

LEAD

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HIGHLIGHTS

- Lead Resists Corrosion at Sewage Disposal Plant.
- Colonial Taverns feature White Lead Paint.
- Plywood and white lead prove economical solution for renovation problem.
- How to obtain limitless decorative possibilities with white lead stencilled walls.
- Lead installations specified to meet modern plumbing requirements.

General view of the Jones Island sewage disposal plant on the Milwaukee water front where lead provides protection to the chimney and condensers against sulphuric acid and other corrosive fumes

Lead Industries Association
420 Lexington Avenue
New York, N. Y.

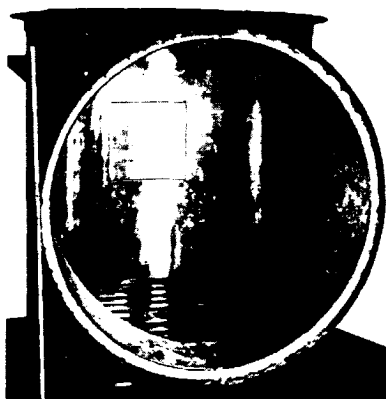


Lead Guards Against Corrosion in Chimney and Condensers at Sewage Disposal Plant

RISING majestically 350 ft. above Milwaukee's water front is the new chimney of the Jones Island Sewage Disposal Plant erected to carry the gases emanating from the drying plant high above the city. A corrosion problem of some magnitude occurs in this chimney and in the ten condensers through which the gases pass before they enter the chimney. Sulphuric acid and other corrosives occur in these gases.

Consequently the entire upper shell of each condenser, measuring 5 ft.

Part of a lead-lined condenser for the sewage disposal plant. Lead-covered steel strips supporting the lead lining of the top, on which it is resting in this view, are visible, as well as some of the lead rivet heads on the outside of the steel shell



6 in. in diameter and 5 ft. 9½ in. high, is lined with 8-lb. sheet lead. The 5/16-in. thick steel shell has 7/8 in. holes through it on 12-in. centers. The edges of these holes are beveled. At each hole a lead rivet is burned to the back of the lead lining, the head of the rivet being upset on the outside of the steel to hold the lead against it. The lead lining in the top of the condenser is held by a number of steel strips, 1½ in. wide and 5/16 in. thick, fastened through the lead to the outer shell and covered with 8-lb. lead "burned" to the lead lining. All other joints are also "burned."

Since the same corrosive gases pass from the condensers to the chimney, steel and iron work in the chimney is also protected with lead. Every 5 ft. up the chimney the brick flue lining is encircled by a steel band covered with a lead sheath. The chimney is approximately 35 ft. in diameter at the base and 18 ft. at the top. The top of the chimney and flue lining is covered with a cast-iron cap to keep water from entering at that point. The cap is made in two pieces, one covering the top of the outer wall of the chimney and the other the top of the flue lining. The two pieces overlap,

Some of the lead-sheathed steel strips that encircle the chimney flue lining

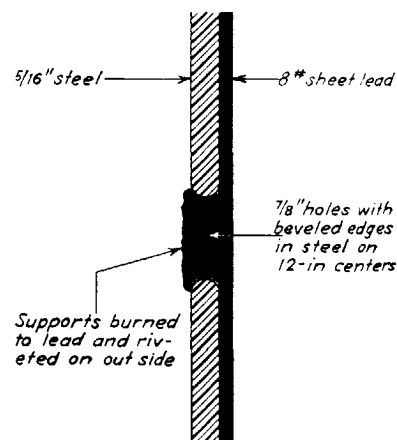


effectively excluding water but allowing movement in the chimney. The cast-iron cap is covered with 6-lb. sheet lead. Such caps should be installed in short lengths with loose-locked joints to provide for expansion. Joints in the lead sheaths on the bands, which are made in sections, are lead "burned." Also iron doors leading into the chimney are lead lined on the inside, and the steel lintels are covered with sheet lead.

William Landsiedel is designing engineer and James L. Ferebee is chief engineer and general manager of the Sewage Disposal plant for the City of Milwaukee.

Alphonse Custodis Chimney Construction Co. is building the chimney, with Roy Forbes as superintendent of construction.

Section through the lead condenser lining and steel shell, showing how lead rivets hold the lining in place





No. 11

Colonial Lore and Beauty Preserved in Jersey Inns

COLONIAL inns and taverns, where the early traveler dismounted to rest and refresh after a long ride, in many cases remain today as the most picturesque landmarks along America's first highways. Some of these famous old wayside inns are still in operation, having been host

Village Inn, Englishtown, N. J., established in 1732 and in continuous operation as an inn down to the present day. Its excellent condition today is a silent tribute to the reliable protection afforded by pure white lead and oil

JAMES S. CAWLEY

A pre-revolutionary home known until recently as the Cannon Ball Inn. Located in Springfield, N. J., this building was one of four left standing there after the British during their occupation had burned the entire town. It derives its name from a cannon ball which was for many years imbedded in the north wall. Pure white lead paint has decorated and preserved both exteriors and interiors of this colonial landmark for more than a century and a half

JAMES S. CAWLEY

Bottle Hill Tavern, located in Madison, N. J., and built shortly after the turn of the nineteenth century. It is said that the name "Bottle Hill" originated with an earlier tavern which displayed a bottle hung from a tree as a sign of "entertainment within." The Marquis de Lafayette spent a day here during his visit to America in 1825. Preserved with pure white lead paint, Bottle Hill Tavern continues to serve the traveler

PARKER STUDIO

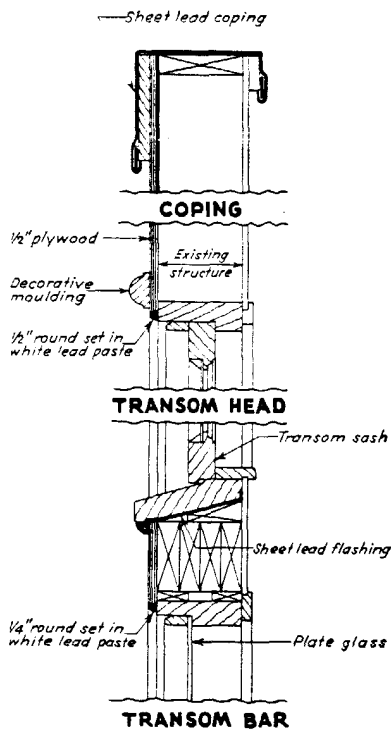


THIS IS NO. 11 OF A SERIES REPRESENTATIVE OF THE MANY AMERICAN LANDMARKS IN VARIOUS SECTIONS OF THE COUNTRY THAT ARE PRESERVED FOR THE FUTURE WITH PURE WHITE LEAD AND OIL PAINT. MANY OF THEM HAVE ALWAYS BEEN PROTECTED WITH THIS RELIABLE MATERIAL ACCORDING TO AVAILABLE RECORDS.

Plywood and White Lead Prove Economic



All panel edges were caulked with white lead paste and ship-lapped forming tile-like joint



Painting Specifications

All exposed wood surfaces shall be painted with three coats of pure white lead and linseed oil paint, mixed according to standard formulas supplied by the white lead manufacturer.

or

All exposed wood surfaces shall be painted with two coats of pure white lead mixed on the job or as furnished by the manufacturer specifically for two coat application. All paint shall be applied strictly according to the manufacturer's directions.



Before

and

After



Typical group of Simpson Avenue buildings before modernization with plywood and white lead paint



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The actual installation of the new front for Simpson Street was simplicity itself. The facade of each building was merely trued up and the plywood applied directly over the old siding in tile-like patterns or in all-over mass areas to conform to pre-conceived designs. The plywood was affixed with galvanized nails or screws with all joints set in white lead paste to assure a firm bond as well as seal the sections against the possible penetration of moisture. The entire renovation received two coats of pure white lead and oil used white or tinted with colors-in-oil according to the styling scheme recommended by the supervising architect. Since white lead paint will not crack and scale or wear unevenly however long the surface may be neglected, repainting will be required only after many years of service or when redecoration is desired. Its unsurpassed durability means extra service which is the secret of maintenance economy.

The immediate success of the Ho-quiam experiment suggests the limitless possibilities which white lead decorated plywood offers for the modernization and renovation of homes as well as business establishments both inside and out.



Before

and

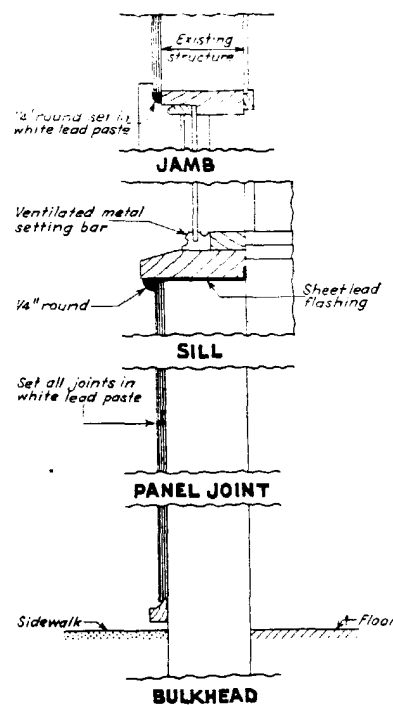
After



The same group of buildings as they appear today following renovation with plywood and white lead



Specifications required that edges of all panels be primed with white lead before setting



Plywood Setting Specifications

All blocking and stripping shall be true and straight, securely fastened to the building structure. All joints between panels shall be halved shiplap joints (or V groove butt joints).

Prime all edges of panels with pure white lead and oil paint before setting. All lap joints shall be bedded in heavy paste white lead and nailed securely to the stripping with box nails. (All butt joints shall be buttered before setting with heavy paste white lead and the edges of both panels shall be securely nailed to the stripping with casing nails.)



Beauty, Variability Plus Economy with White Lead Stencilled Walls

THE stencil which has long been featured in the decorative schemes of theatres, restaurants and hotel lobbies is now proving a solution to the growing demand for distinctive mural treatments in low-cost home construction. Simplicity continues the keynote of this most versatile medium, as the economy of the decorative sequence is dependent upon the elimination of intricate details requiring far more costly free hand interpretation. For this reason, skylines, silhouettes and seascapes are universally popular, such subjects submitting readily to what might be termed a general or shadow presentation. While the possibilities for cutting original panoramas and designs are limitless, a myriad of fresh interpretations are likewise obtainable through color variations with the use of standard stencil plates of the more popular designs widely sold by general dealers in paint products.

Use Cartridge Paper

To prepare a stencil, pin the paper—preferably cartridge paper—securely to a flat surface before drawing on the design, which should be repeated at convenient intervals with an extension at one end to form a binding key; so that the plate may be lifted and replaced as the work progresses without breaking the continuity of the pattern. A coating of boiled linseed oil applied to the cartridge paper will greatly facilitate the cutting out process which becomes a simple procedure with a sharp knife. Finish off by shellacing both sides of the paper, greatly extending the life of the plate.

Paint Selection Important

The selection of paint for mural decorations is of paramount importance, because individualized stencils represent an investment which must be paid off over an extended period free from retouching costs. Consequently, care should be taken to include a statement in the specifications that the paint be mixed on the job from soft paste white lead, lead mixing oil or lead reducing oil and pure colors-in-oil to assure its quality as well as to simplify those formula variations often essential for the success of stencil treatments. White lead paint being impervious to the action of dirt, grease as well as moisture, any stains which may result are readily removed by simple washing with the result that cleanliness and surface beauty are maintained at minimum expense. Furthermore, since the white lead and oil combination will not chip or peel, repainting becomes necessary only when redecoration is desired.

Use Regular Ground Coats

Assuming that the wall or panelling is dry, clean and in sound structural

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shape, apply the ground coats of white lead paint mixed according to the standard formulas for wood or plaster as the case may be. The tinting of these coats—which form the stencil base—is naturally governed largely by the design chosen. For example, if the panorama is to be a city skyline, a gray ground is suggested; if a sea-view, a pale blue; while for a desert scene, a light buff is the usual selection. Color monotony is commonly avoided by the judicious blending of dabs of appropriate tinting colors thinned with the flattening vehicle. By working in varied combinations while the topcoat is still wet, pleasing highlights are produced, giving colorful relief to the sky area. For example, on a blue background a little white lead is recommended; while on a buff finish, burnt sienna and chrome yellow provide pleasing harmony.

After the third or finish ground coat is dry, assuring an adequate base, attach the stencil to the wall using masking tape to hold the plate firmly in place. Repeat this process following the painting in of each section, the stencil being moved and dovetailed from stretch to stretch.

Thick Paint Required

Although paint of the consistency of paste white lead thinned but slightly with lead mixing or lead reducing oil is required for intricate stencils to reduce the danger of running or smudging, paint of the standard finish coat of half and half soft paste white lead and flattening vehicle is used with success on large scale mural plates simple in design. As a result, any paint left over from the background topcoat can frequently be used by merely darkening with sufficient tinting color to produce the desired contrast. Here again color monotony is readily broken by working in straight colors with a stipple brush.

Adaptability of Lead to Plumbing Shown in Diversified Installations

NO matter what consideration is the determining factor in the selection of waste and vent pipe material, lead is able to meet the conditions and satisfy all sanitary requirements. Whether cost, absolute safety or extraordinary adaptability is the prime consideration, lead remains first choice in many different projects widely distributed throughout the country.

Housing for workers in the many defense plants now being built must be constructed in the most economical manner consistent with proper living conditions. Lead plumbing is taking an important part in safeguarding the health and raising the living standards of thousands of families who would be forced to live in trailers, tents or substandard quarters if these new villages were not being provided. In addition to Avion Village and Cockrell Hill at Dallas illustrated in our last issue, five projects in Cincinnati, Ohio, two just across the Ohio River in Kentucky, one in Portsmouth, Ohio and one in Omaha, Neb. have recently come to our attention. All of these projects are using lead extensively.

Upland Homes project, at Omaha,

planned and designed by John Latenser, with 400 modern homes for workers in a bomber assembly plant is a typical example. Done according to the excellent Omaha code with extra heavy lead closet bends and drum traps lead wastes and vents, lead flashings, and lead soil pipe calking, this project will provide adequate sanitary protection for its occupants for many years to come. The adaptability of lead to line production methods is helping to make this a rapid and economical installation as well as to help establish a permanently sanitary community. The illustration shows how various units are made up on the bench ready to be set in place with a minimum amount of labor on the job. Both speed and economy have been achieved by the efficient use of lead pipe and sheet.

Lead is also consistently the choice for plumbing where absolute safety is imperative and cost is a second consideration. Hospitals can take no chances with the materials used in their plumbing. Patients must be protected from infection hazards and all equipment must function perfectly and without delay. Consequently, hos-

pitals rely on lead pipe to perform the critical work of disposing of wastes quickly and certainly. The smooth interior surfaces, the long radius bends, and the minimum of joints are some of the reasons why lead waste pipe is the most dependable for disposal systems.

Saint Francis' Hospital, now nearing completion in Peoria, Ill., is safeguarding its future patients by using lead wastes throughout as well as lead shower pans, floor drain flashings and roof flashings. Hamilton P. Dox, of Peoria, is the architect and Beling Engineering Co., of Peoria and Moline, is the mechanical engineer. An unusual situation resulting from structural conditions has been met by using exceptionally long drum traps to provide accessibility without the use of expensive and unsightly scuttles and removable panels. The illustration shows some of these traps, which are made of 4 in. lead pipe and some of which are as much as 30 in. long. The easy long radius bends, possible only with lead pipe, are also clearly shown.

Another example of the use of lead to meet a special condition is the office remodeling for the Republic and Morning Herald of Yakima, Wash. Here a 2 in. lead waste line, 80 ft. long, was reeved through holes bored in the floor joists. The use of rigid pipe would have made necessary a

Lead craftsmanship to be installed in St. Francis' Hospital, Peoria, Illinois

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Lead working shop on the Upland Homes Housing Development, Omaha, Neb.





Wiping a joint in the lead waste line being installed in the offices of the Republic and Daily Herald, Yakima, Wash.

deep notch in each joist which would have weakened the structure beyond the limits of safety. Holes located at the line of neutral shear have little effect on the strength of a beam but only flexible lead pipe can be so installed conveniently. Hand-made drum traps were also used on this installation and an interesting example of craftsmanship is shown in the picture. A four-inch pipe was beaten closed at two points along its length and then cut apart, thus forming the bodies of three traps. The brass ring was then wiped on and the inlet and outlet wiped in place. The trap and waste assembly shown is an excellent example of bench assembly which eliminates the necessity of fitting the pieces in cramped quarters.

These are just a few examples of the ever increasing use of lead plumbing clear across the country. In the most strict cost competition, to meet the most exacting sanitary requirements, and to adapt itself to unusual installation conditions, lead is continuing to be the economical, efficient and serviceable standby of the water supply and plumbing industry that it has been for more than twenty centuries.

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THE Lead LIBRARY
of Free Technical Information

The following articles and reprints contain information, drawings and specifications on the use of lead products helpful to architects, engineers and others in the construction industry. They are available, free of charge, upon request to the Lead Industries Association, 420 Lexington Avenue, New York City.

WHAT TO EXPECT FROM WHITE LEAD PAINT

An attractive 28-page booklet with charts, formulas, and mixing instructions covering some of the problems of painting and how white lead meets these problems.

PAINTING YOUR HOME by Dr. F. L. Browne, Senior Chemist, Forests Products Laboratory, Madison, Wisc.

A discussion of house painting reprinted from American Forests, May, 1939.

SOME PAINTING PROBLEMS AND THE ANSWERS

By Dr. F. L. Browne, Senior Chemist, Forests Products Laboratory, Madison, Wisc.

Reprinted from the National Real Estate Journal, Sept., 1939.

STAMFORD'S DOUBLE LIFETIME HOME

A complete analysis of hard lead flashing, white lead paint, lead plumbing, plywood and red cedar Certigrade shingle details and installation methods. Reprinted from the American Builder, July, 1939.

SHEET LEAD INSTALLATION DETAILS

A detailed analysis of the principles and application of lead flashing and sheet lead work for small homes. Reprinted from Sheet Metal Worker, June, 1939.

UPON REQUEST, THE LEAD INDUSTRIES ASSOCIATION WILL BE GLAD TO MAIL "LEAD" REGULARLY, FREE OF CHARGE, TO THOSE INTERESTED, AND WILL COOPERATE WITHOUT OBLIGATION IN THE SOLUTION OF YOUR LEAD PROBLEMS

BRUSH UP ON YOUR PAINTING

A practical article on the selection and application of paint reprinted from House Beautiful, June, 1941.

LASTING LEADWORK IN MODERN PLUMBING

By T. N. Thompson, Technical Editor, Plumbing and Heating Journal.

Reprinted from Plumbing and Heating Journal, Feb., 1939.

HOW LUMBER AND PAINT KEEP YOUR HOME ALWAYS IN STYLE

A brief digest of the advantages of painted lumber homes with color-styling suggestions and other interesting information.

COMMERCIAL STANDARDS:

Calking Lead, CS94-41

Lead Pipe, CS95-41

Lead Traps and Bends, CS96-41

Official publications by the Government Printing Office of the above Commercial Standards as promulgated by the U. S. Department of Commerce through the National Bureau of Standards, effective June 25, 1941.

NEW SIMPLIFIED STANDARD FOR LEAD TRAPS AND BENDS

File size leaflet with new standards for lead traps and bends as well as existing standards for lead pipe and calking lead, and other informative data.

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