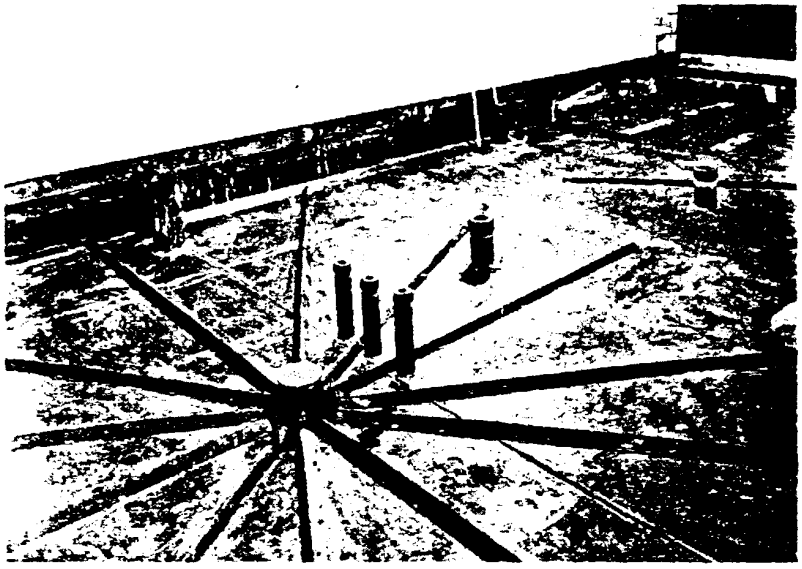
Soda Fountain and Restaurant Kitchen Floors Waterproofed With Sheet Lead

FOR many years the installation of lead pans or "safes" under floors expected to be subjected to flooding or frequent scrubbing such as bath rooms, shower rooms, commercial kitchens and certain industrial process rooms has been a standard practice. Such pans have proved to be an adequate and economical insurance against damage to materials stored below as well as to structures and decorations. A recent article in this publication described a large lead pan in a plating works in Detroit.

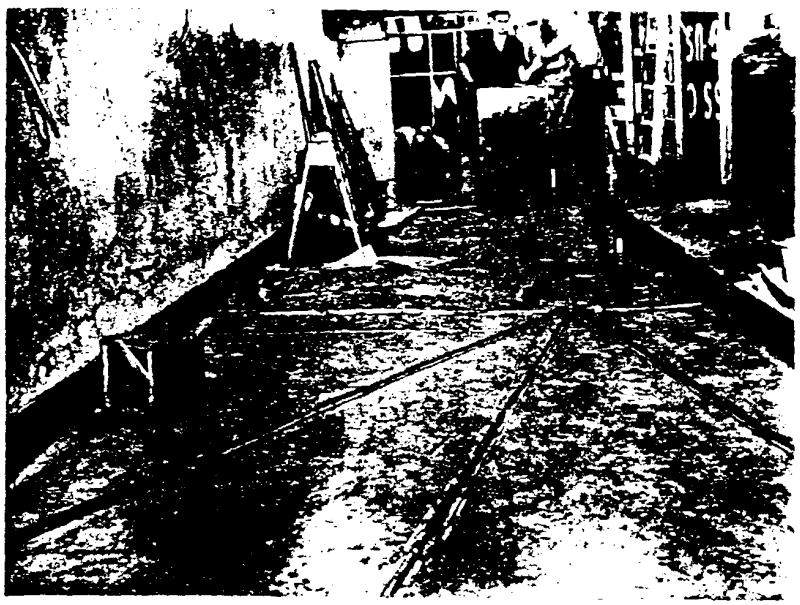
Two large lead floor pans have been installed recently in New York's Grand Central District within one hundred yards of each other. One of them under part of the kitchen and the dishwashing room of Thompson's Restaurant in the Grand Central Terminal building was placed early in May of this year. The other which is under the soda fountain in the Whalen Drug Store at the corner of 42nd St. and Vanderbilt Ave. has just been completed.

These two lead pans are similar to several installed in 1939 in a Liggetts Drug Store, also in the Terminal building. They are constructed according to specifications furnished by the Engineering Department of the New York Central Railroad. Eight pound per square foot sheet lead is laid over a layer of builders' felt. The lead is turned up at the edges 8 to 10 in. along the wall or along the curb of the soda fountain. All seams are welded. Sheet lead sleeves welded to the pan are installed around all pipes, ducts, conduit or other penetrations. Floor drains with clamping rings for the lead and ample weep holes are installed at suitable intervals and inverted V or U bleeders leading to the drains are tack welded to the lead pan.



Completed lead pan under restaurant kitchen. Note bleeders in place and lead sleeves around penetrating pipes. Asphalt paint will be applied before slab is laid.

Laying lead pan under soda fountain. Note ample height of upstand at wall and curb at front, also around dumbwaiter in background.



Before the finish floor slab is applied the entire surface of the lead is coated with a heavy asphalt paint to protect it until the cement is thoroughly cured.

There are conditions in all types of buildings which create potential leakage hazards. Kitchens, toilet rooms, air conditioning rooms, laboratories and any other areas where water is used in quantity should all be carefully considered as possible sources of trouble which can be averted by use of a properly installed lead floor pan. Sheet lead by reason of its easy adaptability to the shape of its location is ideal for this purpose.

Lead Cooling Coils In Anodizing Tank To Handle Direct Expansion Refrigeration

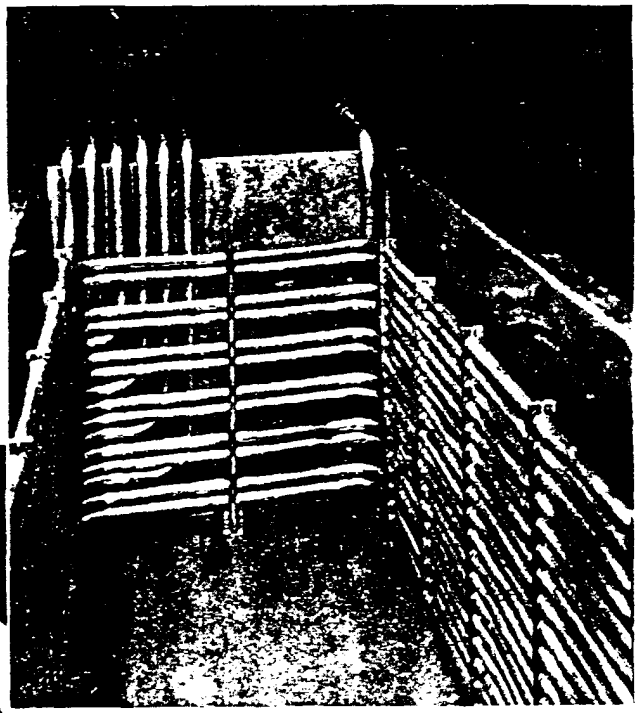
AN interesting and unusual application of lead pipe coils is shown in the accompanying photographs. In appearance the installation is similar to many other heat exchange arrangements except that the coil is divided into six sections with separate inlets and a common outlet. In operation, however, this cooling coil instead of circulating water will serve as a direct expansion chamber for a freon gas refrigeration unit.

The coil of 1-in. lead pipe is divided into six sections with each inlet welded to a section of ⅜-in. copper tubing for connection to a multiple feed expansion valve which will control the flow of refrigerant. The outlet end of each coil is connected to a 3-in. lead pipe suction header closed at the bottom. Extending down inside the header to within 3 in. of the bottom is a 1¼-in. lead suction pipe bushed and welded at the top of the header. This pipe is carried up over the top of the tank where it is welded to a steel pipe nipple for connection to the suction side of the refrigeration unit.

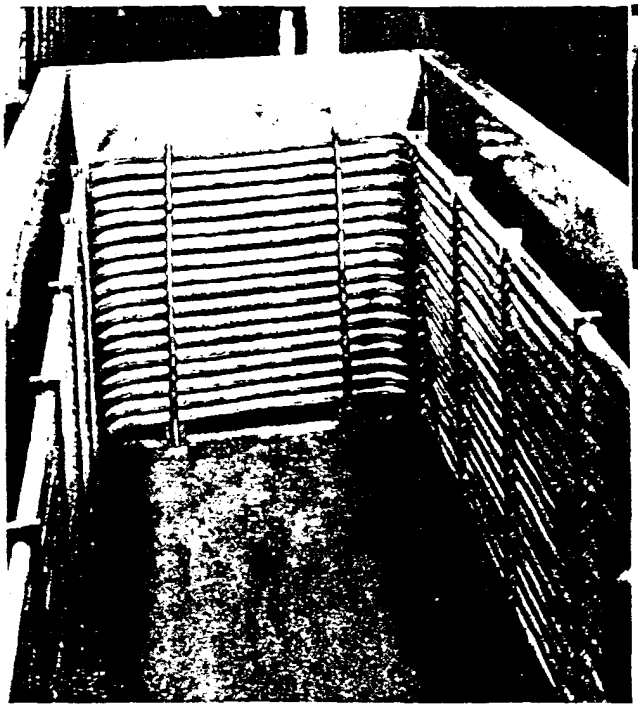
This tank is to be used as an anodizing unit for small machine parts in the plant of Felt and Tarrant of Chicago. Because it is to contain a 20 percent solution of sulphuric acid, the tank lining is also of lead 3/16 in. thick. This lining will also serve as the cathode of the anodizing circuit. In addition a ventilating hood of 3/16 in. lead will be built over the tank to dispose of acid vapors generated by the process.

The tank is 3 ft. 10 in. wide by 9 ft. 1 in. long by 3 ft. 6 in. deep. It was designed and installed by Reliance Refrigerating Machine Co. of Chicago. All of the lead work, both tank lining and coil, is constructed of tellurium lead. All seams in the lining are welded and the coil supports are welded to the coil at each intersection. The coil is placed well out from the walls of the tank to allow free circulation of the solution. Agitation will be provided by three perforated lead aeration pipes.

The use of lead pipe for an expansion chamber for a refrigerant gas is unusual but perfectly feasible if the suction pressure is not excessive. In the case of freon operating at 40° to 50°F the suction pressure will probably not exceed 50 lb. per sq. in., which is the allowable working pressure for Class 50 lead pipe as designated in Federal Specification WW-P-325.



End view of anodizing tank showing division of coil into six sections with manifolded exhaust.



Opposite end of tank showing lead lining and manner of supporting coil.

Efficiency Of Lead Unit Plumbing Demonstrated In Many Installations

UNIT Plumbing, which first came to general notice within the last year, is rapidly gaining recognition as a means of reducing costs and saving construction time. By Unit Plumbing is meant the shop assembly of the major portion of the roughing-in piping of a plumbing unit which may include an entire bath room, two adjacent bath rooms or other combinations. Such units may, by means of prearrangement with the workmen of other trades, be set in place very quickly with a minimum of interference with building operations.

It is a perfectly logical procedure and it has long been utilized in a limited way by plumbers who often assembled two or three fittings on the floor before setting them in place. Carried to its logical conclusion, Unit Plumbing discards the cumbersome rigid fittings and makes use of sleek flexible lead pipe for the entire roughing in above grade. Lead stacks, wastes and vents with their comparatively thin walls and without the clumsy space demanding hubs are lighter, smaller and more efficient. Assembled in the plumber's shop and installed as a unit they save time for both builder and plumber.

Mention has been made in past issues of this publication of a number of cities where Unit Plumbing has been proved to be efficient and economical. Additional examples are coming to light with gratifying regularity. In Albuquerque, New Mexico, the Gordon Plumbing and Heating Company has just completed two res-

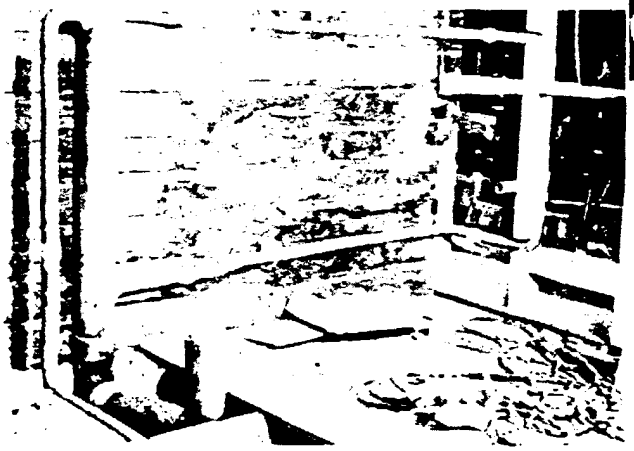
A one bath room unit installed in a single family dwelling in Waco, Texas.

A two bath room installation in Garden City, Kansas, where lead not only makes possible the utilization of the unit principle but also satisfactorily meets unusual structural conditions.

Below, unit plumbing in Albuquerque, New Mexico. First a unit ready to leave the shop, second and third, two views of a two story unit plumbing installation.

idence installations by this method. In Evergreen, Colorado, near Denver, the T & S Plumbing Company installed a two story Unit Plumbing job. In Florissant, Missouri, the plumbing in a group of six tourist cabins was unitized with lead by Phil L. Miller, plumbing contractor. At Garden City, Kansas, the J. D. Howell Plumbing Company has installed all lead Unit Plumbing in a duplex apartment and a movie theatre and in Waco, Texas, where Unit Plumbing is an old story, Dave Meers, plumbing contractor, is installing another one bath room job.

A very compact two bathroom unit in a tourist camp near Robertson, Missouri. Note cleanout wiped to stack and wiped flange on stack at floor level for support.



Water closet and lavatory unit in a residence in Evergreen, Colorado. Note supporting "tacks" soldered to horizontal pipes.

All-lead Unit Plumbing is an application of the principles of prefabrication to the most difficult problem of the prefabrication program. It is successful and economical and it saves time. Its expanded application will materially speed construction.

Lead Pipe For Water Service Under Heavily Traveled Streets

ALTHOUGH its use is not mandatory, the installation of lead water service pipe is standard practice in New York City. A large majority of the service pipes in the city are of lead as was demonstrated recently during the replacement of a water main in East 39th Street which was reported in the January-February issue of LEAD. In this operation every service in the two blocks concerned was of lead pipe in various sizes to accommodate residences and apartments along the street.

In addition to being durable and resistant to corrosion, lead pipe has other qualities which make it desirable for use under city streets. It has flexibility which makes it adaptable to installation in one piece without extending the trench across the entire street. It can be bent around obstructions and formed into an integral expansion loop or gooseneck without the use of fittings which are potential leak hazards. Lead is not responsive to vibration and therefore it is less likely to transmit sound than are other metals. Being a relatively poor conductor of electricity lead is only slightly susceptible to electrolysis.

The pictures show the installation

Because lead pipe is flexible this water service can be installed in one piece by being pulled through a small tunneled opening without obstructing traffic.

From the main, under the street, offset down two feet and into the basement, this lead service pipe is in one piece.

in progress of a 2-in. lead water service without interruption of traffic. in this case the pipe was drawn through the space previously occupied by a smaller service pipe. In addition to the gooseneck which will be formed at the main end of this pipe it will offset down about 24 in. before it enters the basement. Both the durability of lead itself and the absence of joints and fittings will contribute to the long life which can be expected from the service pipe.

Many cities throughout the United States require the use of lead service pipe with the result that both property owners and water supply agencies benefit from lead's convenience and durability.

New York's Third Avenue El. Gets A New Coat Of Red Lead

NEW Yorkers during the past summer have perhaps been startled on turning into Third Avenue and beholding what seemed to be miles of brilliant red elevated structure. The famous old "3rd Ave. El." has been receiving its first repainting in many years. Maintenance work which had to be put off during the war has been resumed and undertaken in large units in an effort to reduce the large gaps in the schedule.

The New York City Board of Transportation in common with other administrative units of the city government. including that responsible for the maintenance of the great bridges. makes the use of a red lead priming coat regular practice in maintenance painting procedure. That this practice is good is demonstrated by the sound condition of the many steel structures maintained by the city on which red lead has been used constantly.

The work undertaken this summer was extensive. It included the 3rd Ave. structure from 44th to 105th Streets. the South Ferry Station, 9th St.. 125th St. and 129th St. stations in Manhattan as well as additional structures and stations in the Bronx and Queens. The procedure includes wire brushing and priming with red lead paint of all of the iron and steel work including hand rails and all exposed bolts and washers securing ties and other wood structures. This is followed after a suitable drying period by a coat of light grey-green white lead-base paint. The result in addition to preservation of the metal work is a noticeable brightening up of 3rd Ave.

Future plans call for the eventual removal of the 3rd Ave. El. but until other means of transportation for

(*Continued on page 8*)

Columns newly coated with red lead. upper structure partly unpainted. partly finish coated.

View along 3rd Ave.. several shades lighter as a result of the repainting.

A Portfolio of American Landmarks

No. 39

Geneva An Early Settlement In Central New York

IN 1828 one James Stewart, a gentleman from Scotland, passed through Geneva, New York, on the first leg of a journey which he later documented in a book "Three Years in North America." He accounted Geneva as an agreeable place of residence containing some good houses and a population of 2,000 or 3,000. Evidently a precedent of good taste had been established because the town acquired an additional number of good houses in the years immediately following his visit.

The three shown herewith indicate an understanding of proportion on the part of their builders and an appreciation of design on the part of their owners who have preserved them very nearly in their original state.

An important factor in the accomplishment of that preservation has been the consistant use of pure white lead paint as a protective as well as a beautifying coating. All three of these homes make use of white lead paint's adaptability to tinting. The Bishop Delancy House is of brick and is painted all over a warm grey color. The other two are of frame, both of clear yellow color with white trim. Both brick and frame appear clean and fresh in their present dress of pure white lead paint.

Trinity Episcopal Rectory was built in 1816 by James Reese. It served as the home of the Geneva National Bank for several years before it was acquired by the church in 1875. Pure white lead paint, tinted yellow, has played an important part in its perfect preservation.

George Nichols house built in 1830. The owner was a prominent attorney in Geneva. The white lead paint on the siding is tinted yellow.

Bishop Delancy house built in 1834 by a Mr Hopkins. North room added soon after house was acquired by the Bishop, a loved and respected cleric of central New York. Brick and woodwork painted with pure white lead paint, tinted grey.

PHOTOS BY DAYTON SNYDER

THIS IS NO. 39 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.

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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 17, N. Y.

PROPERTY PROTECTION WITH WHITE LEAD PAINT
A 28 page booklet on the protective value, durability and beauty of pure white lead paint with quantity estimating tables, formulas and mixing and tinting instructions for exterior and interior use.

RED LEAD FOR STRUCTURAL WORK
By Dr. L. L. Carrick, Director, Red Lead Research, Lead Industries Association
A discussion of the rust inhibitive qualities of red lead paint and the best means of making use of those qualities for the protection of structural metal. Reprinted from *Engineering News Record*, April 6, 1943.

LEAD CARRIES ITS WEIGHT
By Fred P. Peters
An interesting resume of many of the long established uses of lead plus information on a number of recently developed adaptations of the properties of lead to special purposes. Reprinted from *Scientific American*, June, 1944.

SOME PAINTING PROBLEMS AND THE ANSWERS
By Dr. F. L. Browne, Senior Chemist, Forests Products Laboratory, Madison, Wis.
Reprinted from the *National Real Estate Journal*, Sept., 1939.

LEAD, A METAL OF MANY USES IN THE THEATRE
By J. Leland Benson
A discussion of the many ways, both utilitarian and decorative, in which lead is or can be used in the theatre. *Reprinted from Theatre Catalog 1945 Edition.*

FEDERAL SPECIFICATION WW-P-325
For Pipe, Bends and Traps, LEAD
Part 5 of Section IV of the Federal Standards Stock Catalog, official publication by the Government Printing Office.

COMMERCIAL STANDARDS:
Calking Lead, CS94-41
Lead Pipe, CS-95-41
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.

LEAD COATINGS ON STEEL
By Harold A. Knight, News Editor, Metals and Alloys
A thorough discussion of hot dip and electroplated coatings on steel sheet, wire and fabricated products including the technique of application, thickness of coatings, uses and advantages. Reprinted from the November, 1944 issue of *Metals and Alloys*.

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 *American Builder*, July, 1939.

LEAD X-RAY SHIELDING
Graphic chart based on recommendations of the International Commission on X-Ray and Radium Protection giving thicknesses of lead for respective voltages in millimeters, inches and pounds per square foot.

MATERIALS AND METHODS OF X-RAY PROTECTION
By George Singer, Acting Chief Radiation Section, National Bureau of Standards, Washington, D. C., and George C. Lawrence, Ph.D., National Research Council of Canada
A discussion of the materials suitable for use in shielding X-ray installations giving methods of and graphs for computing required thickness of barriers, based on tube current and distance as well as tube voltage. Reprinted from *Industrial Radiography* Vol. IV, No. 2, Fall, 1945.

(*Continued from page 6*)
thousands of New Yorkers have been provided its operation will be continued. The structure is still sound and by means of the present maintenance practices of regularly renewed protection with red lead paint it can be kept so if necessary for many years to come.

Painter at work applying red lead to a column of the 3rd Ave. El structure.

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