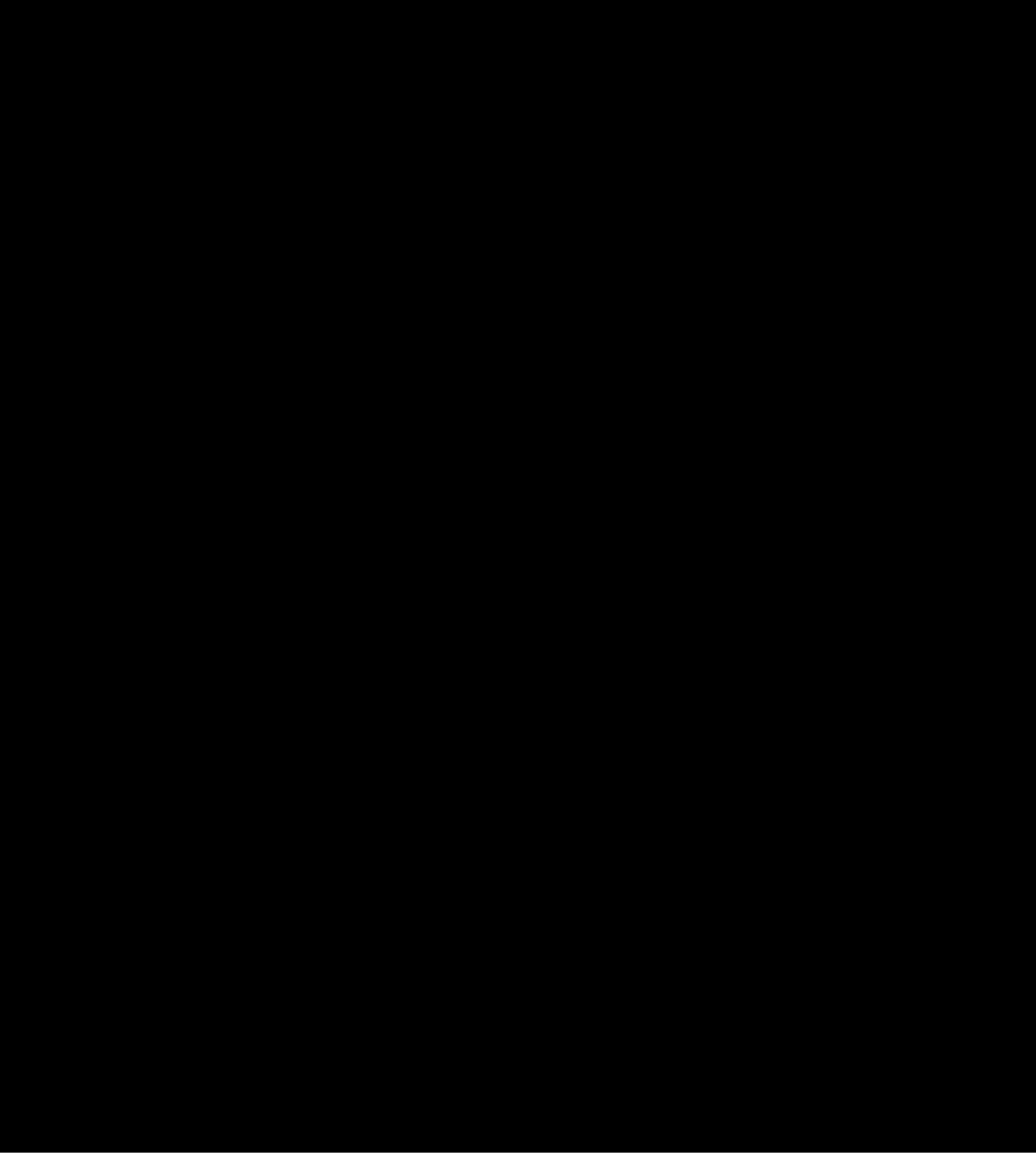




White Lead On Shingles and Plywood Beautifies Small Home

JUST as the hard sheet lead flashings, gutter linings, and chimney cap on the attractive Stamford, Conn. home (LEAD, May, 1939) demonstrate the practicability of highest quality materials for small home construction, the employment of pure white lead and oil, plywood construction, and red cedar shingles is still further proof of this fact.

This home is an excellent example of the merits and proper method of plywood construction. Douglas Fir plywood was used for all exterior sheathing as well as for the sub-floor and interior walls and ceilings. For the sheathing, Plyscord sheets $\frac{3}{8}$ in. thick were used. The sub-flooring was $\frac{5}{8}$ -in. plywood and $\frac{3}{8}$ -in. interior plywood was used for the walls and ceilings. In order adequately to safeguard against moisture penetration all interior plywood was back-primed with one coat of white lead. The plywood interiors were made according to the "uni-wall" method of construction, utilizing a fur-stick between the studs and the panels to absorb any building movement. The joints between the panels on the interior walls and ceilings were then sealed and finished with a white lead mixture to provide a smooth, even surface for painting or other decoration. Western white pine



Front view of the Stamford home where lead was used throughout for the rough plumbing and sheet metal work and pure white lead and oil for all painting

vertical paneling, natural finish, was used for the fireplace wall in the living room, with a horizontal pine wainscoting around the remainder of the room and the dining alcove.

All interior painting was done with three coats of pure white lead and oil, tinted to colorful shades where desired. The finish coat for the ceilings was stippled, except in the kitchen, as were the walls and ceiling in the bathroom.

All doors and sash were carefully handled and painted with white lead in the manner recommended by the

National Door Manufacturer's Association, the Fir Door Institute, and the National Association of Woodwork Jobbers.

For the exterior walls and roof, Certigrade No. 1 red cedar shingles were employed. The roof and all shutters were painted black, and all exterior shingle walls were painted a white with three coats of pure white lead and oil, mixed and applied according to the recommended formulas for shingle painting.

Pure white lead was also used for painting the brick chimney which,



Close-up of the front doorway showing lead chimney cap, flashing and gutter lining. Pure white lead paint gives lasting beauty to the Certigrade shingles and brick chimney

PHOTOS BY
DAYTON SNYDER

A bedroom in this small home. The plywood ceiling has been painted three coats of white lead, as well as trim, and the joints in the walls finished smooth for the wall decoration



Lead Service Pipe is Standard Practice in Chicago, Ill.

IN CHICAGO all service pipes 2 in. and under must be of lead, and the recent replacement with Seal of Approval lead of a service pipe of different material, installed privately, which failed is an excellent example of this city's standard service pipe practice. For years Chicago has used only lead for services and this continued reliance is full indication of the dependable and durable performance of lead service pipes.

The replacement job was necessary because, about 17 years ago, a line of a material not now allowed by the Chicago regulations was installed, never appearing on the records. It was connected to the main water line on a side street and was run into the building from the rear. Its recent discovery showed the pipe to be badly leaking and almost completely worn out. The department immediately ordered its removal and replacement with 1-in. XS (AA) lead water service pipe. The installation was made by the Henry A. Blake Plumbing Co. of 7033 South Halstead Street, Chicago.

This check-up and replacement shows not only the fine job done by the Chicago Water Dept. in keeping their service system in the most efficient operating order, but also the inadvisability of using materials without the long-life and dependability of lead.

To be efficient, service pipes, especially in large modern cities like Chi-



One inch lead gooseneck for service installed in Chicago. Seal of Approval lead was used.

cago, must have certain definite characteristics. First of all the material used must be durable and must be thick-walled to make this durability permanently assured. In the final analysis the cost of material is a small fraction of the total service pipe cost. Permits, trenching, back-filling, paving, and other operations are expensive, and where service pipes do not have long life (as with the substitute material described above) these costs must be duplicated after a short term of years. Long-term economy is the important factor, and it should be remembered that the life-time durability

of lead has been proved by experience.

However, durability of material alone is not a guarantee of perfect performance. The service pipe must also be flexible over its entire life. Ground movements due to traffic and other influences induce strains which cannot be sufficiently absorbed by rigid pipe. It is lead's continued flexibility that acts as the companion to its durability and the superior corrosion-resistance of its thick walls, to render lead services trouble-free. Careful consideration must also be given to joints, in order to prevent rupture between lengths of pipe or between pipe and fittings. With lead pipe the joints are truly "bonded," and cannot shake loose due to vibration. Also, fewer joints are necessary with lead, since the flexibility of lead pipe allows it to be bent around obstructions without necessitating flow-retarding fittings which must be used with rigid piping materials.

Moreover, where such fitting are needed with rigid pipe there is a corresponding increase of joints which may loosen and cause leakage.

These advantages of lead service pipe, in addition to the fact that it does not clog or produce unsightly staining, are the basic reasons why Chicago and many other cities use lead exclusively, for they have found it more economical and directly responsible for complete consumer satisfaction.

At left, the new lead service, replacing the one which failed, wiped to the curb stop and to the meter connection. At right, a Chicago Water Dept. foreman points out the Seal of Approval on a group of lead services



Modern Exteriors, Interiors Combine Plywood and White Lead



Left, a new Texaco Service Station at Tacoma, Washington, designed by the Texaco staff architects using plywood painted with white lead for the exterior. At right, interior plywood decorated with white lead for the Andrews Apparel Shop, also in Tacoma. Russell, Lance and Muri, Tacoma, were the architects

WITH plywood construction, both for interiors and for exteriors where large expanses of smooth surfaces, free from joints, are desired, rapidly assuming a prominent place in modern building, it is only natural to find pure white lead and oil paint one of the major contributing factors to the success of plywood structures. As a protective and decorative medium the use of white lead has gone hand-in-hand with fine construction.

The plywood interiors and exteriors shown in the accompanying illustrations clearly indicate this modern reliance on a combination of time-tested materials, white lead and wood.

There is today a widespread need for low-cost homes and the rapid development of many parts of the coun-

try are demanding strong and swift construction without sacrificing durability, utility or attractiveness. Modern merchandising and sales methods are also placing increased emphasis on attractive and carefully planned office interiors and stores.

In plywood, architects and builders have found a material that meets this demand in every way. The rise of dry built construction has eliminated a large amount of construction time and, moreover, allows remodeling to be accomplished with a minimum of essential structural alterations and maximum decorative effect. In every respect, plywood construction is designed for efficiency and economy.

Similarly, white lead is relied on for the artistic and protective treat-

ment of plywood, for years of experience have proved its adaptability to all painting needs. There is no other painting material combining white lead's durability, beauty and economy. Where time is essential it is the high coverage and spreading rate and the workability under the brush of white lead that cuts labor costs. White lead is washable, too, making repainting necessary only when redecoration is desired. Moreover, repainting is simplified for white lead provides a perfect surface for redecoration.

Upon request we will be glad to furnish copies of specifications and suggestions for Interior Paint Decoration on Douglas Fir Plywood, recommendations issued by the Douglas Fir Plywood Association, Tacoma.



Interior plywood finished attractively with white lead makes beautiful and serviceable interiors for the recreation room at left and kitchen at right



Atlantic City Service Line Shows Engineering Ingenuity



View showing a float with 2-in. lead service attached ready to be drawn across a waterway in Atlantic City, New Jersey

THE recent installation of a service line across a waterway in Atlantic City, N. J., is an engineering accomplishment in which lead's flexibility and corrosion resistance overcomes trying installation conditions. The problem at hand was to connect a 2-in. service line from a 6-in. cast-iron main on Absecon Boulevard across a salt-water canal known as Beach Thoroughfare and then to a new office, warehouse and garage of the Socony-Vacuum Oil Co.

Since Beach Thoroughfare is a regular water traffic route, using a draw bridge, it was not possible to hang a line to the bridge which is the most obvious method. Consequently, in order to keep the channel clear, the service line had to be laid on the bottom of the canal. This water course is 340 ft. wide from bank to bank with a channel in the middle 23 ft. deep at high water and 80 ft. wide, steeply graded to the level of the banks. The surrounding ground is all salty swamp

and marsh land. Therefore, to overcome the irregular contours of the canal, the natural settlement and corrosive action of the salt marshes, it was necessary to use flexible and corrosion-resistant lead.

The lead service was AAA (XXS) weight, 19½ lb. to the foot, stamped with the Lead Industries Seal of Approval. It was delivered to the job in 25-ft. lengths which were then joined by wiped joints into a continuous run of pipe.

In order to lay the pipe across the waterway, a steel cable was laid along the pipe and attached at intervals by wire bindings wiped to the pipe. The lead pipe was then set on rollers and the cable fastened securely to a float. This was made of two 500 gal. tanks lashed together. The end of the cable was hooked to a winch on the far side of the canal. With the end of the lead pipe on the raft, the float was then drawn slowly across the water, laying the pipe in position as it went. On

each bank the cable was anchored to piles driven securely into the ground. In order to take up expansion and contraction, 12 in. of slack was provided in the pipe for every 20 ft. of length. Also 20-ft. loops were formed in the pipe on each side of the bank to take up settlement of the pipe in the bed.

On the office and warehouse side of Beach Thoroughfare the lead was laid parallel with the waterway for about 200 ft. This was to allow room for future widening of the bridge. It was then brought under the Boulevard and connected with a cast-iron line run along the road. At the warehouse another line of 2-in. lead pipe was run from the road into the building.

In all about 18,550 lb. of lead pipe were used.

The installation was made by George H. Kisby & Sons, Inc., of Atlantic City, under the supervision of Fred Kisby. L. Van Gilder is the Water Superintendent of Atlantic City.

FRED HESS & SON



Close-up of the Atlantic City service attached to the cable and placed on rollers

Photographed alongside the 2-in. lead service is the crew of George Kisby & Sons responsible for the Atlantic City installation. George Kisby is third from left, top row, and Fred Kisby second from right, bottom row



Lead-Calked Cast Iron Solves Salina, Kan. Sewer Main Problem

TYPICAL of the reliance placed on cast-iron pipe with lead joints for dependable large underground pipe lines is the recent experience of Salina, Kans. Due to the failure of a pipe line of substitute material, it cost this city \$19,016 to make repairs recently. Furthermore, this is not the first time that the former pipe line had to be replaced.

In 1915, 3100 ft. of 36-in. substitute pipe were installed to carry the city's total sewer discharge to the pump station. Although, undoubtedly, the officials then in charge felt they were planning adequately for the future, they did not take into account the presence of quicksand. Despite the time-tried record of lead-calked cast-iron they selected another type of installation, and the increased movement and strain on the pipe and joints incurred because of the quicksand was more than the substitute could take. As a result 600 ft. of this line had to be replaced in 1929 after only 14 years of service. This time no chances were taken and cast-iron pipe with lead-calked joints was used.

Salina's troubles were not over, however, for recently it was necessary to tear up the pavement of one of its main streets and excavate down 22 ft. in order to replace another 166 ft. Also, according to City Engineer E. W. Hopkins there are still roughly 2300 ft. left of the 1915 line which he has good reason to believe must be replaced.

View of the new East Ash Street sewer, Salina, Kansas, replacing a line of another material which failed. Lead-calked 36-in. cast iron was used for the new main



Close-up of the new main at a depth of 22 ft., laid on a 12-in. concrete mat supported at each joint with two 20-ft. wooden piles

This latest job afforded quite a bit of a problem because of the depth at which the pipe was laid, and also because of the quicksand encountered. In the installation a 12-ft. cut was first made and 20-ft. sheet piling was then driven to a depth of 10 ft. below the flow line. The old sewer pipe was uncovered and, on inspection, was found to be cracked at almost every joint. It should be remembered that it is at the joint itself or in the pipe near the joint that trouble occurs when rigid jointing materials or systems are employed. The 166 ft. of this substitute pipe was removed and cast iron, in 6-ft. lengths was installed, resting on a concrete mat. This latter is supported

by 20-ft. creosoted piling driven into coarse gravel below the quicksand. All joints in the new section were packed with jute and thoroughly calked with pure lead.

Salina feels that in this way their most recent problem has been solved. After inspections by the City Engineer the cast-iron line and lead joints installed in 1929 were found in perfect condition.

The durability of cast-iron pipe for such purposes is unquestioned. However, for a pipe line to give trouble-free service the joints must stand up under severe strain. That is why lead-calked joints are used when the most dependable service is desired. Inherently flexible, durable, and corrosion resistant, lead joints provide the give-and-take necessary to absorb settlement and movement in pipe lines.

Where expenditures run so high as in laying sewers and water mains it does not pay to use substitutes. Salina's trouble is clear evidence of this, and the most satisfactory and economical solution to the piping problem is to use the system with the undisputed record of superiority, lead-jointed cast-iron. The H. J. Taylor Construction Co., of Salina, was in charge of the recent repair job under the supervision of City Engineer E. W. Hopkins.



The failure of this line of substitute material after 14 years necessitated its replacement with cast-iron with lead joints

Sheet Lead Solves Extensive Waterproofing Problem

AN excellent example of good waterproofing technique is afforded by the recent installation of sheet lead pans in remodeling Liggett's Drug Store in Grand Central Terminal, New York City. In all about 1,000 sq. ft. of 8-lb. sheet lead were used for this work.

The first pan, running entirely under the main lunch counter, is 30 ft. long and 7½ ft. wide with a 12-in. upstand on all sides.

In order to obtain a pitch of ¼ in. to the foot (3 in. in all), it was necessary to cut out the concrete floor down to the construction arch. This space was filled with cement mortar graded properly to the three drains, on 9-ft. centers approximately, and the mortar troweled smooth. When the mortar had set the entire floor was covered with tar paper before laying the lead pans. The 8-lb. sheet lead was then installed, using 9½ x 6-ft. lengths, with the seams all joined by lead burning.

Three sumps, 10 x 15 in. and 9 in. deep, were provided, with bleeders running to the sumps from all directions as shown in the photographs. These bleeders are made of 8-lb. sheet lead, also, arched in cross-section throughout their entire length. On each side V's were cut at 9-in. intervals and the bleeders spot-burned to the sheet lead pan. Thus any moisture



Burning a vertical corner joint. All seams in the pans were lead-burned. Note, also, the bleeder with the V notches leading from the corner

collecting in the pan will be led through the bleeders into the sumps.

Where the brass water pipes penetrate the floor and pan, sleeves 12 in. high were made from 8-lb. sheet lead and wrapped snugly around the pipes. The seam at the side and the joint where the sleeve and pan come together were then burned. At the top of the sleeve, the joint was wiped between the lead sleeve and the brass pipe.

After the lead pans were laid, the sump drains were temporarily

plugged and the entire pan filled with water for a 24-hr. test. No leaks were evidenced by this test so the water was drained away and the pan dried off with torches. The sheet lead was then completely coated with asphaltum and covered with 3-ply tar paper, and the finished floor was ready to be laid on top. In the front and at both sides, the upstand of the pan was sandwiched between marble slabs.

This same procedure was used to install similar pans for the 50-ft. soda fountain and the two kitchens adjoining the counters. A 6 x 7-ft. ice-box room was also safed with lead.

For large waterproofing installa-



Fabricating the large 8-lb. sheet lead pan under the soda-fountain of Liggett's Drug Store in Grand Central Terminal, New York

Preparing the joint between one of the three sump linings and the main pan



PHOTO BY
WURTS BROS.

tions such as this, as well as for the conventional shower pan, sheet lead provides the most dependable job obtainable.

Only sheet lead has all the characteristics of flexibility, durability due to superior corrosion-resistance, and ease of handling necessary for a proper pan installation. Moreover, as on this job, the sheet lead is usually delivered cut to the desired size for each sheet. With sheet lead there is no waste of time or material.

W. T. Williams, of New York City, was the architect.

The Blain Construction Company, New York City, were general contractors for this remodeling, and Superintendents J. S. Morgan and Ed O'Connell kept work going continuously on 24-hr. duty. The Taggart Plumbing Co., also of New York, was the plumbing contractor with Harry Richter, Local 463, the journeyman and Charles Picha, helper. Frank Clifford, Local 17,999, American Federation of Labor, was the lead burner for the John F. Abernethy Company, of Brooklyn, N. Y. Syl Mau was his helper.

Laying tar paper over the asphaltum-coated sheet lead pan in the kitchen directly behind the main fountain



The completed sheet lead pan for the Liggett's Drug Store fountain, with all its bleeders installed and the sleeves wiped to the water pipes. The pan has been filled with water for a 24-hour test

Successful Low-Cost Homes Benefit With White Lead

A SURE sign of wise low cost home building is the fact that "we use pure white lead on all our work," according to A. C. Elfman & Sons, of Doylestown, Pa., builders of the small house shown in the accompanying photograph. This house was the first and sample house of a group, varying in size, arrangement and appearance, in Maple Avenue Development, Doylestown. Built to sell for \$4000

or less, the tremendous demand for these houses is indicated by the fact that this sample house was only open three crowded days before the tenants moved in.

The exterior siding and trim were painted with three coats of pure white lead and oil and all interior woodwork was given a priming coat of white lead as an enamel undercoater.

This reliance on white lead pays

real dividends to the development builder. Not only does it provide beautiful decoration and complete surface protection at minimum cost, but assures lasting beauty. This is especially important in development building where operations are spread over a long time. Although the first home in a group may look very attractive, the quick and unsightly failure of a low-quality paint will discourage future prospective clients. Their first impression is of the exterior decoration and it must be lasting.

This is one major reason why farsighted builders rely on white lead paint for they know its beauty will last and that it will give durable protection to the painted surfaces. Furthermore, pure white lead and oil is less expensive than any other material approaching its high qualities.

John H. Elfman was the designer of this small house at Doylestown.

MILTON RUTHERFORD



The sample low-cost development house of A. C. Elfman & Sons at Doylestown, Pa., is an excellent example of the advantages of pure white lead for development builders



**I'm digging out
something everybody
needs in paint**

YOU don't need three guesses to tell what I'm talking about, because my job is mining lead.

And lead is the starting point for making a durable paint.

You see, they make the purest lead into white lead.

And white lead is used in making paint.

When you look at such ancestry, it's not surprising that pure white lead paint is able to stand up under the attack of time and nature.

In case you think I'm grinding my own ax, just ask any painter who

knows his stuff. Ask him what he'd paint his own house with. I can tell you what his answer will be—"white lead."

So take it from an old lead miner, you can't beat a paint that's made from lead. And this is one case where the best is really the cheapest.

LEAD INDUSTRIES ASSOCIATION
420 Lexington Avenue, New York, N. Y.



It takes experience to do a good paint job. For the paint of a house is only 1-200th of an inch thick, and it needs to be skilfully applied to give real protection. Pictured here is one of the many things a good painter knows — how to lay paint at corners to protect the points where clapboards join.



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