



## ICC-ES Listing Report ESL-1132

Reissued July 2024

This listing is subject to renewal in July 2025.

**CSI:** DIVISION: 07 00 00—THERMAL AND MOISTURE PROTECTION  
Section: 07 20 00—Thermal Protection

DIVISION: 23 00 00—HEATING, VENTILATING AND AIR-CONDITIONING (HVAC)  
Section: 23 31 13—Metal Ducts

### Product Certification System:

The ICC-ES product-certification system includes evaluating reports of tests of standard manufactured product, prepared by accredited testing laboratories and provided by the listee, to verify compliance with applicable codes and standards. The system also involves factory inspections, and assessment and surveillance of the listee's quality system.

**Product:** FLAMEBAR BW11 RISER DUCT SYSTEM

**Listee:** CONQUEST FIRESPRAY LLC

**Evaluation:** The concrete slab floor-ceiling assembly, with the vertically-mounted Flamebar BW11 Riser Duct System penetrating through the floor-ceiling assembly as described in the Assembly Section, was evaluated as an unrestrained, 2-hour fire-resistance-rated concrete slab floor-ceiling assembly, tested to the following standard (modified):

- ASTM E119-2016, E119-2012A, and ASTM E119-2008A, Standard Test Methods for Fire Tests of Building Construction and Materials, ASTM International

**Assembly:** The floor-ceiling assembly is a minimum 4.6 inch thick (116.8 mm) reinforced concrete slab, unrestrained, 2-hour fire resistance-rated floor-ceiling assembly constructed in accordance with Item 2-1.1 of Table 721.1(3) of the 2018, 2015, and 2012 IBC, with the steel ducts of the Flamebar BW11 Riser Duct System penetrating vertically through the floor-ceiling assembly (Item 1). The Flamebar BW11 Riser Duct System consists of a 2-hour fire-resistance-rated firestop system described in ICC-ES Listing Report ESL-1131 that protects and seals the annular space between the duct and the floor-ceiling assembly (Item 1). Each Flamebar BW11 Riser Duct System uses Flamebar BW11 Fire Ducts (Item 2A or Item 2B) in a gypsum wallboard enclosure (Item 5A or Item 5B). The overall maximum cross-sectional dimensions of the Flamebar BW11 Fire Ducts are 36 inches x 36 inches (914.4 mm x 914.4 mm) and shall be installed through maximum 40 inch x 40 inch (1016 mm x 1016 mm) openings in the floor-ceiling assembly (Item 1). The Flamebar BW11 Riser Duct System, with the duct open at the top and capped at the bottom, extends approximately 166 inches (4216.4 mm) above the top surface of the concrete slab and approximately 84 inches (2133.6 mm) below the bottom surface of the concrete slab. The Flamebar BW11 Riser Duct System shall be installed with or without a cross-brace within the Flamebar BW11 Fire Duct at the top of the duct. The assembly was subjected to a positive furnace pressure of 0.01 inch of water (2.5 Pa). The Flamebar BW11 Fire Ducts of the Flamebar BW11 Riser Duct System shall be installed as described below with either independent steel framing (Items 2A and 5A) or attached framing (Items 2B and 5B).

### FLAMEBAR BW11 RISER DUCT SYSTEM (FIGURE 1):

- 1- **FLOOR-CEILING ASSEMBLY** – Minimum 4.6 inch-thick (116.8 mm) reinforced concrete slab, unrestrained, 2-hour fire-resistance-rated floor-ceiling assembly constructed in accordance with Item 2-1.1 of Table 721.1(3) of the IBC.
- 2- **FLAMEBAR BW 11 FIRE DUCTS OPTIONS** – Use Item 2A with Item 5A or use Item 2B with Item 5B.

**2A - FLAMEBAR BW11 FIRE DUCT** – Minimum No. 22 gage galvanized steel [nominally 0.034-inch thick (0.85 mm)] Flamebar BW11 Fire Ducts, factory coated on the exterior face with nominally 1.0 mm thick Flamebar BW11 coating and constructed with nominal 1-inch diameter (25.4 mm) minimum No. 22 gage steel tubing cross reinforcements, factory installed midway down the length of each duct section. One end of each duct section is equipped with a self-adhered black Flamebar gasket seal and either a T25 straight or T24 transverse duct connection (TDC flange). The duct sections at each duct joint connection shall be fastened together at each duct corner with one (1)  $\frac{3}{8}$ -inch x  $1\frac{1}{2}$ -inch-long (9.5 mm x 38.1 mm) bolt; or the duct sections are to be fastened together with No. 10 x  $\frac{3}{4}$ -inch-long (19.1 mm) self-drilling screws spaced nominally 12 inches (304.8 mm) on center, and 6 inches (152.4 mm) from the duct corners (3 screws per side of duct).

**2B - FLAMEBAR BW11 FIRE DUCT** – Minimum No. 22 gage galvanized steel [nominally 0.034-inch thick (0.85 mm)] Flamebar BW11 Fire Ducts, factory coated on the exterior face with nominally 1.0 mm thick Flamebar BW11 coating. One end of each duct section is equipped with a self-adhered black Flamebar gasket seal and Ductmate Industries, Inc. Ductmate™ Flanges. The duct sections at each duct section joint connection shall be fastened at each duct corner with one (1)  $\frac{3}{8}$ -inch x  $1\frac{1}{2}$ -inch long (9.5 mm x 38.1 mm) bolt and Ductmate Industries, Inc. Ductmate™ G Clamps spaced nominally 12 inches (304.8 mm) on center, 6 inches (152.4 mm) from the duct corners (3 clamps per side of duct).

- 3- **ANNULAR SPACE (NOMINAL) AND FIRESTOPPING MATERIAL** – The Flamebar BW11 Fire Duct shall be centered in the concrete slab opening with a 2 inch (50.8 mm) annular space, except that where the duct is offset towards one side of the slab opening, resulting in a minimum 1-inch (25.4 mm) annular space on one side of the duct and a maximum 3 inch (76.2 mm) annular space on the opposite side of the duct. All annular spaces between the duct and the concrete shall be filled with nominal 4-inch-thick (101.6 mm) nominal 4 pcf (64 kg/m<sup>3</sup>) density mineral wool insulation, cut to achieve 50 percent compression, and installed 6 inches (152.4 mm) deep with the fibers oriented vertically.
- 4- **DUCT SUPPORTS ON TOP OF FLOOR-CEILING ASSEMBLY** – A minimum 2 inch x 2 inch x  $\frac{1}{8}$ -inch (50.8 mm x 50.8 mm x 3.1 mm) steel angle shall be installed on all four sides of the duct on the top surface of the floor-ceiling assembly, and attached to the duct wall with  $\frac{3}{8}$ -inch-diameter x  $1\frac{1}{2}$ -inch-long (9.5 mm x 38.1 mm) bolts spaced nominally at 8 inches (203.2 mm) on center and 2 inches (50.8 mm) from the duct's corners. Two of the duct supports shall have a minimum bearing width on the concrete slab of 1-inch (25.4 mm).
- 5- **STEEL FRAMING** - Use either independent framing Item 5A with Item 2A or attached framing Item 5B with Item 2B.

**5A - GYPSUM WALLBOARD AND INDEPENDENT FRAMING** – Independent framing of  $2\frac{1}{2}$ -inch-deep (63.5 mm), No. 26 gage galvanized steel studs (250S125-18) spaced nominally at 24 inches (609.6 mm) on center and shall be secured to U-shaped No. 22 gage galvanized steel top and bottom tracks using No. 8 x  $\frac{1}{2}$ -inch-long (12.7 mm) self-drilling screws, with the steel tracks attached to the concrete slab with  $\frac{1}{4}$ -inch diameter x  $1\frac{1}{4}$ -inch-long (6.3 mm x 31.7 mm) concrete anchors (3 anchors per wall section). One layer of  $\frac{5}{8}$ -inch-thick (15.8 mm) Type X gypsum wallboard (installed with the wallboards' longitudinal edge vertical with a horizontal butt joint at 120 inches (3048 mm) above the unexposed surface of the floor-ceiling assembly) shall be secured to the steel framing with minimum No. 6 x  $1\frac{1}{4}$ -inch-long (31.8 mm) Phillips bugle-head coarse thread (12 thread per inch) sharp point drywall screws spaced nominally at 12 inches (304.8 mm) on center, with the gypsum wallboard joints and screws receiving a Level 2 finish complying with ASTM C840 or GA 216.

**5B - GYPSUM WALLBOARD AND ATTACHED FRAMING** – Factory-installed attached framing consisting of Z-shaped No. 26 gage galvanized steel members with 1-inch wide (25.4 mm) flange, a 1-inch high (25.4mm) web and a 2-inch wide (50.8 mm) flange, where the 1-inch wide (25.4 mm) flange side of the Z-shaped steel member is in contact with the Flamebar BW11 Fire Duct and spaced at maximum 24 inches (609.6 mm) on center and at the corners. A spacer strip longitudinally aligned with, and attached to, the Z-shape steel member shall be continuously installed vertically, except at the duct flanges. The attached factory framing shall be secured to the steel ducts using No. 10 x  $\frac{3}{4}$ -inch-long TEK screws spaced nominally at 8 inches (203.2 mm) on center. The spacer strips shall be at minimum two-inch wide (50.8 mm) by  $\frac{1}{2}$ -inch thick (12.7 mm) Type X gypsum wallboard. An additional spacer strip layer of  $\frac{1}{2}$ -inch thick (12.7 mm) or  $\frac{5}{8}$ -inch-thick (15.8 mm) Type X gypsum wallboard shall be installed over the initially installed spacer strip as necessary to ensure that the gypsum wallboard finish overlaps the concrete slab. One layer of  $\frac{5}{8}$ -inch-thick (15.8 mm) Type X gypsum wallboard shall be installed over the attached framing, with the wallboards' longitudinal edge vertical with a horizontal butt joint at 120 inches (609.6 mm) above the unexposed surface of the floor-ceiling assembly, and fastened through the gypsum wallboard strips with minimum No. 8 x 2-inch-long (50.8 mm) Phillips bugle-head coarse thread (12 thread per inch) sharp point drywall screws spaced nominally at 12 inches (304.8 mm) on center, with the gypsum wallboard joints and screws receiving a Level 2 finish complying with ASTM C840 or GA 216.

**Findings:** The assembly described in the Assembly Section of this report is an unrestrained, 2-hour fire-resistance-rated concrete slab floor-ceiling assembly, based on testing described as a modified version of ASTM E119 without application of a superimposed load as required by Section 7.4.3 of ASTM E119-2016 and ASTM E119-2012A [Section 29 of ASTM E119-2008A]. See Conditions of Listing Section for conditions of listing. The applicable section of the following code editions is as follows:

- 2018, 2015 and 2012 *International Building Code*®  
Applicable Section: 703.2

**Identification:**

1. Each component of the Flamebar BW11 Riser Duct System is identified by a label that includes the product name, the name and address of the manufacturer (Conquest Firespray LLC), the listing report number (ESL-1132), and when applicable, the ICC-ES Listing Mark.
2. The report holder's contact information is the following:

**CONQUEST FIRESPRAY LLC**  
**28408 LORNA AVENUE**  
**WARREN, MICHIGAN 48092**  
**(586) 576-7600**  
[www.conquest-firespray.com](http://www.conquest-firespray.com)

**Installation:** The Flamebar BW11 Riser Duct System must be installed in accordance with Conquest Firespray LLC's published installation instructions and this listing.

**Conditions of Listing:**

1. The listing report addresses an unrestrained, minimum 4.6-inch-thick (116.8 mm), 2-hour fire-resistance-rated concrete floor-ceiling assembly constructed in accordance with Item 2-1.1 of Table 721.1(3) of the 2018, 2015 and 2012 IBC with the vertically-mounted Flamebar BW11 Riser Duct System penetrating through the floor-ceiling assembly.
2. Where the code requires the duct to be installed in a shaft, it shall be shown to the satisfaction of the code official that the shaft enclosure complies with IBC Section 713.
3. Approval of the product's use is the sole responsibility of the local code official.
4. The listing report applies only to the Flamebar BW11 Riser Duct System materials tested and as submitted for review by ICC-ES.
5. The Flamebar BW11 Riser Duct System described in this listing report is produced under a quality control program with inspections by ICC-ES.

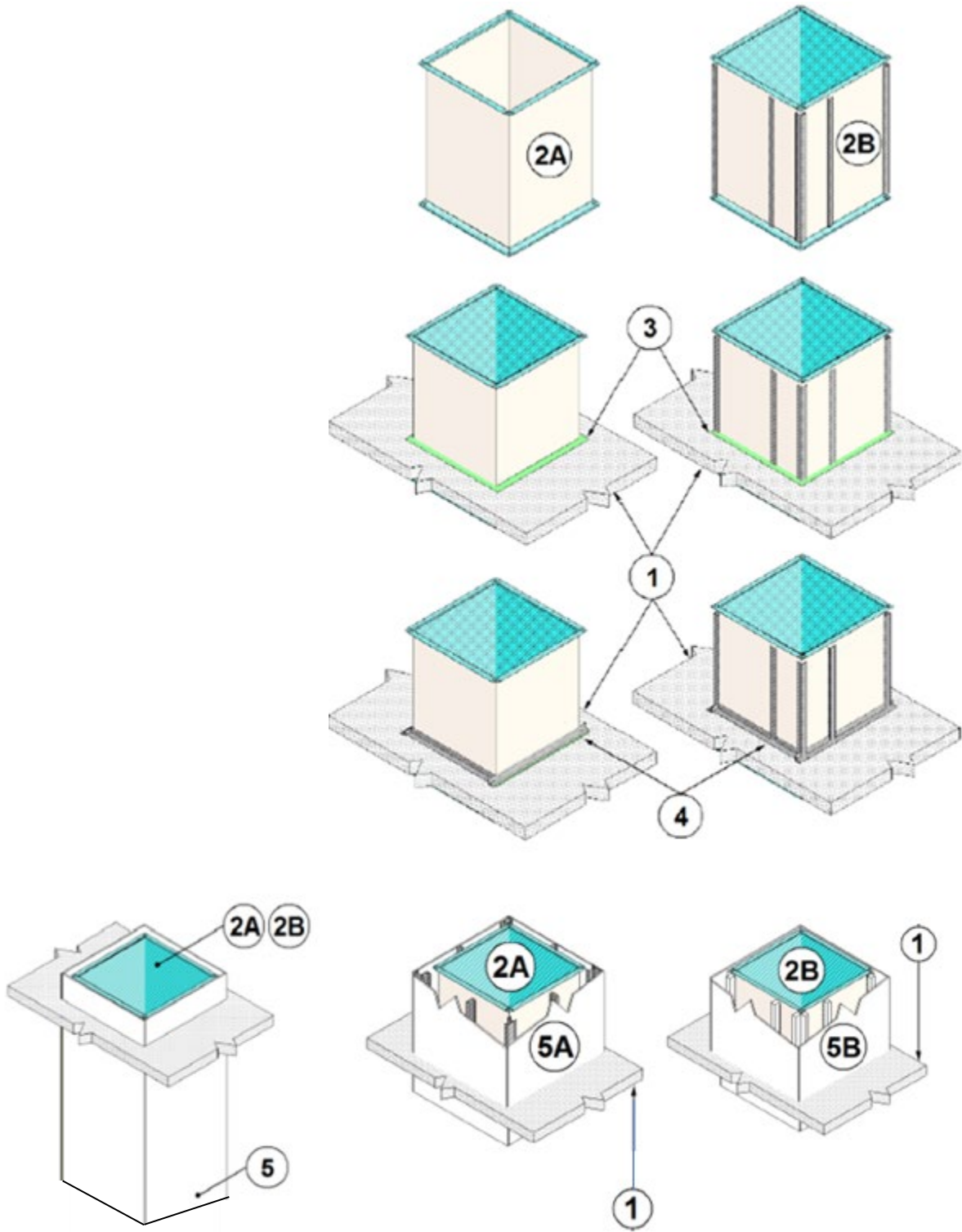


FIGURE 1—FLAMEBAR BW11 RISER DUCT SYSTEM WITH INDEPENDENT FRAMING (2A and 5A) AND ATTACHED FRAMING (2B and 5B)