

## **PART 1 - GENERAL**

### **1.1 REFERENCES**

- .1 American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. (ASHRAE).
  - .2 Department of Justice Canada (Jus).
    - .1 Canadian Environmental Protection Act (CEPA), 1999, c. 33.
    - .2 Transportation of Dangerous Goods Act, 1992 (TDGA), c. 34.
  - .3 Health Canada/Workplace Hazardous Materials Information System (WHMIS).
    - .1 Material Safety Data Sheets (MSDS).
  - .4 National Fire Protection Association (NFPA).
    - .1 NFPA 90A-02, Standard for the Installation of Air-Conditioning and Ventilating Systems.
    - .2 NFPA 90B-02, Standard for Installation of Warm Air Heating and Air-Conditioning Systems.
  - .5 Sheet Metal and Air-Conditioning Contractors' National Association (SMACNA).
    - .1 SMACNA HVAC Duct Construction Standards - Metal and Flexible, 95 (Addendum No.1, November 1997).
    - .2 SMACNA IAQ Guideline for Occupied Buildings under Construction, 1<sup>st</sup> Edition, 1995.
  - .6 Underwriters Laboratories Inc. (UL).
    - .1 UL 181-96, Standard for Factory-Made Air Ducts and Air Connectors.
  - .7 Underwriters Laboratories of Canada (ULC).
    - .1 CAN/ULC-S110-1986 (R2001), Fire Tests for Air Ducts.
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## **1.2 SUBMITTALS**

- .1 Submit documents and samples required.
  - .1 Product Data.
    - .1 Product data should include the following:
      - .1 Thermal properties.
      - .2 Friction losses.
      - .3 Sound attenuation.
      - .4 Tightness.
      - .5 Fire resistance characteristics.
- .2 Samples: Submit samples of different types of flexible ducts offered, along with related technical data sheets.

## **1.3 QUALITY ASSURANCE**

- .1 Certification of Ratings:
  - .1 Catalogue or published ratings to be those obtained from tests carried out by manufacturer or independent testing agency signifying adherence to Codes and Standards.

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

- .1 Protect on site stored or installed absorptive material from moisture damage.

## **PART 2 - PRODUCTS**

### **2.1 GENERAL**

- .1 Factory fabricated to CAN/ULC-S110.
  - .2 Pressure drop coefficients listed below are based on relative sheet metal duct pressure drop coefficient of 1.00.
  - .3 Flame spread rating not to exceed 25. Smoke developed rating not to exceed 50.
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## **2.2 METALLIC - INSULATED**

- .1 Spiral wound flexible aluminum with glass fibre thermal insulation with vapour barrier and vinyl reinforced jacket, as indicated.
- .2 Performance.
  - .1 Factory tested to 3 kPa without leakage.
  - .2 Maximum relative pressure drop coefficient: 3.
  - .3 Thermal loss/gain:  $1.03 \text{ W/m}^2/\text{°C}$ .
  - .4 ULC approved Class 1.
  - .5 Acceptable products: Flex Master, T/L-A Model or equivalent.

## **PART 3 - EXECUTION**

### **3.1 INSTALLATION OF FLEXIBLE DUCT**

- .1 Install flexible air ducts where specified in compliance with SMACNA Recommendations, ANSI/NFPA 90A, 90B, and UL 181 Standards.

**END OF SECTION**

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