SECTION 078443 - FIRE RESISTIVE JOINT SYSTEMS

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 fire-resistive joint systems for linear voids within or between fire-resistance rated floor and roof-ceiling assemblies and walls and partitions, including the following types of joints:

Expansion joints and control joints or joints between floor structures.

Floor-to-wall joints where a floor structure intersects a wall structure.

Head-of-wall joints where a wall or partition intersects a roof or floor-ceiling assembly.

Control joints within or between wall structures.

* + - 1. SUBMITTALS
         1. Product Data: For each type of fire-resistive joint system product indicated.
         2. System Drawings: Submit documentation from a qualified testing and inspection agency that is applicable to each fire-resistive joint system configuration for construction and linear void width.
         3. Product Certificates: Certificate of conformance signed by manufacturers of fire-resistive joint system products certifying that products comply with requirements.
      2. QUALITY ASSURANCE
         1. Provide fire-resistive joint 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 fire-resistive joint systems acceptable to authorities having jurisdiction.

Fire-resistive joint system products bear classification marking of qualified testing and inspection agency.

* + - * 1. Engage an experienced installer who is certified, licensed 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 fire-resistive joint system products to Contractor or to an installer engaged by Contractor does not in itself confer qualifications on buyer.
        2. Obtain fire-resistive joint systems for each type of joint configuration and construction condition indicated from a single manufacturer.
        3. Conduct conference at Project site to comply with requirements in Division 01.
      1. DELIVERY, STORAGE AND HANDLING
         1. Deliver fire-resistive joint 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; and mixing instructions for multi-component materials.
         2. Store and handle materials for fire-resistive joint systems to prevent their deterioration or damage due to moisture, temperature changes, contaminants or other causes.
      2. PROJECT CONDITIONS
         1. Do not install fire-resistive joint systems when ambient or substrate temperatures are outside limitations recommended by manufacturer.
         2. Do not install fire-resistive joint 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 fire-resistive joint system products that are compatible with one another, with the substrates forming openings, under conditions of service and application, as demonstrated by fire-resistive joint system product manufacturer based on testing and field experience.
          2. Provide components for each fire-resistive joint 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 fire-resistance-rated systems.
       2. PERFORMANCE CRITERIA
          1. Fire and Cyclic Movement Test Requirements

Underwriters Laboratories, Inc. (UL):

UL 2079, “Tests for Fire Resistance of Building Joint Systems”.

UL 263, “Fire Tests of Building Construction and Materials”.

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

American Society of Testing and Materials (ASTM):

ASTM E1966, “Test Method for Fire Resistive Joint Systems”.

ASTM E119, “Fire Tests of Building Construction and Materials”.

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

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

ASTM E2837, “Determining the Fire Resistance of Continuity Head-of-Wall Joint Systems Installed Between Rated Wall Assemblies and Nonrated Horizontal Assemblies”.

ASTM E2174, “Standard Practice for On Site Inspection of Installed Fire Stops”.

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

* + - * 1. References:

Underwriters Laboratories (UL) of Northbrook, IL “Fire Resistance Directory”.

Joint Systems (XHBN)

Perimeter Fire Containment Systems (XHDG)

Continuity Head-of-Wall Joint Systems (XHBO)

Fill, Void or Cavity Materials (XHHW)

Forming Materials (XHKU)

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”.

National Fire Protection Association (NFPA) “NFPA 70: National Electrical Code”.

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

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

American Society of Testing and Materials (ASTM) “ASTM C 1193: Standard Guide for the Use of Joint Sealants”.

* + - * 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 fire-resistive joint sealants sufficiently flexible to accommodate movement such as thermal expansion and other normal building movement without damage to the seal.

Provide fire-resistive joint sealants designed to accommodate a specific range of movement and tested for this purpose in accordance with a cyclic movement test criteria as outlined in Standards, ASTM E 1966, ASTM E2837, or UL 2079.

Provide fire-resistive joint 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 firestop products that do not contain ethylene glycol.

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

Acceptable Manufacturer: Specified Technologies Inc., 210 Evans Way, Somerville, NJ 08876. Tel: (800) 992-1180, Fax: (908) 526-9623, Email: [specseal@stifirestop.com](mailto:specseal@stifirestop.com), Website: [www.stifirestop.com](http://www.stifirestop.com/).

Substitutions: Not permitted.

* + - * 1. Single Source: Obtain firestop systems for each type of penetration and construction condition indicated only from a single manufacturer.
      1. MATERIALS
         1. General: Use only fire-resistive joint system products that have been tested for specific fire-resistance-rated construction conditions conforming to construction assembly type, linear void width, movement capabilities, and fire-rating involved for each separate instance.
         2. Elastomeric Sealants: Elastomeric Sealants: Single component latex formulations that upon cure do not re-emulsify during exposure to moisture and accommodate minimum ±25 percent movement when tested according to ASTM E1399. Products shall be tested for use in construction joints incorporating floors and structural steel elements protected with Spray-applied Fire Resistive Materials, when present. The following products are acceptable:

Specified Technologies, Inc. (STI) SpecSeal Series AS Elastomeric Spray

Specified Technologies, Inc. (STI) SpecSeal Series ES Elastomeric Sealant

* + - * 1. Silicone Sealants: Moisture curing, single component, silicone elastomeric sealant for horizontal surfaces (pourable or nonsag) or vertical surface (nonsag). Sealant shall be suitable for use in interior and exterior joint conditions. The following products are acceptable:

Specified Technologies, Inc. (STI) SpecSeal SIL300 Silicone Firestop Sealant

Specified Technologies, Inc. (STI) SpecSeal SIL300 SL Self-Leveling Silicone Firestop Sealant’

* + - * 1. 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. Joint Gasketing: Intumescent gasketing with pressure sensitive adhesive capable of +/- 100 percent movement and suitable for use in head-of-wall, wall-to-wall, bottom-of-wall, and perimeter fire barrier joints, the following products are acceptable:

Specified Technologies, Inc. (STI) SpeedFlex TTG Track Top Gasket.

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. FIRE-RESISTIVE JOINT SYSTEM INSTALLATION
          1. General Requirements: Install fire-resistive joint 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 fire-resistive joint systems products.

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

Protect materials from damage on surfaces subjected to traffic.

Apply a suitable bond-breaker to prevent three-sided adhesion in applications where this condition might occur such as the intersection of a gypsum wallboard/steel stud wall to floor or roof assembly where the joint is backed by a steel ceiling runner or track.

Where joint application is exposed to the elements, fire-resistive joint sealant must be approved by manufacturer for use in exterior applications and shall comply with ASTM C920, “Specification for Elastomeric Joint Sealants”.

* + - 1. FIELD QUALITY CONTROL

(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. Inspections: Owner shall engage a qualified independent inspection agency to inspect fire-resistive joint systems in accordance with ASTM E 2393, “Standard Practice for On Site Inspection of Installed Fire Resistive Joint Systems and Perimeter Fire Barriers”.
        2. Keep areas of work accessible until inspection by authorities having jurisdiction.
        3. Where deficiencies are found, repair or replace fire-resistive joint 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 joint openings to be free of excess fire-resistive joint system materials and soiling as work progresses.

END OF SECTION