SECTION  – joint firestopping

1. General
   1. summary
      1. Section includes fire-resistive joint systems for the following:
         1. Floor-to-floor joints.
         2. Floor-to-wall joints.
         3. Head-of-wall joints.
         4. Bottom of wall joints.
         5. Wall-to-wall joints.
      2. Related Requirements:
         1. Section 04 20 00 – Unit Masonry.
         2. Section 07 81 00 – Applied Fireproofing.
         3. Section 07 81 23 – Intumescent Fireproofing.
         4. Section 07 84 13 – Penetration Firestopping.
         5. Section 07 92 00 – Joint Sealants.
         6. Section 09 22 16 – Non-Structural Metal Framing.
         7. Section 09 29 00 – Gypsum Board.
   2. REFERENCE Standards
      1. Underwriters Laboratories of Canada (ULC):
         1. CAN/ULC S115-11, Standard Method of Fire Tests and Firestop Systems
   3. ACTiON SUBMITTALS
      1. Product Data Submit product data for each type of product indicated.
   4. INFORMATIONAL SUBMITTALS
      1. Fire Resistive Joint System Schedule: Submit, for information only, a Fire Resistive Joint Schedule indicating the type of fire resistive joint system to be installed for each joint. Indicate each kind of construction condition. Include fire resistive joint design designation of testing and inspection agency acceptable to the authorities having jurisdiction that evidence compliance with requirements for each condition indicated.
         1. Submit documentation, including illustrations, from a qualified testing and inspecting agency that is applicable to each fire-resistive joint system configuration for construction and penetrating items.
      2. Product Certificates: Signed by manufacturers of fire resistive joint system products certifying that products furnished comply with requirements.
   5. QUALITY ASSURANCE
      1. Installer Qualifications: A firm or individual certified or licensed by the fire resistive joint system manufacturer as experienced and with sufficient trained staff to install manufacturer's products according to specified requirements. A manufacturer's willingness to sell its fire resistive joint system materials to Contractor or to an installer engaged by Contractor does not in itself confer qualification on the buyer.
      2. Source Limitations: Obtain fire-resistive joint systems, for each kind of joint and construction condition indicated, through one source from a single manufacturer.
      3. Fire-Test-Response Characteristics: Provide fire-resistive joint systems that comply with the following requirements and those specified in Part 2 "Performance Requirements" Article:
         1. Fire-resistance tests are performed by a qualified testing and inspecting agency. A qualified testing and inspecting agency are UL, ULC or another agency performing testing and follow-up inspection services for fire-resistive joint systems acceptable to authorities having jurisdiction.
         2. Fire-resistive joint systems are identical to those tested per methods indicated in Part 2 "Performance Requirements" Article and comply with the following:
            1. Fire-resistive joint system products bear classification marking of qualified testing and inspecting agency.
            2. Fire-resistive joint systems correspond to those indicated by referencing system designations of the qualified testing and inspecting agency.
   6. DELIVERY, STORAGE, and HANDLING
      1. Deliver fire-resistive joint system products to Project site in original, unopened containers or packages with qualified testing and inspecting agency's classification marking applicable to Project and with intact and legible manufacturers' labels identifying product and manufacturer, date of manufacture, lot number, shelf life, curing time, and mixing instructions for multicomponent materials.
      2. Store and handle materials for fire-resistive joint systems to prevent their deterioration or damage due to moisture, temperature changes, contaminants, or other causes.
   7. FIELD CONDITIONS
      1. Environmental Limitations: Do not install fire-resistive joint systems when ambient or substrate temperatures are outside limits permitted by fire-resistive joint system manufacturers or when substrates are wet.
      2. Ventilate fire-resistive joint systems per manufacturer's written instructions by natural means or, if this is inadequate, forced-air circulation.
2. Products
   1. PERFORMANCE REQUIREMENTS
      1. General: Provide fire-resistive joint systems that are produced and installed to resist spread of fire according to requirements indicated, resist passage of smoke and other gases, and maintain original fire-resistance rating of assembly in which fire-resistive joint systems are installed.
      2. Joint Systems In and Between Fire Resistance Rated Constructions: Provide systems with assembly ratings not less than that equaling or exceeding fire-resistance rating of constructions in which joints are located.
   2. manufacturers
      1. Products: Subject to compliance with requirements, provide fire resistive joint systems indicated for each application in the Fire-Resistive Joint System Schedule at the end of Part 3.
   3. JOINT FIRESTOPPING
      1. Compatibility: Provide joint firestopping systems that are compatible with joint substrates, under conditions of service and application, as demonstrated by fire-resistive joint system manufacturer based on testing and field experience.
      2. VOC Content: Provide joint firestopping systems that comply with the following limits for VOC content when calculated according to 40 CFR 59, Subpart D (EPA Method 24):
         1. Architectural Sealants: 250 g/L.
         2. Sealant Primers for Nonporous Substrates: 250 g/L.
         3. Sealant Primers for Porous Substrates: 775 g/L.
         4. Plastic Foam Adhesives: 50 g/L.
         5. Adhesives for Porous Materials (Except Wood): 50 g/L.
         6. Fiberglass Adhesives: 80 g/L.
         7. Primers, Sealers and Undercoaters: 200 g/L.
      3. Sealant shall comply with the testing and product requirements of the California Department of Public Health's "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers."
      4. Accessories: Provide components of joint firestopping system, including forming materials, that are needed to install fill materials and to comply with Part 2 "Performance Requirements" Article. Use only components specified by joint firestopping system manufacturer and approved by the qualified testing and inspecting agency for systems indicated.
3. Execution
   1. examination
      1. Examine substrates and conditions, with Installer present, for compliance with requirements for joint configurations, substrates, and other conditions affecting performance of Work.
      2. Proceed with installation only after unsatisfactory conditions have been corrected.
   2. PREPARATION
      1. Surface Cleaning: Clean joints immediately before installing fire-resistive joint systems to comply with fire-resistive joint system manufacturer's written instructions and the following requirements:
         1. Remove from surfaces of joint substrates foreign materials that could interfere with adhesion of fill materials.
         2. Clean joint substrates to produce clean, sound surfaces capable of developing optimum bond with fill materials. Remove loose particles remaining from cleaning operation.
         3. Remove laitance and form-release agents from concrete.
      2. Priming: Prime substrates where recommended in writing by fire-resistive joint system manufacturer using that manufacturer's recommended products and methods. Confine primers to areas of bond; do not allow spillage and migration onto exposed surfaces.
      3. Masking Tape: Use masking tape to prevent fill materials of fire-resistive joint system from contacting adjoining surfaces that will remain exposed on completion of Work and that would otherwise be permanently stained or damaged by such contact or by cleaning methods used to remove smears from fire-resistive joint system materials. Remove tape as soon as possible without disturbing fire-resistive joint system's seal with substrates or damaging adjoining surfaces.
   3. INSTALLATION
      1. Install joint firestopping systems to comply with Part 2 "Performance Requirements" Article and fire-resistive joint system manufacturer's written installation instructions for products and applications indicated.
      2. Install forming/packing/backing materials and other accessories of types required to support fill materials during their application and in position needed to produce cross-sectional shapes and depths required to achieve fire ratings indicated.
      3. Install fill materials for fire-resistive joint systems by proven techniques to produce the following results:
         1. Fill voids and cavities formed by openings and forming/packing/backing materials as required to achieve fire-resistance ratings indicated.
         2. Apply fill materials so they contact and adhere to substrates formed by joints.
         3. For fill materials that will remain exposed after completing Work, finish to produce smooth, uniform surfaces that are flush with adjoining finishes.
      4. Mix materials in accordance with manufacturers' written instructions.
      5. 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.
      6. Seal all holes or voids made by penetrations to ensure an air and water-resistant seal.
      7. Seal all joints to ensure an air and water-resistant seal, capable to withstand compression due to thermal, wind or seismic joint movement.
      8. Consult with Mechanical Engineer prior to installation of UL, or ULC firestop systems that might hamper the performance of fire dampers as it pertains to duct work.
      9. 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 smokeseal around penetrations through fire rated assemblies. Ensure that end joints between lengths of firestopping material have been properly sealed.
      10. Apply to head of smoke and fire rated gypsum wallboard stud wall abutting underside of structure (concrete or steel deck).
      11. Apply to control joints in rated stud walls.
      12. 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.
      13. Apply to safing slots gaps between edge of floor slabs and curtain walls.
      14. Apply to openings between structurally separate sections of walls and floors.
      15. Apply to gaps between tops of walls and ceiling or roof assemblies.
      16. Apply to expansion joints in fire rated walls and floors.
      17. Apply to openings and penetrations in fire rated partitions or walls containing fire doors.
      18. Apply to openings around structural members which penetrate fire rated floors or walls.
      19. Apply firestop and smokeseal materials in accordance with manufacturer's directions, with sufficient pressure to properly fill and seal openings.
      20. Tool or trowel exposed surfaces.
      21. 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. FIELD QUALITY CONTROL
      1. Inspecting Agency: Owner may engage a qualified independent inspecting agency to inspect fire-resistive joint systems and to prepare inspection reports.
         1. Inspecting agency will state in each report whether inspected fire-resistive joint systems comply with or deviate from requirements.
      2. Proceed with enclosing joint firestopping systems with other construction only after inspection reports are issued and inspecting agency has approved installed fire-resistive joint systems.
      3. If deficiencies are found, repair or replace fire-resistive joint systems so they comply with requirements.
   6. CLEANing AND protection
      1. Clean off excess fill materials adjacent to joints as Work progresses by methods and with cleaning materials that are approved in writing by fire-resistive joint system manufacturers and that do not damage materials in which openings occur.
      2. Provide final protection and maintain conditions during and after installation that ensure fire-resistive joint systems are without damage or deterioration at time of Substantial Completion. If damage or deterioration occurs despite such protection, cut out and remove damaged or deteriorated fire-resistive joint systems immediately and install new materials to produce fire-resistive joint systems complying with specified requirements.
   7. JOINT FIRESTOPPING SYSTEM SCHEDULE
      1. Designation System for Joints in or between Fire-Resistance-Rated Constructions: Alphanumeric designations listed in UL's "Fire Resistance Directory" under product Category XHBN7, Joint Systems Certified for Canada.
      2. Designation System for Joints at the Intersection of Fire-Resistance-Rated Floor or Floor/Ceiling Assembly: Alphanumeric designations listed in UL's "Fire Resistance Directory" under product Category XHDG.
      3. Floor-to-Floor, Fire-Resistive Joint Systems: UL-Classified (FF-Series) system as required to maintain floor fire rating indicated.
      4. Floor-to-Wall, Fire-Resistive Joint Systems: UL-Classified (FW-Series) system as required to maintain floor to wall fire rating indicated.
      5. Head-of-Wall, Fire-Resistive Joint Systems: UL-Classified (HW-Series) system as required to maintain floor to wall fire rating indicated.
      6. Bottom-of-Wall, Fire-Resistive Joint Systems: UL-Classified (BW Series) systems as required to maintain bottom of wall fire rating indicated.
      7. Wall-To-Wall, Fire-Resistive Joint Systems: UL-Classified (WW-Series) system as required to maintain floor to wall fire rating indicated.

END OF SECTION