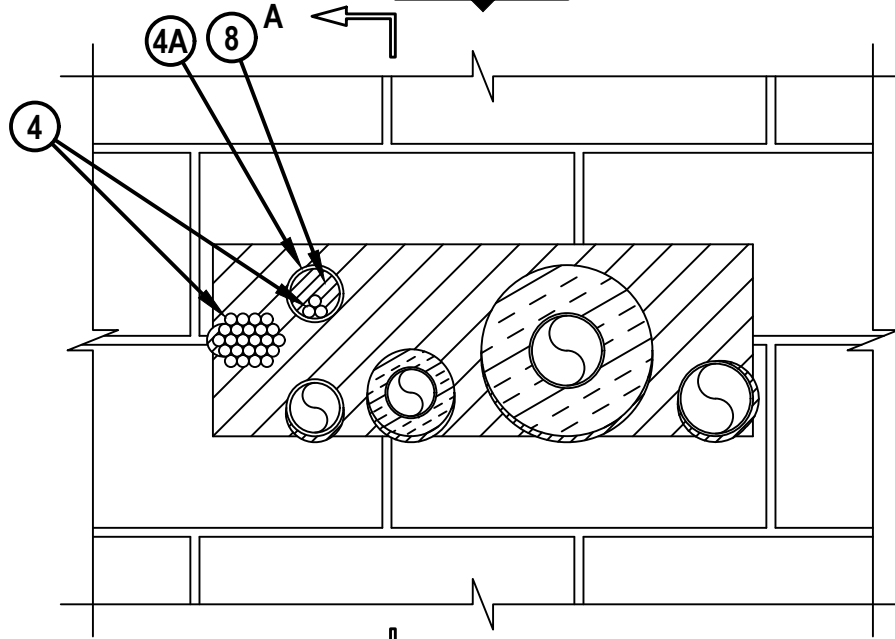


MULTIPLE PENETRATING ITEMS THROUGH CONCRETE WALL OR BLOCK WALL

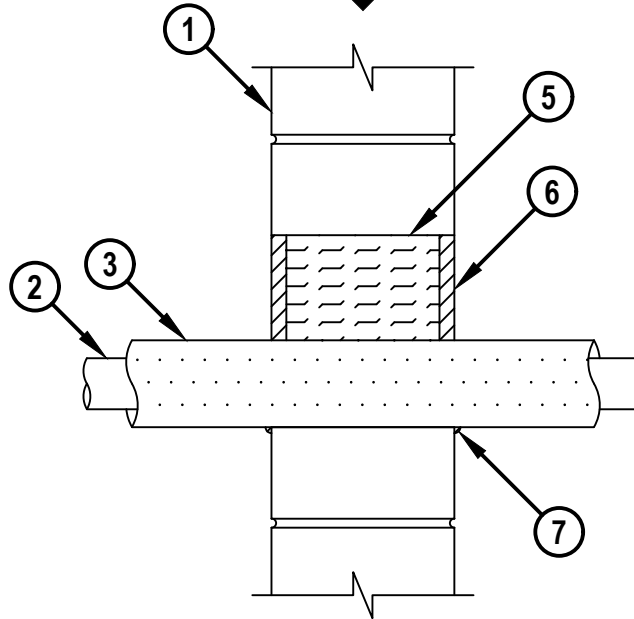
F-RATING = 2-HR.

T-RATING = 0-HR.

FRONT VIEW



SECTION A-A



WJ8035f.043024



Hilti Firestop Systems

HILTI, Inc.
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Sheet	1 of 3
Scale	1/8" = 1"
Date	Apr. 30, 2024

Drawing No.

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MULTIPLE PENETRATING ITEMS THROUGH CONCRETE WALL OR BLOCK WALL

F-RATING = 2-HR.

T-RATING = 0-HR.

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1. CONCRETE WALL ASSEMBLY (2-HR. FIRE-RATING) :
 - A. LIGHTWEIGHT OR NORMAL WEIGHT CONCRETE WALL (MINIMUM 5" THICK).
 - B. ANY UL/cUL CLASSIFIED CONCRETE BLOCK WALL.
2. ONE OR MORE OF THE FOLLOWING PIPES, CONDUITS, OR TUBES, AND IN ANY COMBINATION, MAY BE INSTALLED WITHIN THE OPENING :
 - A. MAXIMUM 3" NOMINAL DIAMETER STEEL PIPE (SCHEDULE 10 OR HEAVIER).
 - B. MAXIMUM 3" NOMINAL DIAMETER CAST OR DUCTILE IRON PIPE.
 - C. MAXIMUM 3" NOMINAL DIAMETER COPPER PIPE OR TUBING.
 - D. MAXIMUM 3" NOMINAL DIAMETER STEEL CONDUIT OR EMT.
 - E. MAXIMUM 2" NOMINAL DIAMETER PVC PLASTIC PIPE (SCHEDULE 40) (CLOSED OR VENTED PIPING SYSTEM) (CELLULAR OR SOLID CORE).
 - F. MAXIMUM 2" NOMINAL DIAMETER CPVC PLASTIC PIPE (SDR 13.5) (CLOSED PIPING SYSTEM ONLY).
 - G. MAXIMUM 2" NOMINAL DIAMETER RIGID NON METALLIC CONDUIT (RNC) (SCHEDULE 40).
 - H. MAXIMUM 1" NOMINAL DIAMETER CROSS-LINKED POLYETHYLENE (PEX) TUBING (CLOSED PIPING SYSTEM ONLY).
 - I. MAXIMUM 2" NOMINAL DIAMETER ALUMINUM PIPE (SCH. 10 OR HEAVIER) (CLOSED OR VENTED PIPING SYSTEMS).
 - J. MAXIMUM 2" NOMINAL DIAMETER ALUMINUM CONDUIT OR ALUMINUM ELECTRICAL METALLIC TUBING (EMT).
 - K. MAXIMUM 2" NOMINAL DIAMETER FLEXIBLE ALUMINUM CONDUIT (NO. 16 GAUGE OR HEAVIER).
3. ONE OR MORE METALLIC PENETRANTS OR TUBES MAY BE INSULATED WITH ANY OF THE FOLLOWING TYPES OF INSULATION :
 - A. MINIMUM 1" TO MAXIMUM 2" THICK GLASS-FIBER PIPE INSULATION.
 - B. MINIMUM 1/2" TO MAXIMUM 3/4" THICK AB/PVC PIPE INSULATION.
 - C. MINIMUM 1" TO MAXIMUM 2" THICK MINERAL FIBER PIPE INSULATION SECURED WITH 18 GA. STEEL WIRE SPACED 12" C/C.

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F-RATING = 2-HR.

T-RATING = 0-HR.

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4. MAXIMUM 3" DIAMETER CABLE BUNDLE TO CONSIST OF ANY OF THE FOLLOWING :
- A. MAXIMUM 25 PAIR NO. 24 AWG TELEPHONE CABLE WITH PVC JACKET.
 - B. MAXIMUM 7/C NO. 12 AWG COPPER CONDUCTOR WITH PVC JACKET.
 - C. MAXIMUM 1/2" DIAMETER FIBER OPTIC CABLE WITH PVC JACKET.
 - D. MAXIMUM 3/C NO. 8 AWG WITH BARE ALUMINUM GROUND STEEL METAL-CLAD CABLE.
 - E. MAXIMUM 3/C (+GROUND) NO. 12 AWG ROMEX CABLE WITH PVC JACKET.
 - F. RG/U COAXIAL CABLE (MAXIMUM 1/2" DIAMETER) WITH PVC JACKET.
- 4A. [OPTIONAL] PRIOR TO INSTALLATION OF THE CABLE BUNDLE (ITEM 6), ONE OF THE FOLLOWING SLEEVES MAY BE INSTALLED TO CONTAIN THE CABLE BUNDLE. SLEEVE TO EXTEND MINIMUM 6" BEYOND BOTH SURFACES OF WALL.
- A. MAXIMUM 2" NOMINAL DIAMETER STEEL CONDUIT, STEEL EMT, OR STEEL PIPE (SCH. 10 OR HEAVIER) SLEEVE.
 - B. MAXIMUM 2" NOMINAL DIAMETER ALUMINUM CONDUIT, ALUMINUM EMT, OR ALUMINUM PIPE (SCH 10 OR HEAVIER) SLEEVE.
 - C. MAXIMUM 2" NOMINAL DIAMETER FLEXIBLE ALUMINUM CONDUIT SLEEVE (NO. 16 GAUGE OR HEAVIER).
5. MINIMUM 3-3/4" THICKNESS MINERAL WOOL (MIN. 4 PCF DENSITY) TIGHTLY PACKED AND RECESSED TO ACCOMMODATE FIRESTOP SEALANT.
6. MINIMUM 5/8" DEPTH HILTI FS-ONE MAX INTUMESCENT FIRESTOP SEALANT.
7. MINIMUM 1/4" BEAD HILTI FS-ONE MAX INTUMESCENT FIRESTOP SEALANT APPLIED AT POINT OF CONTACT EXCEPT FOR WHEN ALUMINUM PENETRATING ITEMS ARE USED IN WHICH CASE THE BEAD IS TO BE MINIMUM 1/2".
8. MINIMUM 1" DEPTH HILTI FS-ONE MAX INTUMESCENT FIRESTOP SEALANT OR HILTI CFS-BL FIRESTOP BLOCK INSTALLED WITHIN SLEEVE, FLUSH WITH ENDS OF SLEEVE.

NOTES : 1. MAXIMUM SIZE OF OPENING = 30" x 9".
 2. ANNULAR SPACE BETWEEN PENETRANTS = MINIMUM 1", MAXIMUM 22".
 3. ANNULAR SPACE BETWEEN PENETRANTS AND OPENINGS = MINIMUM 0", MAXIMUM 22".


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