



ARCHITECTURE
ENGINEERING

April 7, 2017

Re: **TCC/Shore Transit- Phase III**
Salisbury, MD
2009145.10

ADDENDUM TWO

The contract documents for the above referenced project, dated March 15, 2017 are amended as follows:

CLARIFICATION

1. See attached Bidders Questions & Answers spreadsheet attached via this addendum
2. Refer to attached CSI form noting approved substitute product related to spec section 072726 basis of design. Additional product information is attached via this addendum.
3. Provide sealed concrete floor finish per spec section 033000 in Wash Bay Mechanical 110
4. Provide Urethane Slurry System floor finish per spec section 096724 (issued via this addendum) in Wash Bay 126

PROJECT MANUAL

1. **SECTION 042000-UNIT MASONRY**
 - a. **REPLACE** section in its entirety with attached
2. **SECTION 072726-FLUID APPLIED MEMBRANE**
 - a. **ADD** additional manuf. "GE Elemax 2600 AWB" to section 072726-2.2-A-1 per approved substitution request issued via this addendum
3. **SECTION 096724-RESINOUS FLOORING**
 - a. **ADD** this section in its with attached

DRAWINGS

1. **N/A**

Attachments: Bidders Questions & Answers spreadsheet thru 4/7/2017
Section - 042000 – Unit Masonry
Section – 096724- Resinous Flooring
CSI – Substitution Request Form-Section 072726
Momentive- Elemax 2600 - Technical Data Sheet
Momentive- Elemax 2600 – Material Compatibility Chart
Sherwin Williams- FasTop 12S Urethane Slurry System – Technical Data Sheet

END OF ADDENDUM NO. TWO

200914510-addendum2.doc

**BECKER MORGAN GROUP
TCC- PHASE III
BIDDER'S QUESTIONS & ANSWERS THROUGH 4/07/2017**

Q #	ANSWER BY - SKETCH	QUESTION / COMMENT	ANSWER	SPEC. DIV.
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New Questions			Addendum #2-April 7, 2017	
1	BMG	What is the extent of masonry work on the project? Do the unit prices noted in spec. section 042000 apply or are these from a previous project phase.	Masonry will be used for patch and repair only in existing Bus Maintenance building. See attached revised spec. section (042000-2.5-B-3) issued via this addendum related to face brick manuf. basis of design/unit prices.	04
2	BMG	In regard to spec. section 072726 is GE Elemax 2600 AWB an accepted substitute for the basis of design product noted in section 072726-2.2-A	Yes, approved as noted in the clarification section of addendum #2. See also CSI substitution request form issued via Addendum #2.	07

SECTION 042000 - UNIT MASONRY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes unit masonry assemblies consisting of the following:
 - 1. Concrete masonry units (CMU).
 - 2. Face brick.
 - 3. Prefaced masonry units.
 - 4. Mortar and grout.
 - 5. Reinforcing steel.
 - 6. Masonry joint reinforcement.
 - 7. Ties and anchors.
 - 8. Embedded flashing.
 - 9. Miscellaneous masonry accessories.
 - 10. Cavity-wall insulation.
- B. Related Sections include the following:
 - 1. Division 07 Section "Bituminous Dampproofing" for dampproofing applied to cavity face of backup wythes of cavity walls.
 - 2. Division 07 Section "Flashing and Sheet Metal" for exposed sheet metal flashing.
 - 3. Division 07 Section "Joint Sealants" for sealing control and expansion joints in unit masonry.
- C. Products furnished, but not installed, under this Section include the following:
 - 1. Anchor sections of adjustable masonry anchors for connecting to structural frame, installed under Division 05 Section "Structural Steel Framing."
- D. Products installed, but not furnished, under this Section include the following:
 - 1. Steel lintels and shelf angles for unit masonry, furnished under Division 05 Section "Metal Fabrications."
 - 2. Manufactured reglets in masonry joints for metal flashing, furnished under Division 07 Section "Flashing and Sheet Metal."

1.3 DEFINITIONS

- A. Reinforced Masonry: Masonry containing reinforcing steel in grouted cells.

1.4 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Shop Drawings: For the following:
 - 1. Masonry Units: Show sizes, profiles, coursing, and locations of special shapes.
 - 2. Reinforcing Steel: Detail bending and placement of unit masonry reinforcing bars. Comply with ACI 315, "Details and Detailing of Concrete Reinforcement."
 - 3. Fabricated Flashing: Detail corner units, end-dam units, and other special applications.
- C. Samples required for initial selection if not designated in Part 2-Products:
 - 1. Decorative concrete masonry units, in the form of small-scale units.
 - 2. Face brick, in the form of straps of five or more bricks.
 - 3. Colored mortar.
- D. Mix Designs: For each type of mortar and grout. Include description of type and proportions of ingredients.
 - 1. Include test reports, per ASTM C 780, for mortar mixes required to comply with property specification.
 - 2. Include test reports, per ASTM C 1019, for grout mixes required to comply with compressive strength requirement.
- E. Cold-Weather Procedures: Detailed description of methods, materials, and equipment to be used to comply with cold-weather requirements.

1.5 QUALITY ASSURANCE

- A. Testing Agency Qualifications: An independent agency qualified according to ASTM C 1093 for testing indicated, as documented according to ASTM E 548.
- B. Source Limitations for Masonry Units: Obtain exposed masonry units of a uniform texture and color, or a uniform blend within the ranges accepted for these characteristics, through one source from a single manufacturer for each product required.
 - 1. Obtain all brick types from one manufacturing plant.
- C. Source Limitations for Mortar Materials: Obtain mortar ingredients of a uniform quality, including color for exposed masonry, from a single manufacturer for each cementitious component and from one source or producer for each aggregate.
- D. Fire-Resistance Ratings: Where indicated, provide materials and construction identical to those of assemblies with fire-resistance ratings determined per ASTM E 119 by a testing and inspecting agency, by equivalent concrete masonry thickness, or by other means, as acceptable to authorities having jurisdiction.
- E. Sample Panels: Build sample panels of each product to demonstrate aesthetic effects. Comply with requirements in Division 01 Section "Quality Requirements" for mockups.

1. Build sample panels for each type of exposed unit masonry construction in sizes approximately 48 inches long by 48 inches high.
 2. Clean one-half of exposed faces of panels with masonry cleaner indicated.
 3. Protect approved sample panels from the elements with weather-resistant membrane.
 4. Erection of sample panels is for final product selection based on color, texture, and blending of masonry units; relationship of mortar to masonry unit colors and other material and construction qualities specifically approved by Architect in writing.
 - a. Approval of sample panels does not constitute approval of deviations from the Contract Documents contained in sample panels unless such deviations are specifically approved by Architect in writing.
- F. Mockup: Prior to installing unit masonry, construct sample wall panels to verify selections made under sample submittals and to demonstrate aesthetic effects of materials and execution. Build mockups to comply with the following requirements, using materials indicated for final unit of Work.
1. Locate mockups on site in the locations indicated or, if not indicated, as directed by Architect.
 2. Build mockups for the following types of masonry in sizes approximately long by 4 feet high by full thickness, including face and back-up wythes as well as accessories. Coordinate panel make-up with Architect.
 - a. Typical exterior face brick wall.
 - b. Include sealant-filled joint complying with requirements of Division 7 Section "Joint Sealants".
 3. Clean exposed faces of mockups with masonry cleaner indicated.
 4. Notify Architect one week in advance of the dates and times when mockups will be constructed.
 5. Protect accepted mockups from the elements with weather-resistant membrane.
 6. Retain and maintain mockups during construction in an undisturbed condition as a standard for judging the completed Work.
 - a. Acceptance of mockups is for color, texture, and blending of masonry units; relationship of mortar and sealant colors to masonry unit colors; tooling of joints; aesthetic qualities of workmanship; and other material and construction qualities specifically approved by Architect in writing.
 - b. Acceptance of mockups does not constitute approval of deviations from the Contract Documents contained in mockups, unless such deviations are specifically approved by Architect in writing.
 7. Provide field panel if brick other than the basis of design is chosen. Field panel to be constructed from both alternate brick as well as basis – of design for comparison/selection of owner/architect.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Store masonry units on elevated platforms in a dry location. If units are not stored in an enclosed location, cover tops and sides of stacks with waterproof sheeting, securely tied. If units become wet, do not install until they are dry.

- B. Store cementitious materials on elevated platforms, under cover, and in a dry location. Do not use cementitious materials that have become damp.
- C. Store aggregates where grading and other required characteristics can be maintained and contamination avoided.
- D. Deliver preblended, dry mortar mix in moisture-resistant containers designed for lifting and emptying into dispensing silo. Store preblended, dry mortar mix in delivery containers on elevated platforms, under cover, and in a dry location or in a metal dispensing silo with weatherproof cover.
- E. Store masonry accessories, including metal items, to prevent corrosion and accumulation of dirt and oil.

1.7 PROJECT CONDITIONS

- A. Protection of Masonry: During construction, cover tops of walls, projections, and sills with waterproof sheeting at end of each day's work. Cover partially completed masonry when construction is not in progress.
 - 1. Extend cover a minimum of 24 inches down both sides and hold cover securely in place.
 - 2. Where 1 wythe of multiwythe masonry walls is completed in advance of other wythes, secure cover a minimum of 24 inches down face next to unconstructed wythe and hold cover in place.
- B. Do not apply uniform floor or roof loads for at least 12 hours and concentrated loads for at least 3 days after building masonry walls or columns.
- C. Stain Prevention: Prevent grout, mortar, and soil from staining the face of masonry to be left exposed or painted. Immediately remove grout, mortar, and soil that come in contact with such masonry.
 - 1. Protect base of walls from rain-splashed mud and from mortar splatter by spreading coverings on ground and over wall surface.
 - 2. Protect sills, ledges, and projections from mortar droppings.
 - 3. Protect surfaces of window and door frames, as well as similar products with painted and integral finishes, from mortar droppings.
 - 4. Turn scaffold boards near the wall on edge at the end of each day to prevent rain from splashing mortar and dirt onto completed masonry.
- D. Cold-Weather Requirements: Do not use frozen materials or materials mixed or coated with ice or frost. Do not build on frozen substrates. Remove and replace unit masonry damaged by frost or by freezing conditions. Comply with cold-weather construction requirements contained in ACI 530.1/ASCE 6/TMS 602.
 - 1. Cold-Weather Cleaning: Use liquid cleaning methods only when air temperature is 40 deg F and above and will remain so until masonry has dried, but not less than 7 days after completing cleaning.
- E. Hot-Weather Requirements: Comply with hot-weather construction requirements contained in ACI 530.1/ASCE 6/TMS 602.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. In other Part 2 articles where titles below introduce lists, the following requirements apply to product selection:
1. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include the specific products specified.
 2. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include the specific manufacturers specified.
 3. All clay masonry units to be from single source manufacturer.

2.2 MASONRY UNITS, GENERAL

- A. Defective Units: Referenced masonry unit standards may allow a certain percentage of units to exceed tolerances and to contain chips, cracks, or other defects exceeding limits stated in the standard. Do not use units where such defects, including dimensions that vary from specified dimensions by more than stated tolerances, will be exposed in the completed Work or will impair the quality of completed masonry.

2.3 CONCRETE MASONRY UNITS (CMU)

- A. Shapes: Provide shapes indicated and as follows:
1. Provide special shapes for lintels, corners, jambs, sashes, movement joints, headers, bonding, and other special conditions.
- B. Concrete Masonry Units: ASTM C 90.
1. Weight Classification: Lightweight Normal weight.
 2. Size (Width): Manufactured to the following dimensions:
 - a. 4 inch nominal: 3-5/8 inch actual.
 - b. 6 inch nominal: 5-5/8 inch actual.
 - c. 8 inch nominal: 7-5/8 inch actual.
 - d. 10 inch nominal: 9-5/8 inch actual.
 - e. 12 inch nominal: 11-5/8 inch actual.
 3. Exposed Faces: Provide color and texture matching the range represented by Architect's sample.
 4. Faces to Receive Plaster: Where units are indicated to receive a direct application of plaster, provide textured-face units made with gap-graded aggregates.

2.4 CONCRETE LINTELS

- A. Concrete Lintels: Precast units made from concrete matching concrete masonry units in color, texture, and compressive strength and with reinforcing bars indicated or required to support loads indicated. Cure precast lintels by same method used for concrete masonry units.

2.5 BRICK

- A. General: Provide shapes indicated and as follows:
1. For ends of sills and caps and for similar applications that would otherwise expose unfinished brick surfaces, provide units without cores or frogs and with exposed surfaces finished.
 2. Provide special shapes as designated on drawings.
- B. Brick
1. Face Brick: ASTM C 216, Grade SW, Type FBX.
 - a. Initial Rate of Absorption: Less than 30 g/30 sq. in. per minute when tested per ASTM C 67.
 - b. Efflorescence: Provide brick that has been tested according to ASTM C 67 and is rated "not effloresced."
 - c. Surface Coating: Brick with colors or textures produced by application of coatings shall withstand 50 cycles of freezing and thawing per ASTM C 67 with no observable difference in the applied finish when viewed from 10 feet
 - d. Size (Actual Dimensions): 3-5/8" wide by 3-5/8" high by 16" long.
 - e. Application: Use where brick is exposed, unless otherwise indicated.
 - f. Allowances: Unit cost allowances for face brick.
 2. Glazed Face Brick: Either ASTM C 1405, Class Exterior, Grade S (Select) or ASTM C 216, Grade MW or SW, Type FBX; with glaze complying with ASTM C 126.
 3. Finish (Basis of Design) – Note basis of design listed as infill material only for restoration/patching :
 - a. Face brick Type A: Belden – 8621
 - b. Face brick Type B: Belden – Potomac Clear
 - c. Face brick Type C: Belden – Black Glazed Monarch

2.6 MORTAR AND GROUT MATERIALS

- A. Portland Cement: ASTM C 150, Type I or II, except Type III may be used for cold-weather construction. Provide natural color or white cement as required to produce mortar color indicated.
- B. Hydrated Lime: ASTM C 207, Type S.
- C. Portland Cement-Lime Mix: Packaged blend of portland cement complying with ASTM C 150, Type I or Type III, and hydrated lime complying with ASTM C 207, Type S.

- D. Mortar Pigments: Natural and synthetic iron oxides and chromium oxides, compounded for use in mortar mixes. Use only pigments with a record of satisfactory performance in masonry mortar.

1. Available Products:

- a. Bayer Corporation, Industrial Chemicals Div.; Bayferrox Iron Oxide Pigments.
- b. Davis Colors; True Tone Mortar Colors.
- c. Solomon Grind-Chem Services, Inc.; SGS Mortar Colors.

OR

Equivalent product to manufacturers listed above that meet all technical requirements of section 042000 and the contract drawings.

- E. Colored Cement Product: Packaged blend made from portland cement and lime and mortar pigments, all complying with specified requirements, and containing no other ingredients.

1. Formulate blend as required to produce color indicated or, if not indicated, as selected from manufacturer's standard colors.
2. Pigments shall not exceed 10 percent of portland cement by weight.
3. Available Products:

a. Colored Portland Cement-Lime Mix:

- 1) Capital Materials Corporation; Riverton Portland Cement Lime Custom Color.
 - 2) Holcim (US) Inc.; Rainbow Mortamix Custom Color Cement/Lime.
 - 3) Lafarge North America Inc.; Eaglebond.
 - 4) Lehigh Cement Company; Lehigh Custom Color Portland/Lime Cement.
- OR**
- 5) Equivalent product to manufacturers listed above that meet all technical requirements of section 042000 and the contract drawings.

- F. Aggregate for Mortar: ASTM C 144.

1. For mortar that is exposed to view, use washed aggregate consisting of natural sand or crushed stone.
2. For joints less than 1/4 inch thick, use aggregate graded with 100 percent passing the No. 16 sieve.

- G. Aggregate for Grout: ASTM C 404.

- H. Water: Potable.

2.7 REINFORCEMENT

- A. Uncoated Steel Reinforcing Bars: ASTM A 615/A 615M or ASTM A 996/A 996M, Grade 60.
- B. Masonry Joint Reinforcement, General: ASTM A 951.

1. Interior Walls: Hot-dip galvanized, carbon steel.
 2. Exterior Walls: Hot-dip galvanized, carbon steel.
 3. Wire Size for Side Rods: W1.7 or 0.148-inch diameter.
 4. Wire Size for Cross Rods: W1.7 or 0.148-inch diameter.
 5. Wire Size for Veneer Ties: W1.7 or 0.148-inch diameter.
 6. Spacing of Cross Rods, Tabs, and Cross Ties: Not more than 16 inches o.c.
 7. Provide in lengths of not less than 10 feet.
- C. Masonry Joint Reinforcement for Single-Wythe Masonry: Ladder with single pair of side rods.
- D. Masonry Joint Reinforcement for Multiwythe Masonry:
1. Ladder type with 1 side rod at each face shell of hollow masonry units more than 4 inches in width, plus 1 side rod at each wythe of masonry 4 inches or less in width.
 2. Tab type, either ladder or truss design, with 1 side rod at each face shell of backing wythe and with rectangular tabs sized to extend at least halfway through facing wythe but with at least 5/8-inch cover on outside face.
 3. Adjustable (two-piece) type, either ladder or truss design, with one side rod at each face shell of backing wythe and with separate ties that extend into facing wythe. Ties have two hooks that engage eyes or slots in reinforcement and resist movement perpendicular to wall. Ties extend at least halfway through facing wythe but with at least 5/8-inch cover on outside face. Ties have hooks or clips to engage a continuous horizontal wire in the facing wythe.
 4. Brick Veneer Wall Self Drilling Anchor and tie: Patented anchor with metal barrel/eye and self drilling interchangeable threaded screws appropriate for steel studs, structural steel, concrete and masonry back-up. Include 3/4-inch sealing washer at sheathing and flashing. Fabricate wire ties of 5 gage ASTM A82 steel wire, galvanized with minimum 0.90 ounce of zinc; length to provide minimum 2 1/2-inch embedment in masonry.
 - a. Manufacturer: Heckmann Building Products Inc. Pos-I-Tie Systems No. 75.

2.8 TIES AND ANCHORS

- A. Materials: Provide ties and anchors specified in subsequent paragraphs that are made from materials that comply with eight subparagraphs below, unless otherwise indicated.
1. Hot-Dip Galvanized, Carbon-Steel Wire: ASTM A 82; with ASTM A 153/A 153M, Class B-2 coating.
 2. Stainless-Steel Wire: ASTM A 580/A 580M, Type 304.
 3. Galvanized Steel Sheet: ASTM A 653/A 653M, Commercial Steel, G60 zinc coating.
 4. Steel Sheet, Galvanized after Fabrication: ASTM A 1008/A 1008M, Commercial Steel, hot-dip galvanized after fabrication to comply with ASTM A 153/A 153M.
 5. Stainless-Steel Sheet: ASTM A 666, Type 304.
- B. Corrugated Metal Ties: Metal strips not less than 7/8 inch wide with corrugations having a wavelength of 0.3 to 0.5 inch and an amplitude of 0.06 to 0.10 inch made from steel sheet, galvanized after fabrication not less than 0.043 inch thick.
- C. Wire Ties, General: Unless otherwise indicated, size wire ties to extend at least halfway through veneer but with at least 5/8-inch cover on outside face. Outer ends of wires are bent 90 degrees and extend 2 inches parallel to face of veneer.

- D. Adjustable Anchors for Connecting to Structure: Provide anchors that allow vertical or horizontal adjustment but resist tension and compression forces perpendicular to plane of wall.
1. Anchor Section for Welding to Steel Frame: Crimped 1/4-inch- diameter, hot-dip galvanized steel wire.
 2. Tie Section for Steel Frame: Triangular-shaped wire tie, sized to extend within 1 inch of masonry face, made from 0.188-inch- 0.25-inch- diameter, hot-dip galvanized steel wire.
 3. Tie Section for Concrete: Corrugated metal ties with dovetail tabs for inserting into dovetail slots in concrete and sized to extend to within 1 inch of masonry face.

2.9 MISCELLANEOUS ANCHORS

- A. Anchor Bolts: Headed or L-shaped steel bolts complying with ASTM A 307, Grade A; with ASTM A 563 hex nuts and, where indicated, flat washers; hot-dip galvanized to comply with ASTM A 153/A 153M, Class C; of dimensions indicated.

2.10 EMBEDDED FLASHING MATERIALS

- A. Metal Flashing: Provide metal flashing, where flashing is exposed or partly exposed and where indicated, complying with SMACNA's "Architectural Sheet Metal Manual Division 07 Section "Sheet Metal Flashing and Trim" and as follows:
1. Stainless Steel: ASTM A 240/A 240M, Type 304, 0.016 inch thick.
 2. Fabricate continuous flashings in sections 96 inches long minimum, but not exceeding 12 feet. Provide splice plates at joints of formed, smooth metal flashing.
 3. Fabricate through-wall metal flashing embedded in masonry from stainless steel, with ribs at 3-inch intervals along length of flashing to provide an integral mortar bond.
 - a. Available Products:
 - 1) Cheney Flashing Company; Cheney Flashing (Dovetail) or Cheney 3-Way Flashing (Sawtooth).
 - 2) Keystone Flashing Company, Inc.; Keystone 3-Way Interlocking Thruwall Flashing.
OR
 - 3) Equivalent product to manufacturers listed above that meet all technical requirements of section 042000 and the contract drawings.
 4. Fabricate through-wall flashing with snaplock receiver on exterior face where indicated to receive counterflashing.
 5. Fabricate through-wall flashing with drip edge, unless otherwise indicated. Fabricate by extending flashing 1/2 inch out from wall, with outer edge bent down 30 degrees and hemmed.
 6. Fabricate through-wall flashing with sealant stop, unless otherwise indicated. Fabricate by bending metal back on itself 3/4 inch at exterior face of wall and down into joint 3/8 inch to form a stop for retaining sealant backer rod.
 7. Fabricate metal drip edges and sealant stops for ribbed metal flashing from plain metal flashing of same metal as ribbed flashing and extending at least 3 inches into wall with hemmed inner edge to receive ribbed flashing and form a hooked seam. Form hem on upper surface of metal so that completed seam will shed water.

8. Metal Drip Edges: Fabricate from stainless steel. Extend at least 3 inches into wall and 1/2 inch out from wall, with outer edge bent down 30 degrees and hemmed.
 9. Metal Flashing Terminations: Fabricate from stainless steel. Extend at least 3 inches into wall and out to exterior face of wall. At exterior face of wall, bend metal back on itself for 3/4 inch and down into joint 3/8 inch to form a stop for retaining sealant backer rod.
 10. Metal Expansion-Joint Strips: Fabricate from stainless steel to shapes indicated.
- B. Flexible Flashing: For flashing not exposed to the exterior, use one of the following, unless otherwise indicated:
1. Asphalt-Coated Copper Flashing: 5-oz./sq. ft. copper sheet coated with flexible asphalt. Use only where flashing is fully concealed in masonry.
 - a. Available Products:
 - 1) Advanced Building Products Inc.; Cop-R-Cote.
 - 2) AFCO Products Inc.; Cop-A-Cote.
 - 3) Hohmann & Barnard, Inc.; H & B C-Coat Flashing.
 - 4) Phoenix Building Products; Type ACC-Asphalt Bituminous Coated.
 - 5) Polytite Manufacturing Corp.; Coated Copper Flashing.
 - 6) Sandell Manufacturing Co., Inc.; Coated Copper Flashing.
 - 7) York Manufacturing, Inc.; Copperseal.OR
 - 8) Equivalent product to manufacturers listed above that meet all technical requirements of section 042000 and the contract drawings.
- C. Single-Wythe CMU Flashing System: System of CMU cell flashing pans and interlocking CMU web covers made from high-density polyethylene incorporating chemical stabilizers that prevent UV degradation. Cell flashing pans have integral weep spouts that are designed to be built into mortar bed joints and weep collected moisture to the exterior of CMU walls and that extend into the cell to prevent clogging with mortar.
- D. Solder and Sealants for Sheet Metal Flashings: As specified in Division 07 Section "Sheet Metal Flashing and Trim."
1. Solder for Stainless Steel: ASTM B 32, Grade Sn60, with acid flux of type recommended by stainless-steel sheet manufacturer.
 2. Solder for Copper: ASTM B 32, Grade Sn50, 50 percent tin and 50 percent lead.
- E. Adhesives, Primers, and Seam Tapes for Flashings: Flashing manufacturer's standard products or products recommended by flashing manufacturer for bonding flashing sheets to each other and to substrates.
- 2.11 MISCELLANEOUS MASONRY ACCESSORIES
- A. Weep/Vent Products: Use the following, unless otherwise indicated:
1. Wicking Material: Absorbent rope, made from cotton or UV-resistant synthetic fiber, 1/4 to 3/8 inch in diameter, in length required to produce 2-inch exposure on exterior and 18 inches in cavity between wythes. Use only for weeps.

- B. Cavity Drainage Material: Free-draining mesh, made from polymer strands that will not degrade within the wall cavity.
1. Provide one of the following configurations:
 - a. Strips, full-depth of cavity and 10 inches wide, with dovetail shaped notches 7 inches deep that prevent mesh from being clogged with mortar droppings.
 - b. Strips, not less than 3/4 inch thick and 10 inches wide, with dimpled surface designed to catch mortar droppings and prevent weep holes from being clogged with mortar.
 - c. Sheets or strips full depth of cavity and installed to full height of cavity.
 - d. Sheets or strips not less than 3/4 inch thick and installed to full height of cavity with additional strips 4 inches high at weep holes and thick enough to fill entire depth of cavity and prevent weep holes from being clogged with mortar.
 2. Available Products:
 - a. Advanced Building Products Inc.; Mortar Break Mortar Break II.
 - b. Archovations, Inc.; CavClear Masonry Mat.
 - c. Dayton Superior Corporation, Dur-O-Wal Division; Polytite MortarStop.
 - d. Mortar Net USA, Ltd.; Mortar Net.
 - e. OR
Equivalent product to manufacturers listed above that meet all technical requirements of section 042000 and the contract drawings.

2.12 CAVITY-WALL INSULATION

- A. Extruded-Polystyrene Board Insulation: ASTM C 578, Type IV, closed-cell product extruded with an integral skin.
- B. Adhesive: Type recommended by insulation board manufacturer for application indicated.

2.13 MASONRY CLEANERS

- A. Proprietary Acidic Cleaner: Manufacturer's standard-strength cleaner designed for removing mortar/grout stains, efflorescence, and other new construction stains from new masonry without discoloring or damaging masonry surfaces. Use product expressly approved for intended use by cleaner manufacturer and manufacturer of masonry units being cleaned.
 1. Available Manufacturers:
 - a. Diedrich Technologies, Inc.
 - b. EaCo Chem, Inc.
 - c. ProSoCo, Inc.
 - d. OR
Equivalent product to manufacturers listed above that meet all technical requirements of section 042000 and the contract drawings.

2.14 MORTAR AND GROUT MIXES

- A. General: Do not use admixtures, including pigments, air-entraining agents, accelerators, retarders, water-repellent agents, antifreeze compounds, or other admixtures, unless otherwise indicated.
 - 1. Do not use calcium chloride in mortar or grout.
 - 2. Limit cementitious materials in mortar to portland cement-lime.
- B. Preblended, Dry Mortar Mix: Furnish dry mortar ingredients in form of a preblended mix. Measure quantities by weight to ensure accurate proportions, and thoroughly blend ingredients before delivering to Project site.
- C. Mortar for Unit Masonry: Comply with ASTM C 270, Property Specification. Provide the following types of mortar for applications stated unless another type is indicated or needed to provide required compressive strength of masonry.
 - 1. For masonry below grade or in contact with earth, use Type S.
 - 2. For reinforced masonry, use Type S.
 - 3. For mortar parge coats, use Type S.
 - 4. For exterior, above-grade, load-bearing and non-load-bearing walls and parapet walls; for interior load-bearing walls; use Type S.
 - 5. For interior non-load-bearing partitions; and for other applications where another type is not indicated use Type N.
- D. Pigmented Mortar: Use colored cement product or select and proportion pigments with other ingredients to produce color required. Do not add pigments to colored cement products.
 - 1. Mix to match Architect's sample.
- E. Grout for Unit Masonry: Comply with ASTM C 476.
 - 1. Use grout of type indicated or, if not otherwise indicated, of type (fine or coarse) that will comply with Table 1.15.1 in ACI 530.1/ASCE 6/TMS 602 for dimensions of grout spaces and pour height.
 - 2. Provide grout with a slump of 8 to 11 inches as measured according to ASTM C 143/C 143M.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of work.
 - 1. For the record, prepare written report, endorsed by Installer, listing conditions detrimental to performance of work.
 - 2. Verify that foundations are within tolerances specified.
 - 3. Verify that reinforcing dowels are properly placed.
- B. Before installation, examine rough-in and built-in construction for piping systems to verify actual locations of piping connections.

- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION, GENERAL

- A. Thickness: Build cavity and composite walls and other masonry construction to full thickness shown. Build single-wythe walls to actual widths of masonry units, using units of widths indicated.
- B. Build chases and recesses to accommodate items specified in this and other Sections.
- C. Leave openings for equipment to be installed before completing masonry. After installing equipment, complete masonry to match the construction immediately adjacent to opening.
- D. Use full-size units without cutting if possible. If cutting is required to provide a continuous pattern or to fit adjoining construction, cut units with motor-driven saws; provide clean, sharp, unchipped edges. Allow units to dry before laying unless wetting of units is specified. Install cut units with cut surfaces and, where possible, cut edges concealed.
- E. Select and arrange units for exposed unit masonry to produce a uniform blend of colors and textures.
 - 1. Mix units from several pallets or cubes as they are placed.
- F. Wetting of Brick: Wet brick before laying if initial rate of absorption exceeds 30 g/30 sq. in. per minute when tested per ASTM C 67. Allow units to absorb water so they are damp but not wet at time of laying.
- G. Comply with construction tolerances in ACI 530.1/ASCE 6/TMS 602 and with the following:
 - 1. For conspicuous vertical lines, such as external corners, door jambs, reveals, and expansion and control joints, do not vary from plumb by more than 1/8 inch in 10 feet.
 - 2. For vertical alignment of exposed head joints, do not vary from plumb by more than 1/4 inch in 10 feet maximum.
 - 3. For conspicuous horizontal lines, such as lintels, sills, parapets, and reveals, do not vary from level by more than 1/8 inch in 10 feet maximum.
 - 4. For exposed bed joints, do not vary from thickness indicated by more than plus or minus 1/8 inch, with a maximum thickness limited to 1/2 inch. Do not vary from bed-joint thickness of adjacent courses by more than 1/8 inch.
 - 5. For exposed head joints, do not vary from thickness indicated by more than plus or minus 1/8 inch. Do not vary from adjacent bed-joint and head-joint thicknesses by more than 1/8 inch.
 - 6. For faces of adjacent exposed masonry units, do not vary from flush alignment by more than 1/16 inch except due to warpage of masonry units within tolerances specified for warpage of units.
 - 7. For exposed bed joints and head joints of stacked bond, do not vary from a straight line by more than 1/16 inch from one masonry unit to the next.

3.3 LAYING MASONRY WALLS

- A. Lay out walls in advance for accurate spacing of surface bond patterns with uniform joint thicknesses and for accurate location of openings, movement-type joints, returns, and offsets.

Avoid using less-than-half-size units, particularly at corners, jambs, and, where possible, at other locations.

- B. Bond Pattern for Exposed Masonry: Unless otherwise indicated, lay exposed masonry in running bond; do not use units with less than nominal 4-inch horizontal face dimensions at corners or jambs.
- C. Lay concealed masonry with all units in a wythe in running bond or bonded by lapping not less than 2 inches. Bond and interlock each course of each wythe at corners. Do not use units with less than nominal 4-inch horizontal face dimensions at corners or jambs.
- D. Stopping and Resuming Work: Stop work by racking back units in each course from those in course below; do not tooth. When resuming work, clean masonry surfaces that are to receive mortar, remove loose masonry units and mortar, and wet brick if required before laying fresh masonry.
- E. Built-in Work: As construction progresses, build in items specified in this and other Sections. Fill in solidly with masonry around built-in items.
- F. Fill space between steel frames and masonry solidly with mortar, unless otherwise indicated.
- G. Where built-in items are to be embedded in cores of hollow masonry units, place a layer of metal lath, wire mesh, or plastic mesh in the joint below and rod mortar or grout into core.
- H. Fill cores in hollow concrete masonry units with grout 24 inches under bearing plates, beams, lintels, posts, and similar items, unless otherwise indicated.
- I. Fill cores in hollow concrete masonry units with sand where sound attenuation is noted by wall type on drawings.
- J. Build non-load-bearing interior partitions full height of story to underside of solid floor or roof structure above, unless otherwise indicated.
 - 1. Fasten partition top anchors to structure above and build into top of partition. Grout cells of CMUs solidly around plastic tubes of anchors and push tubes down into grout to provide 1/2-inch clearance between end of anchor rod and end of tube. Space anchors 48 inches o.c., unless otherwise indicated.
 - 2. Wedge non-load-bearing partitions against structure above with small pieces of tile, slate, or metal. Fill joint with mortar after dead-load deflection of structure above approaches final position.
 - 3. At fire-rated partitions, treat joint between top of partition and underside of structure above to comply with Division 07 Section "Fire-Resistive Joint Systems."

3.4 MORTAR BEDDING AND JOINTING

- A. Lay hollow concrete masonry units as follows:
 - 1. With face shells fully bedded in mortar and with head joints of depth equal to bed joints.
 - 2. With webs fully bedded in mortar in all courses of piers, columns, and pilasters.
 - 3. With webs fully bedded in mortar in grouted masonry, including starting course on footings.

4. With entire units, including areas under cells, fully bedded in mortar at starting course on footings where cells are not grouted.
- B. Lay solid masonry units with completely filled bed and head joints; butter ends with sufficient mortar to fill head joints and shove into place. Do not deeply furrow bed joints or slush head joints.
- C. Tool exposed joints slightly concave when thumbprint hard, using a jointer larger than joint thickness, unless otherwise indicated.
- D. Cut joints flush for masonry walls to receive plaster or other direct-applied finishes (other than paint), unless otherwise indicated.

3.5 CAVITY WALLS

- A. Bond wythes of cavity walls together using one of the following methods:
 1. Individual Metal Ties: Provide ties as shown installed in horizontal joints, but not less than one metal tie for 2.67 sq. ft. of wall area spaced not to exceed o.c. horizontally and 16 inches o.c. vertically. Stagger ties in alternate courses. Provide additional ties within 12 inches of openings and space not more than 16 inches apart around perimeter of openings. At intersecting and abutting walls, provide ties at no more than 24 inches o.c. vertically.
 - a. Where bed joints of wythes do not align, use adjustable (two-piece) type ties.
 - b. Where one wythe is of clay masonry and the other of concrete masonry, use adjustable (two-piece) type ties to allow for differential movement regardless of whether bed joints align.
 2. Masonry Joint Reinforcement: Installed in horizontal mortar joints.
 - a. Where bed joints of both wythes align, use ladder-type reinforcement extending across both wythes.
 - b. Where bed joints of wythes do not align, use adjustable (two-piece) type reinforcement with continuous horizontal wire in facing wythe attached to ties.
 - c. Where one wythe is of clay masonry and the other of concrete masonry, use adjustable (two-piece) type reinforcement with continuous horizontal wire in facing wythe attached to ties to allow for differential movement regardless of whether bed joints align.
 3. Header Bonding: Provide masonry unit headers extending not less than 3 inches into each wythe. Space headers not over 8 inches clear horizontally and 16 inches clear vertically.
- B. Bond wythes of cavity walls together using bonding system indicated on Drawings.
- C. Keep cavities clean of mortar droppings and other materials during construction. Bevel beds away from cavity, to minimize mortar protrusions into cavity. Do not attempt to trowel or remove mortar fins protruding into cavity.

- D. Parge cavity face of backup wythe in a single coat approximately 3/8 inch thick. Trowel face of parge coat smooth.
- E. Coat cavity face of backup wythe to comply with Division 07 Section "Bituminous Dampproofing."
- F. Installing Cavity-Wall Insulation: Place small dabs of adhesive, spaced approximately 12 inches o.c. both ways, on inside face of insulation boards, or attach with plastic fasteners designed for this purpose. Fit courses of insulation between wall ties and other confining obstructions in cavity, with edges butted tightly both ways. Press units firmly against inside wythe of masonry or other construction as shown.
 - 1. Fill cracks and open gaps in insulation with crack sealer compatible with insulation and masonry.

3.6 MASONRY JOINT REINFORCEMENT

- A. General: Install entire length of longitudinal side rods in mortar with a minimum cover of 5/8 inch on exterior side of walls, 1/2 inch elsewhere. Lap reinforcement a minimum of 6 inches.
 - 1. Space reinforcement not more than 16 inches o.c.
 - 2. Space reinforcement not more than 8 inches o.c. in foundation walls and parapet walls.
 - 3. Provide reinforcement not more than 8 inches above and below wall openings and extending 12 inches beyond openings.
 - a. Reinforcement above is in addition to continuous reinforcement.
- B. Interrupt joint reinforcement at control and expansion joints, unless otherwise indicated.
- C. Provide continuity at wall intersections by using prefabricated T-shaped units.
- D. Provide continuity at corners by using prefabricated L-shaped units.
- E. Cut and bend reinforcing units as directed by manufacturer for continuity at corners, returns, offsets, column fireproofing, pipe enclosures, and other special conditions.

3.7 ANCHORING MASONRY TO STRUCTURAL MEMBERS

- A. Anchor masonry to structural members where masonry abuts or faces structural members to comply with the following:
 - 1. Provide an open space not less than 1/2 inch in width between masonry and structural member, unless otherwise indicated. Keep open space free of mortar and other rigid materials.
 - 2. Anchor masonry to structural members with anchors embedded in masonry joints and attached to structure.
 - 3. Space anchors as indicated, but not more than 24 inches o.c. vertically and 36 inches o.c. horizontally.

3.8 CONTROL AND EXPANSION JOINTS

- A. General: Install control and expansion joint materials in unit masonry as masonry progresses. Do not allow materials to span control and expansion joints without provision to allow for in-plane wall or partition movement.
- B. Form control joints in concrete masonry as follows:
 - 1. Install temporary foam-plastic filler in head joints and remove filler when unit masonry is complete for application of sealant.
- C. Form expansion joints in brick made from clay or shale as follows:
 - 1. Build flanges of metal expansion strips into masonry. Lap each joint 4 inches in direction of water flow. Seal joints below grade and at junctures with horizontal expansion joints if any.
 - 2. Build flanges of factory-fabricated, expansion-joint units into masonry.
 - 3. Form open joint full depth of brick wythe and of width indicated, but not less than 3/8 inch for installation of sealant and backer rod specified in Division 07 Section "Joint Sealants."
- D. Provide horizontal, pressure-relieving joints by either leaving an air space or inserting a compressible filler of width required for installing sealant and backer rod specified in Division 07 Section "Joint Sealants," but not less than 3/8 inch.
 - 1. Locate horizontal, pressure-relieving joints beneath shelf angles supporting masonry.

3.9 LINTELS

- A. Install steel lintels where indicated.
- B. Provide concrete lintels where shown and where openings of more than 12 inches for brick-size units and 24 inches for block-size units are shown without structural steel or other supporting lintels.
- C. Provide minimum bearing of 8 inches at each jamb, unless otherwise indicated.

3.10 FLASHING, WEEP HOLES, CAVITY DRAINAGE, AND VENTS

- A. General: Install embedded flashing and weep holes in masonry at shelf angles, lintels, ledges, other obstructions to downward flow of water in wall, and where indicated. Install vents at shelf angles, ledges, and other obstructions to upward flow of air in cavities, and where indicated.
- B. Install flashing as follows, unless otherwise indicated:
 - 1. Prepare masonry surfaces so they are smooth and free from projections that could puncture flashing. Where flashing is within mortar joint, place through-wall flashing on sloping bed of mortar and cover with mortar. Before covering with mortar, seal penetrations in flashing with adhesive, sealant, or tape as recommended by flashing manufacturer.
 - 2. At multiwythe masonry walls, including cavity walls, extend flashing through outer wythe, turned up a minimum of 4 inches, and through inner wythe to within 1/2 inch of

- the interior face of wall in exposed masonry. Where interior face of wall is to receive furring or framing, carry flashing completely through inner wythe and turn flashing up approximately 2 inches on interior face.
3. At multiwythe masonry walls, including cavity walls, extend flashing through outer wythe, turned up a minimum of 4 inches, and 1-1/2 inches into the inner wythe. Form 1/4-inch hook in edge of flashing embedded in inner wythe.
 4. At masonry-veneer walls, extend flashing through veneer, across air space behind veneer, and up face of sheathing at least 8 inches; with upper edge tucked under building paper or building wrap, lapping at least 4 inches.
 5. At lintels and shelf angles, extend flashing a minimum of 6 inches into masonry at each end. At heads and sills, extend flashing 6 inches at ends and turn up not less than 2 inches to form end dams.
 6. Interlock end joints of ribbed sheet metal flashing by overlapping ribs not less than 1-1/2 inches or as recommended by flashing manufacturer, and seal lap with elastomeric sealant complying with requirements in Division 07 Section "Joint Sealants" for application indicated.
 7. Install metal drip edges and sealant stops with ribbed sheet metal flashing by interlocking hemmed edges to form hooked seam. Seal seam with elastomeric sealant complying with requirements in Division 07 Section "Joint Sealants" for application indicated.
 8. Install metal drip edges beneath flexible flashing at exterior face of wall. Stop flexible flashing 1/2 inch back from outside face of wall and adhere flexible flashing to top of metal drip edge.
 9. Install metal flashing termination beneath flexible flashing at exterior face of wall. Stop flexible flashing 1/2 inch back from outside face of wall and adhere flexible flashing to top of metal flashing termination.
 10. Cut flexible flashing off flush with face of wall after masonry wall construction is completed.
- C. Install single-wythe CMU flashing system in bed joints of CMU walls where indicated to comply with manufacturer's written instructions. Install CMU cell pans with upturned edges located below face shells and webs of CMUs above and with weep spouts aligned with face of wall. Install CMU web covers so that they cover upturned edges of CMU cell pans at CMU webs and extend from face shell to face shell.
- D. Install reglets and nailers for flashing and other related construction where they are shown to be built into masonry.
- E. Install weep holes in head joints in exterior wythes of first course of masonry immediately above embedded flashing and as follows:
1. Use specified weep/vent products to form weep holes.
 2. Use wicking material to form weep holes above flashing under brick sills. Turn wicking down at lip of sill to be as inconspicuous as possible.
 3. Space weep holes formed from wicking material 16 inches o.c.
 4. Trim wicking material flush with outside face of wall after mortar has set.
- F. Place pea gravel in cavities as soon as practical to a height equal to height of first course above top of flashing, but not less than 2 inches, to maintain drainage.
1. Fill cavities full height by placing pea gravel in cavities as masonry is laid so that at any point masonry does not extend more than 24 inches above top of pea gravel.

- G. Place cavity drainage material in cavities to comply with configuration requirements for cavity drainage material in Part 2 "Miscellaneous Masonry Accessories" Article. Do not extend above top of through-wall flashing.
- H. Install vents in head joints in exterior wythes at spacing indicated. Use specified weep/vent products to form vents.
 - 1. Close cavities off vertically and horizontally with blocking in manner indicated. Install through-wall flashing and weep holes above horizontal blocking.

3.11 REINFORCED UNIT MASONRY INSTALLATION

- A. Temporary Formwork and Shores: Construct formwork and shores as needed to support reinforced masonry elements during construction.
 - 1. Construct formwork to provide shape, line, and dimensions of completed masonry as indicated. Make forms sufficiently tight to prevent leakage of mortar and grout. Brace, tie, and support forms to maintain position and shape during construction and curing of reinforced masonry.
 - 2. Do not remove forms and shores until reinforced masonry members have hardened sufficiently to carry their own weight and other temporary loads that may be placed on them during construction.
- B. Placing Reinforcement: Comply with requirements in ACI 530.1/ASCE 6/TMS 602.
- C. Grouting: Do not place grout until entire height of masonry to be grouted has attained enough strength to resist grout pressure.
 - 1. Comply with requirements in ACI 530.1/ASCE 6/TMS 602 for cleanouts and for grout placement, including minimum grout space and maximum pour height.
 - 2. Limit height of vertical grout pours to not more than 60 inches.

3.12 FIELD QUALITY CONTROL

- A. Inspectors: Owner will engage qualified independent inspectors to perform inspections and prepare reports. Allow inspectors access to scaffolding and work areas, as needed to perform inspections.
 - 1. Place grout only after inspectors have verified compliance of grout spaces and grades, sizes, and locations of reinforcement.

3.13 PARGING

- A. Parge exterior faces of below-grade masonry walls, where indicated, in 2 uniform coats to a total thickness of 3/4 inch. Dampen wall before applying first coat and scarify first coat to ensure full bond to subsequent coat.
- B. Use a steel-trowel finish to produce a smooth, flat, dense surface with a maximum surface variation of 1/8 inch per foot. Form a wash at top of parging and a cove at bottom.
- C. Damp-cure parging for at least 24 hours and protect parging until cured.

3.14 REPAIRING, POINTING, AND CLEANING

- A. Remove and replace masonry units that are loose, chipped, broken, stained, or otherwise damaged or that do not match adjoining units. Install new units to match adjoining units; install in fresh mortar, pointed to eliminate evidence of replacement.
- B. Pointing: During the tooling of joints, enlarge voids and holes, except weep holes, and completely fill with mortar. Point up joints, including corners, openings, and adjacent construction, to provide a neat, uniform appearance. Prepare joints for sealant application, where indicated.
- C. In-Progress Cleaning: Clean unit masonry as work progresses by dry brushing to remove mortar fins and smears before tooling joints.
- D. Final Cleaning: After mortar is thoroughly set and cured, clean exposed masonry as follows:
 - 1. Remove large mortar particles by hand with wooden paddles and nonmetallic scrape hoes or chisels.
 - 2. Test cleaning methods on sample wall panel; leave one-half of panel uncleaned for comparison purposes. Obtain Architect's approval of sample cleaning before proceeding with cleaning of masonry.
 - 3. Protect adjacent stone and nonmasonry surfaces from contact with cleaner by covering them with liquid strippable masking agent or polyethylene film and waterproof masking tape.
 - 4. Wet wall surfaces with water before applying cleaners; remove cleaners promptly by rinsing surfaces thoroughly with clear water.
 - 5. Clean brick by bucket-and-brush hand-cleaning method described in BIA Technical Notes 20.
 - 6. Clean masonry with a proprietary acidic cleaner applied according to manufacturer's written instructions.
 - 7. Clean concrete masonry by cleaning method indicated in NCMA TEK 8-2A applicable to type of stain on exposed surfaces.

3.15 MASONRY WASTE DISPOSAL

- A. Salvageable Materials: Unless otherwise indicated, excess masonry materials are Contractor's property. At completion of unit masonry work, remove from Project site.
- B. Waste Disposal as Fill Material: Dispose of clean masonry waste, including excess or soil-contaminated sand, waste mortar, and broken masonry units, by crushing and mixing with fill material as fill is placed.
 - 1. Crush masonry waste to less than 4 inches in each dimension.
 - 2. Mix masonry waste with at least two parts of specified fill material for each part of masonry waste. Fill material is specified in Division 31 Section "Earth Moving."
 - 3. Do not dispose of masonry waste as fill within 18 inches of finished grade.
- C. Excess Masonry Waste: Remove excess clean masonry waste that cannot be used as fill, as described above, and other masonry waste, and legally dispose of off Owner's property.

END OF SECTION 042000

**SECTION 096724 RESINOUS FLOORING - Urethane Slurry Flooring System
PART 1 - GENERAL****1.1 Summary**

- A. This Section includes:
 - 1. High-performance resinous flooring systems.

1.2 Submittals

- A. Product Data: For each type of product indicated.
- B. Installer Certificates for Qualification: Signed by manufacturer certifying that installers comply with specified requirements.
- C. Material Certificates: For each resinous flooring component, from manufacturer.
- D. Material Test Reports: For each resinous flooring system.
- E. Maintenance Data: For maintenance manuals.
- F. Samples: Submit one sample of coating, indicating coating applied on horizontal surfaces. Sample shall illustrate transition from Resinous Flooring system. Provide sample which is a true representation of proposed field applied finish; not laboratory applied finish. Provide minimum 12 feet by 4 feet field sample color and texture for owner approval as a mock up at location designated by General Contractor for review and written approval prior to installation of any other areas.
- G. Product Schedule: For resinous flooring.

1.3 Quality Assurance

- A. Installer Qualifications: Manufacturer's authorized representative who is trained and approved for installation of flooring systems required for this Project.
 - 1. Engage an installer who is certified in writing by resinous flooring manufacturer as qualified to apply resinous flooring systems indicated.
 - 2. Installer Letter of Certification: Installer to provide letter stating that they have been in business for at least 10 years and listing 5 projects in the last 2 years of similar scope. For each project provide: project name, location, date of installation, contact information, size of project, and manufacturer of materials with system information.
- B. Source Limitations: Obtain primary resinous flooring materials, including primers, resins, hardening agents, grouting coats, and topcoats, from single source from single manufacturer. Provide secondary materials, including patching and fill material, joint sealant, and repair materials, of type and from source recommended by manufacturer of primary materials.
- C. Pre-installation Conference: Conduct conference at Project site before work and mockups begin.
- D. Mockups: Apply mockups to verify selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution. Do not cover up mockup area.
 - 1. Apply full-thickness mockups on 16 square foot floor area selected by Architect.
 - 2. Simulate finished lighting conditions for Architect's review of mockups.
 - 3. Approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.
 - 4. Mockup shall demonstrate desired slip resistance for review and approval by General Contractor prior to installing project areas.

1.4 Delivery, Storage, And Handling

- A. Deliver materials in original packages and containers, with seals unbroken, bearing manufacturer's labels indicating brand name and directions for storage and mixing with other components.
 - 1. Maintain containers in clean condition, free of foreign materials and residue.
 - 2. Remove rags and waste from storage areas daily.

1.5 Project Conditions

- A. Environmental Limitations: Comply with resinous flooring manufacturer's written instructions for substrate temperature, ambient temperature, moisture, ventilation, and other conditions affecting resinous flooring application.
- B. Lighting: Provide permanent lighting or, if permanent lighting is not in place, simulate permanent lighting conditions during resinous flooring application.
- C. Close spaces to traffic during resinous flooring application and for not less than 24 hours after application unless manufacturer recommends a longer period.

PART 2 - PRODUCTS

2.1 Manufacturers

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. The Sherwin-Williams Company General Polymers Brand **OR** an approved equivalent from any manuf./product that meets the performance criteria noted in spec. section 096724

2.2 Materials

- A. The General Polymers URETHANE SLURRY FLOORING SYSTEM as manufactured by Sherwin-Williams with **Cove** consists of:

Cove –
4040 **FasTop** Urethane Primer (Cove),
4060 **FasTop** Cove Base Binder Resin,
5055 **FasTop** Cove Base Aggregate (Cove),

Must meet Performance characteristics as following

Abrasion Resistance 20-30 mgs lost ASTM D 4060, CS-17 Wheel, 1,000 cycles Hardness, Shore D 75 ASTM D 2240 Tensile Strength 550-600 psi ASTM C 307 Compressive Strength >5,000 psi ASTM C 579 Flexural Strength 3,700 psi ASTM C 580 Adhesion 300 psi ACI 503R concrete failure Impact Resistance Withstands 16 ft lbs MIL-D-3134, Sec.4.7.3 without cracking, delamination or chipping Flammability Self-Extinguishing over concrete Critical Radiant Flux >1.0 ASTM E 648 Smoke Density 287-346 ASTM E 662 Coefficient of Friction >0.80 ASTM D 2047 Service Temperature at 3/16" -50°F - 300°F

Slurry

Primer - 3477 Epoxy Water Emulsion Primer Sealer for outgassing,
Binder Resin - 4080 **FasTop 12S** Binder Resin,
Slurry Aggregate - 5080 **FasTop 12S** Aggregate
Broadcast - 5310-8 Dry Silica Sand (20-40 Mesh or larger
Seal Optional - 4090TC FasTop 12 TC/M-Urethane Top Coating / 5095 FasTop 12 TC,
General Polymers 3746.

:

Cure Time Recoat 4-5 hours Foot Traffic 6-8 hours Full Service 10-12 hours Abrasion Resistance 20-30 mgs lost ASTM D 4060, CS-17 Wheel, 1,000 cycles Hardness, Shore D 75 ASTM D 2240 Tensile Strength 550-600 psi ASTM C 307 Compressive Strength 5,000 psi ASTM C 579 Flexural Strength 3,700 psi ASTM C 580 Flammability Self-Extinguishing over concrete Critical Radiant Flux >1.0 ASTM E 648 Smoke Density 287-346 ASTM E 662 Adhesion 300 psi ACI 503R concrete failure Impact Resistance Withstands 16 ft lbs MIL-D-3134, Sec.4.7.3 without cracking, delamination or chipping Coefficient of Friction >0.80 ASTM D 2047 Service Temperature at 3/16" -50°F - 300°F

The total system thickness will be at a ¼” nominal.

- B. VOC Content of Resinous Flooring: Provide resinous flooring systems, for use inside the weatherproofing system, that comply with the following limits for VOC content when calculated according to 40 CFR 59, Subpart D (EPA Method 24)].
 - 1. Resinous Flooring: 100 g/L.
- 2.3 High-Performance Resinous Flooring
- A. Resinous Flooring: Abrasion-, impact- and chemical-resistant, high-performance, resin-based, monolithic floor surfacing designed to produce a seamless floor.
 - B. System Characteristics:
 - 1. Color and Pattern: As indicated from manufacturers listed above.
 - 2. Slip Resistance: Provide slip resistant finish.

PART 3 - EXECUTION

3.1 Preparation

- A. Inspection: Prior to commencing Work, thoroughly examine all underlying and adjoining work, surfaces and conditions upon which Work is in any way dependent for perfect results. Report all conditions which affect Work. No "waiver of responsibility" for incomplete, inadequate or defective underlying and adjoining work, surfaces and conditions will be considered, unless notice of such unsatisfactory conditions has been filed and agreed to in writing before Work begins. Commencement of Work constitutes acceptance of surfaces. Test and report for moisture level in substrate to verify compliance with manufacturer's requirements. Do not proceed unless acceptable test results are achieved.
- B. Only installers approved by the manufacturer in writing shall perform installation of the material.
- C. Surface Preparation: Remove all surface contamination, loose or weakly adherent particles, laitance, grease, oil, curing compounds, paint, dust and debris by blast track method or approved mechanical means (acid etch not allowed). If surface is questionable try a test patch. Create a minimum surface profile for the system specified in accordance with the methods described in ICRI No. 03732 to achieve profile numbers as follows:
 - 1. Thin film, to 10 mils CSP-1 to CSP-3
 - 2. Thin and medium films, 10 to 40 mils CSP-3 to CSP-5
 - 3. Self-leveling mortars, to 3/16” CSP-4 to CSP-6
 - 4. Mortars and laminates, to 1/4” or more CSP-5 to CSP-9

3.2 Environmental Conditions

- A. All applicators and all other personnel in the area of the RF installation shall take all required and necessary safety precautions. All manufacturers' installation instructions shall be implicitly followed.
- B. Repair damaged and deteriorated concrete according to resinous flooring manufacturer's written instructions.
- C. Alkalinity and Adhesion Testing: Verify that concrete substrates have pH within acceptable range. Perform tests recommended by manufacturer. Proceed with application only after substrates pass testing.
- D. Resinous Materials: Mix components and prepare materials according to resinous flooring manufacturer's written instructions.
- E. Use patching and fill material to fill holes and depressions in substrates according to manufacturer's written instructions.

- F. Treat control joints and other nonmoving substrate cracks to prevent cracks from reflecting through resinous flooring according to manufacturer's written instructions.

3.3 Applications

- A. Install resinous floor over properly prepared concrete surface in strict accordance with the manufacturer's directions.
 - 1. Install the primer and/or base coats over thoroughly cleaned and prepared concrete.
 - 2. Install topcoat over flooring after excess aggregate has been removed.
 - 3. Maintain a slab temperature of 60°F to 80°F for 24 hours minimum before applying floor topping.
- B. Apply components of resinous flooring system according to manufacturer's written instructions to produce a uniform, monolithic wearing surface of thickness indicated.
 - 1. Coordinate application of components to provide optimum adhesion of resinous flooring system to substrate, and optimum intercoat adhesion.
 - 2. Cure resinous flooring components according to manufacturer's written instructions. Prevent contamination during application and curing processes.
 - 3. At substrate expansion and isolation joints, comply with resinous flooring manufacturer's written instructions.
- C. Sealant: Saw cut resinous floor topping at expansion joints in concrete slab. Fill sawcuts with sealant prior to final seal coat application. Follow manufacturer's written recommendations.
- D. Apply primer over prepared substrate at manufacturer's recommended spreading rate.
- E. Slip Resistant Finish: Provide grit for slip resistance.
- F. Apply topcoats in number indicated for flooring system and at spreading rates recommended in writing by manufacturer.

3.4 Completed Work

- A. Cleaning: Upon completion of the Work, clean up and remove from the premises surplus materials, tools, appliances, empty cans, cartons and rubbish resulting from the Work. Clean off all splatterings and drippings, and all resulting stains.
- B. Protection: Protect Work in accordance with manufacturer's directions from damage and wear during the remainder of the construction period. Use protective methods and materials, including temporary covering, recommended in writing by resinous flooring manufacturer.
- C. Contractor shall insure that coating is protected from any traffic until it is fully cured to the satisfaction of the coating manufacturer.

END OF SECTION



SUBSTITUTION REQUEST

(During the Bidding/Negotiating Stage)

Project: TCC/ Shore Transit - Phase III Substitution Request Number: (For Architect to fill in)
 To: Becker Morgan Group / Salisbury From: Dee Jones / Momentive Performance Materials, Inc
ATTN: William E.Sieg Date: 04.03.17
 Re: Substitution Request - CSI Section 07 27 26 A/E Project Number: 2009145.10
 Contract For: New Construction

Specification Title: Fluid-Applied Membrane Air Barriers Description: CSI Section 07 27 26
 Section: 2.2 Page: 10 Article/Paragraph: (A)(1) (For Prosoco R-Guard Cat 5)

Proposed Substitution: GE Elemax 2600 AWB
 Manufacturer: Momentive Address: Waterford, NY Phone: 704.805.6234
 Trade Name: GE SEC2600 SilShield AWB Model No.: GE Elemax 2600 AWB

Attached data includes product description, specifications, drawings, photographs, and performance and test data adequate for evaluation of the request; applicable portions of the data are clearly identified.

Attached data also includes a description of changes to the Contract Documents that the proposed substitution will require for its proper installation.

The Undersigned certifies:

- Proposed substitution has been fully investigated and determined to be equal or superior in all respects to specified product.
- Same warranty will be furnished for proposed substitution as for specified product.
- Same maintenance service and source of replacement parts, as applicable, is available.
- Proposed substitution will have no adverse effect on other trades and will not affect or delay progress schedule.
- Proposed substitution does not affect dimensions and functional clearances.
- Payment will be made for changes to building design, including A/E design, detailing, and construction costs caused by the substitution.

Submitted by: William D. Jones, II
 Signed by: William D. Jones, II
 Firm: Momentive Performance Materials, Inc.
 Address: Waterford, NY
 Telephone: 704.805.6234

A/E's REVIEW AND ACTION

- Substitution approved - Make submittals in accordance with Specification Section 01 25 00 Substitution Procedures.
- Substitution approved as noted - Make submittals in accordance with Specification Section 01 25 00 Substitution Procedures.
- Substitution rejected - Use specified materials.
- Substitution Request received too late - Use specified materials.

Signed by: W. Sieg **BECKER MORGAN GROUP, INC.** Date: 4/3/2017
WILLIAM E. SIEG, AIA

Supporting Data Attached: Drawings Product Data Samples Tests Reports _____

Elemax* 2600

silicone air and water-resistive barrier coating



Product Description

GE Elemax 2600 silicone air and water-resistive silicone barrier (AWB) is a solvent free, fluid-applied, 100% silicone coating for AWB applications to coat and seal above-grade wall assemblies. Elemax 2600 silicone AWB coating provides long-term air and water protection from a variety of elements: temperature extremes, sunlight / UV radiation, rain, and snow.

Basic Uses

Elemax 2600 silicone AWB coating is an excellent product to consider as a long term barrier against the passage of air and water. This product is compatible with silicone materials used to seal and glaze windows, doors, joints and other façade features. In addition, most silicone sealants will bond to cured Elemax 2600 silicone AWB coating, alleviating adhesion concerns at transitions from exterior wall elements to the air and water barrier.

Key Features and Typical Benefits

- **Lowers Energy Costs** - Optimal air & water-resistive barrier performance throughout the life of the building; lowers energy costs and provides a barrier to reduce rot, rust, mold and other water-related issues.
- **Seamless, Monolithic Air Barrier** - Fluid application of the all silicone product / system creates a seamless, monolithic air barrier.
- **Simple Installation** - Straightforward system design, easy application and compatibility with adjacent building components eases installation.

Typical Performance and Application Properties

Performance

- **Reduced Energy Consumption** - Elemax AWB systems control the flow of air and water through the building envelope and create a contiguous barrier to reduce energy consumption in a building by up to an estimated 35%.
- **100% Silicone Durability** - Cured silicone rubber exhibits excellent long-term resistance to natural weathering and extreme temperatures with negligible change in elasticity, whether used on the exterior or interior of a wall system.
- **UV Resistant** - Exposure for 20+ years without measurable change in properties or performance. Excellent product for use behind open joint and ventilated rain screen claddings.
- **Self-sealing** - Passes water penetration standards for nails and fasteners when tested at system film thickness. Fastener self-sealing ensures that the AWB performs optimally, after the building is fully clad.
- **Fire Characteristics** - NFPA 285: Pass- Acceptable for use in multiple wall assemblies. Meets 2015 IBC exemptions for water-resistive barriers. ASTM E84: Class A Flame Spread and Smoke Generation.
- **Elastomeric** - Cures to form a permanently flexible continuous membrane virtually unaffected by temperature extremes.

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*Elemax is a trademark of Momentive Performance Materials Inc.



Elemax* 2600 silicone air and water-resistive barrier coating

Application

- **Seamless, breathable membrane** - prevents water and air from entering the building, while allowing moisture vapor to escape.
- **Simple One-coat Application** - Elemax 2600 silicone AWB coating can be applied by spray, power roller or brush, and saves labor cost, resulting in a high value versus installed cost.
- **Primerless Adhesion** - Bonds strongly to many typical substrates without the need of a primer.
- **Extended Temperature Range** - Application range of 0°F to 150°F (-18°C to 66°C) and in-use temperature range of -40°F to 300°F (-40°C to 149°C) for any cladding / wall assembly design. Viscosity of product is minimally affected by temperature and does not require heating in cold climates.
- **Rain Ready** - Can be exposed to a medium to heavy rain in as little as 30 minutes.
- **Fast Cure** - For quick re-coat time and ease of touch-up.
- **Application to Various Substrates** - Elemax 2600 silicone AWB coating can be installed over various exterior wall substrates including poured concrete, CMU, glass mat gypsum sheathing, cement-board, plywood, OSB and exterior gypsum sheathing.
- **Silicone Compatibility** - Compatible with windows, doors, joints and features sealed using silicone.
- **Solvent Free** - Low VOC formula compliant with Bay Area and South Coast Air Quality Management District requirements.

Elemax AWB System

The following GE components comprise the 100% silicone air and water barrier system:

Air and Water Barrier Components:

- GE Elemax 2600 silicone AWB coating - Fluid applied 100% silicone membrane.
- GE Elemax 5000 Liquid Flashing - Non-sag 100% silicone sealants for joints, seams, gaps, flashing and for adhering transition materials such as GE UltraSpan* silicone transition strips. The following is a list of additional acceptable GE sealants that may be used:
 - SCS2000 SilPruf* silicone sealant
 - SCS2700 SilPruf LM low modulus silicone sealant
 - SCS9000 SilPruf NB non-staining silicone sealant
 - SWS* silicone weathersealing sealant
- GE UltraSpan UST2200 silicone transition sheets, GE UltraSpan US1100 silicone transition strips, and GE UltraSpan USM pre-cured silicone molded corners may also be used. UltraSpan 100% silicone heat cured rubber can be used for detailing and transitioning across large gaps, expansion joints, drift joints, around penetrations and changes in plane, etc.
- GE RF100 reinforcing fabric - 100% polyester spun-laced reinforcing fabric used to treat rough openings, penetrations, inside / outside corners, flashing, transitions, changes in plane, and more. RF100 reinforcing fabric can be used to span static gaps up to 1/2" (13 mm).

Packaging & Colors

Elemax 2600 silicone AWB coating is currently available in the following configurations:

- 5 gallon plastic pails (5-gal [18.9 L] net)
- 55 gallon drums (50-gal [189 L] net)

Colors

Elemax 2600 silicone AWB coating is currently available as a stock color in black. Grey and white may be available upon request. Please contact your MPM sales representative for more details.

Elemax* 2600 silicone air and water-resistive barrier coating

Typical Physical Properties

Typical physical property values of Elemax 2600 silicone air and water-resistive silicone barrier coating as supplied and cured are set forth in the tables below.

Typical Properties – Supplied

Property	Value ⁽¹⁾	Test Method
Polymer	100% silicone	
Consistency	Pourable Liquid	
Color	Black	
VOC	<24 g/l	EPA Method 24
Viscosity	~25,000 centipoise	ASTM D2196, method A
Solids Content, % by volume	90%	Modified ASTM D2697

Typical Properties – Cured State at 17 mils DFT (applied at 19 mils wet)

Property	Value ⁽¹⁾	Test Method
Air Permeance – tested at 1.57 psf (75 Pa)	0.00006 cfm / ft ² (0.003 L / s·m ²)	ASTM E2178
	0.0002 cfm/ft ² (0.0009 L/s·m ²)	CAN/ULC-741
Assembly Air Leakage - tested at 1.57 psf (75 Pa)	0.0002 cfm/ft ² (0.0009 L/s·m ²)	ASTM E2357
	0.0004 cfm/ft ² (0.0018 L/s·m ²) Class A1	CAN/ULC-742
Water Vapor Permeance	10.5 perms	ASTM E96
Water Penetration	No water penetration observed after 15 minutes @ 62.5 psf (2993 Pa)	ASTM E331
UV & Weathering Resistance	No degradation after 5000 hours	ASTM G154
Self Sealability around Nails	Pass	ASTM D1970
Crack Bridging Ability (1/16" or 1.5 mm)	Pass	ASTM C1305
Application Temperature Range	0°F to 150°F (-18°C to 66°C)	
Service Temperature Range	-40°F to +300°F (-40°C to 149°C)	
Pull of Strength (concrete)	126 psi (0.87 MPa)	ASTM D4541
Pull of Strength (fiberglass mat faced gypsum sheathing)	44 psi (0.30 MPa) ⁽²⁾	ASTM D4541
Tensile Strength	204 psi (1.41 MPa)	ASTM D412 ⁽³⁾
Elongation	542%	ASTM D412 ⁽³⁾
Cure Time, complete	1-2 days	Varies with Temp & RH
Recoat Time	<2 hours	Varies with Temp & RH
Multi-Story Wall Assembly Burn Test	Passed in assembly tested and acceptable for use in various wall assemblies per engineering analysis	NFPA 285
Surface Burning Characteristics	Flame Spread: 10 Smoke Developed: 185 NFPA Class A, UBC Class 1	ASTM E84
Oxygen Consumption (Cone) Calorimeter	Effective Heat of Combustion: 9.8 MJ/kg Peak Heat Release Rate 97 kW/m ² Total Heat Release: 5.6 MJ/m ²	ASTM E1354

(1) Typical properties are average data and are not to be used as or to develop specifications.

(2) Full strength of silicone not realized due to failure of fiberglass mat / sheathing substrate prior to coating failure. Note: Hydrothermal analysis properties are available upon request.

(3) Samples were prepared per ASTM D2370 and tested in accordance to ASTM D412.

Elemax* 2600 silicone air and water-resistive barrier coating

Applicable Standards

ABAA - Tested to performance requirements of the Air Barrier Association of America



Technical Services

For additional technical resources, please contact your local customer service center. (See Customer Service Centers section herein for contact information.) Any technical advice furnished by MPM or any representative of MPM concerning any use or application of any MPM product is believed to be reliable, but MPM makes no warranty, expressed or implied, of suitability for use in any application for which such advice is furnished.

Customer Evaluation

Customers must evaluate MPM products and make their own determination as to the fitness of use in their particular applications.

Patent Status

Nothing contained herein shall be construed to imply the nonexistence of any relevant patents or to constitute the permission, inducement or recommendation to practice any invention covered by any patent, without authority from the owner of the patent.

Product Safety, Handling and Storage

Customers considering the use of this product should review the latest Safety Data Sheet and label for product safety information, handling instructions, personal protective equipment if necessary, and any special storage conditions required. Safety Data Sheets are available at www.ge.com/silicones or, upon request from any MPM representative. Use of other materials in conjunction with MPM sealant products (for example, primers) may require additional precautions. Please review and follow the safety information provided by the manufacturer of such other materials.

Handling and Storage

- Do not open containers until ready for use.
- Keep containers tightly closed and the plastic liner pressed closely to the material when not in use. Elemax 2600 silicone AWB coating reacts with atmospheric moisture to propagate the curing process. Once containers are open and exposed to the atmosphere, a skin will form on the material over time. The formation of skin will be negligible in colder months but can form quickly (in minutes) under hot and humid conditions. Cured product that has formed on the top of the material must be removed or screened from the bulk material as it may contribute to pump clogging.
- Elemax 2600 silicone AWB coating has a shelf life of 18 months from date of manufacture when stored accordingly in original unopened containers.
- Store Elemax 2600 silicone AWB coating below 109°F (43°C).

- The coating will not freeze. Unheated storage in cold temperatures is acceptable.
- Storing uncured coating in elevated temperatures may lead to a decrease the effective life of the material. Avoid storage in direct sunlight for long periods.

Installation

Installation Temperatures

The Elemax Air & Water Barrier system can be applied under most seasonal conditions including during colder months. It is important to note that these silicone products will not bond to moist or wet substrates and caution should be used when applying in early morning hours when dew may be present, under colder conditions when frost may be present, or after rainfall when substrates may still contain residual moisture. Substrates must be clean, dry and frost free. Application may proceed under colder conditions as low as 0°F (-18°C) as long as the material is applied to a dry substrate. Do not apply Elemax 2600 silicone AWB coating onto substrates surfaces with temperature at or above 150°F (66°C).

Curing and Recoat Time

The curing rate of Elemax 2600 silicone AWB coating is temperature and humidity dependent. Cooler and lower humidity conditions slow the cure rate, whereas warmer and moist conditions increase the cure rate. Under standard conditions of 72°F (22°C) and 50% relative humidity (RH), this material typically attains a tack-free surface in 1-2 hours and achieves full cure within 24 hours. Recoating or touch-up can proceed as soon as the coating has achieved a firm surface, which in most climatic conditions is less than 2 hours, however in cold temperatures may be 24-48 hours.

Surface Preparation

- All surfaces must be clean, dry and free of contaminants that may interfere with proper bonding of the sealants and coating.
- New concrete / CMU / mortars / grouts should allow at least 28 days to permit these material(s) to sufficiently cure and dry out prior to application of the Elemax 2600 silicone AWB coating. If application must proceed prior to full dry of masonry, an adhesion test is recommended before proceeding.
- Where necessary, clean loose mortar and other contamination on masonry with a wire brush or similar abrasion to provide a stable, clean, and dust-free surface for application.
- Since porous materials can absorb and retain moisture, it is important to confirm that substrates are dry prior to application of the barrier.
- As a best practice, it is recommended to pre-test adhesion of sealant(s) and coating to project substrates, including metals, flashings, plastics, penetrations, etc. Primers are available when needed to enhance adhesion to difficult-to-bond-to substrates.

Elemax* 2600 silicone air and water-resistive barrier coating

Treatment of Concrete/Masonry

Fill small voids and cracks up to 1/2" (12 mm) in masonry surfaces with Elemax 5000 Liquid Flashing. Use a joint knife or suitable trowel to press and spread sealant to a nominal 1" (25 mm) width centered on the crack whilst maintaining a minimum sealant thickness of 1/16" (2 mm). Repair larger cracks or voids with non-shrinking grout or other appropriate patching material. When spraying to CMU, back rolling will be required to avoid pin holes in the membrane.

Treatment of Sheathing

Holes or Damage

Elemax 2600 silicone AWB coating will cover normal surface irregularities or minor scrapes in sheathing when applied at the proper film thickness. Smaller holes (for example, vacated screw holes, punctures, etc.) up to around 3/8" (10 mm) in diameter should be treated with a troweled application of Elemax 5000 Liquid Flashing. Larger holes or damage to the sheathing (large spalls, damaged corners, etc.) that the coating or sealant cannot obviously accommodate will need to be repaired according to sheathing manufacturer.

Cut Edge of Sheathing (Exposed Gypsum)

Elemax 2600 silicone AWB coating can be rolled or brushed to consolidate exposed gypsum, if necessary.

Screw Heads

Elemax 2600 silicone AWB coating will cover properly-driven screw heads when uniformly applied at the system film thickness. Screw heads that are under or over-driven must be treated using a trowel application of Elemax 5000 Liquid Flashing or additional coat of Elemax 2600 silicone AWB coating either prior to, or after application of the coating. When treating screw heads after coating application, sufficient cure time will be required for the coating to firm up enough to allow trowel application of sealant. This cure time will vary from minutes (summer's heat and humidity) to overnight in some cases (winter's cold and lower RH).

Sheathing Joints

All sheathing joints must be treated utilizing one of the two methods below (based on joint width). The sheathing joints can be treated prior to or after the application of Elemax 2600 silicone AWB coating. When treating joints after coating application, sufficient cure time will be required for the coating to firm up enough to allow trowel application of sealant. This cure time will vary from minutes (high heat and humidity) to overnight in some cases (cold temperatures). Reference also MPM sheathing joint detail.

- Sheathing joints up to 1/2" (13 mm) can be treated with a bridge-joint of Elemax 5000 Liquid Flashing by troweling the sealant over the joint seam to a nominal 1 1/2" (38 mm) centered on the joint while maintaining a minimum thickness of 1/16" (2 mm). Sheathing joints greater than 1/4" (6 mm) and up to 1/2" (13 mm) require stud backing to be treated with Elemax 5000 Liquid Flashing
- Sheathing joints up to 1/2" (13 mm) can be treated with RF100 properly embedded in Elemax 2600 silicone AWB coating and centered on joint.
 - When embedding RF100 Reinforcing Fabric in Elemax 2600 silicone AWB coating, apply a liberal first coat (minimum of 10 mils) sufficient to saturate RF100 reinforcing fabric and extend at least 1" beyond RF100 reinforcing fabric width. Place RF100 reinforcing fabric in Elemax 2600 silicone AWB coating and apply a second coat (minimum of 10 mils) by roller of Elemax 2600 silicone AWB coating ensuring a pin hole-free application is achieved.

Static Joints > 1/2" (13mm), Expansion Joints and Drift Joints

Static joints can be treated by utilizing Elemax 5000 Liquid Flashing or Elemax 2600 silicone AWB coating as an adhesive reinforced with a strip of UltraSpan* UST2200 silicone transition sheet, centered on joint and extended a minimum 1" (25mm) onto wall.

- When using Elemax 2600 silicone AWB coating as an adhesive, apply a first coat (minimum of 10 mils) by roller in sufficient width to accommodate the UltraSpan UST2200 silicone transition sheet. Wait five minutes until coating becomes tacky and press the UltraSpan UST2200 silicone transition sheet into the coating. Apply a second coat of Elemax 2600 silicone AWB coating (minimum of 10 mils) immediately over the UltraSpan UST2200 silicone transition sheet.

Transitions

The AWB system shall be made continuous at or beyond terminations, transitions, openings, changes in plane and perimeters. This can be accomplished using Elemax 5000 Liquid Flashing, RF100 reinforcing fabric properly embedded in Elemax 2600 silicone AWB coating sealant or a combination of UltraSpan transition strips with Elemax 2600 silicone AWB coating. Refer to GE AWB system details for installation recommendations at transitions, seams, penetrations and other features.

Elemax* 2600 silicone air and water-resistive barrier coating

FILM THICKNESS

Elemax 2600 silicone AWB coating may be applied as a single coat application by spray, however roller application may require two separate coats to achieve the full wet film thickness (WFT) requirement. The applied thickness of Elemax 2600 silicone AWB coating should be measured (while still wet) using a wet film thickness gauge to verify that the right amount of material is being applied to the wall. The wet and dry film thickness requirements of the system are shown in the table below:

Wet Film Thickness (WFT) Requirement	Final Dry Film Thickness (DFT)
19 mils (480 microns)	17 mils (430 microns)

COVERAGE RATES – Elemax 2600 Silicone AWB Coating

The actual coverage rate of Elemax 2600 silicone AWB coating can vary based on substrate, application equipment, project conditions and waste. To identify coverage rates based on the actual project substrates, conditions and equipment that is planned on being used a test mockup is recommended. Theoretical maximum coverage rate at 17 mils (430 microns) DFT is 85 ft²/gal (7.9 m²/gal). The following approximate coverage rates have shown to be attainable:

SUBSTRATE	ft ² per gallon	m ² per gallon
Smooth surfaces (similar to fiberglass-faced sheathing)	70 - 80	6.5 - 7.4
Masonry surfaces (similar to CMU)	60 - 70	5.6 - 6.5

USAGE RATE – Elemax 5000 Liquid Flashing

When used for sheathing joint treatment (1/16" [2 mm] thick bead troweled to nominal 1 1/2" [38 mm] width centered on joint), the following estimates are theoretical and do not take into consideration factors such as: joint gap width, substrate texture or material waste.

- One cartridge yields approximately 16 lf (4.8 m)
- One sausage foil yields approximately 32 lf (9.8 m)
- One 2-gallon pail yields approximately 412 lf (126 m)

When used for rough opening treatment or general detailing (1/16" [2 mm] thick x 6" [152 mm] width trowel application), the following estimates are theoretical only and do not take into consideration factors such as: construction geometry, substrate texture or material waste.

- One cartridge yields approximately 4 lf (1.2 m)
- One sausage foil yields approximately 8 lf (2.4 m)
- One 2-gallon pail yields approximately 103 lf (31 m)

REPAIRS

The most effective air barrier system is a complete system without gaps, holes, or damage therefore inspect the AWB system before covering and repair any punctures or damaged areas. Ensure that the area to be repaired is clean and dry before proceeding with repairs. Touch up and repairs to the Elemax 2600 silicone AWB coating can be accomplished using brush, spray or roller and should take place after the coating has sufficiently cured such that the coating is firm to the touch and tack free. Repairs can be accomplished using either:

- Elemax 2600 silicone AWB coating for small or minor damage such as pin holes, scrapes, etc.
- Elemax 5000 Liquid Flashing for small or minor damage such as pin holes, scrapes, screw heads, etc. including larger holes up to 3/8" (10 mm) or other breached areas.
- OR -
- An appropriately-sized piece of UltraSpan* UST2200 transition sheet bonded in place with either sealant or Elemax 2600 silicone AWB embedment coating. When UltraSpan UST2200 transition sheets are used for repairs, terminate all edges of UltraSpan silicone transition sheets with a small bead of sealant troweled smooth.

Elemax* 2600 silicone air and water-resistive barrier coating

APPLICATION EQUIPMENT

Elemax 2600 silicone AWB coating can be applied by brush and roller; including power rollers. Elemax 2600 silicone AWB coating can also be dispensed directly from pails and drums using air, electric or engine-powered application equipment. Elemax 2600 silicone AWB coating cures in the presence of atmospheric moisture thus spray equipment used to process Elemax 2600 AWB coating:

- Must be free of water prior to loading product into the equipment.
- Must be designed to operate safely at the pressures required to deliver Elemax 2600 silicone AWB coating; typically requires 3000 psi (207 bar) at the tip.
- Should contain hoses that are solvent resistant, ideally with a vapor lock design if product is intended to remain in the lines for extended periods of time.
- Appropriate Personal Protective Equipment should be used during application.

Contact an MPM technical services representative for additional equipment recommendations and information.

Limitations

Elemax 2600 silicone AWB coating should not be considered for:

- Below-grade applications.
- Wet, damp, frozen or dirty/contaminated surfaces.
- Excessively basic or acidic substrates.
- Application when it is raining or if inclement weather is imminent or likely within two (2) hours.

Emergency Service

Momentive Performance Materials maintains an around-the-clock emergency service for its products. The American Chemistry Council (CHEMTREC) and ChemCare24 International also maintain an around-the-clock emergency service for all chemical products.

Location	Momentive Performance Materials Products	All Chemical Products
North America	1.518.233.2500	CHEMTREC: 1.703.527.3887 (collect)
At sea	Radio U.S. Coast Guard, which can directly contact Momentive Performance Materials at 1.518.233.2500 or CHEMTREC at 1.800.424.9300.	

DO NOT WAIT. Phone if in doubt. You will be referred to a specialist for advice.

Elemax* 2600 silicone air and water-resistive barrier coating

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TDS-ELMX2600-EN (2/16)



SECTION 07 27 26
FLUID APPLIED MEMBRANE AIR BARRIERS
GE Elemax* 2600

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:

1. Materials and installation methods for a liquid-applied 100% silicone vapor permeable air and water-resistive barrier system.

B. Related Sections

1. Section 01 33 00 Submittal Procedures
2. Section 03 30 00 Cast-in-Place Concrete
3. Section 04 22 00 Concrete Unit Masonry
4. Section 06 16 00 Sheathing
5. Section 07 25 00 Weather Barriers
6. Section 07 92 00 Joint Sealers
7. Section 08 50 00 Windows
8. Section [_____] Other

C. References

1. AATCC-127 Water Resistance: Hydrostatic Pressure Test
2. ASTM C1305, Standard Test Method for Crack Bridging Ability of Liquid-Applied Waterproofing Membrane
3. ASTM D412, Standard Test Methods for Vulcanized Rubber and Thermoplastic Elastomers- Tension
4. ASTM D1970, Self Sealability Test, part of Standard Specification for Self-Adhering Polymer Modified Bituminous Sheet Materials Used as Steep Roofing Underlayment for Ice Dam Protection
5. ASTM D2370, Standard Test Method for Tensile Properties of Organic Coatings
6. ASTM D4541, Standard Test Method for Pull-Off Strength of Coatings using Portable Adhesion Testers
7. ASTM E84, Standard Test Method for Surface Burning Characteristics of Building Materials
8. ASTM E96, Standard Test Methods for Water Vapor Transmission of Materials
9. ASTM E331, Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference
10. ASTM E1354, Standard Test Method for Heat and Visible Smoke Release Rates for Materials and Products Using an Oxygen Consumption Calorimeter
11. ASTM E2178, Standard Test Methods for Air Performance of Building Materials
12. ASTM E2357, Standard Test Method for Determining Air Leakage of Air Barrier Assemblies
13. ASTM G154, Standard Practice for Operating Fluorescent Ultraviolet (UV) Lamp Apparatus for Exposure of Nonmetallic Materials
14. CAN/ULC-S741, Standard for Air Barrier Materials - Specification

15. CAN/ULC-S742, Standard for Air Barrier Assemblies – Specification
16. NFPA 285, Standard Fire Test Method for Evaluation of Fire Propagation Characteristics of Exterior Non-Load Bearing Wall Assemblies Containing Combustible Components.

1.2 SUBMITTALS

A. Comply with Section 01 33 00[_ _ _]

1. Product Data: Submit manufacturer's technical datasheets, installation instructions, SDS, and warranty for approval.
2. Contractor Qualifications.
3. Samples as required by the architect or owner.

1.3 QUALITY ASSURANCE

A. Comply with Section 01 40 00[_ _ _]

B. Contractor Requirements

1. Knowledgeable in the use and installation of GE products.
2. ABAA contractors are preferred but not required.

C. Preconstruction Meeting:

1. Convene [_____] weeks prior to commencing Work of this section, in accordance with Section 013100 – Project Management and Coordination.
2. Attendees shall include Contractor, certified installer, and air barrier manufacturer's representative. Optional attendees Owner's representative and Architect.
3. Review air-barrier requirements and installation, special details, mockups, air-leakage and bond testing, air-barrier protection, and work scheduling that covers air barriers.

D. Mock-Up

1. Prior to installation of air barrier, apply air barrier to verify details under shop drawing submittals and to demonstrate tie-ins with adjoining construction, and other termination conditions, as well as method of execution.
2. Construct typical exterior wall panel, 8 feet long by 8 feet wide, incorporating back-up wall, cladding, window and doorframe and sill, insulation, flashing, [building corner condition,] [junction with roof system] [foundation wall] [and] [typical penetrations and gaps]; illustrating materials interface and seals.
3. Install membranes as indicated on architectural/shop drawings per manufacturer's instructions.
4. Retain mock-ups until inspected and approved by architect, consultant and/or building owner/representative.

1.4 DELIVERY, STORAGE AND HANDLING

- ### A. Deliver materials in manufacturers original, unopened, undamaged containers with identification labels intact.



- B. Store in original, unopened containers out of direct sun.

1.5 PROJECT CONDITIONS

A. Environmental Requirements:

1. Application is not recommended when the temperature is below 0° F (-18° C) or if frost or moisture is present on the surfaces to be coated.
2. Application is not recommended to surfaces above 150° F (66° C).

1.6 WARRANTY:

A. Provide manufactures 10 or 15 year material warranty.

1. Ensure all manufacturers installation guidelines, specifications, details and warranty requirements are met.
2. Warranty Period: [10] [15] years from date of substantial completion.

PART 2 PRODUCTS

2.1 MANUFACTURER

- A. Manufacturer: Momentive Performance Materials, Inc., 260 Hudson River Rd., Waterford, NY 12188. Phone: +1 877-943-7325, www.ge.com/silicones

2.2 MATERIALS

- A. Fluid Applied Air Barrier: GE Elemax* 2600.
- B. Liquid Flashing (Detail Sealant/Adhesive): GE Elemax 5000 Liquid Flashing, GE SCS2000 SilPruf*, GE SCS2700 SilPruf* LM, GE SCS9000 SilPruf* NB or GE SWS.
- C. Reinforcing Fabric: RF100 available in 4", 6" or 12" widths
- D. Transition Membrane: GE UST2200 UltraSpan* available in 3", 6" or 12" widths.
- E. Pre-cured silicone molded corners: GE USM UltraSpan* inside and outside corners.

2.3 PERFORMANCE REQUIREMENTS

- A. UV Exposure: No Limit
- B. Application Temperature: 0° F (-18° C) to 158° F (70° C)
- C. Performance Properties:

Property	Value ⁽¹⁾	Test Method
Required Dry Film Thickness	17 mils dry	Apply 19 mils wet
Air Permeance – tested at 1.57 psf (75 Pa)	0.00006 cfm/ft ² (0.003 L/s·m ²)	ASTM E2178
Air Permeance – tested at 1.57 psf (75 Pa)	0.0002 cfm/ft ² (0.0009 L/s·m ²)	CAN/ULC-741
Assembly Air Leakage - tested at 1.57 psf (75 Pa)	0.0002 cfm/ft ² (0.0009 L/s·m ²)	ASTM E2357
Assembly Air Leakage - tested at 1.57 psf (75 Pa)	0.0004 cfm/ft ² (0.0018 L/s·m ²) Class A1	CAN/ULC-742
Water Resistance	Pass	AATCC- 127
Water Penetration	No water penetration observed after 15 min. @ 62.5 psf (2993 Pa)	ASTM E331

Water Vapor Permeance at 17 mils DFT	10.5 perms @ 17 mils DFT	ASTM E96
UV & Weathering Resistance	No degradation after 5000 hours	ASTM G154
Self Sealability around Nails	Pass @ 17 mils DFT	ASTM D1970
Crack Bridging Ability (1/16" or 1.5mm)	Pass	ASTM C1305
Service Temperature Range	-40°F to +300°F (-40°C to 149°C)	
Pull of Strength (concrete)	126 psi (0.87 MPa)	ASTM D4541
Pull of Strength (fiberglass mat faced gypsum sheathing)	44 psi (0.30 MPa) ⁽²⁾	ASTM D4541
Tensile Strength	175 psi (1.21 MPa)	ASTM D412 ⁽³⁾
Elongation	542%	ASTM D412 ⁽³⁾
Recoat Time, typical	1-2 hours	Varies with Temp & RH
Cure Time, complete	1-2 days	Varies with Temp & RH
Multi-Story Wall Assembly Burn Test	Passed in assembly tested and acceptable for use in various wall assemblies per engineering analysis	NFPA 285
Surface Burning	Flame Spread: 10 Smoke Developed: 185 NFPA Class A, UBC Class 1	ASTM E84
Oxygen Consumption (Cone) Calorimeter	Effective Heat of Combustion: 9.8 MJ/kg Peak Heat Release Rate: 97 kW/m ² Total Heat Release: 5.6 MJ/m ²	ASTM E1354

(1) Average value. Actual value may vary.

(2) Full strength of silicone not realized due to failure of fiberglass mat / sheathing substrate prior to coating failure.

(3) Samples were prepared per ASTM D2370 and tested in accordance to ASTM D412.

PART 3 EXECUTION

3.1 SURFACE PREPARATION

- A. All surfaces must be clean, dry and free of contaminants that may interfere with proper bonding of the materials.
- B. Clean loose mortar and other contaminations where necessary by wire brush or similar abrasion to provide a stable clean surface for application.
- C. Mask off adjoining surfaces not covered by air barrier to prevent spillage and overspray affecting other construction.
- D. Remove grease, oil, bitumen, form release agents, paints, curing compounds and other penetrating containments or film forming coatings from concrete.
- E. Masonry joints shall be struck flush and cracks greater than crack bridging ability shall be filled (routed and filled where necessary) with a trowel application of GE liquid flashing prior to application of the liquid membrane to the surface. The membrane coating can be spray, power roller, roller or brush applied immediately after the application of the GE liquid flashing.
- F. Sheathing joints must be treated per manufacturer's installation details.
- G. Spot all over and under drive fasteners with GE liquid flashing or GE Elemax 2600.

3.2 INSTALLATION

- A. Transition/Detailing treatment: Install appropriate materials to treat sheathing joints, expansion joints, drift joints, rough openings, transitions, terminations, penetrations and

similar surface irregularities. Transitions and detailing can be performed before or after air barrier membrane application. Ensure installation is performed in accordance with manufacturers written installation instructions and details.

1. Sheathing joints <math><1/2\text{''}</math> may be treated with any of the following methods:
 - a. GE liquid flashing installed per manufacturers installation details.
 - b. 4" GE RF100 properly embedded in GE Elemax 2600 and centered on joint.
2. Inside or outside corners. Ensure liquid flashing or reinforcement extends a minimum 3" onto each angle change. Any of the following methods may be utilized:
 - a. GE liquid flashing installed per manufacturers installation details.
 - b. 6" GE RF100 properly embedded in GE Elemax 2600 and centered on corner.
 - c. GE UST2200 UltraSpan properly set in GE liquid flashing and centered on corner.
3. Rough Openings. Ensure liquid flashing or reinforcement extends a minimum 3" onto vertical wall and into rough opening. Any of the following methods may be utilized:
 - a. GE liquid flashing installed per manufacturers installation details.
 - b. Minimum 6" GE RF100 properly embedded in GE Elemax 2600.
 - c. Minimum 6" GE UST2200 UltraSpan properly set in GE liquid flashing.
 - d. GE USM UltraSpan outside corners may be utilized in combination with any of the above methods.
4. Pipe or Duct Penetrations may be treated with any of the following methods:
 - a. GE liquid flashing applied around entire perimeter and properly tooled.
 - b. GE RF100 properly embedded in GE Elemax 2600. Ensure GE RF100 extends a minimum 2" onto wall.
5. Static Joints >2", Expansion Joints and Drift Joints may be treated with any of the following methods:
 - a. Minimum 6" GE UST2200 UltraSpan properly set in GE liquid flashing or GE Elemax 2600 and centered on joint. Ensure GE UST2200 UltraSpan extends a minimum 1" onto wall.
6. Transitions may be treated with any of the following methods:
 - a. GE liquid flashing installed per manufacturers installation details.
 - b. GE RF100 properly embedded in GE Elemax 2600.
 - c. GE UST2200 UltraSpan properly set in GE liquid flashing.

B. GE Elemax 2600 Fluid Applied Air Barrier

1. GE Elemax 2600 can be applied by spraying, power roller, roller and/or brush. Contact Momentive Technical Services for information on pump spraying and power rolling equipment useful to spray this material.
2. GE Elemax 2600 shall be applied at a rate of approximately 80 ft²/gal and can be done with a single coat application (a site verification mock-up is recommended to verify coverage rates which will vary with substrate and method of application). A 19 wet applied mil thickness will yield a 17 mil dry film thickness.
3. Spray or roller apply the coating in an appropriate manner to ensure a uniform and seamless application.
4. Touch up or damage repair can be accomplished using spray, power roller, roller or brush and can proceed at anytime after application; while coating is still wet or while coating is dry (cured).
5. GE Elemax 2600 application is not recommended when the temperature is below 0° F (-18° C) or if frost or moisture is present on the surfaces to be coated.



6. Application of GE Elemax 2600 is not recommended to surfaces above 150° F (66° C).
7. The ultimate cure and tack-free of this product is dependent upon temperature and humidity. Under basic conditions [72 °F (22° C) and 50%RH] this material can attain a tack-free surface in 1-2 hours and with full cure overnight. As temperatures decrease, the tack-free and cure rate slows down (and vice versa as temperatures increase).

3.3 CLEANING AND PROTECTION

- A. Protect air barrier system from damage during application and remainder of construction period.
- B. If damage occurs repair per manufacturers installation details.
- C. Clean spills, stains and soiling from construction that would be exposed in the completed work using cleaning agents and procedures recommended in writing by manufacturer of affected construction.
- D. Remove masking materials after installation.

END OF SECTION



Material Compatibility Chart

Information for use with GE Elemax* 2600 AWB

The chart below provides the compatibility of GE Elemax 2600 AWB coating and GE Elemax* 5000 liquid flashing to the various construction materials which are listed by their generic material type or chemical properties. All materials listed in this chart are adhesively and chemically compatible with GE Elemax 2600 AWB coating and GE Elemax 5000 liquid flashing unless otherwise noted.

Key:

R = Recommended for use

¹ = Confirm adhesion

R / Primer = Recommended for use with noted primer

² = Aesthetic surface staining of GE products may occur

Substrate/Material	GE Elemax 2600 AWB Coating	GE Elemax 5000 Liquid Flashing
Sheathing/Substrate		
Glass mat gypsum sheathing (ASTM C1177)	R	R
Gypsum sheathing (ASTM C79/ASTM C1396)	R	R
Cement Board (ASTM C1325 Type A)	R	R
Fiber Cement Board	R	R
Magnesium Board	R	R
Plywood- Exterior grade	R	R
Plywood- Fire treated	R	R
Plywood- Pressure treated	R	R
OSB- Exposure 1	R	R
Concrete	R	R
CMU	R	R
Steel Studs	R	R
Aluminum- Bare	R	R
Aluminum- Anodized	R ¹	R ¹
Aluminum- Powder Coated	R ¹	R ¹
Aluminum- Painted	R ¹	R ¹
Stainless steel	R	R
Structural steel	R / SS4044P or SS80	R / SS4044P or SS80
Galvanized Metal	R / SS4044P or SS80	R / SS4044P or SS80



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Substrate/Material	GE Elemax 2600 AWB Coating	GE Elemax 5000 Liquid Flashing
Self-Adhering Flashing & Through Wall Flashing		
Aluminum Facer / Butyl Adhesive	R	R
Fabric Facer / Butyl Adhesive	R	R ¹
Polyethylene Facer / Butyl Adhesive	R / SS80	R / SS80
Aluminum Facer / Acrylic Adhesive	R	R
Fabric Facer / Acrylic Adhesive	R	R ¹
Polyethylene Facer / Acrylic Adhesive	R / SS80	R / SS80
Aluminum Facer / Asphaltic Adhesive	R ²	R ²
Fabric Facer / Asphaltic Adhesive	R ²	R ¹²
Polyethylene Facer / Asphaltic Adhesive	R ² / SS80	R ² / SS80
Stainless Steel	R	R
Copper	R / SS4044P or SS80	R / SS4044P or SS80
Galvanized Steel	R / SS4044P or SS80	R / SS4044P or SS80
Aluminum- Bare	R	R
Copper Fabric (asphaltic)	R ¹²	R ¹²
Copper Fabric (non-asphaltic)	R	R
Polyethylene facer Copper fabric / Non-asphaltic Adhesive	R / SS80	R / SS80
Polyethylene facer Copper fabric / Asphaltic Adhesive	R ² / SS80	R ² / SS80
Copper Paper	R ¹	R ¹
Copper Drainage	R ¹	R ¹
PVC	R	R / SS80
PVC Kee	R ¹	R ¹
PVC Kee facer / Asphaltic Adhesive	R ¹²	R ¹²
EPDM	R	R / SS80
EPDM facer / Butyl Adhesive	R	R / SS80



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Substrate/Material	GE Elemax 2600 AWB Coating	GE Elemax 5000 Liquid Flashing
Insulation		
Polyurethane spray foam	R	R
Expanded polystyrene (EPS)	R	R
Extruded polystyrene (XPS)	R	R
Polyisocyanurate (Paper, glass mat & aluminum faced)	R	R
Mineral Wool	R	R ¹
Above & Below Grade Waterproofing / Roofing Materials		
Cold fluid applied- Rubberized asphalt	R ¹²	R ¹²
Cold fluid applied- Bituminous	R ¹²	R ¹²
Cold fluid applied- Polyurethane	R ¹	R ¹
Cold fluid applied- Synthetic rubber	R ¹	R ¹
Cold fluid applied- Moisture reactive	R ¹²	R ¹²
Hot fluid applied- Rubberized asphalt	R ¹²	R ¹²
Polyurethane deck coating	R	R
Epoxy deck coating	R	R
Poly methyl-methacrylate (PMMA) resin	R	R
Crystalline Technology	R	R
Self-adhering- Polyethylene Facer / Asphaltic Adhesive	R ² / SS80	R ² / SS80
Self-adhering- TPO / Butyl Adhesive	R / SS80	R / SS80
PVC membrane	R / SS80	R / SS80
TPO membranes	R / SS80	R / SS80
Modified bitumen membranes	R ²	R ²
Polypropylene membranes	R / SS80	R / SS80
EPDM membranes	R / SS80	R / SS80
Polyurethane membranes	R ¹	R ¹
Bentonite Clay	R ¹	R ¹



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Substrate/Material	GE Elemax 2600 AWB Coating	GE Elemax 5000 Liquid Flashing
Sealant		
Silicone	R	R
Silyl-terminated polyether (STPE)	R ¹	R ¹
Polyurethane (Cured)	R	R
Acrylic	R	R
Latex	R	R
Butyl	R ¹	R ¹
Polysulfide	R ¹	R ¹
Miscellaneous		
Termination mastic- Asphalt	R ²	R ²
Cementitious fireproofing	R ¹	R ¹
Creosote	R ¹²	R ¹²
Coal-tar products	R ¹²	R ¹²

Notes:

- This chart lists the most typical adhesion result(s) of each product / substrate combination shown; however an on-site test prior to application is prudent to verify the predicted results within.
- For materials not listed above or information related to a specific brand name material please contact Momentive Performance Materials, Inc. (MPM) technical services: +1 (904) 710-4688.
- Ensure that non-GE sealants, coatings and any liquid products are fully cured/dried prior to application of the GE Elemax silicone air barrier system. If in doubt contact MPM technical services.
- This list is by no means inclusive and is not to be understood as an endorsement by MPM nor that MPM suggests that any one particular product or brand is better or worse than another. This is provided only as information on materials that have been previously tested.



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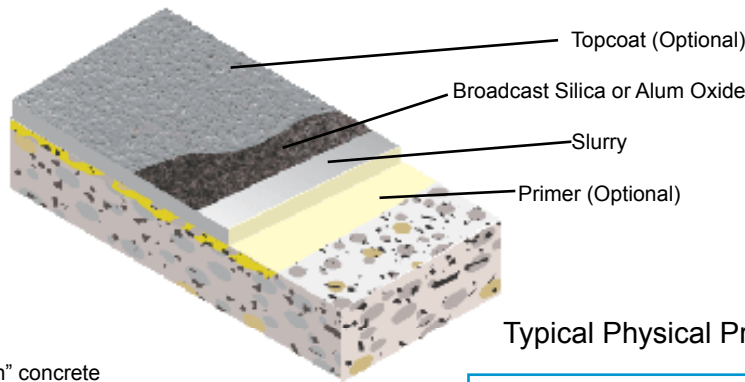
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Rev. 090816



FasTop® 12S Urethane Slurry System

General Polymers FasTop 12S URETHANE SLURRY SYSTEM is a cementitious urethane cement self-leveling slurry to be applied at 3/16" thickness and broadcast to yield a 1/4" - 3/8" finished system. **FasTop 12S** can be applied with a pin rake, screed rake or flat trowel. It is designed to protect concrete, wood and steel substrates from thermal shock, impact, corrosion, mild chemical attack and abrasion.



Advantages

- Can be applied to "green" concrete
- Rapid return to service
- Water based
- Hot cooking oil and steam resistance
- Low temperature cure
- Will not lose bond due to thermal shock
- Impact resistant
- Moisture insensitive
- No moisture testing required
- Acceptable for use in USDA inspected facilities
- Resistant to:

Typical Physical Properties

28 Day Exposure @ 72°F	Result
	NE= No Effect
Alcohol	NE
Ethylene Glycol	NE
Fats, Oils & Sugars	NE
Gasoline, Diesel & Kerosene	NE
Hydrochloric Acid (<35%)	NE
Lactic Acid (Milk)	NE
Mineral Oils	NE
Most Organic Solvents	NE
Muriatic Acid	NE
Nitric Acid (<10%)	NE
Nitric Acid (<30%)	Slight Softening
PM Acetate	NE
Phosphoric Acid (<50%)	NE
Potassium Hydroxide (<50%)	NE
Sodium Hydroxide (<50%)	NE
Sulfuric Acid (<50%)	Slight Gloss Loss
Water	NE
Xylene	NE

Color	Red, Light Gray or Neutral
Cure Time	4 hours
Recoat	4-6 hours
Foot Traffic	12 hours
Full Service	
Abrasion Resistance	20-30 mgs lost
ASTM D 4060, CS-17 Wheel, 1,000 cycles	
Hardness, Shore D	75
ASTM D 2240	
Tensile Strength	550-600 psi
ASTM C 307	
Compressive Strength	>5,000 psi
ASTM C 579	
Flexural Strength	3,700 psi
ASTM C 580	
Adhesion	300 psi
ACI 503R	concrete failure
Impact Resistance	Withstands 16 ft lbs
MIL-D-3134, Sec.4.7.3	without cracking, delamination or chipping
Flammability	Self-Extinguishing over concrete
Coefficient of Friction	>0.80
ASTM D 2047	
Critical Radiant Flux	>1.0
ASTM E 648	
Smoke Density	287-346
ASTM E 662	
Service Temperature at 3/16"	-50°F - 300°F
Shrinkage	Nil
Water Absorption	Nil

Uses

- Food and Beverage Manufacturing and processing areas
- Commercial and Institutional kitchens
- Dairies

Limitations

- Protect material from freezing

Installation

The following information is to be used as a guideline for the installation of the **FasTop 12S URETHANE SLURRY SYSTEM**. Contact the Technical Service Department for assistance prior to application.

Surface Preparation - General

General Polymers systems can be applied to a variety of substrates, if the substrate is properly prepared. Preparation of surfaces other than concrete will depend on the type of substrate, such as wood, concrete block, quarry tile, etc. Should there be any questions regarding a specific substrate or condition, please contact the Technical Service Department prior to starting the project. Refer to Surface Preparation (Form G-1).

Surface Preparation - Concrete

Concrete surfaces shall be abrasive blasted to remove all surface contaminants and laitance. The prepared concrete shall have a surface profile equal to CSP 4-6. Refer to Form G-1. Consult the Technical Service Department if oil or grease is present.

After initial preparation has occurred, inspect the concrete for bug holes, voids, fins and other imperfections. Protrusions shall be ground smooth while voids shall be filled with a General Polymers system filler. For recommendations, consult the Technical Service Department.

Limitations

The substrate must be structurally sound, cleaned of any foreign matter that will inhibit adhesion.

Do not apply in temperatures below 40°F/4.4°C or above 80°F/26°C or when relative humidity is greater than 80%. If substrate is not concrete, wood or metal as described in Surface Preparation (Form G-1) then do not apply. Call Technical Service Department for recommendation.

When installing FasTop 12S, if encountering concrete outgassing, please discontinue installation and apply 3477 Epoxy Water Emulsion Primer / Sealer. Allow to dry until tack free and proceed with the FasTop 12S installation.

- Protect material from freezing prior to installation.
- Do not feather edge.
- Do not mix partial units.
- Do not hand mix. Do not let mixed material sit in a bucket, even a 2-3 minute delay in pouring will reduce working time.
- Do not apply to cracked or unsound substrates.
- Allow Fastop 12S/SL to cure a minimum of 12 hrs prior to topcoating.
- If patching, sloping, filling joints, etc. with any Fastop materials, allow the repair material to cure for a minimum of 8 hours before covering with 12S or 12SL.
- Do not install outside, call Technical Service Department.

Full chemical resistance is achieved after a seven (7) day cure. Consult the Technical Service Department for specific chemical resistance.

Application Information — Surface Prep Profile CSP 4-6

VOC MIXED		MATERIAL	MIX RATIO	THEORETICAL COVERAGE PER COAT CONCRETE	PACKAGING
0 g/L <50 g/L 0	Cove Base	4040 4060 5055	2:1 1 unit	300 sq. ft. / gal 15-20 lin. ft. @ 6" cove 1" radius 30 lbs.	1.5 - 15 gals Sold in units only 30 lbs.
<200 g/L	Primer Optional for outgassing	3477	2:1	250 sq. ft. / gal	3 or 15 gals
<50 g/L 0	Slurry	4080 5080	1 unit	34-36 sq. ft. / unit @ 1/4" 22-24 sq. ft. / unit @ 3/8" 55 lbs	1.8 gals 55 lb. bag
0	Broadcast (standard)	5310 Dry Silica Sand 20-40 mesh	for seeding	500 lbs. / 1,000 sq. ft.	50 lbs.
<50 g/L 0	Optional Topcoat	4090TC 5095	1:1	80-100 sq. ft./unit 8 lbs	Pre-measured 8 lbs.

Cove Base

Mixing and Application

Cove base should be installed prior to the floor. Tape out cove with duct tape or a good quality masking tape. Terrazzo strips will also work.

Priming: Prime wall with 4040 FasTop Urethane Primer. Primer only has a 10 minute pot life. Be sure to prime entire surface and about halfway onto tape. Prime only what cove base that can be installed within 30 minutes. Begin installing cove base right away – No need to wait for primer to tack up.

Mixing: **Do not mix partial units**, the fine aggregate and pigment can and will separate. A drill and a paddle work the best, but a KOL mixer works well also. Mix pre-measured unit of 4060A for one minute. Add 4060B pre-measured unit and mix. Slowly add 5055 aggregate and mix until thoroughly wet out. Immediately pour mixed material out of bucket, in a bead, next to the wall. Rough apply cove mortar using a trowel. Do not worry about trowel marks at this time; just get all the mixed material applied to the wall. Material will need to be finished within approximately 20 minutes depending on temperature. Placing a halogen light next to cove base will cast shadows and assist on finishing the cove base with minimal waves and/or trowel marks. Use a minimum of a 3/4" radius cove trowel and finish cove base. Any smaller may result in a loss of the radius once the floor is tied in. Lightly misting cove trowel with water, as a trowel lube, works well - **Do not use isopropyl alcohol**. Carefully remove tape and finish rough edges. Install floor once cove is hard to the touch, about 2 ½ to 3 hours.

Required Tools: Drill, proper mixing paddle, 3" x 8" trowel works best to apply, margin trowel, and a radius cove trowel – Minimum of 3/4" but 1" is preferred.

NOTE: If patching, sloping, filling joints, etc. with any FasTop materials, allow the repair material to cure for a minimum of 8 hours before covering with 12S or 12SL.

Primer

Mixing and Application

1. Premix 3477A (resin) and 3477B (hardener) separately, using a low speed drill and Jiffy blade. Mix for one minute and until uniform, exercising caution not to whip air into the materials.
2. Add 2 parts 3477A (resin) to 1 part 3477B (hardener) by volume. Mix with low speed drill and Jiffy blade for three minutes and until uniform. DO NOT mix more material than can be used within 4 hours. Apply material with a short nap roller at a spread rate of 250 sq. ft. per gallon.
3. **DO NOT ALLOW TO PUDDLE.** Any uneven or textured surfaces will require more material than an even surface.
4. Proceed when tack free, 1-4 hours on shot blasted concrete.

Slurry

Mixing and Application

DO NOT PREMIX 4080 PART B HARDENER. OVER EXPOSURE TO AIR EFFECTS PHYSICAL PROPERTIES

1. Add 4080A (resin) to 4080B (hardener) and mix with low speed drill and Jiffy mixer until uniform.
2. Pour 55 lbs. 5080 aggregate and 1 pre-measured unit (1 gal Part A : short-filled gal Part B) into container and mix until no lumps remain. Immediately pour mixed material onto the substrate and pull out using a pin rake, screed rake or flat trowel. Place all material within 15 minutes. Back roll with a loop roller to assist leveling. Allow material to self-level (2-5 minutes).

NOTE: At substrate temperature less than 50°F/10°C, the application will be adversely affected.

3. Broadcast 5310 Dry Silica Sand (20-40 Mesh) to saturation (about 500# per 1000 square feet).
4. Allow to cure for a minimum of 4 hours prior to topcoating with 4090TC, sweep off excess aggregate with a clean, stiff bristled broom. Clean sand can be saved for future use. All imperfections such as high spots should be smoothed before the application of the topcoat.

NOTE: The broadcast distribution is critical to the success of the application. The floor's finished appearance depends on the manner in which the aggregate has been applied. In grass seed like fashion, allow the aggregate to fall after being thrown upward and out. **DO NOT THROW DOWNWARD AT A SHARP ANGLE USING FORCE.**

Topcoat -Optional

Mixing and Application

Allow slurry to cure for a minimum of 4 hours before applying topcoat.
NOTE: If applying any topcoat other than 4090TC allow the slurry to cure for 12 hours.

DO NOT PREMIX Part A or Part B

1. Combine 4090TCA (resin) with GP5095 Part C (aggregate) TC = 1.25 gallons per kit and mix until lump free, approximately 60-90 seconds, the product will thicken and become creamy, which lessens the potential for fine cement/pigment balls to form. Add part B and mix until fully combined and uniform in color, approximately 30 seconds.
2. Apply 4090TC using trowel, squeegee, grout float and backroll with a 1/4" - 3/8" nap roller to remove any marks and provide uniform texture, in thicker films >10 mils loop rollers may also prove effective. Spread at a rate of 80-100 square feet per unit, evenly, with no puddles making sure of uniform coverage.

NOTE: Do not dip and roll. Do not roll out of a puddle or ribbon.

3. Allow to cure 4-6 hours minimum before opening to light foot traffic. If recoating is required, abrade surface before recoating.

Cleanup

Clean up mixing and application equipment immediately after use. Use toluene or xylene. Observe all fire and health precautions when handling or storing solvents.

Safety

Refer to the MSDS sheet before use. federal, state, local and particular plant safety guidelines must be followed during the handling and installation and cure of these materials.

Safe and proper disposal of excess materials shall be done in accordance with applicable federal, state, and local codes.

Material Storage

Store materials in a temperature controlled environment (50°F/10°C – 90°F/32°C) and out of direct sunlight.

Keep resins, hardeners, and solvents separated from each other and away from sources of ignition.

Maintenance

Occasional inspection of the installed material and spot repair can prolong system life. For specific information, contact the Technical Service Department.

Shipping

- Destinations East of the Rocky Mountains are shipped F.O.B. Cincinnati, Ohio.
- Destinations West of the Rocky Mountains are shipped F.O.B. Victorville, California.

For specific information relating to international shipments, contact your local sales representative.

Disclaimer

The information and recommendations set forth in this document are based upon tests conducted by or on behalf of The Sherwin-Williams Company. Such information and recommendations set forth herein are subject to change and pertain to the product(s) offered at the time of publication. Published technical data and instructions are subject to change without notice.

Consult www.generalpolymers.com to obtain the most recent Product Data information and Application instructions.

Warranty

The Sherwin-Williams Company warrants our products to be free of manufacturing defects in accord with applicable Sherwin-Williams quality control procedures. Liability for products proven defective, if any, is limited to replacement of the defective product or the refund of the purchase price paid for the defective product as determined by Sherwin-Williams, NO OTHER WARRANTY OR GUARANTEE OF ANY KIND IS MADE BY SHERWIN-WILLIAMS, EXPRESSED OR IMPLIED, STATUTORY, BY OPERATION OF LAW OR OTHERWISE, INCLUDING MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.



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