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LEAD

*Published by
Lead Industries
Association*

VOLUME TWELVE

NOVEMBER, 1942

NUMBER



Applying priming coat of pure white lead paint to grain storage bins at York, Nebraska. 4,000 of these bins erected by the Nebraska Agricultural Conservation Committee will be painted with pure white lead paint.

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



Typical group of Nebraska's white lead painted AAA grain storage bins.

Established Position of White Lead Simplifies Bidding on Paint Materials for Grain Bins

TO facilitate the handling of surplus stocks of grain and to avoid the necessity of curtailing farm production, the Agricultural Adjustment Agency has found it necessary to provide local storage for quantities of wheat and soy beans. This storage is provided in the form of standardized wooden granaries which can be quickly erected at central points close to shipping facilities.

Since the grain is to be stored only until it can be sold and moved to market, and since storage requirements may vary from time to time in each locality, the granaries are built in demountable sections and can be easily moved to a new location as conditions demand. For this purpose the Agricultural Adjustment Agency has designed a sturdy well proportioned building which, standing filled in neat rows, gives evidence of the productive-

ness of our farms and an assurance of an abundance of food for America.

In order to protect the wood construction from the weather, as well as to make them more attractive in appearance, these buildings are all painted a uniform white. In Nebraska, the state Agricultural Conservation Committee of the AAA, which is in charge of building granaries for use in that state, has standardized on pure white lead paint for several reasons. Mr. Abner K. Chestern, Chairman of the Committee, says "When trying to determine how we might advertise for bids on white paint for our 4,000 bins, we found that soft paste white lead, linseed oil and gum turpentine are standardized products on which bids can be secured and the final quality of the paint materials delivered assured without having a technical laboratory test the paint purchased.

"The farmers who are painting the bins can easily thin the paste white lead to brushing consistency."

The Nebraska State Agricultural Conservation Committee found that in addition to providing a standard for obtaining bids on a uniformly high quality paint, the use of pure white lead and oil, mixed on the job, effected substantial savings in the cost of material.

The granaries are at present receiving only two coats of paint but the excellent covering capacity of white lead provides them with a serviceable protection and it will remain smooth and uniform to receive additional paint when it becomes necessary.

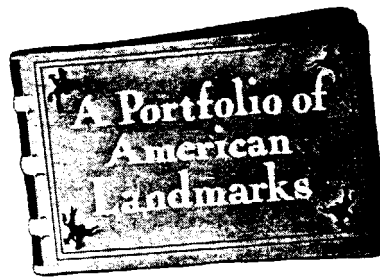
The Agricultural Service Division of the Lead Industries Association has prepared a chart showing quantities of materials required for the standard size grain bins along with instructions for mixing the paint. Copies of this chart may be obtained, upon written request, from the Lead Industries Association, 420 Lexington Avenue, New York City.

SOME LEAD USES TO SAVE CRITICAL MATERIALS

USE	MATERIAL SAVED	RECOMMENDED	USE	MATERIAL SAVED	RECOMMENDED
Bearing Metal	Tin-Base	Lead Base	Metallie Coatings	Zinc, Cadmium, Chromium, Nickel	Lead Coating
Chemical Tank Linings, and Pipes	Rubber	Lead	Paint, White & Tinted	Zinc Oxide	White Lead
Closet Floor Flanges	Brass	Lead Alloy	Paint, Metal Protective	Zinc Chromate	Red Lead
Collapsible Tubes	Tin, Aluminum	Lead			Blue Lead
Die Castings	Zinc Base	Tin-Coated Lead	Plumbing Pipes and Fittings	Copper, Brass, Galvanized Iron and Steel, Cast Iron	Lead
Drum Trap Covers and Rings	Brass	Lead Base	Roofing, Flashing, Gravel Stops	Copper, Galvanized Iron, Terne Plate	Lead Alloy
Fire Extinguishers	Copper	Lead Alloy	Storage Batteries	Nickel-Iron	Lead-Acid
Foil	Tin, Aluminum	Lead-Coated Steel	Solder	Tin-Lead	Lead-Silver
Gaskets and Washers	Rubber	Lead			Lead-Silver-Bismuth
Instruction Plates, Name Plates, etc.	Brass, Iron, Steel	Lead Alloy	Water Service Pipe	Copper, Brass, Galvanized Iron and Steel, Cast Iron	Tin-Lead-Silver
Mechanical Pencil Hardware	Brass	Lead Alloy			Lead Welding
					Lead

OLD Charleston, sometimes called "America's Most Historic City," is rich in historical associations extending back a century before the founding of this nation. Charleston was first in many important industrial, commercial and social institutions in America including railway service, fire insurance and free municipal college. Long established naval and military units located here still serve the country with distinction. Stately buildings with historic associations attract many visitors annually.

However, the most vivid memory of Charleston in the mind of the con-



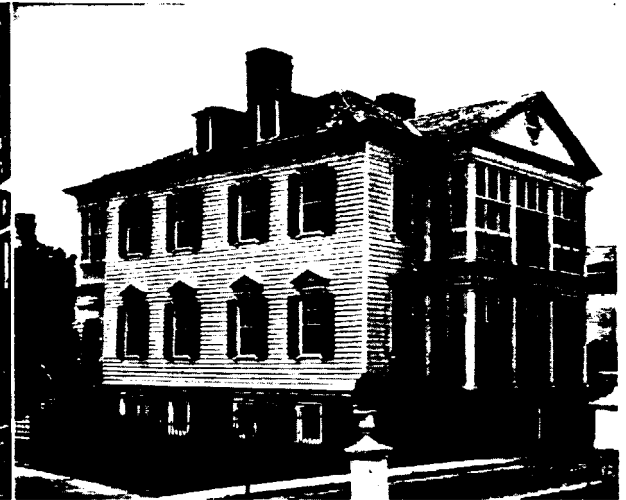
No. 16

Charleston Homesteads Reflect Golden Era in Old South

temporary visitor is of the gracious homes and beautiful gardens. Charlestonians are home loving people who take pride in their homes and a large number of fine old houses have been occupied by the same families for generations. The excellent condition of many of these houses is due to sound maintenance programs, which include regular painting with pure white lead paint. The accompanying photographs indicate that the owners of these landmarks intend to continue to rely on the durability and beauty of pure white lead to protect their homes from the ravages of the weather.



Of comparatively recent construction, the Hartley House was erected in 1881. As is the case with many of its older neighbors, it is decorated and protected with pure white lead paint.



One of the spacious mansions for which Charleston is famous is the historical William Washington House. Built in 1765, its excellent preservation is largely due to having been protected from the ravages of weather by pure white lead paint.



Built of black cypress on the characteristic high brick foundation about 1780, the Aimar House was once the residence of Governor John Mathews of South Carolina. The clean whiteness of white lead paint adds to its charm and beauty.

PHOTOGRAPHS BY
RONALD ALLEN REILLY

THIS IS NO. 16 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.

Plumbing Specialties Successfully Made of Lead Release Brass for Military Uses

ONE of the critical problems facing the plumbing industry today is the supply of incidental brass fittings necessary for the installation of fixtures—small articles, perhaps unfamiliar to anyone except the men who do the work but necessary parts of a safe sanitary job. Any means of supplying suitable substitutes for these fittings is a help in carrying out the program of war housing which is still of major importance.

In this connection the substitution of antimonial lead for brass in drum trap covers and closet floor flanges is of considerable importance.

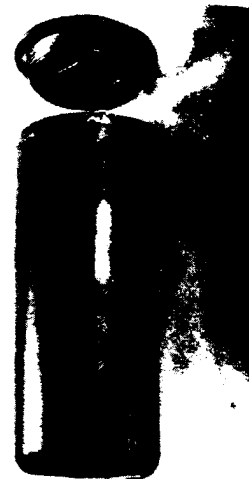
The drum trap cover and its threaded seating ring are die-cast of hard lead with a medium coarse thread and have proved to be workable and of sufficiently large aperture to allow access for cleaning if necessary. The ring is welded to the body of the trap instead of soldered, as was

necessary with the brass ring, thus making an additional saving of tin as well as brass. The body of the drum trap remains the same with $\frac{1}{8}$ in. thick walls as required by the Lead Industries Association Standards and Commercial Standard CS96-41.

The closet floor flange is slightly different in design from the commonly used brass flange, having four slots instead of the usual three with stiffening bars between the slots. However, in spite of shorter slots there is more allowable adjustment for bolts than on the conventional pattern. This flange is easily soldered to the flared end of the lead bend in the same manner as the brass flange. It can also be welded or "burned" directly to the lead bend without the use of solder.

Although each of these items requires only a small amount of metal,

architects and engineers can effect savings of important amounts of brass by specifying them consistently. In addition, jobs may be expedited by avoiding the delay and uncertainty incident to obtaining brass fittings.

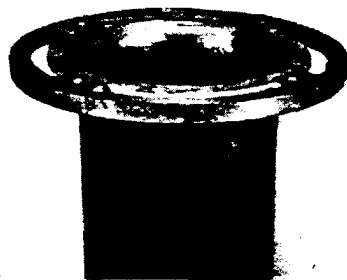


Drum trap with hard lead ring and cover.



Hard lead floor flanges.

Below, flange soldered to lead bend.



New and Broader Applications for Lead Help to Conserve Scarce Materials

"There is relatively more lead in relation to demand than there is copper, tin or zinc. Because of the desperate shortage of these metals, WPB now recommends that lead be substituted for these other critical metals wherever possible. This does not mean that we should try to use as much lead as possible. Substitution is the thing, not just consumption."

Erwin Vogelsang, Chief, Tin and Lead Branch, War Production Board, October 21, 1942.

EVER since the Bureau of Industrial Conservation of the War Production Board several months ago placed lead in the group of materials available in sufficient quantity to be used as a substitute for more critical materials, the WPB, Army and Navy officials, as well as industry, have been searching diligently for uses of lead that would relieve more critical materials. Lead, incidentally, is the only common metal classified in the least critical group. Already considerable progress has been made and more will undoubtedly result as the country becomes more fully aware of the current availability of lead.

The use of lead to save critical materials falls naturally into two cate-

gories. First, there are many purposes for which lead is normally used to a greater or lesser extent in competition with other materials now critical, for example, lead in plumbing. The more extensive use of lead now as service, soil, waste and vent pipe, flashings and shower pans saves copper, brass, zinc, iron and steel. In this class also falls the greater use of lead for sheet metal work on buildings, such as flashings and gravel stops. Lead-base bearing alloys are rapidly supplanting tin-base alloys in ship construction, diesel engines and many other places. Lead-base die-casting alloys are supplanting zinc-base alloys for many purposes when high strength is not important but where good casting

qualities are. The lead-base alloys, in addition, are generally superior for corrosion resistance.

Lead pipe and tank linings are taking the place of rubber in many industrial operations because of lead's corrosion resistance. Lead gaskets are, in many instances, proving superior to rubber gaskets used for a multitude of purposes. Lead collapsible tubes have largely displaced those made of tin and aluminum, and lead foil laminated wrappings are finding wide use to take the place of packages made of more critical materials. Lead coatings are saving much zinc, tin, cadmium and nickel, formerly used to protect iron and steel products.

In the paint field, considerable savings of critical materials are also possible through wider use of lead pigments. For metal priming, red lead and blue lead can conserve zinc and chromium. For finish coats on metal and for wood painting, pure white lead paint eliminates the need for using zinc.

In addition to the class of replacements just described, some are entirely, or almost entirely, new. Lead alloy name-plates, hard lead drum trap covers and rings, and water closet floor flanges have been developed to take the place of brass and are described elsewhere in this issue. Lead alloy couplings are being employed in place of copper and bronze on certain types of cement-asbestos pipe. Lead foil is finding use as a wrapping in a number of new fields such as the rapidly growing dehydrated food industry. Metal parts for mechanical pencils are now being made of lead alloy.

It is possible here to mention only a little of what is being done with lead to help relieve critical shortages of other materials, but this brief summary may help to suggest to others how they can use lead to aid the war effort. It is the duty of every industry, trade and government agency to employ the least critical materials that will do their jobs properly. If any one believes that he can use lead at the present time to save some of the highly critical materials, the Lead Industries Association will be glad to assist with information and advice about the properties and uses of lead.

Use of Lead Alloy for Identification Plates Releases Critical Metals for Mechanical Use

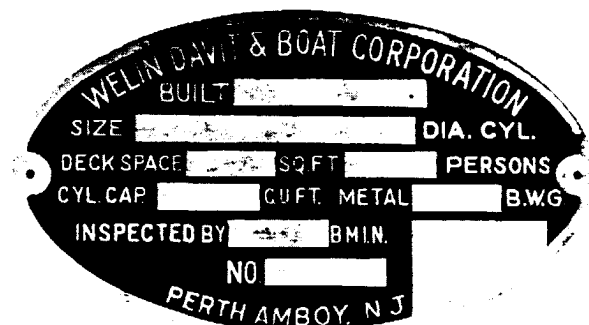
MOST of the machines and machine tools required in the manufacture of our war material as well as many of the products themselves require plates for names, numbers, operating instructions and other information. These plates have, in the past, been made of brass, aluminum, steel, and other metals which must now be reserved for the operating parts of the same machines. It has become necessary to find a substitute which will be durable enough to remain legible throughout the life of the machine and at the same time be inexpensive and easy to obtain.

Such a substitute has been developed by the Colonial Brass Co. of Middleboro, Massachusetts, who are now making various types of plates of the new material for many of their long-time customers. It is a high lead content alloy, malleable and corrosion resistant, which has proved to be entirely satisfactory and, at the same time, less expensive than most of the materials previously used. It is especially suitable for use in locations which are subject to exposure to salt water.

The new material can be cast with

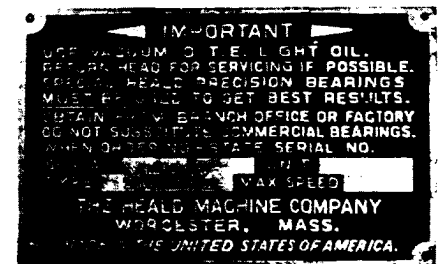
raised or incised letters in extremely fine detail. It can be stamped, bent, and plated and in general, finished the same as other materials. Without special finish the silvery grey natural color makes raised letter faces show up well against a black background. This lead alloy has been approved for name plates by the Army and Navy and the Maritime Commission as a substitute for other metals which are critically scarce. It is being used by such companies as General Electric Co., Ingersoll-Rand, Bethlehem Steel Co., and other machinery manufacturers.

This developed use of lead is particularly interesting because it is of a nature which would, on superficial consideration, be thought unsuitable. It is an excellent illustration of the intelligent application of materials at hand to an emergency. It is also a particularly satisfying application because in this case the problem can be considered solved. It will not be necessary to find a substitute for the substitute because lead is available in sufficient amounts to be useable as a substitute for more critical materials.



Identification and instruction plates of lead alloy now being used to replace other more critical metals. These plates are 5/8 and 3/8 inches long respectively. The material is equally adaptable to larger or smaller plaques with any type of inscription.

PHOTOS BY DAYTON SNYDER



War Housing Projects Use Lead in Increasing Quantities

AS the demand for housing in war industry areas continues, builders are finding the ample supply of lead plumbing goods a real help in carrying on their operations. Many government financed projects as well as private operations are using increasing amounts of lead in both sanitary plumbing and water services.

Local governmental agencies are cooperating with the war effort by amending their codes to require compliance with the Emergency Plumbing Standards and the Defense Housing Critical List. An example of such an amendment is one made by the State of Kentucky as follows: "All fixture traps except water closets or similar fixtures shall be lead P-traps." Also, "Water closet connections to soil pipe shall be lead, wiped to light weight brass ferrules with brass floor flange."

This code change has been of immediate benefit to a large war housing project near Louisville, where over 1900 lead P-traps are being installed under sinks, lavatories, and baths. Laundry trays and slop sinks in this project are also equipped with lead traps and all water closets are connected with lead bends. This extensive use of lead pipe plus the use of lead calking for soil lines and lead roof flashing for vent stacks indicates that the architects, Ossian P. Ward and Colley and Hartstern, have taken

full advantage of the fact that lead materials are at hand for immediate use.

Another extensive housing operation includes two projects in Galveston, Texas. Here the bath tubs are equipped with lead drum traps instead of P-traps and all of the lead pipe and fittings are being installed according to the code of the City of Galveston. The builders of this project are also using lead water service pipe with wiped connections to the corporation cock. Solder of 38 per cent tin content is available for this purpose and will remain so at least until January 1, 1943, according to the current amendment of the Tin Conservation Order M-43-a. R. R. Rapp and Fred T. Stafford, both of Galveston, are the architects for these projects.

An excellent example of the effectiveness of private builders in supplying needed housing exists in Rock Island, Illinois, where 550 low-cost individual homes have been built this year. At present Dodge & Kruger, real estate developers, have nine additional houses under construction. Here all waste connections including sink traps are of lead and both drum traps and closet bends are of extra heavy lead. Here, also, lead water service pipe is being used as well as lead calking for soil lines.

These are but a few of the cases



Preparing leadwork for Rock Island, Illinois house.

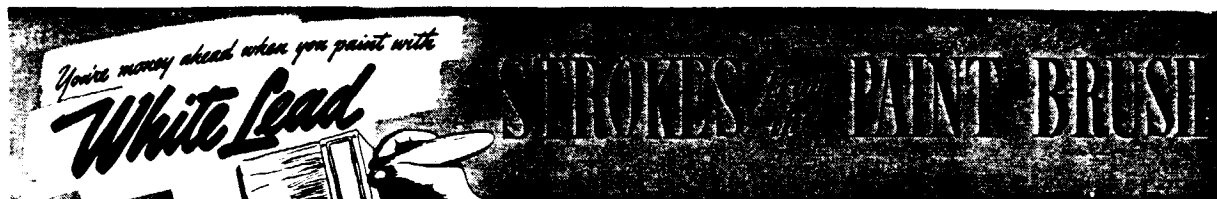
where lead is playing its part in the production of war housing. While it is of great advantage that lead is immediately available so that construction may be speeded, of even greater importance is the fact that maximum sanitary safety is provided plus assurance of permanent satisfactory service. An ample supply of first quality lead plumbing goods is available. The use of lead materials bearing the Lead Industries Association's Seal of Approval assures the user that the products conform to the rigid standards of the Lead Industries Association which are currently identical to the Commercial Standards of the U. S. Department of Commerce as required by the Emergency Plumbing Standards for Defense Housing.

A group of plumbers with some of the lead work for a Galveston, Texas project.



Traps and bends ready for installation in a Louisville, Kentucky project.





Painting in Winter-time

MANY home owners will note this fall that the paint on their houses is growing a little shabby. Perhaps they have been conscious that the paint has been neglected but have just not been able to get around to doing anything about it.

There is no reason why they must wait until next spring or summer before renewing the protection and the improvement in appearance to which every home is entitled. Actually there are many advantages to be gained by painting now before conditions get any worse. In the first place, the fall clearing out of last summer's honeysuckle, roses and other favorite climbers has been done. Shrubs have been pruned back and flower beds are not subject to damage by ladders and trampling. There are no bugs and flies to stick on a freshly painted wall and the chances of discoloration by blowing dust are small. In addition, many people believe that paint, like tires, wears better if it is "seasoned" in cold weather rather than having to stand the full heat of summer immediately after it is applied. There seems to be sound reason for this belief, since the ultra-violet rays in sunlight are less intense during the winter season.

Weather Conditions

Winter painting must be done with consideration for weather conditions but only a little extra care is required to produce entirely satisfactory results. Basically the weather requirements are the same as for summer painting. Painting should be done on a clear, dry day after several days of dry weather. Don't start the day's work until night moisture or frost has been dissipated from the surface by the sun's heat and stop work before the temperature begins to drop rapidly. This may shorten the working day some, but it is important if failures are to be avoided. If it is possible to

arrange the work to follow the sun it will be found to be an advantage to the workmen as well as to the work. Paint should not be applied when the temperature is below the freezing point.

Cool weather makes paint dry more slowly so additional time must be allowed between coats. Two weeks, or even more, is not too much to wait before applying a succeeding coat when temperatures are low. When to proceed is a matter for the judgment of the painter to decide.

Workmanship

The application of paint is no more difficult in cold weather than in warm. Paint properly formulated for the conditions of application is easily applied but the workman must not allow the weather to influence him to become careless. Hasty application and insufficient brushing-out will invite future troubles. The painter should be warmly dressed so that he can work in comfort and give his entire attention and energy to his work. He should wear clean gloves and heavy warm footwear especially while working on ladders. So prepared, the painter will work under no physical handicap and will be able to turn out a perfectly workmanlike job.

Materials and Mixing

Painting materials for winter application should be selected with special care and mixture formulas should be carefully adjusted to the surface to be painted, but no special or uncommon supplies or equipment are needed. A supply of white lead paste and linseed oil, together with the usual tinting colors, thinner and driers will enable

the experienced painter to mix paints adjusted perfectly to both weather and surface.

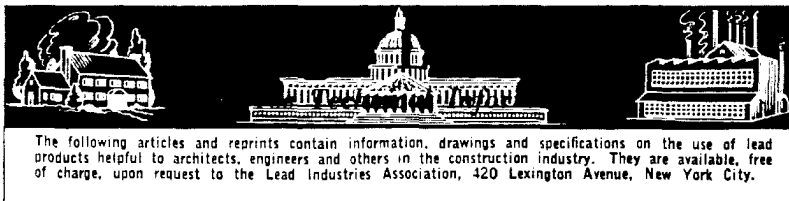
The paint can well be mixed in the shop, using the same lead and oil proportions as for warm weather painting. Low temperature has little effect on paint except to increase the viscosity of the oil. This makes the paint stiff and hard to spread evenly. A natural impulse when this happens is to add more oil since it would seem that the addition of thinner would dilute the paint. However this is not the case and the addition of thinner is the proper procedure. The addition of a small additional amount of turpentine or thinner serves to reduce the viscosity of the oil and bring the paint back to workable consistency. The thinner being volatile quickly evaporates and leaves the film of lead and oil with all its tough weather resisting properties intact.

The paint should be allowed to stand out of doors an hour or so before application so that it will be approximately the same temperature as the work. This will eliminate any tendency for the paint to "crawl" which may occur if the paint is appreciably warmer than the surface to which it is applied.

Good Weather Ahead

The characteristics of pure white lead paint which make it so adaptable to special conditions are some of the painters most valuable tools. Knowing them, he can formulate his paint, adjust the mixture to any condition and be sure of lasting, satisfactory results. There will be many days yet this winter of clear, dry weather suitable for successful painting. With white lead available in ample quantities they offer an excellent opportunity to protect investments in property. In these times, it is an obligation to keep homes in good repair in order that they may serve over a long period of time.

**Buy
WAR BONDS
and
STAMPS**



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 HOUSE 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.

DON'T GAMBLE WITH PAINT

An instructive article on the selection of paint for farm use reprinted from the March 1942 issue of Country Gentleman.

BRUSH UP ON YOUR PAINTING

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

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.

LASTING LEADWORK IN MODERN PLUMBING

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

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

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.

WHITE LEAD PAINT FOR DEFENSE HOUSING

Reprint from Bulletin of the Producers' Council including specifications and graphic mixing instructions for exterior and interior White Lead Paint.

LEAD PLUMBING FOR DEFENSE HOUSING

Reprint from Bulletin of the Producers' Council including information on the Emergency Plumbing Standards and the Defense Housing Critical List.

Tile Flue Detail Calls for Lead Flashing

THE Federal Public Housing Authority has approved bell and spigot clay pipe for use as flues in houses of demountable type construction. The installation must be firesafe, and weather-tight flashings must be provided. A detail has been issued showing construction and insulation as well as the flashing which is of 4-lb. sheet lead.

The flues as of 6, 7 or 8-in. inside diameter as required by combustion conditions of the fuel to be used. The flashing is of conical shape and is to be extended up around the stack to where it turns over the end of the pipe. A final joint of pipe with the bell inverted completes the flue and makes a thoroughly water-tight joint. The base of the flashing cone is welded or soldered to a sheet lead flange which extends out under the roofing material in the usual manner.

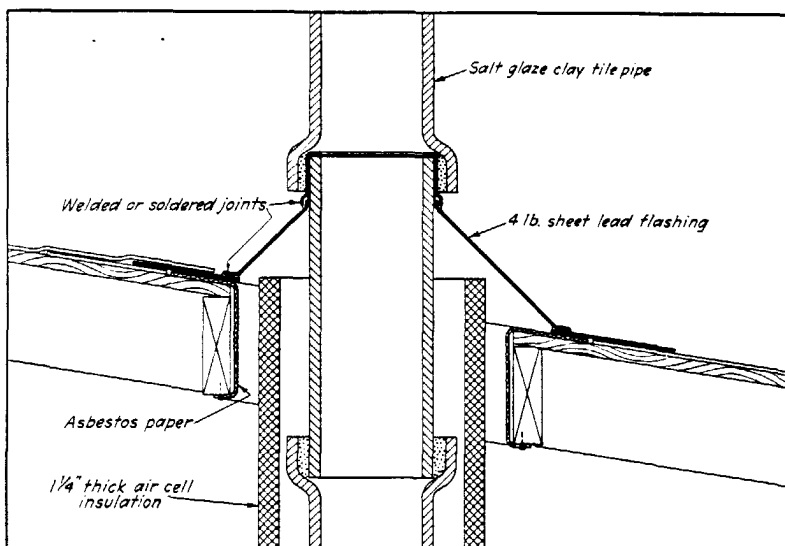
Because of the conical construction, which is to provide insulating air space, this flashing must be made from sheet but it can be quickly cut out from easily drafted patterns adjusted to the slope of the roof.

The air cell insulation and asbestos paper shown in the detail are to provide additional fire safety in case the flue is kept hot over a long period of time.

Lead is particularly adaptable to the flashing of a vitreous material. It is flexible and can be easily adapted to the unavoidable irregularities of the pipe. It can be dressed smoothly over the end of the pipe to receive the inverted bell. Also the flexibility of a lead flashing makes it easy to adapt to any slight irregularities in roof slope. Lead is highly resistant to atmospheric corrosion, including the effects of flue gases which makes it highly desirable for this use.

Fortunately, lead is available in sufficient quantities to justify its use for flashing requirements for which it is generally approved by the Defense Housing Critical List.

Detail of tile flue construction showing lead flashing.



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