

LEAD

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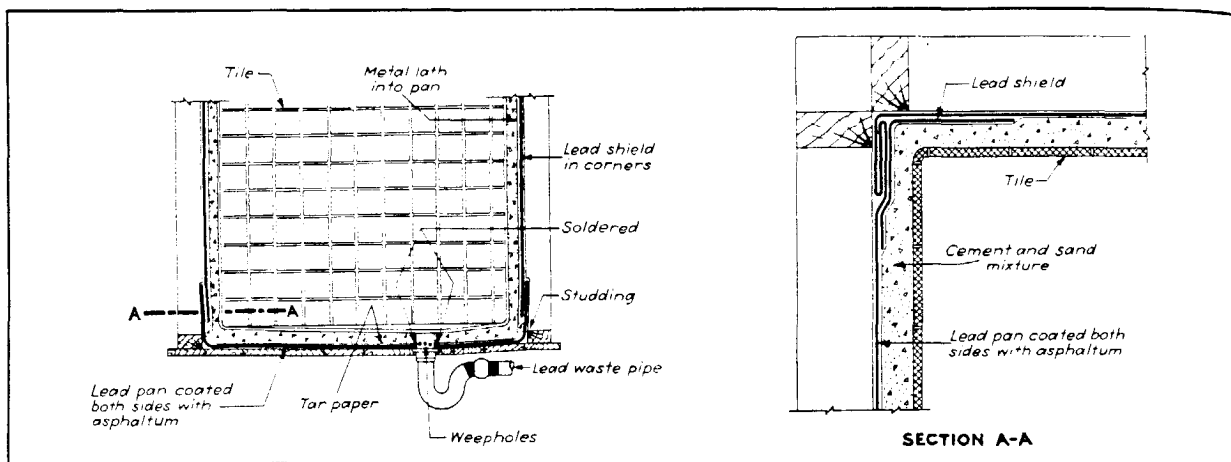
The attractive Western Pine Home at the Golden Gate Exposition has been painted with pure white lead and oil and has sheet lead flashings, downspouts and chimney cap

LEAD INDUSTRIES ASSOCIATION

Graybar Building • 420 Lexington Avenue • New York



LIA25506



Drawing of correct installation of lead shower pan

Lead Shower Pans and Stubs in Hospital Modernization

PLUMBING modernization is an important part of remodeling work at the Essex County Hospital, Cedar Grove, N. J. Particular care has been taken to provide sanitary, modern plumbing. Therefore, lead pans were used under stall showers and lead stubs to connect the wall-hung water closets. Both are recognized throughout the country as the most dependable means of waterproofing and connecting water closets respectively as evidenced by an ever-increasing number of cities requiring lead for these purposes by ordinance. Such widely scattered cities as Atlanta, Ga.; Tulsa, Okla.; Bakersfield, Cal.; Springfield, Mo.; Salt Lake City, Utah; Phillipsburg, N. J., and Asheville, N. C., are but a few of the cities making both of these requirements.

Adequate waterproofing for showers is very necessary, not only for hospitals, but in all other buildings. There are many examples of costly damage to walls, ceilings and structural parts from leakage that could have been avoided by lead pans. Leakage is also dangerous from a sanitary standpoint, since showers are often installed over rooms where food is prepared or served.

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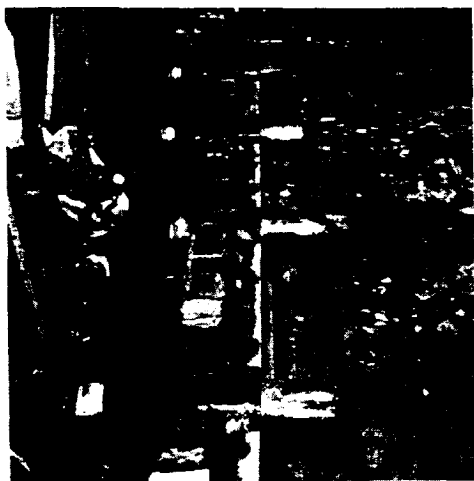
SPECIFY MATERIAL

The dependability of lead shower pans is due to lead's durability and flexibility. Lead pans fold easily for the upstand and corners without danger of cracking, and can be dressed down smoothly, eliminating

pockets which might result in settling and cracked tile.

Lead bends or stubs, being flexible, are able to take up building movement and vibration without danger of cracked closet bowls. Furthermore, fixtures are set more easily and quickly because lead bends or stubs may be bent slightly to make up for slight inaccuracies in measurement. Together with their smooth inner bore, durability, and freedom from clogging, these advantages make lead pipe the most serviceable material, not only for closet connections but for practically every other part of the plumbing installation.

The plumbing modernization of the Essex County Hospital is under the supervision of the Essex County Dept. of Plants and Structures, Henry H. Berg, Superintendent.

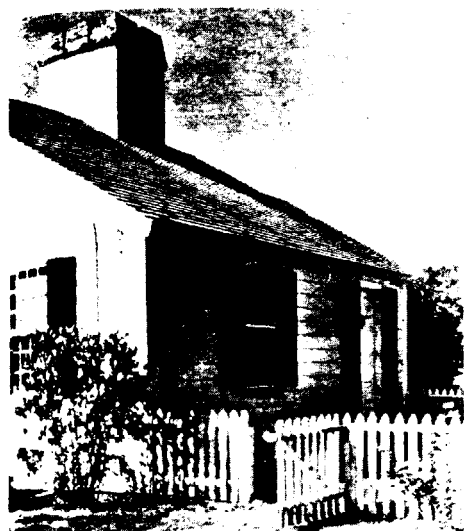


View at left shows four lead stubs for wall-hung water closets, and at right, lead shower pan, coated both sides with asphaltum, with tile work partially laid, both installations at the Essex County Hospital

T. ROBERT LINDSLEY



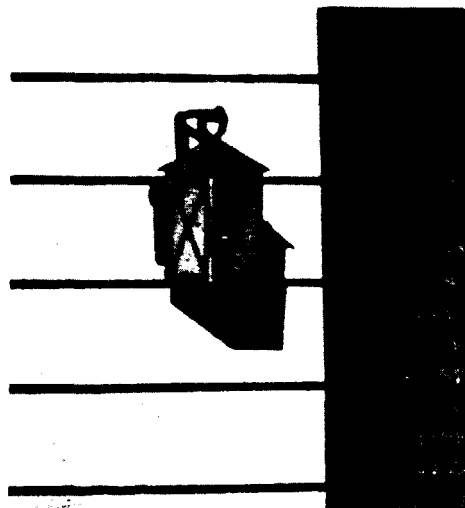
Western Pine Home at San Francisco Fair Uses Lead



*Painted with
White Lead*

*Flashed with
Sheet Lead*

*At left a close-up of one
corner of the Western
Pine Home, showing the
lead chimney cap, and at
right a detail of the orna-
mental lead lantern*



MORTON PHOTOGRAPHS

SHEET lead and pure white lead and oil paint have been extensively used on the attractive Cape Cod Colonial exhibition home of the Western Pine Association at Treasure Island for the Golden Gate International Exposition. The first of several such homes scheduled to be erected, the "Western Pine Home" is situated adjoining the large Homes and Gardens Building. It was designed in the \$5,000 to \$6,000 price range by Royal Barry Wills, architect, of Boston, Mass., and serves as a practical demonstration of the beauty and comfort that can be incorporated into small frame houses without sacrificing in the least the quality of materials used.

Sheet lead was used in the "Western

Pine Home" for chimney flashings, valley and window flashing, downspouts, and also for the chimney cap. Also, sheet lead was employed for the ornamental entrance lamp. All interior and exterior painting was done with pure white lead and oil paint.

In a description of the materials used in the exhibition home, the Western Pine Association states: "Certificate Red Cedar Shingles were used on the roof, and such other important items as sheet lead flashing and white lead paint were provided to insure a first class job."

The use of sheet lead for all flashing is indeed indicative of first class construction. Lead is the most durable of all common metals, and its use for

sheet metal work of this type insures permanent, trouble-free waterproofing. Because of its pliability, it is easily worked into form on the job, saving time and expense. Also, there is the added feature that lead does not disfigure adjacent building materials by staining. All of these advantages may be obtained within the price range of other materials used for these purposes.

By using pure white lead and oil paint, architects, contractors and home owners are assured of painting done with highest quality material, that, by virtue of its long life, superior resistance to atmospheric attacks, and its beauty, will mean a better job for a longer time, at less cost.

Two views of the Western Pine Home at the Golden Gate Exposition. Pure white lead and oil paint was used throughout and all flashings were made of lead



Helpful Technical Article on Modern Lead Plumbing

Trend Toward Use of More Lead Shown by Survey

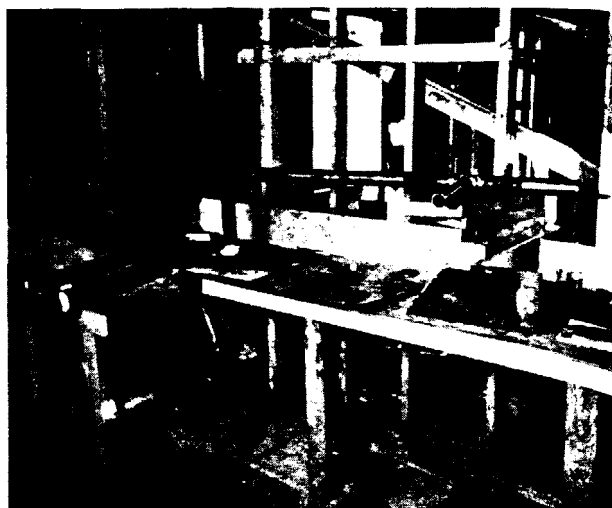
THERE is without doubt, today, a growing trend toward the use of more and more lead in plumbing installations.

Indication of this trend to more lead work is shown by an article entitled "Lasting Lead Work in Modern Plumbing" written by T. N. Thomson, Technical Editor of *Plumbing and Heating Journal*, appearing in the February, 1939, issue. In this article, which also gives detailed drawings of the use of lead, Mr. Thomson attributes the growing desire of the trade for more lead work to the fact that "lead is such a durable material when properly installed, and because it is so very useful for bending and fitting in tight spaces . . ." Under the principal places where lead is most commonly used are listed: branch wastes to fixtures; short vent pipes for fixtures wastes; water closet and slop sink bends; roof flashings around pipes; safes under showers, and other forms of waterproofing floors of bathrooms and washrooms; linings for tanks and troughs; linings for chemical sinks; chemical wastes; water supply pipes underground, such as tap connections and service pipes from street mains.

The reasons for this emphasis on lead are ably summarized by Mr. Thomson's sub-heading, "High Grade

Horizontal lead soil line with bend, branch waste and vent wiped together on the bench. Since much of the necessary lead work may be done on the bench where it is easier to work, a better and quicker job is made. The photo at the bottom right shows these parts installed

PHOTOS BY
DAYTON SNYDER



Practices Apply to Installation of the Trade's Old Reliable Piping Material." Lead truly is one of the oldest and most reliable plumbing materials ever to be used, for lead has all the characteristic advantages necessary

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for good plumbing installations: superior durability, high corrosion resistance, flexibility, non-staining, non-clogging, and economy. This article gives an excellent practical discussion of the handling of lead under modern

building conditions. It should make valuable reading for those who deal with the specification, supervision and construction of modern plumbing. We will supply reprints of the complete article and drawings to anyone requesting them.

Further indication of the trend to lead is clearly demonstrated by a recent survey of plumbing ordinances in 400 representative cities, throughout the United States, with a total population of over 45,000,000. On a population basis 22.4 per cent of codes passed prior to 1933 and still in effect placed particular emphasis on the use



At left, a close-up of wiped solder joints, showing horizontal and vertical joints and branch joints. Wiped joints are permanently bonded to the pipe and do not clog or retard flow

At right, note how easily the pipe is bent, eliminating numerous fittings which retard the flow and are likely to clog. Upon completion of the roughing-in all horizontal pipes will be continuously supported and vertical pipes fixed with lead cleats to the studs

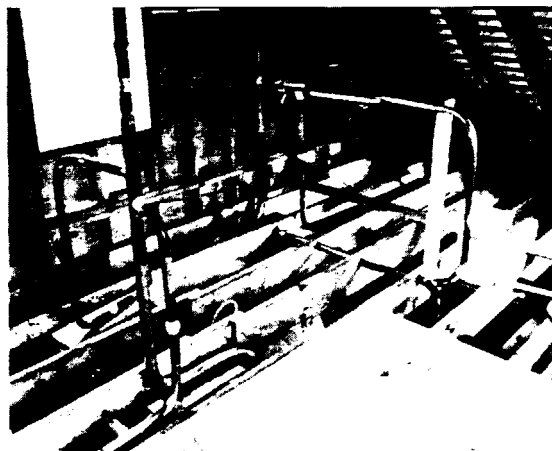


of lead, either by specific requirement or restrictions on the use of other materials. In those codes passed from 1933 to 1938, inclusive, this figure increased to 45.0 per cent. Furthermore if only those codes which were passed in 1937 and 1938 were taken into account, the percentage reaches 69.2 per cent. These figures clearly show the trend in materials which sanitary engineers and plumbing experts, who prepare ordinances, deem advisable for the plumbing system.

By specifying lead plumbing you assure your clients of the best plumbing possible, and, furthermore, protect them against unskilled work, for lead work can only be installed by skilled craftsmen. By specifying that the

Roughing-in for an upstairs bathroom. Note the gradual bends allowing free flow, and the lead pipe reeved through holes instead of notching beams which would tend to weaken the structure

DAYTON SNYDER



Lead Industries' Seal of Approval be stamped on all lead products you further protect your clients and your-

selves, for the Seal assures that the material meets our high standards for quality and adequate sizes and weights.

Pure White Lead and Oil Helps Sell Development Homes

THAT pure white lead and oil paint contributes greatly to the success of development building is well demonstrated by the New Salem project at Port Washington, Long Island.

This development, which, when completed, will include almost 500 small homes priced from \$7,490, is a striking example of the sound use of basic building principles. New Salem is styled with strict adherence to the traditional New England village, and yet is distinctly modern in facilities. The design and layout of these homes

is exceptionally attractive, but it is in their construction that New Salem surpasses the ordinary run of small home projects. Very careful attention has been paid in specifying only highest quality materials for these homes. In this respect the use of pure white lead and oil paint is a noteworthy feature. Painting is all too often taken for granted, whereas it is a basic part of home construction and should be specified in detail just as the other parts of the house.

Paint is the only medium for home

decoration that combines the essential factors of protection, durability and economy, and, at the same time, allows the decorative treatment of any home to be restyled easily and reasonably at any time.

The successful sale of small development homes is dependent to a large extent on the impression that prospective clients gain from the exterior appearance of the houses, singly and as a whole. People judge by what they see and it is the appearance and condition of the paint decoration that creates the

A general view of some of the attractive homes in the New Salem development at Port Washington, L. I. Pure white lead and oil paint is a feature of these houses

GUSTAV ANDERSON





Two white-lead painted homes at New Salem. White lead paint increases the salability of small homes by making the house decoration beautiful and lasting



first and lasting impression, and these two points are often the determining factors in either the sale of a home or in a prospective client's selection of a builder or architect. The exteriors of small development homes are very similar to window displays in stores. If attractive, prospective customers are drawn in, and the operator has a better chance to demonstrate in detail the complete home. On the other hand if inferior quality paint or unskilled application has gone into the painting, the attractiveness of the development will suffer and clients will not be fa-

vorably impressed or wish to investigate the project more closely.

In this respect one point must be remembered. It is not enough that the exterior paint decoration be attractive when first applied. It must remain so. In any development, the houses first erected have usually been standing for some time before the whole project is completed. Although, when first painted, the original few homes may have been attractive, if the paint used is not durable this beauty will fade rapidly and the sale of later homes must suffer due to the uninviting ap-

pearance of those first constructed.

Williams-Harter Corporation, builders of New Salem have fully realized this important part that paint plays in successful development building. Pure white lead and oil paints are used throughout, assuring lasting beauty, since white lead wears smoothly and evenly, is elastic, allowing expansion and contraction with the painted surface, and assures complete surface protection until such time as redecoration is desired. The C. J. Williams Co., of Brooklyn, N. Y., are in complete charge of painting decoration.

Lead Used as Containing Fluid in Hydraulic Press

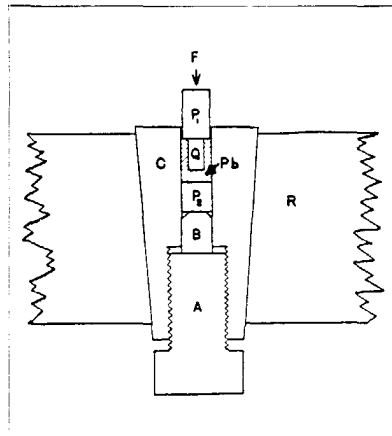
THE use of lead as the confining fluid for hydraulic presses has been reported by David Griggs, Harvard physicist, in experiments on the plasticity of various types of rocks from which clues to the underground mechanism causing earthquakes and other geological phenomena have been obtained. Contrary to past belief, rocks under high pressure will not flow indefinitely but will break if deformation is carried far enough. Quartz, however, although it had been thought to become plastic, under high pressures was changed, aside from fracture, only by an alteration of optical quality known as "undulatory extinction."

In the drawing, the method of using lead in the press is shown. The advantage of lead for this work is that it is one of the few materials in which the shear strength does not increase greatly with the application of high

pressure so that it behaves almost like a liquid at the high pressures employed. For this reason the pressure is applied uniformly over the entire surface of the specimen. In the drawing, C and R are the high pressure cylinder and supporting ring designed by Professor P. W. Bridgman, a pioneer in this research. P_1 is a piston which transfers the pressure and P_2 acts as a base plate against which the specimen Q is compressed. The specimen is surrounded by lead as the confining fluid in the high pressure chamber. In the experiment, the force (F) on the piston is increased at a constant rate, squeezing the lead until the specimen hits the bottom piston. The force on the upper piston is then split into two components, one of which forces the lead out around the upper piston (a clearance of usually a few thousandths of an inch), and the other acts as a differential stress on the speci-

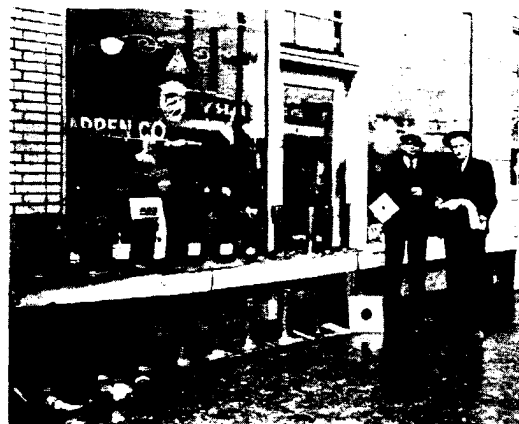
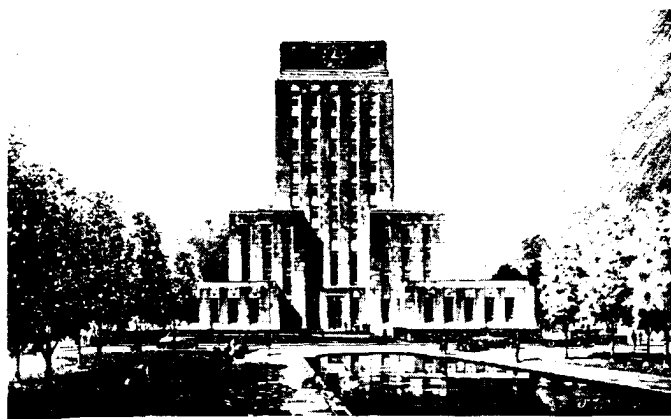
men. The force is then increased at a constant rate until the specimen breaks. In this way differential pressures more than 1,500,000 lb. per sq. in. can be attained.

Drawing of hydraulic press in which lead is used as the containing fluid



Lead Plumbing in New City Hall at Houston, Texas

Lead Fixture Connections and Roof Flashings



CECIL THOMSON STUDIOS

Architect's drawing and, at right, part of the 6 lb. sheet lead roof flashings for the new Houston City Hall Building. Ben W. Warren, plumbing contractor on the left and Chief Plumbing Inspector A. A. Peary at the right

ALL soil, waste and vent pipes in Houston's new City Hall are of lead and cast iron with lead-calked joints, and all roof flashings are made from 6 lb. sheet lead. All fixture connections including wall-hung closets are made with lead in order to provide necessary flexibility. Now under construction, the new municipal building will be ten stories high and of completely modern, fireproof construction.

Durable and efficient materials are essential in any building because it is expensive to repair and replace plumbing and because sanitary condi-

tions must be maintained. This is especially true of public buildings of this type of construction, in which the plumbing is used by a large number of people. For this reason, the selection



of lead and cast iron, as specified by the Houston plumbing code is the wisest possible choice. This combination of plumbing materials is ideal, not only because of its superior durability and dependability, but also for its efficiency. Lead plumbing is non-

clogging and does not retard flow, and is at all times flexible. Furthermore when clients know that lead is to be used, they realize that the installation will be made according to best plumbing practice, since it takes a skilled craftsman to install lead.

Similarly, the use of lead roof flashings is a practice required by many of the better modern plumbing ordinances. Highly resistant to corrosion, they form a permanent waterproofing that is durable and attractive, fully protecting the client's interest.

Furthermore, lead roof flashings are non-staining. Just as the use of lead

At the left, lead closet connections and lavatory wastes for a double toilet room, and at the right, similar roughing-in for the basement. All cast-iron joints were calked with lead

CECIL THOMSON STUDIOS



service and supply pipes eliminate the possibility of ugly discoloration on bathroom and kitchen fixtures, so water coursing over lead roof flashings does not stain adjacent building mate-

rials. This is due to the fact that rain-water washing over the lead does not dissolve out compounds which soak into paint, masonry, woodwork or other materials leaving disfiguring

stains which cannot be removed.

The new City Hall was designed by Joseph Finger, Inc. The Warren Co., of Houston, were the plumbing contractors.

Correct Method of Laying Pipe is an Important Factor in Service Pipe Installation



View of service pipe run through iron sleeve in foundation and calked with lead wool

WURTS BROS.

CORRECT laying of service pipe is an important installation factor. First, the trench should be deep enough so that the pipe will be below the frost level, and should be dug as straight as possible. It should slope with an even grade to either the street main or foundation wall in order to avoid trapping the service. When the trench is dug from soil containing rocks which might damage the pipe, fine soil or sand should be filled in the trench bottom before laying the pipe.

Where the ground has been back-filled around the foundation, or in the case of very long runs, a slight goose-

neck should be formed in the pipe before passing through the foundation wall. (This is in addition to the goose-neck that should always be formed at the main as described in detail in LEAD, March, 1938.) The service pipe entering the building should pass through a cast-iron sleeve built into the foundation wall and the joint waterproofed by calking with lead wool.

Where electrolysis is known to be present in the ground, or where there is free lime, some precautionary measures should be taken. Where there is free lime the service should be coated with tar. This may be done by pouring tar over the pipe from an ordinary watering can, after the service is laid in the trench. By lifting the pipe

slightly the tar will flow under and assure a complete coating. Where there is electrolysis the pipe should be laid in a V-shaped trench or in half sections of tile pipe and embedded in pitch poured in the trench or tile.

Backfilling the trench should be done with fine sand or soil, free from rocks, for at least six inches.

Also, where it is possible to determine the exact length of the service, it is recommended that the couplings be wiped onto the lengths of lead-pipe on the shop-bench. This will make a more satisfactory job under better working conditions.

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