

January 2015

Product Guide Specification

Specifier Notes: This product guide specification is written according to the Construction Specifications Institute (CSI) 3-Part Format, including *MasterFormat*, *SectionFormat*, and *PageFormat*, as described in *The CSI Construction Specifications Practice Guide*.

This section must be carefully reviewed and edited by the Architect to meet the requirements of the project and local building code. Coordinate this section with other specification sections and the Drawings. Delete all "Specifier Notes" after editing this section.

Section numbers and titles are based on *MasterFormat 2014 Update*.

SECTION 07 21 54

RADIANT BARRIERS

Specifier Notes: This section covers Fi-Foil "Radiant Shield" radiant barriers intended for use as reflective insulation on walls, floors, and roofs. Consult Fi-Foil Company, Inc. for assistance in editing this section for the specific application.

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Radiant barriers.

1.2 RELATED REQUIREMENTS

Specifier Notes: Edit the following list of related sections as necessary. Limit the list to sections with specific information that the reader might expect to find in this section, but is specified elsewhere.

- A. Section 07 21 00 – Thermal Insulation: Thermal insulation with integral vapor retarders.
- B. Section 07 26 00 – Vapor Retarders.

1.3 REFERENCE STANDARDS

Specifier Notes: List reference standards used elsewhere in this section, complete with designations and titles.

- A. ASTM C 1313 / C 1313M – Standard Specification for Sheet Radiant Barriers for Building Construction Applications.
- B. ASTM C 1338 – Standard Test Method for Determining Fungi Resistance of Insulation Materials and Facings.
- C. ASTM C 1371 – Standard Test Method for Determination of Emittance of Materials Near Room Temperature Using Portable Emissometers.
- D. ASTM C 1743 – Standard Practice for Installation and Use of Radiant Barrier Systems (RBS) in Residential Building Construction.
- E. ASTM C 1744 – Standard Practice for Installation and Use of Radiant Barrier Systems (RBS) in Commercial/Industrial Building Construction.
- F. ASTM D 3310 – Standard Test Method for Determining Corrosivity of Adhesive Materials.
- G. ASTM E 84 – Standard Test Method for Surface Burning Characteristics of Building Materials.
- H. ASTM E 96 – Standard Test Methods for Water Vapor Transmission of Materials.
- I. ASTM D 2261 – Standard Test Method for Tearing Strength of Fabrics by the Tongue Procedure.
- J. ICC-ES AC 220 – Acceptance Criteria for Sheet Radiant Barriers.

1.4 SUBMITTALS

Specifier Notes: Edit submittal requirements as necessary. Delete submittals not required.

- A. Comply with Section 01 33 00 – Submittal Procedures.
- B. Product Data: Submit manufacturer's product data, including installation instructions.
- C. Samples: Submit manufacturer's sample of radiant barriers, minimum 6 inches square.
- D. Manufacturer's Certification: Submit manufacturer's certification that materials comply with specified requirements and are suitable for intended application.
- E. Warranty Documentation: Submit manufacturer's standard warranty.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Delivery Requirements: Deliver materials to site in manufacturer's original, unopened containers and packaging, with labels clearly identifying product name and manufacturer.
- B. Storage and Handling Requirements:
 - 1. Store and handle materials in accordance with manufacturer's instructions.
 - 2. Keep materials in manufacturer's original, unopened containers and packaging until installation.
 - 3. Store materials in clean, dry area indoors.
 - 4. Protect materials during storage, handling, and installation to prevent damage.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturer: Fi-Foil Company, Inc., PO Box 800, Auburndale, Florida 33823. Toll Free 800-448-3401. Phone 863-965-1846. Fax 863-967-0137. Website www.fifoil.com. E-mail info@fifoil.com.

Specifier Notes: Specify if substitutions will be permitted.
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- B. Substitutions: [Not permitted] [In accordance with Division 1].

2.2 RADIANT BARRIERS

- A. Radiant Barriers: Fi-Foil "Radiant Shield".
- B. Description:
 - 1. Multi-laminate, perforated, sheet radiant barrier.
 - 2. Two outer layers of aluminum foil laminated to layer of woven polyethylene.
 - 3. Thickness of Each Layer: Minimum 0.00025 inch.
- C. Compliance and Approvals:
 - 1. Compliance: ASTM C 1313.
 - 2. Evaluated: ICC-ES AC 220.
 - 3. Uniform Evaluation Report: IAPMO ES UER 0266.
- D. Testing:
 - 1. Water Vapor Permeance, ASTM E 96: 13.9 perms.
 - 2. Surface Burning Characteristics, ASTM E 84:
 - a. Flame Spread Index: Less than 25.
 - b. Smoke Developed Index: Less than 450.
 - c. NFPA Rating: Class 1/Class A.
 - 3. Corrosivity, ASTM D 3310: Pass.
 - 4. Adhesive Performance, ASTM C 1313, Section 7.2.6:
 - a. Bleeding: None.
 - b. Delamination: None.

- c. Pliability: Pass.
- 5. Mold and Mildew Resistance, ASTM C 1338: Does not promote growth.
- 6. Foil Emittance, ASTM C 1371: 0.03 to 0.04.
- 7. Reflectivity: 0.96 to 0.97.
- 8. Tear Resistance, ASTM D2261
 - a. Machine Direction: 27.6 lbs.
 - b. Cross Direction: 26.1 lbs.

2.3 ACCESSORIES

- A. Aluminum Foil Tape: Fi-Foil aluminum foil tape.
 - 1. Description: 2-mil aluminum foil coated with cold weather acrylic adhesive.
 - 2. UL Classified facing.
 - 3. Width: 3 inches.
 - 4. Thickness: 3.5 mils, exclusive of liner.
 - 5. Adhesion: 96 oz/inch width.
 - 6. Elongation: 4.4 percent.
 - 7. Tensile Strength: 27 lbs/inch width.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Examine areas to receive radiant barriers.
- B. Notify Architect of conditions that would adversely affect installation.
- C. Do not begin installation until unacceptable conditions are corrected.

3.2 INSTALLATION

Specifier Notes: Specify ASTM C 1743 for use in residential building construction. Specify ASTM C 1744 for use in commercial and industrial building construction.

- A. Install radiant barriers in accordance with manufacturer's instructions and [ASTM C 1743] [ASTM C 1744].
- B. Install radiant barriers at locations indicated on the Drawings.
- C. Splice radiant barriers in accordance with manufacturer's instructions to avoid gaps.
 - 1. Tape seams if gaps appear where splice has been butted.
- D. Cut radiant barriers to fit snugly around openings.
 - 1. Tape edges of radiant barriers to openings, if wall can be seen.
- E. Tape tears in radiant barriers.
- F. Replace damaged radiant barriers as directed by Architect.

3.3 PROTECTION

- A. Protect installed radiant barriers from damage during construction.

END OF SECTION