

Pin No. 1 and Engineering and Purchasing  
Personnel

## LEAD INDUSTRIES ASSOCIATION

60 EAST 42ND STREET

NEW YORK 17, N. Y.

November 27, 1959

SUBJECT: "CURRENT PRACTICE IN  
ISOLATING BUILDINGS FROM VIBRA-  
TION WITH LEAD-ASBESTOS PADS"

To Members of the Lead Industries Association:

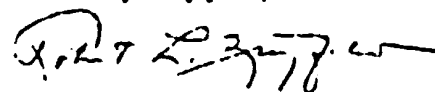
A copy of our new flyer, "Current Practice in Isolating Buildings from Vibration with Lead-Asbestos Pads" is attached.

This leaflet covers only the use of lead-asbestos pads in building foundations. Similar pads have also been used to isolate vibration from printing presses, air conditioning cooling towers, rubber mills, laundry machinery and other equipment that is a source of vibration. Later on we expect to publish similar literature dealing with other applications and we have in progress a research project designed to develop complete engineering data about these pads under a wide range of loads and frequencies. Meanwhile we will be glad to cooperate with members in the solution of vibration problems which they may have in their own facilities.

Approximately 13,000 copies of the attached are being distributed to our architects and contractors mailing lists.

Extra copies, up to 25, are available to members free of charge and above that quantity at our cost of \$4.30 per hundred.

Very truly yours,

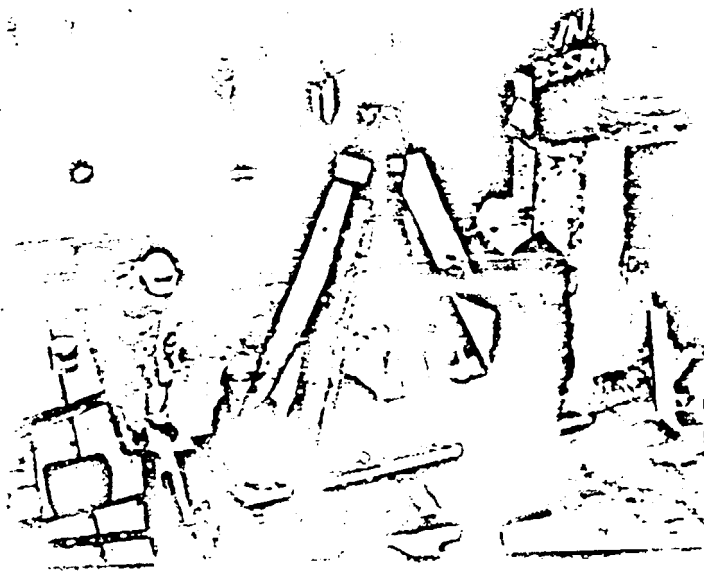
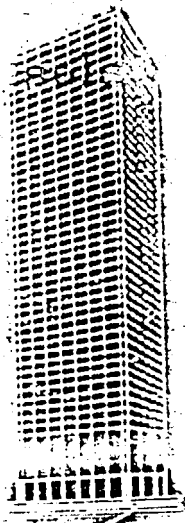


Secretary

Att.



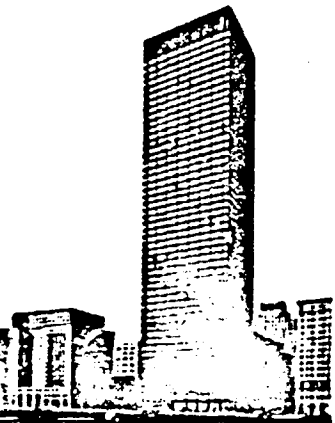
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# Current Practice in Isolating



Union Carbide's New York office building rests on 115 lead-asbestos pads



... shown here being slung into the footings



... adjusted for position and grouted.



Architects: Skidmore, Owings & Merrill, Structural Engineers: Webb & Peckworth.

For some 45 years lead-asbestos pads have been used in building foundations to prevent transmission of vibration from the ground up into the buildings. This practice has been followed most generally where the buildings are adjacent to railroad tracks, but has also been employed where buildings are adjacent to subways and even where the source of vibration is simply from heavy traffic on a street.

The new 54-story Union Carbide Building, two-thirds of which straddles the New York Central's railroad trackage into Grand Central Terminal in New York, is one of the most recent examples. This building almost literally "floats on lead" as each of 115 steel columns supporting the new skyscraper rests on lead anti-vibration pads.

The accompanying drawing illustrates the construction of the pads. Tests made many years ago at Columbia University for the New York Central Railroad showed that lead and asbestos in combination were more efficient in preventing transmission of vibration than either material alone and better than a number of other possible materials.

This combination pad has the ability, infrequently found in vibration isolating materials, to carry heavy loads. Lead, because of its vi-

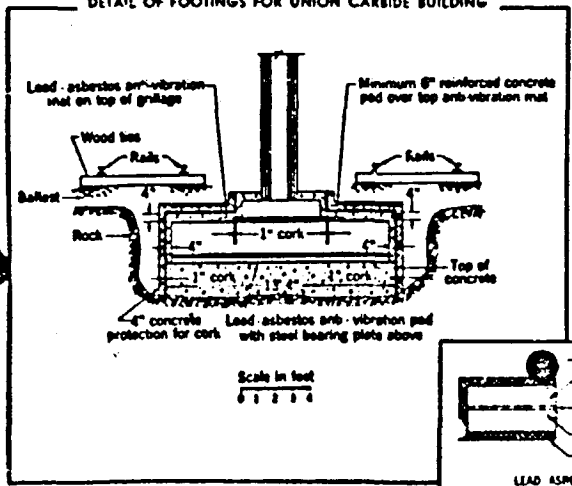
bration damping properties and resistance to corrosion is ideal for the shell. It is also easily fabricated to provide a completely sealed watertight protective envelope for the asbestos and steel.

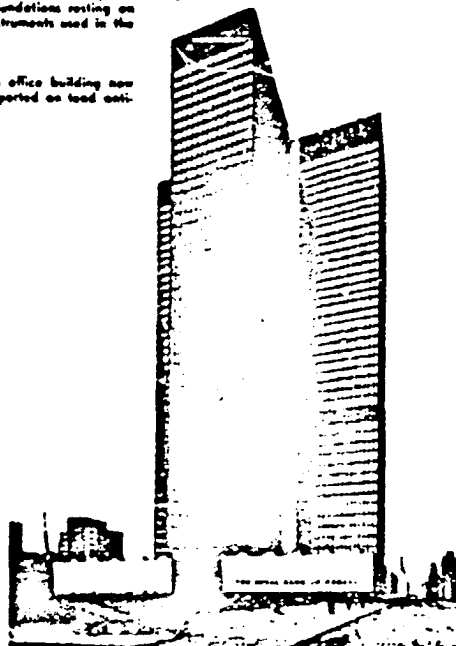
The method used to isolate the vibration from the building is shown in another drawing of one of the supporting columns. The foot of each column and associated sub-structures are set in a concrete pier. The column itself rests on a grillage of "I" beams, set on a steel bearing plate which in turn rests on the lead pads over the concrete foundations. Shoulders of the grillage under many of the main support columns are covered with additional lead pads which in turn are covered with 6 in. of reinforced concrete. This concrete supports ballast and railroad tracks which pass directly over both sides of the piers. Interior sides of the concrete piers are lined with cork.

Architects for the Union Carbide Building are Skidmore, Owings and Merrill, the general contractor is the George A. Fuller Co., and the pads were manufactured and installed by John F. Abernethy and Co., Inc., of Brooklyn.

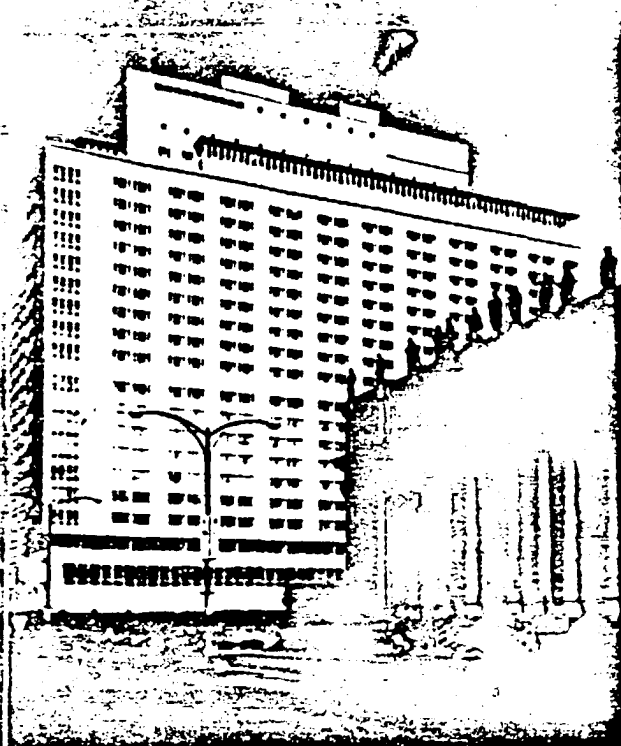
The building which was demolished to make way for the new structure was the old Matguary

DETAIL OF FOOTINGS FOR UNION CARBIDE BUILDING

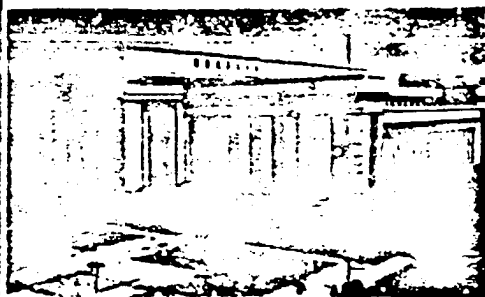




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The Queen Elizabeth Hotel in Montreal is supported on lead pads because of its proximity to the Montreal rail terminal.



Pennsylvania Railroad's 30th Street Station, Philadelphia, (above) rests on lead pads. Graham, Anderson, Probst and White, architects.

adjacent to the New York subway recently had these pads specified for them.

Time and use have demonstrated conclusively the effectiveness of lead asbestos pads for vibration isolation and have also led to improvements in fabrication and application. Today, the edges of the pads are sealed while the pads are under 200 lb. per sq. in. pressure, precluding any possibility of the entrapment of air, and the edges are more effectively sealed by lead burning. The center steel sheets are included for stiffening to make large pads easier to handle and install. Originally

The New York Central's Buffalo Terminal rests on lead-asbestos pads. Folthammer and Wagner, architects, F. B. Freeman, chief engineer.

### Sample Specifications\* for ANTI-VIBRATION PADS OR ISOLATION PADS

Except as otherwise shown on detail plans, special insulation pads shall be provided and placed between all column bases or grillages and the tops of concrete foundations. These pads shall be made of five layers of material, as follows:

1. Top layer of 1/8-inch sheet lead.
2. Upper layer of 1/8-inch asbestos roll fire felt.
3. Middle layer 12-gauge galvanized sheet steel.
4. Lower layer of 1/8-inch asbestos roll fire felt.
5. Bottom layer of 1/8-inch sheet lead.

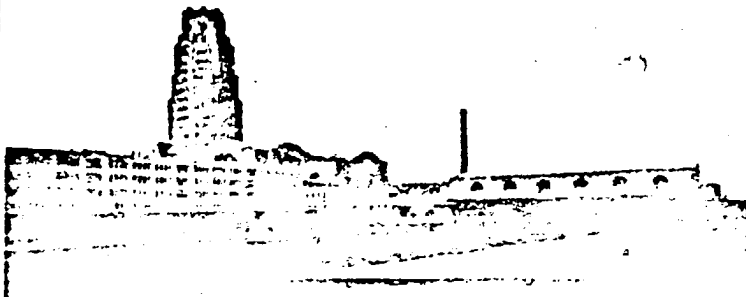
The top and bottom layers of sheet lead shall be lead burned together while the pad is recompressed at 200 psi to form a water tight envelope around the inside layers.

Before setting in place pads shall be given one coat of approved asphalt paint.

\*Based on material specifications for the DuPont Carbide Building.

maximum loads on these pads in use were about 300 lb. per sq. in. but engineers have found that heavier loads are possible. Loads on the pads in the latest installations run from 600 to 1,000 lb. per sq. in.

To help architects and engineers with their design problems, to get maximum performance at minimum cost the Lead Industries Association has recently initiated a comprehensive test program to develop engineering data on lead pads over a wide range of frequencies and loads. These data will be made widely available as soon as the test program is completed.



LOOK AHEAD WITH **LEAD**