

# PileMedic™

THE PERMANENT SOLUTION FOR PILE RESTORATION



## PileMedic+™

By QuakeWrap, Inc.







# PILEMEDIC™

## THE PERMANENT SOLUTION FOR PILE RESTORATION

PileMedic™ is a patent-pending product developed by Professor Mo Ehsani following 25 years of research and development. It is the most economical and the fastest

system for repair and strengthening of columns, underwater piles, utility poles, and bridge piling with little disruption to traffic.

PileMedic™ Fiber reinforced Polymer (FRP) laminates are only 0.025 inches (0.6 mm) thick. They are supplied in rolls that are 4-ft wide X 150-ft long (1.2 m X 46 m). In the field, the rolls are cut to the desired length, coated with our epoxy paste and wrapped around the pile or column to create a solid shell of desired shape. The annular space between the pile and the shell is then filled with grout or a low viscosity resin.

We also offer a complete line of pre-fabricated shells and wet lay up FRP fabrics and resins for repair of utility poles, timber piles, etc.

In either case, our engineers will provide sealed drawings guaranteeing the highest quality repair system offered in the industry. Installation is performed by our trained and certified applicators.



PileMedic™ prefabricated shells (PS)



PileMedic™ carbon and glass laminates

## APPROVALS

The unique engineering features of our product resulted in the US Army Corps of Engineers and FEMA's Urban Search & Rescue Program singling out PileMedic™ as **the only product** recommended for fast repair of columns and piles that are damaged in a disaster such as hurricane, earthquake, terrorism, etc.



# FEMA

## ADVANTAGES

- The ONLY product approved by FEMA and US Army Corps of Engineers
- 3-4 times stronger than steel with tensile strength more than 150,000 psi (1030 MPa)
- Fastest repair & strengthening system with no traffic control!
- Increase axial capacity beyond original strength of column/pile
- No weak seams along height offers uniform confining pressure (360°)
- No costly divers for underwater repair
- Underwater cured resin eliminates the need for coffer dams
- Does not corrode
- No metallic parts
- Grout or resin can be pressurized to penetrate all cracks and crevices
- Available in carbon or glass
- Works equally well on concrete, steel and wood or timber piles and columns
- One size fits all piles (no delays for ordering customized jackets)

**The historic Powder Point Bridge (the longest timber bridge in the U.S.) was repaired with PileMedic™**





# INSTALLATION

REPAIRS IN JUST A FEW HOURS!



1) Corrosion-damaged



2) Cut PileMedic™ to desired size and apply epoxy



3) Wrap PileMedic™ around column to create a shell of any shape



4) Use ratchet straps to temporarily hold the shell's shape



5) Fill annular space with non-shrink grout or low velocity resin

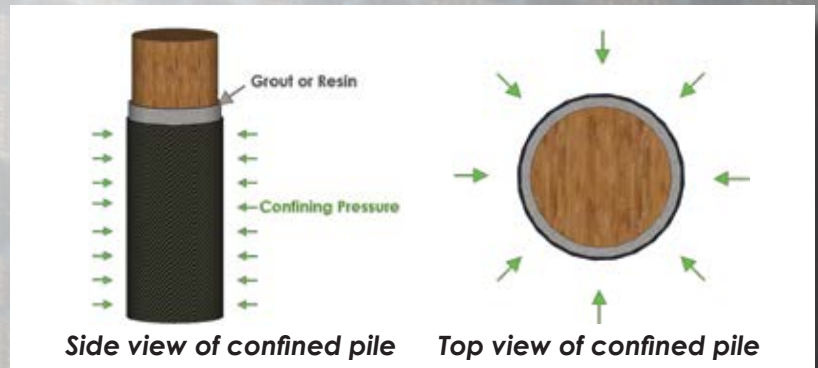


6) Remove ratchet straps and paint jacket (if desired)

# CONFINEMENT

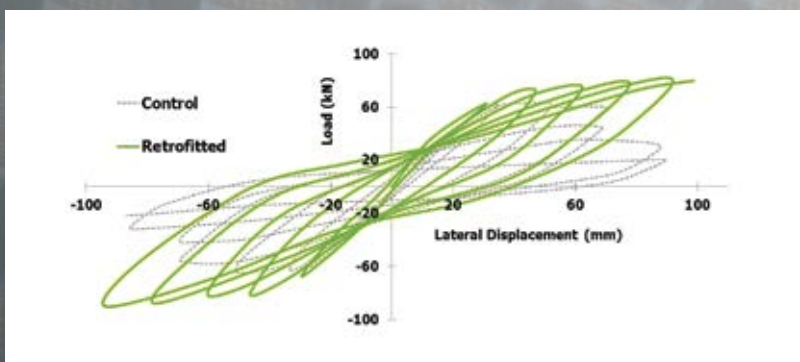
360° OF CONFINING PRESSURE!

PileMedic™ is the only pile jacket system on the market that provides an all-around (360 degree) confining pressure. This significantly increases the strength of the pile. The strength of a typical 4000-psi concrete pile will be raised to over 6000 psi once it is wrapped with PileMedic™.



# TESTS

SCIENTIFICALLY PROVEN STRENGTH!



Extensive tests have demonstrated the structural improvements offered by PileMedic™ jackets due to confinement of concrete in columns and piles. Additional tests are currently underway for steel H-piles (funded by Texas DOT) and timber piles (funded by Nebraska DOT).



# APPLICATIONS



## UNDERWATER PILES

- Restore full capacity of deteriorated piles
- Underwater curing resins eliminate coffer dams

## STEEL POLES

- Repairs completed in 2-3 hours
- No disruption of service during repair



## CONCRETE PILES

- Confinement increases concrete strength by more than 50%
- No coffer dams needed during repair

## TIMBER PILES

- Injection with low viscosity resin fills all voids and cracks
- Pile strength is increased beyond the original capacity





WE PROVIDE SEALED ENGINEERED DRAWINGS AND  
INSTALLATION BY CERTIFIED CONTRACTORS.



## UTILITY POLES

- Increase flexural strength to carry heavier loads
- Prevent breaking of poles during storms

## BRIDGE PILINGS

- Stop corrosion by eliminating oxygen supply
- Bridge remains open to traffic during repair

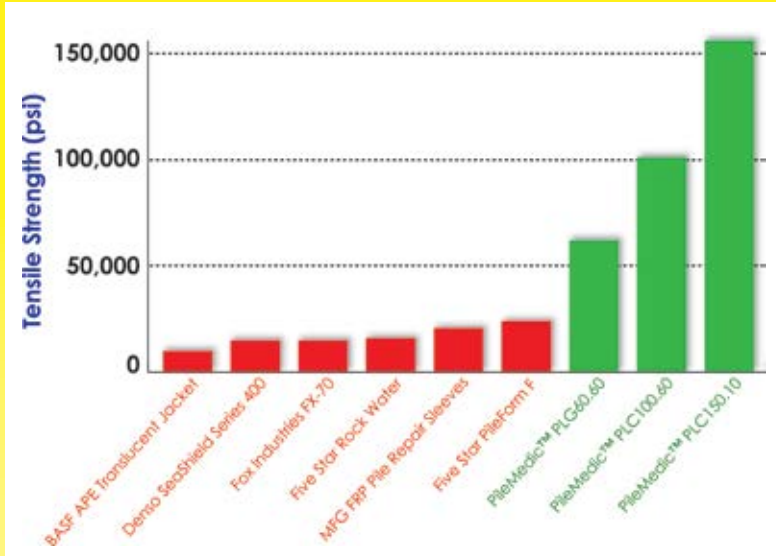
## PILE EXTENSIONS

- Homes can be raised to FEMA recommended Flood Protection Elevation (FPE)
- Spliced pile is stronger than new



# COMPARISON WITH OTHER JACKETS

The tensile strength of PileMedic™ carbon and glass FRP laminates is 3-15 times stronger than other commercially available products.



Other jackets (as depicted below) have a seam along the height that allows moisture and oxygen to penetrate into the pile, leading to continued corrosion of the jacketed portion.

The seams also weaken the jacket and prevent application of any confining pressure around the pile.



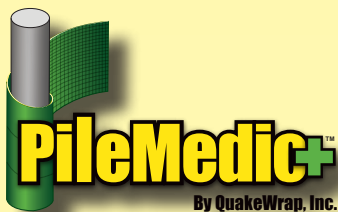
Examples of conventional jackets

## SIDE BY SIDE COMPARISON CHART

CONVENTIONAL JACKETS	DRAWBACKS	PILEMEDIC™ SYSTEM	ADVANTAGES
MUST BE CUSTOM MADE	<ul style="list-style-type: none"> <li>Additional costs for labor, materials, storage and transportation</li> <li>Requires longer time to order and install</li> </ul>	ONE SIZE FITS ALL	<ul style="list-style-type: none"> <li>No delays waiting for customized jackets to be manufactured</li> <li>Fastest repair and strengthening system available</li> </ul>
VERTICAL SEAM	<ul style="list-style-type: none"> <li>Provides no confinement pressure</li> <li>Moisture and oxygen can penetrate through the seam</li> <li>Metallic hardware will corrode</li> </ul>	NO VERTICAL SEAM	<ul style="list-style-type: none"> <li>360° of uniform confining pressure</li> <li>Seamless shell will keep moisture and oxygen out to halt corrosion process</li> <li>No metallic hardware to corrode</li> <li>3-15 times stronger than competitors</li> </ul>
GROUT CAN'T BE PRESSURIZED	<ul style="list-style-type: none"> <li>Voids and cracks in the pile remain unfilled</li> <li>Deterioration continues</li> </ul>	GROUT CAN BE PRESSURIZED	<ul style="list-style-type: none"> <li>All cracks, voids and crevices are filled</li> <li>Achieve active confinement for pile</li> </ul>

**CALL US FOR A FREE EVALUATION AND ESTIMATE BY OUR ENGINEERS!**

SCAN CODE TO WATCH OUR INSTALLATION VIDEOS:



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