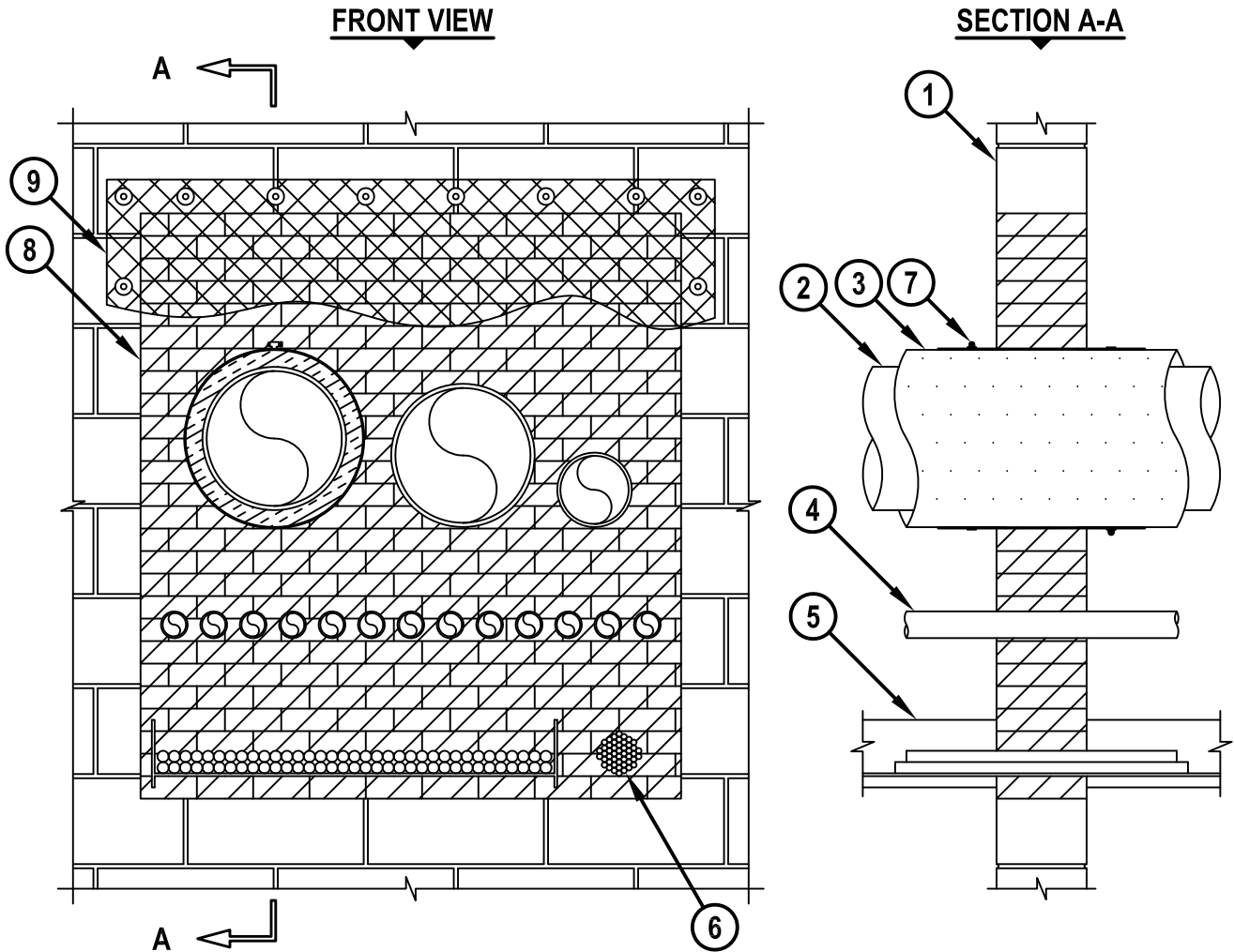


MULTIPLE PENETRATING ITEMS THROUGH CONCRETE BLOCK WALL

F-RATING = 4-HR.
T-RATING = 0-HR.

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1. ANY UL/cUL CLASSIFIED CONCRETE BLOCK WALL ASSEMBLY (MIN. 7-5/8" THICK) (4-HR FIRE-RATING).
2. MAXIMUM 12" NOMINAL DIAMETER STEEL PIPE, MAXIMUM 12" NOMINAL DIAMETER CAST IRON PIPE, MAXIMUM 6" NOMINAL DIAMETER COPPER OR CONDUIT, OR MAXIMUM 4" NOMINAL DIAMETER EMT (MAX. QTY = 3).
3. MAXIMUM 1-1/2" THICK GLASS FIBER PIPE INSULATION.
4. MAXIMUM 2" DIAMETER STEEL CONDUIT (MAX. QTY. = 13).
5. ALUMINUM CABLE TRAY (MAXIMUM SIZE = 36" x 6"). ANY OF THE FOLLOWING TYPES OF CABLE MAY BE USED WITH MAXIMUM 40% FILL OF CABLE TRAY :
 - A. 24 FIBER OPTIC CABLE (MAXIMUM 1/2" DIAMETER) WITH PVC JACKET.
 - B. 300 PAIR NO. 24 AWG TELEPHONE CABLE WITH PVC JACKET.
 - C. 500 KCMIL SINGLE CONDUCTOR POWER CABLE WITH NYLON JACKET.
 - D. 7/C NO. 12 AWG COPPER CONDUCTOR CABLE WITH PVC JACKET.



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Sheet	1 of 2
Scale	1/16" = 1"
Date	Jan. 09, 2015

Drawing No.
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MULTIPLE PENETRATING ITEMS THROUGH CONCRETE BLOCK WALL

F-RATING = 4-HR.

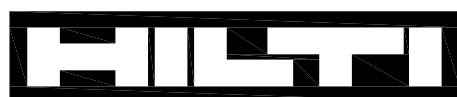
T-RATING = 0-HR.

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6. MAXIMUM 4" DIAMETER CABLE BUNDLE TO INCLUDE ANY OF THE FOLLOWING :
- A. 300 PAIR NO. 24 AWG TELEPHONE CABLE WITH PVC JACKET.
 - B. 24 FIBER OPTIC CABLE (MAXIMUM 1/2" DIAMETER) WITH PVC JACKET.
 - C. 3/C NO. 18 METAL CLAD CABLE.
 - D. RGU/59 COAXIAL CABLE WITH PVC JACKET.
 - E. ROMEX (2/C NO. 10 +GROUND) WITH PVC JACKET.
 - F. 7/C NO. 12 AWG CABLE WITH PVC JACKET.
7. MINIMUM 6" LONG JACKET FORMED OF MINIMUM 0.010" THICKNESS STEEL SHEET SECURED IN PLACE WITH ONE STEEL BAND CLAMP. ENDS OF THE JACKET TO OVERLAP BY A MINIMUM 2" AND EXTEND 1" INTO WALL ON BOTH SIDES OF ASSEMBLY.
8. HILTI CFS-BL FIRESTOP BLOCK OR HILTI FS 657 FIRE BLOCK (2" THICK x 5" WIDE x 8" DEEP, REFERENCE : FRONT VIEW) FIRMLY PACKED WITHIN OPENING. EITHER ONE OR A COMBINATION OF BLOCK TYPES MAY BE USED.
9. SEE NOTE NO. 3 BELOW.

ANNULAR SPACE	MINIMUM	MAXIMUM
BETWEEN CABLE TRAY AND ADJACENT PENETRATING ITEMS	2"	4-1/2"
BETWEEN CABLE TRAY AND PERIPHERY OF OPENING	1"	3"
BETWEEN PIPES, CONDUITS, OR TUBING (ITEM 2)	1-1/2"	4-3/4"
BETWEEN PIPES, CONDUITS, OR TUBING (ITEM 2) AND PERIPHERY OF OPENING	3"	4-1/4"
BETWEEN STEEL CONDUITS (ITEM 4)	1-1/8"	1-1/8"
BETWEEN STEEL CONDUITS (ITEM 4) AND ADJACENT PENETRATING ITEMS	4-1/2"	4-3/4"
BETWEEN STEEL CONDUITS (ITEM 4) AND PERIPHERY OF OPENING	1-1/8"	2-1/2"
BETWEEN CABLE BUNDLE AND ADJACENT PENETRATING ITEMS	2"	6"
BETWEEN CABLE BUNDLE AND PERIPHERY OF OPENING	1-1/2"	2-1/4"

- NOTES :
1. MAXIMUM AREA OF OPENING = 2496 SQUARE INCHES, WITH MAXIMUM DIMENSION OF 52".
 2. APPLY HILTI FS-ONE MAX OR FS-ONE INTUMESCENT FIRESTOP SEALANT OR HILTI CP 618 FIRESTOP PUTTY STICK INTO INTERSTICES OF CABLES, BETWEEN CABLES AND CABLE TRAY, AND ANY VOIDS TO MAXIMUM EXTENT POSSIBLE.
 3. WHEN ANNULAR SPACE EXCEEDS 4", A NOMINAL 2" x 2" STEEL WIRE MESH (16 GA.) SHALL BE ATTACHED TO BOTH SIDES OF THE WALL BY MEANS OF 1/4" HILTI TOGGLER BOLTS WITH 1-1/2" DIAMETER FENDER WASHERS (SPACED MAXIMUM 8" C/C). STEEL WIRE MESH CUT TO FIT THE CONTOUR OR PENETRANT AND OVERLAP MINIMUM 3" BEYOND THE PERIPHERY OF THE OPENING.

**Hilti Firestop Systems**

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Sheet 2 of 2

Scale -

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