

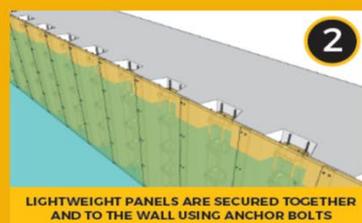
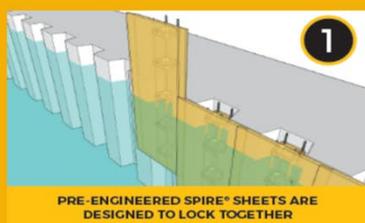
Economical repair of corroded sea walls and bulkheads



The Sheet Pile Repair (SPIRe®) system is an innovative new system of **repairing and restoring corroded steel sheet piles**, both above and below water, using FRP composites*

The SPIRe® by QuakeWrap repair system significantly reduces corrosion by inhibiting both oxygen and water from reaching the structure. Here are the advantages and benefits that make SPIRe® stand out for repair of inland commercial infrastructure:

1. Significantly **reduces repair costs with minimal service interruption**
2. Impervious FRP system brings **corrosion rate to a near halt**
3. SPIRe system itself does not corrode and **requires little to no maintenance**
4. Lightweight FRP panels are **installed without heavy equipment or cofferdams**
5. Can be designed for almost any **shape or sized bulkhead**
6. Works on **steel, concrete and timber** structures
7. Finished installation can be **architecturally coated**
8. Non-metallic, stay in place form is backfilled with **grout or epoxy**.

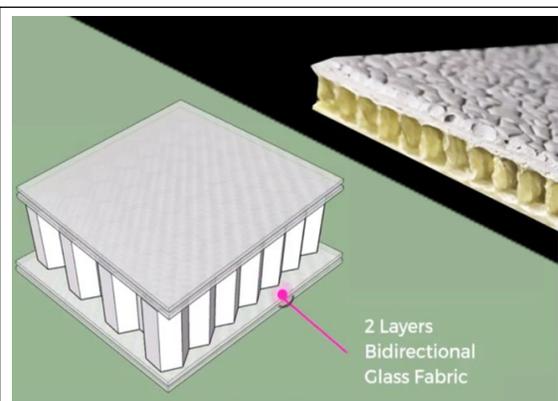


Your structure's best shield against corroding forces



The Sheet Pile Repair or SPIRe® system made exclusively by QuakeWrap is constructed with **lightweight** honeycomb or 3D fabric sandwiched between sheets of **resin saturated FRP fabric**. These panels may be custom prefabricated to match the shape of the steel bulkhead or concrete seawall being repaired.

The lightweight panels are secured in front of the repair area using anchor bolts. The annular space between the SPIRe panels and the seawall or sheet pile is filled with grout or resin. The impervious sheets form a **barrier to keep the moisture and oxygen that fuel the corrosion process away from the original structure.**



SPIRe® is manufactured by sandwiching a honeycomb or a 3D fabric between layers of resin-saturated glass or carbon fabric. The result is a very lightweight nonmetallic product.



SPIRe® panels are manufactured in advance and to spec in sections that can be installed without heavy equipment.

These **user specified, customizable designs** are assembled on site as manageable panels that interlock along either edge.

As seen in



This exclusive repair technique is part of the QuakeWrap family of products that are protected by multiple U.S. and international patents. **The SPIRe® system was developed by FRP pioneer and civil engineering professor Dr. Mo Ehsani, and represents an innovative, proven solution for shallow water and marine infrastructure repair. QuakeWrap Inc. is the original innovator and developer of Fiber Reinforced Polymer (FRP) products for infrastructure repair and renewal, providing structural engineering services, sealed drawings, tested material and installation.*

More can be found at QuakeWrap.com, info@quakewrap.com or (520) 791-7000

