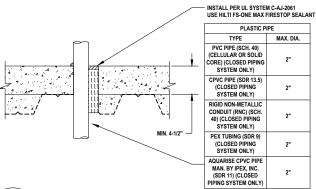


METAL PIPE THROUGH CONCRETE OVER METAL DECKING \(2-HR.) NOT TO SCALE E.3.1



PLASTIC PIPE THROUGH CONCRETE OVER METAL DECKING 3 \(2-HR.) NOT TO SCALE

INSTALL PER III SYSTEM C-A.I-1513 USE HILTI FS-ONE MAX FIRESTOP SEALANT METAL PIPE TYPE MAX. DIA. OMEGA FLEX. INC. OR WARD MFG.. INC FLEXIBLE STEEL GAS PIPING GASTITE, DIVISION O TITEFLEX, FLEXIBLE

STEEL GAS PIPING

INSTALL PER UL SYSTEM C-AJ-3216

CABLE BUNDLE CONSISTS OF:

METAL-CLAD CABLE WITH PVC JACKET

METAL-CLAD TEK

CABLE WITH PVC JACKET

LUMINUM SER CABLE

COAXIAL CABLE WITH PE INSULATION AND

3/C NO. 12 AWG

1" DIA

MAX.

300 PAIR

750 KCMIL

7/C NO. 12

1/2" DIA.

TELEPHONE CARLE

WITH PVC INSULATION AND JACKET

POWER CABLE WITH

THERMOPLASTIC INSULATION AND PVC

JACKET

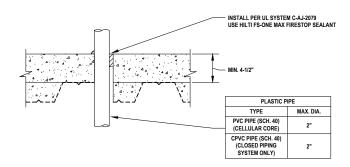
POWER CABLE WITH

PVC OR XLPE

INSULATION AND PVC

JACKET

2 \MULTIPLE METAL PIPE THROUGH CONCRETE OVER METAL DECKING (2-HR.) NOT TO SCALE E.3.1



PLASTIC PIPE THROUGH CONCRETE OVER METAL DECKING \(2-HR.) E.3.1 NOT TO SCALE

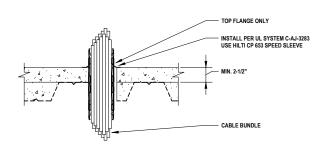
		INSTALL PER UL SYSTEM C USE HILTI FS-ONE MAX FIRE SLEEVE OPTIONAL MIN. 2-1/2*	
มาเ	TT.	CABLE BUNDLE	

		CONSISTS OF:		
	TYPE	MAX.	TYPE	MAX.
LAN1	TELEPHONE CABLE WITH PVC JACKET	300 PAIR NO. 24 AWG	METAL-CLAD CABLE	3/C NO. 12 AWG
	POWER CABLE WITH PVC JACKET (COPPER CONDUCTOR)	500 KCMIL	COPPER CONDUCTOR SER CABLE WITH PVC JACKET	3/C (+GROUND) 2/0 AWG
	POWER CABLE WITH PVC JACKET (ALUMINUM OR COPPER CONDUCTOR)	350 KCMIL	COAXIAL CABLE WITH FLUORINATED ETHYLENE JACKET	RG/U
	POWER CABLE WITH PVC JACKET	7/C NO. 12 AWG	CABLE WITH PVC JACKET	3/C NO. 6 AWG
	FIBER OPTIC CABLE (24 FIBER)	1/2" DIA.	SINGLE OR MULTIPLE CONDUCTOR TYPE MI CABLE (MIN. 1/8" SEPERATION BETWEEN MI CABLES AND ANY OTHER TYPES OF CABLE)	1-1/4" DIA.

USE HILTI CFS-PL FIRESTOP PLUG SLEEVE OPTIONAL - CABLE BUNDLE

6 CABLE BUNDLE THROUGH CONCRETE OVER METAL DECKING (2-HR.) NOT TO SCALE E.3.1

CABLE BUNDLE THROUGH CONCRETE OVER METAL DECKING (2-HR.) NOT TO SCALE E.3.1



	CABLE BUNDLE CONSISTS OF:		
TYPE	MAX.	TYPE	MAX.
TELEPHONE CABLE WITH PVC JACKET	100 PAIR NO. 24 AWG	FIBER OPTIC CABLE (24 FIBER) WITH PVC OR PE JACKET AND INSULATION	1/2" DIA.
COPPER CONDUCTOR CONTROL CABLE WITH PVC OR XLPE JACKET AND INSULATION	7/C NO. 12 AWG	SHIELDED PRINTER CABLE WITH PVC JACKET	20/C NO. 22 AWG
SHIELDED PRINTER CABLE WITH PVC JACKET	4/0 AWG	POWER OR NON-POWER LIMITED FIRE ALARM CABLE WITH OR WITHOUT METAL JACKET (MAN. BY AFC CABLE SYSTEMS, INC.)	2/C NO. 18 AWG
COMPUTER CABLE	4 PAIR NO. 22 AWG CAT 6	S-VIDEO CABLE CONSISTING OF MAX. 24 AWG 75 OHM COAX OR TWISTED PAIR CABLE WITH PE INSULATION AND PVC JACKET	1/4" DIA.
COAXIAL CABLE	RG 6/U		

1. Refer to the following specifications for firestopping. a. 07 84 00 Firestopping

b. 07 84 13 Penetration Firestopping

c. 22 00 00 Plumbing

d. 23 00 00 HVAC

e. 26 00 00 Electrical

f. 27 06 37 Communication

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

2. 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.

3. 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 5. Firestop System installation must meet requirements of ASTM

E-814 (UL 1479) tested assemblies that provide a fire rating egual 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

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

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ELECTRICAL PENETRATIONS CONCRETE OVER METAL DECK 2 HR.

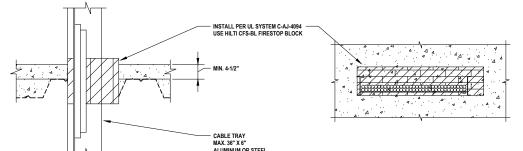
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SHEET NUMBER:

CABLE BUNDLE THROUGH CONCRETE OVER METAL DECKING (2-HR.)

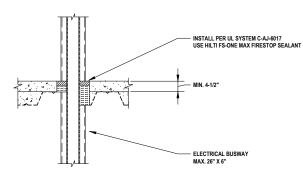
NOT TO SCALE E.3.1

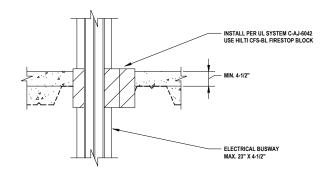
E.3.1



C	ABLE BUNDLE	CONSISTS OF:	
TYPE	MAX.	TYPE	MAX.
TELEPHONE CABLE WITH PVC JACKET	300 PAIR NO. 24 AWG	METAL-CLAD CABLE	3/C NO. 12 AWG
SINGLE CONDUCTOR POWER CABLE WITH PVC JACKET	750 KCMIL	POWER CABLE WITH PVC JACKET	7/C NO. 12 AWG
FIBER OPTIC CABLE (24 FIBER) WITH PVC JACKET	1/2" DIA.		

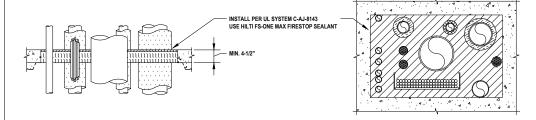
CABLE TRAY THROUGH CONCRETE OVER METAL DECKING (2-HR.) E.3.2





ELECTRICAL BUSWAY THROUGH CONCRETE OVER METAL DECKING (2-HR.) NOT TO SCALE E.3.2

ELECTRICAL BUSWAY THROUGH CONCRETE OVER METAL DECKING (2-HR.) E.3.2 NOT TO SCALE



\MULTIPLE PENETRATIONS THROUGH CONCRETE OVER METAL DECKING (2-HR.) E.3.2

Notes:

- Refer to the following specifications for firestopping.
 - a. 07 84 00 Firestopping
 - b. 07 84 13 Penetration Firestopping
 - c. 22 00 00 Plumbing
 - d. 23 00 00 HVAC e. 26 00 00 Electrical

 - f. 27 06 37 Communication

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

- 2. 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.
- 3. 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:

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- * NFPA 70 National Electric Code
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- equal to that of construction being penetrated. 6. 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
- 7. For outlet boxes requiring protection, use only Wall Opening Protective Materials, category CLIV as classified by Underwriter's Laboratories, Fire Resistance Directory (Volume 1.)

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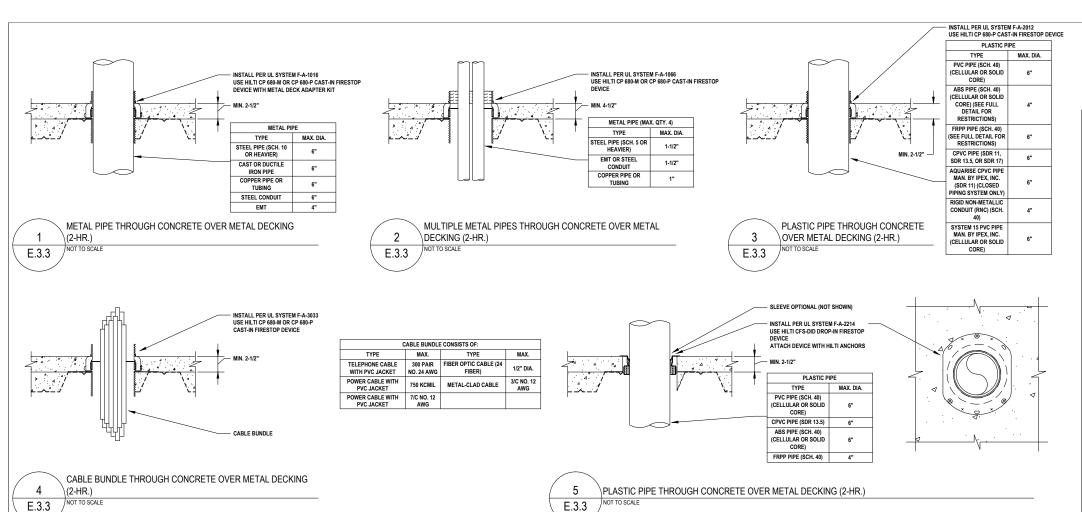
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ELECTRICAL PENETRATIONS CONCRETE OVER METAL DECK 2 HR.

SHEET NAME:

SHEET NUMBER:



Notes:

1. Refer to the following specifications for firestopping.

a. 07 84 00 Firestopping

b. 07 84 13 Penetration Firestopping

c. 22 00 00 Plumbing d. 23 00 00 HVAC

e. 26 00 00 Electrical

f. 27 06 37 Communication

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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.

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6. 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

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

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ELECTRICAL PENETRATIONS CONCRETE OVER METAL DECK 2 HR.

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