

## CASE STUDY: STRUCTURAL INTEGRITY

### Challenges

Damage to critical areas of ships can be properly repaired if the right materials are chosen. In this example a ship with shower pan damage wanted to know if SynDeck materials could be used to repair this wet space without losing structural integrity of the pan itself.

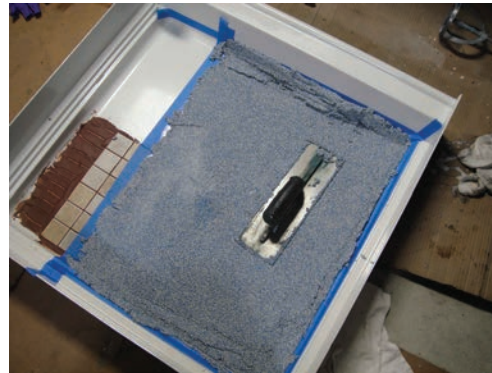
In order to test the solution, a shower pan was damaged and then partially repaired using SynDeck Ultra Lightweight Underlayment Terrazzo with SynDeck IMO Epoxy 5000 in clear on top. The panel was then cut into sections and sent to an outside lab for impact testing. The results were stunning. It was discovered that the panel gained over 70% strength where it was treated with SynDeck materials. Even the damaged area showed higher structural integrity than it had before the damage was incurred.

The results of the impact testing are in the chart below:

Sample Description	Initial lbs.	Max lbs.	Diameter in.	Area in <sup>2</sup>	Initial lbs./in <sup>2</sup>	Max lbs./in <sup>2</sup>
Pan	656	656	0.745	0.436	1504.6	1504.6
Pan + Terrazzo	1025	1140	0.745	0.436	2350.9	2614.7
Pan + Terrazzo (on hammered then repaired hole)	665	860	0.745	0.436	1525.2	1972.5

### Key Benefits

- Quick repair of a leaking or not useable shower pan
- Repair material helps impart more structural strength to the pan than when it was first manufactured
- Waterproof epoxy materials will protect from corrosion. Best results if existing rust is mitigated before application of SynDeck Ultra Lightweight Underlayment Terrazzo
- Slip resistant finish available if desired
- Low odor, zero VOC materials make application painless for installers and crew
- Excellent chemical resistance



Coated with SynDeck Ultra Lightweight Underlayment Terrazzo

### Certifications

- Bureau Veritas
- US Navy
- IMO

### Providing Solutions

Shower pan damage can produce leaks, water damage and degradation of the steel underneath the pan. This sort of damage can be remedied in many ways. SynDeck has a solution that is IMO certified, fast to install, lightweight, and adds structural integrity to the system when properly installed.

Having a system that is IMO approved, waterproof, lightweight, easily formed into various shapes, and structurally very strong gives SynDeck materials the ability to solve problems caused when holes or other leaks are breached in areas where full rip out removal is not an option.

## Application and Equipment

**Floor Area:** Heads, wet spaces, areas where full rip out removal is not easily completed

**Substrate:** Bare properly prepared steel or clean and profiled fiberglass, acrylic, or tile

**Products Used:** 1222 Bond Coat, 1290FC Ultra Lightweight Underlayment Terrazzo in blue, 5000 IMO Epoxy in clear

**Equipment:** Brush or roll epoxy materials, steel trowel to apply decorative underlayment (terrazzo)



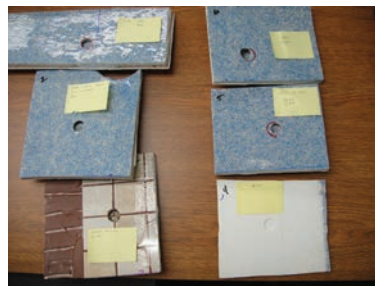
Damaged pan



Clear coat added



Impact test run



Sample fronts



Sample backs

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