SECTION 078453 - BUILDING PERIMETER FIRESTOPPING

1. GENERAL
   * + 1. RELATED DOCUMENTS
          1. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.
       2. SUMMARY
          1. This section includes perimeter fire containment systems consisting of a floor with an hourly fire-resistance rating, an exterior wall assembly with no hourly fire-resistance rating, and the fill and forming materials installed between the floor and curtain wall for preventing the spread of fire vertically in buildings.
       3. SUBMITTALS
          1. Product Data: For each type of perimeter fire containment system product indicated.
          2. System Drawings: Submit documentation from a qualified testing and inspection agency that is applicable to each perimeter fire containment system configuration for construction and linear void width.
          3. Product Certificates: Certificate of conformance signed by manufacturers of perimeter fire containment system products certifying that products comply with requirements.
       4. QUALITY ASSURANCE
          1. Provide perimeter fire containment systems that comply with the following requirements and those specified in “Performance Criteria” Article:

Firestopping tests are performed by a qualified, testing and inspection agency. A qualified testing and inspection agency is UL, or another agency performing testing and follow-up inspection services for perimeter fire containment systems acceptable to authorities having jurisdiction.

Perimeter fire containment system products bear classification marking of qualified testing and inspection agency.

* + - * 1. Engage an experienced installer who is certified, licensed, FM Approved in accordance with FM 4991, Certified by UL as a Qualified Contractor, or otherwise qualified by the firestopping manufacturer as having been provided the necessary training to install firestop products per specified requirements. A manufacturer’s willingness to sell its firestopping products to Contractor or to an installer engaged by Contractor does not in itself confer qualifications on buyer.
        2. Obtain perimeter fire containment systems for each type of slab-edge configuration and construction condition indicated from a single manufacturer.
        3. Conduct conference at Project site to comply with requirements in Division 1 Section “Project Meetings”.
      1. DELIVERY, STORAGE AND HANDLING
         1. Deliver perimeter fire containment system products to Project site in original, unopened containers or packages with intact and legible manufacturer’s labels identifying product and manufacturer, date of manufacture; lot number; shelf life, if applicable; qualified testing and inspection agency’s classification marking.
         2. Store and handle materials for perimeter fire containment systems to prevent their deterioration or damage due to moisture, temperature changes, contaminants or other causes.
      2. PROJECT CONDITIONS
         1. Do not install perimeter fire containment systems when ambient or substrate temperatures are outside limitations recommended by manufacturer.
         2. Do not install perimeter fire containment systems when substrates are wet due to rain, frost, condensation, or other causes.
         3. Do not use materials that contain flammable solvents.

1. PRODUCTS
   * + 1. FIRESTOPPING, GENERAL
          1. Provide perimeter fire containment system products that are compatible with one another, with the substrates forming openings, under conditions of service and application, as demonstrated by perimeter fire containment system product manufacturer based on testing and field experience.
          2. Provide components for each perimeter fire containment system that are needed to install fill materials. Use only components specified by the firestopping manufacturer and approved by the qualified testing agency for the designated perimeter fire containment systems.
       2. PERFORMANCE CRITERIA
          1. Fire Test Requirements:

General: Fire test investigation must be conducted on the Intermediate-Scale, Multi-Story Test Apparatus (ISMA structure).

ASTM E2307, “Fire Tests of Perimeter Fire Barrier Systems Using Intermediate-Scale, Multi-Story Test Apparatus”.

ASTM E84, “Surface Burning Characteristics of Building Materials”.

UL 723, “Surface Burning Characteristics of Building Materials”.

ASTM E2393, “Standard Practice for On Site Inspection of Installed Fire Resistive Joint Systems and Perimeter Fire Barriers”.

* + - * 1. References:

Underwriters Laboratories (UL) - “Fire Resistance Directory”.

Perimeter Fire Containment Systems (XHDG)

Fill, Void or Cavity Materials (XHHW)

Forming Materials (XHKU)

Curtain Wall Insulation (XHGU)

All major building codes:

International Building Code published by ICC.

(Note to specifier: Retain or delete the building codes listed above as applicable).

National Fire Protection Association (NFPA) - “NFPA 101: Life Safety Code”.

Factory Mutual Approvals (FM) - “FM 4991: Standard for Approval of Firestop Contractors”.

Underwriters Laboratories (UL) - “UL Qualified Firestop Contractor Program”

* + - * 1. Performance Requirements:

Provide products that upon curing, do not re-emulsify, dissolve, leach, breakdown or otherwise deteriorate over time from exposure to atmospheric moisture, ponding water or other forms of moisture characteristic during and after construction.

Provide sealants sufficiently flexible to accommodate movement such as thermal expansion, inter-story differential building sway and other normal building movement without damage to the seal.

Provide perimeter fire containment systems subjected to an air leakage test conducted in accordance with Standard, UL 2079 with published L-Ratings for ambient and elevated temperatures as evidence of the ability of the fire-resistive joint system to restrict the movement of smoke.

Provide moisture-curing products where inclement weather or greater than transient water exposure is expected.

* + - 1. MANUFACTURERS
         1. Subject to compliance with perimeter fire containment systems (XHDG) listed in Volume 2 of the UL Fire Resistance Directory, provide products of the following manufacturers as identified below:

Basis of Design: Specified Technologies, Inc. (STI), Somerville, New Jersey. 800- 992-1180

Thermafiber, LLC.

Other manufacturers listed in the UL Fire Resistance Directory – Volume 2.

* + - 1. MATERIALS
         1. General: Use only perimeter fire containment system products that have been tested for specific fire-resistance-rated construction to non-rated construction conditions conforming to construction assembly type, linear void width, and fire-rating involved for each separate instance.
         2. All-Weather Coatings: Moisture curing, single component silicone copolymer elastomeric spray coatings for horizontal surfaces where greater water resistance is required or inclement weather is anticipated. Coating shall meet ASTM D6094 early rain resistance test for full 24 Hour Duration. The following products are acceptable:

Specified Technologies, Inc. (STI) SpecSeal FT305 FastTack Firestop Spray.

* + - * 1. Perimeter Fire Barrier Spray: Single component latex formulation with a solids content of minimum 65% and a cured Shore A Hardness equal to or greater than 65, the following products are acceptable:

Specified Technologies, Inc. (STI) SpecSeal Safing Spray.

* + - * 1. Curtain Wall Insulation: Faced or unfaced batts or blankets used for exterior curtain walls with the capacity to contribute to the fire-resistance of the assembly, the following products are acceptable:

(Note: Select Firespan 40 for 4.0 pcf; Firespan 90 for 8 pcf.)

Thermafiber, LLC. FIRESPAN [**40**] [**90**] Insulation.

* + - * 1. Safing Insulation: Board or sheet products used as forming materials in slab-edge openings with the capacity to provide a degree of the fire resistance required when used with an appropriate fill material, the following products are acceptable:

Thermafiber, LLC. Safing Insulation

* + - * 1. Curtain Wall Insulation Hangers: Steel clip system designed to snap/clip onto aluminum framing members minimizing or eliminating the use of screws or other mechanical fasteners. Clips to include impaling staple to mechanically fasten curtain wall insulation to clip. Clips shall be available in a range of sizes based on mullion width and insulation thickness; the following products are acceptable:

Specified Technologies, Inc. (STI) SpecSeal Quick Clip Perimeter Fire Barrier System

1. EXECUTION
   * + 1. PREPARATION
          1. Examination of Conditions: Examine areas and conditions under which work is to be performed and identify conditions detrimental to proper or timely completion.
          2. Surfaces to which firestop materials will be applied shall be free of dirt, grease, oil, scale, laitance, rust, release agents, water repellents, and any other substances that may inhibit optimum adhesion.
          3. Provide masking and temporary covering to prevent soiling of adjacent surfaces by firestopping materials.
          4. Do not proceed until unsatisfactory conditions have been corrected.
       2. PERIMETER FIRE CONTAINMENT SYSTEM INSTALLATION
          1. General Requirements: Install perimeter fire containment systems in accordance with “Performance Criteria” Article and in accordance with the conditions of testing and classification as specified in the published design.
          2. Manufacturer’s Instructions: Comply with manufacturer’s instructions for installation of perimeter fire containment system products.

Seal all slab-edge openings to ensure an air and water-resistant seal.

Curtain wall insulation that is an integral component of the perimeter fire containment system shall be installed in accordance with the conditions of testing and classification as specified in the published design and shall comply with thermal insulation requirements as specified in Section 072100, "Thermal Insulation".

Safing insulation shall be installed with the grain oriented vertically to maintain effective compression between edge of floor assembly and curtain wall.

* + - 1. FIELD QUALITY CONTROL
         1. Inspections: Owner shall engage a qualified independent inspection agency to inspect perimeter fire containment systems in accordance with ASTM E2393, “Standard Practice for On Site Inspection of Installed Fire Resistive Joint Systems and Perimeter Fire Barriers”.

(Note: Manufacturers are not qualified inspection agencies, and it is a conflict of interest for the manufacturer to perform inspections of installed firestopping systems according to the aforementioned inspection standards.)

* + - * 1. Keep areas of work accessible until inspection by authorities having jurisdiction.
        2. Where deficiencies are found, repair or replace perimeter fire containment systems so they comply with requirements.
      1. ADJUSTING AND CLEANING
         1. Remove equipment, materials and debris, leaving area in undamaged, clean condition.
         2. Clean all surfaces adjacent to sealed slab-edge openings to be free of excess perimeter fire containment system materials and soiling as work progresses.

END OF SECTION