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## **PART 1 GENERAL**

### **1.1 REFERENCE SECTIONS**

- .1 American Society for Testing and Materials International (ASTM)
  - .1 ASTM A653/A653M (Latest Edition), Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by Hot-Dip Process.

### **1.2 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 dampers and include product characteristics, performance criteria, physical size, finish and limitations.

### **1.3 CLOSEOUT SUBMITTALS**

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

### **1.4 DELIVERY, STORAGE, AND HANDLING**

- .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements and 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 in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
  - .2 Store and protect dampers from nicks, scratches, and blemishes.
  - .3 Replace defective or damaged materials with new.

## **PART 2 PRODUCTS**

### **2.1 MULTI-LEAF DAMPERS**

- .1 Opposed and or parallel blade type as indicated.
- .2 Structurally formed steel or extruded aluminum, interlocking blades, complete with extruded vinyl seals, spring stainless steel side seals, structurally formed and welded galvanized steel or extruded aluminum frame.

- .3 Pressure fit self-lubricated bronze bearings.
- .4 Linkage: plated steel tie rods, brass pivots and plated steel brackets, complete with plated steel control rod.
- .5 Operator: line voltage, wall mounted thermostat with:
  - .1 Full load rating: 22 A at 120 V.
  - .2 Temperature setting range: 5°C to 30°C.
  - .3 Single pole.
  - .4 Thermometer range: 5°C to 30°C.
  - .5 Scale markings: off-5-10-15-20-25°C.
- .6 Performance:
  - .1 Leakage: in closed position less than 2% of rated air flow at 1000 Pa differential across damper.
  - .2 Pressure drop: at full open position less than 17 Pa differential across damper at 8 m/s.
- .7 Insulated aluminum dampers:
  - .1 Frames: insulated with extruded polystyrene foam with RSI 0.88.
  - .2 Blades: constructed from aluminum extrusions with internal hollows insulated with polyurethane or polystyrene foam, RSI 0.88.

## **2.2 BACK DRAFT DAMPERS**

- .1 Automatic gravity operated, multi leaf, aluminum or steel construction with nylon bearings, centre pivoted, spring assisted or counterweighted.

## **2.3 RELIEF DAMPERS**

- .1 Automatic multi-leaf steel or aluminum dampers with ball bearing centre pivoted and field adjustable counter-weights set by TAB contractor during balancing.

# **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 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 where indicated.
- .2       Install in accordance with recommendations of SMACNA and manufacturer's instructions.
- .3       Seal multiple damper modules with silicon sealant.
- .4       Install access door adjacent to each damper. See Section 23 33 00 - Air Duct Accessories.
- .5       Ensure dampers are observable and accessible.

**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.

**END OF SECTION**