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ESR-1362

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Reissued 05/2016
This report is subject to renewal 05/2017.

DIVISION: 07 00 00—THERMAL AND MOISTURE PROTECTION
SECTION: 07 21 00—THERMAL INSULATION

REPORT HOLDER:

REFLECTIX INCORPORATED

POST OFFICE BOX 108
MARKLEVILLE, INDIANA 46056-0108

EVALUATION SUBJECT:

**REFLECTIX™ RDB1 INSULATION, REFLECTIX™ HVBB48075 INSULATION AND
REFLECTIX™ HVBP INSULATION**



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**DIVISION: 07 00 00—THERMAL AND MOISTURE
PROTECTION**
Section: 07 21 00—Thermal Insulation
REPORT HOLDER:
**REFLECTIX INCORPORATED
POST OFFICE BOX 108
MARKLEVILLE, INDIANA 46056-0108
(800) 879-3645
www.reflectixinc.com**
EVALUATION SUBJECT:
**REFLECTIX™ RDB1 INSULATION, REFLECTIX™
HVBB48075 INSULATION AND REFLECTIX™ HVBP
INSULATION**
ADDITIONAL LISTEE:
**SEALED AIR CORPORATION
301 MAYHILL STREET
SADDLE BROOK, NEW JERSEY 07663-5303**
**PRODUCT: TEMPSHIELD™ RDB1 INSULATION,
TEMPSHIELD™ HVBB48075 INSULATION AND
TEMPSHIELD™ HVBP INSULATION**

1.0 EVALUATION SCOPE

Compliance with the following codes:

- 2009 and 2006 *International Building Code*® (IBC)
- 2009 and 2006 *International Residential Code*® (IRC)
- 2009 and 2006 *International Mechanical Code*® (IMC)
- 2009 and 2006 *International Energy Conservation Code*® (IECC)
- 2013 *Abu Dhabi International Building Code* (ADIBC)[†]

[†]The ADIBC is based on the 2009 IBC. 2009 IBC code sections referenced in this report are the same sections in the ADIBC.

Properties evaluated:

- Thermal resistance
- Surface-burning characteristics

2.0 USES

RDB1 and HVBP insulations are recognized for use as insulation installed in floors in residential and commercial

 buildings of any construction type. HVBP and HVBB48075 insulations are recognized for use with metal air ducts in residential and commercial buildings of any construction type. When installed in accordance with this report, Reflectix™ RDB1, HVBB48075 and HVBP insulations provide thermal resistance values (*R*-values) as noted in Section 4.0 and Table 1 of this report.

The RDB1 and HVBP insulations are recognized for installation in 2-by-10-inch (50.8 by 254 mm) wood-framed crawl-space assemblies as indicated in Figure 1.

Reflectix™ HVBP and HVBB48075 insulations are recognized for installation on metal air ducts as indicated in Figures 2 and 3.

3.0 DESCRIPTION

Reflectix™ RDB1, HVBB48075 and HVBP, and Tempshield™ RDB1, HVBB48075 and HVBP, are, respectively, identical products. For purposes of this report, where the name Reflectix™ appears, the attributes described also apply to Tempshield™.

Reflectix™ RDB1 and HVBP are 1/4-inch-thick (6.35 mm), flexible, reflective, bubble-pack-type insulations consisting of seven layers. Two outer layers of metalized surfaces are each bonded to a layer of polyethylene. These outer plies encapsulate two inner layers of bubble-pack encapsulating air with a center layer of polyethylene. Reflectix™ RDB1 and HVBP are available in standard widths of 16, 24, and 48 inches (406, 609, and 1219 mm) and lengths of 25, 50, and 125 feet (7.62, 15.24 and 38.10 m).

Reflectix™ HVBB48075 is a nominally 3/4-inch-thick, flexible, reflective, bubble-pack-type insulation consisting of seven layers. Two outer layers of metalized surfaces are each bonded to a layer of polyethylene. These outer plies encapsulate two inner layers of bubble-pack encapsulating air with a center layer of metalized film. Reflectix™ HVBB48075 is available with a width of 48 inches (1219 mm) and a length of 75 feet (22.9 m). Reflectix™ foil tape is a standard aluminum foil tape with acrylic adhesive backing, sold in 2-inch-wide (50.8 mm) rolls that are 150 feet (3810 mm) long. The tape is used to repair tears and to cover seams in Reflectix™ insulation.

Reflectix™ RDB1, HVBP and HVBB48075 insulations, with a full-length joint seam repaired using Reflectix™ foil tape, have a maximum flame-spread index of 25 or less and maximum smoke-developed index of 50 or less when tested for surface-burning characteristics in accordance with ASTM E84.

4.0 INSTALLATION

4.1 General:

Reflectix™ RDB1 and HVBP insulations may be installed as described in Section 4.2.1. HVBP and HVBB48075 insulations may be installed as described in Section 4.2.2.

The manufacturer’s published installation instructions and this report must be strictly adhered to, and a copy of the instructions must be available at all times on the jobsite during installation. If there are any conflicts between the manufacturer’s published instructions and this report, this report governs.

4.2 Thermal Resistance Assemblies:

4.2.1 Crawl Space Wood Floor Joist Assembly:

Reflectix™ RDB1 or HVBP insulation must be fastened to the midpoint and the bottom of nominally 2-by-10-inch wood floor joists spaced 16 inches (406 mm) on center, using 5/16-inch-long (7.9 mm) corrosion-resistant staples every 4 inches (102 mm). The subfloor is a minimum of 1/2-inch (12.7 mm) plywood. At the sides and ends of the floor, the insulation must be stapled to the top of the rim board and then to the midpoint of the first joist. The second layer of insulation must be stapled to the top of the rim board and then to the bottom of the first joist (see Figure 1). Thermal resistance for this assembly is shown in Table 1.

4.2.2 Air Duct Insulation Installed with Spacer:

Reflectix™ HVBB48075 and HVBP insulations are recognized for use on the exterior of metal air ducts installed in areas without high traffic. Nominally 3/4-inch-thick-by-1.5-inch-wide plastic spacers are attached to all four corners of the duct using Reflectix™ tape, with this assembly repeated every 2 feet (610 mm) along the duct’s length. Reflectix™ insulation is installed over the spacers and pulled tight to create a 3/4-inch (19 mm) air space. Joints must be taped using Reflectix™ foil tape. Exposed insulation must have all cut or torn portions repaired with UL181 foil tape, which is listed and labeled in accordance with UL 181A.

When tested in accordance with ASTM C335, at a mean temperature of 75°F (23.9°C), the HVBP insulation, when installed as shown in Figure 2, has a thermal resistance (*R*-value) of 6.5 ft²•h•°F/Btu, measured from the surface of the duct to the surrounding air.

When tested in accordance with ASTM C335, at a mean temperature of 75°F (23.9°C), the HVBB48075 insulation, when installed as shown in Figure 3, has a thermal

resistance (*R*-value) of 8.0 ft²•h•°F/Btu, measured from the surface of the duct to the surrounding air.

5.0 CONDITIONS OF USE

The Reflectix™ RDB1, HVBP and HVBB48075 insulations and the Reflectix™ foil tape described in this report comply with, or are suitable alternatives to what is specified in, those codes listed in Section 1.0 of this report, subject to the following conditions:

- 5.1 This evaluation report and the installation instructions, when required by the code official, must be submitted at the time of permit application.
- 5.2 The insulation must be installed in accordance with the manufacturer’s published installation instructions, this report and the applicable code. In the event of a conflict between the manufacturer’s published installation instructions and this report, this report governs.
- 5.3 Where installed in floor cavities, Reflectix™ insulation must be separated from the interior of the building by a minimum 15-minute thermal barrier in accordance with the applicable code.
- 5.4 Reflectix™ insulation must not be installed exposed on air ducts in locations subject to high traffic.
- 5.5 Reflectix™ HVBB48075 and HVBP, when used on metal air ducts, must be installed in accordance with this report and the applicable requirements of IMC Chapter 6.
- 5.6 When use is as metal air duct insulation on ducts operating at temperatures exceeding 120°F (49°C), the ducts must be provided with sufficient thermal insulation to limit the insulation’s exposed temperature to 120°F (49°C).

6.0 EVIDENCE SUBMITTED

Data in accordance with the ICC-ES Acceptance Criteria for Reflective Insulation (AC02), dated June 2011.

7.0 IDENTIFICATION

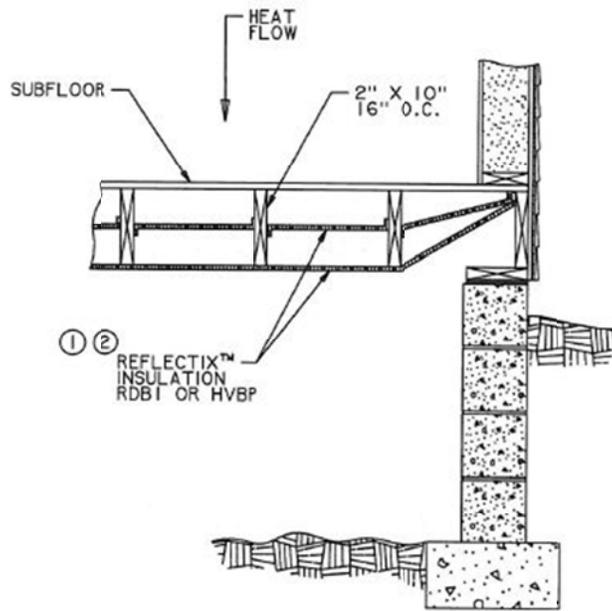
Each package of the insulation is labeled with the report holder’s or the additional listee’s name and address, the flame-spread index, the smoke-developed index, the product name and the evaluation report number (ESR-1362). RDB1 insulation also has the wording “See ESR-1362 for the thermal resistance (*R*-value) of the assembly or assemblies.” RDB1 and HVBB48075 insulations are labeled with the thermal resistance (*R*-value) for use as duct insulation. Each package of Reflectix™ tape is labeled with the Reflectix™ name.

TABLE 1—R-VALUES FOR REFLECTIX™ ASSEMBLIES³

CONFIGURATION	HEAT FLOW DIRECTION	FIGURE NO.	REFLECTIVE INSULATION MODEL NO.	R-VALUE (hr•ft ² •°F/Btu) (Insulated Cavity)	R-VALUE (hr•ft ² •°F/Btu) (Assembly)	R-VALUE (hr•ft ² •°F/Btu) (Insulated Cavity Plus Bottom RDB1)	R-VALUE (hr•ft ² •°F/Btu) (Insulated Cavity Plus Bottom RDB1 Plus Air Film)
Horizontal	Down	1	RDB1 or HVBP	13.8 ¹	16.6 ²	16.1 ⁴	20.6 ⁵
Air duct		2	HVBP	6.5 ⁶			
Air duct		3	HVBB48075	8.0 ⁶			

For SI: 1 inch = 25.4 mm, 1 hr•ft²•°F/Btu = 0.176 m²•K/W.

¹R-values are according to ASTM C1224 for inside surface to inside surface of the test cavity and do not include the plywood subfloor, bottom layer of RDB1 and floor joists.
²R-values are according to ASTM C1363 for outside surface of sheathing to outside surface of bottom layer of RDB1 of the test assembly.
³R-values in Table 1 can be used to contribute to the IECC’s Building Envelope requirements.
⁴R-values are according to ASTM C1363 for the insulated cavity and bottom RDB1.
⁵R-values are according to ASTM C1363 for the insulated cavity, bottom RDB1 and the bottom air film.
⁶R-values are according to ASTM C335 for outside surface of the duct to the air surrounding the insulation.



③ USED AS CRAWL SPACE APPLICATION

FIGURE 1

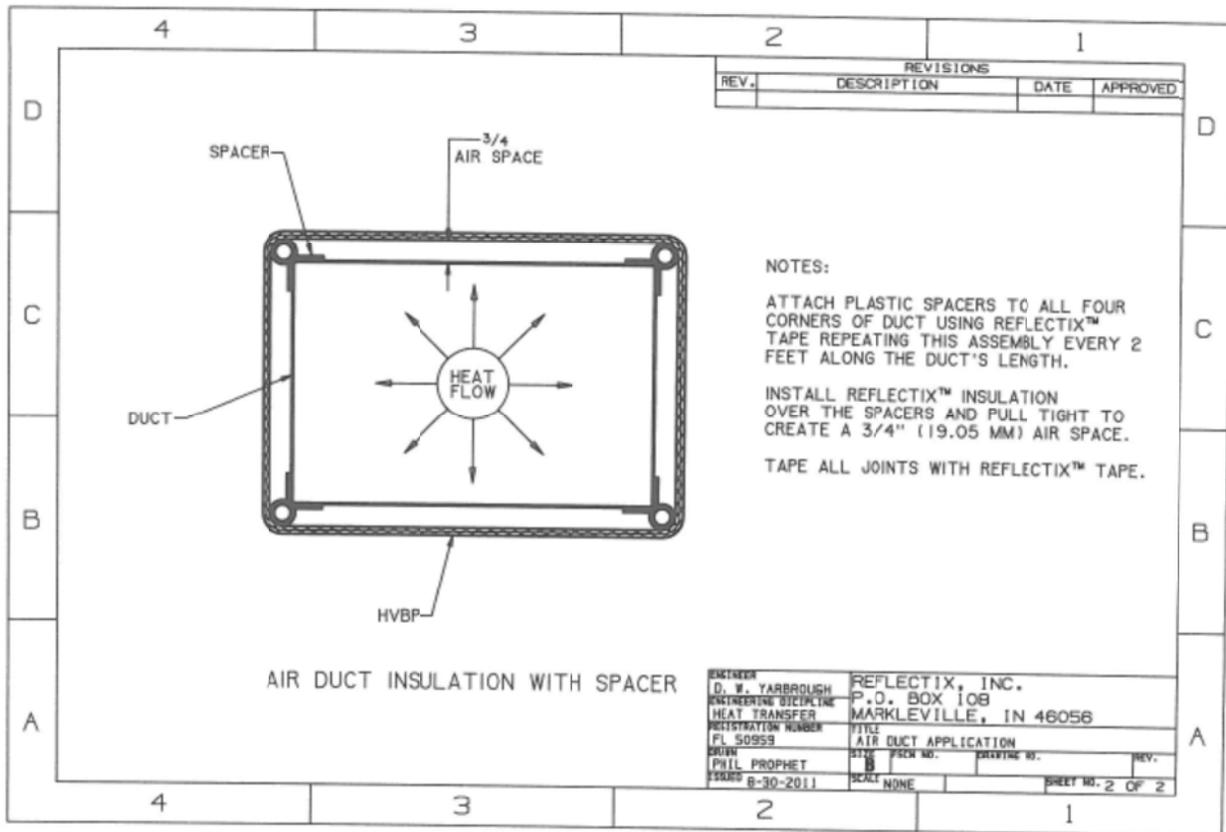


FIGURE 2

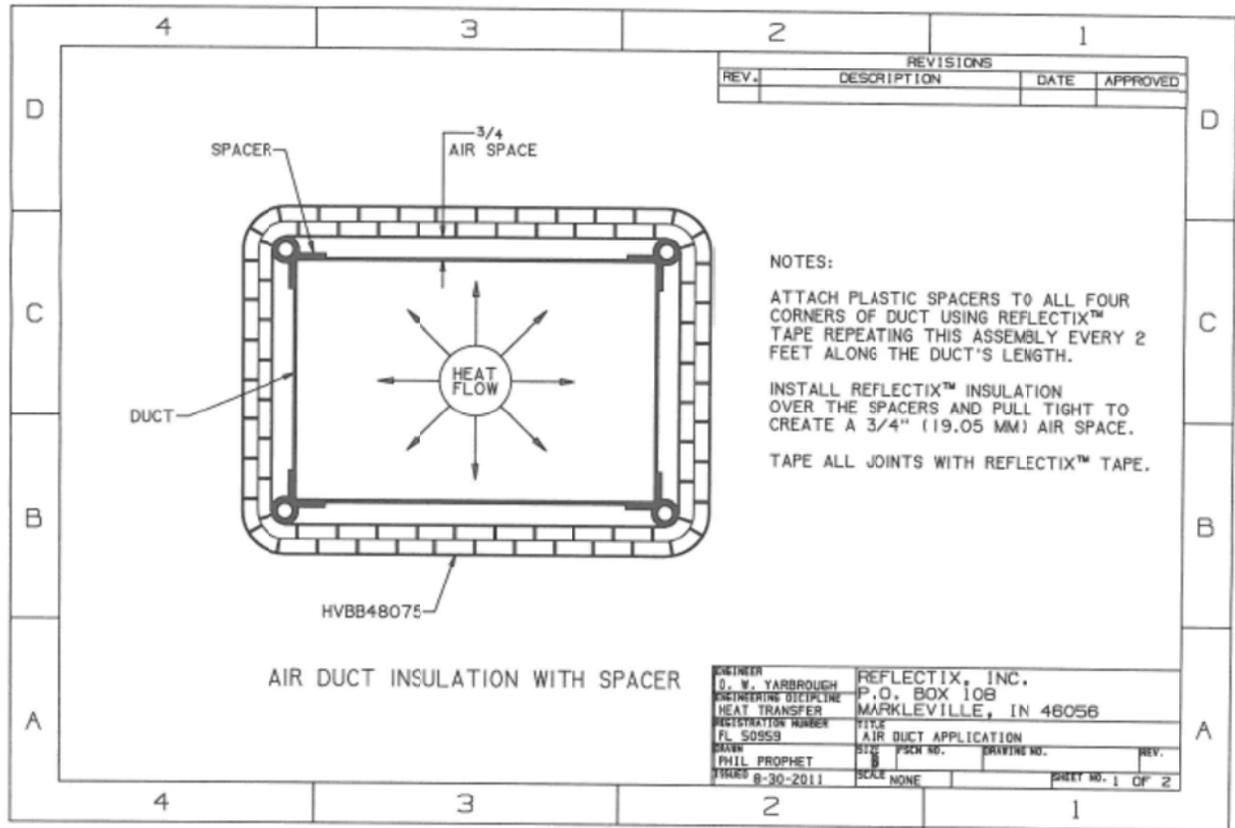


FIGURE 3