LEAD

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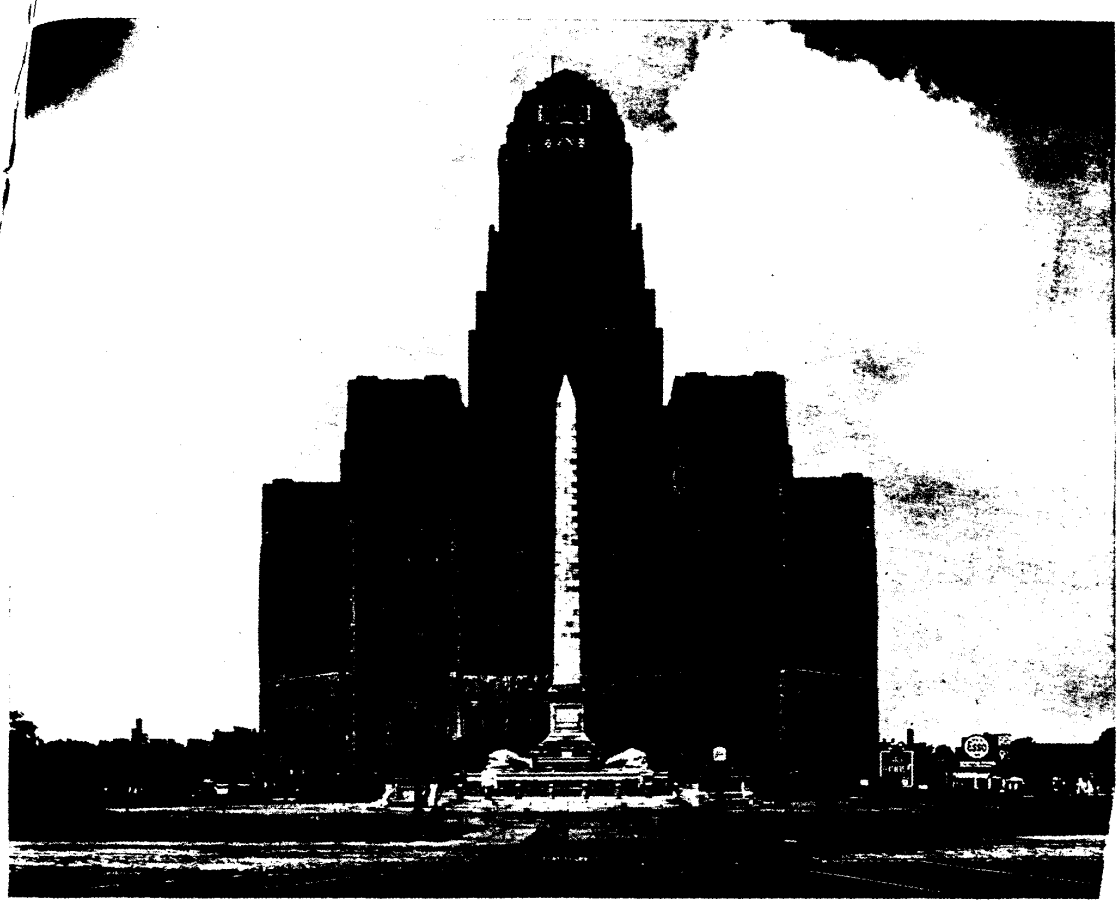


Following the specifications of the Division of Buildings, the interior of this beautiful City Hall at Buffalo, New York is decorated throughout with pure white lead and oil, while the steel framework is protected with rust inhibitive red lead paint

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

Pliable Lead Sheathed Heating Cables Have Many Uses in Defense Industries

THE important job lead is playing in the victory program of our nation is shown in the variety of ways it is being used. All of us are familiar with lead's use in bullets, storage batteries, high-octane gasoline, in protecting the homes and factories of the nation in its use as paint and plumbing and many other applications.

In addition, the trasmission of electric power, telephone and telegraph messages, vital to the proper conduct of Government and business is dependent upon lead sheathed cables. Another important but not so well known use of lead sheathing is on heating cables, which help to prevent serious breakdowns of equipment and provide comfortable working conditions for defense workers.

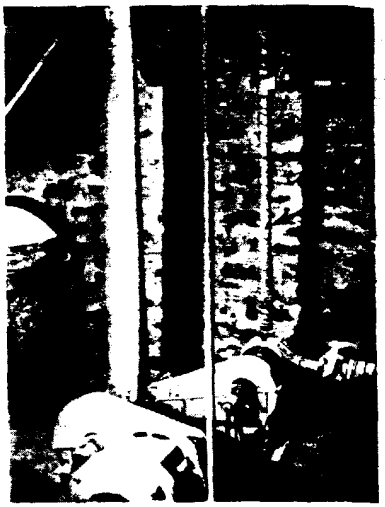
At a large Midwestern power company 33-kv transformers and switchgear are adjacent to a building on which a number of large downspouts are located. There was always the danger that these would become heavy with ice, break and fall into the transformers causing dangerous and expensive short circuits. This potential danger has been eliminated by installing 120 ft. of heating cable in each 60-ft. downspout.

Another important application of this heating cable was made by a large airplane factory. The cable was installed in the concrete floor of its 8,000,000 cu. ft. capacity hangar to provide comfortable working conditions, without fumes or drafts. During average winter conditions a floor temperature of 80 deg. F. is maintained.

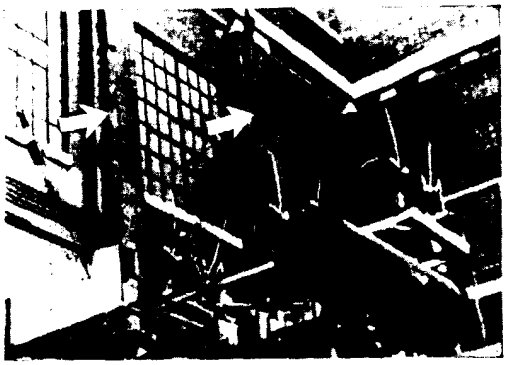
Water works operators would find this heating cable invaluable as a temporary protection against freezing in severe winter weather on exposed piping, valves, leaking hydrants or perhaps on tanks.

Other uses for this versatile material are freeing sidewalks and other surfaces from ice, soil heating for hotbeds, heating kennel floors, poultry-water warming, and warming valves and pipe lines that carry viscous material.

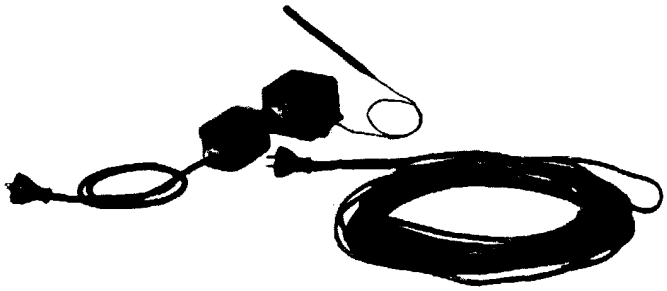
The heating cable, of which over 2,000,000 ft. is in use, is manufactured by General Electric Co., Schenectady, New York.



Lead sheathed heating cable coiled around pipe to assure free flow of viscous liquid

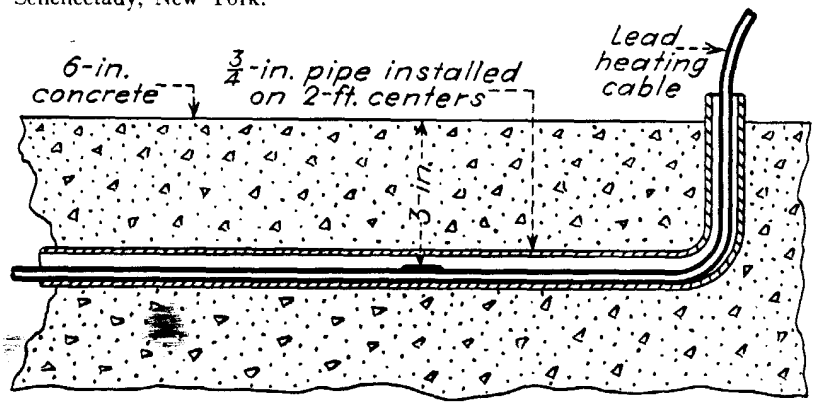


One hundred twenty feet of heating cable serves in each of these 60-ft. downspouts to eliminate the possibility of breakage due to freezing



Lead sheathed soil heating cable complete with thermostat assembly

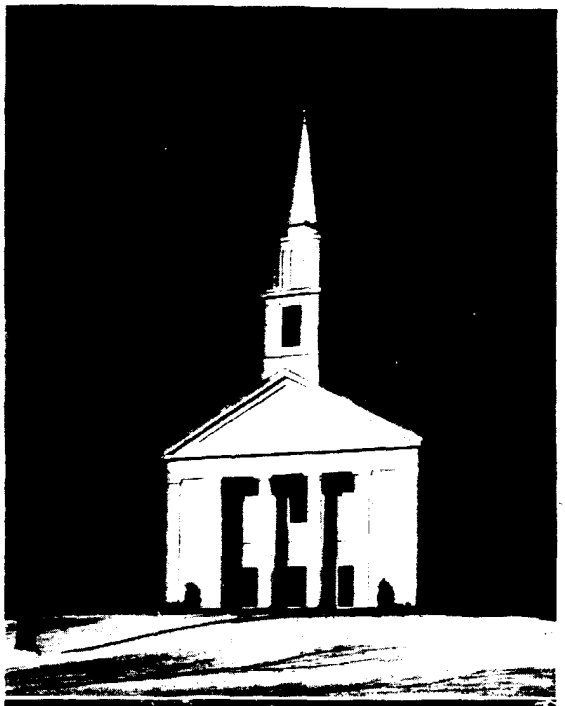
Cross-section of lead sheathed heating cable installation in concrete floor of airplane factory hangar which maintains a floor temperature of 80 deg. F.



No. 13

Early American Buildings Reflect Our Way of Life

WHILE we are arming once again to defend our cherished liberties, it is only natural that the preservation of those historical landmarks which serve to link us with the American way of life as enjoyed by generations past should assume added significance. Consequently, it is fitting that we portray in this second anniversary issue of the Portfolio a cross-section of typical landmarks—military, social and religious—which have withstood unscathed, largely due to the continuous protection of white lead paint, the severe weathering of our rugged Northeastern climate through generations of peace and years of war.



The stately First Congregational Church of Brimfield, Massachusetts, is a veteran of many generations. Adequately protected by pure white lead paint, this beautiful, old church has withstood the rigors of more than a hundred New England winters

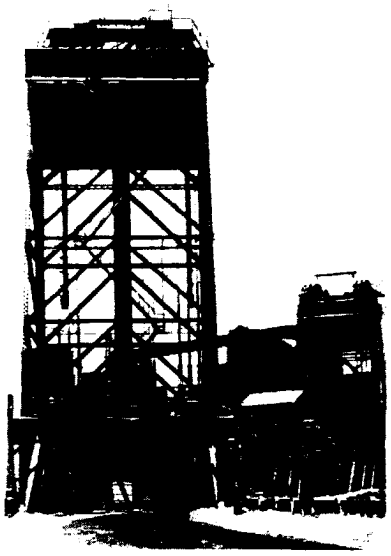
"The Pillars" at New Lebanon Center, New York, is a wayside tavern which reflects the gracious living of nineteenth century America. The excellent preservation of this landmark, due so largely to the protection of white lead paint, belies its over one hundred years of active service

Erected with a frame of solid oak in 1700 at what is now South Bound Brook, New Jersey, this typical colonial dwelling is located on the Raritan River near the old coach road to New Brunswick. Among other connections of historical interest, it served as military headquarters for Baron von Steuben during the crucial winters of 1778 and 1779 when he was assisting General Washington to organize and drill the American forces then quartered at Morristown. Being painted inside and out with pure white lead, it is one of the best preserved buildings of the colonial period

Historic New Jersey in Pictures

THIS IS NO. 13 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.

Buffalo, New York, Specifies Red Lead and

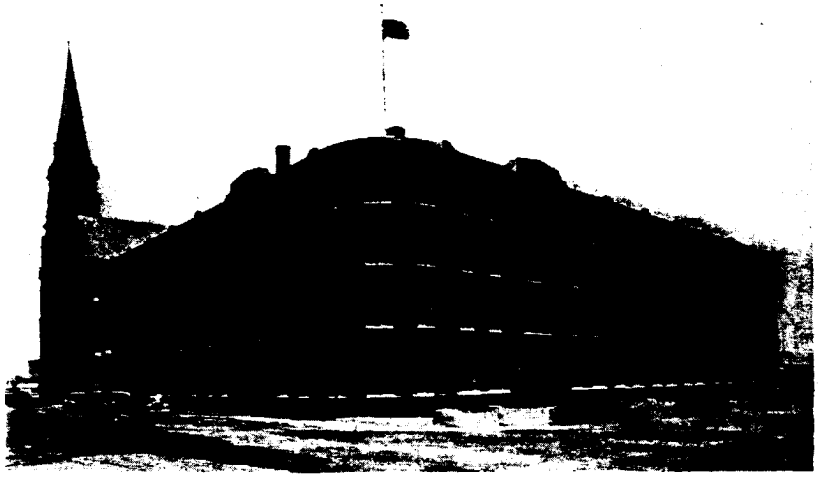


Front and side views of the Ohio Street lift bridge over the Buffalo River on which all steel elements were primed with rust inhibitive red lead paint

THE city of Buffalo, N. Y. now prominent in the public eye as one of the largest warplane producing centers of the nation, has long relied on a wide variety of lead products for new and maintenance work on municipal institutions. Chief among these products required on standard city specifications are lead pipe for water services and pure red lead and white lead paint for muncipal buildings, bridges and other structures.

The Engineering Division of the Buffalo Department of Public Works reports that pure red lead and oil is the standard material specified for the priming and paint maintenance of steel bridge superstructures. In recent years numerous tests have been carried out with substitute paints on the bridge understructures which are subject to particularly rigorous conditions. In the majority of cases, these understructures are without protective smoke plates; consequently, the exposed beams are subject to the full corrosive action of locomotive smoke. Results of these tests to date indicate that no other paint material surpasses pure red lead in rust inhibitive protection of this understructure steel.

Buffalo Police Headquarters where interior walls and ceilings are decorated with pure white lead and oil and the structural steel is sealed against corrosion by red lead paint



Charles A. Porth, Specifications Writer for the municipal Division of Buildings pointed out in a recent interview that the city depends on lead pigments for the majority of their painting work. Pure red lead paint is the standard specification for structural steel. An outstanding example of red lead protected steel may be seen in the beatiful administration building and extensive hangars of the Buffalo Municipal Airport. Completed in 1939 at a cost of approximately $200,000, the airport administration building adequately upholds Buffalo's distinction of being known as a leading aircraft center. Great care was exercised in drawing up the specifications for this building; only materials of proved worth were used in its construction. Pure red lead paint protection for structural steel with its many years of proved performance was the natural selection for this job as well as the many other municipal projects on which it has been specified.

Few people ever see the city buildings' red lead protected structural steel. This, however, is not the case with the beautiful pure white lead and oil interior decoration of Buffalo's public buildings. Featured as a standard specification for wall painting, pure white lead paint is used on the great majority of all city building interiors. Noteworthy examples of public buildings so decorated are the magnificent City Hall which was completed in 1931 at a cost of close to $7,000,000, the Fire Department Building and the Police Headquarters Building. Long association with paint and painting materials has proved to the city government that this policy of specifying pure white lead paint has not only produced the most attractive and dur-

White Lead Paint for Municipal Construction

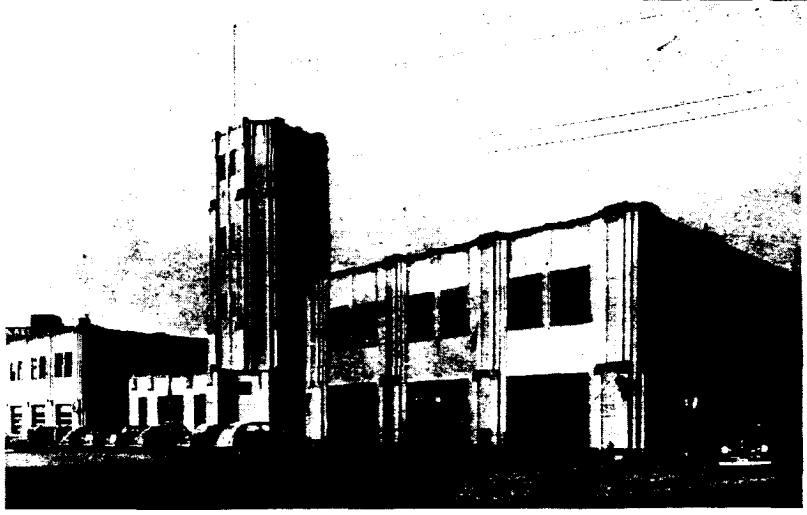
able interior decoration but also has proved to be the most economical over a period of years. Archie Grant, painting inspector for the city, is in charge of maintenance work and in this capacity superintends the use of the pure lead paints specified by the Bureau of Architecture.

The value of lead water services is well recognized by the Plumbing and Drainage Office of the City Division of Buildings. The municipal plumbing code requires lead pipe to be used on all water services up to 2 in., thereby assuring Buffalo residents of a trouble-free water supply for many years to come.

The various municipal divisions and bureaus thus far mentioned specify and use lead products because of their superior performance and because experience has shown that lead does the job with a greater degree of efficiency and reliability. To meet satisfactorily all the requirements of a city government, a product must not only excel in performance, but it must also be readily standardized upon and purchased without difficulty. In this connection the Division of Purchases of the City of Buffalo reports that lead products with their high degree of standardization are far more conveniently purchased than many other similar materials. In general, paint is regarded as one of the most troublesome of materials to specify and purchase. The city of Buffalo as well as many other agencies buying large quantities of paint have found that the specification of pure lead paints greatly simplifies this side of purchasing. This ease of standardization and ease of purchasing coupled with lead's ability to give better performance than any other material has made it a standard requirement on the great majority of Buffalo municipal projects.

The steel framework of the hangers as well as of the Administration Building at the Buffalo Airport is protected by a coating of red lead paint →

The interior of this Fire Department building at Court and Staats Streets is styled with white lead paint while a priming coat of pure red lead shields the steel frame ↓



A.W.W.A. ANNUAL MEETING

The American Water Works Association will hold a conference on Wartime Water Works Problems at the Stevens Hotel, Chicago, Ill., on June 21-25, 1942. As is the usual custom at annual meetings of the A.W.W.A., manufacturers exhibits will be held in conjunction with the Conference. As the name implies, the Conference will be of vital interest to all water works men, who cannot afford to miss it at the present time. It is expected that the exhibits, too, will be devoted to wartime problems and will be of great help to water works engineers in answering many of their pressing questions of the moment.

Lead Selected for Flashings and Paint in Restoration of Historic Lebanon Church

AT Lebanon, Conn. there is under way the restoration of the historic Meeting House which was built in 1804-5-6 to the designs of Colonel John Trumbull. This beautiful old Church was almost totally destroyed by the hurricane of September, 1938, but the citizens of Lebanon, led by the pastor of the Church, Rev. Howard C. Champe and aided by state and county committees, have already succeeded in rebuilding the structure up to the base of the steeple. Additional funds to complete the building and restore the furnishings are being raised and the people of Lebanon hope to have restored to them soon the house of worship they have known for so many years.

Fortunately, accurate measured drawings of the Church were made some years ago and certain details which were removed during a remodeling in 1875 were preserved, so ample records existed as guides to the restoration. J. Frederick Kelly, A.I.A. of New Haven, Conn., is handling the architectural work in a scholarly and sympathetic manner and A. F. Peaslee Inc. of Hartford is the general contractor.

The protection and preservation of both the old and the new portions of the building are matters of equal importance with the sound and authentic reconstruction. Careful attention has been given to roofing and painting materials. The slate roof was flashed with sheet lead and all projecting cornices and other wood details were capped with sheet lead to give permanent non-staining protection from rain and snow. The woodwork is being preserved and given the gleaming whiteness so characteristic of Connecticut Churches with 100 per cent white lead paint. Through the years to come it will be a source of satisfaction to the people of Lebanon, and to all of us who are interested in preservation of historical and architectural landmarks, to know that the protection of the critical points of this Church was chosen with the greatest care and consideration for durability as well as beauty.

Historic Lebanon Church before the destructive storm of September, 1938

Destroyed by the hurricane, lead flashings and white lead paint will help to restore this stately church to its original beauty

BUY WAR BONDS AND STAMPS

Lead Pipe with "Burned" Joints Solves Service Pipe Problems

LEAD is one of the few materials for water service pipes now available in sufficient quantities to take care of the water works engineer's needs. The solder situation may, however, seem threatening to those who use lead services with wiped joints. Even if wiping solder becomes unobtainable, water works may still resort to the use of lead "burning" or welding to make these installations.

If water works install the lead services with their own men, it would be wise to teach these men immediately to make the few simple kinds of "burned" joints required to put in a service. If plumbers install the services, the water works can encourage them to learn to do lead "burning" for this purpose. Plumbers in a number of cities have already started lead "burning" classes and there are also quite a number of plumbers who have been competent lead "burners" for years.

The equipment needed for lead "burning" is simple and inexpensive because of the low melting point of lead. Gases are freely available that will do the job and the process does away entirely with the need for tin. Properly made lead "burned" joints will in no way reduce the quality or durability of lead service pipe installations.

To make joints between two pieces of lead pipe no flux or tinning is necessary. To join lead pipe to brass or other fittings, the fittings should first be tinned. For this purpose one of the low-tin or tin-free solders described in the March, 1942 issue of LEAD may be used. After the fitting is tinned, the lead may be joined to it by lead "burning".

Bridgeport, Conn., Defense Housing Project Painted Inside and Out with White Lead

UNDER direction of the Federal Works Agency a 250-family defense housing project is rapidly nearing completion in Bridgeport, Conn., home of Remington Arms and many other war industries. Attractively placed around small courts and along winding drives, these houses achieve individuality through use of varied design and decorative white lead and oil protection of both exterior and interior surfaces.

Situated north of Bridgeport on the Huntington Turnpike, this project helps to house the many defense workers in Bridgeport. Although these homes are close to the business and industrial centers, they have a pleasant out-of-the-city atmosphere which greatly adds to their attractiveness.

Economy and speed, of course, are keynotes in defense housing projects. Started in late August of last year, these 250-family units are now virtually complete except for landscaping of the surrounding grounds. Laid out for the maximum of economy in construction, these houses have, however, gotten away from uniformity of design. Of two- and four-family construction, these units are of five basic designs. In some cases brick veneer has been used over wood framing. The majority of homes, however, are either finished in red cedar shingles or white pine siding. Trim is all native (hurricane) white pine.

In discussing the project, Walter John Skinner, the project architect, pointed out that every effort had been made to use quality materials which would reflect in low upkeep cost in the future. This coupled with a desire to produce attractive homes made pure white lead and oil paint the ideal specification for exterior and interior paintings. Summing up his experience, Mr. Skinner said, "Lead and oil has been specified on my jobs for 40 years with the best results. I've had plenty of compliments on these paint jobs and no comebacks. Since the FWA generally specifies pure white lead and oil paint, we were in perfect accord on that phase of the general specifications. From my experience I know that lead and oil is more durable than any other type of paint. For interior work it provides a really washable surface that can be easily kept clean. On exteriors it always leaves a good repaint surface instead of cracking and scaling or failing in some other costly manner."

Interior views of low-cost defense housing unit decorated with washable white lead paint

Typical examples of homes in large Bridgeport housing project where pure white lead paint is used on siding, sash and trim as well as walls and ceilings to assure minimum maintenance costs

Painting on this project is contracted to Gladstone Raines of New York City. All the paint is mixed on the job from paste white lead and raw linseed oil for exterior application, while, for interior decoration, either lead mixing oil or lead reducing oil is substituted for the raw linseed oil to produce a flat finish. Houses receive three coats on exteriors, each coat tinted to battleship gray for the body of the house and left pure white for trim, shutters and gable ends. Interiors are given two coats of pure white lead paint formulated for use on wallboard.

Colonel Charles H. Nichols is the project engineer. The general contractors are A. Barbaresi & Son, Inc. and August Severio Construction Co. of Mount Vernon, N. Y.

Lead Supply Remains Adequate for all Essential Civilian Uses

PRACTICALLY no industry today is completely free from control by government orders and regulations and the lead industry is no exception. Being a useful metal, lead has been classed as a critical or strategic material from the start. This has misled many people into thinking that lead is extremely scarce and can not be had for many of its regular uses. Such is not the case, and the purpose of this article is to try to clarify the present position of lead and the effect of various government orders on it. Only if the position is clearly understood by everyone, can lead perform to the fullest extent of its usefulness in this emergency.

The War Production Board's Order M-38-c provides for certain conservation measures in lead. It prohibits, for instance, the use of lead in the manufacture of a limited number of articles in which lead is considered non-essential by the government. These include such things as ornamental work, caskets and casket hardware, toys, and foil wrappings for cigarettes. The same order, however, contains another list of items in which lead may be used without any restriction whatsoever, and this list includes such important things as paint pigments and driers, x-ray and chemical equipment, bearings and insecticides.

Between these two lists, the one prohibitive and the other non-restrictive, lie the vast majority of lead products, including plumbing materials. All these products are subject to a very minor restriction which permits 90 per cent as much lead to be used in them as was used in either the third or fourth quarter of 1941. Since the volume of business in that period was extremely large, it is anticipated that the production of these products will be ample to take care of all essential 1942 requirements.

From the standpoint of the lead order, therefore, it appears that lead may be used for all those essential purposes, such as paint, plumbing and flashings (these are restricted as to maximum thickness of 2½-lb. hard lead or 4-lb. soft lead), for which it is normally employed. Lead should not be wasted, but can be used to help produce the best possible structures under present difficult conditions when so many other materials are practically out of the question.

Going a step further, the Division of Defense Housing Coordination issued Emergency Plumbing Standards which permit the use of lead. These were discussed in detail in the March, 1942, issue of LEAD.

The War Production Board has also issued a new Defense Housing Critical List which makes certain materials eligible for priorities for both government and privately financed defense housing. Included in this list are all lead plumbing materials and flashings.

In short, there is no need to deprive war-time construction of those lead products which have proved themselves to be best for their particular jobs. However, in using lead it should be employed with the greatest economy of material. Careful planning, use of correct weights and mixing formulas, care in handling and installation or application are some of the ways in which lead may be used, yet conserved. Conservation of manpower is equal in importance to conservation of materials. The greatest conservation of both can be accomplished by wise use of the best available materials.

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.

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.

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.

NEW SIMPLIFIED STANDARD FOR LEAD TRAPS AND BENDS

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

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