



Survey Shows Architects Prefer White Lead Paint

TO help answer questions asked by lumber manufacturers and lumber dealers about the paint they might safely recommend to eliminate paint troubles on wood, the Forest Products—Better Paint Campaign made a survey of the paint specifications used by architects in every section of the United States.

A survey card, as described below, was mailed to each of approximately 3,600 architects in all parts of the country asking what paint they generally specified for use on exterior wood. The wording of the survey card was carefully selected so that architects would be free to reply as they actually specify without being influenced by any leading question. The replies are tabulated below:

Pure white lead and oil, all coats	231
Pure white lead and oil, first two coats	10
Pure white lead and oil, priming coat	9
Pure white lead and oil, last two coats	7
Pure white lead and oil or an alternate	24
Paints other than pure white lead and oil*	81
Total replies received	362

*Most of these paints are prepared paints, made by reputable manufacturers, generally specified by name, and containing a high percentage of white lead in the pigment, or are specified as pure white lead and oil with the addition of small amounts of zinc oxide (the average zinc oxide content given by those architects who stated the amount added was just under 23 per cent).

The survey card, which was distributed to architects in January, 1935, read:

"Will you assist us to determine the practice of architects in specifying exterior paint for wood by filling out the attached card and returning it to us. No postage is necessary.

Sincerely yours,
FOREST PRODUCTS—BETTER PAINT CAMPAIGN"

The attached return postal said:

"For exterior paint on wood, I generally specify the following:

Signed

No signature is necessary if you do not wish to sign."

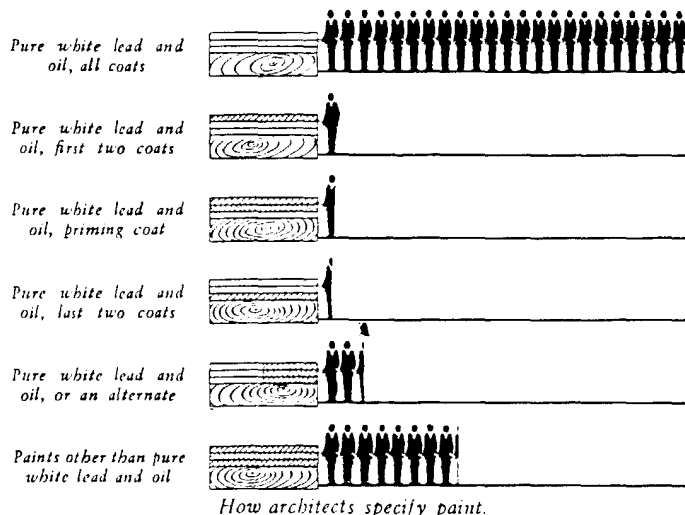
Returns indicate that 68.3 per cent of architects specify pure white lead for all coats on exterior wood. Since practically all architects replying specify three coats (a few specifying four or more coats), figuring an average of three coats per job, 72.6 per cent of all the paint coats specified by

architects are pure white lead. Considering priming coats only, 74.0 per cent are specified as pure white lead by architects. Priming coats are naturally the most important of all coats because no paint can hold to wood over a poor priming coat. These figures all disregard those specifying white lead or an alternate, which naturally strike a

balance between white lead and other paints.

An architect's function is to provide his client with a beautiful, livable dwelling at the lowest cost and in a form economical to maintain. Since the client is usually uninformed as to the value of the various building materials available, he relies upon the architect's specialized knowledge. Therefore the architect closely studies the relative value of the materials he must specify, and the fact that a large proportion of architects specify white lead on all species of wood and under all climatic conditions, is a definite assurance that white lead will give beautiful, economical results and the utmost service.

This survey duplicates other strong endorsements of white lead. Thus, 85 per cent of master painters paint their own homes with pure white lead (LEAD, November, 1934). Surveys of the paint specifications of State Highway Departments (LEAD, March, 1933) and of Class I railroads, the Federal Government paint specifications (LEAD, March, 1931), New York (LEAD, May, 1932) and other municipal paint specifications, tests by State Governments (LEAD, July, 1934) and other impartial organizations, and recommendations of building and loan societies (LEAD, September, 1932), all reveal the great confidence placed in white lead by those who know paint intimately.



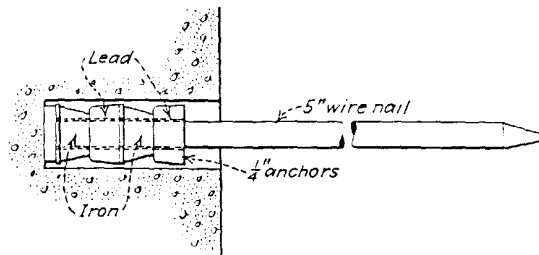
Lead Expansion Bolts for Montreal Dock Repairs

LEAD expansion bolts have been used in an interesting new way by The Western Waterproofing Co., Montreal, Canada, on work just completed for the Harbor Commissioners of Montreal. The harbor dock walls of the Bickerdike Pier had become badly cracked and broken up through years of wear and tear of shipping and action of the elements. It was decided to repair the dock by completely resurfacing with Gunitite and in this operation "Cinch" Expansion Bolt-Anchors played an important part.

All soft, loose and defective concrete was first cleared from the wall face by cutting away with pneumatic hammers and wire-brushing. A clean, solid, toothed concrete surface resulted, to form a sound base for and a solid bond with the Gunitite. The amount of defective material removed varied, 2 in. being the minimum. The roughened surface was then given a coating of powdered cast iron mixed with water and an oxidizing agent to prevent the rusting of wire mesh and anchor-bolts by the penetration of dampness or water from the upper dock surfaces, and to bond the Gunitite to the structure.

Holes 2 in. deep and $\frac{1}{2}$ in. in diameter were then drilled in the surface 20 in. apart and staggered. A $\frac{1}{4}$ in. wire nail, secured by calking in two separate $\frac{1}{4}$ in. plain unit "Cinch" Expansion Bolt-Anchors (described in detail in LEAD, January, 1933), made and supplied by Canadian "Cinch" Anchoring Systems Limited, Montreal, was inserted in each hole with the nail ends projecting about

3 in. Steel mesh having 2 in. square mesh made of No. 10 gauge wire was placed over the nail ends which were then bent up and over, securing the mesh firmly to the wall. Gunitite was then sprayed



Method of securing nails in concrete by means of lead expansion bolts.

on and before setting hard was smoothed off and corners rounded, completing a highly satisfactory and permanent repair job.

As can be seen from the sketch, lead expansion bolt-anchors utilize the principle of expanding one or more lead alloy cone rings within a hole by calking them over iron cones placed base down on the head of a bolt. The anchorage is also used to anchor the threaded end of the bolt in the hole by using the iron cone tapped with a standard machine bolt thread of any size. They are used for all types of anchorages in concrete and masonry, for installing machinery, motors, shafting, pipe lines, theatre seats, and for electrical, plumbing, heating and ventilating work.



Three steps in re-facing Montreal docks. AT LEFT, inserting nails secured by lead expansion bolts in concrete; CENTER, spraying gunitite over steel mesh held by nails; RIGHT, the new finished surface.

White Lead Aids Restoration of Historic Carved Figure

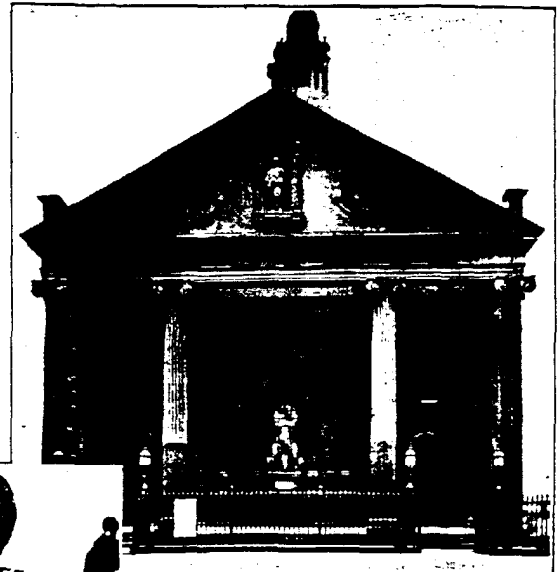
WHITE lead helped Mr. Arthur Smith, of Tappan, N. Y., expert restorer of art objects, to restore to good condition the carved wood figure of St. Paul that has adorned a niche under the gable of St. Paul's Chapel, Broadway and Fulton Streets, New York City, for 169 years. Many legends surround this nine foot high figure said to have been carved by the artist who carved the figure-head of the frigate Constitution. One is that anyone passing St. Paul's at the stroke of twelve midnight would be greeted by a low bow from St. Paul descended from his lofty niche. The figure has stood in its niche since the historic Chapel, once the place of worship of George Washington, was erected in 1766 and it was found to be in a bad state of repair when the building was restored several years ago.

After taking the figure down from its niche, decayed portions of the wood were replaced and it was soaked in special baths of China wood oil thinned with benzol and containing a preservative for the wood. After thorough saturation with this preparation, it was painted

BELOW: Beautiful interior of old St. Paul's after restoration in which white lead was used for enamel undercoats.



WURTS BROS.



WURTS BROS.

ABOVE: Old St. Paul's Chapel, New York, with the wood carving of St. Paul in the niche under the gable.

LEFT: Figure of St. Paul before restoration.



with approximately fifteen coats of pure white lead paste thinned with a phenol resin China wood oil varnish. After each coat of paint a layer of a fifty-fifty mixture of marble dust and white sand was applied and when the paint was dry the next coat of white lead. No marble dust was put on over the last coat, but when dry, it was given a finish with a half-and-half mixture of white beeswax and paraffin. The entire restoring operation required about eighteen months, but the cover

photograph shows the excellent results of meticulous work.

This treatment should protect the figure for many years to come, despite the inaccessibility of the niche.

Much white lead was also employed in restoring the Chapel interior, which is exceptionally beautiful. Although enamel finishes were principally used, the undercoating for the enamel was pure white lead, which provides the best bond to the surface being painted and a fine foundation for enamel. Mr. John W. Davies of New York was the decorator. Good enamel undercoats can be made as follows:

	INTERIOR WOOD		INTERIOR PLASTER		
	Priming Coat	Subsequent Coats	Priming Coat	Second Coat	Subsequent Coats
Soft Paste White Lead.....	100 lb.	100 lb.	100 lb.	100 lb.	100 lb.
Flatting Oil or Turpentine*	2¾ gal.	1¾ gal.	1¾ gal.	1¾ gal.	1¾ gal.
Raw Linseed Oil	3 gal.	.....	.....	.....	.....
Boiled Linseed Oil .....	.....	.....	3 gal.	.....	.....
Floor Varnish .....	.....	.....	2 gal.	¾ gal.	1 pt.
Liquid Drier	1 pt.	.....	.....	.....	.....
Gallons of Paint	9 gal.	5 gal.	9½ gal.	5¼ gal.	5 gal.
Approximate Coverage per Gallon.....	700 sq.ft.	800 sq.ft.	800 sq.ft.	800 sq.ft.	800 sq.ft.

*When turpentine is used instead of flatting oil, ¼ pt. of liquid drier should be added for each 100 lb. of white lead paste.

Lead Flashing and Clock on New Jersey Estate



Library with clock tower on ex-Senator Kean's estate in New Jersey.

LEAD cap flashing and a lead clock face were employed by Architect Julius F. Gayler of New York on the attractive buildings of Green Lane Farms near Elizabeth, N. J., the estate of former United States Senator Hamilton F. Kean of New Jersey.

A large separate building on the estate houses the former Senator's library, together with some living quarters. A large clock appears near the top of one face of an octagonal tower rising from an ell of this building. The face of the clock is lead with gilded brass numerals and hands. Lead was selected for this purpose because of the beautiful natural patina it acquires with exposure and because of the clear contrast it would make with the numerals and hands.



Stables on the Kean estate. The ventilators in the roof are flashed with lead.

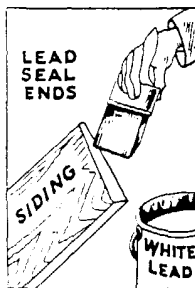
Cap flashing was made of 6 lb. soft lead and runs completely through the walls. The copings which were placed over the lead through flashing are secured by means of dowels passing through the flashing into the wall below and coping above. This, of course, necessitates sealing the flashing where the dowels penetrate by capping the dowels with lead and soldering to the flashing.



Lead clock face on the library tower. Lead flashing is visible along sloping coping.

Mr. Gayler always specifies lead for this purpose because once installed it is there to stay and because it is soft and pliable, permitting it to be dressed down easily, fitting itself to all irregularities and providing a good bed for copings. Lead is the most durable common metal when exposed to the atmosphere. It has the added advantage of attractive color, and water running over lead flashing does not cause staining of adjacent materials.

End Seal Lumber With White Lead to Preserve Paint



Method of end sealing lumber.

ARCHITECTS should specify and contractors should see that all joints in exterior woodwork are end sealed with white lead, especially between siding boards where they abut each other and where they are joined to window and door casings. End sealing is recommended by the Western Pine Association, the West Coast Lumbermen's

Association and the California Redwood Association in an endeavor to minimize paint failures on wood. The members of these Associations produce a large majority of the siding used in the United States. Omission of end sealing permits moisture to soak into ends of and behind siding boards. Later

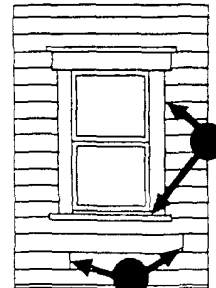
the sun draws this moisture out through the painted surface and causes the paint to peel. Even the best of paint can not resist this virtually irresistible force and paint troubles result.

It is true that some architects and some contractors do adhere to this principle, but it is all too frequently forgotten. It is important that all those who are responsible for this part of a building—the architect, contractor, carpenter and painter, even the lumber dealer who sells the lumber—see that squared ends of siding boards are thoroughly sealed with white lead and linseed oil mixed to the consistency of thick cream and closely joined, and that siding is sealed in like fashion and tightly joined against door and window casings.

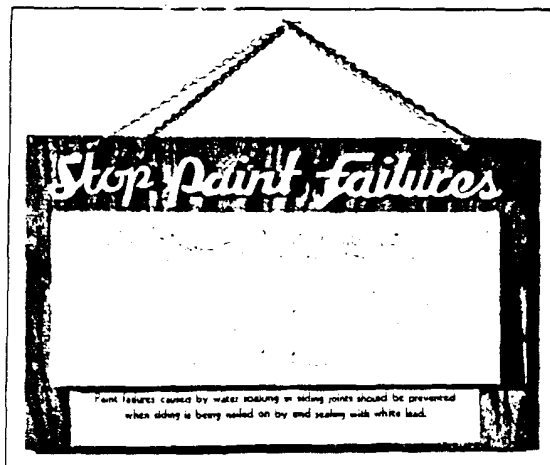
The efficacy of this method of sealing was demonstrated by Mr. Albert Hermann, Research Engineer of the Western Pine Association, whose tests were briefly reported in LEAD, September, 1934.

Following is a paragraph covering this point which it is suggested architects include in their specifications:

All joints in siding, window and door trim, and all joints between siding and window and door frames, and all other joints in exterior woodwork, shall be constructed by thoroughly sealing the ends of the wood, before nailing, with pure white lead mixed with linseed oil to the consistency of thick cream and tightly joining the wood members so that moisture will be prevented either from entering the joint or from entering the wood at joints.



Some of the points where end sealing is necessary.



Wall hanger for lumber dealers' offices demonstrating end sealing of lumber.

Painter Tells Why He Always Uses White Lead

IN reply to a letter from a satisfied customer stating that a paint job done by him ten years ago was still standing up, Mr. E. P. Haake, New York painter and decorator replied:

"I am happy to learn that the job I did for you is still holding out as I feel that will show you what good material and good workmanship can do if people are willing to spend a little more and get good results.

"If every painter would do as I do in using only

the best of materials, such as white lead, best of linseed oil and turpentine, properly mixed, for in and outsides of buildings, they would have no fault to find about their jobs, and customers would be satisfied.

"I have been in business since 1904 and I have used nothing else but white lead, linseed oil and turpentine. I have often been told, 'Mr. Haake, you do good work but you are too expensive.' My answer is, 'The result of my work is cheapest in the



Schmidt's Farm Restaurant, Scarsdale, N. Y. Painted with white lead in 1928 and has had one coat since.

end." You will know that, as I painted your house in June, 1925, and used white lead."

Mr. Haake's theory of doing business is sound. He not only is able to get more for his jobs and to have satisfied customers, but, since white lead is an all-purpose paint, he need tie up little money in stocks of material, and his white lead costs him no more and often less than other materials he might use. White lead, therefore, is a bigger money maker for the painter and builds him a reputation for consistently good work that has a large value in dollars and cents.

That the white lead job referred to by Mr. Haake stood up for ten years will not surprise those who know paint. Many white lead jobs have stood up longer. But this particular one is in New York City, subjected to the polluted atmosphere of a great industrial community and the salt air and rigorous exposure conditions and rapidly changing temperatures of the northeastern seaboard. Two of Mr. Haake's jobs, both with good records, are illustrated.



White lead painted trim on a home in the Bronx, New York City. Painted 1928 and 1934.

An Instructive, Useful Wall Hanger About Lead Plumbing

LEAD PLUMBING

IS INSTALLED BY SKILLED CRAFTSMEN AND GIVES GREATER SATISFACTION AND PROTECTION TO HEALTH AND PROPERTY

LEAD WASTE PIPE

LEAD WIND AND TRAPS

SHEET LEAD

SOLDER

ANTICORROSIVE LEAD

LEAD SERVICE OR SUPPLY PIPE

7 IN. LINED LEAD PIPE

FLUORINE LEAD

LEAD BLOCK

LEAD FITTINGS

MOST PLUMBING IS CONCEALED BEHIND WALLS AND FLOORS WHERE IT IS EXPENSIVE TO GET AT AND WHERE FAILURE MAY CAUSE MUCH DAMAGE BEFORE TROUBLE IS DISCOVERED. THE DURABILITY AND RELIABILITY OF

LEAD PIPE and SHEET LEAD

Installed by Licensed Plumbers

make beautiful modern fixtures function most efficiently and minimize costly repairs and damage.

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

A 2 ft. by 3 ft. wall hanger has just been prepared and is now available to plumbers showing a blue print of a proper installation of a lead and cast-iron soil and waste pipe system and lead service pipe. It also contains other valuable data including sizes and correct weights of lead service and waste pipe, solder compositions and other information of use to the plumber. Plumbers can make use of this wall hanger to impress upon customers and prospective customers the great complexity of that part of the plumbing system concealed behind floors and walls, which the public rarely sees and little understands. It also brings out the importance of employing licensed, skilled plumbers to make plumbing installations that will give satisfaction and protect health and property. In addition plumbers will find it helpful in selecting proper weights of lead pipe and sheet lead and in obtaining other useful information at a glance. Architects will also find this chart helpful. The Lead Industries Association will supply copies to readers of LEAD free upon request.

A Lead Service Installed Where Another Kind Failed

AT the corner of Springfield Boulevard and Jamaica Avenue, just outside the New York city limits on Long Island, a 2 in. lead service was recently installed to replace the former service of another metal. A year ago, after only six years in the ground, the old service had needed repairs, and in December, 1934, the seven-year old service had to be replaced. It was rigid pipe which had sheared off.

There is much heavy traffic at this intersection. Vibration and settlement are unavoidable. Therefore the flexibility of lead pipe is essential if a permanent installation is to be expected. For lead pipe will adjust itself without strain to movement in the ground. Wiped joints, which are the type used for connecting sections of lead pipe, can not vibrate loose, for they bond the sections of pipe together into one continuous pipe, and wiped joints strengthen rather than weaken the pipe as do threaded joints.

When service pipes are installed in the ground and particularly where it goes under pavements, the cost of the pipe material is a minor part of the total cost. Excavation, back-filling and opening and closing the pavement make up the larger expense. For that reason, it does not pay to put in short lived pipe. Only thick walled pipes made of durable metal and flexible enough to stand settlement and the effects of heavy traffic passing overhead are economical for water services.



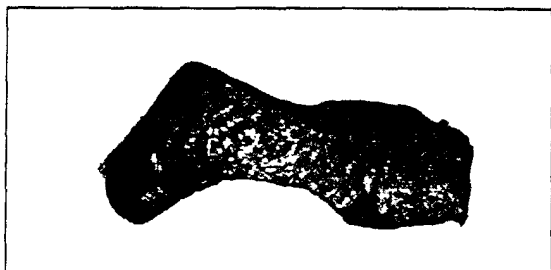
LENSKOLD

Installing a 2 in. lead water service at a busy Long Island corner. Note flexibility of the pipe.

The installation of 36 ft. of 2 in. lead service described in this article was made by H. Hudtwalcker and Charles Stork, both Long Island master plumbers.

Ninety-Five Year Old Lead Water Service Unearthed

AN interesting sample of lead's remarkable performance underground was recently presented to the Lead Industries Association by Mr. E. D. Swoyer, veteran Allentown, Pa., master plumber. It is a drive ferrule with lead service pipe wiped



EUSTIS

Drive ferrule and wiped joint which was attached to a 95-year-old lead water service in Allentown, Pa.

to it which was recently dug up in the center of the city after 95 years in the ground. The photograph of the wiped joint reveals that even after almost a century of exposure to soil conditions it is in an excellent state of preservation.

Use of this particular service was discontinued a number of years ago. The pipe had been cut off near the property line and the end beaten together to close it off. Therefore, although not in use, it had carried the city water pressure of 55 lbs. per sq. in. up to that point during its entire life.

This example is simply a reminder that there are many lead services of comparable age in the ground that have never come to light because there has been no occasion to dig them up. It clearly demonstrates that lead has been thoroughly time-tested.

THE LEAD INDUSTRIES ASSOCIATION INVITES INQUIRIES ON ANY SUBJECT RELATING TO LEAD AND WILL BE GLAD TO COOPERATE WITHOUT OBLIGATION IN THE SOLUTION OF YOUR LEAD PROBLEMS

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