

**CONSTRUCTION SPECIAL SPECIFICATION**

**SECTION 15070\_S**

**VIBRATION ISOLATION**

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## **CONSTRUCTION SPECIAL SPECIFICATION**

### **SECTION 15070\_S**

#### **VIBRATION ISOLATION**

##### **PART 1 - GENERAL**

###### **1.1 SECTION INCLUDES**

- A. Furnish and install vibration isolators for rotary, dynamic, or reciprocating equipment or components; include:
  - 1. Inertia bases.
  - 2. Vibration isolation.

###### **1.2 REFERENCES**

- A. ASHRAE - Guide to Average Noise Criteria Curves.

###### **1.3 SUBMITTALS**

- A. Indicate isolation base dimensions.
- B. Indicate vibration isolator locations, with static and dynamic load.
- C. Include calculations required to certify compliance with specified requirements.
- D. Submit manufacturer's certificate that isolators are properly installed and properly adjusted to meet or exceed specified requirements.

###### **1.4 QUALITY ASSURANCE**

- A. Maintain ASHRAE criteria for average noise criteria curves for all equipment at full load condition.
- B. Provide vibration isolation devices, including auxiliary steel bases and pouring forms, from a single manufacturer or supplier who will be responsible for complete coordination of all phases of this work.

##### **PART 2 - PRODUCTS**

###### **2.1 MANUFACTURERS**

- A. Amber-Booth Company.

- B. Korfund Dynamics Corporation.
- C. Mason Industries.

## 2.2 ISOLATION BASES

- A. Type A: Integral structural steel fan and motor base with motor slide rails.
- B. Type B: Slung structural steel base with gusseted brackets.
- C. Type C: Reinforced 3,000 pounds per square inch concrete inertia base set in full depth perimeter structural steel channel frame, with gusseted brackets and vibration isolators. Depth shall be equal to 1/12 the longest dimension of the base, but shall not be less than 6” or exceed 12” unless recommended by the base manufacturer. Height saving vibration isolation brackets shall be used.
- D. Type D: Reinforced 3,000 pounds per square inch concrete equipment base with chamfered edges without channel frame. Refer to Section 15060.

## 2.3 VIBRATION ISOLATORS

- A. Type 1: Spring isolator with built-in all direction seismic restraint with neoprene rubber stabilizers equal to Mason Industries SLR singles and multiple spring welded restraint mounts.
- B. Type 2: Open spring mount with stiff springs (horizontal stiffness equal to vertical stiffness).
- C. Type 3: Open spring mount with stiff springs, heavy mounting frame, and limit stop.
- D. Type 4: Closed spring hanger with acoustic washer.
- E. Type 5: Closed spring hanger with 1 inch thick acoustic isolator.
- F. Type 6: Rubber waffle pads, 30 durometer, minimum 1/2-inch thick, maximum loading 40 pounds per square inch. Use neoprene in oily or exterior locations.
- G. Type 7: 1/2-inch thick rubber waffle pads bonded each side of 1/4-inch thick steel plate.
- H. Type 8: Type BRD-1 rubber-in-shear isolators. Size isolator for 0.35-inch deflection.

## 2.4 FABRICATION

- A. Provide pairs of neoprene side snubbers or restraining springs where side torque or thrust may develop.
- B. Color code spring mounts.
- C. Select springs to operate at two-thirds maximum compression strain, with 1/4-inch ribbed neoprene pads.

## PART 3 - EXECUTION

### 3.1 INSTALLATION

- A. Install vibration isolators for motor driven equipment.
- B. Set steel bases for 1-inch clearance between housekeeping pad and base. Set concrete inertia bases for 2-inch clearance. Adjust equipment level.
- C. Provide spring isolators on piping connected to isolated equipment as follows: up to 4-inch diameter, first three points of support; five to 8-inch diameter, first four points of support; 10-inch diameter and over, first six points of support. Static deflection of first point to be twice deflection of isolated equipment.
- D. Provide minimum of four hangers for each fan coil unit and unit heaters. Provide isolators for each hanger.

### 3.2 SCHEDULE

<u>Isolated Equipment</u>	<u>Base Type</u>	<u>Isolator Type</u>
Boilers	D	NA
Tanks		
Heating Water	D	NA
Domestic Hot Water	D	NA
Expansion (Vertical)	D	NA
Expansion (Horizontal)	NA	4
In-Line Fans	NA	1
Pumps		
Inline	NA	4
Base Mounted 5hp or less	D	N/A
Base Mounted > 5hp	C	1

<u>Isolated Equipment</u>	<u>Base Type</u>	<u>Isolator Type</u>
Piping	NA	4
Ductwork	NA	N/A
Unit Heaters	NA	8
Fan Coil Units	NA	8

END OF SECTION