

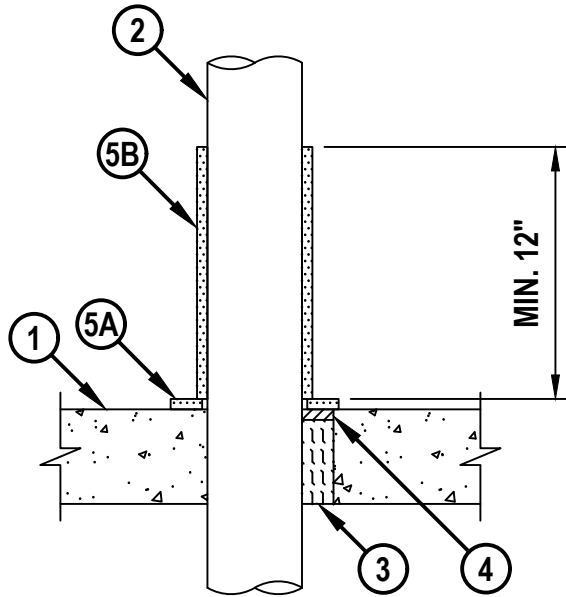
# METALLIC PIPE THROUGH CONCRETE FLOOR ASSEMBLY

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

T-RATING = 1-HR. OR 2-HR. (SEE TABLE BELOW)

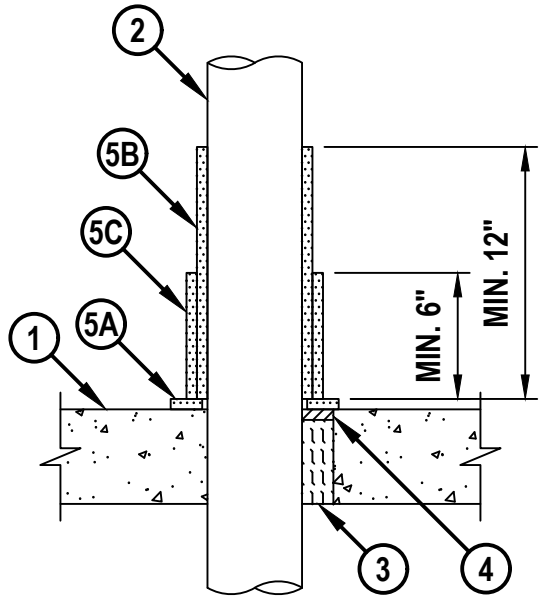
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**CROSS-SECTIONAL VIEW**



**1-HOUR T-RATING**

**CROSS-SECTIONAL VIEW**



**2-HOUR T-RATING**

**CONFIGURATION A (FOR PENETRANTS (ITEM 2) NOMINAL 4" DIAMETER AND SMALLER)**

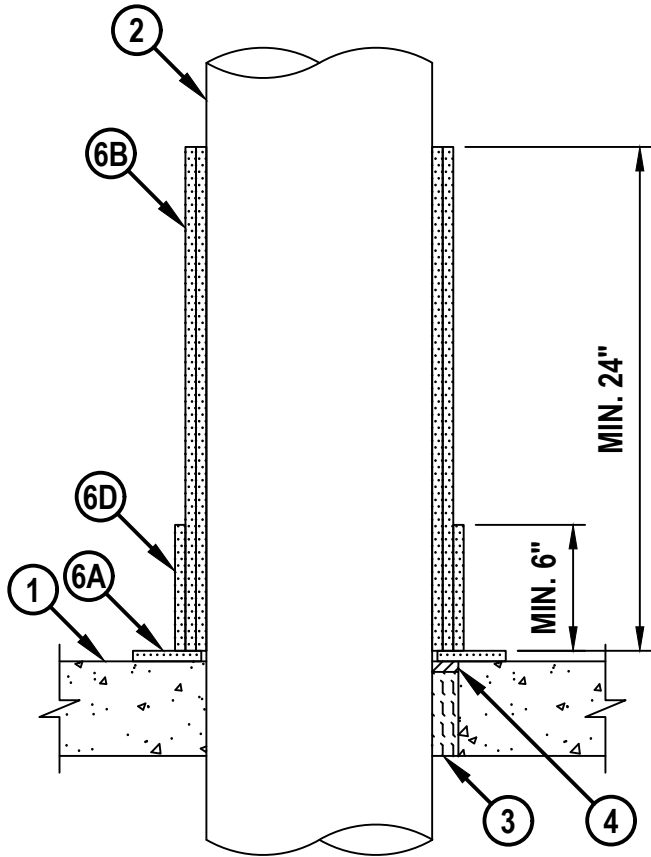
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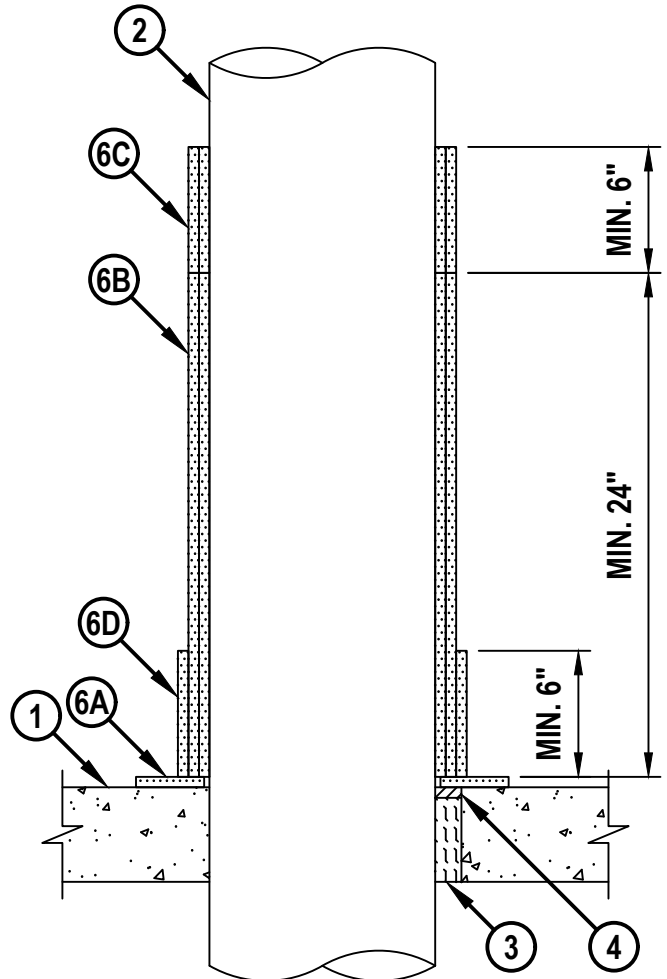
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## CROSS-SECTIONAL VIEW



### 1-HOUR T-RATING

## CROSS-SECTIONAL VIEW



### 2-HOUR T-RATING

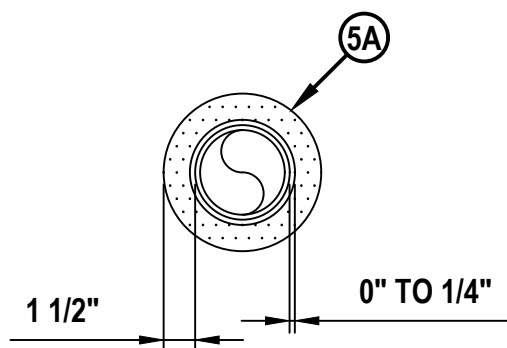
CONFIGURATION B (FOR PENETRANTS (ITEM 2) GREATER THAN NOMINAL 4" DIAMETER)

**METALLIC PIPE THROUGH CONCRETE FLOOR ASSEMBLY**

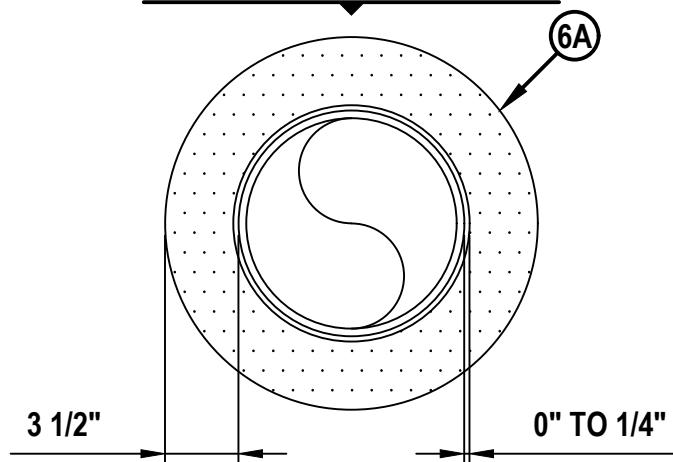
F-RATING = 1-HR. OR 2-HR.

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**SURFACE INSULATION DETAIL**

**CONFIGURATION A (FOR PENETRANTS (ITEM 2)  
NOMINAL 4" DIAMETER AND SMALLER)**

**SURFACE INSULATION DETAIL**

**CONFIGURATION B (FOR PENETRANTS (ITEM 2)  
GREATER THAN NOMINAL 4" DIAMETER)**

1. CONCRETE FLOOR ASSEMBLY (1-HR. OR 2-HR. FIRE-RATING) :
  - A. LIGHTWEIGHT OR NORMAL WEIGHT CONCRETE FLOOR (MINIMUM 4-1/2" THICK).
  - B. ANY UL/cUL CLASSIFIED PRECAST (HOLLOW-CORE) CONCRETE FLOOR (MINIMUM 6" THICK) (SEE NOTE NO. 4 BELOW).
2. PENETRATING ITEM TO BE ONE OF THE FOLLOWING:
  - A. MAXIMUM 10" NOMINAL DIAMETER STEEL PIPE (SCH 10 OR HEAVIER).
  - B. MAXIMUM 10" NOMINAL DIAMETER CAST OR DUCTILE IRON PIPE.
  - C. MAXIMUM 6" NOMINAL DIAMETER STEEL CONDUIT.
  - D. MAXIMUM 4" NOMINAL DIAMETER STEEL EMT.
3. MINIMUM 4" THICKNESS MINERAL WOOL (NOMINAL 4 PCF DENSITY) TIGHTLY PACKED AND RECESSED TO ACCOMMODATE SEALANT.
4. MINIMUM 1/2" DEPTH HILTI FS-ONE MAX INTUMESCENT FIRESTOP SEALANT, HILTI CP 606 FLEXIBLE FIRESTOP SEALANT, HILTI CFS-S SIL GG FIRESTOP SILICONE SEALANT, OR HILTI CFS-S SIL SL FIRESTOP SILICONE SEALANT FLUSH WITH TOP OF FLOOR.

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Scale 7/64" = 1"

Date June 13, 2024

Drawing No.

**FA**  
**1218d**

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UL/cUL SYSTEM NO. F-A-1218  
**METALLIC PIPE THROUGH CONCRETE FLOOR ASSEMBLY**  
F-RATING = 1-HR. OR 2-HR.  
T-RATING = 1-HR. OR 2-HR. (SEE TABLE BELOW)

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**CONFIGURATION A (FOR PENETRANTS (ITEM 2) NOMINAL 4" DIAMETER AND SMALLER)**

**5. HILTI CFP-ES ENDO-SHIELD INSTALLED AS FOLLOWS (SEE TABLE BELOW) :**

- A. SURFACE INSULATION - A SINGLE LAYER OF INSULATION TO BE CUT IN EITHER A CIRCULAR OR RECTANGULAR PATTERN AND SIZED A MINIMUM OF 3" LARGER THAN THE DIAMETER OF THE PENETRANT (ITEM 2) AND CUT IN HALF. ENDO-SHIELD THEN TO BE CUT TO CONTOUR AROUND PIPE SUCH THAT THE ANNULAR SPACE BETWEEN SURFACE INSULATION AND PENETRANT IS MINIMUM 0" TO MAXIMUM 1/4". SURFACE INSULATION TO BE PLACED FLAT ON CONCRETE FLOOR COVERING ANNULAR SPACE AND OVERLAPPING ONTO THE FLOOR ASSEMBLY. SEAMS WITHIN ENDO-SHIELD BORDER TO BE TIGHTLY BUTTED AND SEALED WITH NOMINAL 3" WIDE ALUMINUM TAPE.
- B. INITIAL LAYER - PIPE COVERING SHALL BE CONTINUOUSLY WRAPPED A MINIMUM ONE TIME AROUND THE PENETRANT OVERLAPPING A MINIMUM OF 2" BEYOND THE START OF THE FIRST LAYER BUTTED TIGHTLY TO THE TOP OF THE SURFACE INSULATION.
- C. COLLAR - WHEN REQUIRED PIPE COVERING SHALL BE CONTINUOUSLY WRAPPED A MINIMUM ONE TIME AROUND THE INITIAL LAYER OVERLAPPING A MINIMUM OF 2" BEYOND THE START OF THE FIRST LAYER BUTTED TIGHTLY TO THE TOP OF THE SURFACE INSULATION.
- D. [NOT SHOWN] SEAMS TO BE SEALED WITH MINIMUM 3" WIDE ALUMINUM TAPE OR FSK TAPE. IN ADDITION TO THE FSK TAPE ALONG THE ENTIRE VERTICAL SEAMS, AN OPTIONAL NO. 16 GAUGE STEEL WIRE MAY BE INSTALLED CENTERED ON THE VERTICAL HEIGHT SEAM ALONG THE OUTSIDE LAYER OF INSULATION.



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UL/cUL SYSTEM NO. F-A-1218  
**METALLIC PIPE THROUGH CONCRETE FLOOR ASSEMBLY**  
F-RATING = 1-HR. OR 2-HR.  
T-RATING = 1-HR. OR 2-HR. (SEE TABLE BELOW)

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**CONFIGURATION B (FOR PENETRANTS (ITEM 2) GREATER THAN NOMINAL 4" DIAMETER)**

**6. HILTI CFP-ES ENDO-SHIELD INSTALLED AS FOLLOWS (SEE TABLE BELOW) :**

- A. SURFACE INSULATION - A SINGLE LAYER OF INSULATION TO BE CUT IN EITHER A CIRCULAR OR RECTANGULAR PATTERN AND SIZED A MINIMUM OF 7" LARGER THAN THE DIAMETER OF THE PENETRANT (ITEM 2) AND CUT IN HALF. ENDO-SHIELD THEN TO BE CUT TO CONTOUR AROUND PIPE SUCH THAT THE ANNULAR SPACE BETWEEN SURFACE INSULATION AND PENETRANT IS MINIMUM 0" TO MAXIMUM 1/4". SURFACE INSULATION TO BE PLACED FLAT ON CONCRETE FLOOR COVERING ANNULAR SPACE AND OVERLAPPING A MINIMUM OF 2" ONTO THE FLOOR ASSEMBLY. SEAMS WITHIN ENDO-SHIELD BORDER TO BE TIGHTLY BUTTED AND SEALED WITH NOMINAL 3" WIDE ALUMINUM TAPE.
- B. INITIAL LAYERS - PIPE COVERING SHALL BE CONTINUOUSLY WRAPPED A MINIMUM TWO TIMES AROUND THE PENETRANT OVERLAPPING A MINIMUM OF 2" BEYOND THE START OF THE FIRST LAYER BUTTED TIGHTLY TO THE TOP OF THE SURFACE INSULATION.
- C. ADJACENT LAYERS - WHEN REQUIRED PIPE COVERING SHALL BE CONTINUOUSLY WRAPPED A MINIMUM OF TWO TIMES AROUND THE PENETRANT OVERLAPPING A MINIMUM OF 2" BEYOND THE START OF THE FIRST LAYER BUTTED TIGHTLY TO THE TOP OF THE INITIAL LAYERS.
- D. COLLAR - PIPE COVERING SHALL BE CONTINUOUSLY WRAPPED A MINIMUM ONE TIME AROUND THE INITIAL LAYERS OVERLAPPING A MINIMUM OF 2" BEYOND THE START OF THE FIRST LAYER BUTTED TIGHTLY TO THE TOP OF THE SURFACE INSULATION.
- E. [NOT SHOWN] SEAMS TO BE SEALED WITH MINIMUM 3" WIDE ALUMINUM TAPE OR FSK TAPE. IN ADDITION TO THE FSK TAPE ALONG THE ENTIRE VERTICAL SEAMS, AN OPTIONAL NO. 16 GAUGE STEEL WIRE MAY BE INSTALLED CENTERED ON THE VERTICAL HEIGHT SEAM ALONG THE OUTSIDE LAYER OF INSULATION.



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# METALLIC PIPE THROUGH CONCRETE FLOOR ASSEMBLY

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

T-RATING = 1-HR. OR 2-HR. (SEE TABLE BELOW)

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PENETRANT DIAMETER (IN.)	INITIAL INSULATION		ADJACENT INSULATION		COLLAR		F, T RATINGS
	LAYERS REQUIRED	HEIGHT (IN.)	LAYERS REQUIRED	HEIGHT (IN.)	LAYERS REQUIRED	HEIGHT (IN.)	
≤ 4	1	12	N/A	N/A	1	6	2
≤ 4	1	12	N/A	N/A	N/A	N/A	1
> 4 ≤ 10	2	24	2	6	1	6	2
> 4 ≤ 10	2	24	N/A	N/A	1	6	1

- NOTES : 1. MAXIMUM DIAMETER OF OPENING = 12" (7" IN PRECAST HOLLOW-CORE FLOOR ASSEMBLY).  
 2. ANNULAR SPACE = MINIMUM 0", MAXIMUM 1-1/2".  
 3. [NOT SHOWN] WHEN ANNULAR SPACE IS 0", APPLY NOMINAL 1/2" BEAD HILTI FS-ONE MAX, HILTI CP 606 OR HILTI CFS-S SIL GG AT POINT OF CONTACT BEFORE APPLICATION OF ENDO-SHIELD SURFACE INSULATION (ITEM 5A OR 6A). WHEN HILTI CFS-S SIL SL IS USED, BEAD OF SEALANT IS NOT REQUIRED.  
 4. FIRESTOP SEALANT REQUIRED TO BE INSTALLED FLUSH WITH TOP AND BOTTOM SURFACE OF FLOOR WHEN INSTALLED IN PRECAST (HOLLOW-CORE) CONCRETE.



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