

1 **GENERAL**

1.1 **REFERENCES**

- .1 American Society for Testing and Materials International (ASTM)
  - .1 ASTM A 653/A653M-11, Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by Hot-Dip Process.
- .2 Health Canada/Workplace Hazardous Materials Information System (WHMIS)
  - .1 Material Safety Data Sheets (MSDS).

1.2 **SUBMITTALS**

- .1 Product Data:
  - .1 Submit manufacturer's printed product literature, specifications and datasheet in accordance with Section 01 00 10 – General Instructions. Include product characteristics, performance criteria, and limitations.
    - .1 Submit two copies of Workplace Hazardous Materials Information System (WHMIS) Material Safety Data Sheets (MSDS) in accordance with Section 01 00 10 – General Instructions.
  - .2 Indicate the following:
    - .1 Performance data.
- .2 Quality assurance submittals: submit following in accordance with Section 01 00 10 – General Instructions.
  - .1 Certificates: submit certificates signed by manufacturer certifying that materials comply with specified performance characteristics and physical properties.
  - .2 Instructions: submit manufacturer's installation instructions.
- .3 Closeout Submittals
  - .1 Provide maintenance data for incorporation into manual specified in Section 01 00 10 – General Instructions.

1.3 **QUALITY ASSURANCE**

- .1 Health and Safety Requirements: do construction occupational health and safety in accordance with Section 01 35 29.06 – Health and Safety Requirements.
- .2 Certificates:
  - .1 Catalogue or published ratings those obtained from tests carried out by manufacturer or those ordered by manufacturer from independent testing agency.

2 **PRODUCTS**

2.1 **MULTI-LEAF DAMPERS**

- .1 Opposed blade type.
- .2 Extruded aluminum, interlocking blades, complete with extruded vinyl seals, spring stainless steel side seals, 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: to Section 25 90 01 – EMCS: Site Requirements, Applications and Systems Sequences of Operations and Section 23 09 43 – Pneumatic Control System for HVAC.

## 2.2 OPERATION

- .1 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 100 Pa differential across damper at 100 m/s.

## 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 datasheet.

### 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 Proceed in accordance with Section 01 00 10 – General Instructions.