Note:
1. Refer to the following specifications for firestopping:
   a. NFPA 72-2007 Notification
   b. NFPA 72-2007 Notification
   c. NFPA 72-2007 Notification
   d. NFPA 72-2007 Notification
   e. NFPA 72-2007 Notification

2. Details shown are typical details, containing general information only. Always refer to the full UL system detail for complete system requirements. If test conditions do not match requirements of details, approved alternate details shall be utilized. Design requirements, test 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)
   - Load Rating (L-Rating)
   - Mechanical Loading (M-Rating)
   - Aramid Sheet
   - Pressure Fill
   - Movement
   - Type and finish of the firestop construction.

3. Reference details matching the field conditions are not available. Manufacturer's engineering judgment drawings are acceptable.

4. All governing local and regional building codes.

5. Firestop System installation must meet requirements of ASTM E144 UL (1970) tested assemblies that provide a fire rating equal to that of construction being penetrated. Design requirements, test conditions and dimensions need to be verified for compliance with the details, including but not limited to the following:
   - Temperature Rating (T-Rating)
   - Load Rating (L-Rating)
   - Mechanical Loading (M-Rating)
   - Aramid Sheet
   - Pressure Fill
   - Movement
   - Type and finish of the firestop construction.

6. Refer to the following specifications for firestopping:

7. For cable trays requiring protection, use only Wall Opening Protective Materials, category CLIV as classified by Underwriter's Laboratories, Fire Resistance Directory (Volume 1).
E.1.2 ELECTRICAL PENETRATIONS

1. CABLE TRAY THROUGH CONCRETE FLOOR (2-HR.)
   - INSTALL PER UL SYSTEM C-AJ-6042
   - USE HILTI CFS-BL FIRESTOP BLOCK
   - CABLE TRAY
   - MAX. 36" X 6"
   - ALUMINUM OR STEEL
   - OPEN LADDER

2. ELECTRICAL BUSWAY THROUGH CONCRETE FLOOR (2-HR.)
   - INSTALL PER UL SYSTEM C-AJ-6017
   - USE HILTI FS-ONE MAX FIRESTOP SEALANT
   - ELECTRICAL BUSWAY
   - MAX. 26" X 6"

3. ELECTRICAL BUSWAY THROUGH CONCRETE FLOOR (2-HR.)
   - INSTALL PER UL SYSTEM C-AJ-8143
   - USE HILTI FS-ONE MAX FIRESTOP SEALANT
   - ELECTRICAL BUSWAY
   - MAX. 23" X 4-1/2"

4. MULTIPLE PENETRATIONS THROUGH CONCRETE FLOOR (2-HR.)
   - INSTALL PER UL SYSTEM C-AJ-6042
   - USE HILTI CFS-BL FIRESTOP BLOCK

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
   - Always refer to the UL system details 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.

2. Details shown are typical details, containing general information only. Always refer to the UL system details for complete system requirements.

3. Details shown may not be applicable to all conditions. 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:

4. Reference:
   1211 Underwriter's Laboratories Fire Resistance Directory: Volumes 1 & 2
   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

5. Specifications and requirements may be subject to change. For quality control requirements, refer to the Quality Control portion of the specification.

6. Details shown are typical details, containing general information only. Always refer to the UL system details 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:

7. If alternate details matching the field conditions are not available, manufacturer's engineering judgment drawings are acceptable.

8. References:
   c. NFPA 70 - National Electric Code
   d. All governing local and regional building codes
### Contents:

**Sheet Name:** 2 HR. FLAT CONCRETE FLOOR

#### Laberatories, Fire Resistance Directory (Volume 1.)

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

#### Protective Materials

- **3. If alternate details matching the field conditions are not available,**
  - utilize. Design requirements, field conditions and dimensions **need to be verified for compliance with the details, including but not limited to the following:**
  - Type and thickness of fire-rated construction.
  - Movement
  - Percent Fill
  - Water Rating (W-Rating)
  - Leakage Rating (L-Rating)
  - Temperature Rating (T-Rating)
  - Fire Rating (F-Rating)
  - Type and thickness of fire-rated construction.

#### Notes:

- **Reference 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)
  - Drawing shall follow the International Firestop Council (IFC) Guidelines for Evaluating Firestop Systems Engineering Judgments.

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

### Key Points:

- **Details shown are typical details, containing general information only.**
- **Refer to the NFU system detail for complete system requirements.**
- **Design requirements, field conditions and dimensions need to be verified for compliance with the details, including but not limited to the following:**
- **Free Rating (F-Rating)**
- **Temperature Rating (T-Rating) **
- **Leakage Rating (L-Rating)**
- **Arc Flash Rating (AFR)**
- **Annular Space**
- **Penetration**
  - **Microvent**

### Additional Information:

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

### Diagrams:

1. **Metal Pipe Through Concrete Floor (2-HR.)**
2. **Multiple Metal Pipes Through Concrete Floor (2-HR.)**
3. **Plastic Pipe Through Concrete Floor (2-HR.)**
4. **Cable Bundle Through Concrete Floor (2-HR.)**
5. **Plastic Pipe Through Concrete Floor (2-HR.)**