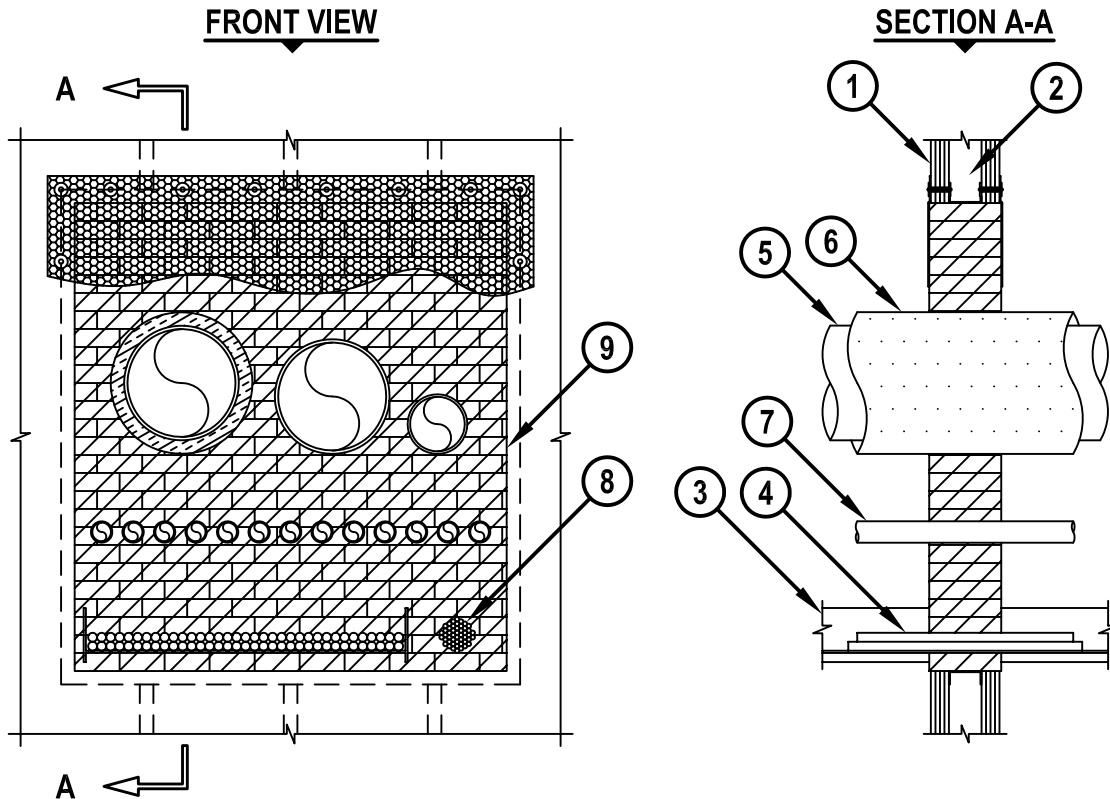


MULTIPLE PENETRATING ITEMS THROUGH GYPSUM WALL ASSEMBLY

F-RATING = 1-HR., 2-HR., 3-HR., OR 4-HR.

T-RATING = 0-HR.



WL8093c.011515

1. GYPSUM WALL ASSEMBLY (UL/cUL CLASSIFIED U400, V400, OR W400 SERIES) (1-HR., 2-HR., 3-HR., OR 4-HR. FIRE-RATING).
2. [NOT SHOWN] STEEL STUDS TO BE MINIMUM 3-5/8" WIDE. OPENING TO BE COMPLETELY "FRAMED-OUT" WITH LIGHTGAGE STEEL STUD MATERIAL.
3. MAXIMUM 36" x 6" ALUMINUM OPEN LADDER CABLE TRAY.
4. CABLES TO BE ANY COMBINATION OF THE FOLLOWING MAY BE USED IN CABLE TRAY :
 - A. MAXIMUM 750 KCMIL SINGLE CONDUCTOR POWER CABLE WITH PVC JACKET.
 - B. MAXIMUM 300 PAIR NO. 24 AWG TELEPHONE CABLE WITH PVC JACKET.
 - C. MAXIMUM 24 FIBER OPTIC CABLE WITH PVC JACKET.
 - D. MAXIMUM 7/C NO. 12 AWG POWER CABLE WITH PVC JACKET.
5. ONE OR MORE OF THE FOLLOWING PIPES, CONDUITS, OR TUBING (IN ANY COMBINATION) MAY BE INSTALLED WITHIN OPENING :
 - A. MAXIMUM 12" NOMINAL DIAMETER STEEL PIPE (SCHEDULE 10 OR HEAVIER).
 - B. MAXIMUM 12" NOMINAL DIAMETER CAST IRON PIPE.
 - C. MAXIMUM 6" NOMINAL DIAMETER COPPER PIPE.
 - D. MAXIMUM 6" NOMINAL DIAMETER STEEL CONDUIT.
 - E. MAXIMUM 4" NOMINAL DIAMETER EMT.



Hilti Firestop Systems

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

Sheet	1 of 2
Scale	3/64" = 1"
Date	Jan. 15, 2015

Drawing No.

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Saving Lives through Innovation and Education

MULTIPLE PENETRATING ITEMS THROUGH GYPSUM WALL ASSEMBLY

F-RATING = 1-HR., 2-HR., 3-HR., OR 4-HR.

T-RATING = 0-HR.

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- 6. NOMINAL 1-1/2" THICK GLASS-FIBER PIPE INSULATION.
- 7. NOMINAL 2" DIAMETER STEEL CONDUIT OR EMT (MAXIMUM QUANTITY = 13).
- 8. MAXIMUM 4" DIAMETER CABLE BUNDLE TO CONSIST OF ANY COMBINATION OF THE FOLLOWING :
 - A. MAXIMUM 300 PAIR NO. 24 AWG TELEPHONE CABLE WITH PVC JACKET.
 - B. MAXIMUM 24 FIBER OPTIC CABLE WITH PVC JACKET.
 - C. MAXIMUM 7/C NO. 12 AWG POWER CABLE WITH PVC JACKET.
 - D. RGU/59 COAXIAL CABLE WITH PVC JACKET.
 - E. MAXIMUM 2/C NO. 10 AWG (+GROUND) ROMEX CABLE WITH PVC JACKET.
 - F. MAXIMUM 3/C NO. 18 AWG METAL CLAD CABLE.
- 9. HILTI CFS-BL FIRESTOP BLOCK (2" THICK x 8" WIDE x 5" DEEP [FOR 1-HR. OR 2-HR. ASSEMBLIES] OR 2" THICK x 5" WIDE x 8" DEEP [FOR 3-HR. OR 4-HR. ASSEMBLIES], REFERENCE : FRONT VIEW) FIRMLY PACKED AND CENTERED WITHIN WALL.

ANNULAR SPACE	MINIMUM
BETWEEN CABLE TRAY AND ADJACENT PENETRATING ITEMS	2"
BETWEEN CABLE TRAY AND PERIPHERY OF OPENING	1"
BETWEEN PIPES, CONDUITS, OR TUBING (ITEM 5)	1-1/2"
BETWEEN PIPES, CONDUITS, OR TUBING (ITEM 5) AND PERIPHERY OF OPENING	3"
BETWEEN STEEL CONDUITS (ITEM 7)	1-1/8"
BETWEEN STEEL CONDUITS (ITEM 7) AND ADJACENT PENETRATING ITEMS	4-1/2"
BETWEEN STEEL CONDUITS (ITEM 7) AND PERIPHERY OF OPENING	1-1/8"
BETWEEN CABLE BUNDLE AND ADJACENT PENETRATING ITEMS	2"
BETWEEN CABLE BUNDLE AND PERIPHERY OF OPENING	1-1/2"

- 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 CP 618 FIRESTOP PUTTY STICK INTO 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 NOMINAL 1" HEXAGONAL STEEL WIRE MESH (20 GA.) OR HEAVIER) OR 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) OR ATTACHED TO STEEL STUDS WITH STEEL SCREWS AND 1-7/16" DIAMETER FENDER WASHERS (MAXIMUM 6" C/C SPACING). STEEL WIRE MESH CUT TO WITHIN MAXIMUM 2" OF PENETRANT AND OVERLAP MINIMUM 3" BEYOND THE PERIPHERY OF THE OPENING.
 - 4. CABLES TO FILL MAXIMUM 40% OF CABLE TRAY WITH A MAXIMUM 6" LOADING DEPTH.



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