

1 **GENERAL**

1.1 **REFERENCES**

- .1 Health Canada/Workplace Hazardous Materials Information System (WHMIS)
  - .1 Material Safety Data Sheets (MSDS).
- .2 Underwriter's Laboratories of Canada (ULC)
  - .1 ULC-S1, Fire Tests of Fire stop Systems.

1.2 **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.

1.3 **SUBMITTALS**

- .1 Provide submittals in accordance with Section 01 00 10 – General Instructions.
- .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 01 00 10 – General Instructions.
- .3 Shop Drawings:
  - .1 Submit shop drawings to show locations, proposed material, reinforcement, anchorage, fastenings and method of installation.
  - .2 Construction details should accurately reflect actual job conditions.

- .4 Quality assurance: Departmental Representative will review fire stopping work at beginning of project to establish a quality standard. All subsequent work shall be to approved sample, and subsequent work will be reviewed by the Departmental Representative. Contractor shall remove and replace substandard work at his own expense, until work is deemed satisfactory. .

#### **1.4 QUALITY ASSURANCE**

- .1 Qualifications:
  - .1 Installer: company or person specializing in fire stopping installations with 5 years documented experience.
- .2 Pre-Installation Meetings: convene pre-installation meeting prior to beginning work of this Section, with contractor's representative and Departmental Representative in accordance with:
  - .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.
- .3 Schedule site visits, to review Work, at stages listed.
  - .1 After delivery and storage of products, and when preparatory Work is complete, but before installation begins.
  - .2 Twice during progress of Work at 25% and 60% complete.
  - .3 Upon completion of Work, after cleaning is carried out.
  - .4 On progressive basis, before fire stopping is concealed.

### **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 Service penetration assemblies: systems tested to CAN-ULC-S115.
- .3 Service penetration fire stop components: certified by test laboratory to CAN-ULC-S115.
- .4 Fire-resistance rating of installed fire stopping assembly in accordance with NBC.
- .5 Fire stopping and smoke seals at openings intended for ease of re-entry such as cables: elastomeric seal.
- .6 Fire stopping and smoke seals at openings around penetrations for pipes, ductwork and other mechanical items requiring sound and vibration control: elastomeric seal.
- .7 Primers: to manufacturer's recommendation for specific material, substrate, and end use.
- .8 Water (if applicable): potable, clean and free from injurious amounts of deleterious substances.

- .9 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.
- .10 Sealants for vertical joints: non-sagging.

### 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 un-penetrated 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.
- .4 Tool or trowel exposed surfaces to neat finish.
- .5 Remove excess compound promptly as work progresses and upon completion.

#### 3.4 FIRESTOP REQUIREMENTS

- .1 Requirements for fire stopping and smoke seal materials at openings and penetrations in fire resistant rated assemblies are as follows:
  - .1 Allow for movement of piping +/- 2 % due to thermal expansion.
  - .2 Where non-combustible piping passes through fire rated separations, provide the following:
    - .1 Through 2hr rated concrete floor slabs and rated shafts, 1 ½ F Rating
    - .2 Through 1 hr rated horizontal fire separations such as between suites and corridors, 45 min F rating

- .3 Where approved combustible piping is used
  - .1 Through 2hr rated concrete floor slabs and rated shafts, 2 hr F Rating
  - .2 Through 1 hr rated horizontal fire separations such as between suites and corridors, 1 hr F rating

**3.5 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 Mechanical pipe insulation: Pipe insulation shall be an approved component of the listed fire stop system..
  - .1 Ensure pipe insulation installation precedes fire stopping.

**3.6 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, for consultant review.

**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 Top of fire-resistance rated masonry and gypsum board partitions.
  - .3 Intersection of fire-resistance rated masonry and gypsum board partitions.
  - .4 Penetrations through fire-resistance rated floor slabs and ceilings.
  - .5 Openings and sleeves installed for future use through fire separations, including existing sleeves abandoned as part of the work..
  - .6 Around mechanical and electrical assemblies penetrating fire separations.