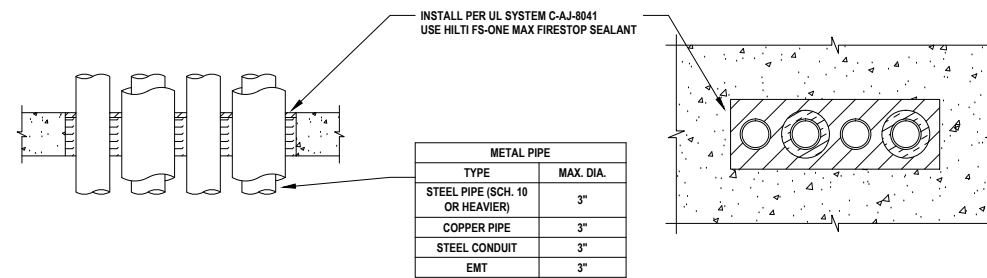


INSTALL PER UL SYSTEM C-AJ-1226
USE HILTI FS-ONE MAX FIRESTOP SEALANT

SLEEVE OPTIONAL

METAL PIPE	
TYPE	MAX. DIA.
STEEL PIPE (SCH. 10 OR HEAVIER)	30"
CAST IRON PIPE	30"
COPPER PIPE	6"
STEEL CONDUIT	6"
EMT	4"

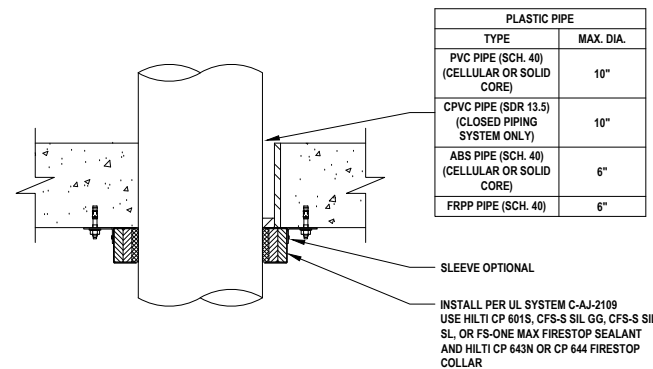
1 METAL PIPE THROUGH CONCRETE FLOOR (3-HR.)
M.1.3 NOT TO SCALE



INSTALL PER UL SYSTEM C-AJ-8041
USE HILTI FS-ONE MAX FIRESTOP SEALANT

METAL PIPE	
TYPE	MAX. DIA.
STEEL PIPE (SCH. 10 OR HEAVIER)	3"
COPPER PIPE	3"
STEEL CONDUIT	3"
EMT	3"

2 MULTIPLE METAL PIPES THROUGH CONCRETE FLOOR (3-HR.)
M.1.3 NOT TO SCALE

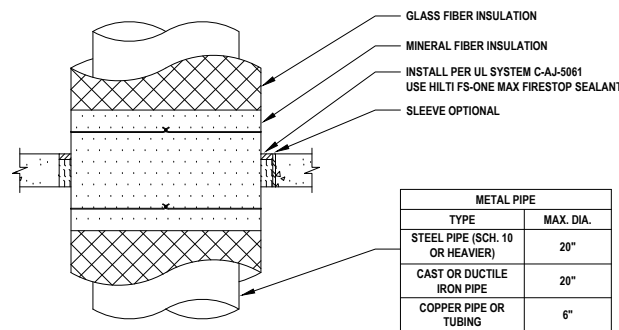


INSTALL PER UL SYSTEM C-AJ-2109
USE HILTI CP 601S, CFS-S SIL GG, CFS-S SIL SL, OR FS-ONE MAX FIRESTOP SEALANT AND HILTI CP 643N OR CP 644 FIRESTOP COLLAR

SLEEVE OPTIONAL

PLASTIC PIPE	
TYPE	MAX. DIA.
PVC PIPE (SCH. 40) (CELLULAR OR SOLID CORE)	10"
CPVC PIPE (SDR 13.5) (CLOSED PIPING SYSTEM ONLY)	10"
ABS PIPE (SCH. 40) (CELLULAR OR SOLID CORE)	6"
FRPP PIPE (SCH. 40)	6"

3 PLASTIC PIPE THROUGH CONCRETE FLOOR (3-HR.)
M.1.3 NOT TO SCALE

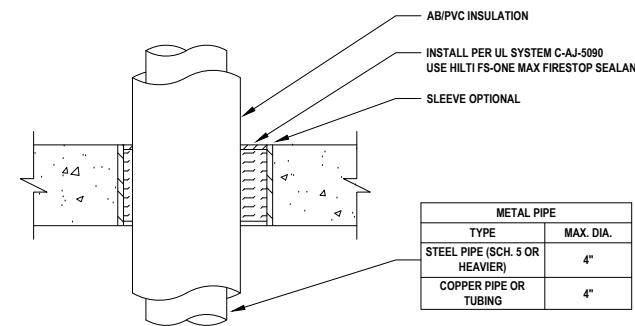


INSTALL PER UL SYSTEM C-AJ-5061
USE HILTI FS-ONE MAX FIRESTOP SEALANT

SLEEVE OPTIONAL

METAL PIPE	
TYPE	MAX. DIA.
STEEL PIPE (SCH. 10 OR HEAVIER)	20"
CAST OR DUCTILE IRON PIPE	20"
COPPER PIPE OR TUBING	6"

4 METAL PIPE WITH GLASS FIBER INSULATION THROUGH CONCRETE FLOOR (3-HR.)
M.1.3 NOT TO SCALE

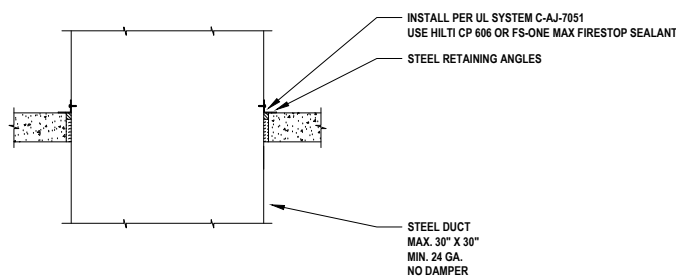


INSTALL PER UL SYSTEM C-AJ-5090
USE HILTI FS-ONE MAX FIRESTOP SEALANT

SLEEVE OPTIONAL

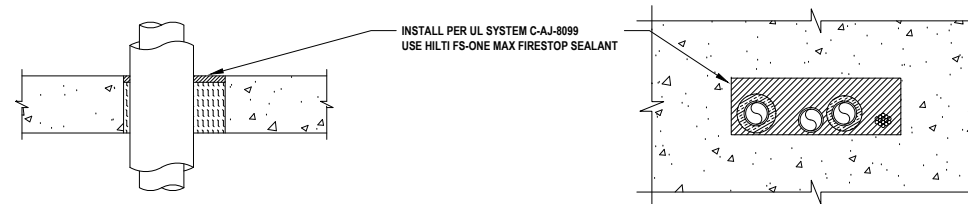
METAL PIPE	
TYPE	MAX. DIA.
STEEL PIPE (SCH. 5 OR HEAVIER)	4"
COPPER PIPE OR TUBING	4"

5 METAL PIPE WITH AB/PVC INSULATION THROUGH CONCRETE FLOOR (3-HR.)
M.1.3 NOT TO SCALE



STEEL DUCT
MAX. 30" X 30"
MIN. 24 GA.
NO DAMPER

6 METAL DUCT (WITHOUT DAMPER) THROUGH CONCRETE FLOOR (3-HR.)
M.1.3 NOT TO SCALE



INSTALL PER UL SYSTEM C-AJ-8099
USE HILTI FS-ONE MAX FIRESTOP SEALANT

7 MULTIPLE PENETRATIONS THROUGH CONCRETE FLOOR (3-HR.)
M.1.3 NOT TO SCALE

Notes:

- Refer to the following specifications for firestopping.
 - 07 84 00 Firestopping
 - 07 84 13 Penetration Firestopping
 - 22 00 00 Plumbing
 - 23 00 00 HVAC
 - 26 00 00 Electrical
 - 27 06 37 Communication

For Quality Control requirements, refer to the Quality Control portion of the specification.

- Details shown are typical details, containing general information only. Always refer to the full UL system detail for complete system requirements. If field conditions do not match requirements of details, approved alternate details shall be utilized. Design requirements, field conditions and dimensions need to be verified for compliance with the details, including but not limited to the following:
 - * Fire Rating (F-Rating)
 - * Temperature Rating (T-Rating)
 - * Leakage Rating (L-Rating)
 - * Water Rating (W-Rating)
 - * Annular Space
 - * Percent Fill
 - * Movement
 - * Type and thickness of fire-rated construction.

- If alternate details matching the field conditions are not available, manufacturer's engineering judgment drawings are acceptable. Contact Hilti Inc. for alternative systems or Engineering Judgment (800-879-8000) Drawings shall follow the International Firestop Council (IFC) Guidelines for Evaluating Firestop Systems Engineering Judgments.

4. References:

- * 2013 Underwriter's Laboratories Fire Resistance Directory, Volumes 1 & 2
- * NFPA 101 Life Safety Code
- * NFPA 70 - National Electric Code
- * All governing local and regional building codes

- Firestop System installation must meet requirements of ASTM E-814 (UL 1479) tested assemblies that provide a fire rating equal to that of construction being penetrated.

- All rated through-penetration assemblies shall be prominently labeled with a Hilti Firestop Label equipped with a QR code with the following information:
 - * Warning! - Do Not Disturb
 - * Through Penetration Firestop System
 - * UL System # * Product(s) used
 - * Hourly Rating (F-Rating)
 - * Installation Date
 - * Contractor's Name

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- * Hourly Rating (F-Rating)
- * Installation Date
- * Contractor's Name

- For outlet boxes requiring protection, use only Wall Opening Protective Materials, category CLIV as classified by Underwriter's Laboratories, Fire Resistance Directory (Volume 1.)

<Notes to designer (delete this note after reading and replace with title block information)>
 1. Any modification to these details could result in an application/system not meeting the UL or Intertek Classification or the intended temperature or fire ratings.
 2. Details shown are up to date as of February 2015.
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REVISIONS: _____

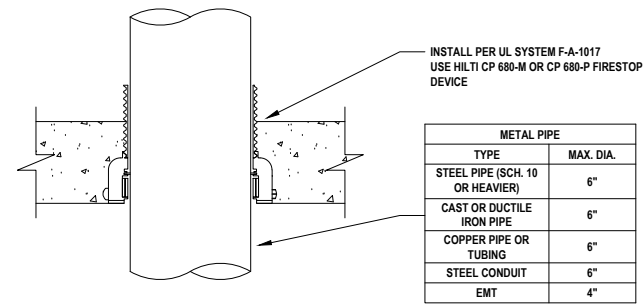
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MECHANICAL PENETRATIONS
FLAT CONCRETE FLOOR
3 HR.

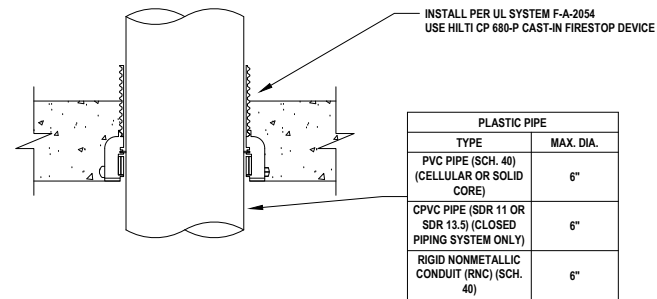
SHEET NAME: _____

M.1.3

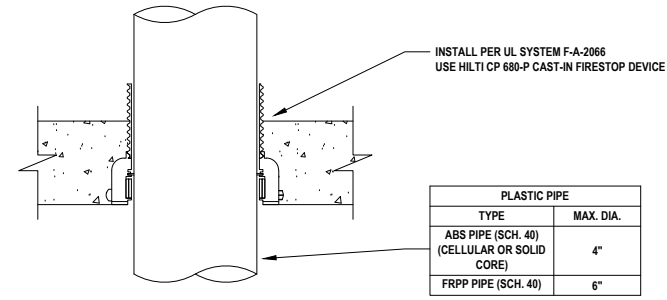
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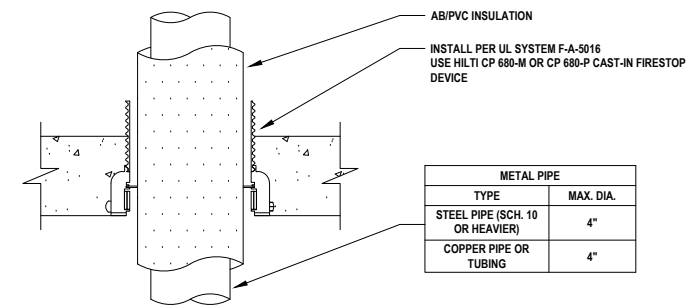
1 METAL PIPE THROUGH CONCRETE FLOOR (3-HR.)
M.1.4 NOT TO SCALE



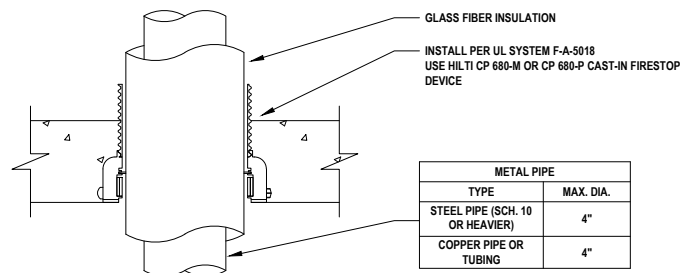
2 PLASTIC PIPE THROUGH CONCRETE FLOOR (3-HR.)
M.1.4 NOT TO SCALE



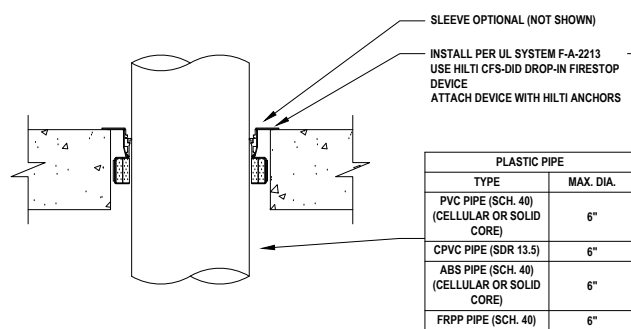
3 PLASTIC PIPE THROUGH CONCRETE FLOOR (3-HR.)
M.1.4 NOT TO SCALE



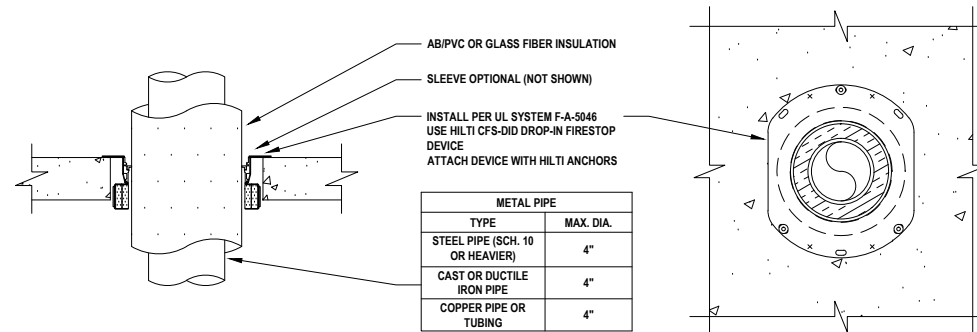
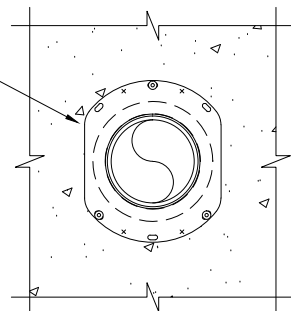
4 METAL PIPE WITH AB/PVC INSULATION THROUGH CONCRETE FLOOR (3-HR.)
M.1.4 NOT TO SCALE



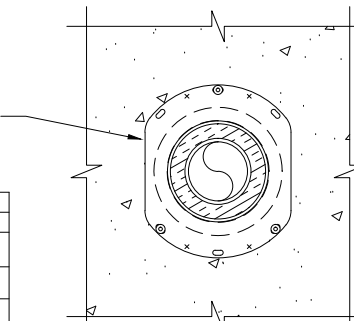
5 METAL PIPE WITH GLASS FIBER INSULATION THROUGH CONCRETE FLOOR (3-HR.)
M.1.4 NOT TO SCALE



6 PLASTIC PIPE THROUGH CONCRETE FLOOR (3-HR.)
M.1.4 NOT TO SCALE



7 METAL PIPE WITH AB/PVC OR GLASS FIBER INSULATION THROUGH CONCRETE FLOOR (3-HR.)
M.1.4 NOT TO SCALE



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MECHANICAL PENETRATIONS
FLAT CONCRETE FLOOR
3 HR.

SHEET NAME: _____

M.1.4

SHEET NUMBER: _____