

# Composite Repairs

## ***“Delivering the Desired Design”***

by Zach Cadwallader ECR Services, LLC

---

Definition of a composite: *made up of various parts or elements.*

With companies like NASA, SpaceX, Boeing, Lexus, McLaren, Smith & Wesson and many others using composites to manufacture products, would it be safe to say we know composites work? Yes. The use of composites has been used to make long term repairs of items in thousands of different applications and materials of construction, including – concrete, piping, plastics, wood, metals, and textiles.

Composites are globally known as innovative solutions to reduce cost or increase performance. In regard to the industrial sectors, composites have been created to reduce costly shutdown time and increase life expectancy.

For many industrial composites, resins combined with an activator or hardener are used to initiate an exothermic reaction creating the internal cross-linking step within the polymer. This results in a structurally strong, heat, abrasion and chemical resistant material. Such materials have been used over decades to reinforce load-bearing structures such as skyscrapers, parking garages, bridges, causeways, and offshore platforms.

Composites are known to add proven mechanical performance and restore asset integrity to greater than or equal to that of the original design. In many applications the use of a composite is the fastest, safest, most cost-effective solution.

## ***Why Do We Not Use Them More?***

For refinery and petrochemical application, composites might be used at one facility and not at another. Why? The same reason someone may choose to date or trust others while their siblings may not. Bad experiences. If there was a way to reduce or eliminate the risk of a composite while gaining the result, would we be interested? If there was a way to deliver the desired design, would we be more willing to implement a composite repair in our facility?

Since 2014 ECR Services has been blessed to work with great people in the corrosion prevention/ composite repair industry. We have trained, installed, sold, supervised, certified, designed, and specified installations and performed failure analysis on many engineered and non-engineered composite repair systems. In doing this, we have noticed that some things seem to be the same in every case:

- Composites work! - The chemistry we know and implement performs as we designed it.
- Any failure lies within the installation and allowed cure-time before start-up.

PhD's of engineering, metallurgy and chemistry know that a composite repair, once tested with its known stress and strength limitations, can be designed to share the load of a degraded pipe or designed to take its place entirely within the process and transmission industry. This leaves the installation steps of the engineered composite as critical to its performance.

## ***The Smart Solution***

ECR Services, LLC – All Rights Reserved

For Information Call (281) 747-6126 | Email: [info@ecrservicesllc.com](mailto:info@ecrservicesllc.com) | [www.ecrservicesllc.com](http://www.ecrservicesllc.com)

To deliver the desired outcome, we at ECR Services, specialize in installing engineered composite repair systems from start to finish. We reduce costs by using your on-site established, in-the-field personnel and contractors. We walk with them through the entire repair and installation process.

We eliminate the “He said She said” finger pointing aspect and the inexperienced, unqualified, “out of practice”, “off-site certifying” installer, as well as not having enough material, missing QA/QC tools and many other application details. Missing these details can cause your engineered composite repair to be an expensive non-compliant repair.

### ***Delivering the Desired Design***

Simplify the process and eliminate the confusion. Our A-team is on site from start to finish. We provide the material and QA/QC tools. We check and verify the surface preparation and installation process specific to the engineered calculation and design package. We verify the final cure and provide you, the client with the final installation report for filing with regulators, government agencies, management and operations.

**Engineered composites work. Failure exists in the installation. From start to finish, let us help you achieve the desired design with a specialized, skilled and singularly focused group.**

