

# Form-A-Tube™

## Installation Guide

### 1.0 Scope

- 1.1 This specification may be used for the installation of the Form-A-Tube™ system for repair of deteriorated piles and columns. This is intended as a guide only and actual field installation may vary depending on site conditions, length of pour, diameter size, etc.
- 1.2 The engineer shall select appropriate sections of the specifications to ensure that the specification is comprehensive for specified work.

### 2.0 Materials

- 2.1 Materials shall be Form-A-Tube™ PVC strips manufactured by Form-A-Tube, LLC 2055 E. 17<sup>th</sup> Street, Tucson, AZ 85719, Tel: (520)250-7020.
- 2.2 Material shall be Polyvinyl Chloride (PVC) with the properties listed in the table below:

Physical Properties of Form-A-Tube™		
Specific Gravity, ±0.02	ASTM D-792	1.43
Hardness, Shore D, ±3	ASTM D-2240	79
Tensile Strength at Yield, psi	ASTM D-638	6265
Tensile Modulus, psi	ASTM D-638	372,000
Notched Izod ft-lb/inch	ASTM D-256	14.9
Heat Deflection Temp. @ 264 psi, °F	ASTM D-648	162
Coefficient of Linear Exp., in./in./ °F	ASTM D-696	3.2x10 <sup>-5</sup>
Flammability: UL 94		V-0, 5VA
Dart Drop Min Failure, (C.125 TUP), in.-lb./mil	ASTM D-4226	2.4

- 2.3 The PVC strips will have a wall thickness of 0.050 inches (1.3 mm).
- 2.4 The strips will be UV resistant.
- 2.5 The strips shall be grey color.

### 3.0 Surface Preparation

- 3.1 Prior to application, thoroughly clean and remove marine growth, oil, grease, rust and any other deleterious material which might prevent proper bonding between the pile or column and the grout. Surfaces shall be cleaned by water blasting, sandblasting or other acceptable methods.

### 4.0 Installation

- 4.1 PileMedic® Spacers provided by QuakeWrap Inc. shall be positioned around the pile to provide the desired annular space between the pile and Form-A-Tube™ shell. These spacers can be secured in place using zip-ties. When necessary, the spacers can be used for placement of longitudinal reinforcing bars along the height of the pile.
- 4.2 Wipe the Form-A-Tube™ strips clean.
- 4.3 If necessary, cut the Form-A-Tube™ strips to the required length. Refer to the FAQ page of the website for determining the number of strips needed. Use a fine-tooth blade to avoid damaging the strips during the cutting operation.
- 4.4 Select the number of strips required. Each strip adds 2 inches to the diameter of the shell being made. That is, 6 strips make a 12-inch (305 mm) diameter shell, 7 strips make a 14-inch (356 mm) shell, 8 strips make a 16-inch (406 mm) diameter shell and so on.
- 4.5 Connect the panels together by sliding the edges into each other. This results in a sheet that is as wide as the perimeter of the tube being made. Spraying a lubricant such as WD-40 in the female connectors allows easier sliding of panels into another.
- 4.6 If injection ports are to be used for placement of grout, connect the ports securely at desired locations on the strips.
- 4.7 Wrap the sheet around the pile to form a shell with the protruding Ts facing towards the pile or column.
- 4.8 Snap the remaining two edges of the sheet together to create a shell around the pile or column. The unique design of Form-A-Tube™ that eliminates epoxies or fasteners allows for removal and adjustment of the shell at this stage.
- 4.9 If necessary, the shell can be formed around the pile above water and the finished tube is then lowered into water to the mudline.
- 4.10 If repair is limited to the tidal zone, install PileMedic® skirt pins to create a seal (or plug) at the bottom of

the shell to ensure that the grout remains in the annular space.

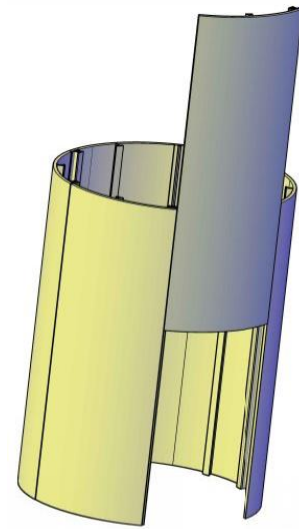
- 4.11 Run your hand along the height of the shell over the edges to make sure that all edges are properly connected, creating a smooth exterior surface for the shell.
- 4.12 Secure the form with temporary ratchet straps or zip ties to ensure that the shell does not distort or move during the placement of grout. It is recommended to provide a tie at a spacing of 18 inches (450 mm) or as required.

## 5.0 Grout Placement

- 5.1 The Form-A-Tube™ shell shall be filled with PileMedic® Underwater Grout or equivalent.
- 5.2 The grout can be placed using the tremie method or by pumping through the installed ports. Use a constant slow rate of placement within allowable pressure ratings.
- 5.3 The hose shall be moved to higher position ports as necessary.

## 6.0 Completion

- 6.1 After grout has been placed and allowed to harden, all temporary supports shall be removed.
- 6.2 The grout near the top of Form-A-Tube™ shell shall be covered with QuakeBond™ 300SR Saturating Resin, or QuakeBond™ 220UR Underwater Resin or equivalent. This shall result in a sloping surface that would allow water runoff.



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