



# MASON-DALLAS .INC

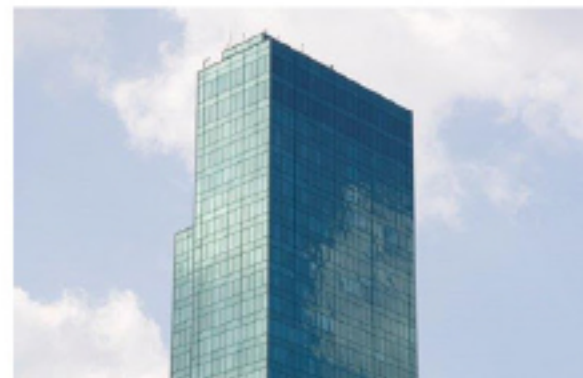
NEWSLETTER

## THE VIBE OF DIAMONDS

JUNE 2017  
HVAC  
EDITION



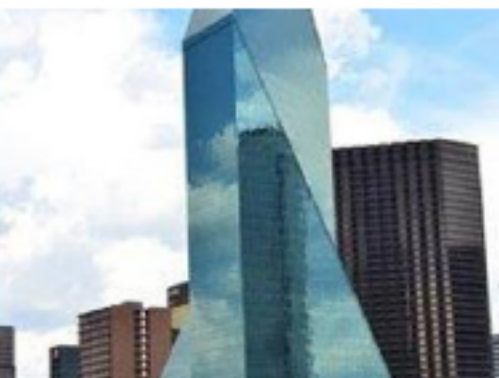
- WHY do we have the reputation of being the #1 Vibration Control Experts in the region?
  - ♦ 120 years of combined experience in the field of vibration & noise control.
  - ♦ Unparalleled service, knowledge and "our word is our bond" attitude.
- Since 1978 WE SUPPLIED OUR PRODUCTS ON MOST OF THE PREMIER PROJECTS IN THE REGION. A FEW ARE SHOWN BELOW.



777 Main Street, Fort Worth, TX  
Provided Vibration/Noise Control Products



Audubon Aquarium of the Americas, LA  
Provided Vibration/Noise Control Products



Fountain Place, Dallas, TX  
Provided Vibration/Noise Control Products



Peir One Hdqtrs FW, TX  
Provided Vibration/Noise Control Products

### AND THE BEAT WENT ON!

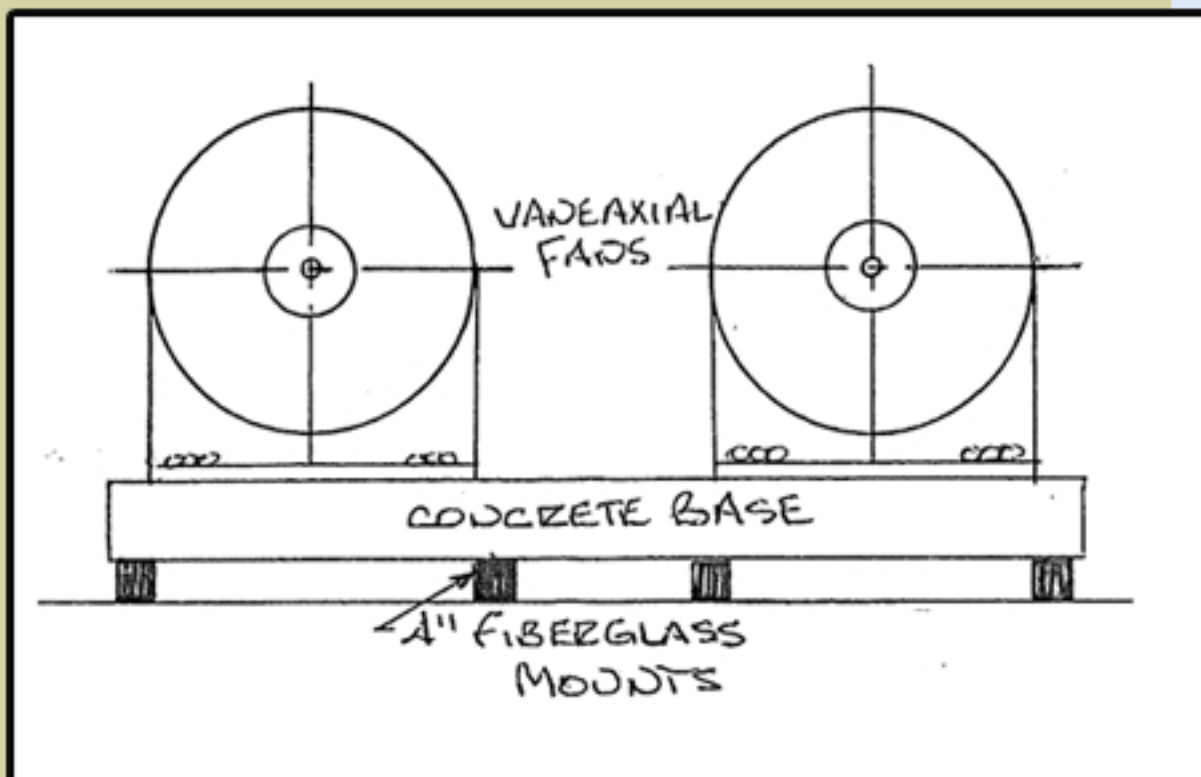


Local contractor, Air Performance Service, contacted us concerning a vibration and noise problem causing tenant annoyance in a Dallas Office Building. This would turn out to be another of the unique challenges we have been consulted on in all our years in business. The installation consisted of two vane axial fans sitting on a common inertia base supported by a number of 4 inch thick fiberglass isolators.

Our visit to the project site determined three separate issues that needed to be addressed:

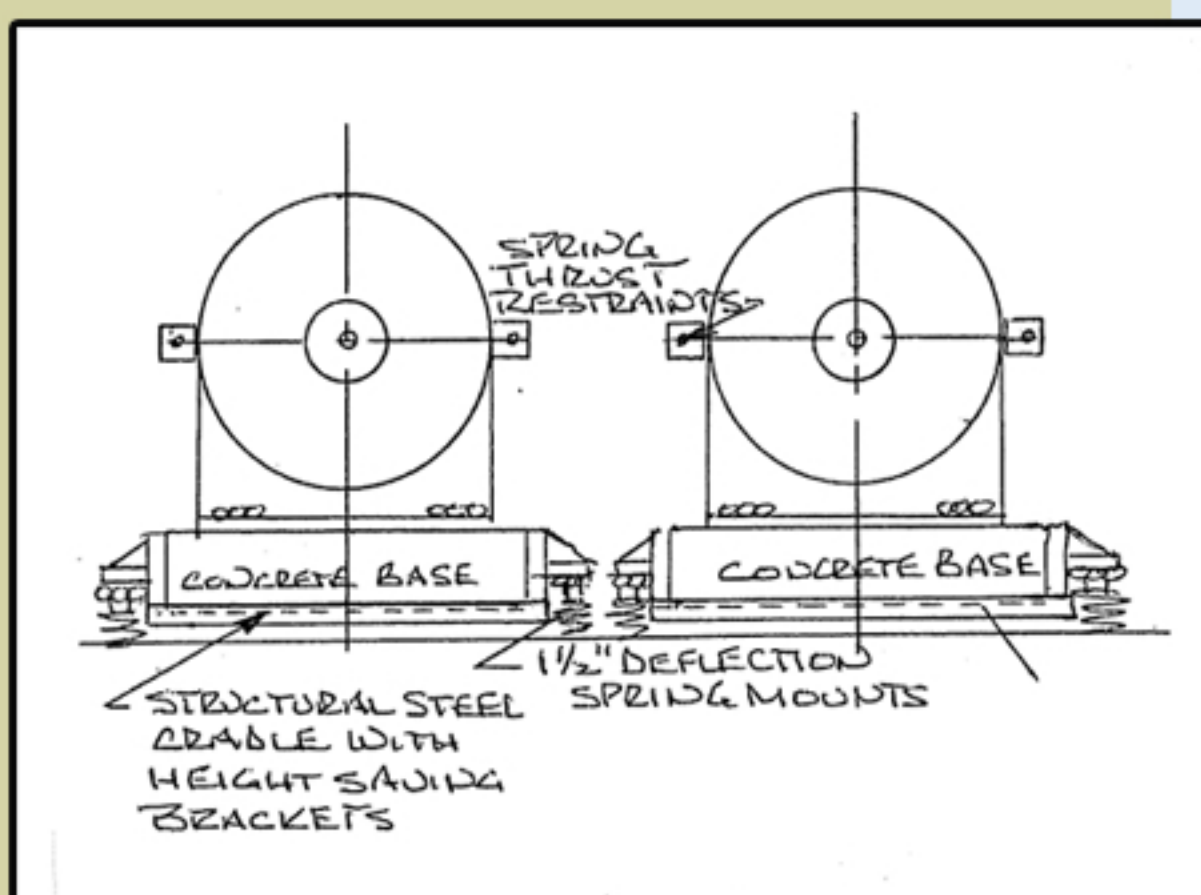
- The two fans were mounted on a common base radiating a beat frequency.
- Vibration transmitted through the fiberglass pads.
- Installation of spring thrust restraints.

A beat frequency is created when two single frequencies are slightly out of phase. The resulting frequency is perceived as a third tone, a droning sound. We have long been aware that mounting two or more pieces of similar equipment on a common base could possibly result in a noticeable beat frequency. In our designs, we try to mount each unit on a separate base, but in some cases, due to space limitations this is not always possible. In our more than 50 years in the isolation business, we have never encountered a beat frequency so prominent it was annoying to tenants. In most cases beat frequencies are out of the range of human hearing and present no problem.



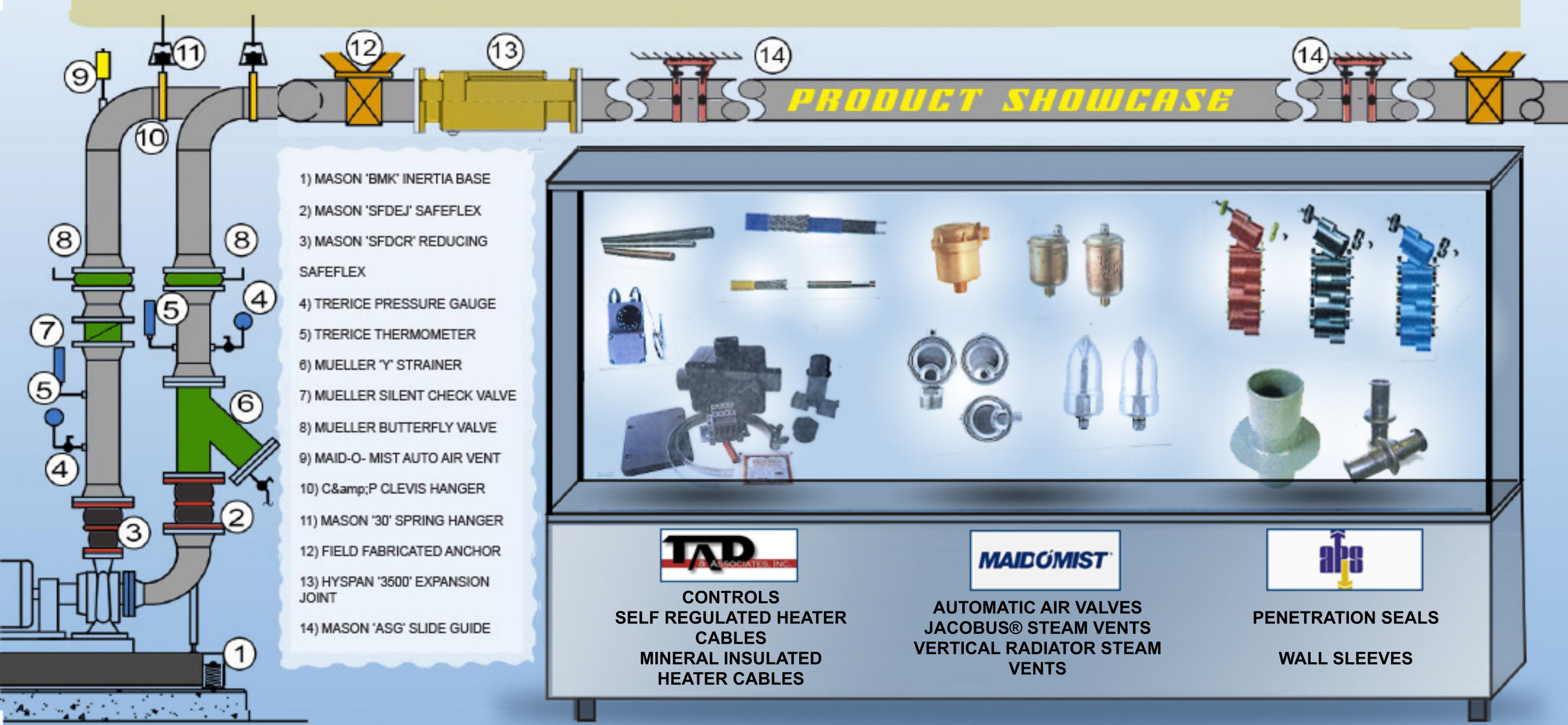
To correct the issues, we proceeded with a three step approach.

- To address the beat frequency issue, we had Air Performance Service cut the base in two. By supporting each fan on a separate base the beat frequency annoyance was eliminated.
- We designed a saddle system of structural steel members and height saving brackets to float each of the bases on spring mounts. Replacing the fiberglass blocks with spring mounts further improved the installation by minimizing the amount of vibratory energy being transmitted to the structure.
- To finish the installation we provided two sets of spring loaded thrust restraints, one set of two, for each fan. Thrust restraints are installed, one on each side of the fan centerline at either the inlet or outlet end to resist the fan thrust. Fan thrust is the result of air being discharged from the fan at high velocities, causing the fan to move horizontally, opposite the discharge. Think of a jet engine, the air goes in the front of the engine and the air being discharged creates thrust, thrust that allows the plane to fly. The spring thrust restraints counter the fan thrust and keep the fans in place.



We have had conversations among ourselves at Mason-Dallas as to whether or not we should share our retrofit stories. The younger minds won out and here we are publishing a newsletter with a different retrofit story each month.

As we have stated in all our previous newsletters, if you have a vibration or noise problem give us a call at 817-267-8651. We would be pleased to meet with you and discuss possible solutions.

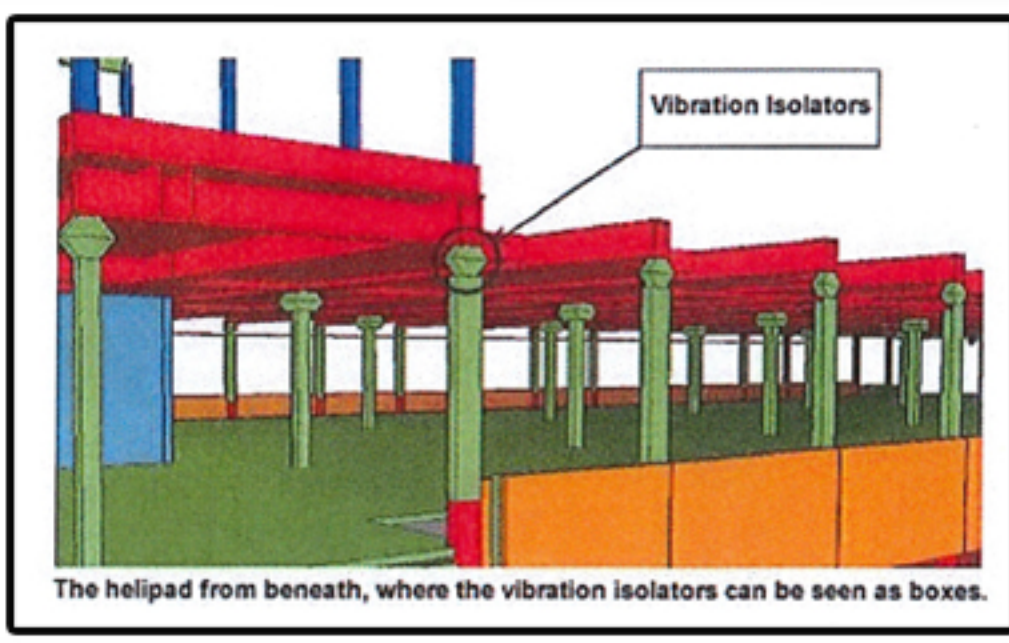


### MANUFACTURER'S CORNER

#### MASON INDUSTRIES, INC.

NEW KAROLINSKA SOLNA HOSPITAL - SWEDEN

While Mason Industries started in the air conditioning industry, over the years we have been offered challenges in other fields including acoustic isolation of studios and, very much more interesting, isolation of complete buildings on natural rubber isolation pads or springs as well as railroad isolation. Isolating helicopter emergency landing pads on top of a hospital is another area. The general method is to completely separate the landing pad from the facility with spring mountings at 2-3 Hz. This 2400 ton landing pad is on 58 isolators with a capacity of 207,000 lbs. each, adjusted hydraulically.



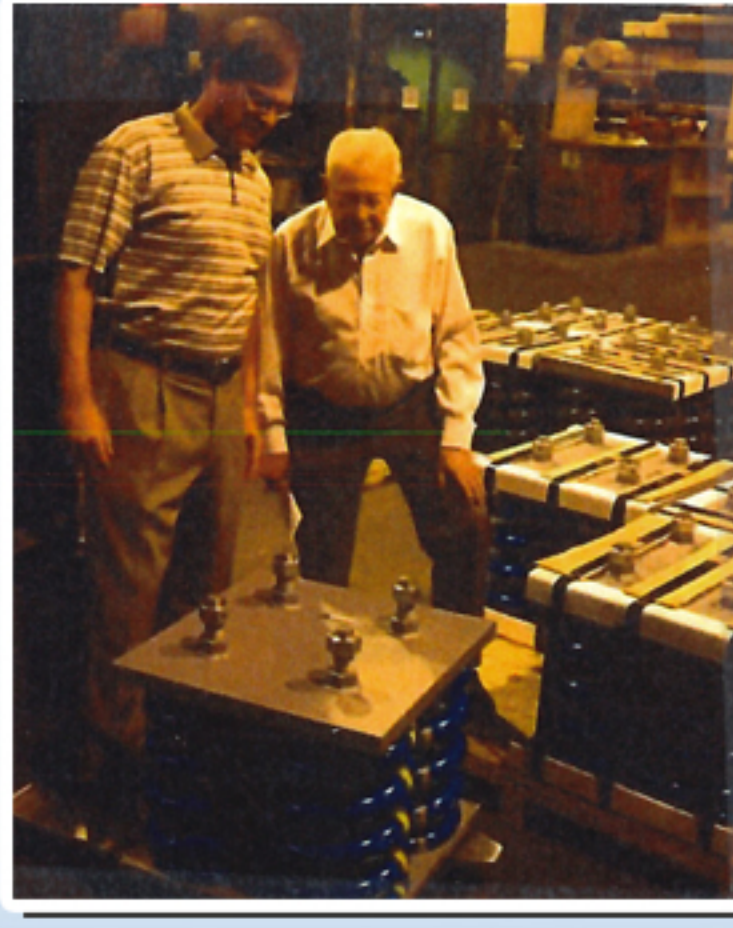
This heliport is in Sweden, but we have supported buildings here at home as well as in Australia, Poland, Thailand, Greece and the UK, to name just a few. We also did all the floating floor and isolation work in the largest TV studio in the world in Beijing. We often compete with American, European, and sometimes Asiatic vibration isolation firms.

Our closing rate is in the 80 - 90% range; never based on price but always engineering capability, reliability and design integrity. We have never left a job until it was right. The short youthful confused gentleman is the writer. The taller older man is Steve Fey, who continues to be our outstanding Worldwide Sales Engineer. Please think of us architecturally as well as experts in the HVAC market. We all need more exports in this troubled economy.

Thanks for your support.

MASON INDUSTRIES, INC.

Norm Mason



### HUMOR



"The use of properly designed vibration mountings would have provided structural protection and vibration isolation."

### FAMOUS QUOTATIONS

How many success stories do you need to hear before you build your own?

-Zig Ziglar



We would appreciate your feedback, please send Your comments to: Magen\_brown@mason-dallas.com