1. Any modification to these details could result in an application/system not meeting the firestop or fire ratings.

2. Details shown are up to date as of February 2015.

3. If alternate details matching the field conditions are not available, approved alternate details shall be used. Design requirements, field conditions and dimensions need to be verified for compliance with the details, including but not limited to the following:

   a. Fire Rating (F-Rating)
   b. Leakage Rating (L-Rating)
   c. Temperature Rating (T-Rating)
   d. Water Rating (W-Rating)
   e. Percent Fill
   f. Type and thickness of fire-rated construction.

4. References:

   b. NFPA 70, National Electric Code
   c. NFPA 251, Standard for Fire Testing of Fire Protection Systems and Elements
   d. UL 1709, Standard for Fire Test for Penetration Firestops

5. Firestop System installation must meet requirements of ASTM E-144 (UL 1709), listed assemblies that provide a fire rating equal to that of construction being penetrated. Installation must be prominently labeled with a Hilti Firestop Label equipped with a QR code with the following information:

   - Warning: Do Not Detach
   - Through Penetration Firestop System
   - UL System # (Product ID)
   - Hourly Rating (F-Rating)
   - Installation Date
   - Hourly Rating 
   - Type of Firestop
   - Type and thickness of fire-rated construction.

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 Detach
   - Through Penetration Firestop System
   - UL System # (Product ID)
   - Hourly Rating (F-Rating)

7. For outlet boxes requiring protection, use only Wall Opening Protection Devices, category 2.0, as classified by Underwriters Laboratories, Fire Resistance Directory (Volume 1).
1. MULTIPLE CABLE BUNDLES THROUGH CONCRETE WALL (3-HR.)

2. CABLE BUNDLE THROUGH CONCRETE FLOOR/WALL (2-HR.)

3. CABLE BUNDLE THROUGH CONCRETE FLOOR/WALL (3-HR.)

4. CABLE BUNDLE THROUGH CONCRETE FLOOR/WALL (2-HR.)

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**Table:**

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**Notes:**

1. Refer to the following specifications for firestopping:
   - UL 2079: Firestopping
   - NFPA 80: Ventilation
   - NFPA 150: Vertical Chutes
   - NFPA 250: Underground Enclosures
   - NFPA 300: Smoke Protection
   - NFPA 301: Life Safety Code

2. Dimensions and materials listed are approximate and may vary 5%. Always refer to the full UL system detail for complete firestopping requirements.

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 Judgments (BJS-JTS-RS5). Drawings shall follow the International Firestop Council (IFC) Guidelines for Evaluating Firestop System Engineering Judgments.

4. References:
   - NFPA 250: Underground Enclosures
   - NFPA 220: Underground Electric Cables
   - NFPA 251: Electrical Code
   - NFPA 252: National Electric Code
   - NFPA 253: National Electric Code

5. Firestop System installation must meet requirements of ASTM E-1414 and NFPA-70. System shall be identified with a UL listing label or a UL listing number.

6. Refer to the following specifications for firestopping:
   - UL 2079: Firestopping
   - NFPA 80: Ventilation
   - NFPA 150: Vertical Chutes
   - NFPA 250: Underground Enclosures
   - NFPA 300: Smoke Protection
   - NFPA 301: Life Safety Code

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