

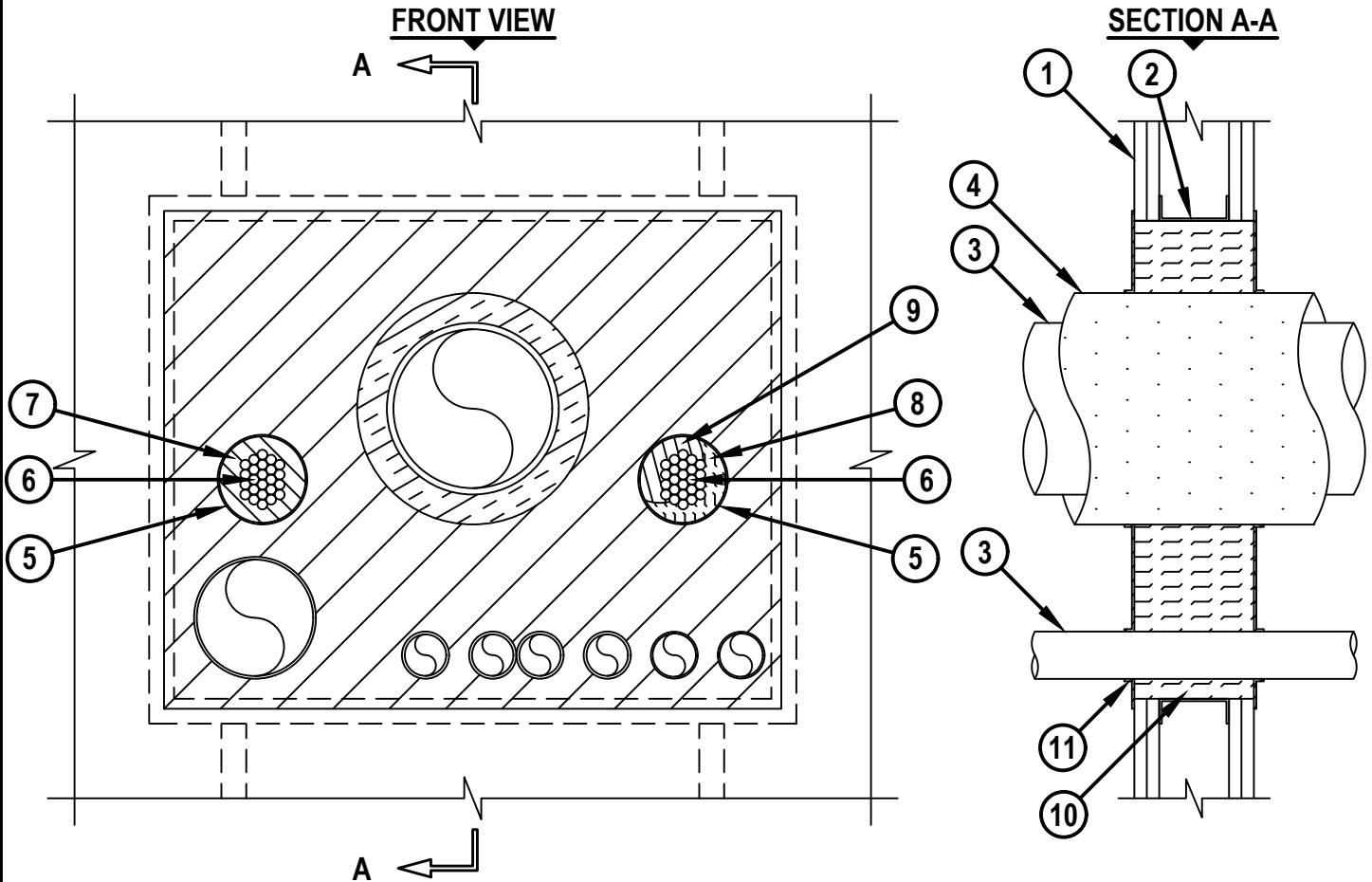
MULTIPLE PENETRATING ITEMS THROUGH GYPSUM WALL ASSEMBLY

F-RATING = 1-HR. OR 2-HR.

FT-RATING = 0-HR., 1/4-HR., 1/2-HR., OR 1-HR.

FH AND FTH-RATINGS = 0-HR.

cUL WL8134a.070121



1. GYPSUM WALL ASSEMBLY (UL/cUL CLASSIFIED U300, U400 OR V400 SERIES) (1-HR. OR 2-HR. FIRE-RATING) (2-HR. SHOWN) TO INCLUDE THE FOLLOWING CONSTRUCTION FEATURES :
 - A. [NOT SHOWN] WOOD STUDS TO CONSIST OF NOMINAL 2" x 4" LUMBER (SPACED MAXIMUM 16" OC). STEEL STUDS TO BE MINIMUM 3-1/2" WIDE (SPACED MAXIMUM 24" OC).
 - B. NOMINAL 5/8" THICK GYPSUM WALLBOARD. TYPE, NUMBER OF LAYERS, AND SHEET ORIENTATION AS SPECIFIED IN THE INDIVIDUAL UL/cUL DESIGN.
2. OPENING TO BE FRAMED OUT WITH STUD MATERIAL.
3. ONE OR MORE OF THE FOLLOWING PIPES, CONDUITS, OR TUBES (IN ANY COMBINATION) MAY BE INSTALLED WITHIN THE OPENING :
 - A. MAXIMUM 18" NOMINAL DIAMETER STEEL PIPE (SCHEDULE 10 OR HEAVIER).
 - B. MAXIMUM 18" NOMINAL DIAMETER CAST OR DUCTILE IRON PIPE.
 - C. MAXIMUM 6" NOMINAL DIAMETER COPPER PIPE OR TUBING (ONLY ONE GREATER THAN NOMINAL 2" DIAMETER).
 - D. MAXIMUM 4" NOMINAL DIAMETER STEEL CONDUIT OR EMT.
 - E. MAXIMUM 2" NOMINAL DIAMETER FLEXIBLE STEEL CONDUIT.



HILTI, Inc.
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Scale	7/64" = 1"
Date	July 01, 2021

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4. [OPTIONAL] NOMINAL 1-1/2" THICK GLASS-FIBER PIPE INSULATION INSTALLED ON ONE OR MORE STEEL PIPE AND CAST OR DUCTILE IRON PIPE (NOMINAL 8" OR SMALLER).
5. ONE OR MORE NOMINAL 4" DIAMETER EMT SLEEVE (SEE NOTE NO. 3 BELOW).
6. CABLE BUNDLE TO CONSIST OF ANY COMBINATION OF THE FOLLOWING :
 - A. MAXIMUM 750 KCMIL POWER CABLE WITH PVC JACKET.
 - B. MAXIMUM 1" DIAMETER METAL CLAD TEK CABLE WITH PVC JACKET.
 - C. MAXIMUM 300 PAIR NO. 24 AWG TELEPHONE CABLE WITH PVC JACKET.
 - D. MAXIMUM 3/C NO. 12 AWG METAL CLAD CABLE.
7. ONE HILTI CFS-PL FIRESTOP PLUG OR HILTI CP 658T FIRESTOP PLUG CUT TO FIT AROUND THE CABLE BUNDLE AND INSTALLED TIGHTLY WITHIN SLEEVE SUCH THAT THE OUTER CIRCUMFERENCE OF THE DOME SHAPED PLUG IS FLUSH WITH EITHER END OF SLEEVE.
8. MINIMUM 2" THICKNESS MINERAL WOOL (MIN. 4 PCF DENSITY) TIGHTLY PACKED, INSTALLED WITHIN BOTH ENDS OF SLEEVE AND RECESSED TO ACCOMMODATE SEALANT.
9. MINIMUM 1/2" DEPTH HILTI FS-ONE MAX INTUMESCENT FIRESTOP SEALANT INSTALLED FLUSH WITH BOTH ENDS OF SLEEVE.
10. MINERAL WOOL (MIN. 4 PCF DENSITY) CUT INTO STRIPS EQUAL IN WIDTH TO THICKNESS OF WALL AND COMPRESSED, FLUSH WITH WALL SURFACES.
11. MINIMUM 1/8" (WET) THICKNESS HILTI CFS-SP WB FIRESTOP JOINT SPRAY OR HILTI CP 672 SPEED SPRAY TO COMPLETELY COVER MINERAL WOOL, OVERLAPPING MINIMUM 1/2" ONTO GYPSUM WALL AND PENETRANTS.

ANNULAR SPACE	MINIMUM	MAXIMUM
BETWEEN METALLIC PIPES AND CONDUITS	1"	11"
BETWEEN STEEL PIPES AND/OR CONDUITS 2" IN DIAMETER OR SMALLER	0"	11"
BETWEEN METALLIC PENETRANTS AND PERIPHERY OF OPENING	1"	9"
BETWEEN INSULATED PENETRANTS AND PERIPHERY OF OPENING	3"	11"
BETWEEN INSULATED PENETRANTS AND OTHER PENETRATING ITEMS	2"	11"

NOTES : 1. MAXIMUM AREA OF OPENING = 720 SQ. IN., WITH A MAXIMUM DIMENSION OF 30".
 2. CABLES TO FILL MINIMUM 25% TO MAXIMUM 56% CROSS-SECTIONAL AREA OF SLEEVE.
 3. EMT SLEEVE TO EXTEND MAXIMUM 12" BEYOND WALL SURFACES WHEN HILTI CFS-PL FIRESTOP PLUG OR HILTI CP 658T FIRESTOP PLUG IS UTILIZED WITHIN SLEEVE, AND EXTEND MAXIMUM 10" BEYOND WALL SURFACES WHEN MINERAL WOOL AND HILTI FS-ONE MAX INTUMESCENT FIRESTOP SEALANT IS UTILIZED WITHIN SLEEVE. SLEEVES TO BE RIGIDLY SUPPORTED ON ONE SIDE OF WALL.



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