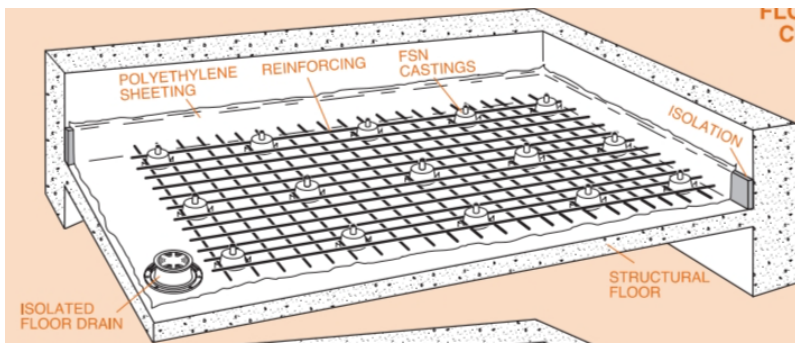
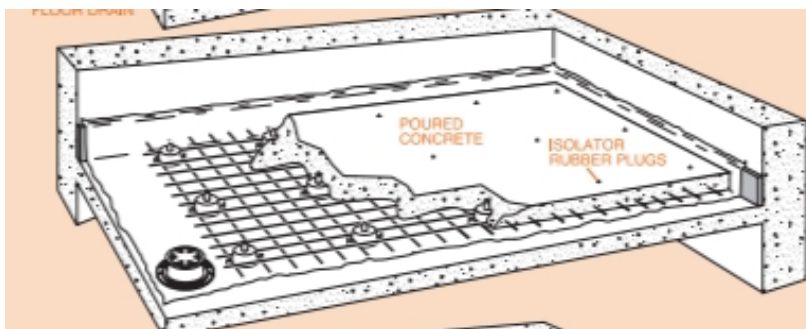


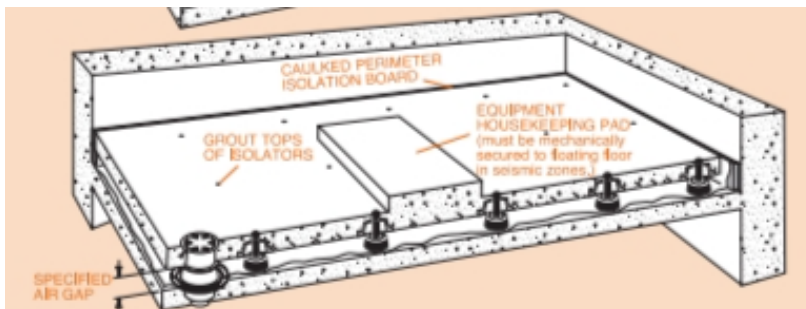
LDS JACK-UP SYSTEM FOR MECHANICAL EQUIPMENT ROOMS WITH MACHINERY SUPPORTED BY THE FLOATING FLOOR



PLACEMENT OF ISOLATION MATERIALS



POURING OF CONCRETE



JACKED UP FLOATING FLOOR

PART 1 – GENERAL

1.01 Description

1. Scope of Work

1. Isolate floating floors from building structure by means of jack-up LDS isolators and perimeter isolation in each of the mechanical equipment rooms as shown on the drawings.

If sound barrier walls are used, add the following:

2. Build sound barrier walls on the floating floors.

2. Substitution of Materials

1. Substitute materials shall meet or exceed the “quality” of the products which are listed in these Specifications. Submit samples and test reports by an independent laboratory for consideration on this project.

1.02 Design

1. Intent

1. The floating floor system shall consist of a 4"(100mm) thick concrete slab isolated from and supported 2"(50mm) above the waterproofed structural slab by resilient LDS isolators within cast iron housings designed to jack up the floor after pouring on the sub-floor. If sound barrier walls are used, add the following:
Sound barrier walls consisting of 6"(150mm) filled concrete block (Barrier wall construction can be changed when writing specification) shall rest on the floating floor with a 3 1/2" air gap to the structural walls. (3 1/2"(90mm) may be reduced to 2"(50mm) if no sway braces are needed.)
2. The floating floor slab shall be isolated from adjoining walls, columns and curbs by means of perimeter isolation.
3. Any floor drains, piping, conduit and duct penetrations must not short circuit the isolation system.
4. Any equipment within these rooms shall be mounted on housekeeping pads or directly on the floating floor as shown on the drawings.
5. In seismic zones the floating floor shall be restrained horizontally by curbs or walls designed to withstand the horizontal seismic forces. Solid bridge bearing LDS pads shall be interspersed between perimeter isolation to withstand the seismic forces with a maximum deflection of 0.2"(5mm). When perimeter cannot be used for seismic constraint, intersperse horizontal restraints within floor system.
6. In seismic zones 2, 3 and 4 or equivalent A_v , the floor shall be protected by embedded double acting resilient floor snubbers set in opposition to the overturning moments at the equipment snubbers in all locations where the center of gravity of major equipment is high.

2. Performance Requirements

1. The floating floor system shall have a minimum rating of STC-79 and INR+17 as verified by an independent laboratory in prior tests.

3. Floor System Construction Procedure

1. The setting of all isolation materials and raising of the floor shall be performed by or under the supervision of the isolation manufacturer.
2. Set and waterproof any drains and lower pipe seals in keeping with waterproofing specifications.
3. Cement perimeter isolation around all walls, columns, curbs, etc.
 1. In seismic zones intersperse the perimeter isolation with bridge bearing quality LDS pads the thickness of the perimeter isolation or bolt to the sub-floor.
4. Cover entire floor area with 6 mil (0.15mm) plastic sheeting and carry sheeting up perimeter isolation.
5. Place bell-shaped castings on a maximum of 54"(1370mm) centers in the general areas in strict accordance with the approved drawings prepared by the isolation manufacturer. Spacing can be increased to straddle machinery locations. Additional reinforcement must be detailed on isolation manufacturer's drawings when required. If sound barrier walls are used, add the following: Perimeter isolators shall be

selected to support the wall weight in addition to the perimeter of the floating floor.

1. In seismic zones attach double acting resilient seismic snubbers to the structural slab on either side of high center of gravity equipment to withstand the overturning moment generated by the machinery snubbers and prevent failure of the floating floor.
6. Place reinforcing as shown on the drawings and pour floor monolithically.
7. Raise floor 2"(50mm) by means of the jack-screws. (If construction sequence dictates raising the floor before placing machinery, heavy planking must be used to protect floor while machinery is being rolled into position).
8. Caulk perimeter isolation in all locations and grout jack-screw holes. If sound barrier walls are used, add the following:
9. Construct block walls on the floating floor being careful that mortar does not drop behind the walls. Place 2"(50mm) fiberglass bats against the structural wall as a precaution. Provide sway braces and isolated angle iron wall braces at the top of the walls. Caulk angle iron braces.
10. In seismic zones adjust the double acting snubbers after machinery is in place to provide a maximum up and down clearance of 0.125"(3mm).

4. Submittals

1. Detailed product drawings and Load/Deflection curves of all isolators, double acting floor snubbers and/or other snubbing restraints when required.
2. AASHTO Test Reports on all properties in table 2.01 A from an accredited independent laboratory for all rubber durometers used.
3. Dynamic stiffness test from an accredited independent laboratory at 5, 10 and 15 Hz, showing dynamic stiffness does not exceed 1.4. 3a. Isolation frequency not to exceed 9 Hz at stated deflection.
4. Acoustical test data from an independent laboratory showing a minimum STC of 79 and a minimum INR of 17 using a 4"(100mm) concrete floating floor, a 6"(152mm) structural floor and a 2"(50mm) air gap.
5. A drawing or drawings showing:
 1. Dead, live and concentrated loads.
 2. Isolator sizes, deflections, frequencies and locations and in seismic zones, locations of seismic snubbers. If sound barrier walls are used, add the following to be: Wall sway brace and isolated angle iron brace sizes, locations and frequencies.
 3. Any drain and penetration locations.
 4. Size, type, elevation and spacing of concrete reinforcement.
 5. Caulking details.
 6. Floor or floor and wall construction procedure.

1.03 Quality Assurance

1. Floating floor system components shall be designed and fabricated by a manufacturer with at least ten years experience in one hundred similar installations.
2. The floating floor isolation materials shall be installed and the floor raised by or under the supervision of the isolator manufacturer.

1.04 Site Conditions

1. If site conditions are unsatisfactory or raise questions about the installation of the floating floor, the work will not proceed until the condition has been corrected in a manner acceptable to the isolation manufacturer. The sub-floor must have the same pitch as the top of the floating floor or special provisions made for isolator housings of different height.

1.05 Sequencing and Scheduling

Coordinate work with other trades and coordinate scheduling with the construction supervisor to minimize delays.

PART 2- PRODUCTS

2.01 Isolators

1. Bell shaped castings with integral lugs to locate reinforcing, shrouding 2”(50mm) thick LDS isolators molded to the following and all other AASHTO bridge bearing specifications. All housings shall have 3/4”(20mm) minimum diameter jackscrews. Deflections shall not exceed 0.3”(7.5mm) nor the frequency 9 Hz. Isolators shall be Mason Industries type FSN.

Table 1. AASHTO BRIDGE BEARING SPECIFICATIONS FOR POLYISOPRENE

ORIGINAL PHYSICAL PROPERTIES			TESTED FOR AGING			OZONE	COMPRES- SION SET	LONG TERM CREEP
Duro- meter	Tensile Strength	Elongat. at Break	OVEN AGING(70hrs/158°F)	ASTM D-573	ASTM D-1149			
Shore A	(min)	(min)	Hard- ness (max)	Tensile Strength (max)	Elongat. at Break (max)	25 pphm in air by Vol. 20% Strain 100°F	22hrs/158°F Method B	168hrs
40±5	2000 psi	500%	+10%	-25%	-25%	No Cracks	25%(max)	5%(max)
50±5	2250 psi	450%	+10%	-25%	-25%	No Cracks	25%(max)	5%(max)
60±5	2250 psi	400%	+10%	-25%	-25%	No Cracks	25%(max)	5%(max)
70±5	2250 psi	300%	+10%	-25%	-25%	No Cracks	25%(max)	5%(max)

NOTE: 40 Durometer is not included in AASHTO Specifications.
Numbers are Mason standard.

1. In seismic zones double acting resilient cast in floating floor snubbers shall consist of a ductile iron housing locked into the floating floor. The housing shall have a removable cover plate to provide access to the adjustment of clearances in both the up and down directions of the resilient stops. Resilient stops shall be attached to a restraining bolt attached to the structural floor with an approved anchor. Double acting snubbers shall be Mason Industries Type SFFS.

2.02 Bond Breaker Material

1. Provide one (1) layer of 6 mil (0.15mm) polyethylene sheeting.

2.03 Perimeter Isolation

1. Minimum 3/4”(20mm) thick PVC foam, density 7 lbs/ft³ average. PVC foam shall be Mason Industries P7.

- In seismic zone perimeter isolation shall be interspersed with 3/4"(20mm) thick, 60 durometer LDS bridge bearing pads the height of the perimeter material. Bridge bearing pad shall be made to the same AASHTO specifications, as shown for the FSN mountings and sized for a maximum deflection of 0.2"(5mm) at maximum earthquake forces. Interspersed pads shall be Mason Industries Type LDS-BBP.

2.04 Perimeter Caulking Compound

- Non-hardening, drying or bleeding. Troweling or pouring grade. Caulking compound shall be Mason Industries Type CC-75.

2.05 Floating Floor Drains

- Cast iron design. The upper funnel section cast into the floating floor. Lower bucket, built into the structure, shall retain water surrounding the upper section as a between floors sound seal. Weep holes are required to drain the structural floor. Floor drains shall have water proofing membrane clamps. Floor drains shall be Mason Industries Type CFD-18591.

PART3-EXECUTION

3.01 Installation

Install the floating floor systems according to the installation and adjustment procedures and drawings submitted by the isolator manufacturer and approved by the architect.

PRODUCT DETAILS

FSN LDS Jack-Up Mount

Load Range (lbs)	A (in)	B (in)	Min C (in)	Max C (in)
500 to 1700	45/8	51/2	3	As Req'd
2500 to 3500	53/8	61/4	3	As Req'd

Dynamic Frequency not to exceed 7.5 Hertz @ 0.3" Deflection. (60 Duro)

EAFM LDS Mount

Capacity and deflections are controlled by diameter and durometer.

Load Range (lbs)	Typical Sizes		Max Defl 0.15T (in)	Lowest Dynamic Freq (Hz) 60 Duro
	A (in)	B (in)		
25 - 3500	1-3	1/2	0.08	15.0
lbs. per mount as req'd	1-4	1	0.15	11.0
	1.5-4.75	1 1/2	0.23	9.0
	2-5	2	0.30	7.5
	3-4.75	3	0.45	6.0
	4-5	4	0.60	5.5

Larger sizes can be molded as required or mountings clustered for greater capacity.

FS Spring Jack-Up Mount

Load Range (lbs)	Defl (in)	A (in)	Min B (in)
450 to 1000	1	4	4
1000 to 2935	1	5	4
450 to 680	2	4	4
610 to 1870	2	5	4

P7 PVC Foam

Average Density: 7 lbs/cubic foot

CFD Floor Drain

Clearance fills with water to form sound trap

SFFS Seismic Floating Floor Snubber