1. Any modification to these details could result in an application/system not meeting the 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)
   - Pressure Test
   - Movement
   - Type and Finish of fire-resistant construction.

2. Details shown are typical details, containing general information only. Always refer to the 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)
   - Pressure Test
   - Movement
   - Type and Finish of fire-resistant 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:
   - UL 2715, Underwriter’s Laboratories Fire Resistance Directory, Volume 1 & 2
   - NFPA 70 - National Electric Code
   - USG 93, American Iron and Steel Institute
   - USG 94, Copper Development Association
   - USG 95, The Glass Association
   - USG 96, The Tubular Steel Institute
   - USG 97, The Steel Pipe Institute
   - USG 98, The Steel Pipe Institute
   - USG 99, The Steel Pipe Institute
   - USG 100, The Steel Pipe Institute

5. Firestop System installation must meet requirements of ASTM E-814 tested assemblies that provide a fire rating 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:
   - 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)

7. For useful losses requiring protection, use only Wall Opening Protective Materials, category (25) as classified by Underwriter’s Laboratories, Fire Resistance Directory (Volume 1).
Notes:
1. Refer to the following specifications for firestopping:
   - Refer to NFPA 70 - National Electric Code
   - NFPA 20 - Underground Water Supply Systems
   - NFPA 13 - Standard for the Installation of Sprinkler Systems
   - NFPA 13D - Standard for the Installation of Sprinkler Systems for One- and Two-Family Dwellings and Other Small Buildings
   - NFPA 14 - Standard for the Installation of Standpipe and Hose Systems
   - NFPA 25 - Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems
   - NFPA 72 - Emergency and Evacuation Signaling Systems
   - NFPA 90B - Standard for the Fire Protection of Central Station Fire Alarm Systems
   - NFPA 96 - Ventilation Design for Commercial Kitchens

2. Details shown are typical details, containing general information only. They are intended for pre-fabrication of pre-assembled components. Engineering judgment drawings are acceptable. Note: All governing local and regional building codes must be verified for compliance with the details. The manufacturer's engineering judgment drawings must be reviewed by a licensed architect or engineer. Always refer to the full UL system detail for complete 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:
   - Type and thickness of fire-rated construction.
   - Movement
   - Type and thickness of fire-resistant application or material.
   - Type and thickness of fire-resistant application or material.

3. Firestop System installation must meet requirements of ASTM E1443 (1997) for firestopping. Details shown are typical details, containing general information only. All governing local and regional building codes must be verified for compliance with the details. The manufacturer's engineering judgment drawings must be reviewed by a licensed architect or engineer. Always refer to the full UL system detail for complete 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:
   - Type and thickness of fire-rated construction.
   - Movement
   - Type and thickness of fire-resistant application or material.

4. References:
   - Underwriters Laboratories Fire Resistance Directory, Volumes 1 & 2
   - NFPA 20 - Underground Water Supply Systems
   - NFPA 13 - Standard for the Installation of Sprinkler Systems
   - NFPA 13D - Standard for the Installation of Sprinkler Systems for One- and Two-Family Dwellings and Other Small Buildings
   - NFPA 14 - Standard for the Installation of Standpipe and Hose Systems
   - NFPA 25 - Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems
   - NFPA 72 - Emergency and Evacuation Signaling Systems
   - NFPA 90B - Standard for the Fire Protection of Central Station Fire Alarm Systems
   - NFPA 96 - Ventilation Design for Commercial Kitchens

5. Firestop System installation must meet requirements of ASTM E1443 (1997) for firestopping. Details shown are typical details, containing general information only. All governing local and regional building codes must be verified for compliance with the details. The manufacturer's engineering judgment drawings must be reviewed by a licensed architect or engineer. Always refer to the full UL system detail for complete 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:
   - Type and thickness of fire-rated construction.
   - Movement
   - Type and thickness of fire-resistant application or material.

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