SECTION 07 20 00

FOIL-FACED CAVITY WALL INSULATION

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\*\* NOTE TO SPECIFIER \*\* Carlisle Coatings & Waterproofing; coatings and waterproofing products.  
.  
This section is based on the products of Carlisle Coatings & Waterproofing, which is located at:  
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Wylie, TX 75098  
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Web: [www.carlisle-ccw.com](http://www.carlisle-ccw.com)   
 [ [Click Here](http://www.arcat.com/arcatcos/cos31/arc31251.html) ] for additional information.  
Carlisle Coatings & Waterproofing, Inc. (CCW) provides a broad range of solutions to meet specific waterproofing needs. CCW offers technical services, research and development and manufacturing capabilities from its headquarters in Wylie, Texas and three additional manufacturing facilities in Terrell, TX, Elberton, GA, and Carlisle, PA. The CCW network is further supported by over 50 Manufacturer's sales representatives directed by regional sales offices throughout the country. CCW offers a complete line of waterproofing and moisture protection products for the architectural, general construction, industrial and maintenance industries. Carlisle Coatings & Waterproofing, Inc. is part of the Syntec Division of Carlisle Companies, Inc.

1. GENERAL
   1. SECTION INCLUDES
      1. Foil-faced, polyisocyanurate foam plastic insulation board (FPIB) installed in masonry cavity walls to provide continuous insulation in exterior assemblies.
   2. RELATED SECTIONS

\*\* NOTE TO SPECIFIER \*\* Delete any sections below not relevant to this project; add others as required.  
FPIB may trigger code requirement for NFPA 285 wall assembly test.

* + 1. Section 04 20 00 - Unit Masonry. Coordination with through-wall flashing attachment shall be to masonry back-up wall, not to FPIB.
    2. Section 07 27 00 - Air Barriers.
    3. Section 07 27 26 - Fluid-Applied Membrane Air Barriers .
  1. REFERENCES

\*\* NOTE TO SPECIFIER \*\* Delete references from the list below that are not actually required by the text of the edited section.

* + 1. ASTM International (ASTM):
       1. ASTM C 209 - Standard Test Methods for Cellulosic Fiber Insulating Board
       2. ASTM C 518 - Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus.
       3. ASTM C 1289 - Standard Specification for Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board.
       4. ASTM D 2126 - Standard Test Method for Response of Rigid Cellular Plastics to Thermal and Humid Aging.
       5. ASTM E 84 - Standard Test Method for Surface Burning Characteristics of Building Materials.
       6. ASTM E 96 - Standard Test Methods for Water Vapor Transmission of Materials.
    2. NFPA 285 - Standard Fire Test Method for Evaluation of Fire Propagation Characteristics of Exterior Non-Load-Bearing Wall Assemblies Containing Combustible Components.
  1. SUBMITTALS
     1. Submit under provisions of Section 01 30 00 - Administrative Requirements.
     2. FPIB manufacturer's product literature, including physical properties, installation instructions and detail drawings.
     3. Confirmation in writing of compatibility of insulation adhesive with weather barrier and FPIB.

\*\* NOTE TO SPECIFIER \*\* Delete if not required.

* + 1. Projects of Type I-IV construction: Confirmation in writing that FPIB passes NPFA 285 in Project wall assemblies.
    2. Sample of FPIB, minimum 4 inches by 4 inches (102 mm by 102 mm) size.
    3. FPIB manufacturer's 15-year thermal performance warranty
  1. QUALITY ASSURANCE
     1. Manufacturer Qualifications: Minimum 5 year experience manufacturing similar products.
     2. Installer Qualifications: Experienced in applying the same or similar materials.
     3. Product and Accessories shall comply with all state and local regulations controlling use of volatile organic compounds (VOCs).
     4. Comply with the provisions of the Owner's building envelope commissioning program.

\*\* NOTE TO SPECIFIER \*\* Include a mock-up if the project size and/or quality warrant taking such a precaution. The following is one example of how a mock-up on a large project might be specified. When deciding on the extent of the mock-up, consider all the major different types of work on the project.

* + 1. Field-Constructed Mock-Ups: Prior to installation on Project, apply insulation and accessories on mock-up to verify details under shop drawing submittals, to demonstrate tie-ins with adjoining construction and other termination conditions and to become familiar with properties of materials in application.

\*\* NOTE TO SPECIFIER \*\* Incorporate sub paragraph 1 or 2 into Paragraph. Delete sub paragraph not required.

* + - 1. Apply in field-constructed mockups of assemblies as specified in Section 01 43 39 - Mockups.
      2. Construct typical exterior wall panel, 8 feet long by 8 feet wide (2438 mm by 2438 mm), incorporating back-up wall, air/weather barrier, FPIB, FPIB fastening/bonding, cladding, window and doorframe and sill and flashing, building corner condition, junction with roof system foundation wall and typical penetrations and gaps; illustrating interface of materials.
    1. Perform visual inspection of Work before it is covered up. Take photographs and notes to document progress and quality.
    2. Cooperate and coordinate with the Owner's inspection and testing agency. Do not cover any installed FPIB unless it has been inspected, tested and approved
  1. PRE-INSTALLATION MEETINGS
     1. Pre-Installation Meeting: Convene one week prior to commencing Work of this Section, in accordance with Division 01.
     2. Convene minimum two weeks prior to starting work of this section.
  2. DELIVERY, STORAGE, AND HANDLING
     1. Protect FPIB from physical damage.
     2. Store FPIB in an area protected from precipitation and direct sunlight, or store pallets outdoors elevated above ground 4 inches (102 mm) minimum and covered with breathable UV-resistant tarpaulin.
     3. Store insulation adhesive, insulation tape and foam sealant in an area maintained between 50 and 90 degrees F (10 degrees and 32 degrees C) and protected from precipitation and direct sunlight.
     4. Handle FPIB carefully, so corners are not damaged or broken off.
  3. PROJECT CONDITIONS
     1. Install insulation adhesive and foam sealant within approved ambient and substrate temperature range and conditions stated in manufacturer's literature.
     2. Do not apply insulation adhesive or foam sealant over incompatible materials
     3. Observe safety and environmental measures indicated in manufacturer's MSDS, and mandated by federal, state and local regulations.
  4. SEQUENCING
     1. Ensure that products of this section are supplied to affected trades in time to prevent interruption of construction progress.
  5. WARRANTY
     1. Warranty: Provide manufacturer's standard limited material warranty.

1. PRODUCTS
   1. MANUFACTURERS
      1. Acceptable Manufacturer: Carlisle Coatings & Waterproofing, which is located at: 900 Hensley Ln.; Wylie, TX 75098; Toll Free Tel: 888-229-0199; Tel: 972-442-6545 ; Fax: 972-442-0076; Email: [request info (Caitlyn.Ruhl@carlisleccm.com)](http://admin.arcat.com/users.pl?action=UserEmail&company=Carlisle+Coatings+%26+Waterproofing&coid=31251&rep=&fax=972-442-0076&message=RE:%20Spec%20Question%20(07200ccw):%20%20&mf=); Web: [www.carlisle-ccw.com](http://www.carlisle-ccw.com)

\*\* NOTE TO SPECIFIER \*\* Delete one of the following two paragraphs; coordinate with requirements of Division 1 section on product options and substitutions.

* + 1. Substitutions: Not permitted.
    2. Requests for substitutions will be considered in accordance with provisions of Section 01 60 00 - Product Requirements.
  1. PERFORMANCE REQUIREMENTS
     1. Material Properties - FPIB:
        1. Shall consist of a closed-cell, Polyisocyanurate foam core faced on both sides with reinforced aluminum foil.

\*\* NOTE TO SPECIFIER \*\* Delete grade not required.

* + - 1. Shall meet ASTM C 1289 Type I, Class 1 Grade 2 (20 psi).
      2. Shall meet ASTM C 1289 Type I, Class 1 Grade 3 (25 psi).
      3. Minimum Thickness and R-Value: F\*ft2\*h/ Btu per inch. Measured at 75 degrees F mean temperature, ASTM C 518 & ASTM C 1289.
      4. Flame Spread Index: 75 or less, smoke generation index: 450 or less, ASTM E 84.
      5. Water Vapor Permeance of 1 inch (25.4 mm) Thick Board: Maximum 0.1 Perm, ASTM E 96 A.
      6. Dimensional Stability: Maximum 2% change after 7 days, ASTM D 2126.
      7. Water Absorption: Maximum 0.05% volume, ASTM C 209.
    1. Material Properties - Insulation Adhesive:
       1. Shall consist of solvent-based synthetic rubber.
       2. Percent Solids: 58% minimum.
       3. Low-temp Flexibility: No cracking after 180 degree bend over 1 inch (25.4 mm) mandrel at minus 25 degrees F (-32 degrees C), ASTM D 1970.
       4. Tensile elongation: 1,000% minimum, ASTM D 412.
       5. Peel adhesion on aluminum substrate: 25 lb/in minimum, ASTM D 903
       6. Volatile Organic Content (VOC): 250 g/L, maximum.
    2. Material Properties - Foam Sealant:
       1. Shall consist of one-component, low expansion polyurethane foam.
       2. Flame Spread Index 25 or less, Smoke Developed Index 450 or less, ASTM E 84.
       3. Cellular structure: Minimum 60% closed cell.
       4. Skin formation time: 10 minutes or less.
       5. Waterproof after full cure.
    3. Properties, Products and Manufacturers - FPIB Fasteners. Use the following as required by manufacturer for application:
       1. Standard FPIB Fastener: Metal screw with corrosion resistant coating fitted with a low-profile plastic washer designed to grip and hold FPIB to masonry substrate:
          1. Approved masonry screw with Thermal-Grip CI Washer or Thermal-GRIP CI Prong Washer, by Rodenhouse Fastening Systems.
          2. Approved masonry screw with CI-Lock washer by Wind-Lock.
       2. Plastic Screw FPIB Fastener: Plastic tap-in screw with integral washer head designed to grip and hold FPIB to masonry substrate.
          1. Plasti-Grip PMF by Rodenhouse Fastening Systems.
          2. Con-Grip by Wind-Lock.
  1. INSULATION
     1. Provide foil-faced polyiso foam plastic insulation boards (FPIB):
        1. Product: R2+ SILVER as manufactured by Carlisle Coatings & Waterproofing, Incorporated.

\*\* NOTE TO SPECIFIER \*\* Delete size not required.

* + - 1. Size: 4 feet X 8 feet (1219 mm by 2438 mm).
      2. Size: 4 feet X 9 feet (1219 mm by 2743 mm).
      3. Size: 4 feet X 12 feet (1219 mm by 3658 mm).
      4. Size: 16 inch X 8 feet (406 mm by 2438 mm).
      5. Size: 24 inch X 8 feet (610 mm by 2438 mm).
      6. Size: Custom size.

\*\* NOTE TO SPECIFIER \*\* Delete thickness not required.

* + - 1. Thickness: 1 inch (25.4 mm) R-6.7.
      2. Thickness: 1.5 inches (38 mm) R-10.5.
      3. Thickness: 2.0 inches (51 mm) R-14.4.
      4. Thickness: 2.5 inches (63.5 mm) R-17.8.
      5. Thickness: 3.0 inches (76 mm) R-21.2.
      6. Thickness: 3.5 inches (89 mm) R-24.6.
  1. ACCESSORlES
     1. Insulation Adhesive:
        1. LM 800 XL by Carlisle Coatings & Waterproofing.
     2. Foam Sealant:
        1. FireBlock Gun Foam by TVM Building Products.
        2. FireBlock Foam Sealant by FOMO.

1. EXECUTION
   1. EXAMINATION
      1. Examine substrates, areas, and conditions affecting FPIB installation for compliance with requirements. Verify that surfaces and conditions are suitable prior to commencing Work of this Section. Do not proceed with installation until unsatisfactory conditions have been corrected.
      2. Wall surfaces shall be of sound condition, free of protrusions of surface defects that would prevent snug fit of FPIB.
      3. Weather barrier or air barrier membrane over wall surfaces shall be securely attached, correctly installed and in good condition.
      4. Building wrap, paper or membrane materials covered by FPIB or installed over FPIB:
         1. Air/weather barrier on base wall assembly covered by FPIB: Verify that air/weather barrier is secure and correctly installed before covering with FPIB. Adhesive to bond FPIB shall be compatible with FPIB and air/weather barrier.
         2. Over FPIB: FPIB is a substrate for the air/weather barrier, subject to requirements in air/weather barrier Section.
      5. Division 08 - Openings. Provide an air and water tight seal of fenestration to FPIB.
      6. Facility Services Subgroup: Penetrations of the FPIB with mechanical, electrical, telecommunications or other service. Rough gaps around penetrations or other damage shall be filled as required by FPIB manufacturer.
   2. INSTALLATION
      1. Install FPIB in a single layer over masonry wall surfaces to achieve specified R-value.
      2. Cut FPIB to size and shape to fit around obstacles and to provide snug fit on wall surface.
      3. Butt neighboring FPIB pieces tightly together. Offset board joints in neighboring rows 12 inches (305 mm) minimum.
      4. Fill gaps exceeding1/8 inch (3 mm) between adjacent FPIB pieces.
      5. Fill gaps exceeding 1/8 inch (3 mm) around penetrations through FPIB and at terminations of FPIB.
      6. Use the following materials to fill gaps between adjacent FPIB pieces, around penetrations through FPIB and at terminations of FPIB:
         1. Gaps up to 1/2 inch (13 mm) across: foam sealant.
         2. Gaps exceeding 1/2 inch (13 mm) across: pieces of FPIB secured in place with foam sealant or insulation adhesive.
         3. Do not seal through-wall flashing weep paths.

\*\* NOTE TO SPECIFIER \*\* Retain for FPIB installation between rows of imbedded ladder brick ties. Delete if not required.

* + 1. Install factory-cut FPIB, sized to fit between rows of imbedded brick ties. Bond FPIB snug to wall with insulation adhesive.

\*\* NOTE TO SPECIFIER \*\* Retain for FPIB installation over knife plate type brick ties. Delete if not required.

* + 1. Push FPIB over knife plate ties. Use technique to prevent emerging knife plates from de-laminating FPIB facer. Bond FPIB snug to wall with insulation adhesive.
    2. Bonding FPIB In Place: Apply 3/8 inch thick by 3 inches (9.5 mm by 152 mm) diameter dabs of insulation adhesive to the FPIB, spaced maximum 16 inches (406 mm) on center. Press FPIB tightly to wall substrate within open time of the insulation adhesive. Fasten as required with standard FPIB fasteners or plastic screw FPIB fasteners to snug FPIB to non-plumb surfaces.
  1. REPAIR AND PROTECTION
     1. Protect insulation from mechanical damage and exposure to open flame during installation and exposure.
     2. FPIB is not approved for permanent exposure. Cover exterior with code-approved cladding. Cover interior with code-approved thermal barrier.
     3. Cover exterior-applied FPIB with cladding as soon as schedule permits. Do not leave FPIB exposed longer than 60 days, unless FPIB is covered with an approved weather barrier.

END OF SECTION