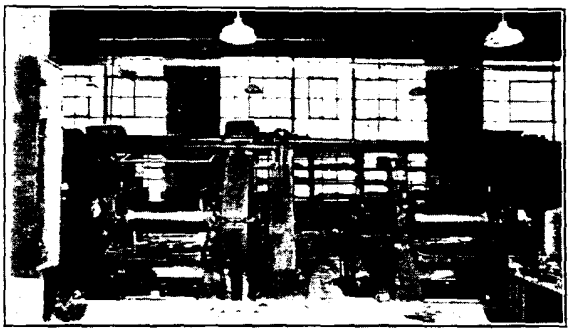
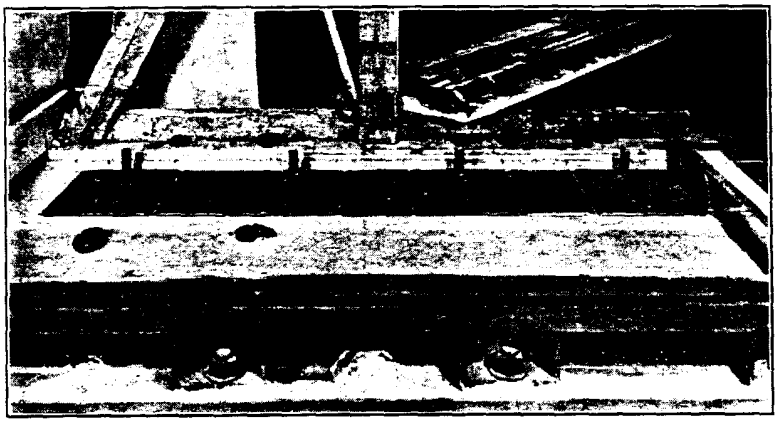
Lead-Asbestos Anti-Vibration Pads for Rubber Mills

RUBBER mills are no exception to the general run of machinery in that they set up considerable vibration transmitted through the machine foundations to other parts of the building, particularly when mounted on an upper floor. Engineers are agreed that preventing transmission of such vibration is highly desirable both from the standpoint of the workers' efficiency and comfort, and to decrease wear and tear on equipment and buildings. Recognizing this fact, one of the country's largest and most progressive rubber companies now installs its rubber mills over lead-asbestos anti-vibration pads with highly satisfactory results.



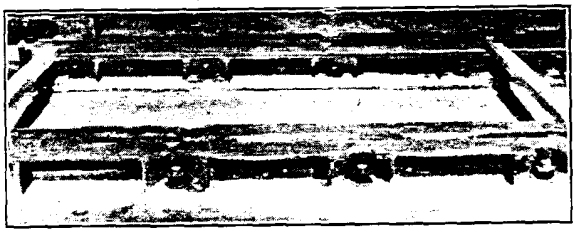
Rubber mill line installed on lead-asbestos anti-vibration pads.

The first pads used by this company were installed nearly two years ago and were given a thorough test. As a result more pads were ordered for another plant of the same company and additional pads are being used under new mills now being installed at the original plant. Prior to the use of these pads, a person standing anywhere near the mills or even on an upper floor was distinctly conscious of the tremor or vibration imparted to the structure. With the pads, this is negligible, vibration having been practically eliminated.



Lead-asbestos pads in place, ready to receive rubber mill setting shown in background.

These lead-asbestos pads are substantially the same as those used under presses in many modern printing establishments, as described in the March, 1931, issue of LEAD. They consist of an envelope of 8 lb. lead within which is contained ¼ in. of asbestos, making the total over-all thickness ½ in. Seams in the lead envelope are "burned" so that nothing but lead is exposed. Holes are provided at points to be penetrated by bolts. The center illustration shows the pads placed upon the concrete floor with bolts passing completely through the floor and the pads to receive the bed plate. In the background is shown the bed plate and frame which will be placed on top of the pads and bolted down. The photograph at the bottom of the page shows the frame in place on the pads, the edges just visible under the bed plate. In the other picture the mill line has been installed on its vibration-insulated foundation.



Setting in place on pads shown in illustration above. Edges of pads are visible under the bed plate.

These pads are subjected to a hydraulic pressure of 100 lbs. per square in. when manufactured, to give them a firm and even set. The pads were made by John F. Abernethy & Co., of Brooklyn, N. Y.

Lead-asbestos pads have several advantages for this service other than just their vibration insulating characteristics. They can sustain high unit loads, evidenced by the fact that similar pads are used under building columns, and they are practically imperishable. The lead envelope is unaffected by grease, moisture or other agents present in most factories, and time and continued shock seem to have no bad effects.

Lead Paints Give Lasting Protection to N. Y. Bridges

THE four great bridges over the East River between Manhattan and Long Island are protected against rust and corrosion by red lead and white lead paint. These bridges — the Brooklyn, Manhattan, Williamsburg, and Queensboro—are under the supervision of the Department of Plant and Structures of the City of New York, in whose care are forty-eight other bridges and many other public structures, worth millions of dollars. Such vast investments must be given the best protection.

EWING GALLOWAY

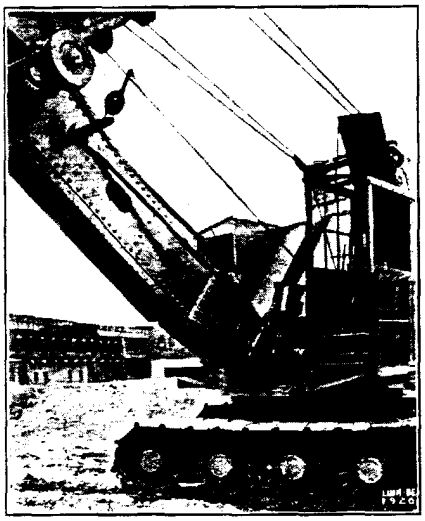
Network of steel cables on Manhattan Bridge being painted with red lead and white lead and (left) the odd-shaped long-handled brushes used on this job.

Pictured on this page are painters at work on the cables and other steel work of the Manhattan Bridge. The unusual shape of the long-handled brushes is clearly seen. Sheepskin wrapped around flat steel bars is also used to get paint into inaccessible places. Subjected to wide temperature variations and the salt air of the Atlantic, lead paints, with their great adherence to steel and tenacious, elastic films, stand up. Undercoats are of red lead paint while the top coat is white lead tinted with small amounts of burnt umber and blue.

White Lead in Lubricating Compound

A HOME-MADE mixture of ½ lb. white lead, ½ gal. cylinder oil and ½ lb. flake graphite makes an especially efficient lubricant for open gears, according to *Link-Belt Shovel News*. This mixture adheres well to the gears and can be painted on with a brush as required at intervals of about five hours. Cup grease may be substituted for the oil and the graphite may be omitted. Omission of the graphite is not advisable in warm weather.

Some of the standard compounds may give good results, but have a tendency to run off, getting into the frictions and resulting in a dirty machine. The white lead mixture may be made heavier for warm weather by decreasing the proportion of oil or grease to graphite. This suggestion is a result of the extensive experimental work of the Link-Belt Company of Chicago directed towards the most effective lubrication of its shovels, cranes and other products.

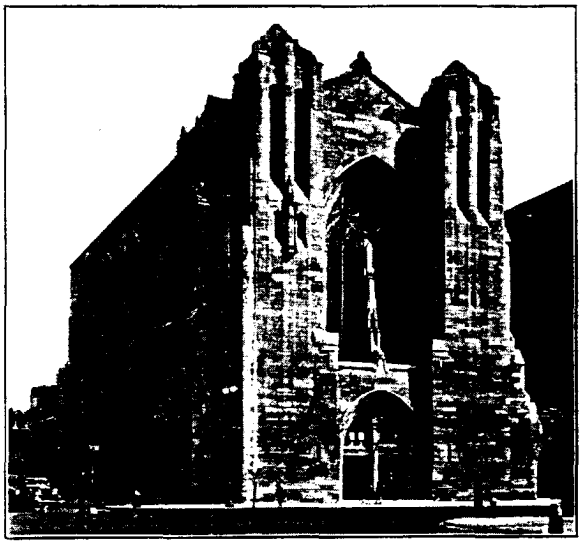


A Link-Belt shovel, showing some gears which, among others not visible, may be lubricated as described in the article.

White lead has also been used in combination with mutton tallow to coat the control wires of airplanes. This mixture provides both a protection from the elements for the wires and a means of lubricating them. It is a half-and-half mixture made by boiling paste white lead with the tallow.

Lead Pressure Relieving Joints "Save the Faces" of Modern Buildings

PRESSURE relieving joints are used in modern buildings faced with stone, terra cotta, marble or granite to prevent cracking or spalling of facing blocks, which not only mars beautiful façades but causes future expense for patching or tuckpointing. There are few prominent buildings today, large or small, faced with stone or terra cotta that do not employ these joints, and most leading architects have given their approval by specifying them. One of the best recommendations is that such companies as the Indiana Limestone Co. include pressure relieving joints in their specifications as a protection for their material. They are desirable in the construction of both steel skeleton and wall bearing types of structures.

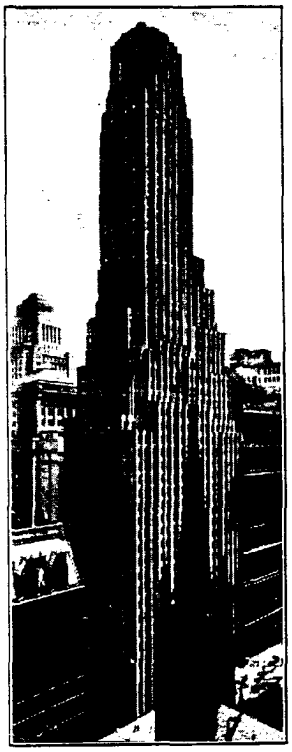


WURTS BROS.

Church of the Heavenly Rest, New York, a wall-bearing structure using lead pressure relieving joints.

MAYERS, MURRAY AND PHILLIP, ARCHITECTS

Pressure relieving joints consist of corrugated sheet lead wrapped in a fold of sheet lead. They are the thickness of the bed joint and are installed across piers and intermediate pilasters in place of one mortar joint, usually at the first course above the sill level. Normally they carry the load of the facing material from this point to the shelf angle. As building steel compresses as it takes the load of the structure and expands or contracts more than the walls with changes in temperature, the facing material is often required to carry not only the weight of the facing between shelf angles, as intended, but often the weight to the top of the building and some of the weight of the structure itself. This causes cracking or breaking of the facing blocks. Pressure relieving joints, being semi-plastic, compress slightly under this superimposed load, causing the shelf angles to function as intended and relieving the facing material of excessive pressure. Wind stresses, settlement, vibration and other causes also subject the facing material to destructive loads which are relieved by the pressure relieving joints. In wall-bearing types of buildings they provide the necessary resilience in the walls and act as cushions for the stone to rest upon. In this type of building they should be installed on bed at intervals of 12 or 15 ft. in height.



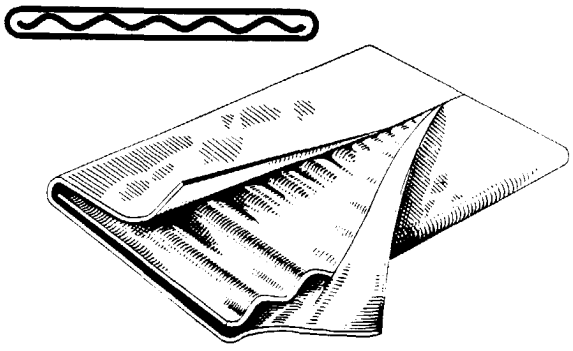
WURTS BROS.

No. One Wall Street, New York, has Cowing lead joints in its limestone façade.

VOORHEES, GMELIN AND WALKER, ARCH.

Being made of lead, these joints are permanent and non-staining. Not being unsightly, they may be installed flush with the stone face or may be recessed slightly and tuckpointed.

The list of buildings using this joint is almost endless. It includes tall structures like the Empire State, which used about 2½ miles of pressure relieving joints, and the eight-story Lee, Higginson & Co. building. The Church of the Heavenly Rest in New York is an example of the wall-bearing type of



Detail of lead pressure-relieving joints, showing how they are constructed.

building employing these joints. In addition countless tall and small structures the country over, such as Tower of Memories, Minneapolis, Koppers Building, Pittsburgh, Penobscot Building, Detroit, Tribune Tower, Chicago, and the Nebraska State Capitol are examples.

These joints are a product of the Cowing Pressure Relieving Joint Co., Chicago.

Lead-Caulked Water Mains in Wilmington, Delaware

IN doing its share to relieve the unemployment situation, the Water Department of Wilmington, Del., has laid several miles of water mains recently that would not otherwise have been put down for some time, according to Mr. S. N. Van Trump, Chief Engineer. One of these runs is a two-mile stretch to the state-owned Industrial School for Boys and another a mile and a quarter to the Rose Hill Public School. Both of these mains are 12 in. cast iron bell and spigot pipe, the joints caulked with pure lead. About 20 lb. of lead is used per joint. The pipe is in 18 ft. lengths.

Another project now being installed is about a mile of 16 in. pipe, also caulked with lead. This pipe is in 16 ft. lengths and requires about 25 lb. of lead per joint. Accompanying illustrations depict the pouring of a joint on this line.

The Wilmington Water Department uses lead for caulking all its pipe joints. Where the pipe is laid under wet conditions and molten lead cannot be used, it has resorted to lead wool.

To caulk with lead, oakum is first driven well into the joint, leaving about 2 in. for lead. This prevents molten lead running through the joint. Then a collar is fitted about the pipe with an opening at the top. At this opening a clay gate is built, into which the lead is poured. After the joint has been cast the clay gate and the collar are removed and the lead caulked to insure close contact with the pipe. The whole operation requires only a few minutes.

Lead has several advantages for this service and is consequently the standard material. Its pouring temperature does not have to be very carefully controlled. Once made, lead joints are flexible enough to allow settling or other uncontrolled movement of the pipe without cracking either joint material or pipe. This is not true of more brittle substances sometimes used as substitutes. Likewise, should unusual conditions make repairs necessary the plasticity of lead permits simple caulking as a remedy, whereas non-caulking materials must be completely removed and the entire joint remade, often with costly interruption of service.

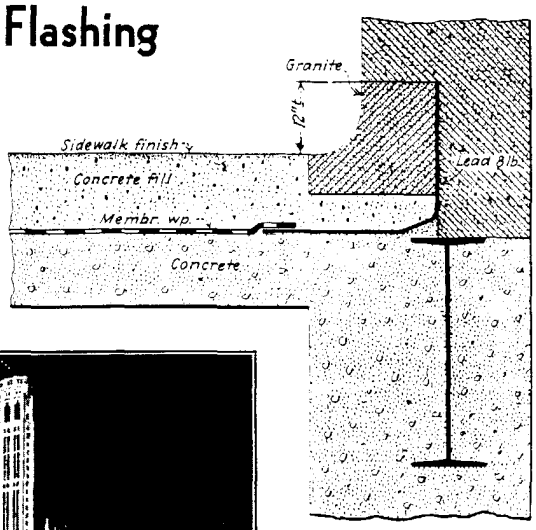
There are often failures of cast iron pipe that are blamed on the pipe itself when the joint is undoubtedly the real cause because there is no flexibility. Lead joints are flexible and eliminate this difficulty.

(LEFT) *Joint ready to pour, with collar and clay gate in place.*

(RIGHT) *Pouring molten lead into a joint of a cast iron water main.*

Lead Sidewalk Flashing

COVERING the entire block bounded by William, Beaver and Hanover Streets and Exchange Place, New York, the new building of the City Bank Farmers Trust Co. rises 55 stories into the air. But the superstructure of such a building is not its only important part. Great care must be taken to see that moisture does not seep into the basements from the sidewalk level. To prevent this, 16,000 lb. of 8-lb. sheet lead were used as flashing entirely around this new building at the sidewalk joints.

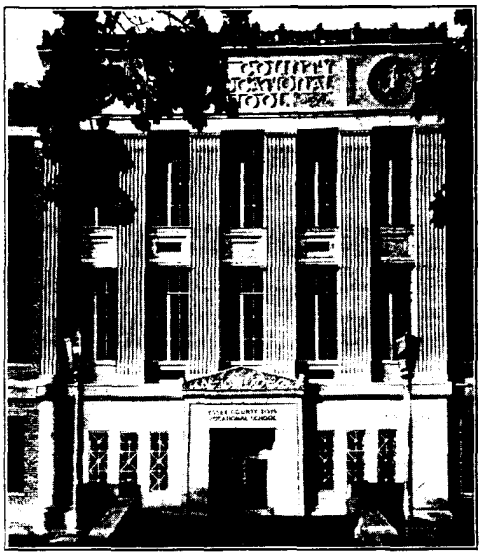


The selection of lead for this purpose was based on two factors: it is a permanent water-proof material and it is strong enough to carry the load placed upon it by the building walls. Likewise it is soft and pliable, taking up irregularities easily. The manner in which the lead is installed is shown in the accompanying sketch. The architects for the City Bank Farmers Trust Building are Cross and Cross, Moran and Proctor are consulting engineers, and the George A. Fuller Co. are the general contractors. J. Ringle & Son of Jersey City did the sheet metal work.

WURTS BROS.

Detail of lead sidewalk flashing on the City Bank Farmers Trust Co. building, and (left) the building itself.

In installations of this type where lead is in contact with concrete or mortar containing free lime in the presence of moisture, the lead should be coated with asphaltum as an added precaution against lime corrosion until the cement has become carbonated.



WURTS BROS.

Center façade, showing hard lead cresting and hard lead spandrels and grilles.

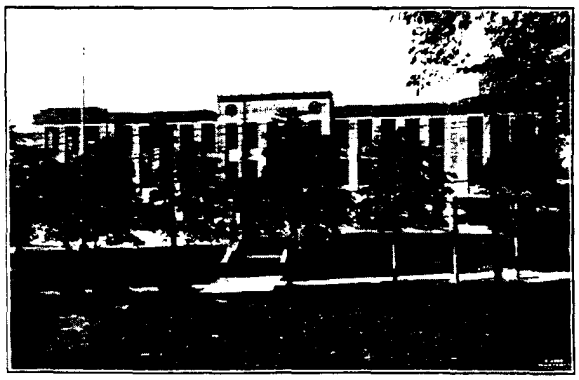
Hard Lead Spandrels and Cresting on a School

THE Essex County Boys' Vocational School at Bloomfield, N. J., is a fine example of public funds well spent. It was designed by the well-known firm of Newark architects, Guilbert and Betelle, who, among many other fine projects, have designed a number of the outstanding educational buildings in the East. This firm has taken advantage of the many desirable features of hard lead for architectural purposes—its pleasing color, great durability, and non-staining—on a number of its prominent buildings. They have again turned to hard lead on this new school building.

The exquisite roof cresting on the center portion of the building is stamped from hard lead. Likewise the simply designed spandrels are formed from hard

lead sheet, and the grilles in some of the spandrels shown in the photograph are cast hard lead. Hard lead flashing was also used.

The trend of architecture towards the use of metals, and particularly of lead, is pronounced. In the case of lead this is nothing new but merely a renaissance of the wide use of this pleasing metal in earlier times, mainly in Europe. Wider use of building materials like Indiana limestone, with which lead blends admirably, also adds impetus to the use of lead, and these light-colored materials must not accumulate stains from the metal, which may happen when some other metals are used.



WURTS BROS.

Essex County Boys' Vocational School, Bloomfield, N. J.

Lead Faced Building Blocks Economical and Attractive

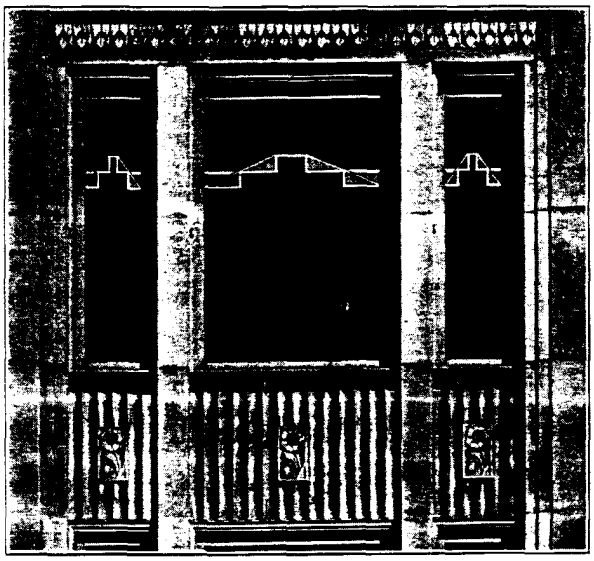
MACOTTA is the name of a new metal-coated building unit that is finding wide acceptance among architects and builders. It is a cast stone made of Haydite concrete which is light in weight and has good insulating properties. The outer surface of this material, after it has been cured, is sprayed with a coating of a metal. In this way the usual disadvantages of concrete and stone, porosity and weight, are overcome, for Macotta weighs but 100 lb. to the cubic foot and presents a solid metal surface to the atmosphere.

A Chicago building in which macotta lead spandrels have been used.

LEICHENKO & ESSER, ARCHITECTS

Of course, any metal may be used for the coating and more than one metal may be used to obtain variety and decorative effect. But the qualities of lead which make it so suitable for certain building purposes—its color, non-staining qualities, and greater durability than any other common metal—make lead one of the most popular metals for this coating. Also the dull sheen of lead is particularly adaptable to combination with bright metals such as tin, yielding interesting contrasts for ornamental work.

Macotta is used for spandrels, ornamental trim and may be used effectively for entire building surfaces. It is erected in exactly the same manner as any natural or cut stone. It is made by The Maul Co. of Chicago and Detroit, and the George Rackle Sons Co. of Cleveland.



Macotta spandrels and lintels. The background of the spandrels is lead.

A New Standard for Lead Pipe Sizes

THE Lead Industries Association has approved a new standard of lead pipe sizes which is being adopted by the principal manufacturers as an aid to consumers. In addition to eliminating numerous variations in pipe sizes now found among lead pipe manufacturers, an outstanding feature of the new standard is that all sizes of lead pipe in the A, AA and AAA classifications ("Strong," "Extra Strong" and "Double Extra Strong") will safely withstand constant cold water pressures of 50, 75 and 100 lb. per square inch, respectively. Heretofore the safe working pressure of these classes of lead pipe has decreased as the diameter of the pipe has increased. The principal changes occur in the wall thicknesses of the sizes from 1 in. to 2 in. Alterations made in sizes below 1 in. are of minor importance and small in number, but have been made to introduce a uniformity which does not now exist among the lead pipe sizes of various manufacturers. The new standard is as follows:

LEAD PIPE SIZES

Lead Industries Association Standard

Size	Classification		Outside Diam. Inches	Weight per Foot	
Inside Diam.	East	West		Pounds	Ounces
3/8"	E	AQ	.520		8
	D	XL	.549		10
	C	L	.577		12
	B	M	.631	1	
	A	S	.725	1	8
	AA	XS	.811	2	
	AAA	XXS	.888	2	8
1/2"	E	AQ	.628		9
	D	XL	.666		12
	C	L	.712	1	
	B	M	.756	1	4
	A	S	.798	1	8
	AA	XS	.876	2	
	AAA	XXS	1.012	3	
5/8"	E	AQ	.765		12
	D	XL	.803	1	
	C	L	.881	1	8
	B	M	.953	2	
	A	S	1.019	2	8
	AA	XS	1.082	3	
	AAA	XXS	1.137	3	8
3/4"	E	AQ	.906	1	
	D	XL	.940	1	4
	C	L	1.006	1	12
	B	M	1.068	2	4
	A	S	1.156	3	
	AA	XS	1.212	3	8
	AAA	XXS	1.336	4	12
1"	E	AQ	1.192	1	10
	D	XL	1.232	2	
	C	L	1.284	2	8
	B	M	1.356	3	4
	A	S	1.428	4	
	AA	XS	1.492	4	12
	AAA	XXS	1.596	6	
1 1/4"	E	AQ	1.442	2	
	D	XL	1.486	2	8
	C	L	1.528	3	
1 1/4"	B	M	1.592	3	12
	A	S	1.670	4	12
	AA	XS	1.765	6	
	AAA	XXS	1.889	7	12
1 1/2"	E	AQ	1.740	3	
	D	XL	1.776	3	8
	C	L	1.830	4	4
	B	M	1.882	5	
	A	S	1.984	6	8
	AA	XS	2.076	8	
	AAA	XXS	2.272	11	4
1 3/4"	D	XL	2.024	4	
	C	L	2.086	5	
	B	M	2.146	6	
	A	S	2.193	6	12
	AA	XS	2.404	10	8
	AAA	XXS	2.624	14	12
2"	E	AQ	2.185	3	
	D	XL	2.284	4	12
	C	L	2.354	6	
	B	M	2.410	7	
	A	S	2.503	8	12
	AA	XS	2.751	13	12
	AAA	XXS	3.008	19	8
2 1/2"			2.75	5	
			3.00	10	10
3"			3.25	6	
			3.50	12	8
4"			4.25	7	14
			4.50	16	6
5"			5.25	9	14
			5.50	20	4
6"			6.25	11	13
			6.50	24	2

Lead pipe in sizes and weights per running foot other than indicated made to specification.

The Lead Industries Association invites inquiries on any subject relating to lead and will be glad to cooperate in the solution of your lead problems.

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