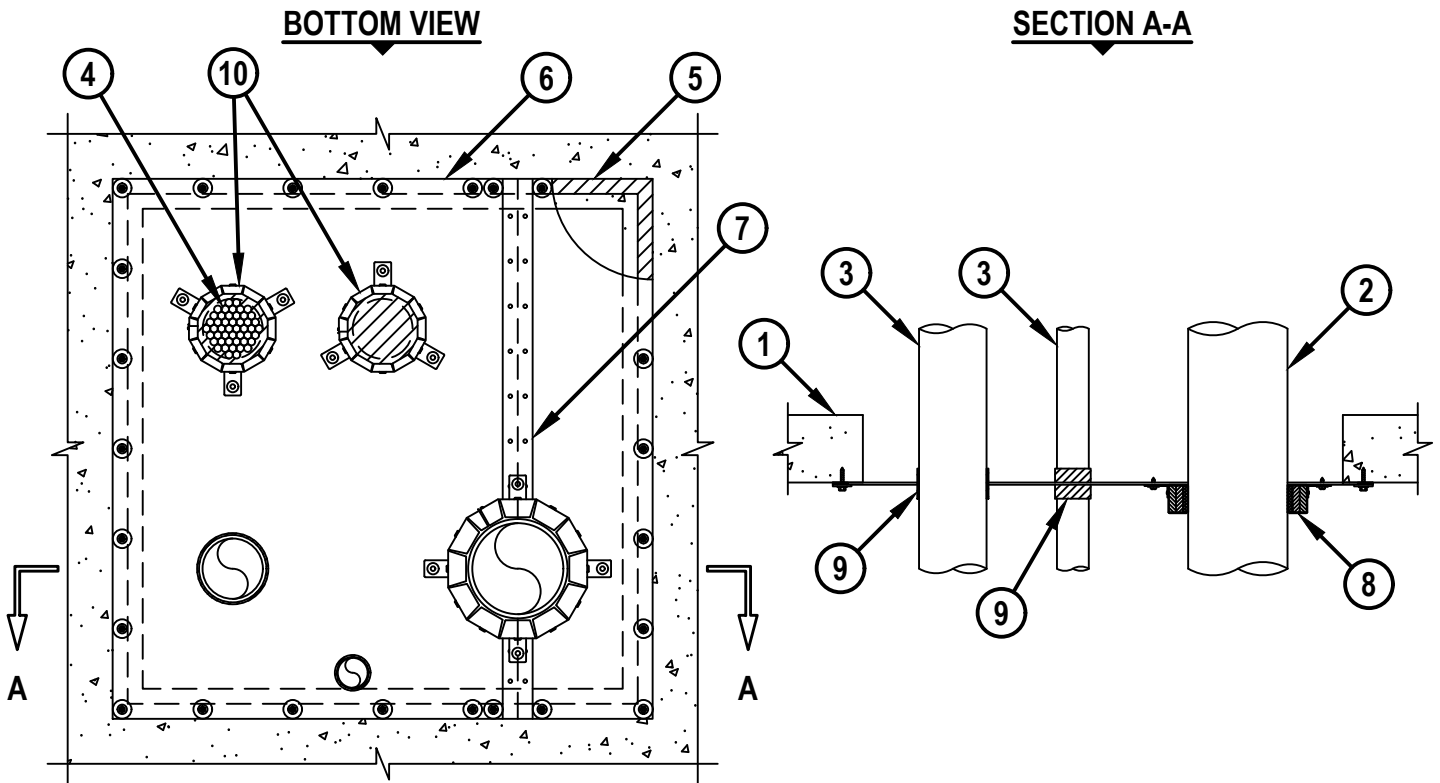


UL SYSTEM NO. C-AJ-8318

**MULTIPLE PENETRATING ITEMS THROUGH CONCRETE FLOOR/WALL
OR CONCRETE BLOCK WALL ASSEMBLY**

F-RATING = 2-HR.
T-RATING = 0-HR.

CAJ8318c.081722



1. CONCRETE FLOOR OR WALL ASSEMBLY (2-HR. FIRE-RATING) :
 - A. LIGHTWEIGHT OR NORMAL WEIGHT CONCRETE FLOOR OR WALL (MINIMUM 4-1/2" THICK).
 - B. ANY UL/cUL CLASSIFIED CONCRETE BLOCK WALL.
2. ONE OR MORE OF THE FOLLOWING NONMETALLIC PIPES OR CONDUITS MAY BE INSTALLED WITHIN THE OPENING :
 - A. MAXIMUM 6" NOMINAL DIAMETER PVC PLASTIC PIPE (SCHEDULE 40) (CLOSED OR VENTED PIPING SYSTEM).
 - B. MAXIMUM 6" NOMINAL DIAMETER CPVC PLASTIC PIPE (SDR 13.5) (CLOSED PIPING SYSTEM ONLY).
 - C. MAXIMUM 6" NOMINAL DIAMETER RIGID NONMETALLIC CONDUIT (RNC) (FORMED OF SCHEDULE 40 PVC).



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Scale	5/64" = 1"
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**MULTIPLE PENERTATING ITEMS THROUGH CONCRETE FLOOR/WALL
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F-RATING = 2-HR.
T-RATING = 0-HR.

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3. ONE OR MORE OF THE FOLLOWING METALLIC PIPES, CONDUITS, OR TUBES MAY BE INSTALLED WITHIN THE OPENING :
 - A. MAXIMUM 4" NOMINAL DIAMETER STEEL PIPE (SCHEDULE 10 OR HEAVIER).
 - B. MAXIMUM 4" NOMINAL DIAMETER CAST OR DUCTILE IRON PIPE.
 - C. MAXIMUM 4" NOMINAL DIAMETER STEEL ELECTRICAL METALLIC TUBING.
 - D. MAXIMUM 4" NOMINAL DIAMETER RIGID STEEL CONDUIT.
 - E. MAXIMUM 2" NOMINAL DIAMETER COPPER PIPE OR TUBING (TYPE L OR HEAVIER).
4. ONE OR MORE MAXIMUM 4" DIAMETER CABLE BUNDLES CONSISTING OF ANY COMBINATION OF THE CABLE TYPES LISTED BELOW MAY BE INSTALLED WITHIN THE OPENING. CABLE BUNDLE MAY REPRESENT 0% TO 100% VISUAL FILL OF THE FIRESTOP CABLE COLLAR (ITEM 10).
 - A. MAXIMUM 100 PAIR NO. 24 AWG (OR SMALLER) COPPER CONDUCTOR TELECOMMUNICATION CABLE WITH POLYVINYL CHLORIDE (PVC) JACKETING AND INSULATION.
 - B. MAXIMUM 7/C NO. 12 AWG COPPER CONDUCTOR CONTROL CABLE WITH PVC OR XLPE JACKET AND INSULATION.
 - C. MAXIMUM 4/0 AWG TYP E RHH GROUND CABLE.
 - D. MAXIMUM 4 PAIR NO. 22 AWG CAT 6 COMPUTER CABLE.
 - E. MAXIMUM RG 6/U COAXIAL CABLE WITH FLUORINATED ETHYLENE INSULATION AND JACKETING.
 - F. FIBER-OPTIC CABLE WITH POLYVINYL CHLORIDE (PVC) OR POLYETHYLENE (PE) JACKET AND INSULATION HAVING MAX DIAMETER OF 1/2" (12.7 MM).
 - G. MAXIMUM 3/C NO. 12 AWG METAL CLAD CABLE.
5. MINIMUM 1/2" DIAMETER BEAD OF HILTI FS-ONE MAX INTUMESCENT FIRESTOP SEALANT, HILTI CP 619T FIRESTOP PUTTY ROLL, OR HILTI CP 617 FIRESTOP PUTTY STICK POSITIONED BETWEEN COMPOSITE SHEET AND FLOOR OR WALL AROUND THE PERIMETER OF THE OPENING. ONE LAYER OF HILTI CP 619T FIRESTOP PUTTY ROLL APPLIED UNDER THE COVER STRIP OVER SEAM IN COMPOSITE SHEET (ITEM 6).
6. HILTI CFS-COS FIRESTOP COMPOSITE SHEET CUT TO OVERLAP FLOOR OR WALL A MINIMUM OF 2". COMPOSITE SHEET INSTALLED WITH THE ALUMINUM FOIL FACING AGAINST THE BOTTOM SURFACE OF FLOOR OR BOTH SURFACES OF A WALL AND SECURED WITH MINIMUM 3/16" DIAMETER BY 1-1/4" LONG STEEL ANCHOR CONCRETE SCREWS WITH 1-1/4" DIAMETER STEEL FENDER WASHERS AT MAXIMUM 2" FROM ENDS AND MAXIMUM 6" C/C. COMPOSITE SHEET CUT TO TIGHTLY FOLLOW THE CONTOUR OF THE PENETRANTS. AS AN ALTERNATIVE TO CONCRETE ANCHORS, WHEN COMPOSITE SHEET OVERLAPS A MINIMUM OF 3" ONTO FLOOR OR WALL SURFACES, 1-1/16" (27mm) LONG HILTI X-GN 27 MX NAILS IN CONJUNCTION WITH MIN 1-1/4" (32mm) DIAMETER STEEL FENDER WASHERS MAY BE USED. ONLY ONE SEAM MAY EXIST IN COMPOSITE SHEET.



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OR CONCRETE BLOCK WALL ASSEMBLY**

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7. MINIMUM 2" WIDE STAINLESS STEEL STRIP (MIN. 24 GA.) CENTERED OVER ENTIRE LENGTH OF BUTT SEAM IN THE COMPOSITE SHEET. COVER STRIP SECURED TO COMPOSITE SHEET WITH NO. 8 STEEL SHEET METAL SCREWS WITH 3/4" WASHERS SPACED 6" C/C ON EACH SIDE OF SEAM.
8. FOR EACH NONMETALLIC PENETRATING ITEM INSTALLED, INSTALL A HILTI CP 643N ATTACHED TO BOTTOM OF HILTI CFS-COS WITH 3/16" x 1-1/4" LONG STEEL CONCRETE SCREW ANCHORS WITH 1-1/4" WASHERS TO CONCRETE FLOOR, AND NO. 10 SELF-DRILLING SCREWS WITH 3/4" WASHERS TO HILTI CFS-COS THROUGH EACH TAB OF COLLAR. FIRESTOP COLLAR SIZED TO MATCH NOMINAL PIPE DIAMETER (SEE TABLE BELOW).

NOMINAL PIPE DIAMETER	PRODUCT DESCRIPTION
1-1/2"	CP 643 50/1.5" N
2"	CP 643 63/2" N
3"	CP 643 90/3" N
4"	CP 643 110/4" N
6"	CP 643 160/8 N

9. FOR EACH METALLIC PENETRATING ITEM, INSTALL TWO STACKS (FOR TOTAL HEIGHT OF 2") OF HILTI CP 619T FIRESTOP PUTTY ROLL (1/8" THICK x 1" WIDE) IN ONE LAYER AROUND THE PERIMETER OF THE METALLIC PENETRATING ITEMS. THE 2" HIGH LAYERS OF PUTTY SHALL BE CENTERED IN THE COMPOSITE SHEET ON BOTTOM SIDE OF THE FLOOR, OR BOTH SIDES OF A WALL ASSEMBLY.
10. HILTI CFS-CC 4" FIRESTOP CABLE COLLAR SECURED TO BOTTOM SURFACE OF HILTI CFS-COS FIRESTOP COMPOSITE SHEET IN FLOORS (OR TO OUTER FACE OF EACH COMPOSITE SHEET ON BOTH SIDES OF A WALL) WITH NO. 10 x 3/4" LONG STEEL SHEET METAL SCREWS WITH MIN 3/4" WASHERS THROUGH EACH FASTENING HOOK. A MAXIMUM 4" DIAMETER OPENING MAY BE MADE IN THE COMPOSITE SHEET WHERE CABLE COLLAR IS USED. CABLE COLLAR IS TO BE CENTERED OVER OPENING. INTEGRATED FIRESTOP PLUG WITHIN COLLAR IS CUT TO FIT TIGHTLY AROUND THE CABLE BUNDLE.

- NOTES : 1. MAXIMUM AREA OF OPENING = 1024 SQ. IN., WITH A MAXIMUM DIMENSION OF 32".
2. ANNULAR SPACE BETWEEN NONMETALLIC PENETRATING ITEMS AND ALL OTHER PENETRATING ITEMS = MINIMUM 6".
3. ANNULAR SPACE BETWEEN ALL OTHER PENETRATING ITEMS = MINIMUM 4".
4. ANNULAR SPACE BETWEEN NONMETALLIC PENETRATING ITEMS AND PERIPHERY OF THE OPENING = MINIMUM 0".
5. ANNULAR SPACE BETWEEN ALL OTHER PENETRATING ITEMS AND PERIPHERY OF THE OPENING = MINIMUM 2".



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