

PART - 1 GENERAL

1.1 SUMMARY

- .1 Section Includes: Labour, Products, equipment and services necessary to complete the work of this Section in accordance with the Contract Documents, including, but not limited to:
 - .1 Installing new and patching, repair, or replacement of firestop and smoke seal systems damaged by construction activities.

1.2 ADMINISTRATIVE REQUIREMENTS

- .1 Coordination: Coordinate with Subtrades affected by the work of this Section; give a minimum of 1 week notice of dates and locations where work will take place throughout the areas of Work.
- .2 Pre-installation Conference: Two weeks prior to commencing work of this Section, arrange for manufacturer's technical representative to visit the site and review procedures to be followed, conditions under which the work will be done, and inspect the surfaces to receive the work of this Section. Advise the Consultant of the date and time of the meeting.

1.3 SUBMITTALS

- .1 Shop Drawings: Submit complete and detailed shop for each condition encountered on Site. Indicate following:
 - .1 Material and thickness of firestopping and smoke seals; primers, damming materials, reinforcements, and anchorages/fastenings.
 - .2 ULC assembly number certification and description of assembly, unless proposed assembly is approved by authorities having jurisdiction and meets Consultant's approval.
 - .3 Required temperature rise and flame rating.
 - .4 Hose stream rating (where applicable).
 - .5 Size of opening; adjacent materials.
 - .6 Installation methods.
 - .7 Number and location of penetrations.
- .2 Product Data: Submit up-to-date manufacturer's product data proposed for use under this Section. Include manufacture printed instructions for installation.
- .3 Reports: Submit test reports from a qualified testing and inspection agency indicating that firestopping materials and systems conform to, or exceed, specified requirements.
- .4 Samples: If requested, submit samples of each type of firestopping systems, smoke seals and accessories. Indicate location where material/system shall be used.

1.4 QUALITY ASSURANCE

- .1 Manufacturer Qualifications: Company specializing in manufacturing the Products of this Section with minimum five years documented experience and a Firestop Contractors International Association (FCIA) Manufacturer Member in good standing.

- .2 Installer Qualifications: Company specializing in performing the work of this Section with minimum five years documented experience, trained and approved by material or system manufacturer for application of materials and systems being used.
 - .1 Approved applicators of fireproofing materials to select, with manufacturer's recommendations, ULC rated assembly to achieve required fire resistance rating.
 - .3 Source and Performance Limitations:
 - .1 Obtain materials and systems of this Section from a single manufacturer.
 - .2 Perform work of this Section using a single applicator responsible for firestopping materials and systems for all of the Work.
 - .4 Fire rated assemblies: Labelled and listed by a nationally recognized testing agency having factory inspection service in conformance with CAN4-S104 and CAN4-S105 for ratings indicated.
 - .5 Inspections: Manufacturer's Technical Representative and Consultant to perform field review as specified in PART 3 – FIELD QUALITY CONTROL.
- 1.5 **DELIVERY, STORAGE AND HANDLING**
- .1 Deliver materials to Site in manufacturer's sealed and labelled containers. Materials shall be subject to Consultant's inspection.
 - .2 Store materials inside building for 24 hours prior to use; store in area designated by Consultant; protect from damage and environmental conditions detrimental to material.
- 1.6 **PROJECT CONDITIONS**
- .1 Maintain minimum temperature of 5°C for minimum period of 1 week before application, during application and until application is fully cured.
 - .2 Conform to manufacturer's recommended temperatures, relative humidity and substrate moisture content for storage, mixing, application and curing of firestopping materials.
 - .3 Ventilate areas in which firestopping is being applied. Protect water-soluble material from wetting until fully cured.
- 1.7 **WARRANTY**
- .1 Warrant work of this Section against defects and deficiencies for period of 5 years commencing at the date of Substantial Performance. Promptly correct any defects or deficiencies which become apparent within warranty period, to satisfaction of Consultant and at no additional cost to Owner. Defects shall include but shall not be limited to cracking, breakdown of bond, failure to stay in place or bleeding.
- PART - 2 PRODUCTS**
- 2.1 **SYSTEM DESCRIPTION**
- .1 Work of this Section is inclusive of all firestopping specified herein and indicated on Drawings including firestopping and smoke seals around outside of mechanical and electrical assemblies where they penetrate fire rated separations.
 - .1 Firestopping and smoke seal within mechanical assemblies (i.e. inside ducts, dampers, intumescant pipe sleeves) and electrical assemblies (i.e. inside bus ducts) are part of work of the Mechanical and Electrical Divisions.

- .2 Firestopping materials and systems to be capable of providing effective barrier against passage of fire, smoke, gasses, and, where specifically indicated, passage of liquids. Materials and systems are to fire stop and smoke seal (draft-tight):
 - .1 All through-penetrating items, termination devices, receptacles or any cut-out openings or joints, including openings and spaces at perimeter edge conditions, with wall and floor assemblies having fire-resistance rating.
 - .2 All gaps, expansion joints, and penetrations in fire separations and fire walls.
 - .3 At angle support at fire dampers.

2.2 **PERFORMANCE REQUIREMENTS**

- .1 Firestopping system to provide fire-resistance rating (flame and temperature) not less than fire resistance rating of surrounding floor, wall or assembly, in accordance with requirements of OBC.
- .2 Firestop system rating: Comply with F, FH, FT, or FTH ratings as required by authorities having jurisdiction.
- .3 Supply systems tested in accordance with CAN/ULC S115, be ULC listed, or be acceptable by authorities having jurisdiction.
- .4 Site system assembly to be in accordance with ULC listed system design limitations, unless proposed assembly is approved by authorities having jurisdiction and meets Consultant's approval.

2.3 **MATERIALS**

- .1 Ensure suitability of products for application and compatibility of materials with surfaces to which it will be applied.
- .2 Select exposed firestopping products for walls and ceilings capable of receiving specified paint finish.
- .3 All materials asbestos-free and PCB-free.
- .4 Primer: As recommended by firestopping material manufacturer for specific substrate and use.
- .5 Damming and backup materials, support and anchoring devices: Non-combustible, in accordance with tested assembly and as recommended by manufacturer. Combustible material for damming purpose may be permitted only if they are removed after permanent firestop materials are cured. Sheet steel covers over temporarily unused sleeves shall be minimum 0.8 mm thick galvanized steel sheet.
- .6 Pipe and duct insulation and wrappings: Compatible with firestopping material; as recommended by manufacturer.
- .7 Fire stopping and smoke seals at opening intended for ease of re-entry such as cable: Elastomeric seal. Do not use cementitious or rigid seal at such locations.
- .8 Fire stopping and smoke seals at opening around penetrations for ductwork and other mechanical items requiring sound and vibration control: Elastomeric seal. Do not use cementitious or rigid seal at such locations.
- .9 Sealants at vertical surfaces: Non-sagging.
- .10 Sealants on floor surfaces requiring level finish: Self-levelling.

PART - 3 EXECUTION

3.1 PREPARATION

- .1 Remove combustible material and loose material detrimental to bond from edges of penetration. Clean, prime or otherwise prepare substrate material to manufacturer's recommendation.
- .2 Do not apply firestop material to surfaces previously painted or treated with sealer, curing compound, water repellent or other coatings unless tests have been performed to ensure compatibility of materials. Remove coatings as required.
- .3 Verify openings, dimensions and surfaces conform to fire and smoke seal assembly.
- .4 Comply with manufacturer's recommended requirements for temperature, relative humidity, moisture content and presence of any sealer or release agents on substrate during application and curing of materials. Surfaces shall be dry, dust and frost free.
- .5 Fully protect walls, windows, floors and other surfaces around areas to be firestopped from marring or damage.
- .6 Prime surfaces in accordance with manufacturer's directions. Mask where necessary to avoid spillage on to adjoining surfaces. Remove stains on adjacent surfaces as required.
- .7 Remove insulation from area of insulated pipe and duct where such pipes or ducts penetrate fire separation unless ULC certified assembly permits such insulation to remain within assembly.
- .8 Provide temporary forming, packing and bracing materials necessary to contain firestopping. Upon completion, remove forming and damming materials not required to remain as part of system.
- .9 Install damming and firestopping materials as per manufacturer's instructions.
- .10 Mix materials at correct temperature and in strict accordance with manufacturer's directions.

3.2 INSTALLATION

- .1 Seal penetrations through and gaps in fire rated separations. Fill gap in accordance with ULC details for tested system selected.
- .2 Apply firestopping materials in strict accordance with manufacturer's written instructions and tested designs to provide required temperature and flame rated seal. Apply with sufficient pressure to properly fill and seal openings to ensure continuity and integrity of fire separation. Tool or trowel exposed surfaces as required.
- .3 Remove excess compound promptly as work progresses and upon completion.
- .4 Examine sizes, anticipated movement and conditions of opening and penetration to establish correct system and depth of backup materials and of firestopping material required. Use firestopping and smoke seals best suited for specific application as required, indicated or specified. Use only components specified in fire test of system. Do not eliminate any component for firestop system that was present in fire tests.
- .5 Do not cover materials until full cure has taken place.
- .6 Provide firestop systems at following locations, without being limited to:
 - .1 At openings, voids and penetrations through floor slabs except openings within shafts constructed with a fire resistance rating and slabs on granular fill.
 - .2 At openings, voids and penetrations through fire rated masonry, concrete and gypsum board walls, partitions and shaft walls.

- .3 At openings, voids and penetrations installed for future use through fire rated masonry, concrete and gypsum board walls, partitions and shaft walls.
- .4 Around mechanical and electrical assemblies penetrating fire assemblies.
- .5 Between perimeter of floor and roof slabs and exterior wall construction, and cladding systems.
- .6 Between tops of fire rated walls and partitions and underside of floor or roof slabs.
- .7 At all expansion joints in walls, floors and assemblies as detailed
- .7 Refer to all other sections of Specifications and the Drawings to ascertain where firestops are to be used and, if noted, type of firestop required.
- .8 Cure materials in accordance with manufacturer's directions.
- .9 Label all firestopping assemblies with adhesive stickers in accordance with Owner's procedures.
- .10 Install a warning card that is clearly visible adjacent to all large and medium openings that may be re-penetrated. This card should contain the following information:
 - .1 Warning that the opening has been firestop protected.
 - .2 Indicate the firestop system used (ULC or cUL).
 - .3 Rating.
 - .4 Firestop products used.
 - .5 Person to contact and phone number in case of modification or new penetration of firestop system.

3.3 **FIELD QUALITY CONTROL**

- .1 Product Manufacturer's Technical Representative to inspect the work at suitable intervals during application and at conclusion of the work of this Section to ensure the work is correctly installed.
 - .1 Inspection of through-penetration firestopping shall be performed in accordance with ASTM E2174 or other recognized standard.
- .2 Consultant to inspect completed systems before they are covered.
- .3 Keep areas of work accessible until inspection by applicable code authorities.
- .4 Remove and replace unacceptable firestopping assemblies at no cost to the Owner.

3.4 **CLEANING**

- .1 Remove excess materials and debris and clean adjacent surfaces immediately after application to satisfaction of Consultant. Remove and/or correct staining and discolouring of adjacent surfaces as directed.
- .2 Remove temporary combustible damming materials after initial set of firestopping materials. Such dams may be required to remain in place if flame spread rating is below 25, in accordance with CAN/ULC-S102.

END OF SECTION