

DIVISION 7
THERMAL AND MOISTURE
PROTECTION

1 2004/04/30

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SECTION 07210 BUILDING INSULATION

3

4 PART 1 - GENERAL

5 1.1 SUMMARY

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A. Section Includes:

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1. Building insulation.

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B. Related Sections include but are not necessarily limited to:

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1. Division 0 - Bidding Requirements, Contract Forms, and Conditions of the Contract.

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2. Division 1 - General Requirements.

11

3. Section 09250 - Gypsum Board.

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1.2 QUALITY ASSURANCE

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A. Referenced Standards:

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1. ASTM International (ASTM):

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a. C665, Specification for Mineral-Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing.

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b. C1289, Standard Specification for Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board.

17

2. Underwriters Laboratories, Inc. (UL):

18

a. Building Materials Directory.

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20

B. Mock-Ups:

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1. Provide insulation for sample walls required in Section 04220.

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1.3 SUBMITTALS

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A. Shop Drawings:

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1. See Section 01340.

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2. Product technical data including:

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a. Acknowledgement that products submitted meet requirements of standards referenced.

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b. Manufacturer's installation instructions.

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c. Manufacturer's recommendations on sealants and mastics.

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B. Miscellaneous Submittals:

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1. See Section 01340.

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2. Certification from insulation manufacturer stating that insulation proposed is acceptable for intended use per the Drawings.

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PART 2 - PRODUCTS

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2.1 ACCEPTABLE MANUFACTURERS

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A. Subject to compliance with the Contract Documents, the following manufacturers are acceptable:

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1. Blanket or batt insulation including sound insulation:

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a. Owens-Corning Fiberglass Corp.

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b. United States Gypsum Company (USG).

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B. Submit requests for substitution in accordance with Specification Section 01630.

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2.2 MATERIALS

- 1 A. Blanket or Batt Insulation:
- 2 1. Glass or other inorganic fibers and resinous binders formed into flexible blankets or semi-
- 3 rigid sheets.
- 4 a. ASTM C665.
- 5 2. Thermal conductivity (k-value at 75 DegF): 0.27.
- 6 3. Kraft-faced vapor retarder laminated to one face with 1 IN flanges on long edges.
- 7 4. Minimum R-19 unless noted otherwise..
- 8 B. Vapor Retarder Tape:
- 9 1. As recommended by vapor retarder manufacturer.

10 **PART 3 - EXECUTION**

11 **3.1 INSTALLATION**

- 12 A. Install products in accordance with manufacturer's instructions.
- 13 B. General:
- 14 1. Provide insulation at all walls and ceiling/roofs of heated or air conditioned spaces adjacent
- 15 to non-heated air conditioned spaces.
- 16 2. Insulate full thickness over surfaces to be insulated.
- 17 3. Fit tightly around obstructions, fill voids.
- 18 4. Cover all penetrations with insulation.
- 19 5. Seal all joints with sealant or tape as applicable.
- 20 6. Seal or tape to abutting materials to maintain vapor retarder integrity.
- 21 7. Tape butted joints of batt or blanket insulations.
- 22 8. All thermal insulation shall be provided with vapor retarder (either integral or separate).
- 23 9. Apply single or double layer to achieve total thickness.
- 24 a. If double layer is provided stagger all joints minimum 12 IN.
- 25 10. Do not use broken or torn pieces of insulation.
- 26 11. Install so that completed installation is vapor tight.
- 27 12. If vapor retarder tape fails to adhere to any surface, apply sprayed-on adhesive as
- 28 recommended by tape manufacturer to promote adhesion.
- 29 C. Blanket or Batt Insulation with Vapor Retarder:
- 30 1. Set with vapor retarder at warm side of building in heating mode unless otherwise noted or
- 31 directed by engineer.
- 32 a. Install with vapor retarder flanges over the edge of the framing member.
- 33 b. Do not obstruct ventilation spaces.
- 34 2. Fill all miscellaneous voids and where indicated on Drawings.
- 35 3. Tape joints and ruptures in vapor retarder.
- 36 4. Use vapor retarder tape and seal each area of insulation to surrounding construction to
- 37 assure continuous vapor-tight installation.

38 **3.2 FIELD QUALITY CONTROL**

- 39 A. Repair or replace damaged insulation as directed by Engineer.

40 **END OF SECTION**

1 2004/05/10

2 **SECTION 07900**
3 **JOINT SEALANTS**

4 **PART 1 - GENERAL**

5 **1.1 SUMMARY**

- 6 A. Section Includes:
7 1. Sealant work.
- 8 B. Related Sections include but are not necessarily limited to:
9 1. Division 0 - Bidding Requirements, Contract Forms, and Conditions of the Contract.
10 2. Division 1 - General Requirements.
11 3. Section 03311 – Concrete Mixing Placing, Jointing, and Curing.
- 12 C. Work included consists of but is not necessarily limited to:
13 1. Sealing all joints which will permit penetration of dust, air or moisture, unless sealing work
14 is specifically required under other sections. Work may include the following:
15 a. Flashing reglets and retainers.
16 b. Exterior wall joints.
17 c. Masonry control joints, exterior and interior and between masonry and other materials.
18 d. Isolation joints.
19 e. Joints between paving or sidewalks and building.
20 f. Concrete construction, control and expansion joints, exterior and interior.
21 g. Joints at penetrations of walls, floors and decks by piping and other services and
22 equipment.
23 h. Exterior and interior perimeters of exterior and interior door frames, louvers, grilles,
24 etc.
25 i. Thresholds at exterior doors.
26 j. Sealing around piping, duct or conduit penetrations through roof, floors, interior and
27 exterior walls.
28 k. Other joints where calking, sealant, expanding foam sealant or compressible sealant is
29 indicated.

30 **1.2 QUALITY ASSURANCE**

- 31 A. Referenced Standards:
32 1. American Concrete Institute (ACI):
33 a. 302.1R, Guide for Concrete Floor and Slab Construction.
34 2. ASTM International (ASTM):
35 a. C834, Standard Specification for Latex Sealants.
36 b. C920, Specification for Elastomeric Joint Sealants.
37 c. E84, Test Method for Surface Burning Characteristics of Building Materials.
38 3. Federal Specification (FS):
39 a. MMM-A-00193,
- 40 B. Qualifications:
41 1. Sealant applicator shall have minimum 5 years experience using products specified on
42 projects with similar scope.
- 43 C. Mock-Ups:
44 1. Before sealant work is started, a sample of each type of masonry joint shall be installed in
45 the masonry mock-up specified in Section 04220. The approved samples shall show the
46 workmanship, bond, and color of sealant materials as specified or selected for the work and
47 shall be the minimum standard of quality on the entire project.

1 **1.3 DEFINITIONS**

- 2 A. "Caulk(ing)," "calk(ing)," and "sealant": Joint sealant work.
- 3 B. "Interior wet areas": Pump floor, wet wells and similar areas.
- 4 C. Installer or Applicator: Installer or applicator is the person actually installing or applying the
- 5 product in the field at the Project site.
- 6 1. Installer or applicator are synonymous.
- 7 D. Finish sealant: Sealant material per this specification applied over face of compressible sealant
- 8 or expanding foam sealant specified, to provide a finished, colored sealant joint.
- 9 E. Defect(ive): Failure of watertightness or airtightness.

10 **1.4 SUBMITTALS**

- 11 A. Shop Drawings:
 - 12 1. See Section 01340.
 - 13 2. Product technical data including:
 - 14 a. Acknowledgement that products submitted meet requirements of standards referenced.
 - 15 b. Manufacturer's installation instructions.
 - 16 c. Manufacturer's recommendations for joint cleaner, primer, backer rod, tooling and bond
 - 17 breaker.
 - 18 3. Warranty.
- 19 B. Samples:
 - 20 1. Cured sample of each color for Engineer's color selection. Color chart not acceptable.
- 21 C. Miscellaneous Submittals:
 - 22 1. See Section 01340.
 - 23 2. Certification from sealant manufacturer stating product being used is recommended for and
 - 24 is best suited for joint in which it is being applied.
 - 25 3. Certification of applicator qualification.

26 **1.5 DELIVERY, STORAGE, AND HANDLING**

- 27 A. Deliver material in manufacturer's original unopened containers with labels intact:
 - 28 1. Labels shall indicate contents and expiration date on material.

29 **1.6 WARRANTY**

- 30 A. Material and Labor Warranty:
 - 31 1. Sealant work free of defects for a period of 3 years from date of final acceptance.
 - 32 2. Remove any defective work or materials and replace with new work and materials.
 - 33 3. Warranty signed jointly by Applicator and sealant manufacturer.

34 **PART 2 - PRODUCTS**

35 **2.1 ACCEPTABLE MANUFACTURERS**

- 36 A. Subject to compliance with the Contract Documents, the following manufacturers are
- 37 acceptable:
 - 38 1. Polyurethane sealants:
 - 39 a. Pecora.
 - 40 b. Sika Chemical Corp.
 - 41 c. Sonneborn - Rexnord.
 - 42 d. Tremco.
 - 43 2. Silicone sealants:
 - 44 a. General Electric.

- 1 b. Dow Corning Corp.
- 2 3. Expanding foam sealant:
- 3 a. Macklanburg Duncan.
- 4 b. Convenience Products.
- 5 c. FAI International, Inc.
- 6 4. Backer rod, compressible filler, primer, joint cleaners, bond breaker:
- 7 a. As recommended by sealant manufacturer.
- 8 B. Submit requests for substitution in accordance with Specification Section 01630.

9 **2.2 MATERIALS**

- 10 A. Sealants - General:
- 11 1. Provide colors matching materials being sealed.
- 12 2. Where compound is not exposed to view in finished work, provide manufacturer's color
- 13 which has best performance.
- 14 3. Nonsagging sealant for vertical and overhead horizontal joints.
- 15 4. Sealants for horizontal joints: Self-leveling pedestrian/traffic grade.
- 16 B. Polyurethane Sealant:
- 17 1. One or two components.
- 18 2. Paintable.
- 19 3. Meet ASTM C920 Type S or Type M, Grade NS or P, Class 25, Use NT, T, M, A and O.
- 20 a. Pecora Dynatrol-IXL, Dynatrol II, Urexpam NR-200, NR-201.
- 21 b. Sika Chemical Corporation Sikaflex-1a, Sikaflex-2C NS/SL.
- 22 c. Sonneborn Sonolastic NP-1, NP-II, SL-1 SL-2.
- 23 d. Tremco Dymonic or Dymeric, Vulkem 116,227,45,245.
- 24 C. Silicone Sealant:
- 25 1. One component.
- 26 2. Meet ASTM C920, Type S, Grade NS, Class 25, Use NT, G, A, O.
- 27 a. General Electric: Silpruf, Silglaze II.
- 28 b. General Electric: Sanitary 1700 sealant for sealing around plumbing fixtures.
- 29 c. Dow Corning: 786 for sealing around plumbing fixtures.
- 30 d. Dow Corning: 790, 795.
- 31 D. Expanding Foam Sealant:
- 32 1. One or two component fire rated moisture cured expanding urethane.
- 33 2. Shall not contain formaldehyde.
- 34 3. Density: Minimum 1.5 pcf.
- 35 4. Minimum 70 percent closed cell content.
- 36 5. R-value minimum 5.0/IN.
- 37 6. Flame spread: Less than 25.
- 38 7. Smoke developed: Less than 25.

39 **PART 3 - EXECUTION**

40 **3.1 PREPARATION**

- 41 A. Before use of any sealant, investigate its compatibility with joint surfaces, fillers and other
- 42 materials in joint system.
- 43 B. Use only compatible materials.
- 44 C. Where required by manufacturer, prime joint surfaces.
- 45 1. Limit application to surfaces to receive calking.
- 46 2. Mask off adjacent surfaces.
- 47 D. Provide joint depth for joints in accordance with manufacturer's recommendations.

