

STORIES OF STRENGTH

Railcar Facility

North Augusta, SC



We're going to need a tougher slab.

In North Augusta, South Carolina, thousands of tons of steel components used to repair railroad cars are shipped to and from a major rail maintenance facility every week, wreaking havoc on the hardstand concrete slabs that cover the yard. For the past 20 years, the punishment from massive rolling loads, impact, and abrasive wear has proven to be so extreme that the facility must maintain a program to annually rip-and-replace failed and badly damaged sections.

Proposed ultra-high strength design

In an effort to extend the service life of the concrete and reduce replacement projects, an alternative design was proposed which increased the overall thickness of the slab, sub-base preparation and corresponding excavation, and required steel reinforcement. This increased cost significantly as compared to the design for the previous 20-years.

Maybe there's a better way?

Mr. Brett Cooper, owner and VP of Construction Perfected, Inc. (CPI) heard about the impressive results Augusta Ready Mix and the Georgia Department of Transportation (GDOT) had achieved using **EdenCrete**[®]. He reached out to Augusta Ready Mix for a consultation about the project. After careful study, the team ascertained that CPI could achieve the durability, quality, and longevity the railcar facility desired by using **EdenCrete**[®] — without much else.

The Test and Results

CPI poured a 10 cubic yard slab with **EdenCrete**[®], and a second "control" slab without **EdenCrete**[®]. Six months later, the **EdenCrete**[®] slab had not abraded or cracked and was minimally stained; it looked great. However, the control slab showed major abrasion, cracking, and staining. CPI was convinced that **EdenCrete**[®] provides a more durable, longer-lasting concrete for customers. From that point forward, Brett began specifying **EdenCrete**[®] for all of the concrete placed at the railcar facility in North Augusta and has seen the performance demonstrated on the ground over time.

Today, Brett Cooper continues to use **EdenCrete**[®] for innovative designs where traditional concrete won't hold up. If you would like to use **EdenCrete**[®] to improve your next concrete project, **please contact info@edencrete.com, or call (303) 468-1705.**

\$15 /ft²

Slab Life [≈1yr]

8.5" concrete slab
w/ welded wire mesh
at mid depth or
macro-fibers dosed
at 4.5 lbs/yd³

\$12 /ft²

Slab Life [≥5yr]
Including the
cost of EdenCrete[®]

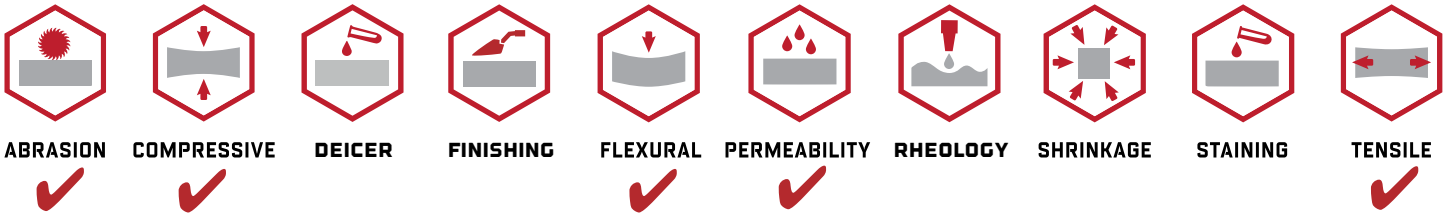
6" Graded Aggregate Base
[95% compaction]

Engineering Design for last 25 years
15" Excavation

6" concrete slab
w/ EdenCrete[®]

New Innovative Design w/ EdenCrete[®]
6" Excavation

Areas of significant improvement for this application



EdenCrete® enhances concrete in all seven areas, but was specifically selected to improve abrasion, permeability, compressive, flexural, and tensile strength for this project.



The EdenCrete® surface is still intact with minimal degradation. Within 1-year of placement, the Control was abraded, cracked, and stained.

“We couldn’t be more pleased with this. It’s not every day you get to reduce the cost of a project for a client almost 50% and still deliver to them the quality and reassurance they’re asking for in the service-life of the concrete. EdenCrete® is a great concrete admixture and we are excited to have discovered its existence. This technology could be a game changer for the concrete industry,” said Brett Cooper, [Owner and V.P. of CPI].

Harness the strength of carbon nanotubes for your next pour.

Developed by Eden Innovations LLC, EdenCrete® is a carbon nanotube-enriched liquid admixture that elevates concrete structures to new levels of strength and toughness. When added to concrete mixtures, it performs like multiple admixtures rolled into one. It boosts surface abrasion resistance and produces extremely low permeability while improving strength properties [i.e., compressive, flexural, and tensile] like no other product on the market today.



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