

LEAD INDUSTRIES ASSOCIATION, INC.

192 MADISON AVENUE

NEW YORK 17, N. Y.

TIME-COST STUDY ON CAST-IRON PLUMBING SOIL PIPE JOINTS

Neoprene (Ty-Seal) Gaskets Versus Lead Calked Joints

A time-cost study of the plumbing roughing-in for a one-story single bathroom residence, comparing conventional lead-calked cast-iron joints against the neoprene (Ty-Seal) type joints was performed by Bernard F. Keating at the Voorhees Technical Institute, 304-326 East 67th Street, New York 21, N.Y. where he was the Head of the Apprentice Training Program.

The roughing-in was prepared in accordance with the New York City code and is similar to what would be standard practice in many areas of the country, that is, cast-iron pipe for the stack and house drain, galvanized or black iron for waste arms and a lead bend.

A photograph of the assemblies erected for the test is attached.

The results of the study indicate the lead-oakum roughing-in to be just under 8 per cent cheaper than the neoprene (Ty-Seal) installation. Summary cost figures are given in Table I with more detailed data in Tables II and III. All materials were purchased through a local supply house and no freight charges are included.

Tool costs are not included and it could be argued that a complete neoprene (Ty-Seal) job, using nothing but the required type of cast-iron pipe and fittings, will require less investment in tools, and this is true. In this event, however, material costs of every job would be substantially higher. It should also be pointed out that if a single length of steel pipe or a lead bend is incorporated in a neoprene (Ty-Seal) job, then practically all of the tools required for a complete lead-oakum job would be necessary.

It is also important to note that the cast-iron pipe required for the neoprene (Ty-Seal) joint is made to closer tolerances than conventional cast-iron pipe and without a bead on the spigot end. Because of the close tolerances required whenever a piping material other than the special cast-iron is used for a connection, a lead-calked joint is necessary.

As far as is currently known, the cast-iron pipe required for use with the neoprene (Ty-Seal) joint is made only by the Tyler Pipe and Foundry Co., Tyler, Tex.

One other decided advantage of the lead-oakum joint is that it can be used with any type of bell and spigot cast-iron pipe.



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In the making up of the roughing-in with the neoprene (Ty-Seal) joints, the following points were also noted:

1. Difficulty was experienced in making joints in confined spaces and on short-turn fittings.
2. The tremendous shock that must be absorbed by the hub of the bottom joint of long vertical runs when a fitting at the top is driven home with a sledge hammer, as required with a neoprene joint.
3. If there is a slight irregularity in the pipe end, such as would occur when it is cut on the job, difficulty is encountered in trying to keep the neoprene gasket from going into the joint.

A personal opinion expressed by Mr. Keating was that the effectiveness of the neoprene (Ty-Seal) joint depends on only a half-inch seal. He did not, however, make any tests to confirm this opinion.

He further reported that in dismantling the roughing-in, he pulled a jointed section across the floor and in so doing, the joint pulled apart easily. The direction of pull was opposite to the direction in which the joint was made.

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TABLE I
MATERIAL AND LABOR COST

	NEOPRENE (TY-SEAL) JOINT	LEAD AND OAKUM JOINT
Material	\$66.07	\$49.61
Labor	\$32.00	\$41.00
TOTAL	\$98.07	\$90.61

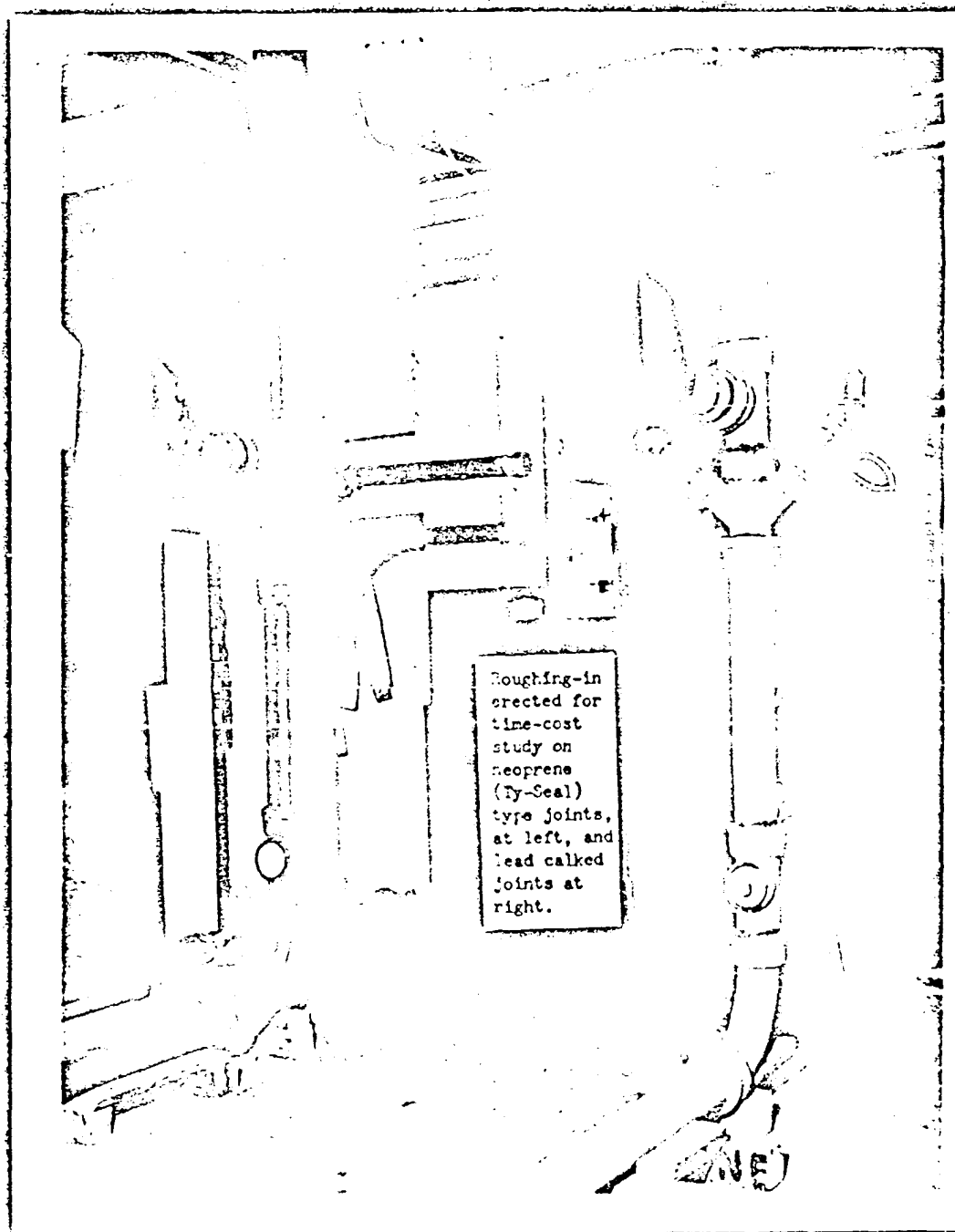
TABLE II
LABOR TIME AND COST

	NEOPRENE (TY-SEAL) JOINT		LEAD AND OAKUM JOINT	
	Hours	Min.	Hours	Min.
Cutting, Positioning and Joining	2	30		
Cutting, Yarning, Positioning and Calking			4	30
Yarning and Calking	0	30		
Lead Bend	1	0	1	0
Screw Pipe Work	1	0	1	0
Filling and Testing	0	20	0	20
TOTAL HOURS	5	20	6	50
Labor at \$6 an hour	\$32.00		\$41.00	

TABLE III
MATERIAL COST

	NEOPRENE (TY-SEAL) JOINT	LEAD AND OAKUM JOINT
1 length 4 in. XHCI DH Pipe)		
2 lengths 4 in. XHCI SH Pipe)	\$19.68	\$14.65
1 4 in. x 2 in. XHCI dble. tapped tee)		
1 4 in. XHCI TY)		
1 4 in. XHCI c/o Tee)	\$17.01	\$12.18
1 4 in. XHCI Sweep)		
1 4 in. x 2 in. XHCI dble. Y)		
1 4 in. brass ferrule	\$ 1.25	\$ 1.25
1 10 in. x 10 in. lead bend	\$ 2.40	\$ 2.40
40 lb. calking lead		\$ 8.00
7 lb. calking lead	\$ 1.40	
8 4 in. Ty-Seal Gaskets	\$12.00	
1 can Ty-Seal Compound	\$ 1.20	
5 lb. Oakum	\$ 1.60	\$ 1.60
2 45° Drainage Ells	\$ 2.10	\$ 2.10
2 Black Malleable Caps	\$.92	.92
2 Cast-Iron Plugs	\$ 1.26	\$ 1.26
4 ft. Black Steel Pipe	\$ 2.00	\$ 2.00
1 can Pipe Dope	\$.25	\$.25
3 lb. of 40/60 Solder	\$ 3.00	\$ 3.00
TOTAL	\$66.07	\$49.61

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