

LEAD INDUSTRIES ASSOCIATION, INC.

102 MADISON AVENUE

NEW YORK, N. Y. 10017

TELEPHONE - AREA CODE 215

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October 5, 1964

SUBJECT: MARKETS FOR LEAD & LEAD PRODUCTS

LEAD-ASBESTOS ANTI-VIBRATION PADS

To the Industry Development Committee
of the Lead Industries Association, Inc.:

Attached is the sixth in the series of memoranda on the use of lead in various markets and the activities of the Association pertinent thereto.

We hope you will find this helpful in considering budget data to be presented at the Industry Development Committee Meetings. Additional memoranda will follow.

Very truly yours,

G. L. + I 27/7/20

Executive Vice President

FLZ:mk
Enc.

Look Ahead with Love

October 5, 1964

MARKETS FOR LEAD AND LEAD PRODUCTSMEMORANDUM NO. 6-64LEAD-ASBESTOS ANTI-VIBRATION PADS

For over forty years a hard core of buildings along the New York Central right-of-way on Park Avenue between Grand Central and 57th St. has been erected on lead-asbestos anti-vibration pads at the insistence of the Railroad. In all those years these pads were only occasionally used elsewhere, but always along railroad tracks, the only others known to us being the 30th Street Pennsylvania Railroad Station, the New York Central Station in Buffalo, N. Y. Central tracks through the Bell Telephone Laboratories on the lower west side of Manhattan, and the Canadian National Railway Terminal in Montreal.

In the 1930's, L.I.A. conferred with a number of people who had experience with these pads such as the Terminal Engineer of the New York Central, James Ruderman, structural engineer for many of the important Park Avenue buildings, and the principal manufacturer of the pads. For several reasons the conclusion was reached that these pads could have a much broader market than they were then enjoying if they were properly promoted and their merits brought to the attention of architects and engineers generally. For example, every city has railroad tracks within its limits but only New York was using the pads to any extent and there only the New York Central. (In the Statler-Hilton Hotel over the Pennsylvania and Long Island tracks at Penn Station vibration from the trains can be distinctly felt in some of the rooms.) Subways create similar vibrations to railroad trains but the pads had never been used under buildings adjacent to subways. While relatively few cities have subways, New York's system alone, along with Philadelphia, Chicago, Toronto, London, Paris, Milan and others, offer substantial possibilities. In fact 31 cities now have subways either in operation, under construction or planned. The pads had never been used to protect against vibration from heavy street traffic and they might be effective there, opening a very extensive and completely new market. The dearth of property in cities on which to erect new buildings was establishing a definite trend to use air rights over railroad tracks and yards, adding greatly to the market for the pads along railroad tracks. For example, U. S. Steel Corp. has just announced plans for nine apartment buildings over the New York Central's freight yards in mid-Manhattan.

As a result L.I.A. began to promote anti-vibration pads through publicity, advertising and personal selling on a case history basis with a fair amount of success. The Park Avenue area continued, naturally, to use these pads on all of its new structures, although in a few cases some of the original pads used under the old buildings torn down were used over again since they were still in good condition and the old steel was also used. Nevertheless this substantiated our claim that the pads could be depended upon for the life of the building. The Union Carbide, Pan Am and 277 Park Ave. buildings alone accounted for nearly 200 tons of lead in such pads.

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But the use began to spread, as the following list of buildings indicates, to places outside New York and to locations along subways and, in one case, a street with heavy traffic:

Motel City (3 buildings), New York, N.Y.C. freight tracks
 Brooklyn Union Gas Co., Brooklyn, subway
 Brooklyn Savings Bank, Brooklyn, subway
 Queen Elizabeth Hotel, Montreal, C.N.R. terminal
 Royal Bank of Canada, Montreal, C.N.R., terminal
 C.I.L. Building, Montreal, C.N.R. terminal
 El Paso National Bank, El Paso, S.P. tracks
 Philharmonic Hall, Lincoln Center, New York, subway
 Prudential Building, Boston, railroad
 Mott Haven Homes (3 buildings), Bronx, railroad yards
 Hahn Department Store, Westfield, N.J., railroad
 Metropolitan Opera House, Lincoln Center, New York, subway
 N. Y. Dept. of Health Laboratories, First Ave., New York, street traffic
 Gateway Center, Chicago, railroad
 Huntington Hartford Museum, Columbus Circle, New York, subway
 Morgan Guaranty Trust Co. Vault, Fifth Ave., New York, street traffic
 245 Park Ave., New York, railroad & subway
 Apartment House, Bronx, subway
 Motel, Bronx, subway
 Barton Candy Co. plant, Brooklyn, subway
 The Towers Apartment House, 53rd & 8th Ave., Manhattan, subway
 Prudential Bldg., second unit, Boston, railroad
 Community College, Brooklyn, railroad
 Wright-Patterson Air Force Base, Dayton, Ohio, test facilities
 Load Test Annex, Marshall Space Flight Center, Huntsville, Ala. test facilities

We do not know the exact tonnages used in each of these buildings but we do know that they range between 5 and 60 tons each in most cases. Using a nominal figure of 20 tons per job these buildings will account for close to 500 tons of lead. Added to the 200 tons for the three large Park Ave. buildings previously mentioned and an estimated minimum of another 100 tons for other recent Park Ave. buildings, the total comes to about 800 tons of lead in the last five years, mostly in the last three years. We can assume safely that current usage at present rate of construction and acceptance of the pads is in the neighborhood of 200 to 300 tons of sheet lead per year. If acceptance outside New York were equal to that in New York the figure could easily reach several thousand tons a year. This again could be multiplied several fold if acceptance can be gained for use against heavy street traffic. The first installation in England in the Sloane Square Underground Station building in London, has just been made and there is active interest in Australia.

We have no doubt that proper engineering data on the effectiveness and loading of these pads would help materially in their acceptance. We know of several large jobs, like the new Columbia Broadcasting System building in New York, that have been lost for lack of such data, and, incidentally, it has just been reported to us that subway-created vibration is now causing trouble to tenants and in the C.B.S. studios themselves.

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We feel particularly that more test data to back up the laboratory tests is helpful. Even Laymon Miller of Bolt, Beranek and Newman, who reported field tests on Philharmonic Hall and the Queen Elizabeth Hotel at our annual meeting last year, pointed out that until more field data were available the data he reported would have to be used conservatively.

The foregoing applies to building foundations only. Machinery foundations offer another substantial market for lead-asbestos anti-vibration pads but any reliable estimate of the size of this market is impossible as too little is now known about their effectiveness with different kinds of machinery. We do know that they have been used under about 1/3 of the newspaper printing presses installed in the last 20 or 30 years, including all the Scripps-Howard papers. One average newspaper press would require about 300 lb. of lead in the pads. Goodfriend and Associates have recently field tested presses and report that the pads are effective, which should help to further this application when the results have been published.

Although we have not yet seen the report, we are advised that Goodfriend has now tested an air-conditioning cooling tower on lead pads and reports them to be effective for this purpose also. Two such installations have been made in New York on office buildings in midtown Manhattan and a third is specified for the cooling tower on the New York City Health Department Laboratories about to be constructed. While these installations only used about 125 lb. of lead each, there are literally thousands of potential installations.

Another field of use is under electrical transformers. One of the leading manufacturers of transformers, McGraw-Edison, uses these pads under one of its line of transformers which happens to be considerably noisier than other lines. By the use of lead-asbestos pads the noise from this particular type is brought down to the level of the others, effecting a reduction of as much as 7 db. After a test order a couple of years ago, this manufacturer placed a commercial order for 800 pads involving some 7 tons of lead. We have not been permitted to publicize this use because all transformer manufacturers shy away from even admitting that transformers may be noisy.

Other isolated cases of machinery pads include air turbine test pads, a boiler in a state building at Trenton, N. J., a steel mill in Genoa, Italy (the exact application is unknown), and an inquiry on these pads for laundry machinery. In France and England similar pads are also used under machinery often of the impact type.

It appears from information now available that lead pads will give the best account of themselves in reasonably heavy machinery where the loads on the pads are in the neighborhood of 200 psi and where vibration frequencies above 75 cps predominate. The market will have to be developed, however, for each type of machinery at first since many engineers are not well informed as to the actual frequencies they encounter in certain types of machinery. More knowledge of and more education about loads and fre-

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quencies is needed or the job will have to be done somewhat on a trial and error basis. We do believe, however, that there is enough machinery in which the pads will be effective to account for a market of several thousand tons over the next 5 to 10 years if aggressively and intelligently developed. To date there has been no real effort to develop this market.

From the foregoing we conclude that the building market for lead-asbestos pads justifies further promotion. We have, over the last few years, advertised this use of lead in *ENGINEERING NEWS-RECORD* and *PROGRESSIVE ARCHITECTURE* in a very modest way and in 1964 ran one ad in *BUSINESS WEEK* twice. We believe a somewhat similar schedule should be continued with perhaps a little more space in *PROGRESSIVE ARCHITECTURE*.

Also about five years ago we issued a brochure on anti-vibration pads for building foundations strictly based on case histories. We believe a new brochure should now be published, taking advantage of the many new case histories that can be cited particularly along subways and outside of New York City. It should also include summary technical data from the laboratory and field tests conducted through I.L.Z.R.O. and other field tests conducted by Bolt, Beranek and Newman on the Lincoln Center project in New York and Ville Marie project in Montreal. Personal promotion with architects and engineers should be continued.

As for machinery pads, we have only advertised a couple of installations on a case history basis. We believe this should be continued as opportunities present themselves and that a modest brochure with available information to date should be issued. We believe that the main effort should be through personal work, largely with machinery manufacturers, to delineate the various areas in which the pads are effective and to promote them, case by case, as information is developed and successful results obtained.

Consideration might also be given to the retention by L.I.A. of an acoustical consultant on a modest retainer to advise on new applications as they arise and assist in the orderly assessment of data developed already or to be developed.

During 1963 L.I.A. handled about 240 inquiries on vibration resulting from its ads and in the last 20 months has sent out nearly 5,000 pieces of literature in response to inquiries on pads for building foundations, 2,000 on cooling tower pads and 2,100 on printing press pads.



Your office got the shakes?

Groundborne vibration is a vital concern of today's architects and building contractors. It is a problem that affects both the life of the building and the comfort of its occupants. Though the problem is complex, one fact is clear. Lead and asbestos anti-vibration pads have been successfully and economically applied in vibration isolation. Installed beneath supporting columns when you build your plant, department store, office building, hospital, hotel or other types of buildings, they help isolate you for keeps from metropolitan tremors.

Effective? Lead pads at Lincoln Center's Philharmonic Hall help to hold to inaudible level the rumble of subway trains only 65 feet away. These pads do work. And the total cost in relation to the cost of the building makes them the best insurance buy in the construction market.

If you're planning to build where there's train or motor traffic, if you use vibrating machines and want to get the most from them and your personnel... find out all you can about lead anti-vibration pads. Write to Lead Industries Association, Inc., Dept. P-10, 292 Madison Avenue, New York, New York 10017.



Look Ahead with Lead

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