

MULTIPLE PENETRATING ITEMS THROUGH GYPSUM WALL ASSEMBLY

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

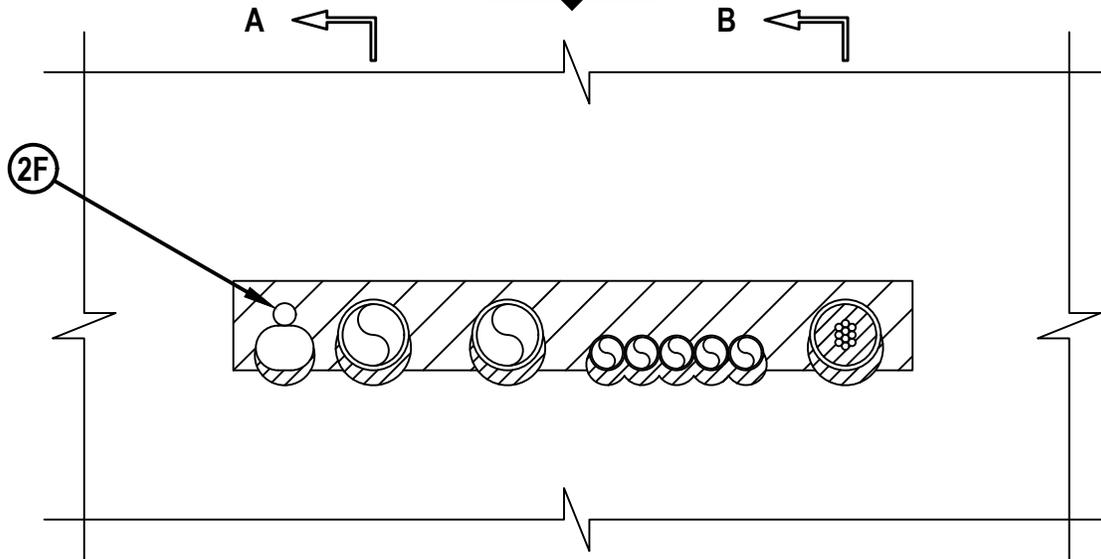
FT-RATING = 1-HR., 1-3/4-HR., OR 2-HR. (SEE NOTES BELOW)

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

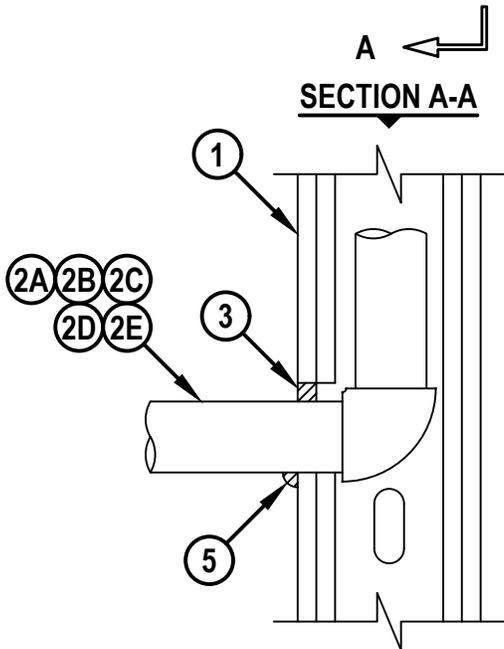
FTH-RATING = 1-HR., 1-3/4-HR., OR 2-HR. (SEE NOTES BELOW)

cUL WL8135a.030325

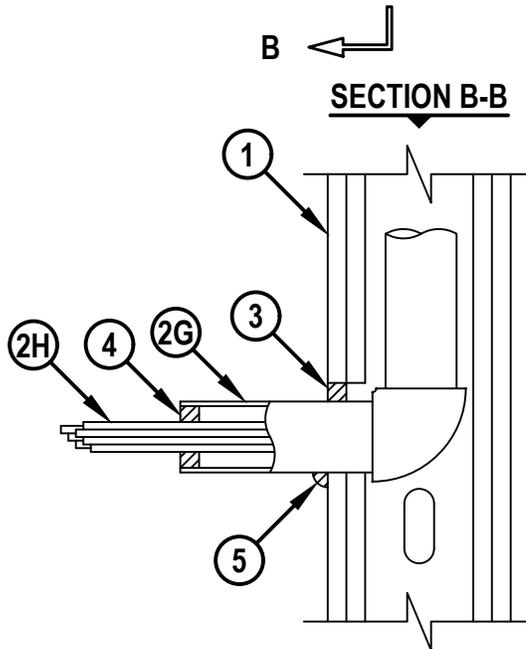
FRONT VIEW



SECTION A-A



SECTION B-B



HILTI, Inc.
Plano, Texas USA (800) 879-8000

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Scale	5/32" = 1"
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1. GYPSUM WALL ASSEMBLY (UL/cUL CLASSIFIED U400, V400, OR W400 SERIES) (1-HR. OR 2-HR. FIRE-RATING) (2-HR. SHOWN). HOURLY RATINGS OF FIRESTOP SYSTEM ARE EQUAL TO THE HOURLY FIRE-RATING OF WALL ASSEMBLY.
 - 1A. [NOT SHOWN] STEEL STUDS TO BE MINIMUM 3-5/8" WIDE.
2. ANY COMBINATION OF THE FOLLOWING PENETRATING ITEMS MAY BE INSTALLED IN A SINGLE ARRAY :
 - A. MAXIMUM 2" NOMINAL DIAMETER STEEL PIPE (SCHEDULE 5 OR HEAVIER).
 - B. MAXIMUM 2" NOMINAL DIAMETER STEEL CONDUIT OR STEEL EMT.
 - C. MAXIMUM 2" NOMINAL DIAMETER ALUMINUM PIPE (SCH. 10) (CLOSED PIPING SYSTEM ONLY).
 - D. MAXIMUM 2" NOMINAL DIAMETER ALUMINUM CONDUIT (CLOSED OR VENTED).
 - E. MAXIMUM 2" NOMINAL DIAMETER ALUMINUM EMT (CLOSED OR VENTED).
 - F. ONE OR MORE CABLE BUNDLES CONSISTING OF MAXIMUM TWO OF THE FOLLOWING CABLES:
 - 1) MAXIMUM 100 PAIR NO. 24 AWG (OR SMALLER) COPPER CONDUCTOR TELECOMMUNICATION CABLE WITH POLYVINYL CHLORIDE (PVC) JACKETING AND INSULATION.
 - 2) MAXIMUM 3/C NO. 12 AWG STEEL METAL CLAD CABLE.
 - G. [OPTIONAL] ONE OR MORE OF THE FOLLOWING SLEEVES MAY BE INSTALLED. SLEEVE TO EXTEND MINIMUM 4" FROM WALL SURFACE (SEE NOTE BELOW).
 - 1) MAXIMUM 2" NOMINAL DIAMETER ALUMINUM EMT (MINIMUM 0.065" WALL THICKNESS) (SEE NOTE BELOW).
 - 2) MAXIMUM 2" NOMINAL DIAMETER ALUMINUM PIPE (SCH. 10 OR HEAVIER) (SEE NOTE BELOW).
 - 3) MAXIMUM 2" NOMINAL DIAMETER STEEL PIPE (SCH. 5 OR HEAVIER).
 - 4) MAXIMUM 2" NOMINAL DIAMETER STEEL CONDUIT.
 - 5) MAXIMUM 1" NOMINAL DIAMETER STEEL EMT.
 - H. [OPTIONAL] SLEEVE (ITEM 2G) MAY BE FILLED WITH ANY COMBINATION OF THE FOLLOWING TYPES AND SIZES OF CABLES.
 - 1) MAX 7/C NO. 12 AWG WITH POLYVINYL CHLORIDE (PVC) INSULATION AND JACKET.
 - 2) MAX 25 PAIR NO. 24 AWG TELEPHONE CABLE WITH PVC INSULATION AND JACKET.
 - 3) MAX 4 PR NO. 22 AWG CAT 5 OR CAT 6 COMPUTER CABLES.
 - 4) TYPE RG/U COAXIAL CABLE WITH POLYETHYLENE (PE) INSULATION AND PVC JACKET HAVING A MAX OUTSIDE DIAMETER OF 1/2 IN.
 - 5) MAX RG 6/U COAXIAL CABLE WITH FLUORINATED ETHYLENE INSULATION AND JACKETING.
 - 6) MULTIPLE FIBER OPTICAL COMMUNICATION CABLE JACKETED WITH PVC AND HAVING A MAX OD OF 5/8 IN.



Hilti Firestop Systems

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- 7) THROUGH PENETRATING PRODUCTS*— MAX THREE COPPER CONDUCTOR NO. 8 AWG METAL-CLAD CABLE+. (AFC CABLE SYSTEMS INC).
 - 8) MAX 3/C (WITH GROUND) (OR SMALLER) NO. 8 AWG COPPER CONDUCTOR CABLE WITH PVC INSULATION AND JACKETING.
 - 9) MAX 3/4 IN. (19 MM) DIAM COPPER GROUND CABLE WITH OR WITHOUT A PVC JACKET.
 - 10) FIRE RESISTIVE CABLES* - MAX 1-1/4 IN. DIAM SINGLE CONDUCTOR OR MULTI CONDUCTOR TYPE MI CABLE. A MIN 1/8 IN. SEPARATION SHALL BE MAINTAINED BETWEEN MI CABLES AND ANY OTHER TYPES OF CABLE.
 - 11) MAX 4/C WITH GROUND 300 KCMIL (OR SMALLER) ALUMINUM SER CABLE WITH PVC INSULATION AND JACKET.
 - 12) THROUGH PENETRATING PRODUCT* - ANY CABLES, METAL-CLAD CABLE+ OR ARMORED CABLE+ CURRENTLY CLASSIFIED UNDER THE THROUGH PENETRATING PRODUCTS CATEGORY.
 - 13) MAXIMUM 3/C NO. 8 AWG METAL-CLAD CABLE.
 - 14) MAXIMUM 5/8 DIAM FIBER-OPTIC CABLE WITH PVC JACKET.
- 3. MINIMUM 5/8" DEPTH HILTI FS-ONE MAX INTUMESCENT FIRESTOP SEALANT.
 - 4. MINIMUM 5/8" DEPTH HILTI FS-ONE MAX INTUMESCENT FIRESTOP SEALANT FLUSH WITH END OF SLEEVE (ITEM 2G).
 - 5. MINIMUM 1/2" BEAD HILTI FS-ONE MAX INTUMESCENT FIRESTOP SEALANT APPLIED AT POINT OF CONTACT.

NOTES :

- 1. MAXIMUM SIZE OF OPENING = 22-3/4" x 3".
- 2. ANNULAR SPACE BETWEEN PIPES AND PERIPHERY OF OPENING = MINIMUM 0", MAXIMUM 2".
- 3. ANNULAR SPACE BETWEEN PENETRANTS = MINIMUM 3/4", MAXIMUM 2-1/2", EXCEPT THAT GROUPINGS OF MAXIMUM FIVE NOMINAL 1" DIAMETER (OR SMALLER) METALLIC PENETRATING ITEMS MAY BE INSTALLED WITH POINT OF CONTACT.
- 4. CABLE BUNDLE (ITEM 2H) MAY FILL 0% TO 45% OF THE CROSS-SECTIONAL AREA OF THE SLEEVE (ITEM 2G).
- 5. WHEN ITEM 2C, 2D, 2E, 2G1, OR 2G2 ARE INSTALLED, FT AND FTH-RATINGS ARE LIMITED TO 1-3/4-HR.



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