



BONER ASSOCIATES CONSULTANTS IN ACOUSTICS

1508 HARDOUIN

P. O. BOX 5338

AUSTIN, TEXAS 78763

512 - 476-3464

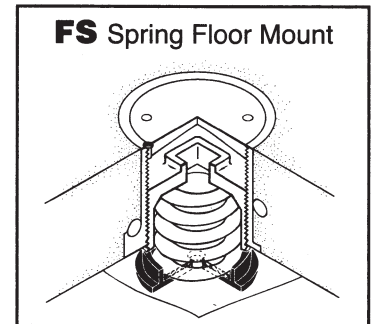
August 16, 1983

MASON INDUSTRIES, INC.
P. O. Box 410
Smithtown, New York 11787

Attention: Norm Mason

Re: TRAUTMANN ELEMENTARY SCHOOL, LAREDO, TEXAS

Gentlemen:



This report is intended to describe a noise problem at subject project, and to describe improvements realized with the use of a Mason Industries isolated slab system.

A. Nature of the Project: The project is an elementary school, which contains a basement level of classrooms, with a gymnasium directly over some of these rooms. There was a serious impact noise problem, occasioned by school children running, performing exercises, and playing ball on the gym floor.

On May 2, 1983, I performed airborne noise measurements of the levels in the classrooms below the gymnasium during childrens' activity in the gym. I measured noise levels of 92 dB in the 31.5 and 63 Hz octave bands, and 90 dB in the 125 octave band.

B. Nature of the Perceived Noise: The noise, as observed by the listener in the classroom, was perceived as having two parts: (1) the initial impact of feet striking the gym floor, and (2) low-frequency "rumble" caused by vibration of the structural system.

C. The Building Structure: The structural system of the building is a lightweight steel system, manufactured by Canam Hambro Systems, Inc. of Canada. The structural engineer for the project provided us with the following information:

1. Non-composite section, 30-ft span, 0.652" static deflect.
2. Composite (after pour): 0.462", live load 125 psf.
3. Moment of Inertia: 697; 187 non composite.

D. The Isolation System: During the month of July, 1983, a Mason Industries Lift-Slab was installed in the gymnasium, at my recommendation, after the structural engineer indicated that the structure would support four additional inches of lightweight concrete. The isolation system construction consisted of four inches of lightweight concrete and Mason spring isolators with neoprene bases.

E. Subsequent Measurements: Prior to the grouting of the isolator openings in the slab, I performed another subjective measurement of the noise in the classrooms. At this time, school was not in session, and I was not able to exactly duplicate the tests with

children, so I used two adults. In addition, the 1/4-in. rubber topping was not yet installed. Therefore, the tests results cannot be considered finally conclusive.

The measured results indicated levels in the 31.5 and 63 Hz octave bands of 72 dB, indicating an improvement of 20 dB caused by the isolated floor system. I expect that a repeat test, using children in sneakers with the rubber topping installed, will show further improvement.*

Sincerely yours,

BONER ASSOCIATES, INC.

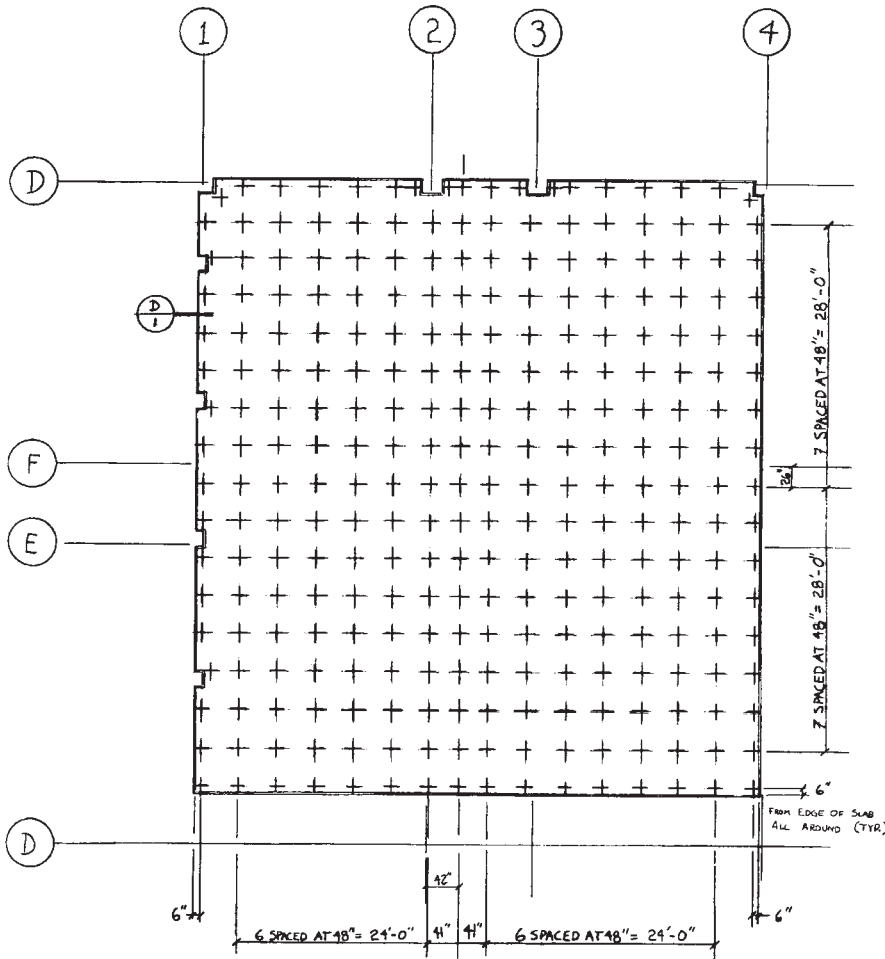
CONSULTANTS IN ACOUSTICS



Charles R. Boner

CRB/jl

* Note by Mason Industries: As often happens, subsequent tests were not run as the problem was solved. Results would have had to be better as construction was improved.



**TRAUTMANN ELEMENTARY
 SCHOOL FS TYPE
 FLOATING FLOOR IN GYM**

NOTES:

- 1) Floor Mounts Spaced at a Maximum Distance of 48" O.C.B.W.
- 2) Floor Mounts Provided 1.56" and 1.95" Deflection. Dead Load 40 psf and a Live Load 10 psf.
- 3) Floor Mount Characteristics are Shown on Mason Drawing C-1702-6.
- 4) All Penetrations Through the Floating Floor Were Isolated.
- 5) Typical Pipe Penetration shown on Dwg. A-16946.
- 6) Typical Reinforcing Pattern shown on Dwg. F-114604.
- 7) Typical Edge Reinforcing Pattern shown on Dwg. F-114623.

Furnished by Mason Industries:

274 FS-1702-6 Spring Mount
 Housings containing C2-840 Springs

Spring Data for C2-840 Spring

Rated Capacity	840 lbs.
Rated Deflection	2.0"
Mount Constant	410lbs/in
Solid Deflection	2.70"