

DIVISION 7**THERMAL AND MOISTURE PROTECTION**

07 14 00	Interior Membrane Waterproofing
07 21 00	Insulation
07 25 00	Weather Resistive Barriers
07 60 00	Flashing and Sheet Metal
07 90 00	Sealants

SECTION 07 14 00
INTERIOR MEMBRANE WATERPROOFING

PART 1 GENERAL

1.1 SCOPE OF WORK

- A. Installation of a seamless, elastomeric, waterproofing membrane and crack isolation at floor and wall areas shown on the Drawings receiving tile and/or resilient tile (at wet areas).

1.2 RELATED SECTIONS

- | | | |
|----|-------------------------------|------------------|
| A. | Submittals | Section 01 33 00 |
| B. | Concrete Finishing | Section 03 35 00 |
| C. | Fiber Reinforced Cement Board | Section 09 28 00 |
| D. | Tile | Section 09 30 00 |

1.3 QUALITY ASSURANCE

- A. Apply 10 lineal feet field samples of waterproofing system.
- B. Acceptable samples may be incorporated in the Work.

1.4 SUBMITTALS

- A. General: Comply with provisions of Section 01 33 00.
- B. Submit product data for waterproofing materials, system components, installation instructions and manufacturer's printed recommendations for use of this product in this application.

PART 2 PRODUCTS

2.1 MATERIAL

- A. Interior Floors: (over gypsum underlayment or concrete substrates)
 - 1. Laticrete, Hydro Ban, 0.020-0.030 inch thick liquid rubber.
 - 2. Ardex, 8+9 Waterproofing and Crack Isolation Compound.
- B. Interior Walls: (over gypsum board and cement backer board substrates)
 - 1. Laticrete, Hydro Ban, 0.020-0.030 inch thick liquid rubber.
 - 2. Ardex, 8+9 Waterproofing and Crack Isolation Compound.
- C. Accessories:
 - 1. Primer/Sealer: As required by waterproofing membrane manufacturer for proper substrate preparation.

PART 3 EXECUTION

3.1 PREPARATION

- A. Clean substrate surfaces and fill all voids with an approved filler material.
- B. Apply primer/sealer to substrate as required by waterproofing membrane manufacturer.

3.2 APPLICATION:

- A. Interior:
 - 1. Apply waterproofing system per manufacturer's procedures.
 - 2. Apply at all floor/wall joints on all walls with quarry or ceramic tile base. Extend a minimum 8" up wall and onto floor.
 - 3. At all floors receiving tile and all restrooms, provide waterproofing system over entire floor.

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INTERIOR MEMBRANE WATERPROOFING

4. All piping and conduit penetrations through waterproofed floors to be sleeved, sealed and waterproofed.

END OF SECTION

**SECTION 07 21 00
BUILDING INSULATION**

PART 1 GENERAL

1.1 SCOPE OF WORK

- A. Work in this Section includes insulation, related products, and accessories used for the resistance of heat and sound transfer.
- B. Work in this Section also includes the furnishing and installation of specified products in a manner that will provide a continuous barrier as required for a completed thermal or acoustical resistant assembly.

1.2 RELATED WORK SPECIFIED ELSEWHERE

- A. Submittals Section 01 33 00
- B. Rough Carpentry Section 06 10 00
- C. Sealants Section 07 90 00

1.3 STANDARDS

- A. Sound Attenuation glass fiber batt insulation shall comply with ASTM C-665, Type I, non-combustible per ASTM E-136 and have a maximum flame spread rating of 25 and smoke development rating of 50 per ASTM E-84.

1.4 QUALITY ASSURANCE

- A. Standards: Comply with standards specified herein and as listed in Section 01 42 19.
- B. All insulation products shall contain a permanent certification label that certifies it to comply with applicable codes and requirements.

1.5 SUBMITTALS

- A. General: Comply with provisions of Section 01 33 00.
- B. Submit product data for each product specified.

1.6 FLAME SPREAD

- A. Flame spread ratings of insulation and facings shall not exceed 25 and smoke development shall not exceed 50 when tested in accordance with ASTM E-84 for all insulating materials within floor-ceiling assemblies, walls, crawl spaces or attics.
 - 1. Except: When such materials are installed in concealed spaces of wood frame construction, the flame spread and smoke development limitations do not apply to facings, provided that the facing is installed in direct contact with the exposed surface of the ceiling, floor or wall finish.

PART 2 PRODUCTS

2.1 MATERIALS

- A. Sound Insulation: Sound attenuation glass fiber batts, 3" thickness. Formaldehyde free.
- B. Foam Insulation:
 - 1. Gaps 1" and less: Single component, polyurethane-based foam insulation. GREAT STUFF Gaps & Cracks or approved equal.
 - 2. Gaps 1" and greater: Two-component, polyurethane-based foam insulation, open-cell, low density, minimum R-4.3 per inch. FOMO Handi-Foam Low Density or approved equal.

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- C. Foam Sealant: Single-component, polyurethane-based foam sealant. FOMO Handi-Foam Window and Door West Low Pressure Polyurethane Foam Sealant or approved equal.
- D. Batt insulation fasteners: Staples, zinc or coated wire, or other devices of type approved by the insulation manufacturer.

2.2 OTHER MATERIALS

- A. Provide all other materials, not specifically described but required for a complete and proper installation of the work of this Section.

PART 3 EXECUTION

3.1 INSTALLATION - GENERAL

- A. Except as otherwise specifically directed by the Architect, install all building insulation in accordance with the current edition of "Fiberglass Building Insulation Application Instructions," publication 3- BL-4992 of the Owens/Corning Fiberglass Corporation.
- B. Insulate all cracks around doors, windows and sills with sprayed foam insulation.
- C. Install sill sealer insulation under all exterior wall and party/common wall bottom plates on top of concrete foundation.

3.2 INSTALLATION - BATTS

- A. Fit insulation in all framing spaces, including areas between joists and outside headers with widths and lengths as required to fully bridge space between framing members. All butt joints to be taped.
- B. If attached to wood studs, place staples no further than 8" apart. For batts installed between roof joists, provide mesh or wire supports as required to prevent insulation from sagging.
- C. Tape all seams between faced batts.
- D. Place insulation and vapor barrier to outside of pipes to prevent freezing and fit neatly around and behind electrical boxes.
- E. Install insulation with vapor retarder toward the heated side of the wall.
- F. Acoustical Batt Insulation: Provide sound attenuation blanket at wall and ceiling locations shown on Drawings and listed herein in such a manner as to provide complete acoustic isolation:
 - 1. All new walls; from floor to under-side of structure.

3.3 AIR SEALING MEASURES

- A. Install air-sealing measures as required to create an air barrier system. The following items are general guidance to achieving an air barrier system.
 - 1. Prior to framing, install sill sealer gasket at all exterior wall and party/common wall locations.
 - 2. Following framing per Section 06 10 00, the following areas shall be air sealed:
 - a. Air-seal with spray foam all wall penetrations of exterior sheathing. This may include electrical boxes, pipes, ducts, etc.
 - b. Air-seal with spray foam around all exterior wall and party/common wall top plates and rim joists.

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- c. All double stud walls shall be blocked and air-sealed at each floor level.
 - d. Air-seal with spray foam at all party/common wall to roof sheathing joint.
3. See Drawings for additional air-sealing measures.

3.4 CLEARANCES

- A. Insulation shall not be installed within 3 inches of a recessed light fixture, ballast or other heat-generating electrical device, and shall not be so installed above the device as to entrap heat and prevent the free circulation of air unless the fixture is otherwise approved for the purpose. **Verify with Electrical Lighting Fixture Schedule that all effected fixtures are IC/DC rated for direct contact of insulation.**
- B. Insulation shall not be installed within 3 Inches of any metal chimney gas vent or hood. A permanent sleeve of fine wire mesh screen, sheet metal, or other non-combustible material, shall be installed to maintain the required clearances.
- C. Insulation shall not be installed in a manner that would obstruct opening required for attic ventilation. Install insulation baffles where necessary to maintain attic ventilation.

END OF SECTION

PART 1 GENERAL

SECTION 07 25 00
WEATHER RESISTIVE BARRIERS

PART 3 EXECUTION

3.1 INSTALLATION

- A. Ice and Water Shield
 - 1. Install per manufacturer's instructions at all locations shown on Drawings.
- B. Under-Slab Vapor Retarder
 - 1. Cover entire surface with vapor barrier, lapping all joints 12 inches, using printed control strips on material as guide.
 - 2. Patch all damaged vapor barriers immediately before covering.
 - 3. Seal all vapor barrier laps, penetrations, tears and gaps with approved tape as recommended by the vapor retarder manufacturer.
 - 4. Prior to coverage, all vapor retarder installation to be pre-inspected and approved by Architect or Building Envelope Consultant.

3.2 AIR SEALING MEASURES

- A. Install air-sealing measures as required to create an air barrier system. The following items are general guidance to achieving an air barrier system.
 - 1. Following installation of WRB as specified herein, the following areas shall be air sealed:
 - a. WRB to foundation wall shall be sealed as indicated on the Drawings.
 - b. Tape all lapped joints of WRB when not a self-adhesive or liquid applied product.
 - c. Tape or cap all tears, cuts, and nail and/or staple holes in WRB.
 - d. Install all wall penetration flashing as specified herein. Tape all joints to WRB.
 - e. Apply SAM or liquid applied flashing from all window frames/flanges to WRB.
 - 2. See Drawings for additional air-sealing measures.

END OF SECTION

PART 1 GENERAL

**SECTION 07 60 00
FLASHING AND SHEET METAL**

- C. Related Materials**
- 1. Penetrations:** Pipe and conduit penetrations through roofing to be sealed with an elastomeric preformed or malleable 3lb. lead sheet flashing collar compatible with roofing material.
 - 2. Screws and Bolts:** Stainless steel.
 - 3. Mastic:** Cold-application, flashing cement, compatible w/roofing system.
 - 4. Bituminous Paint:** ASTM NA-TAZ .007, Pure Asphalt Company, Chicago, Illinois, or equal, for use where dissimilar metals are in contact or the flashing is within 6" of the ground. Acid and alkali resistant.
 - 5. Solder:** ASTM B 32, Grade Sn60.
 - 6. Other materials:** Provide all other materials, not specifically described, but required for a complete and proper installation of this work, shall be new, first quality, of their respective kinds.

PART 3 EXECUTION

3.1 FABRICATION / INSTALLATION

- A. General**
- 1.** Form all sheet metal accurately and to the dimensions and shapes required, finishing all molded and broken surfaces with true, sharp, and straight lines and angles and, where intercepting other members, coping to an accurate fit, soldering securely.
 - 2.** Form sections square, and accurate to profile, in maximum possible lengths, free from distortion and other defects detrimental to appearance of performance.
 - 3.** Hem exposed edges of flashings minimum 1/2 inch on underside.
 - 4.** Apply bituminous paint on concealed surfaces of flashings.
 - 5.** Where indicated on Drawings, factory pre-form, solder and finish flashing and sheet metal fabrications.
- B. Installation**
- 1.** Install flashings in accordance with manufacture's instructions, and SMACNA Architectural Sheet Metal Manual requirements.
 - 2.** Provide all required backing and support necessary for a complete and watertight installation.
 - 3.** Weather lap joints minimum 2 inches and seal with plastic cement.
 - 4.** Flash and seal work projecting through or mounted on roofing with plastic cement. Provide weathertight installation.
 - 5.** Place eave edge and gable edge flashing tight with fascia boards, weather lap joints 2 inches and seal with plastic cement.
- C. Expansion**
- 1.** Form, fabricate and install all sheet metal so as to adequately provide for expansion and contraction of the finished work.
- D. Weatherproofing**
- 1.** Finish watertight and weathertight where so required.
 - 2.** Make all lock seam work flat and true to line, sweating full of solder.

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FLASHING AND SHEET METAL**

3. Make all lock seams and lap seams, when soldered, at least 1/2" wide.
 4. Where lap seams are not soldered, lap according to pitch, but in no case less than 3".
 5. Make all flat and lap seams in direction of flow.
- E. Joints
1. Join parts with rivets or sheet metal screws where necessary for strength or stiffness.
 2. Provide suitable watertight expansion joints for all runs of more than 40' except where closer spacing is indicated on the Drawings or required for proper installation.
- F. Nailing
1. Whenever possible, secure metal by means of clips or cleats without nailing through the metal.
 2. Space all nails, rivets, and screws not more than 8" apart and, where exposed to the weather, use lead washers.
- G. Embedment
1. Embed all metal in connection with roofs in a solid bed of sealant, using materials and methods described in Section 07 90 00.

END OF SECTION

PART 1 GENERAL

A. Work in this section describes the requirements various joint sealants used on this project.

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| A. | Submittals | Section 01 33 00 |
| B. | Special Requirements | Section 01 61 16 |
| C. | Window and Door Systems | Division 8 |

- A. Standards: Comply with standards specified herein and as listed in Section 01 42 19.

- A. Comply with provisions of Section 01 33 00.
- B. Product data: Submit the following information:
1. Complete materials list of all items proposed to be furnished and installed under this section.
 2. Sufficient data required to demonstrate compliance with all specified requirements.
 3. Color samples.

- A. For all sealants, provide 5' long, in-place sample section for architect's approval prior to final application. Coordinate Architect review with regularly scheduled progress meeting.
- B. Peel Test: Contractor shall perform periodic field adhesion testing of all sealant joints per the following:
 - 1. Test method: ASTM C1193, appendix X1; Method A, Field-Applied Sealant Joint Hand Pull Tab or; ASTM C 1521, Method A, Tail Procedure.
 - 2. Test frequency: Perform 10 tests for the first 1,000 lineal feet of joint length for each kind of sealant and substrate; perform 1 test for each 1,000 lineal feet thereafter.
 - 3. Verification: Inspect test joints for proper joint fill, dimension, configuration, substrate elongation and adhesion per manufacturer's specifications.
 - 4. Record all test results by date and person testing in a Sealant Field-Adhesion test log.
 - 5. Evaluate test results: Tests revealing proper sealant characteristics and adhesion shall be repaired to original condition. Tests revealing improper characteristics or adhesion will be evidence of failed sealant. Further testing will be conducted to isolate failing conditions. All failed sealant will be removed and new sealant provided that subsequently passes re-testing.

- A. Submit written warranty of workmanship against leakage for two years.**

**SECTION 07 90 00
SEALANTS**

2.1 GENERAL

- A. Sealants shall be of the highest available grade for each product type meeting the minimum standards listed below. **Sealant installer shall verify suitability of each type for intended application and bonding substrate.** Notify architect of unsuitable conditions prior to application.
- B. Color of sealant to match adjacent finish. Each color and each class of sealant shall be the product of a single manufacturer.
- C. When available, sealants shall be low VOC per the requirements of Section 01 61 16.

2.2 JOINT SEALANTS - Interior or exterior (unless noted otherwise)

- A. Elastomeric Sealants:
 - 1. "Type ES-A" (for pedestrian and light -traffic bearing horizontal surfaces):
 - a. Type: Type S, one component or type M, two component.
 - b. Standard: ASTM C920, Class 25, Grade P, self-leveling.
 - c. Composition: Polyurethane.
 - d. Shore A hardness: 15 to 45.
 - e. Joint movement range: +/- 25%
 - 2. "Type ES-B" (for precast and masonry panel vertical joints)
 - a. Type: Type S, one component or type M, two component.
 - b. Standard: ASTM C920, Class 25, Grade NS, non-sag.
 - c. Composition: Polyurethane.
 - d. Shore A hardness: 15 to 50.
 - e. Joint movement range: +/- 25%
 - 3. "Type ES-C" (General purpose vertical joints)
 - a. Type: Type S, one component.
 - b. Standard: ASTM C920, Class 25, Grade NS, non-sag.
 - c. Composition: Polyurethane.
 - d. Shore A hardness: 15 to 50.
 - e. Joint movement range: +/- 25%
 - 4. "Type ES-D" (to join and seal glass, plastic, metal alloys, aluminum)
 - a. Type: Type S, one component.
 - b. Standard: ASTM C920, Class 25, Grade NS, non-sag.
 - c. Composition: Low modulus neutral cure silicone.
 - d. Shore A hardness: 15 to 20.
 - e. Joint movement range: +100 to -50%
 - 5. "Type ES-E" (for sealing sanitary locations)
 - a. Type: Type S, one component.
 - b. Standard: ASTM C920, Class 25, Grade NS, non-sag.
 - c. Composition: Mildew resistant silicone
 - d. Shore A hardness: 20 to 30.
 - e. Joint movement range: +/- 25%
 - 6. "Type ES-F" (for fiber cement siding joints)
 - a. Type: Type S, one component.
 - b. Standard: ASTM C920, Class 25, Grade NS, non-sag.
 - c. Composition: Silyl-terminated polyether.
 - d. Shore A hardness: 15 to 20.
 - e. Joint movement range: +/- 50%
 - 7. "Type ES-G" (for air sealing at doors and windows)
 - a. Type: Type S, one component.
 - b. Standard: ASTM C920, Class 25, Grade NS, non-sag.

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SEALANTS**

- c. Composition: Silyl-terminated polyether.
 - d. Shore A hardness: 15 to 20.
 - e. Joint movement range: +/- 25%
 - f. Acceptable Products: Prosoco R-Guard AirDam or approved equal.
- B. Elastomeric adhesive/sealers:
 - 1. "Type EA-A" (General purpose adhesive - wood, metal, FRP, plastic)
 - a. Type: Type S, one component or type M, two component.
 - b. Standard: ASTM C920, Class 25, Grade NS, non-sag.
 - c. Composition: Polyurethane.
 - d. Shore A hardness: 15 to 50.
 - e. Joint movement range: +/- 25%
- C. Caulks:
 - 1. "Type C-1" (Thresholds and neoprene gaskets)
 - a. Type: one component.
 - b. Standard: AAMA 808.3.
 - c. Composition: Butyl Rubber.
 - d. Joint movement range: +/- 5%
 - 2. "Type C-2" (General purpose interior vertical joints)
 - a. Type: one component.
 - b. Standard: ASTM C736
 - c. Composition: Acrylic latex.
 - d. Joint movement range: +/- 7.5%.
 - e. Recovery: 75% per ASTM C736
 - 3. "Type C-3" (Acoustical caulking - interior)
 - a. Type: one component
 - b. Standard: ASTM C919 & C834
 - c. Composition: Non-hardening polyisobutylene rubber.
 - 4. "Type C-4" (Fire stop caulking - general purpose small penetrations)
 - a. Type: one component
 - b. Standard: UL rated for intended application (verify with manuf.)
 - c. Composition: Water based intumescent acrylic dispersion.
 - d. Shore A hardness: +/- 35.
 - e. Joint movement range: +/- 5%.
 - f. Intumescent activation: +/- 250 deg. F.
 - g. Expansion rate: 3-5x original volume.
 - h. Manufacturer/Model: Hilti FS-One High Performance Sealant

2.3 RELATED PRODUCTS

- | | | |
|----|-----------------------------|--|
| A. | Primer: | As recommended by manufacturer for each product. Non-staining. |
| B. | Joint Cleaner: | As recommended by sealant manufacturer. |
| C. | Backing Materials: | As recommended by sealant manufacturer for each product. Non-absorbent and non-staining. |
| D. | Bond preventative Material: | As recommended by sealant manufacturer for each product. |

PART 3 EXECUTION

3.1 PREPARATION

- A. Remove all existing sealants from all existing joints in preparation for new sealants.

**SECTION 07 90 00
SEALANTS**

3.2 INSTALLATION

- A. Install in strict accordance with manufacturer's printed instructions.
- B. Maximum joint width shall be 3/8" unless otherwise noted on the Drawings. Joints greater than 5/8" in width shall be approved by the Architect prior to construction.
- C. Joints greater than 3/8" in depth to receive backer rod.
- D. Cleaning: Clean joint surfaces, using joint cleaner as necessary to be free of dust, dirt, oil, grease, rust lacquers, laitance, release agents, moisture, or other matter which might adversely affect adhesion of sealant.
- E. Priming: Apply primer, following manufacturer's instructions when required for joint condition.
- F. Apply sealants in joints that are completely dry and free of moisture using pressure gun with nozzle cut to fit joint width. Make sure sealant is deposited in uniform, continuous beads without gaps or air pockets.
- G. Tool joints to required configuration within 10 minutes of sealant application. If masking materials are used, remove immediately after tooling.
- H. Provide complete sealing of all joints, both interior and exterior, where preventing the penetration of moisture, air, fire or sound is required, including, but not limited to:
 - 1. Exterior pavement joints
 - 2. Exterior building wall joints
 - 3. Flashing and coping joints
 - 4. Misc. construction joints
 - 5. Interior floor, wall and ceiling joints
 - 6. Utility penetrations
 - 7. Sound walls
 - 8. Fire walls and shafts
 - 9. Wall flashing joints
 - 10. Equipment and isolation joints
 - 11. Food service cabinets and permanent equipment to walls.

3.3 AIR SEALING MEASURES

- A. Install air-sealing measures as required to create an air barrier system. The following items are general guidance to achieving an air barrier system.
 - 1. Following installation of wall board per Section 09 29 00, the following areas shall be air sealed:
 - a. Air-seal with caulk around all wall penetrations of gypsum wallboard. This may include switches, receptacles, pipes, ducts, wall heaters, doorbells, medicine cabinets, fire extinguisher cabinets, etc.
 - b. Air-seal with caulk around all ceiling penetrations of gypsum wallboard. This may include light fixtures, fans, smoke alarms, fire sprinklers, ducts, pipes, etc.
 - 2. See Drawings for additional air-sealing measures.

3.4 CLEANING

- A. Remove excess materials adjacent to joints to eliminate evidence of spillage or damage to adjacent surfaces.
- B. Leave finished work in neat, clean condition with no evidence of spillovers onto adjacent surface.

SECTION 07 90 00
SEALANTS

END OF SECTION

