

**PART 1 - GENERAL****1.1 RELATED REQUIREMENTS**

- .1 Section 01 74 19 – Waste Management and Disposal.
- .2 Section 09 21 99 – Partitions for Minor Works.

**1.2 REFERENCE STANDARDS**

- .1 Health Canada/Workplace Hazardous Materials Information System (WHMIS)
  - .1 Material Safety Data Sheets (MSDS).
- .2 National Research Council Canada (NRC)
  - .1 National Building Code of Canada 2015 (NBC).
- .3 Underwriter's Laboratories of Canada (ULC)
  - .1 ULC-S115-1995, Fire Tests of Fire stop Systems.

**1.3 DEFINITIONS**

- .1 Fire Stop Material: device intended to close off opening or penetration during fire or materials that fill openings in wall or floor assembly where penetration is by cables, cable trays, conduits, ducts and pipes and poke-through termination devices, including electrical outlet boxes along with their means of support through wall or floor openings.
- .2 Single Component Fire Stop System: fire stop material that has Listed Systems Design and is used individually without use of high temperature insulation or other materials to create fire stop system.
- .3 Multiple Component Fire Stop System: exact group of fire stop materials that are identified within Listed Systems Design to create on site fire stop system.
- .4 Tightly Fitted; (ref: NBC Part 3.1.9.1(1) and 9.10.9.6(1)): penetrating items that are cast in place in buildings of noncombustible construction or have "0" annular space in buildings of combustible construction.
  - .1 Words "tightly fitted" should ensure that integrity of fire separation is such that it prevents passage of smoke and hot gases to unexposed side of fire separation.

**1.4 ACTION AND INFORMATIONAL SUBMITTALS**

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
  - .2 Product Data:
    - .1 Submit manufacturer's printed product literature, specifications and datasheet and include product characteristics, performance criteria, physical size, finish and limitations.
    - .2 Submit two copies of WHMIS MSDS - Material Safety Data Sheets in accordance with Section 02 81 01 - Hazardous Materials
    - .3 Respond to requirements and specifications of Section 01 35 35 - DND Fire Safety Requirements, articles 1.19, 1.20 and 1.21.
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- .3 Shop Drawings:
  - .1 Submit shop drawings to show location, proposed material, reinforcement, anchorage, fastenings and method of installation.
  - .2 Construction details should accurately reflect actual job conditions.
- .4 Samples:
  - .1 Submit duplicate 300 x 300 mm samples showing actual fire stop material proposed for project.

## **1.5 QUALITY ASSURANCE**

- .1 Qualifications:
  - .1 Installer: company specializing in fire stopping installations.
- .2 Pre-Installation Meetings: convene pre-installation meeting one week prior to beginning work of this Section, with contractor's representative to:
  - .1 Verify project requirements.
  - .2 Review installation and substrate conditions.
  - .3 Co-ordination with other building subtrades.
  - .4 Review manufacturer's installation instructions and warranty requirements.

## **1.6 DELIVERY, STORAGE AND HANDLING**

- .1 Packing, shipping, handling and unloading:
  - .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements.
  - .2 Deliver, store and handle materials in accordance with manufacturer's written instructions.
  - .3 Deliver materials to the site in undamaged condition and in original unopened containers, marked to indicate brand name and ULC markings.
- .2 Storage and Protection:
  - .1 Store materials indoors, in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
  - .2 Replace defective or damaged materials with new.
- .3 Waste Management and Disposal:
  - .1 Waste Management and Disposal:
    - .1 Separate waste materials for reuse and recycling in accordance with Section 01 74 19 - Waste Management and Disposal.
  - .2 Package Waste Management: recover packaging waste for reuse and manufacturer reuse of packaging materials such as pallets, crates, boards and other packaging material, in accordance with Section 01 74 19 – WASTE MANAGEMENT AND DISPOSAL.

## **1.7 WARRANTY**

- .1 Provide a written warranty, in the name of the Owner, certifying that the Work specified in this Section are exempt of all material and execution defects, in particular against waterproofing losses, cracking, crumbling, loss of consistency, contraction, loss of adhesion and tarnishing of adjacent surfaces, for a period of five (5) years from the date of Provisional Acceptance.
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## PART 2 - PRODUCTS

### 2.1 MATERIALS

- .1 Fire stopping and smoke seal systems: in accordance with CAN-ULC-S115.
    - .1 Asbestos-free materials and systems capable of maintaining effective barrier against flame, smoke and gases in compliance with requirements of CAN-ULC-S115 and not to exceed opening sizes for which they are intended and conforming to specified special requirements described in PART 3.
    - .2 Fire stop system rating: as specified in PART 3
    - .3 Fire stopping/smoke retardant gasket.
    - .4 Flexible firestop acrylic sealant, sealing rigid or low-movement/wall, for fire-rated joints, paintable, such as CP-606 by HILTI or approved equivalent by Departmental Representative. Apply this product when application is visible unless application does not meet CAN-ULC-S115 standard requirements.
    - .5 Smoke and acoustic sealant, non fire-rated, paintable, such as CP-506 by HILTI or approved equivalent by Departmental Representative.
    - .6 Elastic firestop sealant that provides maximum movement in fire-rated applications for expansion joints and HVAC penetrations, such as CP-601S by HILTI or approved equivalent by Departmental Representative.
    - .7 Silicone-based, self-levelling firestop sealant, single component, for use with through-penetrations as well as construction joints in floors such as CP-604 by HILTI or approved equivalent by Departmental Representative.
    - .8 Firestop sealant spray used to clog highly mobile dynamic joints, such as CFS-SP WB by HILTI or approved equivalent by Departmental Representative.
    - .9 Smoke and acoustic spray, paintable, such as CP 572 from HILTI or approved equivalent by Departmental Representative.
    - .10 Firestop foam such as CP 620 by HILTI or approved equivalent by Departmental Representative.
    - .11 Firestop mortar to be used in concrete block walls for filling pipe penetrations of various spans, such as CP 637 from HILTI or approved equivalent by Departmental Representative.
    - .12 Cement-based self-levelling concrete for filling in openings in concrete block walls and poured concrete that may be used for 25 to 450 mm concrete thicknesses, such as SIKACRETE – 08 SCC from SIKA, or approved equivalent by Departmental Representative.
    - .13 Firestop Block to be used in concrete block or gypsum walls, for concealed openings (above ceilings), dimensions 50 x 125 x 200 mm, such as FIRESTOP BLOCK CFS-BL by HILTI, or approved equivalent by Departmental Representative.
    - .14 Mineral wool speed plugs or speed strips for decking such as CP 737 and CP 777 by HILTI or approved equivalent by Departmental Representative.
  - .2 Fire stopping filler material:
    - .1 Ceramic fibre wool or rock insulation, density 64 kg/m<sup>3</sup>, compressed at 25 % tightness in the opening up to a depth minimum depth of 89 mm; Z-shaped metallic fastener clips to hold insulation in horizontal openings.
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- .3 Service penetration assemblies: systems tested to CAN-ULC-S115.
- .4 Service penetration fire stop components: certified by test laboratory to CAN-ULC-S115.
- .5 Fire-resistance rating of installed fire stopping assembly in accordance with NBC.
- .6 Fire stopping and smoke seals at openings intended for ease of re-entry such as cables: elastomeric seal.
- .7 Fire stopping and smoke seals at openings around penetrations for pipes, ductwork and other mechanical items requiring sound and vibration control: elastomeric seal.
- .8 Primers: to manufacturer's recommendation for specific material, substrate, and end use.
- .9 Water (if applicable): potable, clean and free from injurious amounts of deleterious substances.
- .10 Damming and backup materials, supports and anchoring devices: to manufacturer's recommendations, and in accordance with tested assembly being installed as acceptable to authorities having jurisdiction.
- .11 Sealants for vertical joints: non-sagging.

## **PART 3 EXECUTION**

### **3.1 MANUFACTURER'S INSTRUCTIONS**

- .1 Compliance: comply with manufacturer's written recommendations or specifications, including product technical bulletins, handling, storage and installation instructions, and datasheets.

### **3.2 PREPARATION**

- .1 Examine sizes and conditions of voids to be filled to establish correct thicknesses and installation of materials.
  - .1 Ensure that substrates and surfaces are clean, dry and frost free.
- .2 Prepare surfaces in contact with fire stopping materials and smoke seals to manufacturer's instructions.
- .3 Maintain insulation around pipes and ducts penetrating fire separation without interruption to vapour barrier.
- .4 Mask where necessary to avoid spillage and over coating onto adjoining surfaces; remove stains on adjacent surfaces.

### **3.3 INSTALLATION**

- .1 Install fire stopping and smoke seal material and components in accordance with manufacturer's certified tested system listing.
  - .2 Seal holes or voids made by through penetrations, poke-through termination devices, and unpenetrated openings or joints to ensure continuity and integrity of fire separation are maintained.
  - .3 Provide temporary forming as required and remove forming only after materials have gained sufficient strength and after initial curing.
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- .4 Tool or trowel exposed surfaces to neat finish.
- .5 Remove excess compound promptly as work progresses and upon completion.
- .6 For all exposed fire stopping surfaces, refurbish and finish exposed surfaces (smooth surfaces, ready to painted, colour to match partition).

### **3.4 SEQUENCES OF OPERATION**

- .1 Proceed with installation only when submittals have been reviewed by Departmental Representative.
- .2 Install floor fire stopping before interior partition erections.
- .3 Metal deck bonding: fire stopping to precede spray applied fireproofing to ensure required bonding.
- .4 Mechanical pipe insulation: certified fire stop system component.
  - .1 Ensure pipe insulation installation precedes fire stopping.

### **3.5 FIELD QUALITY CONTROL**

- .1 Inspections: notify Departmental Representative when ready for inspection and prior to concealing or enclosing fire stopping materials and service penetration assemblies.
- .2 Manufacturer's Field Services:
  - .1 Obtain written report from manufacturer verifying compliance of Work, in handling, installing, applying, protecting and cleaning of product and submit Manufacturer's Field Reports as described in PART 1 - SUBMITTALS.
  - .2 Provide manufacturer's field services consisting of product use recommendations and periodic site visits for inspection of product installation in accordance with manufacturer's instructions.
  - .3 Schedule site visits, to review Work, as directed in PART 1 - QUALITY ASSURANCE.

### **3.6 CLEANING**

- .1 Proceed in accordance with Section 01 74 00 - Cleaning.
- .2 On completion and verification of performance of installation, remove surplus materials, excess materials, rubbish, tools and equipment.
- .3 Remove temporary dams after initial set of fire stopping and smoke seal materials.

### **3.7 SCHEDULE**

- .1 Fire stop and smoke seal at:
    - .1 Penetrations through fire-resistance rated masonry, concrete, and gypsum board partitions and walls.
    - .2 Edge of floor slabs at curtain wall and precast concrete panels.
    - .3 Top of fire-resistance rated masonry and gypsum board partitions.
    - .4 Intersection of fire-resistance rated masonry and gypsum board partitions.
    - .5 Control and sway joints in fire-resistance rated masonry and gypsum board partitions and walls.
    - .6 Penetrations through fire-resistance rated floor slabs, ceilings and roofs.
    - .7 Openings and sleeves installed for future use through fire separations.
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- .8 Around mechanical and electrical assemblies penetrating fire separations.
- .9 Rigid ducts: greater than 129 cm<sup>2</sup>: fire stopping to consist of bead of fire stopping material between retaining angle and fire separation and between retaining angle and duct, on each side of fire separation.

**END OF SECTION**

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