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**Part 1            General**

**1.1            RELATED REQUIREMENTS**

- .1        Section 23 05 00 - Common Work Results for HVAC

**1.2            REFERENCES**

- .1        National Fire Protection Association (NFPA)
  - .1        NFPA 90A, Standard for the Installation of Air Conditioning and Ventilating Systems.
- .2        Underwriters Laboratories of Canada (ULC)
  - .1        CAN/ULC-S112, Standard Test Method of Fire Test of Fire Damper Assemblies.
  - .2        CAN/ULC-S112.2, Standard Method of Fire Test of Ceiling Fire Stop Flap Assemblies.
  - .3        ULC-S505, Standard for Fusible Links for Fire Protection Service.

**1.3            ACTION AND INFORMATIONAL SUBMITTALS**

- .1        Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2        Product Data:
  - .1        Submit manufacturer's instructions, printed product literature and data sheets for fire and smoke dampers and include product characteristics, performance criteria, physical size, finish and limitations.
  - .2        Indicate the following:
    - .1        Fire dampers.
    - .2        Smoke dampers.
    - .3        Fire stop flaps.
    - .4        Operators.
    - .5        Fusible links.
    - .6        Design details of break-away joints.
- .3        Certificates: submit certificates signed by manufacturer certifying that materials comply with specified performance characteristics and physical properties.

**1.4            CLOSEOUT SUBMITTALS**

- .1        Submit in accordance with Section 01 78 00 - Closeout Submittals.
- .2        Operation and Maintenance Data: submit operation and maintenance data for fire and smoke dampers for incorporation into manual.

**1.5            MATERIALS/MAINTENANCE/REPLACEMENT MATERIAL SUBMITTALS**

- .1        Where materials or products are specified by their trademark, consult the Instructions to Bidders document for the procedures to follow regarding the request for approval for materials or product replacement.

- .2 Extra Materials/Product Replacement:
  - .1 Submit maintenance materials/maintenance material/replacement in accordance with Section 01 78 00 - Closeout Submittals.
  - .2 Provide:
    - .1 6 fusible links of each type.

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

- .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements with manufacturer's written instructions.
- .2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.
- .3 Storage and Handling Requirements:
  - .1 Store materials off ground, indoors, in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
  - .2 Store and protect fire and smoke dampers from nicks, scratches, and blemishes.
  - .3 Replace defective or damaged materials with new.

## **Part 2 Products**

### **2.1 FIRE DAMPERS**

- .1 Fire dampers: Type B, CSA/ULC Warnock Hersey approved label, meet requirements of authorities having jurisdiction and of NFPA 90A. Fire damper assemblies fire tested in accordance with CAN/ULC-S112.
- .2 When open, free area must be 100% that of duct cross-sectional area.
- .3 Mild steel, factory fabricated for fire rating requirement to maintain integrity of fire wall and/or fire separation.
  - .1 Fire dampers: 1-1/2 hour fire rated unless otherwise indicated.
  - .2 Fire dampers: automatic operating type and have dynamic rating suitable for maximum air velocity and pressure differential to which it will be subjected.
- .4 Fusible link actuated, weighted to close and lock in closed position when released or having negator-spring-closing operator for multi-leaf type or roll door type in horizontal position with vertical air flow.
- .5 Mounting channel frame of same width as partitions and firewalls
- .6 Provide fire dampers with steel sleeve or frame which do not disrupt continuity of ductwork or impair damper operation.
- .7 Provide sleeves or frames with perimeter mounting steel angles on either side of partitions or floors penetrated. Ductwork must comply with relevant ULC standards in regards to penetrating fire-rated floor-ceiling or roof-ceiling assemblies.
- .8 Design and construct dampers to not reduce duct or air transfer opening cross-sectional area.
- .9 Dampers shall be installed so that the centerline of the damper depth or thickness is located in the centerline of the wall, partition or floor slab depth or thickness.

- .10 Unless otherwise indicated, the installation details given in SMACNA Install Fire Damp HVAC and in manufacturer's instructions for fire dampers shall be followed.
- .11 Acceptable products: Controlled Air Manufacturing, Ruskin or replacement product approved by addendum in accordance with the Instructions to Bidders.

### **Part 3 Execution**

#### **3.1 EXAMINATION**

- .1 Verification of Conditions: verify that conditions of substrate previously installed under other Sections or Contracts are acceptable for fire and smoke damper installation in accordance with manufacturer's written instructions.
  - .1 Visually inspect substrate in presence of Departmental Representative.
  - .2 Inform Departmental Representative of unacceptable conditions immediately upon discovery.
  - .3 Proceed with installation only after unacceptable conditions have been remedied and after receipt of written approval to proceed from Departmental Representative.

#### **3.2 INSTALLATION**

- .1 Install in accordance with NFPA 90A and in accordance with conditions of ULC listing.
- .2 Maintain integrity of fire separation.
- .3 After completion and prior to concealment obtain approvals of complete installation from authority having jurisdiction.
- .4 Install access door adjacent to each damper. See Section 23 33 00 - Air Duct Accessories.
- .5 Co-ordinate with installer of fire stopping.
- .6 Ensure access doors/panels, fusible links, damper operators are easily observed and accessible.
- .7 Install break-away joints of approved design on each side of fire separation.

#### **3.3 CLEANING**

- .1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.
  - .1 Leave Work area clean at end of each day.
- .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.
- .3 Waste Management: separate waste materials for reuse/recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.
  - .1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.

**END OF SECTION**