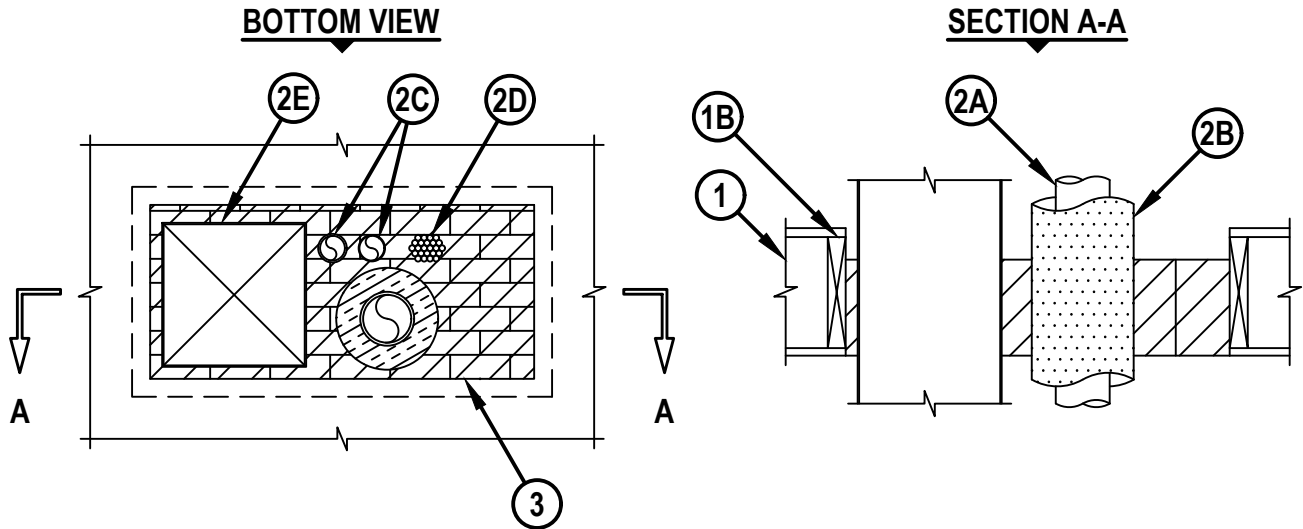


**MULTIPLE PENETRATING ITEMS THROUGH WOOD/FLOOR CEILING ASSEMBLY**

F-RATING = 1-HR.

T-RATING = 0-HR.

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1. WOOD FLOOR/CEILING ASSEMBLY (UL CLASSIFIED L500 SERIES) (1-HR. FIRE-RATING).
- 1B. OPENING TO BE FRAMED OUT WITH ADDITIONAL LUMBER MATERIAL.
2. THROUGH PENETRANTS - ONE OR MORE METALLIC OR NONMETALLIC PIPES, CONDUITS, TUBING, CABLES OR METALLIC DUCT, IN ANY COMBINATION, TO BE INSTALLED WITHIN THE OPENING. THE FOLLOWING TYPES OF THROUGH PENETRANTS MAY BE USED :
  - A. METALLIC PENETRANTS.
    - A1. MAXIMUM 4" NOMINAL DIAMETER STEEL PIPE (SCHEDULE 5 OR HEAVIER).
    - A2. MAXIMUM 4" NOMINAL DIAMETER CAST IRON PIPE.
    - A3. MAXIMUM 4" NOMINAL DIAMETER COPPER PIPE OR TUBING.
    - A4. MAXIMUM 4" NOMINAL DIAMETER STEEL CONDUIT OR EMT.
    - A5. MAXIMUM 2" NOMINAL DIAMETER FLEXIBLE STEEL CONDUIT.
  - B. PIPE COVERING - ANY OF THE FOLLOWING PIPE COVERINGS MAY BE USED WITH ONE OR MORE METALLIC PIPES LISTED ABOVE (ITEM 2A).
    - B1. MAXIMUM 2" THICK GLASS-FIBER PIPE INSULATION (MINIMUM 3.5 PCF DENSITY).
    - B2. MAXIMUM 2" THICK MINERAL FIBER PIPE INSULATION (MINIMUM 3.5 PCF DENSITY). PIPE INSULATION SECURED WITH MINIMUM NO. 18 AWG STEEL WIRE SPACED MAXIMUM 12" OC. FOIL-SCRIM-KRAFT OR ALL SERVICE JACKET MATERIAL TO BE WRAPPED AROUND PIPE INSULATION.



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Sheet	1 of 2
Scale	1/16" = 1"
Date	Aug. 25, 2022

Drawing No.  
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**MULTIPLE PENETRATING ITEMS THROUGH WOOD/FLOOR CEILING ASSEMBLY**

F-RATING = 1-HR.

T-RATING = 0-HR.

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**C. NONMETALLIC PENETRANTS.**

**C1. MAXIMUM 2" NOMINAL DIAMETER PVC PLASTIC PIPE (SCHEDULE 40) (CLOSED OR VENTED PIPING SYSTEM).**

**C2. MAXIMUM 2" NOMINAL DIAMETER CPVC PLASTIC PIPE (SDR 13.5) (CLOSED OR VENTED PIPING SYSTEM).**

**C3. MAXIMUM 2" NOMINAL DIAMETER NONMETALLIC TUBING (FORMED OF PVC OR HDPE).**

**D. MAXIMUM 3" DIAMETER CABLE BUNDLE CONSISTING OF ANY COMBINATION OF THE FOLLOWING TYPES OF CABLES :**

**A. RG 59 COAXIAL CABLE WITH SINGLE COPPER CONDUCTOR, CELLULAR POLYETHYLENE CELLULAR FOAM INSULATION AND POLYVINYL CHLORIDE (PVC) JACKET.**

**B. MAXIMUM 8/C NO. 22 AWG TELEPHONE CABLE WITH POLYVINYL CHLORIDE (PVC) JACKETING.**

**C. MAXIMUM 2/C NO. 12 AWG CABLE WITH POLYVINYL CHLORIDE (PVC) INSULATION AND JACKETING.**

**D. MAXIMUM 3/C WITH GROUND NO. 2/0 AWG ALUMINUM OR COPPER TYPE SER CABLE WITH POLYVINYL CHLORIDE (PVC) INSULATION.**

**E. MAXIMUM 3/C WITH GROUND NO. 2/0 AWG TYPE NM CABLE WITH POLYVINYL CHLORIDE (PVC) INSULATION.**

**F. MAXIMUM 3/C NO. 12 AWG MC (BX) CABLE WITH POLYVINYL CHLORIDE (PVC) INSULATION.**

**G. MAXIMUM 1" (25 MM) DIAMETER METAL CLAD TEK CABLE WITH PVC JACKET.**

**H. MAXIMUM 4/C WITH GROUND NO. 300 KCMIL (OR SMALLER) ALUMINUM SER CABLE WITH PVC INSULATION AND JACKET.**

**I. ANY CABLES, METAL-CLAD CABLE+ OR ARMORED CABLE+ CURRENTLY CLASSIFIED UNDER THE THROUGH PENETRATION PRODUCTS CATEGORY.**

**E. STEEL DUCT.**

**E1. MAXIMUM 12" x 12" RECTANGULAR SHEET METAL DUCT (MIN. 24 GA.).**

**E2. MAXIMUM 10" DIAMETER SHEET METAL DUCT (MIN. 28 GA.).**

**3. HILTI CFS-BL FIRESTOP BLOCK (8" DEEP) FIRMLY PACKED AND FLUSH WITH BOTTOM SURFACE OF CEILING.**

**NOTES :** 1. MAXIMUM AREA OF OPENING = 464 SQ. IN., WITH A MAXIMUM DIMENSION OF 32".  
 2. ANNULAR SPACE BETWEEN PENETRANTS AND PERIPHERY OF OPENING = MINIMUM 1", MAXIMUM 8".  
 3. ANNULAR SPACE BETWEEN PENETRANTS = MINIMUM 1", MAXIMUM 8".  
 4. HILTI FS-ONE MAX INTUMESCENT FIRESTOP SEALANT OR HILTI CP 618 FIRESTOP PUTTY STICK APPLIED INTO VOIDS BETWEEN FIRESTOP BLOCKS AND PENETRATING ITEMS, OR OPENING. SEALANT OR PUTTY MAY BE INSTALLED FROM TOP OR BOTTOM OF ASSEMBLY. HILTI CP 618 IS NOT SUITABLE FOR USE WITH CPVC.



**Hilti Firestop Systems**

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Scale	-
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