

LEAD INDUSTRIES ASSOCIATION

430 LEXINGTON AVENUE

NEW YORK 17, N. Y.

METALLIC LEAD PRODUCTS DIVISION

May 27, 1958

M.L.P. DIVISION NO. 62



To Members of the Metallic Lead Products Division:

Please find attached a second draft of the "Suggested Specification for Chemical Laboratory Drainage System" that has been prepared by the Association to assist in the handling of inquiries on the subject.

This second draft incorporates many of the recommendations and suggestions submitted by members and other interested parties.

Would you please look over the attached draft and let us have your approval or comments within the next thirty days. If we do not hear from you during this period, we will assume that it meets with your approval.

Very truly yours,

Robert L. Gifford
Secretary.

SECOND DRAFT
May 27, 1954

SUGGESTED SPECIFICATIONS FOR CHEMICAL

LABORATORY DRAINAGE SYSTEM

Laboratory drainage and vent systems shall not be directly connected to the sanitary drainage system of any building.

Laboratory wastes may discharge into the building sewer only after passing through dilution or neutralizing chambers acceptable under local and state plumbing, building or health department requirements.

MATERIALS

All lead products for chemical laboratories shall be made from pig lead meeting requirements of A.S.T.M. specifications serial designation B. 29 for chemical, acid or copper lead grades.

Antimonial (hard) lead when specified shall be an alloy containing 4.0 to 7.5 percent antimony.

LEAD WASTE AND VENT PIPING

Lead waste and vent pipe for chemical laboratories shall be "B" or "M" weight in accordance with the following table conforming to Federal Specifications W.W.-P-325.

"B" OR "M" WEIGHT LEAD PIPE

<u>DIAMETER</u>	<u>WALL THICKNESS</u>	<u>NOMINAL WEIGHT PER FOOT</u>
<u>INCHES</u>	<u>INCHES</u>	<u>POUNDS</u>
1½	0.171	3.75
1½	0.191	5.00
2	0.205	7.00
2½	0.250	10.62
3	0.250	12.50
4	0.250	16.38

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(Exception - for educational units "D" or "XL" weight lead pipe in accordance with Fed. Spec. W.W.-P-325, may be used where accessible.)

Where lead is built into concrete walls, floors or other masonry, it shall be painted one coat heavy asphalt paint.

LEAD TRAPS

Lead traps shall have a wall thickness comparable to the lead pipe to which it is connected and have at least a 2 in. trap seal and be either 3 in. or 4 in. drum trap pattern or anti-siphon pattern. All cleanout plugs and trap screws and rings shall be of cast hard lead with standard pipe threads and ring shall be lead welded to the body of the trap. (Trap pattern shall conform with requirements of local plumbing regulations.)

SHEET LEAD

Sheet lead shall comply with the dimensional tolerances of Federal Specifications QQL-20R 1953 for Sheet Lead.

LEAD LINED SINKS

Lead lined chemical laboratory sinks shall be lined with at least 6 lb. sheet lead using lead welded joints and seams. The sheet lead shall be formed over the rim of the sink to form a complete lining covering all surfaces exposed to fluids or splash.

LEAD CUP SINK OR WASTE BOWL

Lead cup sinks or waste bowls shall be of cast lead, either hemispherical 6 in. diameter or oval 3 in. by 6 in. with at least 3/16 in. wall. Threaded tail piece connection, either cast with bowl, or lead sink plug and strainer is acceptable. (Bowls made from 12 lb. sheet lead may be used.)

LEAD LINED TABLE TROUGHS

Lead lined table troughs shall be lined with at least 6 lb. sheet lead with all joints lead welded. Outlet end to be extended below supporting material to prevent capillary attraction carrying fluids along underside of trough into table construction.

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LEAD COVERED TABLE TOPS

At least 6-lb. hard sheet lead shall be used for lead covered tables with lead formed firmly over all edges and corners by bossing or folding. Corners may be cut and welded.

LEAD LINED ACID TRAYS

Lead lined acid trays shall be lined with 6 lb. or heavier hard sheet lead with all joints lead welded. A 1½ in. lead sink plug and strainer shall be used for outlet connection. The bottom of the tray shall pitch from all directions to the outlet which may be in the center or at either end to correspond to drain connection location.

JOINTS AND CONNECTIONSLEAD WELDED (BURNED) JOINTS

Lead welded joints for waste and vent piping shall be regulation lead welded (burned) joints fused together to form a uniform weld at least as thick as the pipes being joined. Lapped joints shall be used on sizes up to and including 2 in.

Lead welded joints for sheet lead shall be regulation lead welded (burned) butt or lap joints fused together to form a uniform weld at least as thick as the material being joined. Butt joints with beveled edges shall be used for sheet lead over 1/8 in. thick.

Lead welding rod shall be of same composition as material being welded.

NOTE: - In the past the common term for lead welding has been lead "burning." Since the result of the operation is a true weld, this is a misnomer.

LEAD LINED SINK AND ACID TRAY WASTE CONNECTIONS

Lead waste connections for lead lined sinks or acid trays shall be made by using proper size lead sink plug and strainer with lock nut or by welding strainer body to lead lining.

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ALBERETE STONE OR OTHER CHEMICAL RESISTING SINK WASTE CONNECTIONS

Lead waste connections for this type fixture shall be made by using proper size lead sink plug and strainer with lock nut. Red or white lead putty may be used under sink plug body to form gasket.

LEAD CHEMICAL SINK PLUGS AND STRAINERS

Lead sink plugs, bee hive standing overflows and strainers shall be made of cast hard lead using hard lead tail piece for trap inlet connection. All threads to be standard pipe thread.

Joints may be union, flange, or welded where tailpiece is joined to strainer piece outlet.

LEAD TRAP JOINTS

Inlet and outlet and cleanout plugs for lead chemical traps shall be lead welded (burned) joints.

LEAD WASTE AND VENT CONNECTIONS

All joints between lead pipe or fittings and acid resisting cast iron shall be made as follows:

When lead waste or vent pipes are connected into acid resisting cast iron with calking hub, a regulation lead calked joint shall be used except that treated asbestos packing is used in place of oakum.

Cast hard lead ferrules, welded to lead pipe shall be used. Brass ferrules may be used when the lead pipe is extended through the ferrule and turned back over the bead on the spigot end of the ferrule. The inlet end of the ferrule is lead welded (burned) to the lead pipe.

When lead waste or vent pipes are connected to acid resisting iron or steel pipe with regulation standard pipe threads, the lead pipe is welded to cast hard lead bushings or nipples. When brass nipples or brass bushings are used the lead pipe shall extend through them with lead welded joint used on inlet and outlet end. Lead to lead flange joints may also be used.

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HANGERS AND SUPPORTS

Piping shall be installed without undue strains and stresses and provision made for expansion, contraction and structural settlement in accordance with the following recommendations.

VERTICAL PIPING

Vertical lead pipes shall be supported at intervals not to exceed 4 feet. Flanges, tacks or straps welded to pipe shall be used.

HORIZONTAL PIPING

Horizontal lead pipe shall be supported by angle or channel irons, heavy sheet-metal troughs, wood strips, or otherwise, for its entire length.

HANGERS AND ANCHORS

Hangers and anchors shall be of metal of sufficient strength to maintain their proportional share of pipe support and alignment and be securely attached to the building construction.

PIPING IN CONCRETE

All chemical laboratory piping shall, where construction permits, be placed or installed in chases or recesses which will permit access to the piping for repair or replacement.

Lead piping encased in concrete or masonry walls or floors shall be heavily coated with asphaltum paint.

LEAD SAFE PANS

Chemical laboratory room floors where required shall be completely lined with at least 6 lb. sheet lead safe pan with an upstand at least 6 inches on all walls.

Corners of pans shall be folded tightly against the upstands when used and lead welded along the top of the fold. Tops of upstands shall be set back $\frac{1}{4}$ in. into notches in studs on frame construction. Upstands shall be dressed tightly against masonry walls. In rooms too large to be covered by a single sheet of lead, seams joining sheets shall be lapped at least $\frac{1}{4}$ in. in direction of flow and lead welded. Concrete under the pan shall be brought to a smooth finish with a mixture

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of cement and sand, and the lead coated on both sides with a good grade of asphaltum paint. Wood floors under the pans shall be firm and even with nail heads set, and made of well-seasoned 7/8 in. boards covered with asphalt-impregnated building paper weighing at least 15 lb. per square. Inside of pans on wood floors shall be coated with asphaltum paint.

A cement and sand mixture shall be used inside pans as foundation for the finished floor.

Pans shall be graded to the acid resisting floor drain to which they shall be securely fastened. The trap flange shall be countersunk and weep holes provided in the drain just above the lead. The pan shall be tested upon completion by plunging the trap and filling with water.

If pans are left open, they shall be protected with heavy building paper until foundation for finished floor is installed.

When walls are marble, they are set inside the pan, and where the upstand is left exposed, it is covered by a marble baseboard.

SAFE WASTE

The safe waste, when used in place of weep holes in floor drain, shall be 1 in. lead pipe, considered as an indirect waste, and discharge over a water supplied service sink or floor drain.

LEAD LINED NEUTRALIZING BASIN

Lead linings for neutralizing basins or dilution tanks for chemical laboratory waste in buildings shall be of at least 12 pound sheet lead with lead welded (burned) joints.

LEAD OR LEAD LINED FUME HOODS AND DUCTS

Fume hoods and ducts shall be constructed of at least 6 lb. sheet lead supported in an angle iron framework. Sheet metal having a bonded lead coating thickness of lead of at least 1/16th in. may also be used.