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FLAMEBAR BW11 RISER DUCT SYSTEM

CSI Section:

23 31 00 HVAC Ducts and Casings

1.0 RECOGNITION

Conquest Firespray's Flamebar BW11 Riser Duct System recognized in this report has been evaluated for use as a duct riser for use as a fire-resistance-rated assembly and a through-penetration system for horizontal assemblies. The fire-resistance properties of the Flamebar BW11 Riser Duct System and the Flamebar BW11 Fire Duct comply with the intent of the provisions of the following codes and regulations:

- 2021, 2018, 2015, and 2012 International Building Code® (IBC)
- 2021, 2018, 2015, and 2012 International Residential Code® (IRC)
- 2021, 2018, 2015, and 2012 International Mechanical Code® (IMC)
- 2023 City of Los Angeles Building Code (LABC) – Supplement attached
- 2023 City of Los Angeles Residential Code (LARC) – Supplement attached
- 2023 City of Los Angeles Mechanical Code (LAMC) – Supplement attached

2.0 LIMITATIONS

Use of the Flamebar BW11 Riser Duct System recognized in this report is subject to the following limitations:

2.1 The Flamebar BW11 Riser Duct System shall be installed in accordance with the applicable code, the manufacturer's published installation instructions, and this report. Where there is a conflict, the most restrictive requirements shall govern.

2.2 Installation of the Flamebar BW11 Riser Duct System shall be limited to interior use.

2.3 The Flamebar BW11 Fire Duct has been evaluated for flames originating on the exterior of the fire-resistance rated assembly and has not been evaluated for fires originating within the duct system for use as a grease duct or other similar uses.

2.4 The assembly tested for this report is designed so that no hot gases enter the duct. Duct penetrations of the Flamebar BW11 Riser Duct System have not been evaluated and are beyond the scope of this report.

2.5 Combustible materials shall not be allowed within the Flamebar BW11 Riser Duct System or the Flamebar BW11 Duct.

2.6 The Riser Duct System shall be permanently identified with signs stating "FIRE-RESISTANCE RATED PROTECTIVE DUCT ASSEMBLY – DO NOT REMOVE." Lettering shall be not less than 3 inches (76 mm) in height with a minimum 3/8-inch (9.5-mm) stroke on a contrasting color.

2.7 The maximum size for BW11 Fire duct recognized in this report is 36 inches x 36-inches (914 mm x 914 mm). When installed as required in Section 3.3 of this report in a maximum floor opening of 40 inches by 40 inches (1016 mm x 1016 mm).

2.8 Conquest Firespray's Flamebar BW11 Riser Duct System shall be designed to resist seismic forces and seismic relative displacements when required by the jurisdiction.

2.9 The Flamebar BW11 Fire Duct used as part of the Flamebar BW11 Riser Duct System recognized in this report is produced by Conquest Firespray in Warren, Michigan.

3.0 PRODUCT USE

3.1 General: The Flamebar BW11 Riser Duct System is used as a vertical duct riser in through penetrations and floor/ceiling assemblies.

3.2 Design:

3.2.1 Horizontal Assemblies: The Flamebar BW11 Fire Duct contained inside an enclosure with sealed openings as part of a Flamebar BW11 Riser Duct System has been tested engulfed in fire to ASTM E119 as part of a two-hour floor/ceiling assembly as required in Section 703.2 and Section 711.2 of the 2021, 2018, 2015, and 2012 IBC; Section R302.4.1 of the 2021, 2018, 2015, and 2012 IRC. The ASTM E119 test assembly was subject to a positive furnace pressure of 0.01 H₂O (2.5 Pa). When installed in accordance with Section 3.3 of this report and the manufacturer's installation instructions, the assembly achieves a two-hour fire-resistance rating.

3.2.2 Through-penetration of Horizontal Assemblies: The Flamebar BW11 Riser Duct System has been tested in accordance with ASTM E814 as a through-penetration firestop assembly as required in Section 714.5.1.2 of the 2021 and 2018 IBC, and Section 714.4.1.2 of the 2015 and 2012

The product described in this Uniform Evaluation Service (UES) Report has been evaluated as an alternative material, design or method of construction in order to satisfy and comply with the intent of the provision of the code, as noted in this report, and for at least equivalence to that prescribed in the code in quality, strength, effectiveness, fire resistance, durability and safety, as applicable, in accordance with IBC Section 104.11. This document shall only be reproduced in its entirety.

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IBC; and Section R302.4.1 of the 2021, 2018, 2015, and 2012 IRC. When installed as required in Section 3.3 of this report and the manufacturer’s installation instructions, the assembly achieves an F Rating of 2 hours and a T Rating of 2 Hours and was subject to the hose stream test after full fire exposure duration.

3.3 Installation:

3.3.1 General: The Flamebar BW11 Riser Duct System recognized in this report is composed of a maximum 36-inch by 36-inch (914-mm by 914-mm) Flamebar BW11 Fire Duct shall be installed in a concrete slab with a minimum thickness of 4½ inches (114 mm). The maximum opening in the concrete slab shall be limited to 40 inches by 40 inches (1016 mm by 1016 mm). The opening around the Flamebar BW11 Fire Duct shall be fire firestopped with 6-inch by 4-inch (152.4 mm by 101.6 mm) nominal 4 pcf density Thermafiber® Safing 40 cut to achieve 50% compression in the annular space installed with the fibers oriented vertically and insulation protruding on the fire side. Drywall framing shall be provided in accordance with Sections 3.3.1.1 or 3.3.1.2. See Figure 1 of this report for additional installation requirements.

3.3.1.1 Drywall Framing: The exterior of the duct at the slab is enclosed with 2 x 2 x 1/8-inch (51 mm x 51 mm x 4 mm) steel angle on all four sides of the unexposed surface. On the exterior side of the duct are 1 x 2 x 1-inch (25 mm x 51 mm x 25 mm) 24 gage steel Z shaped steel members secured using #10 x 3/4 TEK screws spaced nominal 8-inches oc. 2-inch-wide x 5/8-inch thick and 1/2-inch-thick (203 mm oc, 51 mm x 16 mm x 13 mm) strips of Type X gypsum board secured into the Z shaped steel members to ensure minimum of 5/8-inch (16 mm) offset onto concrete slab (from the Thermafiber® Safing 40 fire stopping) to installing gypsum board firestop. On the exterior of the assembly is one layer of 5/8” (16 mm) Type X gypsum board secured through offset strips with fasteners spaced nominal 12 inches (305 mm) oc. Gypsum board joints and screws are finished to level 2.

3.3.1.2 Alternate Drywall Independent Framing:

A minimum 22-gauge 2½-inch wide channels shall be installed to the floor assembly using ¼ x 1¼ concrete screws spaced a maximum of 16 inches on center.

A minimum 22-gauge 2½-inch-wide steel studs shall be attached to the channels using a minimum #8 ½-inch self-drilling screws spaced a maximum of 24 inches on center to create independent framing surrounding the Flamebar BW11 Duct concealing the supports and annular space.

A minimum 5/8-inch Type X gypsum board shall be attached to the framing using a minimum #8 1½-inch-long Phillips bugle-head coarse thread (12 thread per inch) sharp point drywall screws. A minimum GA-214 Type 2 finish shall be applied to the gypsum board.

3.3.2 Special Inspections: When installed in high-rise buildings or in buildings assigned to Risk Category III or IV in accordance with Section 1604.5 of the IBC, special inspection as required in Section 1705.18 of the 2021 IBC, Section 1705.17 of the 2018 IBC and 2015 IBC, and Section 1705.16 of the 2012 IBC; shall be provided.

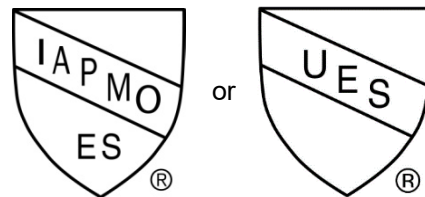
4.0 PRODUCT DESCRIPTION

4.1 Flamebar BW11 Fire Duct: The Flamebar BW11 Fire Duct used in the Flamebar BW11 Riser Duct System is fabricated in segments from 22-gauge galvanized sheet steel and coated on the exterior with 0.04 inch (1 mm) of Flamebar BW11 fire spray at the manufacturing facility. The ducts are available in rectangular or circular cross-sections. The segments are assembled at the job site.

4.2 Flamebar BW11 Fire Spray: The Flamebar BW11 Firespray is a water-based compound with selected mineral fibers in a low permeability elastomeric binder.

5.0 IDENTIFICATION

The Flamebar BW11 Fire Duct used in the Flamebar BW11 Riser Duct System is identified by the Conquest Firespray name and trademark, product name, and evaluation report number (ER-592). The identification may also include either of the IAPMO Uniform Evaluation Service Marks of Conformity, as shown below:



IAPMO UES ER-592

6.0 SUBSTANTIATING DATA

6.1 Data in accordance with ICC-ES Acceptance Criteria for Metallic HVAC Duct Enclosure Assemblies AC179.

6.2 Report of fire test in accordance with ASTM E119.

6.3 Report of fire test in accordance with ASTM E814.

6.4 Engineering Analysis and Review.

6.5 Manufacturer’s descriptive literature and installation instructions.

6.6 Test reports are from laboratories in compliance with ISO/IEC 17025.

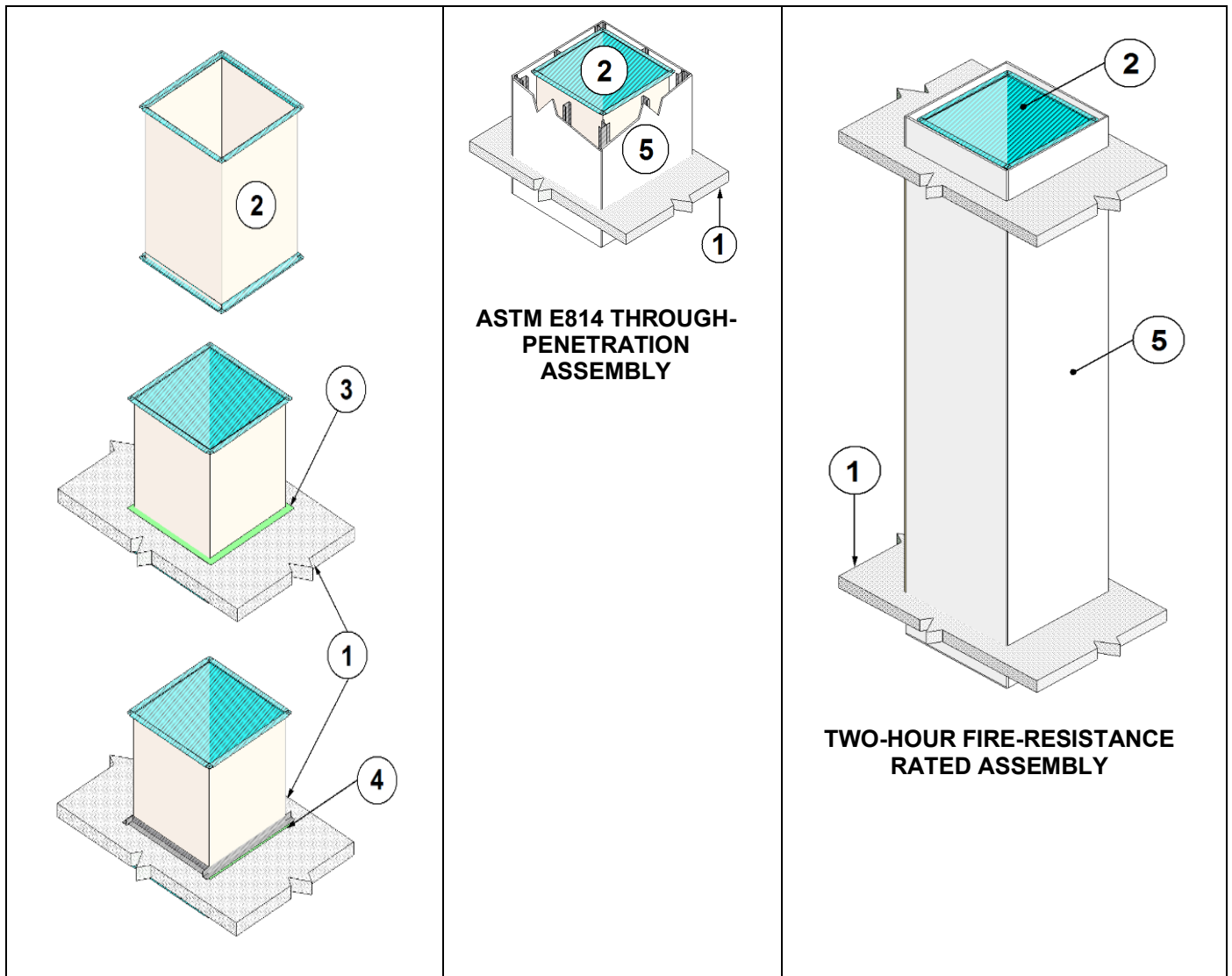
7.0 STATEMENT OF RECOGNITION

This evaluation report describes the results of research completed by IAPMO Uniform Evaluation Service on Conquest Firespray's Flamebar BW11 Riser Duct System to assess conformance to the codes shown in Section 1.0 of this

report and serves as documentation of the product certification. Products are manufactured at locations noted in Section 2.9 of this report under a quality control program with periodic inspection under the supervision of IAPMO UES.

For additional information about this evaluation report please visit email us at info@uniform-es.org

FIGURE 1 – TWO-HOUR FIRE-RESISTANCE RATED ASSEMBLY AND THROUGH-PENETRATION ASSEMBLY WITH A TWO-HOUR F AND T RATING



1. A minimum 4½-inch-thick slab with maximum openings of 40 inches by 40 inches.

2. Installation of the duct can be either eccentrically or concentrically located with a maximum 36 by 36-inch Flamebar BW11 Duct in the opening. When concentric installation is used, the annular space around Flamebar BW11 Duct cannot be more than 2 inches. With eccentric installation, the annular space must be one inch on one side and 3 inches on the opposite side.

Notes continued on next page.



3. The annular space around the duct shall be filled with a minimum 4-pcf density Thermafiber® Safing 40 at least 6 inches deep and achieving 50-percent compression. The fibers of the mineral wool must be oriented vertically with the ends tapering on the outside of the fire-side of the slab.

4. A minimum 2x2x1/8-inch supports shall be attached to the Flamebar B11 Duct using a minimum 3/8-inch diameter mechanical fasteners spaced a maximum of 8 inches on center and a maximum 2 inches from the corners of the Flamebar BW11 Duct.

5. A minimum 22-gauge 2½-inch wide channels shall be installed to the floor assembly using ¼ x 1¼ concrete screws spaced a maximum of 16 inches on center.

A minimum 22-gauge 2½-inch wide steel studs shall be attached to the channels using a minimum #8 ½-inch self-drilling screws spaced a maximum of 24 inches on center to create independent framing surrounding the Flamebar BW11 Duct concealing the supports and annular space.

A minimum 5/8-inch Type X gypsum board shall be attached to the framing using a minimum #8 1½-inch-long Phillips bugle-head coarse thread (12 thread per inch) sharp point drywall screws. A minimum GA-214 Type 2 finish shall be applied to the gypsum board.

For SI: 1 inch = 25.4 mm



CITY OF LOS ANGELES SUPPLEMENT

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1.0 RECOGNITION

Conquest Firespray's Flamebar BW11 Riser Duct System and this supplement for use as a duct riser for use as a fire-resistance-rated assembly and a through-penetration system for horizontal assemblies. The fire-resistance properties of the Conquest Firespray's Flamebar BW11 Riser Duct System comply with the intent of the provisions of the following codes and regulations:

- 2023 City of Los Angeles Building Code (LABC)
- 2023 City of Los Angeles Residential Code (LARC)
- 2023 City of Los Angeles Mechanical Code (LAMC)

2.0 LIMITATIONS

Use of the Conquest Firespray's Flamebar BW11 Riser Duct System recognized in this report is subject to the following limitations:

2.1 Conquest Firespray's Flamebar BW11 Riser Duct System shall comply with the provisions in IAPMO UES ER-592.

2.2 When used in high-rise construction, special inspection shall be in accordance with Section 1705.18 of the 2023 LABC. Plans and details shall be submitted to the Department of Building and Safety for approval in accordance with LABC Section 106.3.3.

2.3 Conquest Firespray's Flamebar BW11 Riser Duct System shall be designed to resist seismic forces and seismic relative displacements as required by Section 1617.11.18 of the LABC. When the exceptions of Section 1617.11.18 of the LABC are not met, calculations, construction plans, and details for the attachment methods shall be submitted to the Structural Plan Check Division for approval. Calculations must be completed by a licensed civil or structural engineer registered in the State of California

2.4 This supplement expires concurrently with ER-592.

For additional information about this evaluation report please visit www.uniform-es.org or email us at info@uniform-es.org