

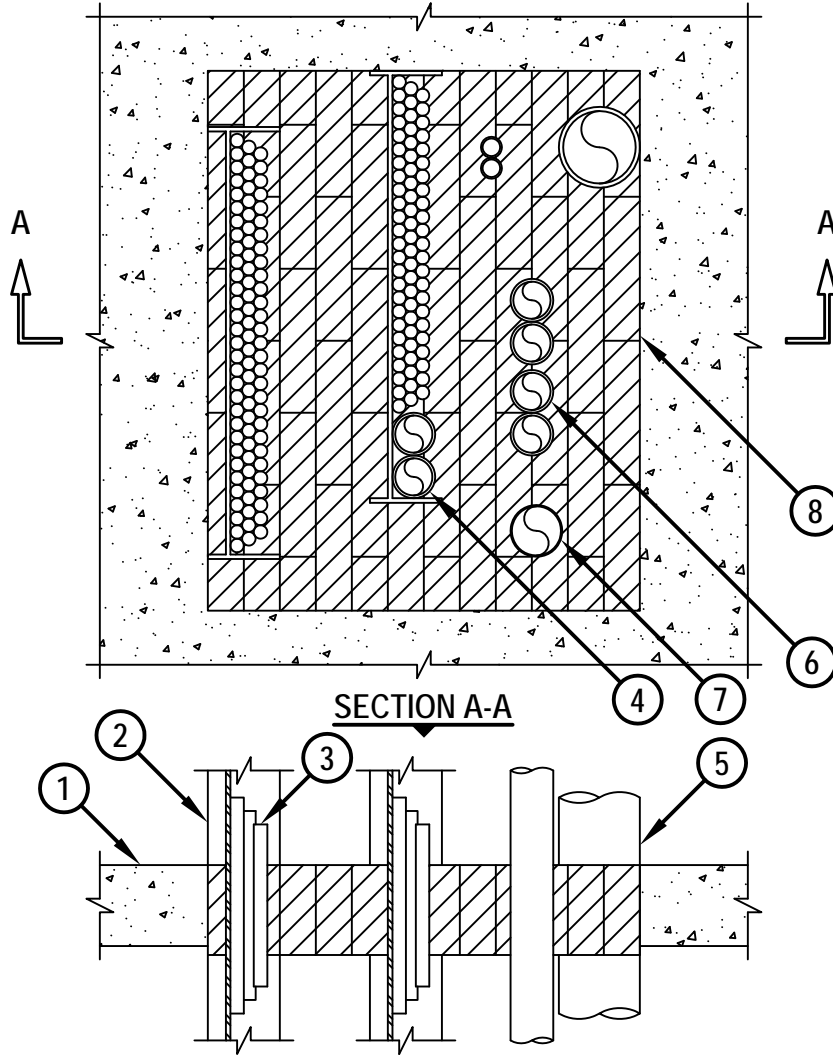
**MULTIPLE PENETRATING ITEMS THROUGH CONCRETE FLOOR/WALL OR BLOCK WALL**

F-RATING = 3-HR.

T-RATING = 0-HR.

NOTE : TESTED WITH A 2.5 Pa PRESSURE DIFFERENTIAL

**TOP VIEW**



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1. CONCRETE FLOOR OR WALL ASSEMBLY (3-HR. FIRE-RATING) :
  - A. LIGHTWEIGHT OR NORMAL WEIGHT CONCRETE FLOOR OR WALL (MINIMUM 4-1/2" THICK).
  - B. ANY UL/cUL CLASSIFIED SOLID OR FILLED CONCRETE BLOCK WALL.
2. MAXIMUM 24" x 4" ALUMINUM OR STEEL OPEN LADDER CABLE TRAY (MAXIMUM QUANTITY = 2).
3. ANY COMBINATION OF THE FOLLOWING CABLES MAY BE USED WITHIN THE CABLE TRAYS.
  - A. MAXIMUM 300 PAIR NO. 24 AWG TELEPHONE CABLE WITH PVC JACKET.
  - B. MAXIMUM 750 KCMIL SINGLE CONDUCTOR POWER CABLE WITH PVC JACKET.
  - C. FIBER-OPTIC CABLE (24 FIBER) WITH PVC JACKET.
  - D. MAXIMUM 3/C NO. 12 AWG STEEL-CLAD CABLE.



HILTI, Inc.  
Tulsa, Oklahoma USA (800) 879-8000

Sheet	1 of 2
Scale	3/32" = 1"
Date	Jan. 06, 2015

Drawing No.

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F-RATING = 3-HR.

T-RATING = 0-HR.

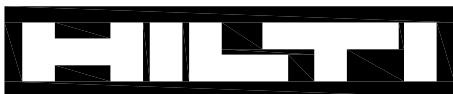
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- 4. MAX. 2" NOM. DIA. OPTICAL FIBER PVC RACEWAY (MAX. QTY. = 2) INSTALLED WITHIN CABLE TRAY.
- 5. PENETRATING ITEM TO BE ANY OF THE FOLLOWING :
  - A. MAXIMUM 8" NOMINAL DIAMETER STEEL PIPE (SCHEDULE 10 OR HEAVIER).
  - B. MAXIMUM 8" NOMINAL DIAMETER CAST IRON PIPE.
  - C. MAXIMUM 4" NOMINAL DIAMETER COPPER PIPE OR TUBING.
  - D. MAXIMUM 6" NOMINAL DIAMETER STEEL CONDUIT.
  - E. MAXIMUM 4" NOMINAL DIAMETER EMT.
- 6. MAXIMUM 2" NOMINAL DIAMETER EMT OR STEEL CONDUIT.
- 7. MAXIMUM 1800 PAIR NO. 24 AWG TELEPHONE CABLE WITH PVC JACKET.
- 8. HILTI CFS-BL FIRESTOP BLOCK (2" THICK x 8" WIDE x 5" DEEP, REFERENCE : TOP VIEW) FIRMLY PACKED, AND FLUSH WITH TOP SURFACE OF FLOOR OR CENTERED IN WALL.

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ANNULAR SPACE	MINIMUM	MAXIMUM
BETWEEN CABLE TRAYS AND PERIPHERY OF OPENING	0"	3"
BETWEEN CABLE TRAYS	-	5"
BETWEEN METAL PIPE (ITEM 5) AND PERIPHERY OF OPENING	0"	-
BETWEEN METAL PIPE (ITEM 5) AND ADJACENT PENETRANTS	2"	-
BETWEEN EMT OR STEEL CONDUIT (ITEM 6) AND PERIPHERY OF OPENING	2"	-
BETWEEN EMT OR STEEL CONDUIT (ITEM 6) (MAXIMUM QUANTITY = 2)	0"	-
BETWEEN MAXIMUM 1800 PAIR TELEPHONE CABLE (ITEM 7) AND PERIPHERY OF OPENING	3 1/2"	-
BETWEEN EMT OR STEEL CONDUIT (ITEM 6) OR MAXIMUM 1800 PAIR TELEPHONE CABLE (ITEM 7) AND ADJACENT PENETRANTS	1-1/2"	-

- NOTES :
- 1. MAXIMUM AREA OF OPENING = 720 SQ. IN., WITH A MAXIMUM DIMENSION OF 30".
  - 2. APPLY HILTI FS-ONE MAX OR FS-ONE INTUMESCENT FIRESTOP SEALANT, CP 618 FIRESTOP PUTTY STICK, OR CP 620 FIRE FOAM, IN ANY VOID THAT MAY EXIST (AROUND PENETRANTS, INTO INTERSTICES OF CABLES, BETWEEN CABLES AND CABLE TRAY, OR BETWEEN FIRESTOP BLOCKS), TO MAXIMUM EXTENT POSSIBLE.
  - 3. WHEN ANNULAR SPACE EXCEEDS 12", A NOM. 1" HEXAGONAL WIRE MESH (20 GA. OR HEAVIER) NOM. 2" x 2" STEEL WIRE MESH (16 GA.) SHALL BE ATTACHED TO THE TOP SURFACE OF FLOOR OR BOTH SURFACES OF WALL WITH 1/4" DIA. x 1" LONG STEEL CONCRETE ANCHORS AND 1-1/2" DIAMETER FENDER WASHERS SPACED MAXIMUM 8" C/C. STEEL WIRE MESH CUT TO FIT WITHIN MAXIMUM 2" OF THE PENETRANT AND OVERLAP MINIMUM 3" BEYOND THE PERIPHERY OF THE OPENING.
  - 4. MAXIMUM AREA OF CABLES SHALL BE 45% OF CROSS-SECTIONAL AREA OF ONE CABLE TRAY AND 30% OF SECOND CABLE TRAY.



**Hilti Firestop Systems**

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