SECTION 078443 - JOINT FIRESTOPPING

Revise this Section by deleting and inserting text to meet Project-specific requirements.

Verify that Section titles referenced in this Section are correct for this Project's Specifications; Section titles may have changed.

1. GENERAL
	* + 1. RELATED DOCUMENTS

Retain or delete this article in all Sections of Project Manual.

* + - * 1. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.
			1. SUMMARY
				1. Section Includes:

Joints in or between fire-resistance-rated constructions.

Joints at exterior curtain-wall/floor intersections.

Joints in smoke barriers.

* + - * 1. Related Requirements:

Retain subparagraphs below to cross-reference requirements Contractor might expect to find in this Section but are specified in other Sections.

* + - * 1. Section 078413 "Penetration Firestopping" for penetrations in fire-resistance-rated walls, horizontal assemblies, and smoke barriers **[and for wall identification]**.
			1. PREINSTALLATION MEETINGS

Retain "Preinstallation Conference" paragraph below if Work of this Section is extensive or complex enough to justify a conference.

* + - * 1. Preinstallation Conference: Conduct conference at **[Project site] <Insert location>**.
			1. SUBMITTALS
				1. Submittals for this section are subject to the re-evaluation fee identified in Article 4 of the General Conditions.
				2. Manufacturer’s installation instructions shall be provided along with product data.
				3. Submittals shall be provided in the order in which they are specified and tabbed (for combined submittals).
				4. Product Data: For each type of product.
				5. Sustainable Design Submittals:
				6. Product Schedule: For each joint firestopping system. Include location, illustration of firestopping system, and design designation of qualified testing agency.

Retain "Engineering Judgments" subparagraph below only after verifying that authorities having jurisdiction will accept modifications handled by method in subparagraph.

Engineering Judgments: Where Project conditions require modification to a qualified testing agency's illustration for a particular joint firestopping system condition, submit illustration, with modifications marked, approved by joint firestopping system manufacturer's fire-protection Director’s Representative as an engineering judgment or equivalent fire-resistance-rated assembly.

* + - * 1. Qualification Data: For Installer.
				2. Product Test Reports: For each joint firestopping system, for tests performed by a qualified testing agency.
			1. CLOSEOUT SUBMITTALS
				1. Installer Certificates: From Installer indicating that joint firestopping systems have been installed in compliance with requirements and manufacturer's written instructions.
				2. Submittals for this section are subject to the re-evaluation fee identified in Article 4 of the General Conditions
			2. QUALITY ASSURANCE

If retaining "Installer Qualifications" paragraph below, verify that installers are available to perform work in Project location. A list of FM Approvals-approved firestop contractors may be found in FM Approval's "Approval Guide," and a list of UL-qualified firestop contractors may be found on www.ul.com/contractor. A list of firestop contractors who are approved or qualified and are FCIA members may be found at www.fcia.org.

* + - * 1. Installer Qualifications: A firm that has been approved by FM Approvals according to FM Approvals 4991, "Approval of Firestop Contractors," or been evaluated by UL and found to comply with UL's "Qualified Firestop Contractor Program Requirements."
			1. PROJECT CONDITIONS
				1. Environmental Limitations: Do not install joint firestopping systems when ambient or substrate temperatures are outside limits permitted by joint firestopping system manufacturers or when substrates are wet due to rain, frost, condensation, or other causes.
				2. Install and cure joint firestopping systems per manufacturer's written instructions using natural means of ventilation or, where this is inadequate, forced-air circulation.
			2. COORDINATION
				1. Coordinate construction of joints to ensure that joint firestopping systems can be installed according to specified firestopping system design.
				2. Coordinate sizing of joints to accommodate joint firestopping systems.
1. PRODUCTS

Manufacturers and products listed in SpecAgent and MasterWorks Paragraph Builder are neither recommended nor endorsed by the AIA or Deltek. Before inserting names, verify that manufacturers and products listed there comply with requirements retained or revised in descriptions and are both available and suitable for the intended applications.

* + - 1. PERFORMANCE REQUIREMENTS
				1. Fire-Test-Response Characteristics:

Perform joint firestopping system tests by a qualified testing agency acceptable to authorities having jurisdiction.

Test per testing standards referenced in "Joint Firestopping Systems" Article. Provide rated systems complying with the following requirements:

Joint firestopping systems shall bear classification marking of a qualified testing agency.

Retain only those subparagraphs below that reference the directories of testing agency or agencies approved by authorities having jurisdiction.

UL in its "Fire Resistance Directory."

Intertek Group in its "Directory of Listed Building Products."

**<Insert name of qualified testing agency>**.

* + - 1. JOINT FIRESTOPPING SYSTEMS
				1. Joint Firestopping Systems: Systems that resist spread of fire, passage of smoke and other gases, and maintain original fire-resistance rating of assemblies in or between which joint firestopping systems are installed. Joint firestopping systems shall accommodate building movements without impairing their ability to resist the passage of fire and hot gases.
				2. Joints in or between Fire-Resistance-Rated Construction: Provide joint firestopping systems with ratings determined per ASTM E1966 or UL 2079.

Fire-Resistance Rating: Equal to or exceeding the fire-resistance rating of the wall, floor, or roof in or between which it is installed.

Retain "Joints at Exterior Curtain-Wall/Floor Intersections" paragraph below if exterior curtain-wall/floor intersections are included in Project and indicate locations on Drawings. Coordinate with the Joint Firestopping System Schedule.

* + - * 1. Joints at Exterior Curtain-Wall/Floor Intersections: Provide joint firestopping systems with rating determined per ASTM E2307.

F-Rating: Equal to or exceeding the fire-resistance rating of the floor assembly.

Retain "Joints in Smoke Barriers" paragraph below if smoke barriers are included in Project and indicate locations on Drawings. Coordinate with the Joint Firestopping System Schedule.

* + - * 1. Joints in Smoke Barriers: Provide joint firestopping systems with ratings determined per UL 2079 based on testing at a positive pressure differential of 0.30-inch wg .

Rating in "L-Rating" subparagraph below indicates resistance to air leakage.

L-Rating: Not exceeding 5.0 cfm/ft. of joint at both ambient and elevated temperatures.

* + - * 1. Exposed Joint Firestopping Systems: Flame-spread and smoke-developed indexes of less than 25 and 450, respectively, as determined per ASTM E84.
				2. Accessories: Provide components of joint firestopping systems, including primers and forming materials, that are needed to install elastomeric fill materials and to maintain ratings required. Use only components specified by joint firestopping system manufacturer and approved by the qualified testing agency for conditions indicated.
1. EXECUTION
	* + 1. EXAMINATION
				1. Examine substrates and conditions, with Installer present, for compliance with requirements for joint configurations, substrates, and other conditions affecting performance of the Work.
				2. Proceed with installation only after unsatisfactory conditions have been corrected.
			2. PREPARATION
				1. Surface Cleaning: Before installing joint firestopping systems, clean joints immediately to comply with fire-resistive joint system manufacturer's written instructions and the following requirements:

Remove from surfaces of joint substrates foreign materials that could interfere with adhesion of elastomeric fill materials or compromise fire-resistive rating.

Clean joint substrates to produce clean, sound surfaces capable of developing optimum bond with elastomeric fill materials. Remove loose particles remaining from cleaning operation.

Remove laitance and form-release agents from concrete.

Retain paragraph below if products selected require priming.

* + - * 1. Prime substrates where recommended in writing by joint firestopping system manufacturer using that manufacturer's recommended products and methods. Confine primers to areas of bond; do not allow spillage and migration onto exposed surfaces.
			1. INSTALLATION
				1. General: Install joint firestopping systems 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 elastomeric fill materials during their application and in position needed to produce cross-sectional shapes and depths required to achieve fire ratings indicated.

After installing elastomeric fill materials and allowing them to fully cure, remove combustible forming materials and other accessories not indicated as permanent components of fire-resistive joint system.

* + - * 1. Install elastomeric fill materials for joint firestopping systems by proven techniques to produce the following results:

Elastomeric fill voids and cavities formed by joints and forming materials as required to achieve fire-resistance ratings indicated.

Apply elastomeric fill materials so they contact and adhere to substrates formed by joints.

For elastomeric fill materials that will remain exposed after completing the Work, finish to produce smooth, uniform surfaces that are flush with adjoining finishes.

* + - 1. IDENTIFICATION

Retain "Joint Identification" paragraph below if required. See Section 078413 "Penetration Firestopping" for wall identification. Individual joint firestopping system labeling may not be required by authorities having jurisdiction if walls are identified, but labeling is useful if joint firestopping systems must be replaced.

* + - * 1. Joint Identification: Identify joint firestopping systems with legible metal or plastic labels. Attach labels permanently to surfaces adjacent to and within 6 inches of joint edge so labels are visible to anyone seeking to remove or joint firestopping system. Use mechanical fasteners or self-adhering-type labels with adhesives capable of permanently bonding labels to surfaces on which labels are placed. Include the following information on labels:

The words "Warning - Joint Firestopping - Do Not Disturb. Notify Building Management of Any Damage."

Contractor's name, address, and phone number.

Designation of applicable testing agency.

Date of installation.

Manufacturer's name.

Installer's name.

* + - 1. FIELD QUALITY CONTROL

If required, inspection of joint firestopping systems in this article is performed according to ASTM E2393, "On-Site Inspection of Installed Fire-Resistive Joint Systems." To prevent conflicts of interest, ASTM E2393 precludes making Contractor responsible for engaging the testing agency. Inspectors may verify compliance by destructive examination of some completed installations.

* + - * 1. Inspecting Agency: Director’s Representative will engage a qualified testing agency to perform tests and inspections according to ASTM E2393.
				2. Where deficiencies are found or joint firestopping systems are damaged or removed due to testing, repair or replace joint firestopping systems so they comply with requirements.
				3. Proceed with enclosing joint firestopping systems with other construction only after inspection reports are issued and installations comply with requirements.
			1. CLEANING AND PROTECTION
				1. Clean off excess elastomeric fill materials adjacent to joints as the Work progresses by methods and with cleaning materials that are approved in writing by joint firestopping system manufacturers and that do not damage materials in which joints occur.
				2. Provide final protection and maintain conditions during and after installation that ensure joint firestopping systems are without damage or deterioration at time of Substantial Completion. If damage or deterioration occurs despite such protection, cut out and remove damaged or deteriorated joint firestopping systems immediately and install new materials to produce joint firestopping systems complying with specified requirements.
			2. JOINT FIRESTOPPING SYSTEM SCHEDULE

Retain and revise paragraphs below to suit Project.

Retain first paragraph below if UL-classified systems are required. Retain first option for floor-to-floor, wall-to-wall, floor-to-wall, head-of-wall, bottom-of-wall and wall-to-wall joints intended for use as corner guards; retain second option for perimeter fire-containment systems.

* + - * 1. Where UL-classified systems are indicated, they refer to system numbers in UL's "Fire Resistance Directory" under product [Category XHBN] [or] [Category XHDG].

Retain first paragraph below if Intertek Group-listed systems are required. Joint firestopping systems and perimeter fire-barrier systems are included in both "Expansion/Seismic Joints" and "Firestop Systems" product categories. Verify location of listing and retain one or both options.

* + - * 1. Where Intertek Group-listed systems are indicated, they refer to design numbers in Intertek Group's "Directory of Listed Building Products" under product category **[Expansion/Seismic Joints] [or] [Firestop Systems]**.

If retaining FRJS or PFRJS options in remaining paragraphs as means of identifying location of each fire-resistive joint system application on Drawings, complete drawing designations.

Copy and re-edit paragraphs for each system required. Coordinate with manufacturers specified in Part 2.

* + - * 1. Floor-to-Floor, Joint Firestopping Systems **[FRJS-<#>]**:

Retain "UL-Classified Systems" subparagraph below if required. If retaining, retain one alpha-alpha designation followed by a four-digit number or range of four-digit numbers. See Evaluations for explanation of UL system numbers.

UL-Classified Systems: FF-**[D] [S]**-**<Insert four-digit number> [0000-0999] [1000-1999] [2000-2999] [3000-3999] [4000-4999]**.

Retain one or more of six subparagraphs below if system numbers are not indicated.

Assembly Rating: **[1 hour] [2 hours] <Insert number of hours>**.

Nominal Joint Width: **[As indicated] <Insert dimension>**.

Movement Capabilities: **[Class I] [Class II] [Class III]** - **<Insert number> percent [compression or extension] [compression, extension, or horizontal shear]**.

L-Rating at Ambient: Less than **<Insert cfm/ft.>**.

L-Rating at 400 Deg F : Less than **<Insert cfm/ft. >**.

W-Rating: No leakage of water at completion of water leakage testing.

* + - * 1. Wall-to-Wall, Joint Firestopping Systems **[FRJS-<#>]**:

Retain "UL-Classified Systems" subparagraph below if required. If retaining, retain one alpha-alpha designation followed by a four-digit number or range of four-digit numbers. See Evaluations for explanation of UL system numbers.

UL-Classified Systems: WW-**[D] [S]-<Insert four-digit number> [0000-0999] [1000-1999] [2000-2999] [3000-3999] [4000-4999]**.

Retain one or more of five subparagraphs below if system numbers are not indicated.

Assembly Rating: **[1 hour] [2 hours] <Insert number of hours>**.

Nominal Joint Width: **[As indicated] <Insert dimension>**.

Movement Capabilities: **[Class I] [Class II] [Class III] - <Insert number> percent [compression or extension]**.

L-Rating at Ambient: Less than **<Insert cfm/ft.>**.

L-Rating at 400 Deg F: Less than **<Insert cfm/ft.>**.

* + - * 1. Floor-to-Wall, Joint Firestopping Systems **[FRJS-<#>]**:

Retain "UL-Classified Systems" subparagraph below if required. If retaining, retain one alpha-alpha designation followed by a four-digit number or range of four-digit numbers. See Evaluations for explanation of UL system numbers.

UL-Classified Systems: FW-**[D] [S]-<Insert four-digit number> [0000-0999] [1000-1999] [2000-2999] [3000-3999] [4000-4999]**.

Retain one or more of five subparagraphs below if system numbers are not indicated.

Assembly Rating: **[1 hour] [2 hours] <Insert number of hours>**.

Nominal Joint Width: **[As indicated] <Insert dimension>**.

Movement Capabilities: **[Class I] [Class II] [Class III] - <Insert number> percent [compression or extension] [compression, extension, or horizontal shear].**

L-Rating at Ambient: Less than **<Insert cfm/ft.>**.

L-Rating at 400 Deg F: Less than **<Insert cfm/ft.>**.

* + - * 1. Head-of-Wall, Fire-Resistive Joint Firestopping Systems **[FRJS-<#>]**:

Retain "UL-Classified Systems" subparagraph below if required. If retaining, retain one alpha-alpha designation followed by a four-digit number or range of four-digit numbers. See Evaluations for explanation of UL system numbers.

UL-Classified Systems: HW-**[D] [S]-<Insert four-digit number> [0000-0999] [1000-1999] [2000-2999] [3000-3999] [4000-4999]**.

Intertek Group-Listed Systems: **<Insert design number>**.

Retain one or more of five subparagraphs below if system numbers are not indicated.

Assembly Rating: **[1 hour] [2 hours] <Insert number of hours>**.

Nominal Joint Width: **[As indicated] <Insert dimension>**.

Movement Capabilities: **[Class I] [Class II] [Class III] - <Insert number> percent [compression or extension]**.

L-Rating at Ambient: Less than **<Insert cfm/ft.>**.

L-Rating at 400 Deg F: Less than **<Insert cfm/ft.>**.

* + - * 1. Bottom-of-Wall, Joint Firestopping Systems **[FRJS-<#>]**:

Retain "UL-Classified Systems" subparagraph below if required. If retaining, retain one alpha-alpha designation followed by a four-digit number or range of four-digit numbers. See Evaluations for explanation of UL system numbers.

UL-Classified Systems: BW-**[D] [S]-<Insert four-digit number> [0000-0999] [1000-1999] [2000-2999] [3000-3999] [4000-4999]**.

Retain one or more of five subparagraphs below if system numbers are not indicated.

Assembly Rating: **[1 hour] [2 hours] <Insert number of hours>**.

Nominal Joint Width: **[As indicated] <Insert dimension>**.

Movement Capabilities: **[Class I] [Class II] [Class III] - <Insert number>** percent **[compression or extension]**.

L-Rating at Ambient: Less than **<Insert cfm/ft.>**.

L-Rating at 400 Deg F : Less than **<Insert cfm/ft.>**.

* + - * 1. Wall-to-Wall, Joint Firestopping Systems Intended for Use as Corner Guards **[FRJS-<#>]**:

Retain "UL-Classified Systems" subparagraph below if required. If retaining, retain one alpha-alpha designation followed by a four-digit number or range of four-digit numbers. See Evaluations for explanation of UL system numbers.

UL-Classified Systems: CG-**[D] [S]-<Insert four-digit number> [0000-0999] [1000-1999] [2000-2999] [3000-3999] [4000-4999]**.

Retain one or more of five subparagraphs below if system numbers are not indicated.

Assembly Rating: **[1 hour] [2 hours] <Insert number of hours>**.

Nominal Joint Width: **[As indicated] <Insert dimension>**.

Movement Capabilities: **[Class I] [Class II] [Class III] - <Insert number>** percent **[compression or extension]**.

L-Rating at Ambient: Less than **<Insert cfm/ft.>**.

L-Rating at 400 Deg F : Less than **<Insert cfm/ft.>**.

* + - * 1. Perimeter Joint Firestopping Systems **[PFRJS-<#>]**:

Retain "UL-Classified Perimeter Fire-Containment Systems" or "Intertek Group-Listed, Perimeter Fire-Barrier Systems" subparagraph below, or both if required. If retaining first subparagraph, retain one alpha-alpha designation followed by a four-digit number or range of four-digit numbers. See Evaluations for explanation of UL system numbers.

UL-Classified Perimeter Fire-Containment Systems: CW-**[D] [S]-<Insert four-digit number> [0000-0999] [1000-1999] [2000-2999]**.

Intertek Group-Listed, Perimeter Fire-Barrier Systems: **<Insert design number>**.

Retain one or more of six subparagraphs below if system numbers are not indicated.

Integrity Rating: **[1 hour] [2 hours] <Insert number of hours>**.

Insulation Rating: **[Zero hour] [1/4 hour] [3/4 hour] [1 hour] <Insert number of hours>**.

Linear Opening Width: **[2-1/2 inches] [8 inches] [As indicated] <Insert dimension>**, maximum.

Movement Capabilities: **[Class I] [Class II] [Class III] - <Insert number> percent[ compression or extension]**.

F-Rating: **[1 hour] [2 hours] <Insert number of hours>**.

END OF SECTION 078443