SECTION  – firestopping and smokeseals

1. General
   1. summary
      1. Supply and install materials in accordance with published 'Through-Penetration Firestop Systems' in UL/ULC’s Fire Resistance Directory or the publication of another approved independent laboratory certified for use in Canada.
   2. RELATED REQUIREMENTS
      1. Contractor shall be responsible for coordinating this section with all related sections.
   3. REFERENCE Standards
      1. Underwriters Laboratories of Canada (ULC):
         1. CAN/ULC S115-11, Standard Method of Fire Tests and Firestop Systems
   4. SUBMITTALS
      1. Provide submittals in accordance with Section 01 33 00 – Submittal Procedures.
      2. Shop Drawings:
         1. Provide details indicating all reinforcing, anchorages, fastening and proposed method of installation for the various conditions within the project.
      3. Samples:
         1. Submit samples of each type of firestop and smokeseals material and accessory.
   5. QUALITY ASSURANCE
      1. Applicator shall be licensed by the manufacturer of fireproofing materials.
      2. Conform to flame and temperature ratings established by CAN/ULC-S115-05.
      3. Submit manufacturer's certification that materials meet or exceed specified requirements.
      4. Maintain flame and temperature ratings equal to surrounding materials.
   6. DELIVERY, STORAGE, HANDLING AND PROTECTION
      1. Deliver materials in original, unopened packages bearing name of manufacturer and product identification.
      2. Store materials off ground, under cover, and away from damp surfaces.
   7. SITE CONDITIONS
      1. Do not apply materials when temperature of substrate material is below 4 deg C and surrounding air temperature is below 4 deg C, for twenty-four (24) hours prior to application.
2. Products
   1. MATERIALS
      1. Bears UL, ULC or Warnock Hersey label and confirmation of compliance with CAN/ULC-S115-05.
      2. Provide engineered judgment acceptable to Authority Having Jurisdiction, signed and sealed by a Professional Engineer registered to practice in the Province of Ontario, where assembly being protected differs from the tested assembly used.
      3. Provide fire stopping and smoke sealing systems in accordance with CAN/ULC-S115-05 and shall also conform to special requirements in the local Building Code.
      4. Fire-resistant rating of fire stopping material assemblies must meet or exceed the fire-resistance rating of the floor or wall section being penetrated.
      5. Fire stopping and smoke seals at openings around penetrations for pipes, ductwork and other mechanical items requiring sound and vibration control shall be elastomeric seal type. Do not use a cementitious, or rigid seal at such locations.
      6. Primers shall be to manufacturer's recommendation for specific material, substrate, and end use.
      7. Damming and backup materials, supports and anchoring devices shall be to manufacturer's recommendations, and in strict accordance with tested assembly being installed as acceptable to authorities having jurisdiction.
      8. Sealants for vertical joints, shall be non-sagging type.
3. Execution
   1. PROTECTION
      1. Mask adjacent work of other Sections as necessary to avoid spillage onto adjoining surfaces. Remove stains on adjacent surfaces as required.
   2. PREPARATION
      1. Examine sizes and conditions to establish correct thickness and installation of backup materials. Ensure surfaces are dry and frost free.
      2. Clean bonding surfaces of deleterious substances including dust, paint, rust, oil, grease, and other foreign matter which may otherwise impair effective bonding.
      3. Do not apply firestops and smokeseals 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.
      4. Prepare surfaces in accordance with manufacturer's instructions.
      5. Priming and Sealing: Prime surfaces in accordance with manufacturer's instructions.
   3. APPLICATION
      1. Mix materials in accordance with manufacturers' written instructions.
      2. Apply in strict accordance with ULC certification and manufacturer's recommendations to provide a temperature and flame rated seal equal as a minimum to the rating of the wall or floor surrounding.
      3. Seal all holes or voids made by penetrations to ensure an air and water-resistant seal.
      4. Seal all joints to ensure an air and water-resistant seal, capable to withstand compression due to thermal, wind or seismic joint movement.
      5. Consult with Mechanical Engineer and project manager prior to installation of UL firestop systems that might hamper the performance of fire dampers as it pertains to duct work.
      6. Apply to mechanical and electrical service through-penetrations, to formed, sleeved, or cored openings in smoke and fire rated masonry, or gypsum wallboard stud walls and structural floors and ceilings.
         1. Coordinate with plumbing, HVAC, and electrical contractors to ensure proper firestopping application, providing smokeseals around penetrations through fire rated assemblies. Ensure that end joints between lengths of firestopping material have been properly sealed.
      7. Apply to head of smoke and fire rated gypsum wallboard stud wall abutting underside of structure (concrete or steel deck).
      8. Apply to control joints in rated stud walls.
      9. Apply to penetrations for passage of duct, cable, cable tray, conduit, piping, electrical busways, and raceways through fire rated vertical barriers (walls and partitions), horizontal beams (floor/ceiling assemblies) and vertical service shaft walls and partitions.
      10. Apply to safing slots gaps between edge of floor slabs and curtain walls.
      11. Apply to openings between structurally separate sections of walls and floors.
      12. Apply to gaps between tops of walls and ceiling or roof assemblies.
      13. Apply to expansion joints in fire rated walls and floors.
      14. Apply to openings and penetrations in fire rated partitions or walls containing fire doors.
      15. Apply to openings around structural members which penetrate fire rated floors or walls.
      16. Apply firestop and smokeseals materials in accordance with manufacturer's directions, with sufficient pressure to properly fill and seal openings.
      17. Tool or trowel exposed surfaces.
      18. Remove excess compounds promptly as work of this Section progresses and upon completion of work of this Section.
   4. CURING
      1. Cure materials in accordance with manufacturer's instructions.
      2. Do not cover up materials until proper curing has taken place.
   5. IDENTIFICATION
      1. Identify through-penetration firestop systems with pressure-sensitive, self-adhesive, preprinted vinyl labels. Attach labels permanently to surfaces of penetrated construction on both sides of each firestop system installation where labels will be visible to anyone seeking to remove penetrating items or firestop systems. Include the following information on labels:
         1. The words: "Warning: Through-Penetration Firestop System - Do Not Disturb."
         2. Contractor's name, address, and telephone number.
         3. Designation of applicable testing and inspection agency.
         4. Date of installation.
         5. Manufacturer's name for firestop materials.
   6. CLEAN UP AND REPAIRS
      1. Clean adjacent surfaces immediately and leave work neat and clean.
      2. Remove excess materials using recommended procedures, as work progresses.
      3. Remove dams after initial set of firestops and smokeseals as required.
      4. Correct staining and discolouring of adjacent surfaces as directed by Consultant.
      5. Remove all debris and excess materials entirely from the site and leave the work in a neat and tidy condition.
      6. Perform one simulated smoke test for each penetration type once per day. Simulate smoke at a rate of four seconds/100 cubic feet (2.8 cubic metres) and maintain the fog density until inspection is complete.
      7. After inspection is complete, repair all defective firestopping and smokeseals and test again. Continue this procedure until all firestopping and smokeseals passes test.

END OF SECTION