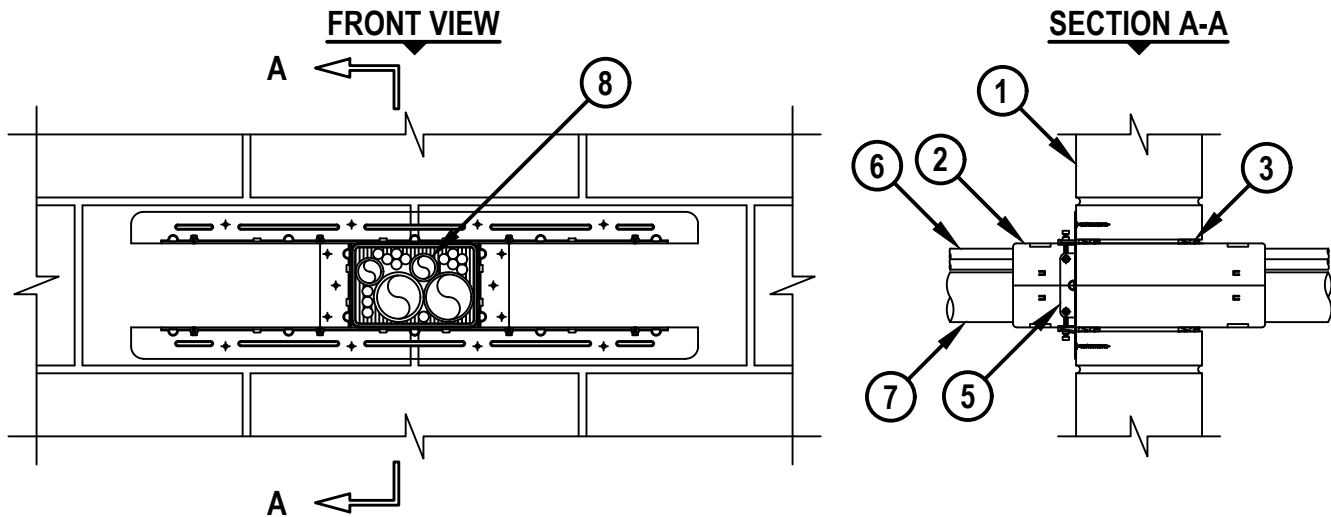


MULTIPLE PENETRANTS THROUGH CONCRETE WALL ASSEMBLY

F-RATING = 2-HR.

T-RATING = 1-HR. OR 1-1/4-HR.

WJ8109a.050825



1. CONCRETE WALL ASSEMBLY (2-HR. FIRE-RATING) :
 - A. LIGHTWEIGHT OR NORMAL WEIGHT CONCRETE WALL (MINIMUM 6" THICK).
 - B. ANY UL/cUL CLASSIFIED CONCRETE BLOCK WALL.
2. ONE OR MORE HILTI CFS-MSL [S, M, OR L] MODULAR SLEEVES TO BE GANGED TOGETHER WITH GANGING CLIPS AND CENTERED IN THE WALL. DEVICES TO BE SECURED IN FLANGE USING A MINIMUM EVERY OTHER SCREW HOLE IN ADJUSTABLE FLANGE (ITEM 5). WHEN SLEEVES ARE GANGED TOGETHER THEY ARE TO FORM A RECTANGULAR SHAPE.
3. HILTI CP-648E WRAP STRIP (NOMINAL 3/16" THICK, X 1" WIDE) WRAPPED AROUND THE OUTER CIRCUMFERENCE OF THE CFS-MSL DEVICE(S), ONE TIME, WITH ENDS BUTTED AND HELD IN PLACE WITH TAPE. HILTI CP 648E TO BE FLUSH WITH WALL ASSEMBLY SURFACES.
4. [NOT SHOWN] GASKET MATERIAL APPLIED TO BACK OF ADJUSTABLE FLANGE MATERIAL WITH INTEGRATED TAPE PRIOR TO FLANGE BEING INSTALLED TO WALL ASSEMBLY.
5. HILTI CFS-MSL GPA ADJUSTABLE FLANGE [24" x 4" OR 24" x 8"] BOLTED TOGETHER AROUND GANGED DEVICES AND SECURED TO WALL WITH MIN 1-1/2" LONG MASONRY SCREWS OR ANCHORS.

**Hilti Firestop Systems**

HILTI, Inc.
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Sheet	1 of 2
Scale	7/64" = 1"
Date	May 08, 2025

Drawing No.

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Saving Lives through Innovation and Education

MULTIPLE PENETRANTS THROUGH CONCRETE WALL ASSEMBLY

F-RATING = 2-HR.

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6. CABLE BUNDLE TO BE ANY COMBINATION OF THE FOLLOWING :

- A. MAXIMUM 100 PAIR NO. 24 AWG TELEPHONE CABLE WITH PVC JACKET AND INSULATION.
- B. MAXIMUM 7/C NO. 12 AWG COPPER CONDUCTOR CONTROL CABLE WITH PVC OR XLPE JACKET AND INSULATION.
- C. MAXIMUM 4/0 AWG TYPE RHH GROUND CABLE.
- D. MAXIMUM 4 PAIR NO 23 AWG CAT 7 COMPUTER CABLE.
- E. MAXIMUM RG 6/U COAXIAL CABLE WITH FLUORINATED ETHYLENE INSULATION AND JACKETING.
- F. MAXIMUM 1/2" FIBER-OPTIC CABLE WITH PVC OR PE JACKET AND INSULATION.
- G. MAXIMUM 20/C NO. 22 AWG SHIELDED PRINTER CABLE WITH PVC JACKET.
- H. MAXIMUM 1/4" DIAMETER S-VIDEO CABLE CONSISTING OF 2 MAX 24 AWG 75 OHM COAX OR TWISTED PAIR CABLE WITH PE INSULATION AND PVC JACKET.
- I. MAXIMUM 2/C NO. 18 AWG POWER OR NON-POWER LIMITED FIRE ALARM CABLE WITH OR WITHOUT METAL JACKET (MANUFACTURED BY AFC CABLE SYSTEMS, INC.).
- J. MAXIMUM 3/C NO. 12 AWG METAL CLAD CABLE.
- K. ANY CABLES, METAL-CLAD CABLES, OR ARMORED CABLES CURRENTLY LISTED UNDER THE THROUGH PENETRATING PRODUCTS CATEGORY.

7. [OPTIONAL] ONE OR MORE OF THE FOLLOWING METALLIC PIPES MAY BE BUNDLED TOGETHER WITH THE OTHER PENETRATING ITEMS :

- A. MAXIMUM 2" NOMINAL DIAMETER STEEL PIPE (SCHEDULE 10 OR HEAVIER).
- B. MAXIMUM 2" NOMINAL DIAMETER CAST OR DUCTILE IRON PIPE.
- C. MAXIMUM 2" NOMINAL DIAMETER STEEL CONDUIT OR STEEL EMT.
- D. MAXIMUM 3/4" NOMINAL DIAMETER FLEXIBLE STEEL CONDUIT.

8. [OPTIONAL] ONE OR MORE OF THE FOLLOWING NONMETALLIC PIPES MAY BE BUNDLED TOGETHER WITH THE OTHER PENETRATING ITEMS :

- A. MAXIMUM 2" NOMINAL DIAMETER ENT (PVC OR HDPE).
- B. MAXIMUM 1/2" NOMINAL DIAMETER DURA-LINE MICRODUCT.

NOTES : 1. MAXIMUM SIZE OF OPENING = 6-1/2" x 4-1/2".

2. ANNULAR SPACE = MINIMUM 3/16", MAXIMUM 5/16".

3. CABLES MAY REPRESENT 0% TO 100% VISUAL FILL OF EACH FIRESTOP DEVICE.

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Sheet 2 of 2

Scale -

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