Intro

When you need a floating floor to dramatically Increase your Sound Transmission Class and Impact Noise Rating

Why not use the MASON JACK-UP FLOOR SLAB SYSTEM and eliminate the cost and need for:

- Combustible, rot prone plywood forms.
- A myriad of transmission paths through closely spaced supports.
- Moisture retaining fiberglass infill that plugs sub-drains and encourages vermin.

while gaining:

- An easier, lower frequency isolation method.
- A positive air gap.
- A floor supported by Mason Low Dynamic Stiffness Rubber– the time tested, low frequency, exposure-proof and truly structural material, at lower cost.

Our Riverbank Test Data demonstrates that a four-inch thick concrete floor floating on neoprene mounts improves the STC by 25 if raised two inches and that the INR goes up by 44… Tests using our lower frequency LDS mounts would add to these tremendous improvements.

Remember, the air gap is the isolator, the jack-screw lifts the floor to achieve it, and the resilient LDS element supports the weight while working in parallel with the air.

To the Architect:

We have been floating floors, resiliently suspending ceilings and isolating walls for close to 45 years. The need for this acoustical reinforcement has been well established in textbooks, sales literature and acoustical engineering recommendations. Therefore, we thought it would be helpful to offer a handbook of specific methods and suggested specifications rather than just print another interesting but rather general brochure.

1. There are basically two methods of reducing airborne sound transmission. The first is to increase the mass of the walls, floors or ceilings and the second is to introduce an air gap between relatively airtight constructions.
2. When dealing with a monolithic building component such as a solid concrete floor doubling the mass raises the STC by a maximum of 5. Actual test results are shown graphically on page 3. Because of this it becomes impractical to rely on mass alone as a 6” solid concrete floor has an STC of 54. Doubling to 12” raises the STC to 59. Doubling again to an unacceptable 24” raises the STC to only 64.
3. Once you decide on the maximum practical weight for the construction the next acoustical step is to split this mass into two components sandwiching an air gap. This air gap triggers a tremendous improvement in STC as shown by the Riverbank Tests of a floating floor with flanking protection. (Test Two, page 3.) Notice that the addition of a 4” concrete pour on the original 6” raised the STC from 54 to only 57. The introduction of a 2” air gap between these sections raised the STC to 79 for a dramatic improvement of 22. Increasing the air gap to 4” raised the STC to 82. Doubling the air gap raises the STC a theoretical 5, but the actual result is more like 3 because of resonances.

4. The introduction of lightweight fiberglas in the air space between massive structural elements such as concrete floors or walls is expensive and unimportant. The experimental inclusion in a 2" void increased the STC by 3 beyond the original 79. (Test Two, page 3.) This is meaningless at these levels as the 79 is all but unattainable in a commercial structure because of flanking. Fiberglas is an important addition over suspended ceilings, however, where the mass is light and the contribution noticeable.
5. The air gap is the isolator. The purpose of the vibration mounting is to provide structural support without voiding the air gap. Since each mount is a potential transmission path, it is logical that the fewer mounts or support points, the better the chance of protecting and not bypassing the air gap.
6. Specifications should be written by the professional for the protection of the client and not the protection of the vendor. Specifications should emphasize performance characteristics, physical properties and construction rather than manufacturing techniques. In describing a steel spring it would be unimportant whether the steel was produced by the Bessemer or Open Hearth method. The molder need not be told the proper curing temperature or carbon black particle size and certainly, the glass people know the specific technique for manufacturing fiberglas. It would be important in specifying steel springs to keep the operating stresses well within the elastic limit; to describe rubber mounts in terms of tensile strength, permanent set, elongation, compression set, etc. A proper dialogue regarding fiberglas would similarly cover permanent set, dynamic frequency and most importantly waterproofing tests of this sensitive material that fails when wet.
7. All vendors tend to favor their own products rather than those of their competitors. As opposed to this, an acoustical expert studies all of the available materials and recommends what in his unbiased judgment is best for the application. If there is no such person within your own organization, we continue to suggest that you retain an outside acoustical consultant to help you in this most critical field of client sensitivity.

   We would appreciate your comments as to subjects not covered, our method of presenting this information or any other suggestions to make this booklet more valuable to yourselves and other people in the architectural and acoustical disciplines.

Very truly yours, MASON INDUSTRIES, INC.