

**Part 1            General**

**1.1            RELATED SECTIONS**

- .1      Section 01 00 10 – General Instructions.
- .2      Section 21 05 01 – Common Work Results for Mechanical.
- .3      Section 23 05 29 – Hangers and Supports for HVAC Piping & Equipment.

**1.2            REFERENCES**

- .1      Health Canada/Workplace Hazardous Materials Information System (WHMIS)
  - .1          Material Safety Data Sheets (MSDS).
- .2      National Building Code of Canada (NBC) – 2010.
- .3      National Fire Protection Association (NFPA)
  - .1          NFPA (Fire) 13, Standard for the Installation of Sprinkler Systems. 2010 Edition.

**1.3            SUBMITTALS**

- .1      Submit shop drawings in accordance with Section 01 00 10 – General Instructions.
  - .1          Shop drawings: submit drawings stamped and signed by professional engineer registered or licensed in Province of Ontario, Canada.
  - .2          Provide separate shop drawings for each isolated system complete with performance and product data.
  - .3          Provide detailed drawings of seismic control measures for equipment.

**1.4            QUALITY ASSURANCE**

- .1      Health and Safety:
  - .1          Do construction occupational health and safety in accordance with Section 01 35 29.06 – Health and Safety Requirements.

**1.5            DELIVERY, STORAGE, AND HANDLING**

- .1      Packing, shipping, handling and unloading:
  - .1          Deliver, store and handle in accordance with Section 01 00 10 – General Instructions.
  - .2          Deliver, store and handle materials in accordance with manufacturer's written instructions.

- .2 Waste Management and Disposal:
  - .1 Construction/Demolition Waste Management and Disposal: separate waste materials for reuse and recycling in accordance with Section 01 00 10 – General Instructions.

## **Part 2 Products**

### **2.1 GENERAL**

- .1 Size and shape of bases type and performance of vibration isolation as indicated.

### **2.2 SEISMIC CONTROL MEASURES**

- .1 General:
  - .1 Following systems and/or equipment to remain operational during and after earthquakes:
    - .1 Exhaust Fans.
    - .2 HVAC Equipment.
    - .3 Mechanical Pipe.
    - .4 Fire Protection System.
  - .2 Seismic control systems to work in every direction.
  - .3 Fasteners and attachment points to resist same maximum load as seismic restraint.
  - .4 Drilled or power driven anchors and fasteners not permitted.
  - .5 No equipment, equipment supports or mounts to fail before failure of structure.
  - .6 Supports of cast iron or threaded pipe not permitted.
  - .7 Seismic control measures not to interfere with integrity of firestopping.
- .2 Static equipment:
  - .1 Anchor equipment to equipment supports. Anchor equipment supports to structure.
  - .2 Suspended equipment:
    - .1 Use one or more of following methods depending upon site conditions:
      - .1 Install tight to structure.
      - .2 Cross brace in every direction.
      - .3 Brace back to structure.
      - .4 Cable restraint system.
  - .3 Seismic restraints:
    - .1 Cushioning action gentle and steady.
    - .2 Never reach metal-like stiffness.

**Part 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        Seismic control measures to meet requirements of NBC.
- .2        Install vibration isolation equipment in accordance with manufacturer's instructions and adjust mountings to level equipment.
- .3        Ensure piping, ducting and electrical connections to isolated equipment do not reduce system flexibility and that piping, conduit and ducting passage through walls and floors do not transmit vibrations.
- .4        Unless indicated otherwise, support piping connected to isolated equipment with spring mounts or spring hangers with 25 mm minimum static deflection as follows:
  - .1            Up to NPS4: first 3 points of support.
  - .2            First point of support: static deflection of twice deflection of isolated equipment, but not more than 50 mm.
- .5        Where isolation is bolted to floor use vibration isolation rubber washers.
- .6        Block and shim level bases so that ductwork and piping connections can be made to rigid system at operating level, before isolator adjustment is made. Ensure that there is no physical contact between isolated equipment and building structure.

**3.3                CLEANING**

- .1        Proceed in accordance with Section 01 00 10 – General Instructions.
- .2        Upon completion and verification of performance of installation, remove surplus materials, excess materials, rubbish, tools and equipment.

**END OF SECTION**