

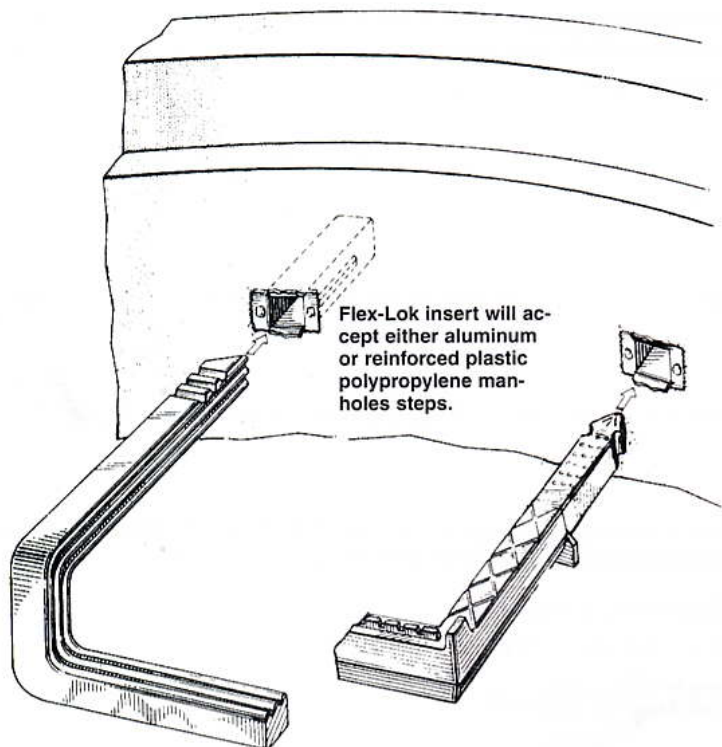
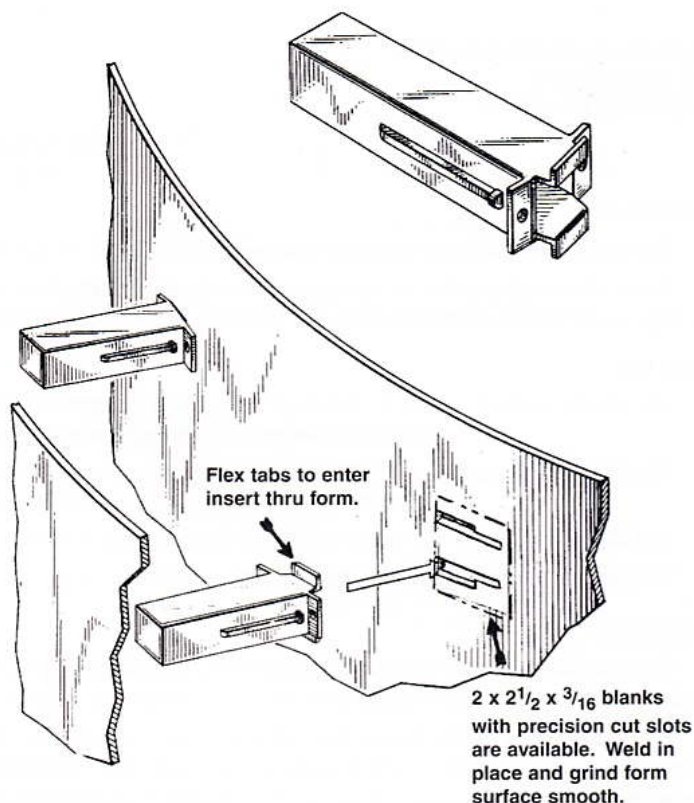


FLEX-LOK PLASTIC MANHOLE STEP INSERT

A polypropylene insert for the purpose of securing steps in the wall of a precast concrete manhole or other concrete structure.

Placement of the insert is done at the time of manufacture, thereby assuring the wall to remain watertight, and at the same time, guaranteeing positive alignment and projection of the steps.

Installation of either the aluminum or plastic polypropylene step into the insert is rapid and simple, as the step is pressed or driven into an interference fit in the insert cavity.



Since the insert is made of polypropylene, It has a life expectancy which exceeds the concrete itself, and has excellent chemical resistance.

The insert also serves as a protective shield against dissimilar material reactions, such as electrolysis of aluminum and concrete.

The insert meets requirements of A.S.T.M. C-478 Section 12 and performance test procedures of A.S.T.M. C-497.

A-LOK® PRODUCTS, INC.

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A-LOK PRODUCTS, INC.
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E. L. CONWELL & Co.

ESTABLISHED 1894

ENGINEERS

CHEMISTS

INSPECTORS

July 5, 1985

A-Lok Products Corporation
697 Main Street
Tullytown, PA 19007

Re: Concentrated Load Tests of Manhole Step
and Insert Assemblies

Gentlemen:

The following is our report of the tests conducted at your plant on July 3, 1985.

Tests were conducted in accordance with ASTM Method C497-83 in order to demonstrate compliance with Section 12 of ASTM Specification for Precast Reinforced Concrete Manhole Sections ASTM C478-83.

Materials:

Manhole Section — 48" I. D. Riser, Standard 3' Section Manufactured in accordance with ASTM C478-83, selected from current inventory.

Plastic Step Inserts — 4½" long polypropylene tapered inserts, A-Lok Products Corp. #A1095.
Inserted in forms prior to concrete placement.

Aluminum Step — 12" wide with 10" legs, Alcoa #16829.

Reinforced Polypropylene Step — 12" wide with 10" legs, M.A. Industries #PS 4B.

Procedure:

One aluminum step and one reinforced plastic step respectively were each driven into the plastic inserts located in the inside wall of the manhole riser in accordance with standard step installation procedure.

Each step was subjected to two concentrated load tests. The first test was conducted with the load placed perpendicular to the axis of the inserts (vertical service position). The second test was conducted with the load placed parallel to the axis of the inserts (horizontal pullout position).

Test load was supplied by means of dead weight (steel rails) supported on a square loading frame constructed of steel channel sections suspended from the steps. The manhole section was positioned and loads applied by means of a forklift truck. Load were applied carefully without shock or impact.

Load Tests:

	Actual Load (lbs.)	Required Load ASTM C 478-83 (lbs.)
Vertical Service Position Test —	870	800
Horizontal Pullout Position Test —	670	400

Test loads for each step, each position were left in place for several minutes while photographs were taken and visual examinations made.

Test Results:

In all cases the step and insert assembly sustained the test loads with no indication of pullout, cracking or spalling of concrete, or permanent set or deflection.

Comment:

The above manhole step and insert assemblies conform to the testing requirements of Section 12 (Manhole Steps and Ladders) of Standard Specification for Precast Reinforced Concrete Manhole Section ASTM C478-83.

Respectfully submitted,

E. L. CONWELL & CO.



D.S. Spitzer, P.E.

DDS/es



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LOAD TEST OF MANHOLE STEP &
INSERT ASSEMBLIES NO. A-1095
"A.S.T.M. C478, SECTION 12"

C-106-2