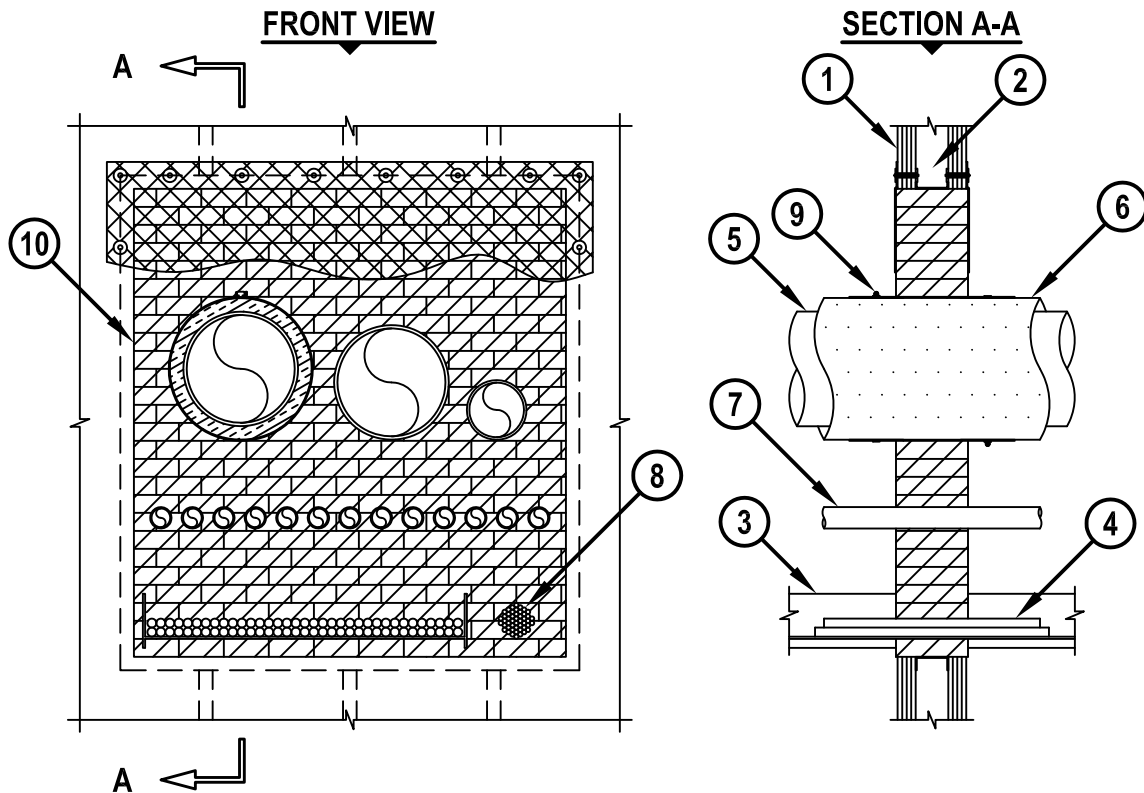


MULTIPLE PENETRATING ITEMS THROUGH GYPSUM WALL ASSEMBLY

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

T-RATING = 0-HR.



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1. GYPSUM WALL ASSEMBLY (UL/cUL CLASSIFIED U400, V400, OR W400 SERIES) (1-HR., 2-HR., 3-HR., OR 4-HR. FIRE-RATING) (4-HR. SHOWN)
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. ANY COMBINATION OF THE FOLLOWING PENETRANTS MAY BE USED :
 - 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.
6. NOMINAL 1-1/2" THICK GLASS-FIBER PIPE INSULATION.
7. NOMINAL 2" DIAMETER STEEL CONDUIT OR EMT (MAXIMUM QUANTITY = 13).



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Sheet	1 of 2
Scale	3/64" = 1"
Date	Jan. 14, 2015

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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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- 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. 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.
- 10. 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. EITHER ONE OR A COMBINATION OF BLOCK TYPES MAY BE USED.

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 5)	1-1/2"	4-3/4"
BETWEEN PIPES, CONDUITS, OR TUBING (ITEM 5) AND PERIPHERY OF OPENING	3"	4-1/4"
BETWEEN STEEL CONDUITS (ITEM 7)	1-1/8"	1-1/8"
BETWEEN STEEL CONDUITS (ITEM 7) AND ADJACENT PENETRATING ITEMS	4-1/2"	4-3/4"
BETWEEN STEEL CONDUITS (ITEM 7) 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 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/FIRE BLOCKS), 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.
 4. ONE OR MORE OF THE ABOVE PENETRANTS MAY BE INSTALLED WITHIN THE OPENING AND IN ANY COMBINATION, PROVIDED ALL SPACING PARAMETERS ARE MAINTAINED.



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Scale	-
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