progress of work. Locate and align hangers and inserts correctly. Coordinate location and alignment with work of other trades.

B. Comply with reflected ceiling plans. Measure each ceiling area and establish layout of acoustical units to balance border widths at opposite edges of each ceiling. Avoid use of less - than - half width units at borders wherever possible.

3.3 INSTALLATION OF SUSPENSION SYSTEM

A. Install in accordance with manufacturer's instructions and ASTM C 636 with hangers supported only from building structural members. Locate hangers near each end and spaced 4 feet 0 inches along each carrying channel or direct - hung runner, unless otherwise indicated, leveling to tolerance of 1/8 inch in 12 feet 0 inches.

B. Secure wire hangers by looping and wire - tying, either directly to structures or to inserts, eye - screws, or other devices which are secure and appropriate for substrate, and which will not deteriorate or fail with age or elevated temperatures.

C. Provide rough suspension system and trapezing where necessary to support acoustical ceilings beneath pipes, ducts, equipment, etc. Do not suspend any part of rough suspension system or acoustical ceilings from pipes, ducts, conduit, equipment, etc. Provide structural members sized as required to span ducts, etc. Locate hangers to avoid contact with insulation covering ducts and pipes. Splay hangers only where obstructions or other conditions preclude plumb, vertical installation. Offset horizontal forces of splayed hangers by counters playing, bracing or other approved methods.

D. Space hangers to prevent loads from items in or on ceiling from causing eccentric deflection and rotation exceeding specified limits. Provide additional hangers to support lighting fixtures. Space hangers to fall not more than 6 inches from ends, and 4 feet on center between ends, of main runners. Support main runners directly from

hangers. Do not bear on walls or partitions. Space main runners to support ceiling units and other work resting in or on ceiling. Join abutting sections of main runners with splices, interlocking ends, tab locks, pin locks or other suitable connections to provide alignment as follows:

1. Vertical and horizontal distance between exposed surfaces not more than 0.02 inches

2. Angular displacement of longitudinal axis not visually apparent.

E. Tightly secure supporting members to hangers to prevent vertical displacement and rotation of main runners. Level after installation to a tolerance not more than 1/360 of span with hangers taut, to prevent subsequent downward movement under ceiling loads. Do not bend or kink hangers to level.

F. Support cross runners by either main runners or by cross runners classified as main runners. Interlock ends with supporting members to form 90 degree angles between intersecting runners with a spacing tolerance not more than 1/32 inch between runners, non - cumulative beyond 12 feet.

G. Install edge moldings where ceilings meet walls, partitions, around columns, or other vertical elements and at locations where necessary to conceal edges of acoustical units. Screw - attach moldings to substrate by fastening through holes drilled in web at intervals not over 16 inches on center and not more than 3 inches from ends, leveling with ceiling suspension system to tolerance of 1/8 inch in 12 feet 0 inches. Miter corners accurately and connect securely and install pre - manufactured inside and outside corner pieces. Support runners and border units on moldings.

H. Leave suspension system ready to accept installation of acoustic materials. Clean soiled or discolored surfaces following installation.

3.4 INSTALLATION OF ACOUSTIC PANELS

A. Install into suspension system in accordance with manufacturer's instructions.

B. Perform field cutting as required to fit materials to grid. Make all cuts square and true. Trim square edge tile to form a finished square edge comparable to the factory edge. Paint trimmed edge to match color of tile.

3.5 CLEANING

A. Perform cleaning and replacement of defective units in time to avoid delay in progress of work and before final acceptance of work.

B. Carefully clean all soiled surfaces. Remove and replace all irregular, discolored, defective or damaged components at no additional expense to the Owner.

END OF SECTION 09 51 00

SECTION 09 65 13 - RESILIENT WALL BASE AND ACCESSORIES

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

A. Extra Materials: Deliver to Owner at least 10 linear feet for each 500 linear feet or fraction thereof, of each type and color of resilient wall base installed.

PART 2 - PRODUCTS

2.1 WALL BASE (Shown on Drawings as (B-1 = 4")

A. Manufacturers: Mercer, Roppe Rubber Corp., Johnsonite, or Architect approved equal.

1. Color and Pattern: As selected by Owner.

B. Type: Vinyl, FS SS-W-40, Type II.

C. Style: Cove with top-set toe.

D. Minimum Thickness: 1/8 inch and Height: 4 inches.

E. Lengths: Coils in lengths standard with manufacturer, but not less than 96 feet.

F. Outside Corners: Job formed or premolded.

G. Inside Corners: Job formed or premolded.

H. Surface: Smooth.

2.2 INSTALLATION ACCESSORIES

A. Adhesives: Water-resistant type recommended by manufacturer to suit resilient products and substrate conditions indicated.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Adhesively install resilient wall base and accessories.

B. Install wall base in maximum lengths possible. Apply to walls, columns, pilasters, casework, and other permanent fixtures in rooms or areas where base is required.

1. Job-Formed Corners: Form wall base corners from straight pieces of maximum lengths possible.

END OF SECTION 09 65 13

SECTION 09 68 13 - MODULAR Carpet Tile

PART 1: GENERAL

1.1 SECTION INCLUDES:

A. Manufacturers
B. Testing Protocols
C. Performance Requirements
D. Product Specifications
E. Environmental Requirements
F. Warranties
G. Exclusions
H. Installation
I. Maintenance
J. Accessories

1.2 REFERENCES

American Association of Textile Chemists and Colorists (AATCC):

- AATCC 16 – Test Method for Colorfastness to Light
- AATCC 107 – Test Method for Colorfastness to Water
- AATCC 129 Test Method for Colorfastness to Ozone in the Atmosphere under High Humidity.
- AATCC 134 – Test Method for Electrostatic Propensity of Carpets.
- AATCC 165 –(93) Test Method for Colorfastness to Crocking: Carpets – AATCC Crock Meter Method
- AATCC 175-(98) Test Method for stain Resistance: Pile Floor Coverings

American Society for Testing and Materials (ASTM):

- ASTM D418-(12), Methods for Testing Pile Yarn Floor Covering Construction (Finished Pile Thickness only)
- ASTM E648 – Test Method for Critical Radiant Flux of Floor Covering Systems using a Radiant Heat Energy Source.
- ASTM E662 – Test Method for Specific Optical Density of Smoke Generated by Solid Materials.
- ASTM D3676 – Test Method for Thickness
- ASTM D3676 – Test Method for Compression Resistance
- ASTM D3676 – Test Method for Volume Density.
- ASTM D3676 – Test Method for Compression Set.

- International Standards Organization (ISO):

- ISO 2551 – Test Method for Dimensional Stability (Aachen Test)

- Carpet and Rug Institute (CRI):

- CRI Indoor Air Quality Testing and Labeling Program

- U.S. Department of Housing and Urban Development (HUD):

- HUD UM 44D-(93), HUD Building Product Standards and Certification Program for Carpet.

1.3 PERFORMANCE REQUIREMENTS

Comply with the following performance requirements:

- Radiant Panel: ASTM E648: >.45 watts/sq. cm: Class 1
- Smoke Density: ASTM E662: 450 Flaming Mode - Maximum
- Static Generation: AATCC 134: 3.5 KV - Maximum
- Lightfastness: AATCC 16E: Min 4.0 at 40 hrs.
- Crocking: AATCC 165: 4.0 – Wet/Dry
- Cold Water Bleed: AATCC 107: 3.0 - Minimum
- Ozone Fade: AATCC 129: 3.0 - Minimum
- Soil Protection: AATCC 189: 500 PPM Min.
- CRI Green Label Plus Air Quality Certification: Pass
- CRI Appearance Retention Rating 3.0 minimum – Heavy Traffic
  3.5 minimum – Severe Traffic
- Aachen Test: ISO 2551 Less than .15% shrinkage or growth
- Stain protection: AATCC 175: Equal to or greater than 8.0 on Red 40 stain test.

Comply with the following Construction performance requirements:

- Delamination: Pass 50,000 cycles roll stool test
- Compression Resistance Test: 7.5 lb/sq. in. minimum
- Compression Set: 10% Maximum
- Elongation: 60% Minimum
- Tensile Strength: 50 lb/ sq. in. minimum
- Moisture Barrier-non seam area: Passes British Spill Test

Special Performance Requirements

- Must have Soil and Stain Resist treatment
- Must have minimum 20 dpf fiber
- Must have Trilobal cross-section
- Must have permanent anti-stat yarn.
- Must be type 6 fiber

1.4 SUBMITTALS

- Manufacturer's Data
  Submit two (2) copies of manufacturer's specifications and installation instructions for modular carpet and related items specified.

- Fiber Requirements
  Submit certification from the fiber producer verifying the following:

  - Use of the specified fiber in the submitted carpet product.

- Warranties
  Submit warranties as described in Section 1.13

- Maintenance
  - Maintenance Manual – submit manual of carpet manufacturer's recommendations for the general care, cleaning and maintenance of modular carpet products.

- Certificate of Compliance
  Submit certified test reports that modular carpet meets all the performance requirements stated above in section 1.3 Performance requirements. Submit certified test reports from a NVLAP Certified Lab that carpet meets all performance criteria.

- Shop Drawings
  For carpeted areas submit shop drawings showing installation of carpeting, pattern direction, necessary installation accessories, and provisions for work of other trades. Show location of different patterns or styles of modular carpet. Also show locations of any threshold conditions

  - The contractor will supply reproducible prints on request, to facilitate shop drawing preparation.

- Samples
  Submit standard-size modular carpet samples of each type of carpet, in each specified pattern, color and construction.

  Any alternates to specified products must be submitted for approval by a representative of the end user or architect/design firm at least ten (10) working days prior to bid or proposal.

  - Final Sample Submittal
    Submit two (2) sets of samples for each carpet type.

  - No carpet shipments are permitted until acceptance of final samples is given by representative of the end user or architect/design firm, certifying that samples are the approved color, pattern and texture.

  - Custom Color only
    A representative of the end user or architect/design firm, certifying that the samples are the approved color, pattern and texture, shall sign high quality color samples.

  - Samples submitted are assumed to be the manufacturer's best obtainable match to the color described under Materials Section.

  - Must have federally registered Branded trademark.

1.5 CLOSEOUT SUBMITTALS

- Maintenance Data
  Include maintenance procedures, recommended cleaning and stain removal materials, and recommended cleaning schedule. Include product data and Material Safety data Sheets (MSDS) for cleaning and stain-removal materials.

- Installation Instructions
  Include detailed installation procedures. Include modular installation procedures, adhesive types, trowel sizes, spread rates, open times, and Material Safety data sheets (MSDS) for all modular adhesives.

- Warranties and Performance Certifications
  Submit written warranties for all products as well as Performance testing results on all items included in Warranty section (including all testing results mandated by EverSet warranty on EverSet products) and Performance section of this specification.

1.6 QUALITY ASSURANCE

- Single Source Responsibility: Provide products from a single manufacturer.
  - Warranties must be standard and not job specific.
  - All styles must come from the same manufacturer.
  - Must be single source fiber extrusion and yarn manufacturing.

1.7 QUALIFICATIONS

- Manufacturer
  Company specializing in manufacturing modular tiles with minimum five (5) years (documented) experience.

- Installer/Flooring Contractor Qualifications
  - Carpet contractor must provide all the necessary licenses, performance bonds, and insurance certificates that comply with all local, state, and federal laws, ordinances, or codes prior to the start of the installation.
  - Carpet contractor shall be a firm established not less than five (5) years and, if requested, shall submit evidence of having furnished and installed commercial carpet with vinyl backings on commercial carpet projects of similar size and scope for at least give (5) years.
  - Flooring Contractor to provide references at the request of the owner.
  - Carpet Contractors must also be mill certified for installing products.
  - Carpet Contractor will be responsible for the proper product installation, including floor preparation, in those areas indicated in the Drawings.
  - Carpet Contractor to provide owner a written warranty that guarantees the completed installation to be free from defects in materials and workmanship for a period of two (2) years after job completion.

1.8 PRE-INSTALLATION MEETINGS

- Convene one (1) week prior to commencing work of this section.
- Require attendance of (manufacturer), (installer), (contractor), (owner), (architect) and other parties directly affecting the work of this section.

1.9 DELIVERY, STORAGE AND HANDLING

- Deliver modular carpet in sealed protective boxes and accessories in sealed containers. Segregate each modular product (if several product styles are involved), according to style, color, pattern, dye lot, run number, and quantity.
- Store products in an enclosed and dry area protected from damage and soiling.

1.10 SITE ENVIRONMENTAL REQUIREMENTS

- Do not install modular carpet until all areas have been fully enclosed and the environmental conditions have reached the levels desired for occupancy of the space.
- Maintain ambient temperature and humidity conditions during and after installation of modular carpet at occupancy levels.
- Allow modular carpet to reach room temperature, or minimum temperature recommended by manufacturer prior to the start of the installation.
- Protect adhesives from freezing. Follow manufacturer's recommendations for minimum temperatures to which adhesives are exposed.

1.11 FIELD MEASUREMENTS

- Verify that field measurements are as indicated on drawings.

1.12 SEQUENCING

- Sequence installation so as to minimize possibility of damage and soiling of carpet.
- Do not commence installation until painting and finishing work are complete, and ceiling and overhead work have been tested, approved and completed.
- Remove and replace existing carpet (renovations) in accordance with pre-approved architectural plan.

1.13 WARRANTY

Warranty Performance Requirements

- Warranties must be for Lifetime on all items.
- Lifetime warranties must cover face components and backing components
- Warranties must be non-prorated.
- Carpet manufacturer must warrant both product and adhesive systems.
    - Provide manufacturer's lifetime warranties as outlined below
        - Wear
        - Static
        - Edge Ravel
        - Zippering
        - Dimensional Stability

- Supplemental Fiber Warranty Items:
    - Colorfastness to Light
    - 10 Year Stain Warranty
    - 10 Year - Colorfastness to Atmospheric contaminants.

1.14 EXTRA MATERIALS

- Provide percent overage of calculated yardage for each type of carpet (include carpet needed for complete installation plus waste and usable scraps in calculated yardage) as specified by architect and/or end user. Recycle waste, unusable scrap and any modular carpet damaged during installation through a qualified industry recycling or manufacturer environmental program.

- Deliver specified attic stock requirements to Owner's designated storage space, properly packaged and identified.

PART 2: PRODUCTS

2.1 MANUFACTURERS

- The Mohawk Group, 160 S. Industrial Blvd, Calhoun GA Telephone 800.241.4494 Web Site: www.themohawkgroup.com.
- Contact: Jon Jorgensen Cell: 402.321.3564
- Shaw Industries Group Carpeting with similar modular carpet tile construction.
- Or architect approved equal.

- Substitutions:

    - Substitutions or variations in the backing system composites are not allowed.

    - Substitutions or variations in any part of this specification either in product pattern, color, gauge or fiber are not allowed.

        - Must have choice of at least 10 running line products.

2.2 MODULAR CARPET TILE CONSTRUCTION

- All yarn and other carpet materials shall be manufacturer's first quality.

- Modular backing composite shall be constructed in the following manner:

- Backing Material/Composition
  Primary – Reinforced Synthetic – non woven
  Secondary Backing Layer – Fiberglass Reinforced Thermoplastic Composite

DETAILED PRODUCT CONSTRUCTION SPECIFICATIONS

CARPET 1

Style Name:	Hydrosphere Tile
Product Type:	Tile
Construction:	Tufted
Surface Texture:	Textured Patterned Loop
Gauge:	1/12 (47.00 rows per 10 cm)
Density:	6,428
Weight Density:	128,571
Stitches per Inch:	11.0 (43.31 per 10 cm)
Finished Pile Thickness:	.112" (2.84 mm)
Dye Method:	Solution Dyed
Backing Material:	EcoFlex NXT
Fiber Type:	Duracolor® Premium Nylon
Face Weight:	20.0 Oz. per sq. yd. (678 g/m2)
Size:	24" x 24" (.6096 m x .6096 m)
Soil Release Technology:	Sentry Plus
Installation Method:	Quarter Turn, Monolithic, Brick Ashlar, Vertical Ashlar, Multi Directional
Indoor Air Quality:	Green Label Plus 1171
Foot Traffic Recommendation TARR:	Severe
NSF 140	Gold

All specifications are subject to normal manufacturing tolerances

2.3 ENVIRONMENTAL ATTRIBUTES AND CRITERIA

- Environmental claims by manufacturer must comply with FTC guidelines.
- Low Emitting Materials – Modular Carpet. Carpet must pass the Carpet and Rug Institute Green Label Plus Program for VOC emissions.
- Low Emitting Materials: Modular Carpet and all installation components including adhesives, sealers, seam welds and seam sealers must meet the *Low Emitting Materials* standards as outlined in U.S. Green Building Council LEED criteria. Adhesives must meet VOC emissions standards per South Coast Air Quality Management District Rule #1168.
- Installation adhesives must pass the CRI Green Label plus equivalent protocol for VOC emissions.
- End of Life Reclamation – Carpet manufacturers must have existing program in place to achieve landfill diversion. Refer to Section 3.7 of this section for specific requirements for reclamation of material. ReCover – Carpet recycling program, call toll free 877-373-2925.
- Recycled Content: Carpet must contain 35% Post-consumer recycled content based on total product weight.
- Carpet Face Yarn: In accordance with Executive Order 13101, carpet face yarn must contain minimum 25% pre-consumer Recycled content.
- NSF/ANSI 140 – 2007e Gold Certified

2.4 ACCESSORIES

- Leveling Compound: Latex type as recommended by carpet manufacturer; compatible with carpet adhesive and curling/sealing compound used on concrete.
- Pressure Sensitive Adhesive: Low VOC EnPress® Pressure Sensitive Adhesive modular adhesive, as recommended by carpet manufacturer for direct glue down of modular tiles; comply with CRI Green Label Certification Program.
- Non-Metallic Carpet edge Guard: Extruded or molded heavy-duty vinyl or rubber carpet edge guard of size and profile indicated; minimum two (2) inch wide anchorage flange; colors selected by (Architect) (Designer) from manufacturer's standard range of colors.
- Miscellaneous Materials: As recommended by manufacturer of carpet, cushion, and other carpet products; as required to complete installation.

PART 3 EXECUTION

3.1 EXAMINATION

- Examine substrates for conditions under which modular carpet tiles are to be installed.
- Verify that floor surfaces are smooth and flat within tolerances specified in Section 3.2 and are ready to receive work.
- Beginning of installation means installer accepts existing substrate conditions.

3.2 PREPARATION

- Allow new concrete to cure for 90 days before carpet installation starts.
- Asbestos abatement will be done by others will occur prior to this construction work begins. Hall County Facilities Director will coordinate all asbestos abatement and this is not part of this contract.
- Perform moisture content testing as required by manufacturer's instructions to ensure pH readings of no more than nine (9). Moisture transmission of 3.0-lbs/sq. ft. per 24 hours is acceptable. If values exceed this level, follow manufacturer's recommendations for moisture transmission mitigation. Do not proceed until unsatisfactory conditions have been corrected.
- Remove sub-floor ridges and bumps. Fill minor or local low spots, cracks, joints, holes and other defects with sub-floor filler.
- Fill, level and make smooth cracks 1/16 inch or more, holes, unevenness, and roughness with compatible latex floor patching compounds. Feather floor filling or leveling compound a minimum of four (4) ft. Sweep floor of loose granular debris prior to filling. After filling, allow filler to dry. Damp mop floor with warm water and allow to dry. Vacuum after mopping to ensure that loose granular debris is removed and to provide a proper substrate to install modular carpet. Prohibit traffic until filler is cured.
- Vacuum floor again immediately before installation of carpeting.
- Confirm compatibility of EnPress® PSA Pressure Sensitive Adhesive with curing compounds on concrete floors.

- Preheat areas to receive modular carpet to a minimum temperature of 68° F for 72 hours prior to installation, with a relative humidity of not more than 65 percent. Maintain minimum temperature of 50° F thereafter. Modular carpet and adhesive must be stored at a minimum temperature of 68° F, for 72 hours prior to installation.

- Store EnPress® PSA Pressure Sensitive Adhesive and other liquid materials in same atmospheric conditions as carpet, 68° F for at least 72 hours.

3.3 INSTALLATION

- Install modular carpet in accordance with the Technical Bulletins provided by the manufacturer. These technical bulletins will offer the proper instructions to install modular carpet including: (1) conducting site testing and conditioning, (2) floor preparation, (3) installation of the modular carpet, including modular carpet layout (if more than one pattern or color) and approved adhesives, systems, etc. As a supplement, the CRI 104, section 8 will supply additional installation support guidance for your installation.

- Install modular carpet under open-bottom obstructions and under removable flanges and furnishings, and into alcoves and closets in each space.

- Conceal cut edges with protective edge guards or flanges.

- Install modular carpet under open-bottom items and cut tiles tight against walls, columns, and cabinets so that the entire floor area is covered with modular carpet. Cover over floor-type door closers.

- Install edging guards at openings and doors wherever modular carpet terminates, unless indicated otherwise.

- Perform cutting in accordance with manufacturer's recommendation using tools designed for modular carpet being installed. Verify modular carpet patterns and colors before cutting to insure minimal variation between dye lots.

- Install modular carpet according to manufacturer's instructions. Depending on the product specification, install either monolithically, quarter turned, Ashlar, or random. Installation requirements will be spelled out in the architectural drawings for the recommended method to be employed.

- Use leveling compound where necessary. Feather floor leveling compounds minimum of 4 ft.

- Trim modular carpet neatly at walls, and around interruptions

- Complete installation of edge strips, concealing exposed edges.

- Cut modular carpet at fixtures, architectural elements, and perimeters.

- Install carpet on stairs using acceptable permanent adhesive. Furnish and use compatible edge strip and nosing products as required.

3.4 FIELD QUALITY CONTROL

- Inspect completed modular carpet installation on each floor
- Verify that installation is complete; work is properly done and acceptable
- Remove and replace, at no additional cost to owner, any work found not to be acceptable.

3.5 CLEANING

- On completion of installation in each area, remove dirt and scraps from surface of finished modular carpet. Clean soiling, spots, or excess adhesive on carpet with cleaning materials recommended by carpet manufacturer.
- Remove debris; sort pieces from carpet scraps
- At completion of work, vacuum carpet using commercial vacuuming equipment as recommended by manufacturer. Remove spots and replace modular carpet where spots cannot be removed. Remove rejected modular carpet pieces and replace with new modules. Remove any protruding yarns with shears or sharp scissors.

3.6 PROTECTION

- Do not permit traffic over unprotected carpet surface.
- Protect modular carpet against damage during construction. Cover with 6-mil thick polyethylene during construction period so that carpet will be without soiling, deterioration, wear, or damage at time of completion.
- Prior to furniture move in, heavy traffic areas will be protected with additional Masonite sheets to protect the carpet from damage
- Damaged modular carpet will be rejected. As modular carpet is installed, remove trimmings, scraps of carpet and installation materials.
- Maintain protection of carpeting on each floor or area until work is accepted.

END OF SECTION 09 68 13

SECTION 09 91 00 - PAINTING

PART 1. - GENERAL

1.1 SECTION REQUIREMENTS

A. Summary: Paint all exposed surfaces unless otherwise indicated.

1. Paint the back side of access panels.
2. Paint exterior metal guardrail at truck dock.
3. Paint interior metal guardrail at water entrance.
4. Paint all interior gypsum board walls.
5. Paint all exposed interior osb / plywood panels.
6. Do not paint pre-finished items, finished metal surfaces, operating parts, labels, and materials obviously intended to be left exposed such as metal wall panels and tile.
7. Unless otherwise indicated do not paint concealed surfaces.

B. Obtain primers, and undercoat materials for each coating system from the same manufacturer as the finish coats.

C. Extra Materials: Deliver to Owner a 1-gal. (3.8-L) container, properly labeled, and sealed, of each color and type of finish coat paint used on Project.

PART 2. - PRODUCTS

1.2 PAINT

A. Approved manufacturer's follows: Iowa Paint, Pratt and Lambert, Sophir Morris, Diamond Vogel, Pittsburgh Paint Co., Olympic Stain, Glidden Company, Sherwin Williams, Min Wax, or approved equal.

1. Colors: As selected by Architect and Owner.

B. Material Quality: Manufacturer's best-quality of coating types specified.

C. Material Compatibility: Complete system of compatible components that is recommended by manufacturer for application indicated.

PART 3. - EXECUTION

1.3 APPLICATION

A. Comply with paint manufacturer's written instructions for surface preparation, environmental and substrate conditions, product mixing, and application.

1.4 EXTERIOR PAINT APPLICATION SCHEDULE (**As Per Job Applicable**)

A. Smooth Wood: As follows:

1. Flat Acrylic: Two coats over primer.
2. Semigloss , Acrylic Enamel: Two coats over primer.
3. Full-Gloss, Alkyd Enamel: Two coats over primer.

B. Wood Trim: As follows:

1. Medium-Shade, Semigloss , Acrylic Enamel: Two coats over primer.
2. Medium-Shade, Full-Gloss, Alkyd Enamel: Two coats over primer.
3. Deep-Color, Full-Gloss, Alkyd Enamel: Two coats over primer.
4. Deep-Color, Full-Gloss, Acrylic Enamel: Two coats over primer.

C. Plywood: As follows:

1. Flat Acrylic: Two coats over primer.

D. Ferrous Metal: As follows:

1. Flat, Alkyd Enamel: Two coats over rust-inhibitive primer.
2. Low-Luster Acrylic: Two coats over rust-inhibitive primer.
3. Semigloss , Acrylic Enamel: Two coats over rust-inhibitive primer.
4. Full-Gloss, Alkyd Enamel: Two coats over rust-inhibitive primer.
5. Deep-Color, Full-Gloss, Alkyd Enamel: Two coats over rust-inhibitive primer.

E. Zinc-Coated Metal: As follows:

1. Low-Luster Acrylic: Two coats over galvanized metal primer.
2. Semigloss , Acrylic Enamel: Two coats over galvanized metal primer.
3. Full-Gloss, Alkyd Enamel: Two coats over galvanized metal primer.

F. Aluminum: As follows:

1. Semigloss , Acrylic Enamel: Two coats over primer.
2. Full-Gloss, Alkyd Enamel: Two coats over primer.

1.5 INTERIOR PAINT APPLICATION SCHEDULE (As Per Job Applicable)

A. Concrete and Masonry: As follows:

1. Flat Acrylic: Two coats over primer.
2. Odorless, Flat Alkyd: Two coats over primer.
3. Semigloss , Acrylic Enamel: Two coats over primer.
4. Semigloss, Alkyd Enamel: Two coats over primer.

B. Gypsum Board: As follows:

1. Flat Acrylic: Two coats over primer.
2. Semigloss , Acrylic Enamel: Two coats over primer.
3. Semigloss , Alkyd Enamel: Two coats over primer.

C. Woodwork, Wood Doors, OSB Panels and Hardboard: As follows:

1. Semigloss , Acrylic Enamel: Two coats over primer.
2. Semigloss , Acrylic Enamel: Two coats over wood undercoater.
3. Semigloss, Alkyd Enamel: Two coats over primer.
4. Full-Gloss, Alkyd Enamel: Two coats over wood undercoater.

D. Ferrous Metal: As follows:

1. Flat Acrylic: Two coats over primer.
2. Low-Luster, Acrylic Enamel: Two coats over primer.
3. Semigloss, Acrylic Enamel: One coat over undercoater and primer.
4. Semigloss, Alkyd Enamel: One coat over undercoater and primer.
5. Full-Gloss, Acrylic Enamel: Two coats over primer.
6. Full-Gloss, Alkyd Enamel: Two coats over undercoater and primer.

E. Zinc-Coated Metal: As follows:

1. Flat Acrylic: Two coats over primer.
2. Semigloss , Acrylic Enamel: Two coats over primer.
3. Semigloss , Alkyd Enamel: One coat over undercoater and primer.

END OF SECTION 09 91 00

SECTION 10 44 00 - FIRE PROTECTION SPECIALTIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SCOPE

A. Work under this Section consists of providing all labor, materials, tools and equipment necessary for and incidental to the complete and proper provision and installation of all fire protection accessories as shown on drawings or specified herein in accordance with all applicable requirements of the Contract Documents and completely coordinated with work of all other trades.

B. "Fire extinguishers" in this section refers to units which can be portable hand - carried as opposed to those which are equipped with wheels or to fixed fire extinguishing systems, unless otherwise indicated.

C. Type of products in this section include:

1. Fire extinguishers.
2. Fire Extinguisher Cabinets.

1.3 RELATED WORK

A. Fixed fire protection systems are specified elsewhere in Division 21.

1.4 CODES, SPECIFICATIONS, AND STANDARDS

A. Publications listed below form a part of this specification to extent referenced. Publications are referenced in the text by basic designation only. Any material or operation specified by reference to the published specifications of a manufacturer or other referenced specification or standard shall comply with the requirements of the latest edition. In case of a conflict between a referenced specification or standard and these project specifications the more stringent requirement shall govern.

B. Comply with the applicable provisions of the following codes, specifications and standards to the extent indicated by reference thereto.

1. American Society of Testing and Materials - ASTM E 84 “Standard Test Method for Surface Burning Characteristics of Building Materials”.

2. International Code Council - ICC IFC “International Fire Code”.

3. National Fire Protection Association - NFPA 1 “Fire Code”.

4. National Fire Protection Association - NFPA 10 "Standard for Portable Fire Extinguishers".

5. National Fire Protection Association - NFPA 101 "Life Safety Code".

6. American National Standards Institute / Underwriters Laboratories - ANSI / UL 154 "Carbon - Dioxide Fire Extinguishers".

7. American National Standards Institute / Underwriters Laboratories - ANSI / UL 2129 "Halocarbon Clean Agent Fire Extinguishers".

8. American National Standards Institute / Underwriters Laboratories - ANSI / UL 299 "Dry Chemical Fire Extinguishers".

9. American National Standards Institute / Underwriters Laboratories - ANSI / UL 626 "Water Fire Extinguishers".

10. American National Standards Institute / Underwriters Laboratories - ANSI / UL 8 "Water - Based Agent Fire Extinguishers".

1.5 QUALITY ASSURANCE

A. Provide portable fire extinguishers and accessories by one manufacturer, unless otherwise acceptable to Owner's Representative. Fire Extinguishers shall comply with the following regulatory agencies:

1. UL Listed Products: Provide new portable fire extinguishers which are UL listed and bear UL "Listing Mark" for type rating, and classification of extinguisher indicated.

2. FM Listed Products: Provide new portable fire extinguishers which are approved by Factory Mutual Research Corporation for type, rating, and classification of extinguisher indicated and carry appropriate FM marking.

1.6 SUBMITTALS

A. Product Data: Submit manufacturer's technical data, installation instructions, and warranty data for all portable fire extinguishers required.

1.7 DELIVERY, HANDLING, AND STORAGE

A. Protect materials from weather, soil, and damage during delivery, storage, and construction. Deliver materials in their original packages, containers, or bundles showing the brand name and the name and type of the material.

1.8 WARRANTY

A. Fire extinguishers specified shall carry, at minimum, a one year warranty from date of substantial completion as defined by the Contract Documents against defects in materials and workmanship.

B. Fire extinguisher cabinets specified shall carry, at minimum, a one year warranty from date of substantial completion as defined by the Contract Documents against defects in materials and workmanship.

PART 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

FIRE EXTINGUISHER CABINETS

A. Fire Protection Cabinets: Enameled steel, semi-recessed (new walls) mounted cabinets for fire extinguisher.

1. Manufacturers: J.L Industries "Ambassador", Larsen's "Architectural Series".
2. Trim Style: Rolled trim.
3. Door and Trim Material: Enameled steel.
4. Door Glazing: Acrylic.
5. Door Style: Vertical duo.
6. Accessories: Mounting brackets, Break glass strike and Identification lettering.

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

1. J.L. Industries, Elkhart, and General or Architect approved equal.

2. Larsen's Mfg. Co.

3. Nystrom.

4. Potter Roemer.

2.2 FIRE EXTINGUISHERS

A. Provide (2) two fire extinguishers at each location indicated on drawings, which comply with requirements of governing authorities.

1. Multi - Purpose Dry Chemical Type (4A-80BC): UL rated 4 - A:80 - B:C, in nominal capacity specified in schedule, in enameled steel container, for Class A, Class B and Class C fires.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install units in accordance with manufacturers instructions at locations indicated on the drawings. Install so top of extinguisher cabinet is not over 54 inches above finish floor.

B. Securely fasten mounting brackets to structure, square and plumb.

3.2 IDENTIFICATION

A. Identify bracket - mounted extinguishers with red letter decals spelling "FIRE EXTINGUISHER" applied to wall or cabinet surface. Letter size, style and location as selected by Owner's Representative.

END OF SECTION 10 44 00

SECTION 31 31 16 - TERMITE CONTROL

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

A. Submittals: Product Data and product certificates signed by manufacturer certifying that products used comply with U.S. EPA regulations for termiticides. Include application instructions and EPA-Registered Label.

B. Engage a licensed professional pest control operator to apply termite control solution.

PART 2 - PRODUCTS

2.1 TERMITICIDES

A. Provide an EPA-registered termiticide complying with requirements of authorities having jurisdiction, in a soluable or emulsible, concentrated formulation that dilutes with water or foaming agent. Use only soil treatment solutions that are not harmful to plants. Provide quantity required for application at the label volume and rate for the maximum termiticide concentration allowed for each specific use, according to the product's EPA-Registered Label.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Prepare surfaces and apply treatment at rates and concentrations recommended in manufacturer's written instructions.

B. Apply termite control to the following:

1. At foundations.

2. Under concrete floor slabs on grade.

3. At expansion and control joints and slab penetrations.

C. Post warning signs in areas of application.

D. Reapply soil termiticide treatment solution to areas disturbed by subsequent excavation or other construction activities following application.

END OF SECTION 31 31 16