

# XHEZ.C-AJ-8332 - Through-penetration Firestop Systems

## Design/System/Construction/Assembly Usage Disclaimer

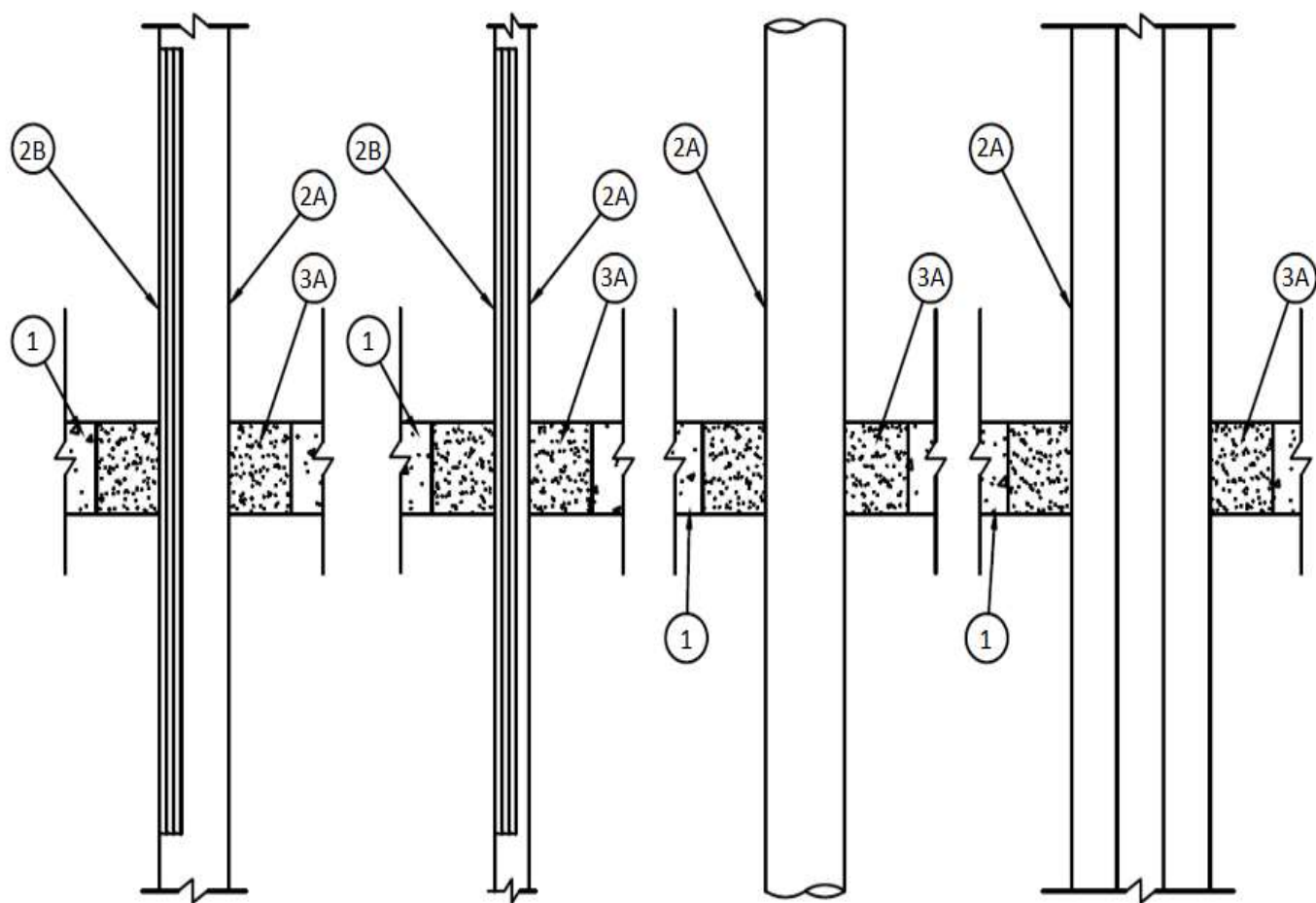
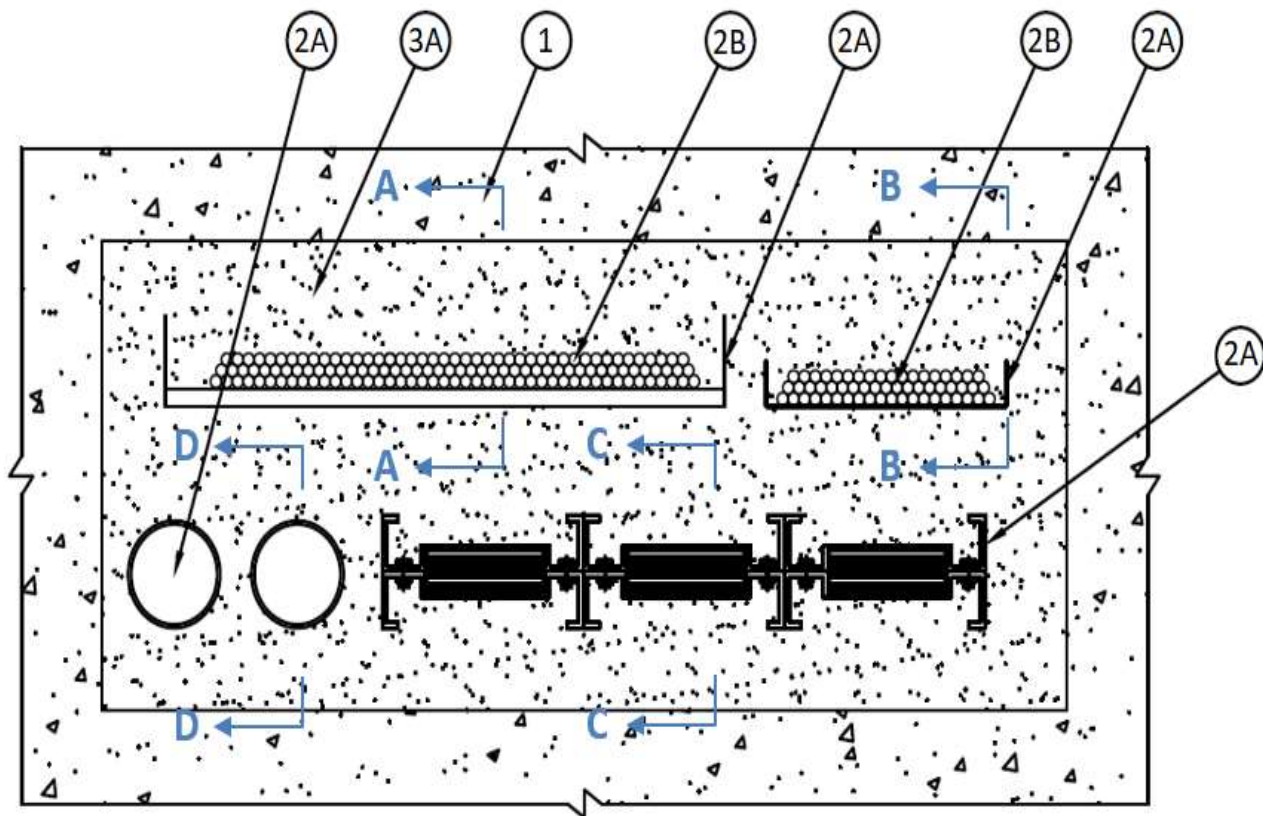
- Authorities Having Jurisdiction should be consulted in all cases as to the particular requirements covering the installation and use of UL Certified products, equipment, system, devices, and materials.
- Authorities Having Jurisdiction should be consulted before construction.
- Fire resistance assemblies and products are developed by the design submitter and have been investigated by UL for compliance with applicable requirements. The published information cannot always address every construction nuance encountered in the field.
- When field issues arise, it is recommended the first contact for assistance be the technical service staff provided by the product manufacturer noted for the design. Users of fire resistance assemblies are advised to consult the general Guide Information for each product category and each group of assemblies. The Guide Information includes specifics concerning alternate materials and alternate methods of construction.
- Only products which bear UL's Mark are considered Certified.

## Through-penetration Firestop Systems

System No. **C-AJ-8332**

November 25, 2022

<b>ANSI/UL1479 (ASTM E814)</b>
F Rating — 2 Hr
T Rating — 1/2, 1 Hr (See Item 2)



Section A – A  
Configuration A

Section B – B  
Configuration B

Section D – D  
Configuration D

Section C – C  
Configuration C

1. **Floor or Wall Assembly** — Min 114 mm (4-1/2 in.) thick reinforced normal weight (2320-2480 kg/m<sup>3</sup> or 145-155 pcf) concrete. Wall may also be constructed of any UL Classified Concrete Blocks\*. Max area of opening is 0.6 m<sup>2</sup> (930 in.<sup>2</sup>) with a max dimension of 1200 mm (47-1/4 in.).

See Concrete Blocks (CAZT) category in the Fire Resistance Directory for names of manufacturers.

2. **Through Penetrant** — A max of 4 firestop configurations may be installed within the opening provided that the following parameters relative to the annular spaces are maintained. The space between the firestop configurations shall be min 40 mm (1-5/8 in.) except for the following: the annular space between cable tray and busway shall be min 165 mm (6-1/2 in.). The space between the firestop configurations and periphery of opening shall be min 40 mm (1-5/8 in.) to max 225 mm (8-7/8 in.). Through penetrants to be rigidly supported on both sides of floor or wall assembly. The T Rating of the system is dependent on the firestop configuration, as shown in the table below. Any combination of the following firestop configurations detailed herein may be used:

Firestop Configuration	T Rating (Hr)
A	1/2
B	1/2
C	1/2
D	1

#### Firestop Configuration A

#### 2. Through Penetrant —

A. **Cable Tray** — Max 700 mm wide (27-9/16 in.) by max 100 mm (3-15/16 in.) deep open-ladder cable tray with channel-shaped side rails formed of min 2.0 mm (0.0787 in.) thick steel and with min 40 mm (1-5/8 in.) wide by 20 mm (13/16 in.) deep rungs spaced nom 300 mm (12 in.) on center. A max of one cable tray to be installed in the opening. The annular space between the cable tray and the periphery of the opening shall be min 60 mm (2-3/8 in.) to max 225 mm (8-7/8 in.). Cable tray to be supported on both sides of the floor or wall assembly.

B. **Cables** — Aggregate cross-sectional area of cables in cable tray not to exceed 25 percent of the cross-sectional area of the cable tray based on a max 93 mm (3-11/16 in.) cable loading depth within the tray. Any combination of the following types and sizes of cables may be used:

- A. Max 1/C No. 650 kcmil (or smaller) copper conductor power cables with XLPE or PVC insulation with PVC jacket.
- B. Max 1/C No. 4 AWG (or smaller) copper conductor power cables with XLPE or PVC insulation with PVC jacket.
- C. Max 4/C No. 1 AWG (or smaller) copper conductor power cables with XLPE or PVC insulation with PVC jacket.
- D. Max 3/C No. 2/0 AWG (or smaller) copper conductor power cables with XLPE or PVC insulation with PVC jacket.

#### Firestop Configuration B

#### 2. Through Penetrant —

C. **Cable Tray** — Max 300 mm wide (11-13/16 in.) by max 50 mm (2 in.) deep open-ladder cable tray with channel-shaped side rails formed of min 1.6 mm (0.0630 in.) thick steel with or without rungs. A max of one cable tray to be installed in the opening. The annular space between the cable tray and the periphery of the opening shall be min 85 mm (3-3/8 in.) to max 225 mm (8-7/8 in.). Cable tray to be supported on both sides of the floor or wall assembly.

B. **Cables** — Aggregate cross-sectional area of cables in cable tray not to exceed 40 percent of the cross-sectional area of the cable tray based on a max 47 mm (1-7/8 in.) cable loading depth within the tray. Any combination of the following types and sizes of cables may be used:

- A. Max 1/C No. 10 AWG (or smaller) copper conductor power cables with XLPE or PVC insulation with PVC jacket.
- B. Max 4/C No. 14 AWG (or smaller) copper conductor power cables with XLPE or PVC insulation with PVC jacket.
- C. Max 3/C No. 14 AWG (or smaller) copper conductor power cables with XLPE or PVC insulation with PVC jacket.
- D. Max 2/C No. 10 AWG (or smaller) copper conductor power cables with PVC insulation with PVC jacket.

- E. Max 2/C No. 16 AWG (or smaller) copper conductor control cables with PVC insulation with PVC jacket.
- F. Max 63.6 mm<sup>2</sup> Fiber Optic (F.O) cables with PE insulation and jacket.
- G. Max 1 pair No. 22 AWG (or smaller) copper conductor telecommunication cables with PE insulation and PVC jacket.
- H. Max 19.2 mm<sup>2</sup> coaxial cables with PE insulation with PVC jacket.
- I. Max 4 pair No. 24 AWG (or smaller) copper conductor data cables with PE insulation and PVC jacket.
- J. Max 4 pair No. 24 AWG (or smaller) copper conductor data cables with PE insulation and PVC jacket.

### Firestop Configuration C

#### 2. Through Penetrant —

A. **Busway+** — Nom 750 mm (29-9/16 in.) wide by 120 mm (4-3/4 in.) deep (or smaller) "I" shaped aluminum and steel enclosure containing factory mounted copper bars rated for 600 V, 5000A or aluminum bars rated for 600 V, 4000A. One busway may be installed within the opening. The annular space between the busway and the periphery of the opening shall be min 55 mm (2-3/16 in.) to max 225 mm (8-7/8 in.). Busway to be rigidly supported on both sides of floor or wall assembly. The busway shall bear the UL Listing Mark and shall be installed in accordance with all provisions of Article 364 of the National Electrical Code, NFPA 70.

### Firestop Configuration D

2. **Through Penetrant** — A max of two metallic conduits installed concentrically within the opening. The annular space between the conduit and the periphery of the opening shall be min 40 mm (1-3/16 in.) to max 225 mm (8-7/8 in.). Penetrant to be rigidly supported on both sides of floor or wall. The following types and sizes of metallic conduit may be used:

A. **Conduit** — Nom 4 in. (102 mm) diam (or smaller) steel electrical metallic tubing or rigid steel conduit.

3. **Firestop System** — The firestop system shall consist of the following:

A. **Fill, Void or Cavity Materials\*** — **Mortar** — Min 114 mm (4-1/2 in.) thickness of fill material installed flush with both surfaces of floor or wall to completely fill the gap between all the penetrants and the wall/floor opening. Mortar to be mixed at a rate of 1 part dry mixture to 0.8-1 part water by weight in accordance with the installation instructions supplied with the product.

**FURUKAWA TECHNO MATERIAL CO LTD** — Firestop Mortar

**\* Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.**

**+ Bearing the UL Listing Mark.**

Last Updated on 2022-11-25

---

The appearance of a company's name or product in this database does not in itself assure that products so identified have been manufactured under UL Solutions' Follow - Up Service. Only those products bearing the UL Mark should be considered to be Certified and covered under UL Solutions' Follow - Up Service. Always look for the Mark on the product.

UL Solutions permits the reproduction of the material contained in Product iQ subject to the following conditions: 1. The Guide Information, Assemblies, Constructions, Designs, Systems, and/or Certifications (files) must be presented in their entirety and in a non-misleading manner, without any manipulation of the data (or drawings). 2. The statement "Reprinted from Product iQ with permission from UL Solutions" must appear adjacent to the extracted material. In addition, the reprinted material must include a copyright notice in the following format: "©2022 UL LLC."