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and Engineering & Purchasing
Personnel

LEAD INDUSTRIES ASSOCIATION
202 MADISON AVENUE
NEW YORK 17, N. Y.

December 13, 1961

SUBJECT: REPRINTS OF SWEET'S
1962 CATALOGS

To Members of the Lead Industries Association:

Enclosed please find reprints of three pamphlets, "Lead to Control Sound and Vibration," "Roofing and Flashing" and "Lead Plumbing," which will appear in the 1962 Sweet's Catalogs as follows:

SWEET'S ARCHITECTURAL CATALOG

All three reprints will appear in Sweet's 1962 Architectural Catalog with an estimated distribution to 20,000 architects.

SWEET'S INDUSTRIAL CONSTRUCTION CATALOG

Two of the reprints, "Lead to Control Sound and Vibration" and "Roofing and Flashing" will appear in Sweet's 1962 Industrial Construction Catalog with an estimated distribution to 14,000 individuals and companies in the industrial construction field.

SWEET'S LIGHT CONSTRUCTION CATALOG

The reprint on "Lead Plumbing" will appear in the Sweet's Light Construction Catalog, with an estimated distribution to 29,000 individuals and companies who are builders of homes and other light construction.

We are sending these three reprints to our mailing list of 13,000 architects, building superintendents, building contractors and members of the Building Research Institute.

The reprint on "Lead to Control Sound and Vibration" is also being sent to our list of 6,000 design engineers, and the reprint on "Lead Plumbing" to 1,900 plumbing contractors, plumbing inspectors, etc.

Twenty five copies of each of these reprints are supplied without charge. Additional copies are available at 4 cents each.

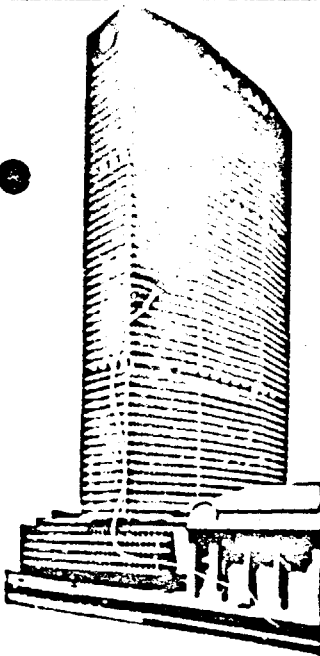
SWEET'S DESIGN ENGINEERING CATALOG

In addition, our 12-page catalog, "A Material for Modern Design" which appeared in the 1961 Sweet's Design Engineering Catalog and was sent you on December 8, 1960, will be repeated in the 1962 edition. This catalog embraces a variety of properties and uses of lead and reaches 19,000 design engineers in all industries. Reprints of this catalog are still available at our cost of 10 cents per copy.

Sincerely yours,

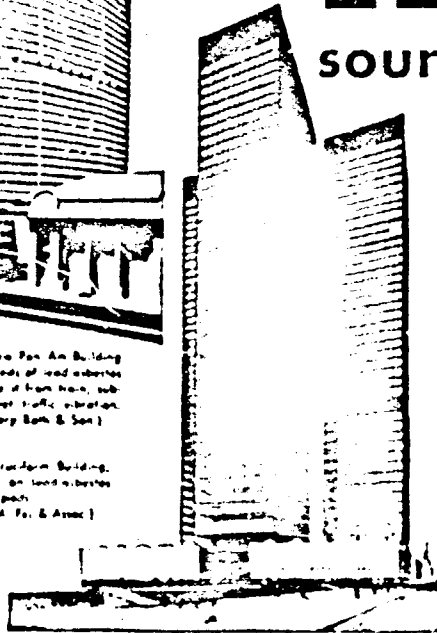
David M. Borcina
David M. Borcina

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New York's new Pan Am Building employs hundreds of lead asbestos pads to isolate it from train, subway, and street traffic vibration. (Architect: Emery Roth & Son.)

Yoko Ono's Cradle Building, Montreal rests on lead asbestos anti-vibration pads. (Architect: J. M. P. & Assoc.)



Picture reduction house of a 50-watt leaded vinyl pipe covering cuts the noise by 30 db.

LEAD *to control* sound and vibration

Lead in a number of forms is being increasingly used to control annoying noise and vibration in all sorts of buildings and industrial situations. The areas where lead products are now widely employed are:

anti-vibration pads

Emplaced in building foundation footings to dissipate earth-borne vibration caused by railroad and subway lines, heavy street traffic. They are also being used to stop transmission of vibration from heavy equipment such as roof top cooling towers and printing presses.

sound barriers

Sheet lead has the highest rating of all common building materials in terms of reduction of sound transmission. It is used in critical areas such as broadcast studios as well as in isolating troublesome noise sources such as boiler rooms.

Inclusion of lead in textile fabric or flexible plastic sheeting leads to novel materials flexible enough to be used as drapery or folding walls, yet having the sound-stopping power of conventional fixed walls. These are being used in schools and meeting rooms and in industrial problem cases.

sound damping

Where the acoustics problem hinges on damping a noise source rather than preventing the transmission of noise, a family of leaded plastic coatings and mastics are employed. These can be supplied directly to such noise sources as vibrating ducts or pipes, rattling metal panels. These materials have been widely used by the Navy in quieting ships engaged in Sonar and antisubmarine activity.

LEAD INDUSTRIES ASSOCIATION

292 Madison Avenue • New York 17, N.Y.

LOOK AHEAD with **LEAD**

anti-vibration pads

For 45 years lead and asbestos pads have been used in building foundations to reduce transmission of vibration from the ground into the building structure. This practice is followed where railroad-tracks, subways, or heavy street traffic might be a source of troublesome vibration. More recently smaller pads of the same construction have been successfully used to isolate rooftop cooling towers from the steelwork of their buildings. Lead—alone, with asbestos, or in combination with other materials—is used for the same purpose under printing presses, commercial laundry machines, rubber mills, big fans and other vibration sources.

In contrast to other materials used for the same purpose lead asbestos pads have two outstanding advantages.

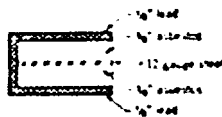
—they are extremely durable. When ground was cleared for the erection of New York's new Union Carbide Building (it rests on lead-asbestos pads), one of the buildings demolished was the old Marquary Hotel, built around the time of World War I. It had rested on lead-asbestos pads which were found to be in excellent condition.

—they will function at a much higher loading than other vibration pads or mountings. Loads of 600 or 800 psi have been used and there is a trend to still higher loadings.

Among the more recent buildings resting on lead asbestos pads are the Pan Am Building adjacent to Grand Central Terminal in New York, the El Paso National Bank in Texas, the Dartmouth Building in Manhattan. In each of these cases the pads will stop heavy vibration from adjacent railroads from entering the structure.

More vibrations emanate from a source in or on the building, the pads are equally effective. The rooftop cooling tower of the Chrysler Building, recently erected on New York's Lexington Avenue, rests on ten small pads which were installed with the steelwork of the building.

In this way erection of the cooling tower could be carried out with the regular steelwork of the building without the usual loss of time absorbed in completing the roof, spreading in new footings, and making a separate project of the tower. This "built-in" isolation is possible because of the extreme life of lead asbestos pads compared with conventional isolating materials.



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 girders and the tops of concrete foundations. These pads shall be made of five layers of material, as follows:

1. top layer of 1/2 inch sheet lead
2. upper layer of 1/2 inch asbestos roll fire felt
3. middle layer 12 gauge galvanized sheet steel
4. lower layer of 1/2 inch asbestos roll fire felt
5. bottom layer of 1/2 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 watertight 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 Union Carbide B-46 VIBRA-TION PAD DATA — for more detailed information see "The Lead Library" on page 6.

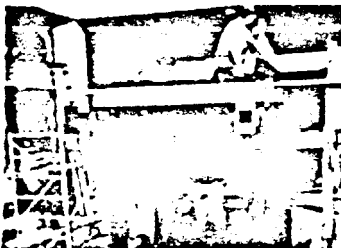
a word about vibration

Most vibration occurring in building structures is unpredictable and complex. It is almost impossible to say beforehand what frequencies and intensities will be encountered. A typical vibration curve caused by a railroad line is shown. Note that the most intense vibration is in the 75 to 600 cycles per second frequency range. For standard lead asbestos pads 1" thick loaded to 800 psi tests indicated about 85 percent isolation.

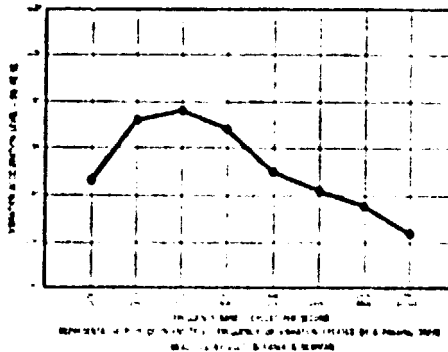
It would appear to be a simpler case when the annoying vibration is caused by a large fan, for example, of known shaft speed. It has been suggested that such a shaft speed can be divided by 60 (seconds per minute) to arrive at its fundamental vibration frequency. Tests of such equipment have invariably shown this to be false. A better approximation is to divide by 60 and multiply by the number of blades in the fan (or vanes in the pump, cylinders in the compressor, etc.). This will provide an indication of the lowest frequency of disturbance for the source. Integral multiples of this (2, 3, 4, etc.) will also be important. In addition, there will always be high frequency noise. So long as there is no important low-frequency resonance in the supporting structure, lead asbestos pads have tested 75 to 95 per cent effective in isolating such vibration.



Small lead-asbestos anti-vibration pads supported erection of this rooftop cooling tower, permit to under-estimating service life.



Pads are used under many large news-paper presses, too, to keep vibration out of the building structure.



sound barriers

Any wall acts as a barrier to sound, but some walls are better than others. Acoustic experts, in seeking to generalize their findings, have come to the conclusion that the key factors in effectiveness of a sound barrier are:

Weight—The greater the weight (per square foot) the greater the isolation, or transmission loss, given by the partition material.

Impedance—The acoustical efficiency of any material as a sound isolator depends not only on its weight but on its bending stiffness. If a partition is stiff enough it can actually lose much of the advantage it gains by being heavy. The happens because the stiffness of a partition increases much more rapidly than its weight as its thickness is increased.

a general rule is: high weight — low rigidity = good sound isolation

Lead is an obvious choice in the search for a heavy, limp material for construction of partitions. Having a density two or three times that of common building materials (and 10 to 15 times that of wood) it is also a "limp" material in the acoustical barrier, leads to the surprising conclusion that if two equally effective sound barrier partitions are built, one of lead and one of any other common construction, the lead barrier will almost invariably be the lighter.

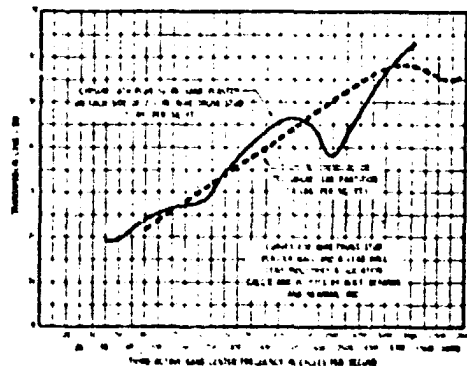
Table 1 compares thickness and cost for lead alone versus common partition materials.

TABLE 1

Type of Partition	Weight of Partition		Height of Partition		Weight of Lead		Thickness of Lead	
	lb. sq. ft.	sq. ft. lb.	ft.	sq. ft. lb.	lb. sq. ft.	sq. ft. lb.	inches	feet
Plaster	2.25	0.47	4.0	0.31	0.14	3.6	1.57	
Sheet Glass ¹	3.0	1.0	1.75	1.75 ²	0.12	1.16	1.22	
Solid Plyer	10	3.75	6.0	0.32 ²	1.12	2	1.16	
Cinderblock	22	5.5	4.0	0.35 ²	1.00		3.32	
Plyer on studs	12	7.5	1.6	0.43 ²	2.25	6.6	1.0	
Plyer on double studs	16	11.0	1.6	0.32 ²	1.32	5.0	1.76	
Brick	104	15.0	7.0	1.0	0.30	0	1.0	

NOTES: 1) as employed in a double partition, for example.
2) assumed by dividing total weight each by two to get material cost.

The effectiveness of sheet lead as a sound barrier is quickly seen in this comparison of a standard wall construction of gypsum lath plus $\frac{1}{2}$ " of sand plaster on either side of a 2 $\frac{1}{2}$ " wire mesh stud to sheet lead. Only $\frac{1}{8}$ " of lead is required for comparable sound isolation.

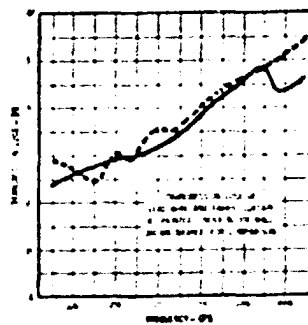


folding walls

A recent development for acoustical control is a woven fabric which embeds vertical lead wires to give it high mass without losing flexibility. By hanging this material from a sound trap suspension fitting and providing similar fittings at the floor and wall, you can achieve the same structural isolation as that provided by a painted 8 inch cinder block wall. Still, a single wheelbarrow of 100 pounds finds no difficulty in opening or closing the curtains by hand. For grand sweeps of the Waldorf Astoria grand, there are automatic electrical systems of course.

This combination of properties is brought about by combining lead and textile fibers to give an acoustically "limp" mass.

Though it is woven on carpet looms, the material looks like rich rough decorator drapery fabric. A wide variety of colors and designs can be made. Most of the weight (3 lb. sq. ft.) of the fabric comes from the lead, but this is not visible in the hanging curtain.



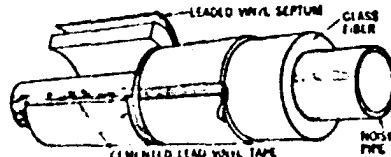
Acoustical tests made of 8-vibrant Lober curtains show a transmission loss averaging about 36 dB in the 125 to 4000 cps per second ranges. A single thickness of the material is comparable to a painted cinder block wall 8 in. thick (dashed curve).

flexible plastic sheet

More recently, flexible vinyl sheet loaded with metallic lead powder has been used to make similar sound curtains. This material is vinyl coated or fabric covered (non-metal) and is available in a complete variety of colors, surface textures and decorative designs. It can be used in much the same way as the woven material—similar fittings systems are available.

Flexible plastic sheet, however, is often put to use in other ways. The cabin of the Navy's KSS 2 anti-submarine helicopter, for example, is quieted by using loaded vinyl sheet in conjunction with glass wool. The material is also used by manufacturers of better quality folding doors and office equipment, etc.

One industrial use clearly demonstrates how loaded vinyl can be put to work on noise sources. The cutaway drawing below shows a glass wool and loaded vinyl cover which reduced the intense noise of a gas pressure reduction station by about 30 decibels.



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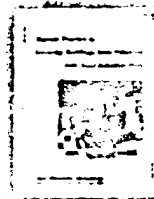
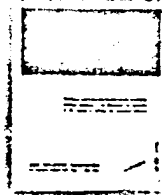
sound damping

loaded mastics

Still another tool of the architect and designer is the family of loaded plastics and mastics available for painting or brushing directly onto rattling or ringing metal noise sources. Relatively inexpensive, these materials are quick and easy to apply and are dramatically effective in stopping harsh metallic buzzes and "beingsys."



Flexibility of woven fabric embedding lead wire is excellent. Folding walls of this material attain a transmission loss of 36 db.



Walls of woven fabric embedding lead wire are excellent.

U.S. DEPARTMENT OF THE ARMY

HEADQUARTERS, U.S. ARMY



A.I.A. No. 29-B

LEAD

Plumbing

A.I.A. No. 29-B

LEAD INDUSTRIES ASSOCIATION
292 Madison Avenue, New York 17, N. Y.

LEAD for MODERN PLUMBING

One of the major advantages of lead plumbing is its adaptability to all types of structures and all kinds of construction. Lead helps to provide a trouble-free and economical installation. Economies are effected primarily because lead is flexible, joints are minimized and installation speeded.

As a result, lead is widely used in the most modern plumbing installations. Lead is virtually essential for certain applications.

ADVANTAGES OF LEAD

DURABLE—Long considered one of the most durable of the common metals.

FLEXIBLE—Provides a flexible connection that can take up uneven building settlement, without damage to itself, the fixture or the rigid drain.

FREE FLOWING—Smooth inner bore and wiped joints offer no obstructions to which solids can cling and cause clogging.

BONDED JOINTS—The wiped joint provides an integral bond that cannot come loose and leak.

LOW COST—The cost of lead connections is generally as low or lower than other types of connections. No expensive fittings are required when changes of direction are made as the pipe itself is easily bent to conform.

PLUMBING CODE ACCEPTANCE—Lead connections are accepted by practically all plumbing ordinances and required by many.

VENTS—Lead pipe is ideally suited for the individual venting of waste fixtures for the same reasons its use is desirable for connecting the fixtures to the drainage system. Vents often overlooked is the fact that vents are more subject to corrosion than waste lines, particularly that area of the vent below the rim of the fixture where moisture may collect.

NEW

Lead waste and vent pipe, lead bends or elbows and lead traps are now available already prepared and wiped to brass fittings. Such ready-to-install lead fixture connections and lead wastes and vents have the advantage of predetermined costs and quality.



This lead plumbing is made to fit for the home. Home connections to the ground line are made by using the lead pipe and fittings designed for this purpose. Lead pipe is available in 1/2, 3/4, 1, 1 1/4, 1 1/2, 2, 2 1/2, 3, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32, 34, 36, 38, 40, 42, 44, 46, 48, 50, 52, 54, 56, 58, 60, 62, 64, 66, 68, 70, 72, 74, 76, 78, 80, 82, 84, 86, 88, 90, 92, 94, 96, 98, 100, 102, 104, 106, 108, 110, 112, 114, 116, 118, 120, 122, 124, 126, 128, 130, 132, 134, 136, 138, 140, 142, 144, 146, 148, 150, 152, 154, 156, 158, 160, 162, 164, 166, 168, 170, 172, 174, 176, 178, 180, 182, 184, 186, 188, 190, 192, 194, 196, 198, 200, 202, 204, 206, 208, 210, 212, 214, 216, 218, 220, 222, 224, 226, 228, 230, 232, 234, 236, 238, 240, 242, 244, 246, 248, 250, 252, 254, 256, 258, 260, 262, 264, 266, 268, 270, 272, 274, 276, 278, 280, 282, 284, 286, 288, 290, 292, 294, 296, 298, 300, 302, 304, 306, 308, 310, 312, 314, 316, 318, 320, 322, 324, 326, 328, 330, 332, 334, 336, 338, 340, 342, 344, 346, 348, 350, 352, 354, 356, 358, 360, 362, 364, 366, 368, 370, 372, 374, 376, 378, 380, 382, 384, 386, 388, 390, 392, 394, 396, 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INSTALLATION

Requirements for plumbing systems vary widely depending upon state or local plumbing codes or ordinances. However, lead is the one material in today's plumbing system whose use is permitted by practically all codes and is in fact required by many.

Lead finds its widest use for the waste lines of the plumbing system, also for individual vents where sanitary practices recommend that the lead be extended above the fixture level. Thus two important properties of lead, its flexibility and high resistance to corrosion, are used to advantage in this always wet area of the plumbing system.

Lead waste and vent pipe should conform to the requirement for "10" weight lead pipe as given in Federal Specification WW-P-125. In conformance with the same specification, lead traps and bends should have a wall thickness of $\frac{1}{8}$ in. The following are the recommended methods of joining lead to lead and lead to other materials:

LEAD TO LEAD—Joints made with a wiped joint, or a cup joint made with a soldering iron.

LEAD TO CAST IRON—Made by a brass ferrule slipped to the lead and lead called into the hub of the soil pipe.

LEAD TO GALVANIZED PIPE (BUSHING)—Made by a brass solder bushing or nipple slipped to the lead and screwed to the galvanized piping.

LEAD TO COPPER TUBE—Made by slipping the lead to a section of copper tubing which is then sweat soldered into the drainage fitting or slipped directly to the drainage fitting.

CHEMICAL LABORATORY DRAINAGE SYSTEMS

In chemical processing plants the piping, storage and other equipment may be designed with specific references to the corrosion resistance of materials and the particular chemicals to be handled. In school, college, hospital, plant and other laboratories, however, materials must be selected which have good corrosion resistance against the widest possible variety of chemicals. Since lead is probably more resistant to corrosion by a greater variety of chemicals than any other common metal, it is therefore one of the most useful materials for laboratory piping, fittings, sinks, troughs and the like.

Lead waste and vent piping for chemical laboratories shall be Class "D" or "M" weight. Where such piping is inaccessible or where corrosive conditions may be particularly severe, Class "B" or "M" weight may be used, class designations in accordance with Federal Specification WW-P-125.

Lead traps should have a wall thickness comparable to the lead pipe to which it is connected and have at least a 2 in. trap seal.

Lead cup sinks or waste bowls should have a wall thickness of at least $\frac{1}{16}$ in. equivalent to 10 lb. sheet lead.

At least 4 lb. sheet lead should be used for covering tables and lining table troughs or acid trays.

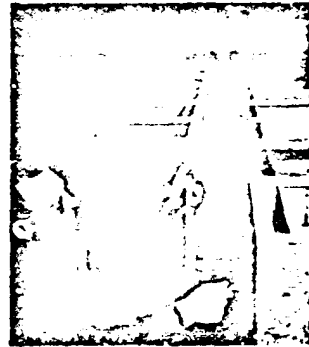
All joints in lead pipe or sheet lead used for chemical laboratory drainage systems should be lead burned or lead-to-lead flange type. Soldered joints should not be used.

Further details and complete specification is contained in Lead Building Construction Bulletin No. 1—Specification for Lead Chemical Laboratory Drainage Systems, available upon request.

At K. L. & Sons, Metal Works, Ltd., London, England, lead is used in all kinds of water closets, and is specified only 24 lb. of horizontal pipe.



Lead pipe, 4 in. diameter, with 1/2 in. thick wall. Lead pipe, 4 in. diameter, with 1/2 in. thick wall. Lead pipe, 4 in. diameter, with 1/2 in. thick wall.



Using the technique in the laboratory table, with 4 in. sheet lead.

LEAD VENT STACK FLASHINGS

Lead vent stack flashings are easily made from not less than 1 lb. sheet lead with soldered or burned joints. Lead vent stack flashings cast in one piece are also available.

Lead when exposed to the atmosphere develops the pleasing gray patina that blends well with any color scheme. This patina is a strongly adherent film that is insoluble and therefore non-staining. This is particularly important where any resulting stains can ruin the roof and side walls.



LEAD PANS FOR INTERIOR WATERPROOFING

Lead pans provide an impermeable moisture barrier between shower baths and slop sinks, and adjoining walls and floors. A barrier that will prevent, at small cost, moisture from seeping through the masonry to the eventual destruction of adjoining beams, studs or decorated surfaces.

Sheet lead pans are also excellent for larger areas such as required for shower rooms, soda fountains and restaurant kitchens.

The accompanying drawings detail the correct method of installing sheet lead pans. For shower stalls, the sheet lead used should weigh not less than 4 lb. per sq. ft., approximately 1/16 in. thick, and for slop sinks either 4 lb. or 6 lb. per sq. ft. Further details are outlined in "Lead Building Construction Bulletin No. 2—Specification for Lead Shower and Slop Pans" available upon request.

A note of precaution: Green cement, containing free lime may be corrosive to lead as it is to many other common metals. It is therefore necessary to coat the lead with asphaltum to protect it during the curing stage of the cement. After the curing, the asphaltum coating is no longer important.

CALKING LEAD

Lead has several advantages when used for calking, wherever cast iron bell and spigot pipe is employed. It is soft and allows the joint to become deformed due to settling, vibration, or expansion and contraction, without leaking; it does not deteriorate with age.

Lead can be used in the molten state or in the form of lead wool. Molten lead joints using molten lead are the more common but lead wool is ideal where the molten form cannot be used, as in wet ground, under water, or for repairs on gas lines where heat might create a dangerous condition.

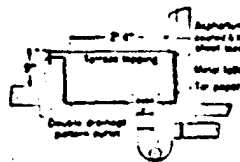
Calking lead is obtainable in pigs weighing 10 to 15 lb. or in ingots or cakes weighing 1 to 5 lb., calking lead meeting the following requirements should be specified. This is identical with the U. S. Dept. of Commerce, Commercial Standard C594-41, Calking Lead, and the American Water Works Association Specification Code, Tentative Standard Specification for Installation of Cast Iron Water Mains.

Chemical requirement for calking lead

	PER CENT
Lead not less than	99.75
Arsenic, antimony and tin together	0.15
Copper	0.15
Zinc	0.02
Iron	0.02
Bismuth	0.25
Silver	0.02

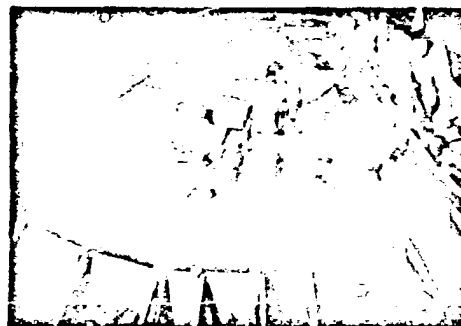
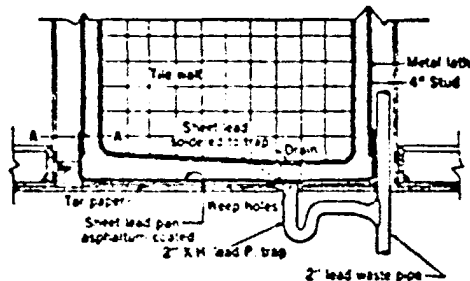
TECHNICAL ASSISTANCE—The Lead Industries Association is prepared to assist with technical information and specifications applicable to your specific problem. Write to:

LEAD SLOP SINK



Built-in floor-level slop sink in New York's Seagram Building and at left, a detail. Arch. Alvaro Siza van der Rhee and Philip C. Johnson.

LEAD SHOWER PAN



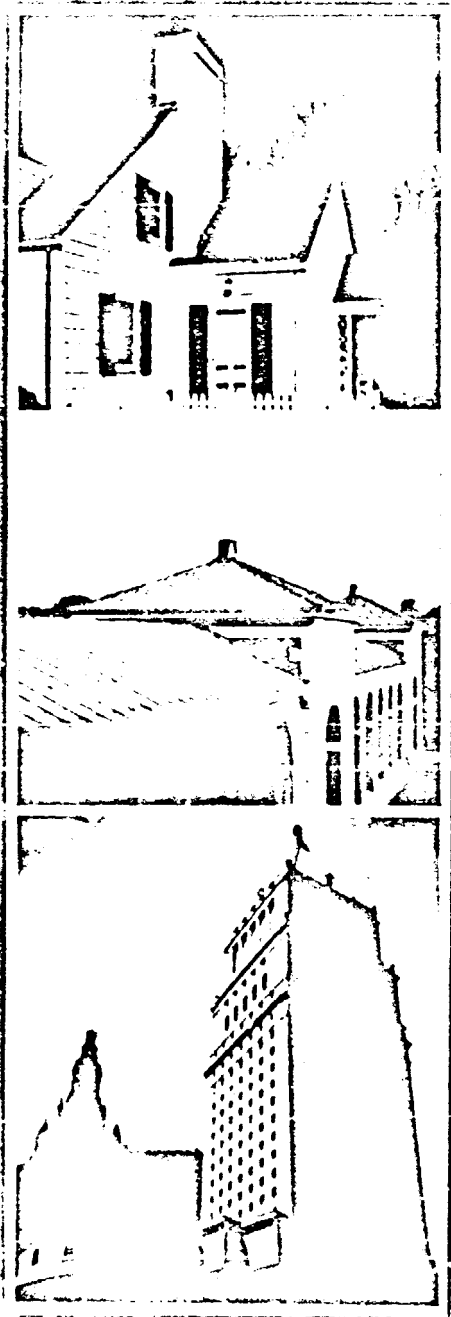
Not a lead pan, but a lead pan, as used in lead building construction, New York City.

ARCHITECTURAL DEPARTMENT

292 Madison Avenue

New York 17, N. Y.

LIA24658



SHEET LEAD

DESIGN PRINCIPLES,
MECHANICAL PROP-
ERTIES, INSTALLA-
TION PROCEDURES,
AND SPECIFICA-
TIONS FOR PERMA-
NENT, TROUBLE FREE
INSTALLATIONS.

AIA No. 124

of Court House,
City, Wash.
with 3 lb. lead
through wall. Wash-
ington, D.C. and
other cities are included.
Court, Arch.

BOOK A-124-1 - 7-14-50

N 1739.03

SHEET LEAD

Today, whether your roof is on a small home, a large office building, a monument or an industrial installation, it faces a more difficult life than its predecessors from as much as a thousand years ago. Yet, for all its historical success, the new lead is one of the most modern of roofing materials. An alloy of lead with antimony resulting in increased stiffness and strength, it enables the architect to specify thinner gauges with less weight and cost and without lessening the advantages lead has traditionally held in the roofing and flashing field. Today, in addition to snow and ice, intense heat and cold, we have the corrosive elements of modern industrial atmospheres to combat. Lead has answered Architects' and Builders' needs from far back in antiquity—and the new lead still does today. Following are briefly but a few of the outstanding advantages of lead as a roofing and flashing material.—

DESIGN VERSATILITY

Use of battens or standing seams, as illustrated, gives character to visible roof areas.

COLOR COMPATIBILITY

Acquires a soft, silvery grey patina with age which results in color harmony with any masonry and, for exposed roof areas, can be painted to become a part of the total design concept.

ECONOMICAL

Found for pound one of the cheapest of the common metals, lead in the new alloy with antimony is competitive in the metal roofing market. Economical too from the standpoint of maintenance: a properly installed lead roof is virtually free from repairs and replacements. Universally recognized as a quality material, the new lead again proves that quality does not cost, it pays.

EASILY INSTALLED

Can be installed by any qualified roofing or sheet metal contractor, lead is easily worked, cut, formed, or molded.

PERMANENT PROTECTION

The most durable of common metals, lead has the greatest resistance to corrosion in whatever atmosphere: Industrial, Urban, Rural or Seacoast.

NON-STAINING

Corrosion products of lead approach the composition of the surface minerals and are insoluble. They remain on the lead and no staining of adjacent materials is possible.

NO SOLDERING OR WELDING

Every seam acts as an expansion joint.

FULL THICKNESS

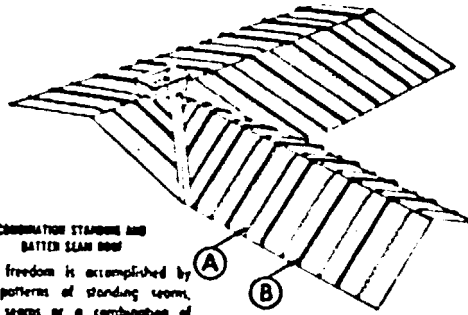
Lead is an homogeneous material, full thick, not a coating to protect a more vulnerable material.

SALVAGE VALUE

Often overlooked, a lead roof today has frequently more worth, as scrap, than its total cost in labor and materials represented when built.

for roofing

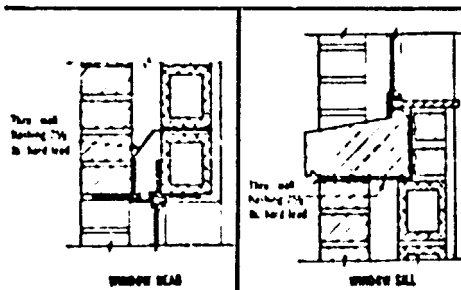
Sheets should not exceed 8'-0" in length and, if more than 12" wide without longitudinal bonds reinforcing them, should not be over 6'-0" in length. Weights should be as indicated on these typical details or as called for in the specification on page 4.

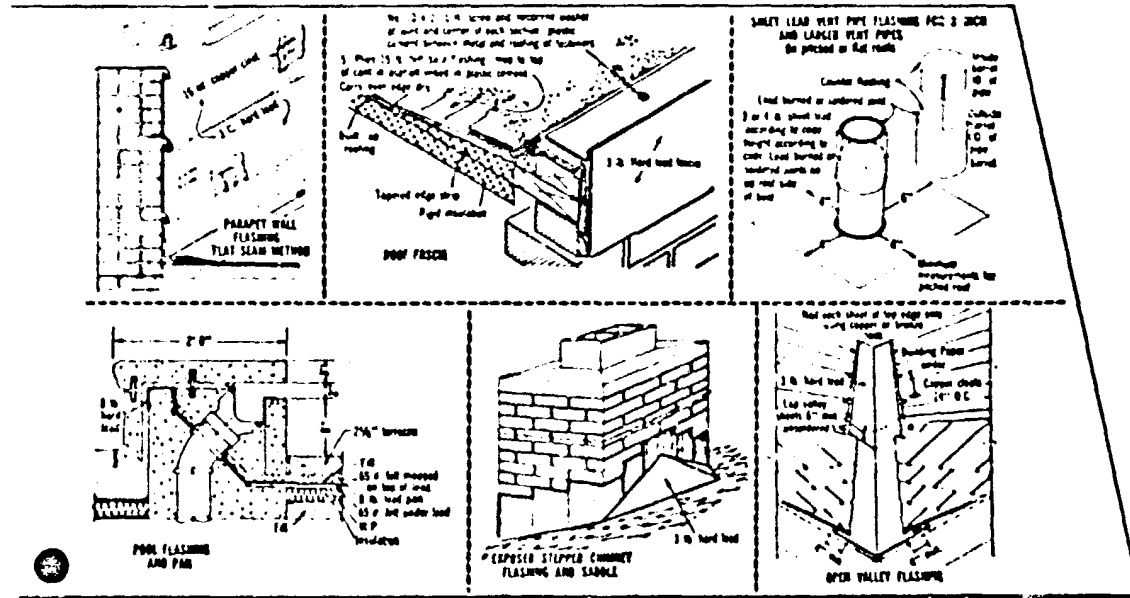
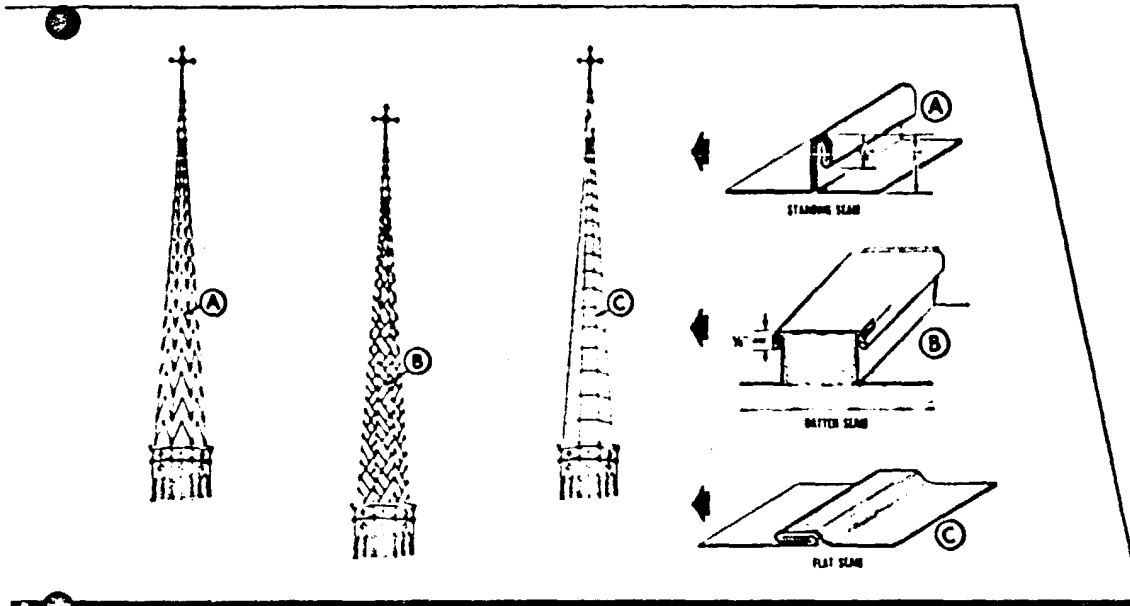


for flashing

Roofing for country houses may be 2 1/2 lb. hard lead. For larger buildings or larger areas to be covered, 3 lb. hard lead should be specified. For pool fountains, slop sinks or shower stalls 4, 6, or 8 lb. soft lead is required.

Battens or standing seams may be spaced 15" to 18" o.c. or be accommodated a 24" wide sheet by 48" long. Flat, horizontal loose lapped joint sheets together at the 48" interval, are formed in the direction of flow and staggered in adjoining bays.





SPECIFICATIONS

SHORT SPECIFICATION

Unless otherwise particularly specified, all sheet metal work shall be 24 oz. hard sheet lead, and all material and labor in connection therewith shall be executed in strict conformity with the recommended practice and Standard Specification of the Lead Industries Association, which specification is hereby declared and made a part of this specification, with the same force and effect as if written herein in full.

STANDARD SPECIFICATION

MATERIALS

Unless noted otherwise, all lead shall be hard lead, containing not less than 6% or more than 7.5% of antimony, and the remainder shall be lead.

Sheet lead shall be free from pits, dross, buckles, waves, scratches, gas, foreign matter, porosity, and other injurious defects. All lead shall be 24 oz. hard lead except where herein specified otherwise, and except as follows:

1—Where flashings may be 24 oz. hard lead. Shop flashing, rain-cooled hip flashing, closed valley flashing, cap flashing, window and door head and sill flashing, chimney cap flashing, gutter lining where gutters are not over 6" wide, gable and flashing, column cap and base flashing, base flashing, where no heavy weight rests on same.

2—Where roofing may be 24 oz. hard lead. Small standing seam roofs, where seams are not greater than 18" or 24" between buttresses.

No sheet shall exceed 2' 0" x 4' 0". Occasional larger sheets may be permitted. Flashing sheets shall be not over 8' 0" long. Sheets with flat surfaces more than 12" wide without longitudinal bands reinforcing them shall be not over 8' 0" in length.

COATING FOR CONTACTS WITH CEMENT OR CONCRETE

- Black asphaltum brush coating as made by
- Layer of 13 oz. asphalt impregnated rag felt

ROOFING NAIL

- Under all lead roofs lay 30 lbs. per square building felt as made by

CLEATS & NAILS

- Cleats shall be 16 oz. copper or 24 oz. hard lead.
- Hard copper wire nails.

SOLDER

- 50-50 solder for hard lead—Standard Specification of the A.S.T.M. B 32.21

JOINT & SEAM COMPOUND

- Vulcanite #7200 or Kaulit non-hardening compound.

LAYING & WORKMANSHIP

EXAMINATION OF SURFACES

- All defects found in surfaces prepared by other trades to receive lead roofing shall be reported to the Architect in writing. The Architect will cause all defects to be remedied. The commencing of work by this Contractor indicates his acceptance of the surfaces.

TYPES OF ROOFS

- Roofs shall be: standing seam (or) batten, ribbed, spaced, or c.c. (preferably 18").
- Battens, as set by others, shall be 1" wide at top, tapered to 1/2" wide at the bottom, and 1/2" high at center, with the top edges slightly rounded.
- Finished standing seams shall be 1/2" high when completed (not less than 1/2").

LEAD PROTECTION

- Use care in handling this material so as to prevent scoring, bruising, or sharp bends.
- Paint all lead work which is to come in contact with cement or concrete work with one heavy coat of asphaltum or felt on side which is to make the contact.

SEAMS & JOINTS

- Seams shall be joined by loose locks or overlaps made in the direction of flow, which shall be filled with non-hardening compound where there is possibility of water, snow, or ice standing or driving into the joints. Where bends in sheets cross the seams, the sheets shall not be notched to facilitate seaming.

1—Flat lock seams shall finish at least 1" wide.

2—Lap seams shall lap at least 2" on vertical surfaces or built-in flashings, or 4" elsewhere.

3—Standing seams shall finish at least 1" high unless otherwise specified. Soldered seams shall only be used for starting, gable, special, making special caps, and for other special conditions, and in no case shall be used to join roofing or flashing sheets to make continuous runs of roofing or flashing greater than 4' 0" and 8' 0", respectively.

CLEATS

- Cleats shall be 16 oz. copper except that if any part is exposed, 24 oz. hard lead shall be used. Cleats except where otherwise specified shall be at least 2" wide and 4" long, secured by two nails. Continuous cleats shall be a length not exceeding 8' 0" and a space of at least 1" wide shall be left between sections. They shall be nailed at least every 8". All cleats shall have sufficient metal on the nailed end to turn back over the nail heads to protect the lead lying over the nails.

FASTENING

- Cleats shall be used to secure sheet lead to supporting surfaces in such manner as to permit free expansion and contraction of the lead. Nails or screws shall never be driven through sheet lead unless particularly specified, except that pieces of lead not larger than 18" square may be nailed along one edge only if nail heads are covered.

BENDS

- All bends shall be made with an easy radius. Where metal turns up on a wall, curve, or batten or other surface, provide a clearance between bend in metal and such surface of at least 1/2" for expansion.

VERTICAL SURFACES

- Sheeting for vertical surfaces shall be installed by the standing seam method or flat seam method. At the bottom it shall be lower lapped to base flashing and at the top to through wall flashing or lead capping.

1—Standing seams shall run vertically. Sheets shall be not more than 2' 0" wide, with this dimension horizontal. They shall not exceed 4' 0" in height and if the wall is higher than this, the sheeting shall be installed in more than one sheet vertically, with loose locks between sheets. Continuous cleats broken only at standing seams shall support the sheeting at these horizontal joints. Cleats 2" wide shall be folded into the standing seams at 12" intervals.

2—Flat seam sheeting shall be installed in sheets not exceeding 4' 0" long and 18" high, with long dimension horizontal. It shall be supported by continuous cleats broken only at vertical seams in all horizontal seams. One 2" wide cleat shall also be folded into the lock at the end of each sheet.

FLASHING

- Where flashing is built into a wall and emerges more than 3" into the open, it shall be loose locked where it emerges to a separate piece.
- Flashing caulked into a register shall have separate flashing piece loose locked to the caulked piece.

LEAD INDUSTRIES ASSOCIATION