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.

3. For additional information on the details, refer to the most current "Underwriter's Laboratories Fire Resistance Directory (volume 2.)"

Notes:

1. Refer to the following specifications for firestopping:
   a. 07 84 00 Firestopping
   b. 07 84 13 Penetration Firestopping
   c. 07 84 43 Joints Firestopping
   d. 20 00 00 Plumbing
   e. 23 00 00 HVAC
   f. 26 00 00 Electrical
   g. 27 05 30 Communication Systems

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

2. Details shown are typical details. Always refer to the listed 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 subject to approval by the Authority Having Jurisdiction (AHJ). Contact Hilti Inc. for alternative systems or Engineering Judgments.

4. References:
   c. NFPA 70 – National Electric Code
   d. 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 equal or greater 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 3).

Current as of November 29, 2017. System details subject to change without notice.
1. Refer to the following specifications for firestopping:
   a. 07 84 00 Firestopping
   b. 07 84 15 Penetration Firestopping
   c. 07 84 45 Joints Firestopping
   d. 23 00 00 HVAC
   e. 26 00 00 Electrical
   f. 27 05 37 Communication Systems

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

2. Details shown are typical details. Always refer to the listed 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 subject to approval by the Authority Having Jurisdiction (AHJ). Contact Hilti Inc. for approval by the Authority Having Jurisdiction (AHJ) or Firestop Council (IFC) Guidelines for Evaluating Firestop Systems Engineering Judgments.

4. References:
   c. NFPA 70 – National Electric Code
   d. 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 equal or greater 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:
   a. Warning - Do Not Disturb
   b. Through Penetration Firestop System
   c. UL System #
   d. Product(s) used
   e. Hourly Rating (F-Rating)
   f. Installation Date
   g. Contractor’s Name

7. For outlet boxes requiring protection, use only Wall Opening Protective Materials, category CL IV as classified by Underwriter’s Laboratories, Fire Resistance Directory (Volume 3).

Current as of November 19, 2017. System details subject to change without notice.
5.1. Refer to the following specifications for firestopping:
   a. 07-04-00 Firestopping
   b. 07-04-11 Penetration Firestopping
   c. 07-04-43 Joint Firestopping
   d. 12-03-00 Plumbing
   e. 23-00-00 HVAC
   f. 23-00-00 Electrical
   g. 27-05-37 Communication Systems

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

2. Details shown are typical details. Always refer to the listed 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 alternate details shall be utilized. If alternate details do not match field conditions that do not match requirements of details, approved alternate details shall be utilized. If alternate details do not match requirements of details, approved alternate details shall be utilized.

If alternate details matching the field conditions are not available, manufacturer's engineering judgment drawings are acceptable subject to approval by the Authority Having Jurisdiction (AHJ). Contact Hilti Inc. for alternative systems or Engineering Judgment (800-679-9000). Drawings shall follow the International Firestop Council (IFC) Guidelines for Evaluating Firestop Systems Engineering Judgments.

4. Reference:
   c. NFPA 70 – National Electric Code
   d. 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 equal or greater than 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:
   a. Warning – Do Not Disturb Through Penetration Firestop System
   b. UL System #
   c. Product(s) used
   d. Hourly Rating (F-Rating)
   e. Installation Date
   f. 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 3).

Current as of November 19, 2017. System details subject to change without notice.
1. Floor Assembly — The 1 hr fire-rated wood joist, wood truss or combination wood and steel truss Floor-Ceiling assembly shall be constructed of the materials and in the manner described in the individual L500 Series Floor-Ceiling Design in the UL Fire Resistance Directory and shall include the following construction features:

A. Flooring System — Lumber or plywood subfloor with finish floor of lumber, plywood or Floor Topping Mixture* as specified in the individual Floor-Ceiling Design.

B. Wood Joists — Nom 10 in. (254 mm) deep (or deeper) lumber, steel or combination lumber and steel joists, trusses or Structural Wood Members* with bridging as required and with ends firestopped.

C. Gypsum Board* — Nom 4 ft. (122 cm) wide by 5/8 in. (16 mm) thick as specified in the individual Floor-Ceiling Design.

2. Wall Assembly — The 1 hr fire rated gypsum board/lumber stud wall assembly shall be constructed of the materials and in the manner described in the individual U300 Series Wall and Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:

A. Studs — Wall framing to consist of nom 2 by 4 in. (51 by 102 mm) lumber spaced 16 in. (406 mm) OC. Top plate installed parallel or perpendicular to direction of wood joists and secured to bottom of joists with steel fasteners spaced max 24 in. (610 mm) OC.

B. Gypsum Board* — Gypsum board sheets installed to a min total thickness of 5/8 in. (16 mm) on each side of wall. Wall to be constructed as specified in the individual Wall and Partition Design in the UL Fire Resistance Directory, except that a max 1/2 in. (13 mm) gap shall be maintained between the top of the gypsum board and the ceiling of the floor-ceiling assembly.

3. Joint System — Fill, Void or Cavity Material* — Sealant — Max separation between the bottom of the ceiling and the top of the wall is 1/2 in. (13 mm). Min 5/8 in. (16 mm) thickness of fill material installed to fill the joint, flush with each surface of the wall.

* Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.