SECTION 07 8400

FIRESTOPPING

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LANL MASTER SPECIFICATION

This template must be edited for each project.  In doing so, specifier must add job-specific requirements.  Brackets are used in the text to indicate designer choices or locations where text must be supplied by the designer.  Once the choice is made or text supplied, remove the brackets.  The specifications must also be edited to delete specification requirements for processes, items, or designs that are not included in the project -- and specifier’s notes such as these.  To seek a variance from requirements in the specifications that are applicable, contact the Engineering Standards Manual Fire [POC](http://engstandards.lanl.gov/POCs.shtml#fire). Please contact POC with suggestions for improvement as well.  
  
When assembling a specification package, include applicable specifications from all Divisions, especially Division 1, General requirements.  
  
Specification developed for ML-4 projects.  For ML-1, 2, and 3 applications, additional requirements and independent reviews should be added if increased confidence in procurement or execution is desired; see ESM Chapter 1 Section Z10 Specifications and Quality sections.  
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1. GENERAL
   1. summary
      1. SECTION INCLUDES
         1. Firestopping membrane and through-penetrations of fire rated assemblies.
         2. Firestopping (fire-resistant) joints in fire rated assemblies.
         3. Smoke sealing in vertical and horizontal smoke barriers and smoke partitions.
      2. RELATED SECTIONS
         1. Section 09 2116 - *Gypsum Board Systems*: Gypsum board fireproofing.
         2. Division 22 - Plumbing work requiring firestopping.
         3. Division 23 - HVAC work requiring firestopping.
         4. Division 26 - Electrical work requiring firestopping.
         5. Division 27 – Communications work requiring firestopping.
         6. Division 28 – Electronic Safety and Security work requiring firestopping.
   2. REFERENCES

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List reference standards included within text of this section. Edit the following for Project conditions. Differing tests are utilized by manufactures in qualifying similar products to regulatory agency performance criteria.

For FOD 1 (TA-55), add to below listing:

1. LANL FOD Procedures

* + - 1. TA55-AP-123 – TA-55 Fire Barrier Program
      2. TA55-AP-124 – Penetration Numbering and Labeling

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* + - 1. ASTM International
         1. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials
         2. ASTM E119 - Standard Test Methods for Fire Tests of Building Construction and Materials
         3. ASTM E814 - Standard Test Method for Fire Tests of Through-Penetration Fire Stops
         4. ASTM E1399 - Standard Test Method for Cyclic Movement and Measuring the Minimum and Maximum Joint Widths of Architectural Joint Systems
         5. ASTM E1966 - Standard Test Method for Fire-Resistive Joint Systems.
         6. ASTM E2174 - Standard Practice for On-Site Inspection of Installed Firestops
         7. ASTM E2307 - Standard Test Method for Determining Fire Resistance of Perimeter Fire Barriers Using Intermediate-Scale, Multi-Story Test Apparatus.
         8. ASTM E2393 – Standard Practice for On-Site Inspection of Installed Fire Resistive Joint Systems and Perimeter Fire Barriers
      2. Intertek Testing Services (Warnock Hersey Listed)
         1. WH – Certification Listings
      3. South Coast Air Quality Management District
         1. SCAQMD Rule 1168 – Adhesive and Sealant Applications
      4. Underwriters Laboratories Inc.
         1. UL 263 - Fire Tests of Building Construction and Materials
         2. UL 1479 – Fire Tests of Through-Penetration Firestops
         3. UL 2079 – Tests for Fire Resistance of Building Joint Systems
         4. UL – Fire Resistance Directory
      5. FM Global
         1. FM 4991 - Approval of Firestop Contractors
         2. FM Global “Building Materials Approval Guide;” Wall and Floor Penetration Fire Stops
      6. California Department of Health Services
         1. CA/DHS/EHLBR/R-174 - “Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers.” Including 2004 Addenda.
      7. International Building Code
      8. National Fire Protection Association (NFPA) codes and standards as referenced in the International Building Code (IBC).
  1. DEFINITIONS
     1. Firestopping, (Membrane and Through-Penetration System: An assemblage consisting of a fire-resistance-rated floor, floor-ceiling, or wall assembly, one or more penetrating items passing through the breaches in one (membrane) or both (through-penetration) side(s) of the assembly and the materials or devices, or both installed to resist the spread of fire through the assembly for a prescribed period of time.
     2. Firestopping Joint: An assemblage of specific materials or products that are designed, tested and fire-resistance rated in accordance with either ASTM E 1966 or UL 2079 to resist for a prescribed period of time the passage of fire through joints made in or between fire-resistance-rated assemblies.
     3. Smoke Seal: An assemblage of specific materials or products that, for smoke barriers, are designed, tested and rated in accordance with UL 1479 for air leakage. For smoke partitions, the assemblage is not required to be tested, only approved.
  2. action submittals

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Action Submittals must be approved by FP-DO and/or the assigned ES Division Cognizant System Engineer or System Engineer for facility fire barriers prior to installation. Indicate that the following Action Submittals are to be concurrently reviewed by FP-DO and/or the assigned ES Division Cognizant System Engineer or System Engineer for facility fire barriers on the 01 3300 Att. A Submittal Log.  
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* + 1. Product Data: Submit data on product characteristics, performance and limitation criteria.
    2. Schedule: Submit schedule of opening locations and sizes, penetrating items, and required listed design numbers to seal openings to maintain fire resistance rating of adjacent assembly. See “Schedule Format” at the end of this Section. Schedule shall also include floor and/ section view plans to indicate the location of the referenced penetrations.
    3. Evaluation for Electrical Boxes: For fire barriers with inset/recessed (e.g., finish cover plate flush with the finish wall surface) electrical junction, receptacle and/or switch boxes that require ‘putty pads’ or similar firestopping assemblies to support the fire resistance performance of the fire barrier, these installations will also be included on firestopping schedule required above (a*t paragraph 1.4.B*).
    4. Manufacturer’s Certificate: Certify [products] meet or exceed [specified requirements,] [applicable code requirements.]
    5. Engineering Judgments: For conditions not directly covered by UL, FM or WH listed designs, submit engineering judgments (EJs) prepared by the firestopping product manufacturer or by a licensed professional engineer suitable for presentation to the LANL authority having jurisdiction (AHJ) for acceptance as meeting code fire protection requirements. EJs are not to be used as a substitute for available tested assemblies or systems (reliance on a single firestop material or manufacturer is not a suitable justification for submitting Engineering Judgments when other manufacturer’s materials/systems may be tested/approved for a particular situation).
    6. Manufacturer’s Installation Instructions: Submit preparation and installation instructions.
  1. INFORMATIONAL SUBMITTALS
     1. Qualification Data: For Installer per paragraph 1.8.B.
     2. Product Test Reports/Testing Agency System Number(s): Based on evaluation of comprehensive tests performed by a qualified testing agency for firestopping, provide Product Testing Reports and/or Testing Agency System Number data sheets for all parts, components, assemblies and systems. All parts, components, materials, assemblies and systems shall be clearly identified.
     3. Material Safety Data Sheets for each product supplied.
  2. sustainable design submittals
     1. Materials Resources Certificates:
        1. Certify recycled material content for recycled content products.
        2. Certify source for regional materials and distance from Project site.
     2. Indoor Air Quality Certificates:
        1. Certify volatile organic compound content for each interior [adhesive] [and] [sealant] and related primer.
        2. Certify firestopping products contain no added urea-formaldehyde resins.
     3. Laboratory Test Reports: For penetration firestopping sealants and sealant primers, documentation indicating that products comply with the testing and product requirements of the California Department of Health Services “Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers.”
  3. closeout submittals
     1. Submit complete list of recommended maintenance and repair materials and detailed instructions for repair/modifications for each firestopping system and product installed.
     2. Installer Certificates: From installer indicating firestopping has been installed in compliance with specified requirements and manufacturer’s written recommendations.
     3. [Subcontractor Inspection Report: Inspection reports shall be submitted no later than two (2) business days following completion of task(s) to facilitate timely review by LANL officials. Details in Article 1.8.E.]
  4. quality assurance

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DOE-STD-1066 recommends qualified installers (e.g., FM 4991, Approval Standard for Firestop Contractors, approved, material manufacturer certified, or UL Qualified) that are directed by a “Designated Responsible Individual.” The qualification requires should be selected with consideration of the size of the project, type of facility, and limited number of approved, evaluated, or certified firestop contractors in New Mexico.

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* + 1. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section with a minimum of three years documented experience.
    2. [Installer Qualifications: A firm that has been approved by FM Global according to most current version of FM Global 4991, “Approval of Firestop Contractors,” that has been evaluated by UL and found to comply with the latest version of its “Qualified Firestop Contractor Program Requirements,” or that has been certified by the firestop manufacturer for the firestopping products to be utilized.]

[Installer Qualifications: A firm experienced in installing penetration firestopping similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful performance. Qualifications include having the necessary experience, staff, and training to install manufacturer’s products per specified requirements. Manufacturer’s willingness to sell its firestopping products to Subcontractor or to Installer engaged by Subcontractor does not in itself confer qualification on buyer.]

* + 1. Fire-Test-Response Characteristics: Firestopping shall comply with the following requirements:
       1. Firestopping tests are performed by a qualified testing agency acceptable to LANL AHJ.
       2. Firestopping is identical to the assemblies tested per testing standard referenced in “Penetration Firestopping” Article (*2.4.A*), or firestopping product Engineering Judgement (*1.4.D*). Provide rated systems complying with the following requirements:

1. Firestopping products bear classification marking of qualified testing and inspecting agency.
2. Classification markings on firestopping correspond to designations listed by the following:
3. UL in its “Fire Resistance Directory.”
4. Intertek ETL SEMKO in its “Directory of Listed Building Products.”
5. FM Global in its “Building Materials Approval Guide.”
6. <Insert name of qualified testing and inspecting agency>.

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In paragraph 1.8.E, the requirement for QC Inspection should be based on the extent of firestopping performed on the project. It may not be appropriate for small projects with only a few penetrations. It may be appropriate to specify the quantity or number of firestop systems to be inspected during installation and subject to post-installation destructive verification. The ASTM E2174-stated minimum is shown, but for safety-related fire barriers and associated firestop systems, the quantity of inspections may warrant exceeding the minimum.  
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* + 1. QA Inspection (LANL)
       1. LANL will perform oversight of Subcontractor inspection and all Special Inspection when required by IBC Chapter 17.
    2. [QC Inspection (Subcontractor)
       1. The Subcontractor’s assigned inspector shall be qualified per the IBC and ASTM E2174/ E2393.
       2. Inspector shall be on-site during installation and randomly witness a minimum of 10% of each type of firestop system installed, or the assigned inspector shall require destructive verification of each type of firestop system installed and subsequent repair. For destructive verification, a minimum of 2%, but not less than one, of each type of firestop system is to be inspected per floor or for each area of floor when a floor is larger than 10,000 ft2 (an area consists of 10,000 ft2).
       3. The Subcontractor’s Inspection Report shall, as a minimum, include:

1. Traceability of all components, parts, assemblies and systems.
2. Summary of the inspection (e.g., see ASTM E2174 and ASTM E2393 inspection report requirements)
3. Overall results of the inspection (e.g., see ASTM E2174 and ASTM E2393 inspection report requirements).]
   1. delivery, storage, and handling
      1. Deliver firestopping products to Project site in original, unopened containers or packages with intact and legible manufacturer’s labels identifying product and manufacturer.
      2. Store and handle firestopping materials in accordance with manufacturers written instructions and the applicable Material Safety Data Sheet (MSDS).
   2. field or site conditions
      1. Do not apply or install materials, assemblies or systems when temperature of substrate material and ambient air is below 60 degrees F or as specified by the firestopping materials manufacturer.
      2. Maintain at least the minimum application temperature during installation of materials, assemblies and systems until fully cured.
      3. Install and cure firestopping per manufacturer’s written instructions using natural means of ventilations or, where this is inadequate, forced-air circulation.
      4. Coordinate construction of openings and penetrating items to ensure that penetration firestopping is installed according to specified requirements.
      5. Coordinate sizing of sleeves, openings, core-drilled holes, or cut openings to accommodate penetration firestopping materials, assemblies and systems.
      6. Notify LANL Subcontract Technical Representative (STR) at least seven days in advance of firestopping installations; confirm dates and times on day preceding each series of installations.
4. products
   1. manufacturers
      1. Manufacturers: Subject to compliance with requirements, [provide products by one of the following] [available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following]:
         1. A/D Fire Protection Systems Inc.
         2. Grace Construction Products.
         3. Hilti, Inc.
         4. Johns Manville.
         5. Nelson Firestop Products.
         6. Specified Technologies Inc.(STI)
         7. 3M Fire Protection Products.
         8. Tremco, Inc.; Tremco Fire Protection Systems Group.
         9. USG Corporation.
         10. <Insert manufacturer’s name>.
   2. description
      1. Regulatory Requirements

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Use this article carefully; restrict statements to identify system performance requirements or functional criteria only.  
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* + - 1. Conform to the IBC and NFPA 101 for fire resistance ratings and surface burning characteristics.
      2. Provide listed parts, components, materials, assemblies and systems used. Provide certificates of compliance upon request from the LANL AHJ.
    1. Sustainability Characteristics
       1. VOC Content: Firestopping sealants and sealant primers shall comply with the following limits for VOC content when calculated according to 40 CFR 59, Subpart D (EPA Method 24):

1. Sealants: 250 g/L.
2. Sealant Primers for Nonporous Substrates: 250 g/L.
3. Sealant Primers for Porous Substrates: 775 g/L.
   * + 1. Low-Emitting Materials: Firestopping sealants and sealant primers shall comply with the testing and product requirements of the California Department of Health Services’ “Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers.”
   1. performance / design criteria
      1. Membrane, joint, and through-penetration fire stop systems shall have been tested in accordance with ASTM E814 or ANSI/UL 1479 to achieve fire ratings of adjacent construction [shown on the Drawings] [noted in Schedule at end of this section.]
      2. All firestop assemblies and systems and materials shall be UL Listed, ETL Semko Listed or FM Approved, and shall conform to the construction type, penetrant type, annular space requirements, and fire rating involved in each separate instance.
      3. Membrane, joint, and through-penetration fire stop systems shall conform to applicable requirements for flame spread and smoke developed ratings.
      4. Where feasible and to the extent practical, ensure that products from only one manufacturer are installed throughout the facility in order to maintain consistency.
   2. materials
      1. PENETRATION FIRESTOPPING
         1. Provide joint and penetration firestopping that is produced and installed to resist spread of fire according to requirements indicated, resist passage of smoke and other gases, and maintain original fire-resistance rating of construction penetrated. Penetration firestopping systems shall be compatible with one another, with the substrates forming openings, and with penetrating items if any.
         2. Penetrations and Joints in Fire-Resistance-Rated Walls: Provide penetration and joint firestopping with ratings determined per ASTM E 814 (UL 1479), and ASTM E 1966 (UL 2079), respectively, based on testing at a positive pressure differential of 0.01-inch wg.
4. Fire-resistance-rated walls include [fire walls] [fire-barrier walls] [smoke-barrier walls] [and] [fire partitions].
5. F-Rating: Not less than the fire-resistance rating of constructions penetrated.
   * + 1. Penetrations in Horizontal Assemblies: Provide penetration and joint firestopping with ratings determined per ASTM E 814 (UL 1479) and ASTM E 1966 (UL 2079), respectively, based on testing at a positive pressure differential of 0.01-inch wg.
6. Horizontal assemblies include [floors] [floor/ceiling assemblies] [and] [ceiling membranes of roof/ceiling assemblies].
7. F-Rating: At least 1 hour, but not less than the fire-resistance rating of constructions penetrated.
8. T-Rating: At least 1 hour, but not less than the fire-resistance rating of constructions penetrated except for floor penetrations within the cavity of a wall.
   * + 1. Penetrations and Joints in Smoke Barriers: Provide penetration and joint firestopping with ratings determined per UL 1479 and UL 2079, respectively.
9. L-Rating: Not exceeding 5.0 cfm/sq.ft. of penetration opening at 0.30-inch wg at both ambient and elevated temperatures. Not exceeding 5 cfm per linear foot of joint at 0.30-inch wg at both ambient and elevated temperatures.
   * + 1. W-Rating: Provide penetration and joint firestopping showing no evidence of water leakage when tested according to UL 1479, where required.
       2. Exposed Penetrations Firestopping: Provide products with flame-spread and smoke-developed indexes of less than 25 and 450, respectively, as determined per ASTM E 84.
       3. Accessories: Provide accessory components for each penetration firestopping system that are needed to install fill materials and to maintain ratings required. Use only those components specified by penetration firestopping manufacturer and approved by qualified testing and inspecting agency for firestopping indicated.
10. Permanent forming/damming/backing materials as required or permitted by the firestopping system details.
11. Temporary forming materials.
12. Substrate primers.
13. Collars.
14. Steel sleeves.
    * 1. Fill Materials: Provide fill materials that are needed to install fill materials and to maintain ratings required. Use only those components specified by penetration firestopping manufacturer and approved by qualified testing and inspecting agency for firestopping indicated.

Mixing: For those products requiring mixing before application, comply with penetration firestopping manufacturer’s written instructions for accurate proportioning of materials, water (if required), type of mixing equipment, selection of mixer speeds, mixing containers, mixing time, and other items or procedures needed to produce products of uniform quality with optimum performance characteristics for application indicated.

* + 1. Labels: Red background and white lettering (or other contrasting color combination outside of TA-55) self-adhesive label with adhesives capable of permanently bonding labels to surfaces on which labels are placed, or plastic or metal plate. As a minimum stating the installation is a “fire rated assembly” or “through-penetration fire stop system,” and installation data (UL-Listed or FM-Approved configuration number, date installed, installer and organization). Also state “Modify/remove only with LANL Fire Group approval” if space permits. Examples of acceptable products:
       - 1. Hilti sticker P/N 00339611
         2. STI Sticker Z1005-892-CG
         3. 3M Sticker 98040056289
         4. Hilti plate P/N 00306219

1. EXECUTION
   1. EXAMINATION
      1. Examine substrates and conditions, with Installer present, for compliance with requirements for opening configurations, penetrating items, substrates, and other conditions affecting performance of the Work.
      2. Proceed with installation only after unsatisfactory conditions have been corrected.
      3. Verify openings are ready to receive firestopping (items penetrating the opening have been installed, opening is appropriately sized to allow use of the proposed firestopping system, etc.). Verify site conditions (weather, etc.) are appropriate for installation of necessary materials.
      4. Before firestopping installation, notify LANL STR so that inspection of existing conditions and installation can occur.
   2. PREPARATION
      1. Surface Cleaning: Clean out openings immediately before installing firestopping to comply with manufacturer’s written instructions and with the following requirements:
         * 1. Remove from surfaces of opening substrates and from penetrating items foreign materials that could interfere with adhesion of penetration firestopping.
           2. Clean opening substrates and penetrating items to produce clean, sound surfaces capable of developing optimum bond with penetration firestopping. Remove loose particles remaining from cleaning operation.
           3. Remove laitance and form-release agents from concrete.
      2. Priming: Prime substrates where recommended in writing by manufacturer using that manufacturer’s recommended products and methods. Confine primers to areas of bond; do not allow spillage and migration onto exposed surfaces.
      3. Masking Tape: Use masking tape to prevent firestopping from contacting adjoining surfaces that will remain exposed on completion of the Work and that would otherwise be permanently stained or damaged by such contact or by cleaning methods used to remove stains. Remove tape as soon as possible without disturbing firestopping seal with substrates.
   3. installation
      1. General: Install firestopping to comply with manufacturer’s written installation instructions and published drawings for products and applications indicated.
      2. Install forming materials and other accessories of types required to support fill materials during their application and in the position needed to produce cross-sectional shapes and depths required to achieve fire ratings indicated.
         * 1. After installing fill materials and allowing them to fully cure, remove combustible forming materials and other accessories not indicated as permanent components of firestopping.
      3. Install fill materials for firestopping by proven techniques to produce the following results:
         1. Fill voids and cavities formed by openings, forming materials, accessories, and penetrating items as required to achieve fire-resistance ratings indicated.
         2. Apply materials so they contact and adhere to substrates formed by openings and penetrating items.
         3. For fill materials that will remain exposed after completing the Work, finish to produce smooth, uniform surfaces that are flush with adjoining finishes.

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Delete Paragraph 4 when work is not for FOD 1 (TA-55)

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* + - 1. Complete the Membrane and Through Penetration Spreadsheet and ensure that the applicable fire barrier drawings are updated as required as identified in TA55-AP-123 and TA55-AP-124.  Provide a completed copy of the spreadsheet to the appropriate barrier system engineer.
  1. permanent identification of fire walls and penetrations
     1. All fire-resistance-rated walls, smoke barriers, and smoke partitions shall be labeled with specified labels to indicate that the wall is either fire-resistance-rated or is a smoke partition. If the wall is fire-resistance rated, indicate “FIRE RATED – X HOURS” and the applicable fire-resistance rating (one, two, three, or four-hours). If the wall is a smoke barrier or partition, indicate “SMOKE BARRIER” or “SMOKE PARTITION”, respectively (indicate fire-resistance-rating, when provided). The labeling shall be located on the fire-resistance-rated wall or smoke partition above ceilings and at exposed areas (such as Mechanical and Electrical Equipment Rooms) on 10-foot intervals and as high as possible and still visible from the finished floor. Areas of fire-resistance-rated walls and smoke partitions exposed to viewing by the public shall be exempt from labeling.
     2. Identify joint and penetration firestopping with preprinted metal or plastic labels on both sides of the penetrated fire barrier. Attach labels permanently to surfaces adjacent to and within 6 inches of firestopping edge so labels will be visible to anyone seeking to remove penetrating items or firestopping. Use mechanical fasteners or self-adhering-type labels with adhesives capable of permanently bonding labels to surfaces on which labels are placed. [For FOD 1 (TA-55), install labels per TA55-AP-123 Fire Barrier Program and TA-55-AP-124 Penetration Numbering and Labeling]. Include the following information on labels:
        1. The words “Warning – Joint/Penetration Firestopping – Do Not Disturb. Notify Facility Management of Any Damage.”
        2. Subcontractor’s name, address, and phone number.
        3. Designation of applicable testing and inspecting agency.
        4. Date of installation.
        5. Manufacturer’s name.
        6. Installer’s name.
        7. Penetration seal identification number or designator that is traceable to an Inspection Report and installation drawing, schedule, or database.
  2. repairs and modifications
     1. All repairs and modifications shall be made using the same manufacturer’s products as the original system.
     2. Identify damaged or disturbed seals requiring a repair or modification.
     3. Remove loose or damaged materials.
     4. If penetrating items are to be added, remove enough material to insert new items, being careful not to cause damage to the balance of the firestop system. Re-seal voids in the penetration.
     5. Ensure that surfaces to be sealed are clean and dry.
     6. All repaired and modified firestop systems shall be labeled.
  3. field quality control
     1. LANL will engage a qualified testing agency to perform tests and inspections.
     2. Where deficiencies are found or firestopping is damaged or removed because of testing, repair or replace firestopping to comply with requirements.
     3. Proceed with enclosing firestopping with other construction only after inspection reports are issued and installations comply with requirements.
  4. cleaning and protection
     1. Clean off excess fill materials adjacent to openings as the Work progresses by methods and with cleaning materials that are approved in writing by firestopping manufacturers and that do not damage materials in which openings occur.
     2. Provide final protection and maintain conditions during and after installation that ensure that firestopping is without damage or deterioration at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, immediately cut out and remove damaged or deteriorated firestopping and install new materials to produce systems complying with specified requirements.
  5. Joint and penetration firestopping schedule
     1. Where UL-classified systems are indicated, they refer to system numbers in UL’s “Fire Resistance Directory” under product Category XHEZ.
     2. Where Intertek ETL SEMKO-listed systems are indicated, they refer to design numbers in Intertek ETL SEMKO’s “Directory of Listed Building Products” under “Firestop Systems.”
     3. Where FM Global-approved systems are indicated, they refer to design numbers listed in FM Global “Building Materials Approval Guide” under “Wall and Floor Penetration Fire Stops.”

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The following is a suggested example of a Firestopping Schedule as required by para 1.4.B that may be used—or modified for a specific project or facility.

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* + 1. Firestopping Schedule Format: Following is the [recommended] [required] format for the Paragraph 1.4.B Firestopping Schedule.

Firestop Schedule for Building TA-##-####

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Label No.** | **Description** | **Firestop System / EJ** | **Interior** | **Exterior** | **Thru** | **Membrane** | **MFR** | **Notes** |
| ##### | 4” ∅ Steel Pipe | W-L-#### | **X** |  | **X** |  | Name | Fiberglass-insulated |
| ##### | ¾” ∅ Steel conduit | W-L-#### | **X** |  |  | **X** | Name | North face membrane |
| ##### | 1” ∅ CPVC Pipe | EJ ###### | **X** |  | **X** |  | Name | 60° Angle from vertical |
| ##### | 4 x 12” open cable tray | W-L-#### | **X** |  | **X** | **X** | Name | Fire blocks to allow future cable installs |
| ##### | 4 x 4” electrical box | - | **X** |  |  | **X** | Name | Putty pad at back of box for wall fire rating |
| ###### | 24 x 36” 22 ga Galv Steel HVAC Duct with 1” Fiberglass Duct Wrap | W-B-#### | **X** | **X** | **X** |  | Name | Perimeter caulking. Weather-protected at exterior |

END OF SECTION

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Do not delete the following reference information:

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THE FOLLOWING STATEMENT IS FOR LANL USE ONLY

This project specification section is based on LANL Master Specification Section 07 8400 Rev. 6, dated November 3, 2020.