

PROJECT MANUAL

FLOOR SLAB REPAIR AND RENOVATION WORK
CHARLES REED ELEMENTARY SCHOOL
PLAINFIELD, ILLINOIS

FOR

PLAINFIELD COMMUNITY CONSOLIDATED
SCHOOL DISTRICT 202
PLAINFIELD, WILL COUNTY, ILLINOIS

PROJECT NO. 10-1822-82



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Architect: Healy Bender Patton & Been Architects

We hereby certify that these Drawings and Specifications dated January 24, 2023 for the construction of the Floor Slab Repair and Renovation Work, Charles Reed Elementary School located at 2110 Clublands Pkwy, Plainfield, IL 60586 for Plainfield Community Consolidated School District 202, in Plainfield, Will County, Illinois were prepared under our supervision and to the best of our knowledge comply with 2015 International Building Code and 23 Illinois Administrative Code 180 as prepared and provided by the State Board of Education.

The Drawings consist of drawings as listed in the Drawings Index on the Healy Bender Patton & Been Architects drawing Title Sheet T-1.

The Specifications consist of specification sections as listed in the Healy Bender Patton & Been Architects Project Manual Table of Contents.

HEALY BENDER PATTON & BEEN ARCHITECTS

By: David G. Patton, AIA, NCARB, LEED AP BD+C

License Number: 001-011421
License Expires: November 30, 2024

Signature: 



Professional Design Firm - Architect Corporation
Healy Bender Patton & Been Architects
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License Number: 184-000385
Expiration Date: April 30, 2023

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Section 07 92 00 – Joint Sealants

PART 1 - GENERAL

1.01 DESCRIPTION

- A. Provide labor, materials, equipment and incidentals required for the completion of the work shown on the drawings and/or specified in this section.

1.02 PERFORMANCE REQUIREMENTS

- A. Provide and install elastomeric joint sealants that establish and maintain watertight and airtight continuous joint seals without staining or deteriorating joint substrates.
- B. Provide and install joint sealants for interior applications that establish and maintain airtight and water-resistant continuous joint seals without staining or deteriorating joint substrates.

1.03 SUBMITTALS

- A. Product Data indicating specific location(s) where submitted material(s) is to be installed.
- B. Color Samples consisting of strips of cured sealants showing the full range of colors available for each product exposed to view and indicating specific location(s) where submitted material(s) is to be installed.
- C. Warranty

1.04 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to Project site in original unopened containers or bundles with labels indicating manufacturer, product name and designation, color, expiration date, pot life, curing time, and mixing instructions for multicomponent materials.
- B. Store and handle materials in compliance with manufacturer's written instructions to prevent their deterioration or damage due to moisture, high or low temperatures, contaminants, or other causes.

1.05 PROJECT CONDITIONS

- A. Environmental Limitations: Do not proceed with installation of joint sealants under the following conditions:
 - 1. When ambient and substrate temperature conditions are outside limits permitted by joint sealant manufacturer.
 - 2. When joint substrates are wet.
- B. Joint-Width Conditions: Do not proceed with installation of joint sealants where joint widths are less than those allowed by joint sealant manufacturer for applications indicated.
- C. Joint-Substrate Conditions: Do not proceed with installation of joint sealants until contaminants capable of interfering with adhesion are removed from joint substrates.

1.06 WARRANTY

- A. Installer's Warranty: Submit written warranty, signed by Installer agreeing to repair or replace work that does not comply with performance and other requirements specified herein within Two (2) years from Substantial Completion date.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Perimeter caulking, interior, along hard surface finish flooring or floor slabs at metal door and sidelight frames, steel columns, other metal and wood terminations/joints, etc. shall be clear acrylic siliconized building sealant:
 - 1. Pecora, AC-20 + Silicone
 - 2. GE, SCS7000
 - 3. Tremco, Tremflex 834

2.02 JOINT SEALANT BACKING

- A. Provide sealant backings of material and type which are non-staining; are compatible with joint substrates, sealants, primers and other joint fillers; and are approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.
- B. Backer Rod: ASTM C 1330, of type indicated below and of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance:
 - 1. Type C: Closed-cell material with a surface skin, unless open cell is indicated or recommended by sealant manufacturer.
 - 2. Type O: Open-cell material.
 - 3. Type B: Bicellular material with a surface skin.
- C. Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant manufacturer for preventing sealant from adhering to rigid, inflexible joint filler materials or joint surfaces at back of joint where such adhesion would result in sealant failure. Provide self-adhesive tape where applicable.

2.03 MISCELLANEOUS MATERIALS

- A. Primer: Material recommended by joint sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint-sealant-substrate tests and field tests.
- B. Cleaners for Nonporous Surfaces: Chemical cleaners acceptable to manufacturers of sealants and sealant backing materials, free of oily residues or other substances capable of staining or harming joint substrates and adjacent nonporous surfaces in any way and formulated to promote optimum adhesion of sealants with joint substrates.
- C. Masking Tape: Nonstaining, nonabsorbent material compatible with joint sealants and surfaces adjacent to joints.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Examine joints indicated to receive joint sealants, with Installer present, for compliance with requirements for joint configuration, installation tolerances, and other conditions affecting joint-sealant performance.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 PREPARATION

- A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with joint sealant manufacturer's written instructions and the following requirements:
 - 1. Remove foreign material from joint substrates that could interfere with adhesion of joint sealant, including dust, paints (except for permanent, protective coatings tested and approved for sealant adhesion and compatibility by sealant manufacturer), old joint sealants, oil, grease, waterproofing, water repellents, water, surface dirt, and frost.
 - 2. Clean porous joint substrate surfaces by brushing, grinding, blast cleaning, mechanical abrading, or a combination of these methods to produce a clean, sound substrate capable of developing optimum bond with joint sealants. Remove loose particles remaining from above cleaning operations by vacuuming or blowing out joints with oil-free compressed air. Porous joint surfaces include the following:
 - a. Concrete.
 - b. Masonry.
 - c. Unglazed surfaces of ceramic tile.
 - 3. Remove laitance and form-release agents from concrete.
 - 4. Clean nonporous surfaces with chemical cleaners or other means that do not stain, harm substrates, or leave residues capable of interfering with adhesion of joint sealants.
 - a. Metal.
 - b. Glass.
 - c. Glazed surfaces of ceramic tile.
- B. Joint Priming: Prime joint substrates where recommended in writing by joint sealant manufacturer, based on preconstruction joint-sealant-substrate tests or prior experience. Apply primer to comply with joint sealant manufacturer's written instructions. Confine primers to areas of joint-sealant bond; do not allow spillage or migration onto adjoining surfaces.
- C. Masking Tape: Use masking tape where required to prevent contact of sealant with adjoining surfaces that otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.

3.03 INSTALLATION

- A. General: Comply with joint sealant manufacturer's written installation instructions for products and applications indicated, unless more stringent requirements apply.

- B. Sealant Installation Standard: Comply with recommendations of ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.
- C. Install sealant backings of type indicated to support sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.
 - 1. Do not leave gaps between ends of sealant backings.
 - 2. Do not stretch, twist, puncture, or tear sealant backings.
 - 3. Remove absorbent sealant backings that have become wet before sealant application and replace them with dry materials.
- D. Install bond-breaker tape behind sealants where sealant backings are not used between sealants and back of joints.
- E. Install sealants by proven techniques to comply with the following and at the same time backings are installed:
 - 1. Place sealants so they directly contact and fully wet joint substrates.
 - 2. Completely fill recesses provided for each joint configuration.
 - 3. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.
- F. Tooling of Nonsag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants according to requirements specified below to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint.
 - 1. Remove excess sealants from surfaces adjacent to joint.
 - 2. Use tooling agents that are approved in writing by sealant manufacturer and that do not discolor sealants or adjacent surfaces.
 - 3. Provide concave joint configuration per Figure 5A in ASTM C 1193, unless otherwise indicated.
- G. Use masking tape to protect adjacent surfaces of recessed tooled joints.

3.04 CLEANING

- A. Clean off excess sealants or sealant smears adjacent to joints as the Work progresses by methods and with cleaning materials approved in writing by manufacturers of joint sealants and of products in which joints occur.

3.05 PROTECTION

- A. Protect joint sealants during and after curing period from contact with contaminating substances and from damage resulting from construction operations or other causes so sealants are without deterioration or damage. If, despite such protection, damage or deterioration occurs, cut out and remove damaged or deteriorated joint sealants immediately so installations with repaired areas are indistinguishable from the original work.

END 07 92 00

DIVISION 8 - OPENINGS

Section 08 11 13 - Hollow Metal Doors & Frames

PART 1 - GENERAL

1.01 DESCRIPTION

- A. Provide labor, materials, equipment, and incidentals required for the completion of the work shown on the drawings and/or specified in this section.

1.02 REFERENCES

- A. ANSI – American Nations Standards Institute / SDI - Steel Door Institute
 1. ANSI A250.4 Test Procedure and Acceptance and Acceptance Criteria for Physical Endurance for Steel Doors and Hardware Reinforcing.
 2. ANSI A250.8/SDI 100 – Recommended Specifications for Standard Steel Doors and Frames
 3. ANSI/SDI 250.11 Recommended Erection Instructions for Steel Frames
- B. NFPA – National Fire Protection Association
 1. NFPA 80 Standard for Fire Doors and Other Opening Protectives
 2. NFPA 105 Standard for Installation of Smoke Door Assemblies
- C. UL – Underwriters Laboratories
 1. UL 10C Standard for Safety for Positive Pressure Fire Tests of Door Assemblies
 2. UL 1784 Air Leakage Tests of Door Assemblies

1.03 SUBMITTALS

- A. Product Data.
- B. Shop Drawings indicating the following:
 1. Elevations and dimensions of each door and frame design.
 2. Details of doors including vertical and horizontal edge details.
 3. Frame details for each frame type including dimensioned profiles.
 4. Details and locations of reinforcement and preparations for hardware.
 5. Details of each different wall opening condition.
 6. Details of anchorages, accessories, joints, and connections.
 7. Coordination of glazing frames and stops with glass and glazing requirements.
- C. Door Schedule: Use same reference designations indicated on Drawings in preparing schedule for doors and frames.

1.04 QUALITY ASSURANCE

- A. Source Limitations: Obtain hollow metal doors and frames through one source from a single manufacturer wherever possible.

- B. Minimum Thickness: Minimum thickness of base metal without coatings according to SDI 250.8.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Deliver doors and frames cardboard-wrapped or crated to provide protection during transit and job storage. Provide additional protection to prevent damage to finish of factory primed doors and frames.
- B. Inspect doors and frames on delivery for damage and notify shipper and supplier if damage is found. Minor damages may be repaired provided refinished items match new work and are acceptable to Architect. Remove and replace damaged items that cannot be repaired as directed.
- C. Store doors and frames at building site under cover. Place units on minimum 4 inch high wood blocking. Avoid using non-vented plastic or canvas shelters that could create a humidity chamber. If door packaging becomes wet, remove cartons immediately. Provide minimum 1/4 inch spaces between stacked doors to permit air circulation.

PART 2 - PRODUCTS

2.01 INTERIOR METAL DOORS

- A. Manufacturers: Subject to requirements below:
 - 1. Steelcraft: L Series
 - 2. Ceco Door: Regent or Legion Series
 - 3. Republic Doors and Frames: DL Series
 - 4. Security Metal Products Corp.: w/ Honeycomb or Polystyrene Core
 - 5. Curries: 707 Series
- B. Level/Model: Provide Doors complying with requirements indicated below by referencing ANSI/SDI A250.8 for level and model and ANSI/SDI A250.4 for physical performance level, except as modified below:
 - 1. Level 3 and Physical Performance Level B (Extra Heavy Duty), minimum 0.053 inch (16 gage) thick steel, Model 2 (Either continuously welded seam dressed smooth or intermittently welded seam, edge filled with epoxy, dressed smooth.
 - 2. Face Sheets: Face sheets fabricated from commercial quality cold rolled steel that complies with ASTM A1008
 - 3. Design: Flush Panel.
 - 4. Thickness: 1-3/4 inch.
 - 5. Core Construction: Kraft-paper Honeycomb or Solid Polystyrene Core
 - a. Kraft-paper Honeycomb: resin impregnated honeycomb core completely filling the inside of door and laminated to inside face of both panels.
 - b. Polystyrene: 1 pound density polystyrene core completely filling the inside of door and laminated to inside face of both panels.

6. Top and Bottom Edges: Reinforce tops and bottoms of doors with continuous steel channel not less than 0.053 inch (16 gage), extending full width of door and welded to the face sheet
- C. Hardware Reinforcements: Provide and fabricate according to ANSI/SDI A250.6.
 1. Continuous Hinge Reinforcement: In addition, at continuous hinges provide a 0.067 inch(14 gage) continuous channel.
- D. Vision Lites: Flush mounted trim lite kit. Mitered corners. Stops applied to secure side.

2.02 FIRE RATED DOORS

- A. Manufacturers: Subject to requirements below:
 1. Steelcraft: L, B, or T Series
 2. Ceco Door: Regent, Legion, Medallion, or 450° Medallion Series
 3. Republic Doors and Frames: DE or DL Series
 4. Security Metal Products Corp.: w/ Honeycomb or Polystyrene, or w/ Steel Stiffened Core
 5. Curries: 707, 727 or 747 Series
- B. In addition to the requirements for Interior Doors listed above Fire Rated Doors shall conform to the following:
 1. Testing: Fire Door assemblies shall conform to the requirements of UL10C Positive Pressure Fire Tests of Door Assemblies.
 2. Rating Label: Label from third party certification agency, showing the hourly rating of the door shall be permanently attached in a visible location. Labels may be metal or mylar. testing agency to be:
 - a. Underwriters Laboratories
 - b. Warnock-Hersey International, Inc.
 3. Rated doors scheduled for protection plates must be approved application of scheduled protection plates.
- C. Vision Lites: Manufacturer's standard flush mounted trim lite kit for rated doors. Mitered corners. Stops applied to secure side. Coordinate thickness with required fire rated glazing.

2.03 STILE & RAIL DOORS

- A. Manufacturers: Subject to requirements below:
 1. Steelcraft: A16 Series
 2. Ceco Door: Similar to 1 above.
 3. Republic Doors and Frames: Similar to 1 above.
 4. Security Metal Products Corp.: Similar to 1 above.
 5. Curries: Similar to 1 above.

- B. Level/Model: Provide Doors complying with requirements indicated below by referencing ANSI/SDI A250.8 for level and model and ANSI/SDI for physical performance level, except as modified below:
 - 1. Level 3 and Physical Performance Level B (Extra Heavy Duty), minimum 0.053 inch (16 gage) thick steel, Model 3 Stile and Rail.
 - 2. Thickness: 1-3/4 inch.
- C. Construction:
 - 1. Vertical Stiles: tubular shape, full height of door with no visible seams. Rails are internally welded or permanently mechanically joined to stiles forming a neat seam on the face.
 - 2. Top and Bottom rails: tubular with inverted 0.067 inch (14 gage) welded channel.
 - 3. Intermediate rail: Similar to top and bottom rail.
- D. Hardware Reinforcements: Provide and fabricate according to ANSI/SDI A250.6.
 - 1. Continuous Hinge Reinforcement: In addition, at continuous hinges provide a 0.067 inch (14 gage) continuous channel.
- E. Vision Lites: Screwless aluminum glazing beads.

2.04 DOOR FRAMES AND BORROW LITES

- A. Manufacturers: Subject to requirements below:
 - 1. Steelcraft: F Series
 - 2. Ceco Door: SU Series
 - 3. Republic Doors and Frames: Standard
 - 4. Security Metal Products Corp.: Standard
 - 5. Curries: M Series
- B. Level/Model: Provide Frames complying with requirements indicated below by referencing ANSI/SDI A250.8 for level and ANSI/SDI A250.4 for physical performance level, except as modified below:
 - 1. Level 3 and Physical Performance Level B (Extra Heavy Duty), minimum 0.053 inch (16 gage) thick steel
 - 2. Fire Rated frames shall conform to the requirements of UL10C Positive Pressure Fire Tests of Door Assemblies.
 - a. Rating Label: Label from third party certification agency shall be permanently attached in a visible location. Labels may be metal or mylar. Testing agency to be:
 - 1. Underwriters Laboratories
 - 2. Warnock-Hersey International, Inc.
- C. Hollow Metal Panels
 - 1. Provide hollow metal panels of same materials, construction and finish as specified for adjoining hollow metal work.

2. Fire Rated panels shall be 1/2 inch laminated panels with mineral board core or per manufacturer's standard to meet required fire rating.
- D. Frame Reinforcement and Accessories
1. Hardware Reinforcements: Provides and fabricate according to ANSI/SDI A250.6.
 - a. Provide adequate reinforcements for other hardware as required.
 - b. Include galvanized hardware reinforcements in galvanealed frames
 2. Grout Guards: Weld guards to frame at back of hardware mortises in frames to be grouted.
 3. Provide polystyrene blocking at bottom of frame to prevent grout infill in lower 12" of frame.
 4. Door Silencers: Except on weather-stripped frames, drill stops to receive door silencers.
 5. Provide full height 3/8" to 1-1/2" thick strip of polystyrene foam blocking at non-labeled frames requiring grouting where continuous hinges are specified. Apply the strip to the back of the frame, where the hinge is to be installed, to facilitate field drilling or tapping.
 6. Stops and Moldings: Provide stops and moldings around glazed lites, panels, and louvers where indicated. Form corners of stops and moldings with butted hairline joints.
 - a. Provide fixed and removable stops and moldings so that each glazed lite is capable of being removed independently.
 - b. Provide fixed frame moldings on outside of exterior and on secure side of interior doors and frames.
 - c. Coordinate rabbet width between fixed and removable stops with glazing and installation types indicated.
 7. Frame Anchors
 - a. Jamb Anchors: – Provide a minimum of three anchors per jamb. Frames over 7 foot 6 inches shall be provided with an additional anchor
 1. Masonry Type: Adjustable strap-and-stirrup or T-shaped anchors to suit frame size, not less than 0.042 (18 gage) thick, with corrugated or perforated straps not less than 2 inches wide by 10 inches long; or wire anchors not less than 0.177 inch (#7) thick.
 2. Stud-Wall Type: Designed to engage stud, welded to back of frames; not less than 0.042 inch (18 gage) thick.
 3. Postinstalled Expansion Type for In-Place Concrete or Masonry: Minimum 3/8 inch diameter bolts with expansion shields or inserts. Provide pipe spacer from frame to wall,

with throat reinforcement plate, welded to frame at each anchor location.

- b. Floor Anchors: Formed from same material as frames, minimum thickness of 0.042 inch (18 gage), and as follows:
 - 1. Clip-type anchors, with two holes to receive fasteners.
 - 2. Adjustable-type anchors with extension clips, allowing not less than 2-inch height adjustment. Terminate bottom of frames at finish floor surface.
 - 3. Where wall or floor conditions do not allow for use of floor anchors an additional jamb anchor shall be acceptable.

E. Fabrication

- 1. Flush Frames: Set-up and welded with temporary shipping bars. Factory die-mitered corner connections reinforced with four integral tabs to secure and interlock at jambs to head. Unless otherwise indicated, frames will have 2" faces and 5/8" stops. Face dimensions and width of frames as indicated on the drawings.
- 2. Frames are to be assembled so that the face miter seam is "closed and tight." Weld the face seam and the full web of the frame corner or intersection. Grind and dress smooth the weld area. For frames, finish with a matching prime paint.
- 3. When shipping limitations so dictate, frames for large openings shall be fabricated in sections designed for splicing or splining in the field. Joints in the field shall be as above.

2.05 FINISHES

- A. Prime Finish: Doors and frames to be cleaned, and chemically treated to insure maximum finish paint adhesion. Surfaces to receive manufacturer's standard, factory-applied coat of rust-inhibiting primer complying with ANSI A250.10 for acceptance criteria.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Examine substrate, areas, and conditions for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
- B. Contractor to verify accuracy of dimensions given to the steel door and frame manufacturer for existing openings or existing frames.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 INSTALLATION

- A. Hollow Metal Frames: Install hollow-metal frames of size and profile indicated. Comply with SDI A250.11.
 - 1. Prior to installation, frames must be checked for rack, twist, and out of square conditions. Set frames accurately in position; plumbed, aligned, and braced securely until permanent anchors are set. After wall

construction is complete and walls are properly set and secured, remove temporary braces, leaving surfaces smooth and undamaged.

- a. Install fire rated doors and frames in accordance with NFPA-80.
 - b. Install smoke and draft control doors in accordance with NFPA 105.
2. Floor Anchors: Provide floor anchors for each jamb and mullion that extends to floor, and secure with postinstalled expansion anchors.
 3. Grouting Frames: Frames in masonry shall be grouted solid. Frames to receive grouting shall comply with ANSI/SDI A250.8. Mortar is not acceptable substitute for grout.
 - a. Install silencers and polystyrene blocks in frame before grouting.
 - b. Grout will be mixed to provide a 4" maximum slump consistency and hand troweled into place.
 - c. Do not use grout mixed to a thinner, pumpable consistency; this practice is not recommended and not permissible.
 - d. Grout must not contain any gypsum bearing components.
 - e. Only grout jambs attached to walls. Heads are not to be grouted. Horizontal and vertical mullions are not to be grouted.
 - f. Provide wood spreaders as required to maintain proper width and avoid bowing or deforming of frame members.

B. Installation of Hollow Metal Doors

1. Fit hollow metal doors accurately in frames, with in clearances specified below. Shim as necessary.

3.03 INSTALLATION TOLERANCES

A. Doors and Frames shall be installed to tolerances specified in ANSI/SDI A250.11, NFPA 80 and as below:

1. Frames
 - a. Squareness: Plus or minus 1/16 inch, measured at door rabbet on line 90 degrees from jam perpendicular to frame head.
 - b. Alignment: Plus or minus 1/16 inch, measured at jambs on a horizontal line parallel to plane of wall.
 - c. Twist: Plus or minus 1/16 inch, measured at opposite face corners of jambs on parallel lines, and perpendicular to plane of wall.
 - d. Plumbness: Plus or minus 1/16 inch, measured at jambs at floor.
2. Doors
 - a. Measured on pull face of the door.
 - b. Between Door and Frame Jambs and Head: 1/8 inch plus or minus 1/16 inch
 - c. Between Edges of Pairs of Doors: 1/8 inch plus or minus 1/16 inch.

- d. Between Bottom of Door and Top of Threshold: Maximum 3/8 inch.
- e. Between Bottom of Door and Top of Finish Floor (No Threshold) Maximum 3/4 inch.
- f. Between Door Face and Stop: Maximum 1/8 inch.

3.04 ADJUSTING AND CLEANING:

- A. Remove grout and other bonding material from hollow metal work immediately after installation.
- B. Prime Coat and Painted Finish Touch-Up: Immediately after erection, sand smooth rusted or damaged areas of prime coat or painted finishes, and apply touch-up of compatible air-drying, rust inhibitive primer or paint
- C. Final Adjustments: Check and re-adjust operating doors and hardware items immediately prior to final inspection. Leave work in complete and proper operating condition.
 - 1. Remove and replace defective work, including doors or frames that are damaged, bowed or otherwise unacceptable.
 - 2. Remove grout and other bonding material from hollow metal work.
- D. Label Verification – Verify that fire rated doors and frames have required labels in a visible location and that these labels have not been painted over.
 - 1. If labels are missing or have been painted over Contractor shall be responsible for having doors and frames inspected and relabeled by a qualified relabeling agency at no additional cost to the Owner.

3.05 PROTECTION

- A. Provide protective measures required throughout the construction period to ensure that door and frame units will be without damage or deterioration, other than normal weathering, at time of acceptance.
 - 1. Protect from construction activities and associated materials that could have detrimental effects to the door and frame material and finish.

END 08 11 13

DIVISION 8 - OPENINGS
Section 08 14 16 - Wood Doors

PART 1 - GENERAL

1.01 DESCRIPTION

- A. Provide labor, materials, equipment and incidentals required for the completion of the work shown on the drawings and/or specified in this section.

1.02 REFERENCES

- A. ANSI – American National Standards Institute
 - 1. ANSI A208.1 Particleboard
- B. AWI – Architectural Woodwork Institute
 - 1. Architectural Woodwork Standards
- C. WDMA- Window and Door Manufacturers Association
 - 1. I. S. 1A Industry Standard for Architectural Wood Flush Doors
- D. NFPA – National Fire Protection Association
 - 1. NFPA 80 Standard for Fire Doors and Other Opening Protectives
 - 2. NFPA 105 Standard for the Installation of Smoke Door Assemblies
- E. UL – Underwriters Laboratories
 - 1. UL 10C Positive Pressure Fire Tests of Door Assemblies
 - 2. UL 1784 Air Leakage Tests of Door Assemblies

1.03 SUBMITTALS

- A. Product Data – For each type of door. Include details of core and edge construction, and trim for openings. Include factory finishing specifications.
- B. Shop Drawings and Schedule – Indicate location, size, and hand if each door; elevation of each kind of door; construction details not covered in Product Data; and the following”
 - 1. Dimensions and locations of blocking
 - 2. Fire protection ratings for fire rated doors
- C. Finish Samples on specified wood.
- D. Warranty

1.04 QUALITY ASSURANCE

- A. Comply with requirements of referenced standards and manufacturer's written instructions.
- B. Doors shall be the product of the same manufacturer to ensure uniformity of quality and appearance throughout the project.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Package factory finished wood veneer doors individually in plastic bags or cardboard cartons.
 - 1. Doors with condensation forming on plastic wrap are not acceptable and will be rejected
- B. Package raw (unfinished) wood veneer doors with factory standard paper or cardboard slip sheets between each individual door leaf.
- C. Store doors in a space having controlled temperature and humidity. Stack doors flat and off the floor, supported to prevent warpage. Protect doors from damage and direct exposure to sunlight.
- D. Mark each door on the top rail with the opening number, door handling, and door construction, including face veneer type used on Shop Drawings. Do not apply any information to the bottom rail.

1.06 FIELD CONDITIONS

- A. Environmental Limitations: Do not deliver or install doors until spaces are enclosed and weather tight, wet work in spaces is complete and dry, and HVAC system is operating and maintaining ambient temperature and humidity conditions at occupancy levels during remainder of construction period.
- B. Environmental Limitations: Do not deliver or install doors until spaces are enclosed and weather tight, wet work in spaces is complete and dry, and HVAC system is operating and maintaining temperature between 60 and 90 deg F (16 and 32 deg C) and relative humidity between 25 and 55 percent during remainder of construction period.

1.07 WARRANTY

- A. Manufacturer agrees to replace doors that fail in materials or workmanship with specified warranty period.
 - 1. Failures include, but are not limited to, the following:
 - a. Delamination in any degree
 - b. Warping (bow, cup, or twist) more than 1/4 inch in a 42-by-84-inch section.
 - c. Telegraphing of core construction in face veneers exceeding 0.01 inch in a 3-inch span.
 - 2. Hardware fastener withdraw
- B. Warranty shall also include installation and finishing that may be required due to repair or replacement of defective doors.
- C. Warranty Period for Solid Core Interior Doors: Life of Installation

PART 2 - PRODUCTS

2.01 MANUFACTURERS

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

1. Marshfield – Algoma by Masonite Architectural
2. VT Industries, Inc.
3. Oskosh Architectural Door Co.
4. Graham Wood Doors

2.02 DOOR CONSTRUCTION, GENERAL

- A. WDMA I.S.1-A Performance Grade: Extra Heavy Duty; Aesthetic Grade: Premium
 1. Doors must meet specified WDMA performance duty level, including face screw holding requirement. Surface applied hardware shall be installed with screws; through-bolts are not acceptable unless required by hardware manufacturer for UL Listed Fire Rated Hardware.
- B. Low-Emitting Materials: Fabricate doors with adhesives and composite wood products that do not contain urea formaldehyde.

2.03 PARTICLEBOARD-CORE DOORS:

- A. Particleboard: ANSI A208.1, Grade LD-2, made with binder containing no urea-formaldehyde resin.
- B. Edge Construction: One-inch minimum, continuous solid hardwood or structural composite lumber (SCL) in accordance with WDMA TM-15 Vertical Edge Impact Test Method
- C. Blocking: Provide wood or composite blocking in particleboard-core doors as needed to eliminate through-bolting hardware and fastener withdraw.
 1. Coordinate with scheduled hardware. Provide blocking as indicated below:
 - a. 5-inch rail for closers and overhead stops
 - b. 5-inch bottom rail blocking for protection plates
 - c. 5-inch midrail for exit devices
 - d. 5-inch x 14-inch block for mortise locks
 - e. Two 5-inch x 14 in corners for flush bolts or vertical rods
 2. If blocking is not provided, manufacturer must certify that fasteners will not withdraw. Through bolting is not an acceptable substitute for blocking.

2.04 VENEERED-FACED DOORS FOR TRANSPARENT FINISH

- A. Interior Solid-Core Doors:
 1. Grade: Premium, with Grade AA faces.
 2. Species: Match existing
 3. Cut: Match existing
 4. Match between Veneer Leaves: Slip match.
 5. Assembly of Veneer Leaves on Door Faces: Running match.

6. Pair and Set Match: Provide for doors hung in same opening or separated only by mullions.
7. Room Match: Match door faces within each separate room or area of building. Corridor door faces do not need to match when they are separated by 20 feet or more.
8. Transom Match: Continuous Match
9. Exposed Vertical Edges: Same species as veneer face.
 - a. Bottom rail of transom panel shall extend full width and be same specie as face
10. Construction: Five or seven plies. Stiles and rails are bonded to core, then entire unit is abrasive planned before veneering.

2.05 LITE FRAMES

- A. Wood-Veneered Beads for Lite Openings: Manufacturer's standard wood-veneered beads matching veneer species of door faces. Beads to be flush with veneer surface.

2.06 FABRICATION

- A. Factory fit doors to suit frame-opening sizes indicated. Comply with clearance requirements of referenced quality standard for fitting unless otherwise indicated.
- B. Factory machine doors for hardware that is not surface applied. Locate hardware to comply with DHI-WDHS-3. Comply with final hardware schedules, door frame shop drawings, BHMA 156.115-W, and hardware templates.
 1. Coordinate with hardware mortises in metal frames to verify dimensions and alignment before factory machining.
- C. Transom and Side Panels: Fabricate matching panels with same construction, exposed surfaces, and finish as specified for associated doors. Finish bottom edges of transoms and top edges of rabbeted doors same as door stiles.
 1. Fabricate door and transom panels with full-width, solid-lumber meeting rails.
- D. Openings: Factory cut and trim openings through doors
 1. Light Openings: Trim openings with moldings of material and profile indicated above.

2.07 FACTORY FINISHING

- A. General: Comply with referenced quality standard for factory finishing. Complete fabrication, including fitting doors for openings and machining for hardware that is not surface applied, before finishing.
 1. Finish faces, all four edges, edges of cutouts, and mortises. Stains and fillers may be omitted on top and bottom edges, edges of cutouts, and mortises.
 - a. Bottom edge of transom panels to match face
- B. Factory finish doors.

- C. Transparent Finish:
 - 1. Grade: Premium
 - 2. Finish: WDMA TR-6 catalyzed polyurethane.
 - 3. Staining: As selected by Architect from manufacturer's full range to match existing.
 - 4. Effect: Semifilled finish, produced by applying an additional finish coat to partially fill the wood pores
 - 5. Sheen: Satin

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Examine doors and installed door frames before hanging doors.
 - 1. Verify that frames comply with indicated requirements for type, size, location, and swing characteristics and have been installed with level heads and plumb jambs.
 - 2. Reject doors with defects.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 INSTALLATION

- A. Installation Instructions: Install doors to comply with manufacturer's written instructions and the referenced quality standard, and as indicated.
- B. Job Fitted Doors: Align and fit doors in frames with uniform clearances and bevels; do not trim stiles and rails in excess of limits set by manufacturer or permitted for fire-rated doors. Machine doors for hardware. Seal edges of doors, edges of cutouts, and mortises after fitting and machining.
 - 1. Clearances: Provide 1/8 inch at heads, jambs, and between pairs of doors. Provide 5/8 inch from bottom of door to top of decorative floor finish or covering unless otherwise indicated. Where threshold is shown or scheduled, provide 1/4 inch from bottom of door to top of threshold unless otherwise indicated.
 - a. Coordinate undercut with hardware requirements for bottom rail latches.
- C. Factory-Finished Doors: Restore finish before installation if fitting or machining is required at Project site, or if door is damaged.
- D. Hardware: Install with full threaded wood screws furnished by the hardware manufacturer. Drill proper size pilot holes for screws. Securely anchor hardware in correct position and alignment.
- E. Coordinate installation of glass and glazing.

3.03 ADJUSTING

- A. Operation: Correct any deficiency that prohibits doors from swinging or operating freely. Do not remove hinge screws after initial insertion. Shims used for

alignment purposes must be inserted between hinge and frame. Do not insert shims between hinge and door.

- B. To prevent stile failure, ensure that door closers are properly adjusted and do not limit the door opening swing. Limit door opening swing only with a properly located stop.
- C. Finished Doors: Replace doors that are damaged or that do not comply with requirements. Doors may be repaired or refinished if Work complies with requirements and shows no evidence of repair or refinishing.

END 08 14 16

DIVISION 8 - DOORS & WINDOWS
Section 08 71 00 - Finish Hardware

PART 1 - GENERAL

1.01 DESCRIPTION

- A. Provide labor, materials, equipment and incidentals required for the completion of the work shown on the drawings and/or specified in this section. Coordinate and provide the labor required for existing hardware indicated to be removed and reinstalled.

1.02 SUBMITTALS

- A. Itemized Cost Accounting – for adjustment of hardware contingency allowance.

1.03 CONTINGENCY ALLOWANCE

- A. The Contractor shall include a contingency allowance of \$10,000.00 for the cost of miscellaneous door adjustments and repairs including finish hardware components, adjustment of existing components, etc. found to be needed. Cost includes material and labor.
- B. Approval of finished hardware subject to allowance above shall be based upon a review of an itemized cost summary for comparison against the allowance and acceptance of any adjustments to the hardware allowance.

PART 2 - PRODUCTS

2.01 FINISH HARDWARE

- A. Existing hardware to remain.

PART 3 - EXECUTION

3.01 ADJUSTING, CLEANING, AND DEMONSTRATING

- A. Adjust and check each operation item of hardware and each door within the area of work to ensure proper operation or function of every unit after the slab stabilization and leveling work is completed.
- B. Clean hardware and adjacent surfaces soiled or damaged.

END 08 71 00

DIVISION 8 - OPENINGS
Section 08 80 00 - Glazing

PART 1 - GENERAL

1.01 DESCRIPTION

- A. Provide labor, materials, equipment and incidentals required for the completion of work shown on the drawings and/or specified.

1.02 SUBMITTALS

- A. Product data.
- B. Glazing schedule indicating glazing types and locations

1.03 PERFORMANCE

- A. Glazing Requirements: Conform to Consumer Products Safety Commission Part 1201 - Safety Standard for Architectural Glazing Materials.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Interior Tempered Glass: At interior doors and frames and as indicated, clear 1/4" thick shall be:
 - 1. Guardian
 - 2. PPG
 - 3. Pilkington
 - 4. Trulite

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Glass shall be new. Each light shall bear manufacturer's label or be delivered in labeled boxes. Labels must remain on until the glass has been set reviewed and approved by the Architect. When glass is not cut to size by manufacturer and is furnished unlabeled from local stock, the Contractor shall submit an affidavit stating the quality, type, thickness and manufacturer of glass furnished.
- B. Do not set glass until rabbets are prime painted and dry. Glass shall be supported with spring clips or setting blocks. Glazing shall be set in sealants or gaskets. Sealants or gaskets shall engage both sides of glazing.
 - 1. Where glazing sealant is used, back putty and neatly strike flush with stops.
 - 2. Where dry gasketing is used, gaskets shall not extend above the stops.
- C. Sizes for glass shall be taken from the actual frames and sash. This work contemplates glass set in place and the Contractor shall assume responsibility in regard to correct sizes. Sizes, if shown on drawings, are approximate, and shall be used for estimating only.
- D. Glass shall be set by skilled workmen in the best possible manner and in such a way that there will be an equal bearing the entire width of each panel. Glass

shall be accurately sized to fit the frame and edges shall be smooth, no sharp or ragged edges being left. Contractor shall be held responsible for broken glass due to improper setting. Glazing beads or stops shall be properly reset without marring or injuring the finish.

3.02 CLEANING AND PROTECTION

- A. Protect exterior glass from damage immediately after installation by attaching crossed streamers to framing held away from glass. Do not apply markers to glass surface. Remove nonpermanent labels and clean surfaces.
- B. Protect glass from contact with contaminating substances resulting from construction operations. If, despite such protection, contaminating substances do come into contact with glass, remove substances immediately as recommended in writing by glass manufacturer.
- C. Examine glass surfaces adjacent to or below exterior concrete and other masonry surfaces at frequent intervals during construction, but not less than once a month, for buildup of dirt, scum, alkaline deposits, or stains; remove as recommended in writing by glass manufacturer.
- D. Glass provided by the Contractor that is broken, chipped, cracked, or abraded or that is damaged from natural causes, accidents, and vandalism before Substantial Completion shall be replaced by the Contractor without additional cost to Owner.

END 08 80 00

DIVISION 9 – FINISHES

Section 09 05 61 – Moisture Vapor Control System

PART 1 - GENERAL

1.01 DESCRIPTION

- A. Provide labor, materials, equipment and incidentals required for the completion of the work shown on the drawings and/or specified in this section.
- B. Work includes Moisture Vapor Emission (MVE) Control System to prepare surface of concrete to receive moisture sensitive adhesives and floor coverings. MVE Control System will protect finish flooring from moisture and pH Alkalinity.
 - 1. Exterior rated, no moisture limit, trowel grade mortars to repair concrete prior to application of MVE Control coating.
 - 2. Static and dynamic concrete crack repair materials.
 - 3. Fluid-applied, resin-based, membrane-forming coating to control the moisture vapor emission rate (MVER) of interior slab on grade.
 - 4. Bond promoting primer for non-absorbent substrate to receive cementitious underlayments.
 - 5. Self-leveling floor underlayment.

1.02 REFERENCES

- A. ASTM F 1869 - Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride.
- B. ASTM F 2170 - Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using in situ Probes.
- C. ASTM 1907 – Standard Practices for Determining the Moisture-Related Acceptability of Concrete Floors to Receive Moisture- Sensitive Finishes
- D. ASTM E 96 - Standard Test Method for Water Vapor Transmission of Materials
- E. ASTM 4541B – Pull-Off Strength of Coatings
- F. ASTM C109 – Standard Test Method for the Compressive Strength of Hydraulic Cement Mortars.
- G. ASTM C1708 – Standard Test Method for Self-Leveling Mortars Containing Hydraulic Cement
- H. ASTM F2873 – Standard Practice for the Installation of Self-Leveling Underlayment and the Preparation of Surface to Receive Resilient Flooring.
- I. ASTM D5125 - Standard Test Method for Viscosity of Paints and Related Materials by ISO Flow Cups.
- J. ASTM E1155 – Standard Test Method for Determining FF (Floor Flatness) and FL (Floor Levelness)
- K. ASTM F3010 – Standard practice for Two-Component Resin Based Membrane-Forming Moisture Mitigation System for use Under Resilient Floor Covering
- L. ACI 503.1R, ASTM C1583 – Bond Strength or Tensile Strength of Concrete Repair and Overlay Materials by Direct Tension (Pull-off Method)

- M. ASTM D7234 – Standard Test Method for Pull-Off Adhesion Strength of Coatings on Concrete Using Portable Pull-Off Adhesion Tester.
- N. ASTM C1583/ACI 503.1R - Standard Test Method for Tensile Strength of Concrete Surfaces and the Bond Strength or Tensile Strength of Concrete Repair and Overlay Materials by Direct Tension (Pull-off Method)
- O. ASTM 710 – Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring
- P. ICRI (International Concrete Repair Institute) Guide 310.2R- Selecting and Specifying Concrete Surface Preparation for Sealers, Coatings, Polymer Overlays and Concrete Repair
- Q. RFCI - Recommended Work Practices for Removal of Resilient Floor Coverings, Resilient Floor Covering Institute
- R. ACI 504 R-90 – Guide to Sealing Joints in Concrete Structures
- S. ACI 302.1 – Guide for Concrete Floor Slab Construction
- T. ACI 302.2 – Guide for Concrete Slabs that Receive Moisture- Sensitive Flooring Materials.
- U. ASTM D1308 – Chemical Resistance of Finishes
- V. United States Green Building Council (USGBC) LEED certification or other sustainability certification.
- W. South Coast Air Quality Management District (SCAQMD) 1168
- X. ASTM C856 Standard Practice for Petrographic Examination of Hardened Concrete

1.03 DEFINITIONS

- A. MVE: Moisture Vapor Emission
- B. MVER: Moisture Vapor Emission Rate (measured in lbs/1000 sf / 24 hours)
- C. RH: Relative Humidity (measured in percentage)
- D. VOC: Volatile Organic Compound (measured in g/L)
- E. CSP: Concrete Surface Profile defined by ICRI

1.04 SUBMITTALS

- A. 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.
- B. Shop Drawings: Details of construction and relationship with adjacent construction. Indicate location of building movement joints.
- C. Pre-Installation Moisture Vapor Test Reports
- D. Field Quality Control Reports including Moisture Vapor Tests and Bond Strength Pull Tests on coatings and repair mortars.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Store products in manufacturer's unopened original packaging until ready for installation. Record product codes and batch numbers and shelf life.
- B. Store products in a dry area with temperature maintained between 50 deg F and 85 deg F and protect from direct sunlight.
- C. Store and dispose of solvent-based materials, and materials used with solvent-based materials, in accordance with requirements of local authorities having jurisdiction.

1.06 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Minimum 5 years manufacturing concrete resurfacing and rehabilitation products. Employs factory trained personnel who are available for product knowledge training.
- B. Installer Qualifications: Minimum 5 years installing moisture vapor emission control systems.
- 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 mockup is approved by Architect.
 - 3. Refinish mock-up area as required to produce acceptable work.
 - 4. Mockup will be basis for quality control evaluation on remainder of Work.

1.07 FIELD CONDITIONS

- A. Environmental Limitations: Comply with MVE control systems manufacturer's written instructions for substrate and ambient temperature, but not less than 50 deg F and not more than 90 deg F at least 48 hours before use.
- B. Maintain ambient air temperature and relative humidity in installation areas within range recommended in writing by MVE control systems manufacturer, but not less than 50 deg F or more than 90 deg F and not less than 40 or more than 60 percent air relative humidity for 48 hours before, during installation, and for 48 hours after installation, unless longer period is recommended in writing by manufacturer.
- C. Install MVE control systems where concrete surface temperature will remain a minimum of 5 deg F higher than the dew point for ambient temperature and relative humidity conditions in installation areas for 48 hours before installation, during installation, and for 48 hours after installation unless longer period is recommended in writing by manufacturer.

1.08 PRE-INSTALLATION CONFERENCE

- A. Discuss Contract Document Requirements, moisture tests, manufacturer recommendations, installer's recommendations, scheduling, and protection of work from damage by other trades.
- B. Attendance required by: Contractor, Floor Installer, Manufacturer's Representative, Independent testing agency, Concrete Subcontractor, Ready Mix

supplier.

- C. Objective of conference is:
 - 1. Review methods and procedures
 - 2. Tour job site representative areas to inspect and discuss condition of substrate
 - 3. Review concrete finishing requirements
 - 4. Review and finalize construction schedule
 - 5. Review required inspections, testing, certifications, material usage procedures
 - 6. Review environmental restrictions and forecasts
 - 7. Record content of conference including attendance and topics.
- D. Contractor shall furnish record of pre-installation conference to all parties who are affected by MVE control systems work.

PART 2 - PRODUCTS

- A. MANUFACTURER
- B. Approved:
 - 1. MAPEI Americas U.S.A., 1144 E. Newport Center Rd., Deerfield Beach, FL 33442; www.mapei.us

2.02 MVE SYSTEM

- A. Components of MVE Control System from single source manufacturer. Do not mix products from different manufacturers. Subject to compliance with requirements, provide the following:
 - 1. Concrete Repair Mortar: Minimum compressive strength after 24 hours > 2700 psi and after 28 days > 4000psi when tested in accordance with ASTM C109 / C109M. Repair mortar to be exterior rated with no moisture limitations for use to repair concrete prior to application of MVE control system.
 - a. MAPEI Mapecem® Quickpatch with Planicrete® UA additive.
 - 2. Crack Repair Resin for static non-moving joints:
 - a. MAPEI Epojet™ LV or MAPEI Planibond® EBA. Thickening with sand is acceptable.
 - 3. Crack Repair for dynamic movement joints:
 - a. MAPEI Mapeflex™ P1 SL one-Component, Self-Leveling Elastomeric Polyurethane Sealant
 - 4. MVE Control Epoxy Coating component of the MVE Control System: ASTM F3010 qualified, fluid-applied, two component, 100% solids epoxy resin, low viscosity, penetrating, one-coat membrane forming system; formulated for application on concrete substrates to reduce MVER to level required for installation of floor covering indicated, including adhesives.
 - a. MAPEI Planiseal® MB.

1. Performance for MVER ASTM F1869: up to 25 lbs per 1000 square feet per 24 hours.
 2. Performance for Relative Humidity ASTM F2170: up to 100% RH
 3. VOC Content SCAQMD Rule No 1113: < 50 g/L
 4. Viscosity: < 250 cps
 5. Pull Off / Bond Strength / Concrete Adhesion ASTM D7234: > 1000 psi at 28 days with failure in concrete substrate
 6. Permeability ASTM E96: < 0.1 perm at > 10 mil Dry Film Thickness
 7. Reduction of Moisture Vapor Transmission ASTM E96: > 96% at 8 mil DFT
 8. Alkali Resistance ASTM D1308: No affect up to pH 14 at 14 days
 9. Relative Humidity Resistance ASTM 2170: Resists up to 100% RH.
5. Bond Promoting Primer over non-absorbent MVE Control Epoxy Coating to receive up to 3/8 inch thickness of Self-Leveling Underlayment:
 - a. MAPEI Primer T™
 6. Bond Promoting Primer over non-absorbent MVE Control Epoxy Coating to receive over 3/8 inch thickness of Self-Leveling Underlayment:
 - a. MAPEI Primer E™ with sand broadcast.
 7. Self-Leveling Underlayment to be shrinkage compensated to smooth and flatten floors while creating a blotter layer. Blotter layer, an absorptive layer required for water-based floor covering adhesives used to install finish floors. Minimum compressive strength after 24 hours > 2000 psi, and after 28 days > 4100 psi when tested in accordance with ASTM C109 / C109M.
 - a. MAPEI Ultraplan® 1 Plus.
 8. Final skim coat as needed prior to installing floor finish:
 - a. MAPEI Planiprep™ SC.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Examine substrates and conditions for compliance with requirements for maximum moisture RH content ASTM F2170, and/or MVE ASTM F1869 per the floor covering manufacturer.
- B. Verify slab has not been contaminated.
- C. Perform water bead test and photographically record contact angle of water bead meniscus to the floor to ensure concrete is hydrophilic.

- D. Record alkalinity testing per ASTM F710.
- E. Record ambient air RH, dew point and temperature.
- F. Record slab temperature.
- G. Concrete substrates must be structurally sound, solid, and meet industry standards as defined in ACI Committee 201 Report "Guide to Durable Concrete".
- H. Proceed with installation only after unsatisfactory conditions have been corrected. Installation of moisture control system indicates acceptance of surfaces and conditions.

3.02 PREPARATION TESTING

- A. Pre-installation Testing by independent Testing Agency: Engage a qualified testing agency to perform tests. Testing performed by an ICRI Concrete Moisture Testing Technician – Grade 1.
- B. Alkalinity Testing: Perform pH testing according to ASTM F710. Install MVE control system in areas where pH readings are less than 7.0 and in areas where pH readings are greater than 9.0.
- C. Moisture testing: Conform to ICRI test standards for three tests in the first 1000 sq ft and one test per 1000 sq ft after that. Perform no fewer than three tests in each installation area and with tests evenly spaced in installation to best represent the widest range of conditions.
 - 1. Perform Internal Relative Humidity Testing: ASTM D2170. Install MVE Control System in locations indicated and where concrete substrate RH exceeds limits required by flooring product manufacturer.
- D. Bond Testing: Install minimum 100 sq ft test area of complete assembly of MVE Control System bonded to prepared concrete substrate. Proceed with installation if tensile bond strength on MVE Control System is greater than 200 psi in heavy commercial traffic and 150 psi for normal foot traffic when tested in accordance with ASTM C1583.

3.03 SURFACE PREPARATION

- A. Clean and prepare concrete substrate according to MVE control system manufacturer's written instructions to ensure adhesion of systems to concrete.
- B. Mechanically remove coatings and other substances that are incompatible with MVE control systems and that contain soap, wax, oil, or silicone, using mechanical methods recommended in writing by MVE control systems Manufacturer. Do not use solvents. Do not acid etch. Mechanically remove troweled CSP 1 finish. Concrete surface must be mechanically profiled using dustless, engineer-approved methods to obtain a CSP of #2 to #3.
 - 1. Achieve ICRI 310.2R Minimum CSP 3 by shot blasting using apparatus that abrades the concrete surface with shot, contains the dispensed shot within the apparatus and recirculates the shot by vacuum pickup. Shot-blast with spherical steel shot SAE size range 230 – 300 as necessary to produce the required profile. Remove all residual shot with a magnet. Use a handheld grinder to CSP 2 only in areas that cannot be reached with bead blasting.

2. Achieve ICRI 310.2R Minimum CSP 2 by diamond grinding that abrades the concrete surface. Remove all dust by vacuuming with high-efficiency particulate arrestance (HEPA) filter.
- C. Excessively weak, soft, dusty, cracked, or uneven surfaces may not be suitable substrates and may require additional concrete removal techniques such as scarification and then patching prior to application of the MVE Control System.
- D. Asbestos abated slabs may have hydrophobic organic compounds in the capillaries of the concrete which will be a bond break for coatings. Microscopic petrographic examination according to ASTM C856 to evaluate the concrete condition, potential deleterious substances and suitability for shot-blasting and coating adhesion.
- E. Reinforcing fibers that become visible after shot blasting must be removed and vacuumed leaving no fibers exposed above the concrete surfaces.
- F. Do not install MVE Control System if substrate testing reveals unacceptable conditions.
- G. Ensure that all old adhesives, contaminants, curing compounds, oils, silicates, dust and other bond breakers are completely removed.
- H. Remove dust and debris by broom sweeping and then vacuuming with high-efficiency particulate arrestance (HEPA) filter. Do not use sweeping compound as they contain oils and wax that would contaminate the concrete surface and inhibit bond of MVE Control System.
- I. After shot blasting, repair damaged and deteriorated concrete according to MVE control system manufacturer's written instructions.
- J. Prior to application of MVE Control Epoxy Coating, fill substrate surface depressions, ruts, spalls and other irregularities with exterior grade patch: MAPEI Mapecem® Quickpatch with Planicrete® UA additive.
- K. Do not skimcoat entire concrete slab prior to application of epoxy MVE control system.
- L. Allow concrete to off-gas after bead blasting for a minimum of 24 hours but no more than 48 hours to avoid contamination by other trades. Failure to wait may result in the epoxy coatings ability to perform as a MVE control due to pin-holing, blisters and fish-eyes.

3.04 CRACK PREPARATION

- A. Consult with an experienced engineer to determine the appropriate substrate repair procedures and joint treatment methods. Engineer to address contraction as well as potential expansion, movement and isolation joints. Cracks or de-bonding in the MVE control system that results from substrate movement are not required to be warranted.
- B. Record location of cracks, both static and dynamic, on shop drawings.
- C. Do not apply MVE control system across substrate expansion, isolation, and other dynamic moving joints.
- D. Mechanically prepare non-moving control and construction joints with a diamond crack-chasing/concrete-cutting blade. Overcut joint width to obtain a sound, clean

edge. Clean cracks or joints with oil-free compressed air and dustless high-efficiency particulate arrestance (HEPA) filter vacuum to completely remove contaminants (follow ACI RAP Bulletin 2, "Crack Repair by Gravity Feed with Resin").

- E. Pre-filling static thin random drying shrinkage cracks (less than 0.01 inch (0.25 mm) width and not vertically displaced) is not required. Apply MAPEI Planiseal® MS normally over areas of thin shrinkage cracked concrete.
- F. Fill static cracks (narrower than 1/8 inch (3 mm) and not vertically displaced) with MVE Crack Repair Resin. Prefill cracks with 20 to 30 sieve size clean washed kiln dried sand and apply Epojet™ LV.
- G. Fill static cracks (wider than 1/8 inch (3 mm) and not vertically displaced) with high-modulus epoxy MAPEI's Planibond® EBA; thickened with sand to create an epoxy mortar.
- H. Should contraction, control or saw-cut joint dormant joints appear not filled flush to top of surface after installation of MVE Crack Repair Resin, fill static non-moving joints with high-modulus MAPEI Planibond® EBA epoxy. Fill joints full-depth and flush to surface.
- I. Fill dynamic joints with self-leveling polyurethane sealant MAPEI Mapeflex™ P1 SL. Do not span movement joint with self-leveling underlayment nor flooring.
- J. Reinforcing fibers that become visible after crack preparation must be removed and vacuumed leaving no fibers exposed above the concrete surface.

3.05 PROTECTION - OTHER SURFACES

- A. Protect walls, floor openings, electrical openings, door frames, and other obstructions during the installation.

3.06 INSTALLATION MVE CONTROL SYSTEM - EPOXY

- A. General: Install MVE control system according to ASTM F3010 and manufacturer's written instructions to produce a uniform, monolithic surface free of surface deficiencies such as pin holes, fisheyes and voids.
- B. Adjust application methods per manufacturer's written instruction as determined by site conditions, presence of sub-slab vapor barrier, concrete mix design, lightweight aggregates, suspended slab vs slab on grade, and age of concrete.
- C. Mixing: Mix in accordance with Manufacturer's instructions. Mix only full units. Strictly follow minimum mixing time.
- D. In a single coat application, apply MVE control system epoxy to manufacturer's recommended rate with no less than dry film thickness of 8 mils minimum to achieve design perm rating. Apply with notched squeegee or notched trowel and back roll with 3/8 nap roller. Adjust application rate depending on job site concrete conditions including porosity and profile.
- E. Cure MVE Control System components according to the manufacturer's written instruction. Prevent contamination or other damage during curing processes.
- F. After curing, examine MVE control system for surface deficiencies. Repair surface deficiencies according to manufacturer's written instructions.

3.07 FIELD QUALITY CONTROL

- A. Inspect MVE Control System to ensure that all voids and pinholes are filled/sealed before moving on to the next flooring phase. Do so by filling any voids and/or shaving off the tops of any bubbles and reapplying a thin coating of MVE Control System over the surface. Verify no bond break present.

3.08 INSTALLATION OF PRIMER FOR SELF-LEVELER

- A. Self-Leveling Underlayment up to 3/8 inch thickness: Apply Primer T™ to epoxy MVE control system and allow primer to dry completely.
- B. Self-Leveling Underlayment over 3/8 inch thickness: Apply Primer E™ to epoxy MVE control system and broadcast 20/30 sieve clean washed kiln dried sand to rejection. After 24 hours, vacuum non-bonded sand.

3.09 INSTALLATION OF SELF-LEVELING UNDERLAYMENT

- A. Read all installation instructions thoroughly before installation.
- B. Before installation, close doors and windows, and turn off HVAC systems to prevent drafts during application and until the floor cures. Protect areas from direct sunlight.
- C. Make sure concrete substrate and ambient room temperatures are between 50°F and 95°F before application. In large applications, allow for indirect air circulation to dissipate humidity created by leveler application. Temperatures must be maintained within this range for at least 72 hours after the installation of self-leveler. In cooler conditions, use indirect auxiliary heaters to maintain ambient and substrate temperatures within the required range. For temperatures above 85°F, follow ACI hot-weather application guidelines to ensure a successful installation.
- D. Water to be clean, potable, and cool, not warmer than 70 deg F.
- E. Conventional piston, rotor-stator or underlayment-type pumps may be used for application of self-leveling over large areas.
- F. Strictly follow manufacturer's mixing instructions for exact water cement ratios, mixing times, speed and type of mixing blade. Mix full unit quantities, if working from bulk containers (i.e. super sacks), mixer must be able to accommodate entire unit of unmixed product. Self-leveler is a calcium aluminate quick setting, fast drying shrinkage compensated product when mixed correctly. Overwatering will cause shrinkage and potential delamination.
- G. Maintain continuous flow of wet material to avoid trapping air or creating a cold joint.
- H. Maintaining a wet edge throughout placement. Quickly pour or pump self-leveler onto properly prepared and primed surface in ribbon pattern.
- I. Spread self-leveler with gauge rake to desired depth. Break surface tension of material with smoother or needle roller to allow self-leveler to flow. Apply at 3/16 inch minimum thickness.
- J. Apply self-leveler to flatness of 1/8 inch in 10 feet.
- K. Verify with Manufacturer regarding minimum time to install ceramic tile, or non-

breathable floor coverings on self-leveler.

3.10 CLEANUP

- A. Use soap with water or use denatured alcohol to clean equipment before MVE Control System cures to a hardened state. Cured material can only be removed mechanically.

3.11 PROTECTION - MVE CONTROL SYSTEM

- A. Protect the surface of the cured MVE control system from traffic and damage until covered by floor finish. Protection may include plywood, or other suitable protection board.

END 09 05 61

DIVISION 9 – FINISHES
Section 09 30 13 - Ceramic Tile

PART 1 - GENERAL

1.01 DESCRIPTION

- A. Provide labor, materials, equipment, and incidentals required for the completion of the work shown on the drawings and/or specified.

1.02 REFERENCES

- A. TCA's "Handbook for Ceramic Tile Installation".
- B. ANSI A108 Series "Specifications for Installation of Ceramic Tile".

1.03 QUALITY ASSURANCE

- A. Source of materials: Provide materials obtained from one source for each type and color of tile, grout, and setting materials.

1.04 SUBMITTALS

- A. Product data
- B. Samples
- C. Shop drawing: Plan indicating expansion joint layout, tile layout, patterns, openings, details, and accessories.
- D. Attic Stock: Written verification of attic stock delivery to Owner's representative.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Comply with U.S. Department of Commerce and National; Bureau of Standards S.P.R.-R61 and Federal Specifications S-T-308, graded standard.
- B. Floor tile to meet or exceed ASTM D 2047 and ADA slip resistance requirements for each specific floor area environment.
- C. Adhesives shall be water-resistant recommended by the tile manufacturer.
- D. Water-potable.
- E. Provide reducer strips as required and/or noted.
- F. Provide special shapes required.
- G. Grouting of tile and base shall be chemical resisting, acrylic-modified tile grout complying with ANSI A118.3. Color as selected by Architect. Subject to compliance with requirements, provide products by one of the following:
 - 1. MAPEI Corporation; Flexcolor CQ
 - 2. Bostik, Inc.; comparable to 1 above.
 - 3. Custom Building Products; comparable to 1 above.
 - 4. TEC; a subsidiary of H. B. Fuller Company; comparable to 1 above.
 - 5. Ardex; comparable to 1 above.

2.02 CERAMIC TILE

- A. Floor and wall base, shall be 2" x 2" porcelain mosaic tile, unglazed per:
 - 1. American Olean
 - 2. Dal-Tile Corp.
 - 3. Interceramic, Inc.
- B. Base to be 6" cove built-up base with radiused top (similar to American Olean MT-6), or straight top (similar to American Olean MT-6A) at tile walls.
- C. Tile colors, patterns, etc., shall match existing.

PART 3 - EXECUTION

3.01 WORKMANSHIP AND ERECTION

- A. Thin-Set Method:
 - 1. Trowel or brush a thin layer, not less than 1/16" in thickness of adhesive paste over the bed.
 - 2. Apply the sheets of mounted tile in position and beat firmly into the adhesive. Beating is required to obtain a strong bond. Tile surfaces shall be brought to a true level at proper elevation.
 - 3. After setting and straightening, wet and remove paper and glue. Avoid use of excess water.
 - 4. Adjust any tile out of line.
 - 5. Finish surface of tile shall be flush with adjacent floors unless otherwise shown.

3.02 GENERAL REQUIREMENTS

- A. Examine substrates, areas, and conditions where tile will be installed, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of installed tile.
- B. Verify that substrates for setting tile are firm, dry, clean, free of coatings that are incompatible with tile-setting materials including curing compounds and other substances that contain soap, wax, oil, or silicone; and comply with flatness tolerances required by ANSI A108.01 for installations indicated.
- C. Where indicated, prepare substrates to receive waterproofing by applying a reinforced mortar bed that complies with ANSI A108.1A and is sloped 1/4 inch per foot toward drains.
- D. Comply with TCA's "Handbook for Ceramic Tile Installation" for TCA installation methods specified. Comply with parts of the ANSI A108 Series "Specifications for Installation of Ceramic Tile" that are referenced in TCA installation methods and apply to types of setting and grouting materials used.
- E. Extend tile work into recesses and under or behind equipment and fixtures to form complete covering without interruptions unless otherwise indicated. Terminate work neatly at obstructions, edges, and corners without disrupting pattern or joint alignments.

- F. Accurately form intersections and returns. 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.
 - 1. Form corners and bases neatly.
 - 2. Align wall, base, and floor joints.
- G. Provide manufacturer's standard trim shapes where necessary to eliminate exposed tile edges.
- H. Jointing Pattern: Lay tile in grid pattern unless otherwise indicated. Lay out tile work and center tile fields in both directions in each space or on each wall area. Lay out tile work to minimize the use of pieces that are less than half of a tile. Provide uniform joint widths unless otherwise indicated. All joints to line up.
- I. Joint Widths and Maximum Lippage: Unless otherwise indicated, install tile with the following joint widths and maximum lippage:
 - 1. Porcelain Mosaic Tile: 1/16 inch joint width, 1/32 inch lippage.
 - 2. Glazed Wall Tile: 1/16 inch joint width, 1/32 inch lippage.
 - 3. Decorative Thin Wall Tile: 1/16 inch joint width, 1/32 inch lippage.
 - 4. Porcelain Wall and Floor Tile: 1/8 inch joint width, 1/32 inch lippage.
- J. Expansion Joints: Where expansion joints occur in concrete substrates, provide expansion joints in tile surfaces directly above them. Form joints during installation of setting materials, mortar beds, and tile. Do not saw-cut joints after installing tiles.
- K. Install crack isolation membrane to comply with ANSI A108.17 and manufacturer's written instructions to produce membrane of uniform thickness and bonded securely to substrate.
- L. Form internal angles square and external angles bullnosed.
- M. Sound tile and accessories after setting. Replace hollow sounding units.
- N. Allow tile to set for a minimum of 48 hours prior to grouting unless indicated otherwise.

3.03 GROUTING, CLEANING AND CURING

- A. Tile shall be grouted, and joints shall be full and integral with setting bed.
- B. After tile is firmly set, fill joints with selected grout. Joint surfaces must be clean, free of dust and dry. Joints to be emptied at least 2/3 of tile thickness. Excess mortar to be removed while still fresh. Spread grout with appropriate float over the tile surfaces until joints are filled. Compress grout and strike flush with surface of tile. Before grout sets, fill skips and gaps and perform final finishing.
 - 1. Remove surface laitance and excess grout per grout manufacturers written requirements.
 - 2. Face of tile shall be left clean and free from grout or other stains.
- C. Barricade area and cure grout per grout manufacturers written requirements.

- D. Perform final cleaning per manufacturer's written requirements.
- E. Polish with clean, dry cloths.
- F. Apply caulk to junction of tile and dissimilar materials and junctions to dissimilar planes.
- G. Cover floor with Kraft paper after completion of Work and maintain paper in position.

3.04 ATTIC STOCK

- A. Furnish a minimum of 2 boxes of each flooring material in each color. This material shall be in full tiles in unopened cartons with identifying labels.
- B. Store extra stock where directed by the Owner. Provide written verification of attic stock delivery to Owner's representative, submit to Architect."

END 09 30 13

DIVISION 9 – FINISHES
Section 09 65 15 – Homogeneous Resilient
Tile Flooring

PART 1 - GENERAL

1.01 DESCRIPTION

- A. Provide labor, materials, equipment, and incidentals required for the completion of the work shown on the drawings and/or specified in this section.

1.02 SUBMITTALS

- A. Samples
 - 1. Tile
- B. Product Data
 - 1. Floor tile
 - 2. Adhesive
 - 3. Moisture Sealer System
- C. Shop Drawing
 - 1. Indicate transitions with new and/or existing finished flooring materials, border/field/accent color locations based on field verified dimensions, and isolation membrane locations.
- D. Test Reports
 - 1. Testing procedures, number of test locations, and physical locations shall meet flooring manufacturer's requirements.
 - a. Moisture Testing
 - b. Alkalinity Testing
 - c. Adhesion Testing
- E. Operation and Maintenance Instructions
- F. Warranty
- G. Attic Stock: Written verification and sign-off of attic stock delivery to Owner's representative.

1.03 QUALITY ASSURANCE

- A. Single-Source Responsibility: Obtain each type, color, and pattern of resilient flooring materials from a single source with resources to provide products of consistent quality in appearance and physical properties without delaying progress of the Work.
- B. Installation Qualification: Contractors for floor covering installation should be experienced in managing commercial flooring projects and provide professional installers, qualified to install the various flooring materials specified. An installer is "qualified" if trained by Tarkett or a certified INSTALL (International Standards & Training Alliance) resilient floor covering installer.

- A. Fire-Test-Response Characteristics: As determined by testing identical resilient flooring products according to ASTM E 648 or NFPA 253 by a qualified testing agency.
 - 1. Critical Radiant Flux Classification: Class I, not less than 0.45 w/sq. cm.

1.02 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to site in original packages and containers with seals unbroken and bearing manufacturer's original labels, including manufacturer's name, product name, and directions for storing, handling, and use.
- B. Store resilient flooring materials in clean, dry interior spaces protected from the weather, extreme temperature, and humidity range, and freezing, with ambient temperature and humidity maintained within the range of minimum and maximum allowable by each manufacturer.
 - 1. Store tiles on flat surfaces.
 - 2. Limit stacking to level allowed by manufacturer.
- C. Move materials into spaces where they will be installed at least 48 hours prior to installation.

1.03 PROJECT CONDITIONS

- A. Maintain temperatures within the range of minimum and maximum allowable by each manufacturer for at least 48 hours before, during, and for not less than 48 hours after installation. Protect materials from the direct flow of heat from hot-air registers, radiators, or other heating fixtures and appliances. After installation period, maintain a temperature of not less than 55 deg F.
- B. Close spaces to traffic during floor tile installation and for not less than 48 hours after floor tile installation.
- C. Install flooring after other finishing operations, including painting, have been completed.
- D. Do not install resilient flooring over flooring substrates until the concrete slabs and leveling compounds have cured and are sufficiently dry to bond with adhesive as determined by the resilient flooring manufacturer's recommended bond, moisture, and PH testing methods.
 - 1. Proceeding with installation shall be an indication of the Contractor's acceptance of the surface.
 - 2. Refer to Wiss, Janney, Elstner Associates, Inc. (WJEA) documents for leveling work requirements.

1.04 WARRANTY

- A. Manufacturer's Standard Warranty: Manufacturer agrees to replace resilient flooring that fail in performance within specified warranty period, including labor and materials necessary to accomplish this work.
- B. Warranty Period: Five (5) years from date of Substantial Completion.

1.05 RELATED SECTIONS

- A. Refer to Section 09 65 19 Resilient Flooring and Base for rubber base and edging. Provide rubber edging transitions between new and/or existing flooring, at carpet, and at tile flooring due to thickness variation between resilient flooring products.

PART 2 - PRODUCTS

2.01 HOMOGENEOUS RESILIENT TILE FLOORING

- A. Basis-of-Design Product: Subject to compliance with requirements, provide Johnsonite, a Tarkett Company; iQ Optima.
- B. Thickness/Wearlayer: 0.080 inch.
- C. Size: 24 inches by 24 inches
- D. Colors and Patterns: 0853 Thunder Head
- E. Test data:
 - 1. Total thickness (ASTM F386): 0.080 inches (2 mm)
 - 2. Flexibility (ASTM F137): Passes
 - 3. Chemical Resistance (ASTM f925): Passes
 - 4. Static Load Limit (ASTM F970): Passes 250 psi
 - 5. Resistance to Heat (ASTM F1514): $\Delta E \leq 8$
 - 6. Resistance to Light (ASTM F1515): $\Delta E \leq 8$
 - 7. Size, Tolerance (ASTM F2055): Passes
 - 8. Static Coefficient of Friction (ASTM D 2047): ≥ 0.5 SCOF
 - 9. Flammability (ASTM E648, Critical Radiant Flux): Class 1 (≥ 0.45 W/cm²)
 - 10. Limited Commercial Warranty: 10 years

2.02 MISCELLANEOUS INSTALLATION MATERIALS

- A. Trowelable Leveling and Patching Compounds: Latex-modified, Portland cement based or blended hydraulic-cement-based formulation.
 - 1. Gypsum or latex based leveling and patching compounds are not permitted to be used.
 - 2. Refer to WJEA documents for leveling work requirements.
- B. Adhesives: As recommended by Tarkett to meet site conditions
 - 1. Tarkett 975 - Two-Part Urethane Adhesive for use with iQ Optima tiles.
- C. Adhesive: Approved by manufacturer for specific item. Flooring adhesive shall be moisture and alkali resistant, clear drying.
 - 1. Adhesive shall meet manufacturer's requirements when tested under one of the following test procedures:
 - a. Calcium chloride test ASTM F1869 - Minimum resistance capacity of 8 pounds per 1000 sq. ft. for a 24 hour period.

- b. Relative Humidity in Concrete Floor Slabs Using In Situ Probes ASTM F 2170 - Minimum resistance capacity or up to 90% RH.
- c. Tarkett 926 Resilient Flooring Adhesive may be used where the Relative Humidity (RH) is not greater than 85 percent.
- D. Moisture Sealer System: Where required to meet flooring manufacturer's minimum requirements, provide a fluid applied moisture sealer system meeting flooring manufacturer's requirements and approvals.
- E. Primer: Non-staining type as recommended by flooring manufacturer.
- F. Crack isolation membrane to be flooring manufacturers recommended products.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Examine substrates, with Installer present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the work.
- B. Verify that finishes of substrates comply with tolerances and other requirements specified in other Sections and that substrates are free of cracks, ridges, depressions, scale, and foreign deposits that might interfere with adhesion of resilient products.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 PREPARATION

- A. Prepare substrates according to manufacturer's written instructions to ensure adhesion of resilient products.
- B. Contractor shall examine subfloors prior to installation to determine that surfaces are smooth and free from cracks, holes, ridges, and other defects that might prevent adhesive bond, or impair durability or appearance of the flooring material.
- C. Concrete Substrates: Prepare according to ASTM F 710.
 - 1. Test and verify that substrates are dry and free of curing compounds, sealers, and hardeners to assure proper adhesive bond.
 - 2. Concrete floors may have applied cure and seal compounds or other deleterious materials. Where necessary, provide manufacturer's required preparation procedures to ensure proper adhesive bond. Do not use solvents.
 - 3. Remove substrate paint, coatings and other substances that are incompatible with adhesives or contain soap, wax, oil, solvents, or silicone, using mechanical methods recommended by manufacturer. Do not use solvents.
 - 4. Mechanically remove contamination on the substrate that may cause damage to the resilient flooring material. Permanent and non-permanent markers, pens, crayons, paint, etc., must not be used to write on the back

of the flooring material or used to mark the substrate as they could bleed through and stain the flooring material.

5. Substrates including concrete slabs, leveling compounds, etc. to be properly prepared and thoroughly cleaned, removing bumps, dust, etc.
 6. Saw cut large cracks and fill with flooring manufacturer's approved Portland cement based trowelable filler.
 7. Provide proper crack isolation membrane, 12" min. width, over all slab control/expansion joints, and saw cut cracks. Install per manufacturers requirements. Products to be approved by flooring manufacturer.
- D. Fill depressions and holes and level areas as required meeting flooring manufacturer's requirements and maintaining finished floor elevations with items such as floor sleeves, clean outs, floor drains, thresholds, adjacent flooring, etc. with flooring manufacturer's approved Portland cement based trowelable leveling and patching compound underlayment to ensure true, even surfaces. Latex or gypsum products are not acceptable.
1. Refer to WJEA documents for leveling work requirements.
- E. Remove coatings, including curing compounds, and other substances that are incompatible with flooring adhesives and that contain soap, wax, oil, or silicone, by using a terrazzo or concrete grinder, a drum sander, or a polishing machine equipped with a heavy-duty wire brush.
- F. Broom sweep and vacuum clean substrates to be covered by tiles immediately before tile installation. Ensure substrates are free of moisture, alkaline salts, carbonation, dust, dirt, grease, and debris.
- G. Apply primer to flooring substrates, if recommended by flooring manufacturer, prior to application of adhesive. Apply primer in accordance with manufacturer's instructions.

3.03 TESTING AND FLOOR SEALERS

- A. Prior to installation of materials, Contractor shall properly test flooring substrates to verify compliance with manufacturer requirements. Proceed with installation only after substrates pass testing and results are submitted for review.
1. Moisture, Alkalinity, and Adhesion Testing: Perform tests recommended by flooring manufacturer.
 2. Provide a moisture sealer system if moisture test results exceed the limits of the flooring manufacturer's adhesives.
 3. Provide flooring manufacturer's recommended procedures if alkalinity and/or adhesion test results fail and require remedial methods.
- B. Concrete slab and leveling materials moisture is impacted greatly on the procedures used during construction. It is imperative that the Contractor utilize proper procedures to allow for flooring substrates to properly cure and dry to acceptable moisture levels.
1. Contractor caused procedures which result in excessive moisture levels in flooring substrates include but are necessarily limited to the following:
 - a. Spilling excess water on concrete floors and substrate materials

- b. Installing concrete leveling products that do not allow for proper cure time.
- c. Not following proper concrete leveling products curing procedures
- d. Covering the concrete floor areas to prevent proper drying.

3.04 INSTALLATION

- A. The installer shall be competent in the installation of the flooring materials.
- B. Install flooring in strict accordance with the manufacturer's requirements, and as required to meet manufacturer's warranty requirements.
- C. Install flooring with adhesives, tools, rollers, and procedures in strict accordance with the manufacturer's written instructions. Observe the recommended adhesive trowel notching, open times, and working times.
 - 1. Adhere flooring materials to flooring substrates without producing open cracks, voids, raising and puckering at joints, telegraphing of adhesive spreader marks, or other substrate and surface imperfections in completed tile installation.
 - 2. Apply flooring to adhesive, pressing down firmly, within manufacturer's written instructions timeline. Roll flooring in both directions as recommended by the manufacturer.
- D. Lay out tiles from center marks established with primary walls, discounting minor offsets, so tiles at opposite edges of room are of equal width unless noted otherwise on the Drawings. Adjust as necessary to avoid using cut widths that measure less than one-half tile. Install tiles square with room axis, unless otherwise indicated.
- E. Match tiles for color and pattern by selecting tiles from cartons in same sequence as manufactured and packaged. Discard broken, cracked, chipped, or deformed tiles.
 - 1. Lay tiles with grain direction alternating in adjacent tiles (basket-weave pattern).
 - 2. Tiles with directional arrows on their backs should be installed with the arrows pointing in the same direction.
 - 3. Where indicated provide border, field, and accent tile patterns and colors.
- F. Scribe, cut, and fit tiles to butt tightly to vertical surfaces, and permanent fixtures including built-in furniture including cabinets, pipes, outlets, edgings, thresholds, door frames, and nosings.
- G. Extend tiles into toe spaces, door reveals, closets, and similar openings. Extend floor tiles into door openings as necessary to ensure the transition strip at the edge of the tile is located beneath the door when in a closed position.
- H. Provide rubber edging and transitions of an approved design tightly butted to flooring, and secure with adhesive recommended by the manufacturer. Install edge strips at edges of flooring that would otherwise be exposed. Install transition strips between new and/or finished flooring of different types and thicknesses. Accomplish termination of flooring adjacent to flooring of another material or color, or new to existing, underneath doors between such areas.

3.05 CLEANING AND PROTECTION

- A. Comply with manufacturer's written instructions for cleaning and protection of resilient products.
- B. Perform the following operations immediately after completing resilient flooring installation:
 - 1. Remove adhesive and other surface blemishes using clean cloth and cleaner recommended by flooring manufacturer.
 - 2. Sweep and vacuum floor thoroughly.
 - 3. Damp-mop surfaces to remove marks and soil.
 - a. Do not wash resilient flooring until after adhesives have fully cured, at a minimum 72 hours after installation, unless otherwise recommended by flooring manufacturer.
 - b. A regular maintenance program must be started after the initial cleaning.
- C. Protect flooring against mars, marks, indentations, and other damage from construction operations and placement of equipment and fixtures during remainder of construction period. Use protection methods recommended in writing by flooring manufacturer to ensure the resilient sheet flooring will be free of damage at Substantial Completion.
 - 1. Do not move heavy or sharp objects over newly installed flooring. Place plywood or hardboard panels over flooring and under objects while they are being moved, and slide or roll objects without moving panels.
 - 2. No traffic for 24 hours after installation.
 - 3. No heavy traffic, rolling loads, or furniture placement for 72 hours after installation.
- D. Immediately prior to Substantial Completion, remove protective covers and panels, thoroughly clean flooring, in accordance with manufacturer's instructions.

3.06 ATTIC STOCK

- A. Provide a minimum of 2 boxes of each flooring material. This material shall be in full tiles in unopened cartons with identifying labels.
- B. Store extra stock where directed by the Owner. Provide written verification of attic stock delivery to Owner's representative, submit to Architect.

END 09 65 19

DIVISION 9 – FINISHES

Section 09 65 19 - Resilient Flooring and Base

PART 1 - GENERAL

1.01 DESCRIPTION

- A. Provide labor, materials, equipment and incidentals required for the completion of the work shown on the drawings and/or specified in this section.

1.02 SUBMITTALS

- A. Samples for color selection

- 1. Tile
- 2. Base
- 3. Rubber edging

- B. Product Data

- 1. Tile
- 2. Base
- 3. Rubber edging
- 4. Adhesive
- 5. Moisture Sealer System

- C. Shop Drawing

- 1. Indicate transitions with new and/or existing finished flooring materials, border/field/accent color locations based on field verified dimensions, and isolation membrane locations.

- D. Test Reports

- 1. Testing procedures, number of test locations, and physical locations shall meet flooring manufacturer=s requirements.
 - a. Moisture Testing
 - b. Alkalinity Testing
 - c. Adhesion Testing

- E. Operation and Maintenance Instructions

- F. Warranty

- G. Attic Stock: Written verification and sign off of attic stock delivery to Owner's representative.

1.03 QUALITY ASSURANCE

- A. Single-Source Responsibility: Obtain each type, color, and pattern of resilient flooring materials from a single source with resources to provide products of consistent quality in appearance and physical properties without delaying progress of the Work.

- B. Fire-Test-Response Characteristics: As determined by testing identical resilient flooring products according to ASTM E 648 or NFPA 253 by a qualified testing agency.
 - 1. Critical Radiant Flux Classification: Class I, not less than 0.45 w/sq. cm.

1.04 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to site in original packages and containers with seals unbroken and bearing manufacturer's original labels, including manufacturer's name, product name, and directions for storing, handling, and use.
- B. Store resilient flooring materials in clean, dry interior spaces protected from the weather, extreme temperature and humidity range, and freezing, with ambient temperature and humidity maintained within the range of minimum and maximum allowable by each manufacturer.
 - 1. Store tiles and planks on flat surfaces.
 - 2. Limit stacking to five (5) boxes high.
- C. Move materials into spaces where they will be installed at least 48 hours prior to installation.

1.05 PROJECT CONDITIONS

- A. Maintain temperatures within the range of minimum and maximum allowable by each manufacturer for at least 48 hours before, during, and for not less than 48 hours after installation. Protect materials from the direct flow of heat from hot-air registers, radiators, or other heating fixtures and appliances. After installation period, maintain a temperature of not less than 55 deg F.
- B. Close spaces to traffic during floor tile installation and for not less than 48 hours after floor tile installation.
- C. Install flooring after other finishing operations, including painting, have been completed.
- D. Do not install resilient flooring over flooring substrates until the concrete slabs and leveling compounds have cured and are sufficiently dry to bond with adhesive as determined by the resilient flooring manufacturer's recommended bond, moisture, and PH testing methods.
 - 1. Proceeding with installation shall be an indication of the Contractor's acceptance of the surface.

1.06 WARRANTY

- A. Manufacturer's Standard Warranty: Manufacturer agrees to replace resilient flooring that fail in performance within specified warranty period, including labor and materials necessary to accomplish this work.
- B. Warranty Period: Five (5) years from date of Substantial Completion.

PART 2 - PRODUCTS

2.01 VINYL COMPOSITION TILE FLOORING

- A. Vinyl-composition flooring: 1/8" vinyl-composition tile, ASTM F1066 Composition 1, Class 2, through-pattern tile:

1. Armstrong, Standard Excelon
- B. Colors and patterns as indicated on drawings.
- C. Verify all sizes in field. Provide full complete coverage without gaps and with minimum seams.

2.02 MISCELLANEOUS MATERIALS

- A. Adhesive: Approved by manufacturer for specific item. Flooring adhesive shall be moisture and alkali resistant, clear drying.
 1. Armstrong S-515 Tile Strong
 2. Adhesive shall meet manufacturer's requirements when tested under one of the following test procedures:
 - a. Calcium chloride test ASTM F1869 - Minimum resistance capacity of 7 pounds per 1000 sq. ft. for a 24 hour period.
 - b. Relative Humidity in Concrete Floor Slabs Using In Situ Probes ASTM F 2170 - Minimum resistance capacity or up to 95% RH.
- B. Moisture Sealer System: Where required to meet flooring manufacturer's minimum requirements, provide a fluid applied moisture sealer system meeting flooring manufacturer's requirements and approvals.
- C. Primer: Non-staining type as recommended by flooring manufacturer.
- D. Trowelable Underlayments and Patching Compounds: Portland cement based formulation provided or approved by flooring manufacturer for applications indicated.
 1. Gypsum or latex based underlayments and patching compounds are not permitted.
 2. Refer to WJE plans for leveling work requirements.
- E. Crack isolation membrane to be flooring manufacturer's recommended products.

2.03 WALL BASE

- A. Base: On-top type 4" x 1/8" thermoset rubber. Provide cove type, except straight type at carpet areas.
 1. Johnsonite, BaseWorks
- B. Adhesive:
 1. Manufacturer's contact type on non-porous surfaces.
 2. Manufacturer's acrylic type on porous surfaces.
- C. Manufacturer's pre-formed inside and outside corners shall be used.
- D. Colors as indicated.

2.04 EDGE GUARD AND TRANSITIONS

- A. Edge Guard and Transitions: Rubber of size and low profile appropriate for location, meeting ADA and IACC accessibility code requirements.
 1. Johnsonite

- B. Adhesive:
 - 1. Manufacturer's hard set type
- C. Colors as indicated.

PART 3 - EXECUTION

3.01 PREPARATION

- A. Prepare substrates according to manufacturer's written instructions to ensure adhesion of resilient products.
- B. Contractor shall examine subfloors prior to installation to determine that surfaces are smooth and free from cracks, holes, ridges, and other defects that might prevent adhesive bond, or impair durability or appearance of the flooring material.
- C. Concrete Substrates: Prepare according to ASTM F 710.
 - 1. Test and verify that substrates are dry and free of curing compounds, sealers, and hardeners to assure proper adhesive bond.
 - 2. Concrete floors may have applied cure and seal compounds or other deleterious materials. Where necessary, provide manufacturer's required preparation procedures to ensure proper adhesive bond. Do not use solvents.
 - 3. Concrete slabs to be properly prepared and thoroughly cleaned, removing bumps, dust, etc.
 - 4. Saw cut large cracks and fill with polyurethane sealant on backer rod flush with top of slab. Fill slab control/expansion joints with polyurethane sealant on backer rod flush with top of slab.
 - 5. Provide proper crack isolation membrane, 12" min. width, over slab control/expansion joints, and saw cut cracks. Install per manufacturers requirements. Products to be approved by flooring manufacturer.
- D. Fill depressions and holes and level areas as required meeting flooring manufacturer's requirements and maintaining finished floor elevations with items such as floor sleeves, clean outs, floor drains, thresholds, adjacent flooring, etc. with flooring manufacturer's approved Portland cement based trowelable leveling and patching compound underlayment to ensure true, even surfaces. Latex or gypsum products are not acceptable.
 - 1. Refer to WJE plans for leveling work requirements.
- E. Remove coatings, including curing compounds, and other substances that are incompatible with flooring adhesives and that contain soap, wax, oil, or silicone, by using a terrazzo or concrete grinder, a drum sander, or a polishing machine equipped with a heavy-duty wire brush.
- F. Broom sweep and vacuum clean substrates to be covered by tiles immediately before tile installation. Ensure substrates are free of moisture, alkaline salts, carbonation, dust, dirt, grease and debris.
- G. Apply primer to concrete slabs, if recommended by flooring manufacturer, prior to application of adhesive. Apply primer in accordance with manufacturer's

instructions.

3.02 TESTING AND FLOOR SEALERS

- A. Prior to installation of materials, Contractor shall properly test floor substrates to verify compliance with manufacturer requirements. Proceed with installation only after substrates pass testing and results are submitted for review.
 - 1. Moisture, Alkalinity, and Adhesion Testing: Perform tests recommended by flooring manufacturer.
 - 2. Provide a moisture sealer system if moisture test results exceed the limits of the flooring manufacturer's adhesives.
 - 3. Provide flooring manufacturer's recommended procedures if alkalinity and/or adhesion test results fail and require remedial methods.
- B. Concrete slab and leveling materials moisture is impacted greatly on the procedures used during construction. It is imperative that the Contractor utilize proper procedures to allow for concrete slabs to properly cure and dry to acceptable moisture levels.
 - 1. Contractor caused procedures which result in excessive moisture levels in flooring substrates include but are necessarily limited to the following:
 - a. Spilling excess water on concrete floors and substrate materials
 - b. Installing concrete floors and/or leveling products that do not allow for proper cure time
 - c. Not following proper concrete and/or leveling products curing procedures
 - d. Covering the concrete floor to prevent proper drying

3.03 INSTALLATION

- A. The installer shall be competent in the installation of the flooring materials.
- B. Install flooring in strict accordance with the manufacturer's requirements, and as required to meet manufacturer's warranty requirements.
- C. Install flooring with adhesives, tools, rollers, and procedures in strict accordance with the manufacturer's written instructions. Observe the recommended adhesive trowel notching, open times, and working times.
 - 1. Adhere flooring materials to flooring substrates without producing open cracks, voids, raising and puckering at joints, telegraphing of adhesive spreader marks, or other substrate and surface imperfections in completed tile installation.
 - 2. Apply flooring to adhesive, pressing down firmly, within manufacturer's written instructions time line. Roll flooring in both directions as recommended by the manufacturer.
- D. Lay out tiles from center marks established with primary walls, discounting minor offsets, so tiles at opposite edges of room are of equal width unless noted otherwise on the Drawings. Adjust as necessary to avoid using cut widths that measure less than one-half tile. Install tiles square with room axis, unless otherwise indicated.

- E. Match tiles for color and pattern by selecting tiles from cartons in same sequence as manufactured and packaged. Discard broken, cracked, chipped, or deformed tiles.
 - 1. Lay tiles with grain direction alternating in adjacent tiles (basket-weave pattern).
 - 2. Tiles with directional arrows on their backs should be installed with the arrows pointing in the same direction.
 - 3. Where indicated provide border, field, and accent tile patterns. Provide in multiple colors as indicated.
- F. Scribe, cut, and fit tiles to butt tightly to vertical surfaces, and permanent fixtures including built-in furniture including cabinets, pipes, outlets, edgings, thresholds, door frames, and nosings.
- G. Extend tiles into toe spaces, door reveals, closets, and similar openings. Extend floor tiles into door openings as necessary to ensure the transition strip at the edge of the tile is located beneath the door when in a closed position.
- H. Provide rubber edging and transitions of an approved design tightly butted to flooring, and secure with adhesive recommended by the manufacturer. Install edge strips at edges of flooring that would otherwise be exposed. Install transition strips between new and/or existing finished flooring of different types and thicknesses. Accomplish termination of flooring adjacent to flooring of another material or color, or new to existing, underneath doors between such areas.
- I. Fill voids with plastic filler along the top edge of the resilient wall base or integral cove cap on masonry surfaces or other similar irregular substrates at columns, etc. to match wall color.
- J. Only as approved by the flooring manufacturer, heat tiles locally which have not "seated" in level plane with surrounding tile and roll in place.
- K. Contractor shall inspect and make necessary adjustments after heat has been supplied continuously in finished areas for one month.
- L. Install rubber base on each wall including casework with manufacturers approved adhesives for the existing substrate to be applied.

3.04 CLEANING AND PROTECTION

- A. Perform the following operations immediately after completing resilient flooring installation:
 - 1. Remove adhesive and other surface blemishes using clean cloth and cleaner recommended by flooring manufacturer.
 - 2. Sweep and vacuum floor thoroughly.
 - 3. Damp-mop surfaces to remove marks and soil.
 - a. Do not wash resilient flooring until after adhesives have fully cured unless otherwise recommended by flooring manufacturer.
 - 4. Following flooring manufacturer's recommended setting period, wash floor with a neutral cleaner, rinse thoroughly, and vacuum dry in accordance

with tile manufacturer's written instructions.

- B. Protect flooring against mars, marks, indentations, and other damage from construction operations and placement of equipment and fixtures during remainder of construction period. Use protection methods recommended in writing by flooring manufacturer to ensure the resilient flooring will be free of damage at Substantial Completion.
 - 1. Do not move heavy or sharp objects over newly installed flooring. Place plywood or hardboard panels over flooring and under objects while they are being moved, and slide or roll objects without moving panels.
- C. Immediately prior to Substantial Completion, remove protective covers and panels, thoroughly clean flooring, in accordance with manufacturer's instructions.
 - 1. Clean resilient flooring in accordance with tile manufacturer's written instructions.
 - 2. Cover tiles with undyed, untreated building paper until inspection for Substantial Completion.
 - 3. Owner will provide floor waxes and polishes (NIC).

3.05 ATTIC STOCK

- A. Provide a minimum of 2 boxes of each flooring material. This material shall be in full tiles in unopened cartons with identifying labels.
- B. Provide a minimum of 24 linear feet of rubber base and 12 linear feet of rubber edging in each color selected.
- C. Store extra stock where directed by the Owner. Provide written verification of attic stock delivery to Owner's representative, submit to Architect.

END 09 65 19

DIVISION 9 – FINISHES
Section 09 65 20 - Resilient Heterogeneous
Vinyl Sheet Flooring

PART 1 - GENERAL

1.01 DESCRIPTION

- A. Provide labor, materials, equipment and incidentals required for the completion of the work shown on the drawings and/or specified in this section.

1.02 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Samples for Initial Selection: For each type of product indicated.
- C. Samples for Verification: For each type of product indicated, in manufacturer's standard-size samples of each resilient product color, texture, and pattern required.
- D. Product Schedule: For resilient products. Use same designations indicated on Drawings.
- E. Attic Stock: Written verification of attic stock delivery to Owner's representative.

1.03 QUALITY ASSURANCE

- A. Installation Qualification: Contractors for floor covering installation should be experienced in managing commercial flooring projects and provide professional installers, qualified to install the various flooring materials specified. An installer is "qualified" if trained by Tarkett or a certified INSTALL (International Standards & Training Alliance) resilient floor covering installer.
- B. Mockups: Provide resilient products with mockups specified in other Sections.

1.04 DELIVERY, STORAGE, AND HANDLING

- A. Store resilient products and installation materials in dry spaces protected from the weather, with ambient temperatures maintained within range recommended by Tarkett, but not less than 55 deg F or more than 85 deg F.

1.05 PROJECT CONDITIONS

- A. Install resilient products after other finishing operations, including painting, have been completed.
- B. Maintain ambient temperatures within range recommended by Tarkett, but not less than 65 deg F or more than 85 deg F in spaces to receive resilient products during the following time periods:
 - 1. 48 hours before installation.
 - 2. During installation.
 - 3. 48 hours after installation.
- C. Maintain the ambient relative humidity between 40% and 60% during installation.
- D. Until Substantial Completion, maintain ambient temperatures within range recommended by Tarkett, but not less than 55 deg F or more than 85 deg F.

PART 2 - PRODUCTS

2.01 RESILIENT SHEET FLOORING

- A. Manufacturer: Tarkett, Inc. Phone: (800) 899-8916 30000 Aurora Rd. (440) 543-8916 Solon, Ohio 44139 Web: www.tarkettna.com E-mail: info@johnsonite.com

2.02 ACCZENT HETEROGENOUS VINYL SHEET FLOORING

- A. Basis-of-Design Product: Subject to compliance with requirements, provide Johnsonite, a Tarkett Company; Acczent.
- B. Sheet Standard: ASTM F 1303, Type 1, Grade 1, Class B sheet vinyl floor covering with backing.
- C. Thickness/Wearlayer: 0.080 inch.
- D. For size specify: 6 ft. 6 inches
- E. Colors and Patterns: 55015 Ironwood
- F. Test data:
 - 1. Wear layer (ASTM F410): 0.032 inches
 - 2. Total thickness (ASTM F386): 0.080 inches
 - 3. Flexibility (ASTM F137): Passes
 - 4. Chemical Resistance (ASTM F925): Passes
 - 5. Static Load Limit (ASTM F970): Passes 175 psi
 - 6. Resistance to Heat (ASTM F1514): $\Delta E \leq 8$
 - 7. Resistance to Light (ASTM F1515): $\Delta E \leq 8$
 - 8. Residual Indentation (ASTM F1914): Passes
 - 9. Static Coefficient of Friction (ASTM D 2047): ≥ 0.5 SCOF
 - 10. Flammability (ASTM E648, Critical Radiant Flux): Class 1 (≥ 0.45 W/cm²)
 - 11. Limited Commercial Warranty: 10 years

2.03 MISCELLANEOUS INSTALLATION MATERIALS

- A. Trowelable Leveling and Patching Compounds: Latex-modified, Portland cement based or blended hydraulic-cement-based formulation.
 - 1. Gypsum or latex based leveling and patching compounds are not permitted to be used.
 - 2. Refer to WJEA documents for leveling work requirements.
- B. Adhesives: As recommended by Tarkett to meet site conditions
 - 1. Tarkett 975 - Two-Part Urethane Adhesive for use with Acczent sheet flooring.
- C. Adhesive: Approved by manufacturer for specific item. Flooring adhesive shall be moisture and alkali resistant, clear drying.
 - 1. Adhesive shall meet manufacturer's requirements when tested under one of the following test procedures:

- a. Calcium chloride test ASTM F1869 - Minimum resistance capacity of 8 pounds per 1000 sq. ft. for a 24 hour period.
 - b. Relative Humidity in Concrete Floor Slabs Using In Situ Probes ASTM F 2170 - Minimum resistance capacity or up to 90% RH.
 - c. Tarkett 926 Resilient Flooring Adhesive may be used where the Relative Humidity (RH) is not greater than 85 percent.
- D. Moisture Sealer System: Where required to meet flooring manufacturer's minimum requirements, provide a fluid applied moisture sealer system meeting flooring manufacturer's requirements and approvals.
 - E. Primer: Non-staining type as recommended by flooring manufacturer.
 - F. Crack isolation membrane to be flooring manufacturers recommended products.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Examine substrates, with Installer present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the work.
- B. Verify that finishes of substrates comply with tolerances and other requirements specified in other Sections and that substrates are free of cracks, ridges, depressions, scale, and foreign deposits that might interfere with adhesion of resilient products.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 PREPARATION

- A. Prepare substrates according to Tarkett written instructions to ensure proper adhesion of Resilient Flooring.
 - 1. Prepare concrete substrates in accordance with ASTM F 710.
 - a. Concrete floors must be free of dust, solvent, paint, wax, oil, grease, residual adhesive, adhesive removers, film-forming curing compounds, silicate penetrating curing compounds, sealing, hardening or parting compounds, alkaline salts, excessive carbonation or laitance, mold, mildew, and other foreign materials that may affect dissipation rate of moisture from the concrete, discoloration or adhesive bonding.
 - b. Mechanically remove contamination on the substrate that may cause damage to the resilient flooring material. Permanent and non-permanent markers, pens, crayons, paint, etc., must not be used to write on the back of the flooring material or used to mark the substrate as they could bleed through and stain the flooring material.
 - c. Perform moisture testing as recommended by manufacturer. Proceed with installation only after substrates have been tested and meet the minimum requirements from the manufacturer in accordance with ASTM F1869 Standard Test Method for

Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride or ASTM F2170 Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using in situ Probes.

- d. A pH test for alkalinity must be conducted on the concrete floor prior to installation with results between 7 and 9. If the test results are not within the acceptable range, then installation must not proceed until the problem has been corrected.
- B. Fill cracks, holes, depressions and irregularities in the substrate with good quality Portland cement-based underlayment leveling and patching compound and remove bumps and ridges to produce a uniform and smooth substrate.
- C. Floor covering shall not be installed over expansion joints.
- D. Do not install resilient products until they are same temperature as the space where they are to be installed.
 - 1. Move resilient products and installation materials into spaces where they will be installed at least 48 hours in advance of installation.
- E. Sweep and vacuum clean substrates to be covered by resilient products immediately before installation.

3.03 RESILIENT SHEET FLOORING INSTALLATION

- A. Comply with manufacturer's written instructions for installing resilient sheet flooring.
- B. Resilient Sheet Flooring:
 - 1. Install with Tarkett adhesive specified for the site conditions and follow adhesive label for proper use.
 - 2. Install rolls in sequential order following roll numbers on the labels.
 - 3. Reverse non-pattern sheets as referenced in the Tarket Installation Instructions.
 - 4. Roll the flooring in both directions using a 100 pound three-section roller.
 - 5. Vinyl sheet flooring must be welded to provide a more sterile and water tight seam.
 - 6. Tarkett Resilient Sheet Flooring may be flash covered.
 - a. Use Johnsonite CFS-00-A Cove Filler Strip.
 - b. Net fit flooring material into the appropriate Johnsonite cove cap.

3.04 CLEANING AND PROTECTION

- A. Comply with manufacturer's written instructions for cleaning and protection of resilient products.
- B. Perform the following operations immediately after completing resilient product installation:
 - 1. Remove adhesive and other blemishes from exposed surfaces.
 - 2. Sweep and vacuum surfaces thoroughly.

3. Damp-mop surfaces to remove marks and soil.
- C. Protect resilient products from mars, marks, indentations, and other damage from construction operations and placement of equipment and fixtures during remainder of construction period.
 1. No traffic for 24 hours after installation.
 2. No heavy traffic, rolling loads, or furniture placement for 72 hours after installation.
- D. Wait 72 hours after installation before performing initial cleaning.
- E. A regular maintenance program must be started after the initial cleaning.

3.05 ATTIC STOCK

- A. Furnish the following:
 1. Not less than ten (10) linear feet for every 500 linear foot of fraction thereof, of sheet vinyl flooring in roll form in full roll width for each color pattern, and type of roll-form goods.
 2. Not less than 50 linear feet of each color of welding rod with installation instructions.
 3. Scraps of roll goods two (2) foot in either dimension or more
- B. Provide a minimum of 24 linear feet of rubber base and 12 linear feet of rubber edging in each color selected.
- C. Store extra stock where directed by the Owner. Provide written verification of attic stock delivery to Owner's representative, submit to Architect."

END 09 65 20

DIVISION 9 - FINISHES
Section 09 91 00 – Painting

PART 1 - GENERAL

1.01 DESCRIPTION

- A. Provide labor, materials, equipment and incidentals required for the completion of the work shown on the drawings and/or specified.
- B. The Contractor is directed to read the specification pertaining to the work and materials of other trades in order to understand the extent of various materials used and the provisions regarding their painting. Surfaces that are left unpainted or unfinished shall be finished as part of this work. Complete finished painting is required for every item whether scheduled, noted or not. Work requiring finish but not scheduled or noted shall be finished with products as specified for similar and/or adjacent work.
 - 1. Paint new and existing exposed surfaces unless noted otherwise. If the drawings and/or Schedule of Painting does not specifically mention an item or a surface, paint the item or surface the same as similar adjacent materials or surfaces.
- C. Do not paint prefinished items, concealed surfaces, finished metal surfaces, operating parts, and labels.
 - 1. Prefinished items include, but are not limited to, the following factory-finished components:
 - a. Architectural woodwork.
 - b. Metal lockers.
 - c. Elevator equipment.
 - d. Finished mechanical and electrical equipment.
 - e. Light fixtures and supports.
 - 2. Concealed surfaces refer to surfaces, materials, assemblies, or items that cannot be accessed without moving a building element, such as within a chase, wall, or ceiling cavity; as in the following generally inaccessible spaces:
 - a. Furred areas.
 - b. Ceiling plenums.
 - c. Pipe spaces.
 - d. Duct shafts.
 - e. Elevator shafts.
 - 3. Finished metal surfaces include, but are not limited to, the following:
 - a. Anodized aluminum.
 - b. Stainless steel.
 - c. Chromium plating.

4. Operating parts include moving parts of operating equipment and the following:
 - a. Valve and damper operators.
 - b. Linkages.
 - c. Sensing devices.
 - d. Motor and fan shafts.
5. Labels: Do not paint over:
 - a. UL, FMG, or other code-required labels or equipment name, identification, performance rating, or nomenclature plates.
 - b. Labels designating materials or assemblies as accessible.

1.02 QUALITY ASSURANCE

- A. Single Source Responsibility: Provide primers and undercoat paint produced by the same manufacturer as the finish coats. If single source responsibility is not possible, furnish written approval of manufacturer of finish coat indicating acceptance of proposed under coats.
- B. For shop primed materials by others, verify compatibility between primer and finish coats. Notify the Architect in writing of problems anticipated with using the specified finish coat materials. Where finish coats are incompatible with primer coats or existing finishes, provide additional barrier coat or surface preparation as required by the manufacturer of the primer and finish coats.
- C. Verify compatibility between primer and substrate. Notify the Architect in writing of problems anticipated with using the specified primer and finish coat materials. Where primer and finish coats are incompatible with substrates, for issues such as non-acceptable alkalinity levels, moisture levels, or poor adhesion. Provide additional barrier coat or surface preparation as required by the manufacturer of the primer and finish coats.
- D. Preparatory work to be performed as indicated, and at a minimum shall be performed in strict accordance with coating manufacturer's requirements including applicable Society for Protective Coatings (SSPC) and the National Association of Corrosion Engineers International (NACE) standards.

1.03 SUBMITTALS

- A. Product data: Include information regarding recommended usage, drying times, preparation and primers, surface compatibility, and application instructions which are to be followed. Material Safety Data (MSD) sheets are not acceptable as product data and if submitted, will be returned without review and comment.
- B. Schedule: Submit schedule showing materials to be used, locations, and number of coats to be applied. See SCHEDULE OF PAINTING for format.
 1. Products listed on the SCHEDULE OF PAINTING have been recommended by the paint system manufacturers for the intended use and establish a level of quality. If the Contractor submits and/or uses the specified products, the Contractor agrees that the specified products are proper for the intended use. If the Contractor does not agree with the use of the specified products, and recommends the use of alternative products, the Contractor shall submit written explanation and supporting

data from the manufacturer for the proposed products. If accepted, proposed products shall be covered under the provisions of the warranty.

- C. Color Samples: Provide manufacturer's color fans and/or samples for color selection purpose. Provide full line of standard, custom and premium colors. Provide samples on actual stock when requested by the Architect.
- D. Verification Samples: Provide "Draw-Downs" of each paint color for verification purposes. Provide actual samples of each stain or varnish on actual stock. Each sample shall be marked on the backside with the manufacturer, material, and color code.
- E. Adhesion Testing Reports: Provide manufacturer's recommended adhesion testing meeting ASTM D 3359 and/or ASTM D 667 as appropriate for substrate being tested. Perform in a non-conspicuous area for each substrate to receive the specified coatings. Do not proceed further until positive results are achieved. Provide additional preparatory work, primer and/or barrier coats, etc. as necessary for proper adhesion; perform additional adhesion testing to confirm proper conditions have been met.
- F. Alkalinity Testing Reports: Provide manufacturer's recommended alkalinity testing of plaster, concrete, and concrete masonry surfaces scheduled to receive paint in order to confirm that surfaces do not exceed manufacturer's required alkalinity levels.
- G. Moisture Testing Reports: Provide manufacturer's recommended moisture testing of concrete, concrete masonry, gypsum board, plaster, wood, finished woodwork, and other non-metallic surfaces scheduled to receive paint in order to confirm that surfaces do not exceed manufacturer's required moisture levels.
- H. Warranty: Submit a written warranty, executed by the Contractor.
- I. Coating Maintenance Manual: At project closeout for Owners Record Documents, provide a coatings maintenance manual including area summary with finish schedule, area detail designating location where each product/color/finish was used, product data pages, material safety data sheets, care and cleaning instructions, touch-up procedures, and color samples of each color and finish used.
- J. Attic Stock: Written verification of attic stock delivery to Owner's representative.

1.04 DELIVERY, STORAGE AND HANDLING

- A. Materials used on the job shall be stored as recommended by the manufacturer. Storage areas shall be kept neat and clean. Damage to these areas or surrounding areas shall be repaired to original condition by the Contractor. Oily rags, waste, etc., must be removed from the building every night and precautions must be taken to avoid fire or indoor contamination. Paints may not be stored, mixed or applied in rooms which have installed finished flooring without taking necessary methods for protection.

1.05 PROTECTION OF WORK

- A. Contractor shall provide drop cloths for protecting the floors and finishes from damage during the execution of the work. When necessary, the Contractor shall remove temporary coverings in order to execute the work and shall replace same in a proper manner. In case the covering cannot be replaced, the Contractor shall protect the work as necessary.

- B. Before painting, remove hardware, accessories, plates, lighting fixtures and other similar items or provide necessary protection of such items. Upon completion of the work, remove protections and reinstall above items. Verify proper operation of affected items and replace damaged items as directed by the Architect.
- C. Contractor shall be responsible for staining of floors or other work and must either entirely remove the stains or replace the stained materials with materials to match original condition as acceptable to the Architect.

1.06 PROJECT CONDITIONS

- A. Conditions must fall within the paint manufacturers requirements, coordinate with below criteria, the more stringent shall apply.
 - 1. Apply water-based paints only when the temperature of surfaces to be painted and surrounding air temperatures are:
 - a. Interior surfaces between 60 deg F and 90 deg F.
 - 2. Interior painting shall not be performed when satisfactory results cannot be obtained due to high humidity, excessive temperatures or other conditions affecting application and performance.
 - a. Do not apply in snow, rain, fog, or mist.
 - b. Do not apply when the relative humidity exceeds 85 percent.
 - c. Do not apply at temperatures less than 5 deg F above the dew point
 - d. Do not apply to damp or wet surfaces.
- B. Do not apply paint in areas where dust is being generated or will be generated while the applied paint is drying.
- C. In rooms and spaces where paint is being applied, ensure there is adequate ventilation to allow for proper paint drying, as well as to exhaust paint fumes and minimize odors.

1.07 WARRANTY

- A. The Contractor accepts the responsibility of providing proper workmanship, including but not limited to proper cleaning and preparation of surfaces, proper application of product based upon manufacturer's requirements, and acceptance that specified products are proper for the intended use. Contractor agrees that if paint system fails in any manner, it will be due to improper workmanship. Should any failure occur within the specified warranty period, the Contractor agrees to remedy the affected area(s). Work shall include removal of failing paint system (if necessary or if required by the paint system manufacturer), proper cleaning and preparation of surfaces, proper application of product(s) based upon manufacturer's recommendations and requirements and use of proper products for intended use.
 - 1. The warranty described above shall cover a period of 2 years from the date of Substantial Completion.
 - 2. An additional warranty shall be issued for areas that have failed and have been corrected. This additional warranty shall cover a period of 2 years from the date of acceptance of the corrected work.

- B. The warranty shall not deprive the Owner of other rights or remedies the Owner may have under other provisions of the Contract Documents and is in addition to and runs concurrent with other warranties made by the Contractor under requirements of the Contract Documents.

1.08 ATTIC STOCK

- A. Furnish a minimum of one (1) gallon of each finish paint product in each color required for painting to the project site. Mark each container with color identification and room names, numbers, or areas where paint was used, without obscuring manufacturer's label.
- B. Store extra stock where directed by the Owner. Provide written verification of attic stock delivery to Owner's representative, submit to Architect."

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Paints, varnishes, enamels, lacquers, stains, paste fillers and similar materials, must be delivered in their original containers with the seals unbroken and labels intact. Materials shall be used only as specified by the manufacturer's label on the container. Thinners and accessory materials shall be of best quality and of reputable brands.
- B. Material Compatibility: Furnish block fillers, primers, finish coat materials, and related materials that are compatible with one another and with the existing painted substrates, as demonstrated by the manufacturer, based on testing or field experience.
- C. Patching Material Compatibility: Furnish surface preparation products, including patching compounds, that are compatible with selected paint products.
- D. Gasoline, benzene or other materials not provided for under this specification shall not be brought on the job site.
- E. Colors shall be selected or approved by Architect. Colors shall be mixed as directed and sample panels shall be submitted for approval. Paint products shall be factory-tinted and not tinted on the job site.
- F. The completed work of the Contractor shall match colors and surface finishes of approved samples. The Contractor shall do additional mixing and blending as necessary to achieve this result.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Examine substrates and conditions under which painting will be performed for compliance with paint application requirements. Comply with the specifications and manufacturer's requirements for condition of surfaces.
 - 1. Conform with manufacturer's requirements for warranty to be furnished by the manufacturer.
- B. Surface preparation: Clean and prepare surfaces to be painted according to manufacturer's written instructions for each particular substrate condition and as specified herein.

- C. Coordination of Work: Review other Sections in which primers are specified to ensure compatibility of the total system for various substrates.
- D. Test Reports: Review alkalinity, moisture, and adhesion test results.
 - 1. Provide required work and materials necessary to meet specification criteria and provide for the manufacturer's warranty.
- E. Notify the Architect in writing a minimum of 14 days prior to painting, regarding anticipated problems using the specified materials over substrates previously finished with incompatible materials.
- F. Do not begin to apply paint or finishes until unsatisfactory conditions have been corrected.
 - 1. The application of paint or finishes shall be an indication of the Contractor's acceptance of the surface.

3.02 PREPARATORY WORK

- A. Preparatory work to be performed as indicated, and at a minimum shall be performed in strict accordance with coating manufacturer's requirements including applicable Society for Protective Coatings (SSPC) and the National Association of Corrosion Engineers International (NACE) standards.
- B. Surfaces to be painted shall be cleaned free of rust, dirt, foreign and deleterious materials before painting is started. Contractor shall do necessary preparatory work, sizing, sanding, etc. to produce a surface suitable to receive paint, natural finish, etc.
 - 1. Clean substrates of substances that could impair bond of paints, including dust, dirt, oil, grease, and incompatible paints and encapsulants.
 - 2. Use an appropriate cleaner compatible with the coating systems and surfaces as approved by the coating system manufacturer. Properly repair or replace items damaged by this work if repair work is not acceptable to Architect. Properly protect areas and items not to receive above cleaning methods.
 - 3. Confirm compatibility of shop applied primers with specified finish coats to determine proper preparatory methods, and if a barrier primer coat is recommended by the coating system manufacturer.
- C. Knots, pitch streaks and sappy spots shall be first touched up with shellac or sealer where the finish calls for paint or enamel.
- D. Provide necessary filling of nail holes, cracks, etc., after the application of the first coat using a putty or filler of a color to match the finish. Putty and filler shall be brought flush with the adjoining surfaces in a neat and workmanlike manner. Necessary filling and repair operations shall also be performed to produce a sound and suitable surface to receive the new paint and finish.
- E. Metal surfaces shall be first washed with appropriate solvent to remove any dirt or grease before applying materials. Where rust or scale is present, surfaces shall be properly cleaned and prepared as required by the manufacturer before painting.
 - 1. Rust shall be removed by sanding, wire brushing, etc.

2. Shop coats of paint that become marred shall be sanded, cleaned, and touched up with required products. Necessary touch-up operations shall also be performed to produce a sound and suitable surface to receive the new paint and finish.
- F. Galvanized steel should be tested for pre-treatments using the procedure from the National Coil Coaters Association, Technical Bulletin No. II-9 or from ASTM D-2092, Method B201, Volume 06.01. Galvanized metal surfaces that has been treated for wet storage stain control must have the treatment removed prior to painting. If the metal has been treated, solvent clean the steel per SSPC-SP1 and apply a test patch. If adhesion is unacceptable, Brush-Off Blasting per SSPC-SP7/NACE No. 4 is required to remove the treatment.
 - G. Test substrates for proper adhesion of paint and finish. Provide manufacturer's recommended adhesion testing meeting ASTM D 3359 and/or ASTM D 667 as appropriate for substrate being tested.
 - H. Test plaster, concrete, and concrete masonry surfaces scheduled to receive paint for alkalinity levels in order to confirm that surfaces do not exceed manufacturer's required alkalinity levels. Where alkalinity levels exceed required levels, provide manufacturer's proper high pH blocker primer.
 - I. Test surfaces scheduled to receive paint for moisture levels in order to confirm that surfaces do not exceed manufacturer's required moisture levels.
 - J. Where concrete and concrete masonry surface moisture levels exceed required levels, provide manufacturer's proper moisture blocker primer.
 - K. All other non-metallic surfaces such as gypsum board, plaster, wood, finished woodwork, etc. follow manufacturer's written requirements.
 - L. Test substrates for proper paint coverage. Provide manufacturer's recommended dry opacity testing meeting ASTM D 344.
 - M. Following required preparatory work, Contractor shall inspect surfaces for suitability to receive the specified paint or finishes. The application of paint or finishes shall be an indication of the Contractor's acceptance of the surface.

3.03 APPLICATION

- A. Painting products shall be applied in strict accordance with manufacturer's requirements.
 1. Drying time of primer, initial finish coat, and subsequent finish coats is temperature and humidity dependent and must follow the manufacturer's requirements before any coats are applied.
 2. Cure time of the completed coating application is temperature and humidity dependent and must follow the manufacturer's requirements for a fully cured painted surface before any further contractual work occurs to the painted surface, or that could adversely affect the painted surface.
 - a. Painted surfaces must be fully cured prior to installing items subject to direct contact with said surfaces.
- B. Materials shall be thoroughly mixed immediately before application of paint. Materials shall be evenly spread and smoothly flowed on without runs or sags or other defects.

- C. Painting and finishing shall not be done while surfaces are damp. Coats shall be thoroughly dry and cured before applying succeeding coats. Interior work except on masonry, pipe covering or other soft or rough surfaces, shall be sanded between coats with fine sandpaper to produce an even, smooth finish, unless otherwise specified.
- D. Final interior finish coat shall not be applied until other work has been finished and materials and debris have been removed and the premises have been left in a broom clean condition.
 - 1. Painted surfaces must be fully cured prior to installing items subject to direct contact with said surfaces.

3.04 WORKMANSHIP

- A. Workmanship shall be of the very best. Only skilled mechanics shall be employed.
- B. Finish work shall be uniform and of approved color and shall be smooth, free from runs, sags and defective application. Edges of paint adjoining other materials or colors shall be sharp and clean, without overlapping. Before applying succeeding coats, primers and undercoats shall be completely integral and performing the function for which they are specified. Scratches, abrasions or any other disfigurements shall be properly prepared, sanded, and touched up, and any foreign matter removed before proceeding with the following coat.
- C. Paint shall be applied by a brush, roller or spray. Materials when brushed shall be evenly flowed on with brushes best suited for the type of material being applied. When using a roller, covers shall be of a type most suited for approved materials and textures. Spray applied paint shall be uniformly applied under pressure using recommended equipment.
- D. Apply paint to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color breaks. Where applicable due to project conditions blend in with previously painted surfaces not indicated to receive new finishes.
 - 1. Finished surfaces shall have uniform color, dry opacity, and sheen.

3.05 CLEANING AND PROTECTION

- A. Protect work of other trades, whether being painted or not, against damage from paint application. Correct damage to work of other trades by cleaning, repairing, replacing, and refinishing, and leave in an undamaged condition.
- B. Provide "Wet Paint" signs to warn occupants of and to protect newly painted finishes. Remove temporary protective wrappings provided by others to protect their work after completing painting operations.
- C. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.
- D. At the end of each workday, remove empty cans, rags, cleaning pads, rubbish, and other discarded paint materials from the site.
- E. Just prior to final completion and acceptance, the Contractor shall examine painted and refinished surfaces and retouch or refinish as necessary and required to leave surfaces in perfect condition.

- F. Upon completion of work, painting contractor shall remove paint and varnish spots from floors and other surfaces and remove rubbish and accumulated materials of whatever nature not caused by other trades from premises and leave work in a clean, orderly and acceptable condition. Clean glass and paint-spattered surfaces. Remove spattered paint by washing and scraping. Be careful not to scratch or damage adjacent finished surfaces or to generate dust.

3.06 SCHEDULE OF PAINTING

- A. Products listed on the SCHEDULE OF PAINTING have been recommended by the paint system manufacturers for the intended use and establish a level of quality. If the Contractor submits and/or uses the specified products, the Contractor agrees that the specified products are proper for the intended use. If the Contractor does not agree with the use of the specified products and recommends the use of alternative products that meet or exceed the level of quality of the specified products, the Contractor shall submit written explanation and supporting data from the manufacturer for the proposed products. Only products confirmed in writing by the paint manufacturer that meet or exceed the level of quality of the specified products will be considered. If accepted, proposed products shall be covered under the provisions of the warranty.
- B. Painting and finishing to new and existing surfaces shall be done in accordance with the following schedule except as otherwise noted herein.
 - 1. Prior to application of finishes, perform proper cleaning and preparatory work, moisture/alkalinity/adhesion testing, etc. to all surfaces to be painted/coated as specified within this section. The application of paint or finishes shall be an indication of the Contractor's acceptance of the surface.
 - 2. Paint exposed surfaces unless noted otherwise. Exposed surfaces include areas visible when permanent or built-in fixtures, convector covers, covers for finned-tube radiation, grilles, and similar components are in place. Extend coatings in these areas, as required, to maintain the system integrity and provide desired protection.
 - 3. Paint surfaces behind movable equipment and furniture the same as similar exposed surfaces. Before the final installation of permanently fixed equipment or furniture, paint surfaces behind such equipment or furniture with prime coat only.
 - 4. Paint interior surfaces of ducts with a flat, non-specular black paint where visible through registers or grilles.
 - 5. Paint back sides of access panels and removable or hinged covers to match exposed surfaces.
 - 6. Paint access panels, electrical panels, air diffusing outlets, supply and exhaust grilles, louvers, exposed conduit, primed hardware items, primed outlet covers, primed wall and ceiling plates and other items in painted areas to match the areas in which they occur unless otherwise directed by the Architect.
 - 7. Finish doors on tops, bottoms, and side edges the same as exterior faces.

8. Sand lightly using low-dust emission wet methods between each succeeding enamel or varnish coat, and any other coating products meeting manufacturer's requirements.
 9. Do not paint prefinished surfaces.
- C. It is the intent that the indicated enumeration of coats on surfaces will give approved coverage coatings and each coat shall be applied heavy enough to obtain this result or additional coat(s) will be required at no additional cost. Finished surfaces shall have uniform color, dry opacity, and sheen.
- D. The indicated enumeration of coats is the minimum acceptable number of each item. Substitution of one heavy coat is not an acceptable substitution for two coats.
1. Each coat at a minimum must achieve the manufacturers recommended minimum dry film thickness for the specified item.
- E. Abbreviations shown are:
1. S-W = Sherwin-Williams
 2. PPG = PPG Paints
- F. Interior Painting
1. Exposed ferrous metal work including but not limited to steel lintels, pipe bollards, railings and guardrails, metal doors and frames; semi-gloss sheen finish, 2 finish coats over shop primer coats:
 - a. First and Second Finish Coats
 1. S-W, ProMar 200 Interior Latex Acrylic-Alkyd B34W08251
 2. PPG, Speedhide WB Alkyd 6-1510
 - b. Notes:
 1. Bare metal surfaces shall be touched up with manufacturers required primer before painting, confirm compatibility with shop primer coats
 - a. S-W, ProCryl Universal Metal Primer
 - b. PPG, Seal Grip 17-921 Acrylic Primer
 2. At existing painted surfaces after proper preparatory work has occurred provide manufacturer's proper Primer Coat compatible with existing surfaces before applying the 2 finish coats.
 2. Metal work not primed; semi-gloss sheen finish, 2 finish coats over 1 primer coat:
 - a. Primer Coat
 1. S-W, ProCryl Universal Metal Primer
 2. PPG, Seal Grip 17-921 Acrylic Primer
 - b. First and Second Finish Coats
 1. S-W, ProMar 200 Interior Latex Acrylic-Alkyd B34W08251

2. PPG, Speedhide WB Alkyd 6-1510
3. Concrete block surfaces; semi-gloss sheen finish, 2 finish coats over 1 primer coat:
 - a. Primer Coat
 1. S-W, Interior/Exterior Latex Block Filler
 2. PPG, Speedhide Block Filler 6-7
 - b. First and Second Finish Coats
 1. S-W, ProMar 200 Interior Latex Acrylic-Alkyd, B34W08251
 2. PPG, Speedhide WB Alkyd 6-1510
 - c. Notes:
 1. At existing painted surfaces after proper preparatory work has occurred provide manufacturer's proper Primer Coat compatible with existing surfaces before applying the 2 finish coats.
4. Concrete block surfaces indicated to receive epoxy wall coating; semi-gloss sheen finish, 2 finish coats over 1 primer coat:
 - a. Primer Coat
 1. S-W, Heavy Duty Block Filler B42W46
 2. PPG, Speedhide Block Filler 6-7
 - b. First and Second Finish Coats
 1. S-W, Pro Industrial Pre-Catalyzed Waterbased Epoxy K46-150
 2. PPG, Pitt-Glaze WB1 Pre-Catalyzed Water-Borne Acrylic Epoxy 16-510
 - c. Notes:
 1. At existing painted surfaces after proper preparatory work has occurred provide manufacturer's proper Primer Coat compatible with existing surfaces before applying the 2 finish coats.
5. Gypsum board, impact resistant cement board, plaster, acoustic diffuser ceiling and wall panels, spandrel panels, MDF panels, wood trim indicated to be painted, etc.: finish sheen as noted, 2 finish coats over 1 primer coat:
 - a. Primer Coat
 1. S-W, ProMar 200 Zero VOC Interior Latex Primer B28W2600
 2. PPG, Speedhide Zero VOC Interior Latex Primer 6-4900xi
 - b. First and Second Finish Coats
 1. S-W, ProMar 200 Zero VOC Interior Latex B20W12651 / B30W02651

2. PPG, Speedhide Zero VOC Interior Latex 6-4340xi / 6-4110xi
- c. Notes:
 1. Walls and trim to have eggshell sheen finish, ceilings and soffits to have flat sheen finish.
 2. At existing painted surfaces after proper preparatory work has occurred provide manufacturer's proper Primer Coat compatible with existing surfaces before applying the 2 finish coats.
6. Gypsum board surfaces indicated to receive epoxy wall coating; eggshell sheen finish, 2 finish coats over 1 primer coat:
 - a. Primer Coat
 1. S-W, ProMar 200 Zero VOC Wall Primer B28W2600
 2. PPG, Speedhide Zero VOC Primer 6-4900xi
 - b. First and Second Finish Coats
 - c. First and Second Finish Coats
 1. S-W, Pro Industrial Pre-Catalyzed Waterbased Epoxy K45-150
 2. PPG, Pitt-Glaze WB1 Pre-Catalyzed Water-Borne Acrylic Epoxy 16-310
 - d. Notes:
 1. At existing painted surfaces after proper preparatory work has occurred provide manufacturer's proper Primer Coat compatible with existing surfaces before applying the 2 finish coats.

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