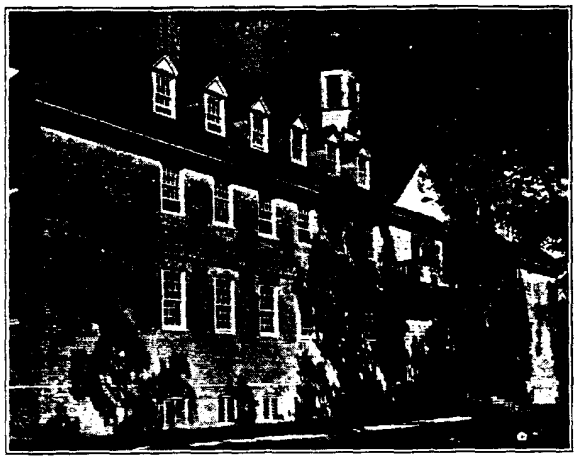
Lead Flashing 236 Years Old on College Building



COURTESY WILLIAMSBURG HOLDING CORP.

Wren Building, College of William and Mary. The belt course is flashed with lead 236 years old.

WREN Building at the College of William and Mary in Williamsburg, Va., is the oldest academic building in America and still has much of the identical lead flashing installed when the building was erected in 1695. Restoration of this building was undertaken in 1931 as a part of a general program to restore Colonial Williamsburg. At that time examination showed that lead flashing was used on top of the belt course on the east, north and south façades of the main part of the building, partly imbedded in the brick work itself, and dating from the original structure. Most of it was in such good condition after 236 years that it was left in place by the restoration architects.

The building was originally designed by Sir Christopher Wren, England's most noted architect. During a long existence it has been damaged by three fires, but is now restored to its early appearance and regularly used for college purposes. Much research and examination of the structure and of written evidence was necessary to accomplish restoration to the building's original condition. The walls have been strengthened by insertion of a concealed steel frame.

Sir Christopher Wren was responsible for many of England's most notable buildings, including great St. Paul's Cathedral in London, and he used lead lavishly in all his work for roofing and flashing. In 1708 he wrote of roofing, "Lead is certainly the best and lightest covering, and being of our own growth and manufacture, and lasting, if properly laid, for many hundred years, is without question the most preferable." His wisdom has been admirably proven by the many examples of his lead work that remain today. These demonstrate that the selection of lead for roofing and flashing, while the first cost may be a little higher, in the end means a great economy, for once installed no expensive maintenance or repairs are necessary. Leaks which cause expensive damage to interiors are avoided, and no unsightly stains from metal develop on paint or masonry. The color of lead is in itself attractive, harmonizing with all building materials, and acquiring a natural patina with age that enhances its appearance.

New Jersey Journeymen Want More Lead in Plumbing

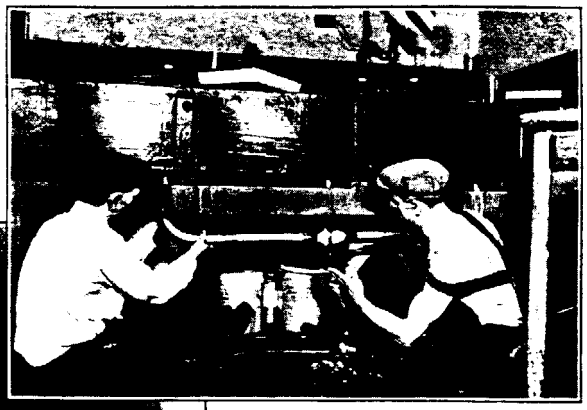
MASTER and journeymen plumbers throughout the country are making great headway in an endeavor to bring the plumbing business up to the standards that are essential for the trade to maintain if the health and property of the public is to be adequately protected. This is well exemplified by the action recently taken by both the Master and Journeymen Plumbers of the state of New Jersey, who are working harmoniously together towards this end. A resolution passed by the New Jersey State Association of Master Plumbers at their annual meeting in May was printed in its entirety in LEAD in the July issue, which will be sent upon request. The New Jersey State Association of Plumbers and Steamfitters at their quarterly meeting at Atlantic City, July 23, also adopted a similar resolution calling for the use of more lead in the plumbing trade to insure protection and to safeguard health against cheap and defective material that is being used in some localities which, if allowed to continue, will gradually make inroads into the plumbing industry and take work away from members of the United Association.

Cities, towns and villages when compiling their plumbing codes should have representatives of the Masters and Journeymen on the Code Committee, for who understands better than the local master or journeyman the necessary requirements or revisions

that should be made from time to time? Then again, practical examinations are necessary for all those wishing to participate in the plumbing business and applicants should have to qualify by passing not only a written but a practical examination composed, in part, of joint wiping and lead pipe bending, thus assuring the public of skilled mechanics at all times.

Two of the principal factors to be taken into consideration for the approval of simplified installations of pipe or fittings for plumbing are whether the health of the community and the pocketbook of the home-owner will be protected by simplification and whether anyone but a registered licensed plumber, capable of good workmanship, can make installations.

Lead Handles Corrosive Solutions Used in Photography



ROTOFOTOS, INC.

Lead pipe for handling photographic solutions in a New York studio.

ROTOFOTOS, INC.

Pipe corroded by photographic solutions removed and replaced with lead pipe.

PHOTOGRAPHY requires the use of several corrosive chemical solutions such as "hypo" (fixer) and developers. Photographers must make sure that the equipment in which they keep and transport these solutions is made of material that will resist corrosive action and thus avoid expensive repairs as well as poor results in making negatives and prints, because the products of corrosion of certain common nonferrous metals will cause the developing solutions to fog the photographs. Illustrations show some piping made from an unsatisfactory metal which has corroded through and was entirely useless after less than six months. It was used to handle "hypo," sodium thiosulphate. They also depict the lead pipe with wiped joints that was used to replace the faulty piping.

Eastman Kodak Company's research workers have developed much information on this subject. Their findings have been quite widely published in the technical and photographic trade press from time to time. They have found that lead is satisfactory to use as a lining of wood tanks for the storage of developer and for storage tanks for "hypo" not containing silver. They have also found lead suitable for pipe lines and coils in contact with "hypo" not containing silver and for coils in contact with developer. Joints in lead should be "burned" or wiped.

This is but another field wherein lead is used to resist corrosive chemicals. Engineers before selecting materials for chemical construction should give lead careful consideration especially from the standpoint of first cost, availability everywhere in all commercial shapes, ease of repair and replacement with consequent reduction of idle workmen and equipment, high scrap value, and, of course, corrosion resistance. The Lead Industries Association, or manufacturers of lead products, are always ready to assist with information as to lead's resistance to attack by any particular corrosive chemical.

Lead is used to handle perhaps a wider variety of corrosives than any other metal, including such common substances as sulphuric, hydrofluoric and phosphoric acids, and sodium and zinc chloride solutions.

White Lead Outlasts Different Neighboring Paint 2 to 1

IN November, 1927, the house pictured here, which is located in East Orange, N. J., was painted with pure white lead paint. It was not repainted until the spring of 1933, a life of 5½ years for the paint. Consequently the same contractor was asked to do the repainting and he naturally again used white lead paint. This is not an exceptional experience where white lead is used by craftsmen who understand their business.

Pure white lead paint on this house outlasted a neighboring job with another paint by more than 2½ years.

As a contrast, the house next door was painted about the same time, in 1927, with a paint containing 50 per cent of pigments other than white lead. Since then, it has been painted twice with the same type of paint while its neighbor has had one repainting with white lead. Surprisingly enough, a white lead job would actually have cost the homeowner less in this instance than the job with the other paint because white lead paint would have cost the contractor who did the job 15c to 20c a gallon less and a smaller amount of white lead paint would have been required to do the job. Both contractor and owner would have profited from a white lead job. Likewise, with an average life only half that of white lead the cost of painting is obviously at least doubled for the owner using the other paint.

The inference the home owner may draw from this is obvious, but how the painting contractor benefits may not be quite so clear. Neighbors seeing these two houses will naturally turn to the contractor who did the job that lasted the longer, when their houses need painting. Thus, although repainting of any one house occurs less frequently to this contractor, once he does a job that customer is always a customer, and in addition is a customer who brings new business to the painter. No advertising or salesmanship is so valuable as a satisfied customer, and conversely no advertising or salesmanship can sell unsatisfactory results over any protracted period of time. The combination of good workmanship and white lead paint is about as good a business developer as there is.

White Lead-Varnish a Practical and Little Known Cement

MIXTURES of white lead and varnish make an admirable cement extensively used in setting marble and applying metal letters to glass. Service in the joints of marble work is very exacting. Monuments, monumental buildings and other marble structures are usually expected to last for generations. The material must not only make firm joints but must not crack nor cause the stone to crack. White lead and varnish cement seems to meet the requirements of marble setters admirably and it can be applied in very thin layers, which is particularly advantageous when seams are to be made as invisible as possible. Although successfully used for a great many years, this adhesive is not generally known because in marble work, for example, the formula has been handed down from generation to generation like the art of polishing marble. Each marble worker may think it his own exclusive method but inquiry will reveal the fact that the next man is probably following almost identical procedure. This mixture will doubtless find many more applications where badly needed, now that knowledge of it is more general.

Proportions vary to suit the individual using the mixture and depend, also, upon the kind of varnish. Enough varnish is added to white lead to make a

thick, workable paste. It generally requires from 1¼ to 1½ gal. of good varnish to 100 lb. of heavy paste white lead.

This adhesive not only adheres tenaciously and is strong in itself, but it absolutely excludes air from the joint, thus adding the force of atmospheric pressure in making the joint secure. As it need be used only in thin layers, expansion or contraction upon setting is negligible. For marble work the thickness of the cement film need not exceed about $\frac{1}{16}$ in. In fastening enameled metal letters to windows and similar work only enough need be used to fill the hollow portion and thus exclude air. White lead and boiled linseed oil may also be used for this purpose. Adhesive strips are used to fasten letters in place until the mixture has set.

If any reader believes that this adhesive or its companion product, litharge-glycerin cement, might solve some of his problems, the Lead Industries Association will be glad to cooperate with him in determining the suitability of these mixtures for his particular conditions.

Lead Signs With Tinned Letters are New and Useful

THE attractive cast lead sign with raised tinned letters which appears on the office building of Hope's Windows, Inc., at Jamestown, N. Y., is a new development in signs and other exterior or interior lettering that should interest architects. Originally the company name was incised in the stone fascia, so that, when the company name was changed recently it would have been difficult to alter the lettering. To avoid this the cast lead sign was designed and fastened over the lettering.

This device offers something new and distinctive for architects, although the practice of tinning parts of cast lead ornaments has been followed for many years—even centuries, many medieval lead leaderheads having been executed in that fashion. Aside from offering the architect a new, yet tried, medium of expression, tinned lead signs have further advantages. In cost they are much lower than similar work in bronze, it being estimated that the saving runs somewhere between 30 and 50 per cent. Bright tin offers a pleasant and legible contrast to the dull, soft gray of the lead background, and both of these metals, as stated elsewhere, harmonize with all other building materials. No cleaning or polishing is necessary, which means an additional saving as well as assurance that signs in inaccessible places will always be legible and useful. These metals will not cause unsightly discoloration or staining of masonry or paint around them. Metal signs add a sense of permanence and dignity not possessed by wooden signs, and the rustless metals like lead and tin are free from the expense of constant repainting.

Cast lead sign with tinned letters is an attractive addition to this building front.

Cast lead signs with tinned letters are attractive, economical and practical, and will be welcomed by architects as a new example of useful service rendered them by an old friend, lead.

Detail of the cast lead sign with tinned letters pictured above.

Much Lead Work on This Prize Winning Home

THE residence of Mr. Frank Erickson at Forest Hills, Long Island, N. Y., which boasts considerable interesting and beautiful lead work, received the first prize from the Borough of Queens Chamber of Commerce for excellence in design and civic value of residence in 1931. Mr. W. E. Haugaard was architect for this attractive home.

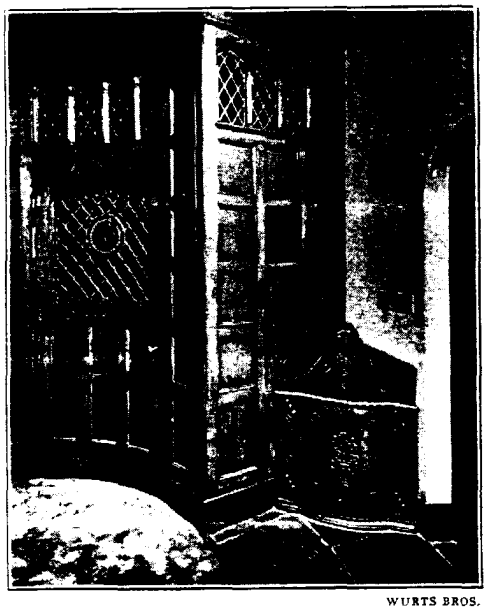
Over bay window and doorway are small, standing seam lead roofs. Over the doorway a scalloped ornamental edge has been cut in the lead. The bay window, in addition to being roofed with lead, is entirely sheathed in lead with raised ornamentation. On the wall of the chimney is a lead sun-dial. Leaderheads, gutters and leaders are also lead.

Each of these applications of lead, taken individually, is a small architectural gem in itself, yet such is the character of lead that they harmonize with the entire design and with the other materials employed. They provide no distracting elements in the building as a whole. Aside from the great natural durability of lead—it will last for many centuries—this metal has a soft gray color both attractive in itself and harmonizing with any other building material. With age it acquires a natural patina that renders it even more attractive. Lead, too, does not cause stains on adjacent materials. Ornamentation is easily accomplished with lead because of the ease with which it may be stamped, cast, or hand wrought.

WURTS BROS.

Frank Erickson residence, Forest Hills. The chimney sun-dial is cast lead.

In this residence the beauty of lead has not been confined to the exterior. Just inside the entrance stands a beautiful ornamented lead cistern. Though it is not used here for the original purpose of lead cisterns, it makes a most attractive cane or umbrella rack or even just an ornament. The color of lead is extremely pleasing when it glows softly in the rays of subdued or artificial light. Recently these interior uses of ornamental lead have expanded so rapidly that lead flower bowls, book ends, ash trays, candlesticks and many other objects are now widely sold in department and gift stores as well as being made on order by skilled craftsmen.



WURTS BROS.

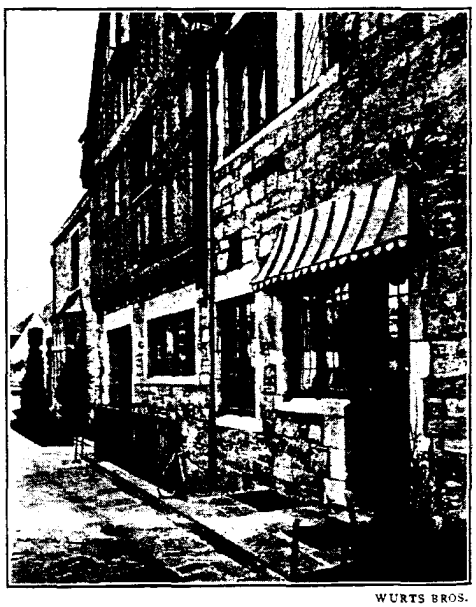
LEFT

Lead cistern just inside the main entrance.

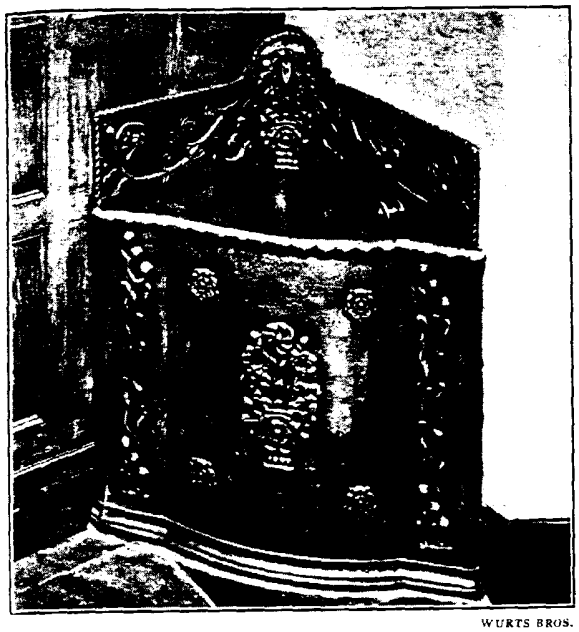
❀

RIGHT

Lead roof over one entrance. Note lead gutters, leaders and leaderheads.



WURTS BROS.



WURTS BROS.

This detail of the handsome lead cistern in the Erickson residence should be of interest to architects and designers.

Minneapolis Finds Lead Water Services Resist Electrolysis

WATER departments and plumbers everywhere should be interested in a letter of instructions issued last year by the Engineer's Department, City of Minneapolis, Minn., to plumbers in that city. It is reprinted below:

CITY OF MINNEAPOLIS
Engineer's Department

DEAR SIR:

I am writing you regarding certain tests and experiments which we have made with different kinds of water service pipes, with reference to the electrolysis in the ground which decomposes such pipes. We have found that lead will last many times longer than other metal pipes underground where electrolysis exists, especially where there are car tracks.

Therefore on and after June 1st, 1932, we shall insist that lead pipe be used on all water service connections underground where there are street car tracks on the surface of any street or public thoroughfare on which such service connections shall be laid.

We would also suggest that this lead pipe be wrapped with rubber and friction tape and painted with a covering of asphalt in certain places where electrolysis is known to exist. All lead pipe used in such connections shall be of the following standards:

5/8"	lead	pipe	per	foot	.....	3 lb. 0 oz.
3/4"	"	"	"	"	.....	3 lb. 8 oz.
1"	"	"	"	"	.....	4 lb. 12 oz.
1 1/4"	"	"	"	"	.....	6 lb. 0 oz.
1 1/2"	"	"	"	"	.....	8 lb. 0 oz.

The above instructions are given for the benefit and protection of both the plumbers and the property owners, and this department will be pleased to cooperate with you regarding the above.

Yours truly,

(Signed) W. S. LYNESS
Chief Inspector
Sewer & Water House Connections

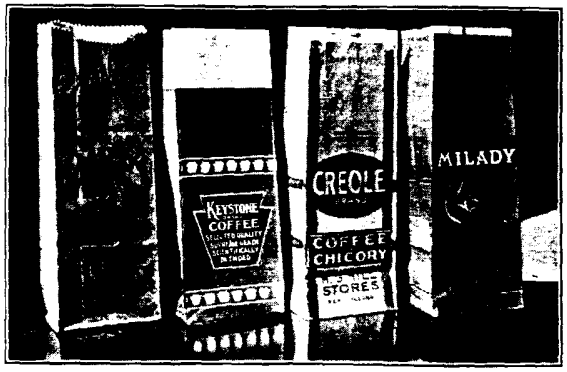
White Lead Interior in a Painting Contractor's Shop

MR. NEVILLE RUSSELL, painting contractor, of East Orange, N. J., practises what he preaches by having his entire shop interior painted with pure white lead paint. This is in keeping with his policy of using white lead on the jobs for which he contracts. His shop interior was painted last 5½ years ago, and the photograph shows its excellent condition now. The walls are concrete block and the ceiling wood, all painted with two coats.

White lead paint is particularly suitable for shop and other interiors because it can be washed frequently without injuring the paint and because it washes clean. Cheap paint on interiors comes off when washed and dirt becomes so imbedded in it that it can not be thoroughly cleaned. Clean paint is essential to give maximum lighting efficiency, which, in industrial interiors, directly affects the efficiency of workers. Just as in outside painting, white lead is a real economy when used inside because of its durability, washability, and good appearance.

Spic and span interior of Neville Russell's paint shop, entirely painted with white lead 5½ years ago.

Lead Foil Makes an Inexpensive, Effective Coffee Bag



Paper coffee bags with lead alloy foil liners.

COFFEE is not an easy commodity to package economically because its natural oils must be preserved and, for the sake of appearance, they must not be allowed to penetrate to the outside wrapper. Light and changes of moisture in the atmosphere also have a bad effect. Freshness must be preserved and it generally requires an expensive package to do this. However, by using a lead alloy foil liner, Thomas M. Royal & Co. of Philadelphia are able to produce an economical and attractive coffee package that adequately preserves the freshness of the product. That these bags have found especial favor in the South is a tribute to their ability to preserve coffee in its best condition because Southerners are extremely particular about the flavor of their coffee and will not consume it unless the flavor is just right. The time and trouble they take in making coffee, generally by the drip method, and the number of special blends made up for individuals, is evidence of this.

These bags are three-ply, consisting of a lining of lead alloy foil backed either with waxed paper, amber glassine paper or greaseproof paper on the inside, and a printed paper bag on the outside. One of the bags pictured has a transparent paper outer bag, and the silvery sheen of the foil shining through gives a most pleasing effect. The foil prevents the escape of oil from the coffee and protects the outer wrapper from being disfigured. Destructive light rays and moisture are also excluded by the foil, as well as any other deleterious effects from without the package.

The lead alloy foil liner shines attractively through the transparent paper outer wrapper of this bag.

These bags are also extensively used for packaging tea, and in fact foil wrappings of many kinds are ideally suited and widely employed on all kinds of delicate products, including tobacco.

Uses for lead or lead alloy foil other than packaging include electrical condensers, metallic packing, tinsel for Christmas tree decoration, diathermic treatment, X-ray work, burglar alarm systems, flexible lettering for windows, caps for bottle tops, principally wine bottles, and for wrapping champagne bottle necks.

Lead-Asbestos Mats Prevent Vibration in Cincinnati Terminal

LEAD-ASBESTOS anti-vibration mats were used extensively to isolate vibration in the new Cincinnati Union Terminal. Under the building is a complicated system of ramps and roadways for street cars, buses, taxicabs and private motor cars. Without preventative measures much vibration from these sources would have reached the terminal proper. By using separate columns to support that part of the structure subjected to moving loads and isolating these columns by means of lead-asbestos pads in the foundations, vibration is kept from reaching the remainder of the building. These pads are the same type as those used by the same architects, Fellheimer and Wagner, in the construction of the New York Central Railroad's new Buffalo Terminal, reported in LEAD, July, 1931, and in other terminal developments of the New York Central and Pennsylvania Railroads.

LIA25247

MADISON SQUARE PRESS
NEW YORK