

**Part 1 General****1.1 RELATED REQUIREMENTS**

- .1 Section 04 21 13 - Brick Masonry
- .2 Section 09 21 16 - Gypsum Board Assemblies.
- .3 Section 09 22 16 - Non-structural Metal Framing.

**1.2 REFERENCES**

- .1 Underwriter's Laboratories of Canada (ULC)
  - .1 CAN/ULC-S115-11, Fire Tests of Fire stop Systems.
  - .2 CAN/ULC-S101-14, Standard Methods of Fire Endurance Tests of Building Construction and Materials Fifth Edition.
- .1 American Society for Testing and Materials (ASTM International)
  - .1 ASTM C612-14, Isolant thermique de fibre minérale en panneaux.
  - .2 ASTM E119-16, Standard Test Methods for Fire Tests of Building Construction and Materials.
  - .3 ASTM E814-13a, Standard Method of Fire Test of Through-Penetration Fire Stops.

**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 PERFORMANCE REQUIREMENTS**

- .1 Perform work in strict accordance with flame resistance test data as per ASTM E-119 (CAN/ULC-S101) and with Underwriters' Laboratories (ULC) test. Complies with municipal and provincial regulations and with National Building Code requirements.

**1.5 ACTION AND INFORMATIONAL SUBMITTALS**

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.

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**FIRE STOPPING**

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- .2 Product Data:
  - .1 Submit manufacturer's printed product literature, specifications and datasheet and include product characteristics, performance criteria, physical size, finish and limitations.
- .3 Certification records
  - .1 Submit certification records to Departmental Representative for verification for each different fire seal situation.
  - .2 Each record must contain all necessary information on completion of sealing, implementation conditions, etc. It must include name of certification body, test number and name of product(s) to be used.

**1.6 DELIVERY, STORAGE AND HANDLING**

- .1 Deliver and store materials in dry place protected from weather, in their sealed container, intact, original, placed above-ground, with manufacturer's label and lead seal intact.
- .2 Do not use materials that have come into contact with water before being used.

**1.7 TEMPERATURE**

- .1 Temperatures of substrates, materials and ambient air shall be those recommended by manufacturer of product to be used.

**1.8 WASTE MANAGEMENT AND DISPOSAL**

- .1 Separate waste materials for reuse and recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

**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 Mineral fibre flame-retardant insulation:
  - .1 Rock wool insulation, to CAN4-S115, Type 1, with density of 72 kg/m<sup>3</sup> and compressive strength of 6.9 kPa, compressed to 25% or more, minimum thickness of 89 mm; flame spread 0; smoke developed 0.
  - .2 Anchoring and restraint devices: based on manufacturer's recommendations and compatible with specified assemblies.
- .3 Elastomeric sealant of modified acrylic latex, fire-resistant:
  - .1 Sealants against fire and smoke, water-soluble, non-toxic, meeting or exceeding requirements of CAN/ULC-S115, CAN/ULC-S1019, ASTM E814 and ASTM E119, to seal apertures around metal ducts, pipes, conduits, wall/ceiling junctions, etc., as indicated.

## FIRE STOPPING

- .2 Following variants will be considered:
  - .1 Floor; crossing duct, single or multiple: high-performance intumescent fire-resistant caulking.
  - .2 Masonry wall and drywall; single crossing duct: high-performance intumescent fire-resistant caulking.
  - .3 Masonry wall and drywall; multiple crossing ducts: fire-resistant mortar.
- .4 Dual-component foam: formulated for complex orifices.
- .5 Non-flexible mortar: waterproof, made of fibre-reinforced mortar cement foam.
- .6 Intumescent foam: in form of prefabricated blocks, for complex orifices or those to be reopened in the short term.
- .7 Intumescent rings: solid intumescent foam and galvanized steel collars.
- .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 Restraining, support, backing and anchoring devices: based on manufacturer's recommendations and compatible with established entities, proven and deemed acceptable by competent authorities.

**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.
- .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.

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**FIRE STOPPING**

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- .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 INSPECTION**

- .1 Inspections: before concealing or covering materials or fire-resistant entities, inform Departmental Representative that work is ready for inspection.

**3.5 SCHEDULE**

- .1 Fire stop and smoke seal at:
  - .1 Penetrations through fire-resistance rated masonry, concrete, and gypsum board partitions and walls.
  - .2 Intersection of fire-resistance rated masonry and gypsum board partitions.
  - .3 Penetrations through fire-resistance rated floor slabs, ceilings and roofs
  - .4 Around mechanical and electrical assemblies penetrating fire separ.
  - .5 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.

**3.6 CLEANING**

- .1 On completion and verification of performance of installation, remove surplus materials, excess materials, rubbish, tools and equipment.
- .2 Remove temporary dams after initial set of fire stopping and smoke seal materials.

**END OF SECTION**