SECTION 07840

FIRESTOPPING - CANADA

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\*\* NOTE TO SPECIFIER \*\* Specified Technologies Inc.; firestopping products and materials.
This section is based on the products of Specified Technologies Inc., which is located at:210 Evans WaySomerville, NJ 08876Toll Free Tel: 800-992-1180Tel: 908-526-8000Fax: 908-526-9623Email: [request info (sales@stifirestop.com)](https://arcat.com/rfi?action=email&company=Specified%252BTechnologies%252BInc.&message=RE%253A%2520Spec%2520Question%2520(07841sti)%253A%2520&coid=35657&spec=07841sti&rep=&fax=908-526-9623)
Web: <https://www.stifirestop.com/>
 [ [Click Here](https://arcat.com/company/specified-technologies-inc-35657) ] for additional information.
STI leads the industry in developing innovative fire protection systems that help stop the spread of fire, smoke, and hot gases. For over 30 years, our team has worked hand in hand with the construction industry to create simple solutions to complex firestopping problems. Our SpecSeal and EZ Path® product lines are engineered to deliver powerful performance. Because our system designs are user-driven, they are easier to apply. The result is simply designed, outstanding fire protection systems which often result in lower installed costs. STI products and systems offer innovative firestop solutions for all types of new construction and retrofit applications. Since firestopping is our only business, we concentrate all our resources on providing the highest quality, fully tested, innovative firestopping solutions.

1. GENERAL
	1. SECTION INCLUDES

\*\* NOTE TO SPECIFIER \*\* Delete items below not required for project.

* + 1. General Firestopping: For through-penetrations and joints in or between the following fire-resistance rated assemblies, including both blank openings, linear openings, and openings containing penetrating items:
			1. Floor-ceiling assemblies.
			2. Roof-ceiling assemblies.
			3. Walls and partitions.
			4. Smoke barriers.
			5. Construction enclosing compartmentalized areas.
	1. RELATED SECTIONS

\*\* NOTE TO SPECIFIER \*\* Delete any sections below not relevant to this project; add others as required.

* + 1. Section 03300 - Cast-In-Place Concrete.
		2. Section 04220 - Concrete Unit Masonry.
		3. Section 07900 - Joint Protection.
		4. Section 09200 - Plaster and Gypsum Board.
		5. Section 15400 - Plumbing.
		6. Section 15085 - Plumbing Insulation.
		7. Section 15895 - HVAC.
		8. Section 15080 - HVAC Insulation.
		9. Section 16000 - Electrical.
		10. Section 16700 - Communications.
	1. REFERENCES

\*\* NOTE TO SPECIFIER \*\* Delete references from the list below that are not actually required by the text of the edited section.

* + 1. American Society of Testing and Materials (ASTM):
			1. ASTM E2174 - Standard Practice for On-Site Inspection of Installed Firestop Systems.
			2. ASTM E2393 - Standard Practice for On-Site Inspection of Installed Fire Resistive Joint Systems and Perimeter Fire Barriers.
		2. FM Global (FM):
			1. FM 4991 - Standard for Approval of Firestop Contractors.
		3. National Building Code of Canada (NBC).
		4. National Research Council Canada (NRC).
			1. NRCC-49677 - Best practice guide on fire stops and fire blocks and their impact on sound transmission.
		5. Underwriters Laboratories, Inc. Canada (ULC):
			1. CAN/ULC-S115 - Fire Tests for Fire Stop Systems.
			2. CAN/ULC-S101 - Fire Endurance Tests of Building Construction and Materials.
			3. CAN/ULC-S102 - Method of Test for Surface Burning Characteristics of Building Materials.
	1. SUBMITTALS
		1. Submit under provisions of Section 01300.
		2. Product Data: For each type of firestopping product indicated demonstrating compliance with referenced standards and listing numbers of systems in which each product is to be used.
		3. System Drawings: Submit documentation from a qualified third-party testing agency that is applicable to each firestopping system configuration for construction, joint opening width and/or penetrating items.
			1. Schedule of ULC System Drawings for Fire Rated Construction: Submit schedule of all expected opening locations and sizes, penetrating items, and required listed design numbers to seal openings to maintain fire resistance ratings.
			2. ULC System Drawings for Fire Rated Construction: Furnish copies of all ULC Systems identified in schedule above. Include any engineering recommendations.
		4. Unlisted Firestop Systems: Where Project conditions require a modification to a qualified testing agency's listed system for a specific location, submit Engineering Judgment (also known as Technical Evaluation or Technical Judgment) or equivalent fire-resistance-rated assembly developed in accordance with current International Firestop Council (IFC) guidelines by a manufacturer certified by UL as a Qualified Firestop Technical Evaluator. Obtain approval of authorities having jurisdiction prior to submittal.
		5. Product Certificates: Certificate of conformance signed by manufacturers of firestopping products certifying that products comply with requirements.

\*\* NOTE TO SPECIFIER \*\* Delete if not applicable to product type.

* + 1. Verification Samples: Two representative units of each type, size, pattern, and color.
		2. Shop Drawings: Include details of materials, construction, and finish. Include relationship with adjacent construction.
		3. Installation Instructions: Submit manufacturer's printed installation instructions.
	1. QUALITY ASSURANCE
		1. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section with a minimum five years documented experience.
		2. Provide systems that comply with the following requirements and those specified in "Performance Requirements" Article:
			1. Firestopping tests are performed by a qualified, testing and inspection agency. A qualified testing and inspection agency is ULC, Intertek, or UL, or another agency performing testing and follow-up inspection services for firestop systems acceptable to authorities having jurisdiction.
			2. Firestopping products bear classification marking of qualified testing and inspection agency.
		3. Engage an experienced installer who is certified, licensed, FM Approved in accordance with FM 4991, Certified by UL and/or ULC 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.
		4. Obtain firestop systems for each type of penetration or joint opening and construction condition indicated from a single manufacturer.
		5. Conduct conference at Project site to comply with requirements in Division 1 Section "Project Meetings".

\*\* NOTE TO SPECIFIER \*\* Include mock-up if the project size or quality warrant the expense. The following is one example of how a mock-up on might be specified. When deciding on the extent of the mock-up, consider all the major different types of work on the project.

* + 1. Mock-Up: Construct a mock-up with actual materials in sufficient time for Architect's review and to not delay construction progress. Locate mock-up as acceptable to Architect and provide temporary foundations and support.
			1. Intent of mock-up is to demonstrate quality of workmanship and visual appearance.
			2. If mock-up is not acceptable, rebuild mock-up until satisfactory results are achieved.
			3. Retain mock-up during construction as a standard for comparison with completed work.
			4. Do not alter or remove mock-up until work is completed or removal is authorized.
	1. DELIVERY, STORAGE AND HANDLING
		1. Deliver 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 firestopping products to prevent their deterioration or damage due to moisture, temperature changes, contaminants, or other causes.
	2. PROJECT CONDITIONS
		1. Do not install products when ambient or substrate temperatures are outside limitations recommended by manufacturer.
		2. Do not install products when substrates are wet due to rain, frost, condensation, or other causes.
		3. Do not use materials that contain flammable solvents.
		4. Do not install water-based or products that are conductive when wet in contact with energized electrical conductors. Exercise care when energizing penetrants.
	3. COORDINATION
		1. Coordinate construction of openings and penetrating items to ensure that through-penetration firestop systems are installed according to specified requirements.
		2. Coordinate sizing of sleeves, openings, core-drilled holes or cut openings to accommodate through-penetration firestop systems.
		3. Schedule installation of firestopping after completion of penetrating item installation but prior to covering or concealing of openings.
	4. WARRANTY
		1. Manufacturer's standard limited warranty unless indicated otherwise.
1. PRODUCTS
	1. MANUFACTURERS
		1. Acceptable Manufacturer: Specified Technologies Inc., which is located at:210 Evans WaySomerville, NJ 08876Toll Free Tel: 800-992-1180Tel: 908-526-8000Fax: 908-526-9623Email: [request info (sales@stifirestop.com)](https://arcat.com/rfi?action=email&company=Specified%252BTechnologies%252BInc.&message=RE%253A%2520Spec%2520Question%2520(07841sti)%253A%2520&coid=35657&spec=07841sti&rep=&fax=908-526-9623);Web: <https://www.stifirestop.com/>

\*\* NOTE TO SPECIFIER \*\* Delete one of the following two paragraphs; coordinate with requirements of Division 1 section on product options and substitutions.

* + 1. Substitutions: Not permitted.
		2. Requests for substitutions will be considered in accordance with provisions of Section 01600.
	1. PERFORMANCE REQUIREMENTS
		1. Firestopping:
			1. Fire Test Requirements:
				1. Underwriters Laboratories of Canada (ULC):

CAN/ULC-S115 - Fire Tests for Fire Stop Systems.

CAN/ULC-S101 - Fire Endurance Tests of Building Construction and Materials.

CAN/ULC-S102 - Method of Test for Surface Burning Characteristics of Building Materials.

* + - 1. References:
				1. Underwriters Laboratories of Canada (ULC) - Firestop Systems and Components.

Firestop Systems (XHEZC)

Firestop Components (XHJZC)

* + - * 1. Underwriters Laboratories of Northbrook, IL - Products Certified for Use in Canada.

Through Penetration Firestop Systems (XHEZ7)

Joint Systems (XHBN7)

Fill, Void, or Cavity Materials (XHHW7)

Firestop Devices (XHJI7)

Forming Materials (XHKU7)

Wall Opening Protective Materials (CLIV7)

* + - * 1. Major Building Codes: Including local codes at Project location.

\*\* NOTE TO SPECIFIER \*\* Delete the following codes not required.

Underwriters Laboratories of Northbrook, IL "Products Certified for Use in Canada.

National Research Council Canada (NRC), "Best Practice Guide on Fire Stops and Fire and their Impact on Sound Transmission" (NRCC-49677).

Factory Mutual Approvals (FM) of Norwood, MA "FM 4991: Standard for Approval of Firestop Contractors".

* + - 1. Products that upon curing do not re-emulsify, dissolve, leach, breakdown, or otherwise deteriorate over time from exposure to atmospheric moisture, sweating pipes, ponding water, or other forms of moisture characteristic during and after construction.
			2. When intumescent products are used, provide products that do not contain sodium silicate or any other water soluble intumescent ingredient in the formulation.
			3. Firestop products that do not contain ethylene glycol.
			4. Firestop sealants sufficiently flexible to accommodate motion such as pipe vibration, water hammer, thermal expansion, and other normal building movement without damage to the seal.
			5. Pipe insulation shall not be removed, cut away or otherwise interrupted through wall or floor openings. Provide products appropriately tested for the thickness and type of insulation utilized.
			6. Fire rated pathway devices shall be the preferred product and shall be installed in all locations where frequent cable moves, add-ons and changes will occur. Such devices shall be:
				1. Capable of retrofit around existing cables.
				2. Designed such that two or more devices can be ganged together.
				3. Maintenance free such that no action is required to activate the smoke and fire sealing mechanism.
			7. When mechanical cable pathways are not practical, openings within walls and floors designed to accommodate voice, data and video cabling shall be provided with re-enterable products specifically designed for retrofit.
			8. Fire-resistive joint sealants sufficiently flexible to accommodate movement such as thermal expansion and other normal building movement without damage to the seal.
			9. 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 CAN/ULC-S115.
			10. Penetration firestop systems, fire-resistive joint systems, or perimeter fire barrier systems subjected to an air leakage test conducted in accordance with Standard, CAN/ULC-S115 with published L-Ratings for ambient and elevated temperatures as evidence of the ability of firestop system to restrict the movement of smoke.
			11. Fire-rated grommet for all individual or small grouped cable applications up to 0.53 in. (14 mm).
			12. Moisture-curing products where inclement weather or greater than transient water exposure is expected.
	1. FIRESTOPPING
		1. General: Firestopping products that are compatible with one another, with the substrates forming openings, and with the items, if any, penetrating through-penetration firestop systems, under conditions of service and application, as demonstrated by firestopping products manufacturer based on testing and field experience.
			1. Components for each firestopping 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. Use only firestopping products that have been tested for specific fire-resistance-rated construction conditions conforming to construction assembly type, penetrating item type or joint opening width and movement capabilities, annular space requirements, and fire-rating involved for each separate instance.

\*\* NOTE TO SPECIFIER \*\* Delete paragraph options not required and delete product options not required.

* + 1. Intumescent Sealants: Single component intumescent latex formulations containing no water soluble intumescent ingredients capable of expanding a minimum 8 times.
			1. Specified Technologies, Inc. SpecSeal Series SSS Intumescent Sealant.
			2. Specified Technologies, Inc. SpecSeal Series LCI Intumescent Sealant.
		2. Endothermic Sealants: Single component latex formulations that upon cure do not re-emulsify during exposure to moisture.
			1. Specified Technologies, Inc. SpecSeal Series LC Endothermic Sealant.
		3. Elastomeric Sealants: Single component latex formulations that upon cure do not re-emulsify during exposure to moisture and accommodate minimum plus or minus 25 percent movement.
			1. Specified Technologies, Inc. SpecSeal Series AS Elastomeric Spray.
			2. Specified Technologies, Inc. SpecSeal Series ES Elastomeric Sealant.
		4. Firestop Devices: Factory-assembled steel collars lined with intumescent material capable of expanding a minimum 30 times sized to fit specific outside diameter of penetrating item.
			1. Specified Technologies, Inc. SpecSeal Series SSC Firestop Collars.
			2. Specified Technologies, Inc. SpecSeal Series LCC Firestop Collars.
		5. Fire Rated Cable Pathways: Gangable device modules capable of being retrofitted around existing cables and comprised of steel raceway with intumescent foam pads allowing 0 to 100 percent cable fill and requiring no additional action in the form of plugs, twisting closure, putty, pillow, or sealant to achieve fire and leakage ratings.
			1. Specified Technologies Inc. EZ-Path Fire Rated Pathway.
		6. Wall Opening Protective Materials: Intumescent, non-curing pads or inserts for protection of electrical switch and receptacle boxes to reduce horizontal separation to less than 24 inch (610 mm).
			1. Specified Technologies, Inc. SpecSeal Series SSP Firestop Putty Pads.
			2. Specified Technologies, Inc. SpecSeal Series EP PowerShield Insert Pads.
		7. Firestop Putty: Intumescent, 100 percent solids, non-hardening, water resistant, butyl rubber based putties containing no solvents or silicone compounds.
			1. Specified Technologies, Inc. SpecSeal Series SSP Firestop Putty.
		8. Wrap Strips: Single component intumescent elastomeric strips faced on both sides with a plastic film and capable of expanding a minimum 30 times.
			1. Specified Technologies, Inc. SpecSeal Series RED2 Wrap Strip.
			2. Specified Technologies, Inc. SpecSeal Series BLU2 Wrap Strip.
			3. Specified Technologies, Inc. SpecSeal Series 1000EX Wrap Strip.
		9. Firestop Pillows: Re-enterable, non-curing, mineral fiber core encapsulated with an intumescent coating on all six sides contained in a flame retardant poly bag.
			1. Specified Technologies, Inc. SpecSeal Series SSB Firestop Pillows.
		10. Mortar: Portland cement based dry-mix product formulated for mixing with water at Project site to form a non-shrinking, water-resistant, homogenous mortar.
			1. Specified Technologies, Inc. SpecSeal Series SSM Firestop Mortar.
		11. Silicone Sealants: Moisture curing, single component, silicone elastomeric sealant for horizontal surfaces (pourable or nonsag) or vertical surface (nonsag).
			1. Specified Technologies, Inc. SpecSeal SIL300 Silicone Firestop Sealant.
			2. Specified Technologies, Inc. SpecSeal SIL300 SL Self-Leveling Silicone Firestop Sealant.
		12. 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.
			1. Specified Technologies, Inc. SpecSeal FT305 Firestop Spray.
		13. Silicone Foam: Multicomponent, silicone-based liquid elastomers, that when mixed, expand and cure in place to produce a flexible, non-shrinking foam.
			1. Specified Technologies, Inc. Pensil 200 Silicone Foam.
		14. Composite Sheet: Intumescent material sandwiched between a galvanized steel sheet and steel wire mesh protected with aluminum foil capable of sustaining a minimum 2,500 lbs (1,134 kg) when subjected to load testing.
			1. Specified Technologies, Inc. SpecSeal CS Composite Sheet.
		15. Cast-In-Place Firestop Device: Single component molded firestop device installed on forms prior to concrete placement with totally encapsulated, tamper-proof integral firestop system and smoke sealing gasket.
			1. Specified Technologies, Inc. SpecSeal CD Cast-In Firestop Device
		16. Fire-Rated HVAC Retaining Angles: Steel angle system with integral intumescent firestop gasket for use on steel HVAC ducts.
			1. Specified Technologies, Inc. SpecSeal FyreFlange Firestop Angles
		17. Firestop Plugs: Re-enterable, foam rubber plug impregnated with intumescent material capable of expanding minimum 10 times with expansion beginning at 350 degrees F (177 degrees C) for use in blank openings and cable sleeves.
			1. Specified Technologies, Inc. SpecSeal Series FP Firestop Plug
		18. Firestop Blocks: Intumescent urethane foam blocks used for medium and large openings as well as complex penetrations made to accommodate cables, cable trays, and various pipe constructions. The intumescent foam blocks may be used in both temporary or permanent applications. The following products are acceptable:
			1. Product: Specified Technologies, Inc. (STI) SpecSeal Series SBR Firestop Blocks.
		19. Fire-Rated Cable Grommet: Molded two-piece grommet made from plenum grade polymer with a foam inner core for sealing cable penetrations up to 0.53 inches. (14 mm) diameter.
			1. Specified Technologies, Inc. EZ-Firestop Grommet (RFG1 or RFG2)
		20. Fire-Rated Closet Flange Gasket: Molded, single-component, intumescent gasket for use beneath a closet flange in floor applications.
			1. Specified Technologies, Inc. SpecSeal Series CF34 Closet Flange Firestop Gasket
		21. Protective Wrap: Endothermic Wrap incorporating foil scrim evaluated for protection of cable pathways, liquid fuel lines, as well as in through-penetration and membrane-penetration firestopping. Testing to incorporate protection of Electrical Metallic Tubing (EMT), Rigid Metallic Conduit (RMC), Cable Trays, single and/or multi containment liquid fuel lines. Wrap to have a maximum weight of no greater than 1.4 lbs/ft2 and allow for the use of steel tie wire when installed around piping, conduits, and/or cable trays.
			1. Specified Technologies, Inc. E-Wrap Endothermic Wrap.
1. EXECUTION
	1. EXAMINATION
		1. Do not begin installation until substrates have been properly constructed and prepared.
			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. If substrate preparation is the responsibility of another installer, notify Architect in writing of unsatisfactory preparation before proceeding.
	2. PREPARATION
		1. 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.
		2. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.
			1. Provide masking and temporary covering to prevent soiling of adjacent surfaces by firestopping materials.
	3. FIRESTOPPING INSTALLATION
		1. General Requirements: Install through-penetration firestop systems and fire-resistive joint systems in accordance with "Performance Criteria" Article, the conditions of testing and classification as specified in the published design, and in accordance with manufacturer's instructions, approved submittals, and in proper relationship with adjacent construction.
			1. Seal openings or voids made by penetrations to ensure an air and water resistant seal.
			2. Consult with mechanical engineer, project manager, and damper manufacturer prior to installation of through-penetration firestop systems that might hamper the performance of fire dampers as it pertains to duct work.
			3. Protect materials from damage on surfaces subjected to traffic.
			4. 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.
			5. Where joint application is exposed to the elements, fire-resistive joint sealant must be approved by manufacturer for use in exterior applications.
	4. FIELD QUALITY CONTROL
		1. Inspections: Owner shall engage a qualified independent inspection agency to inspect through-penetration firestop systems in accordance with ASTM E2174, "Standard Practice for On Site Inspection of Installed Fire Stops" or joint systems in accordance with ASTM E2393, "Standard Practice for On Site Inspection of Installed Fire Resistive Joint Systems and Perimeter Fire Barriers".
	5. REFERENCES

\*\* NOTE TO SPECIFIER \*\* Delete references from the list below that are not actually required by the text of the edited section. 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 firestopping products so they comply with requirements.
		3. Place system stickers on each side of wall penetrations.
		4. Place a reproduction (photocopy) of the ULC System description in a document protector and mount to the wall next to the wall penetration
			1. Highlight the section of the system description that list the allowed cable types.
	1. ADJUSTING AND CLEANING
		1. Remove equipment, materials, and debris, leaving area in undamaged, clean condition.
		2. Clean all surfaces adjacent to sealed openings to be free of excess firestopping materials and soiling as work progresses.

END OF SECTION