

Project Profile - Coastal Structures



PROJECT

**Wolf Rock Lighthouse,
Cornwall**

SUMMARY

Repair and protection of helipad foundations

PRODUCTS

Steel Reinforcement Protector 841
Monomix
Monolevel 844SP
Cementitious Coating 851

CLIENT

General Lighthouse Authority,
The Corporation of Trinity House

CONTRACTOR

Trinity House

BACKGROUND ▶

Wolf Rock is a treacherous rock located some four miles from Land's End. On this sits the 41-metre high Wolf Rock Lighthouse which first entered service in 1870. It took nine years to build due to the precarious weather conditions that constantly brew between Cornwall and the Isles of Scilly. The Lighthouse was the first in the world to have a helipad when it was fitted above the lantern in 1972.

A survey of the helipad foundations in 2010 identified problems with the steel reinforcement and the base plate supporting posts; these were corroding and breaking out the surrounding concrete cover. The concrete base was originally constructed with 16 pockets for the base plates to be fixed at a later date, thus creating a vertical weak spot around each base plate. Due to the height of the Lighthouse and difficulty in gaining access, steeplejacks were employed to access the outer edges of the concrete base during the repair work.

THE SOLUTION ▶

Flexcrete products were specified due to their outstanding track record of use in challenging coastal projects. All defective concrete was cut out before the re-bars were grit blasted and two coats of **Steel Reinforcement Protector 841** were applied. **841** forms an alkaline coating which not only protects the steel from acid gases, moisture and chlorides, but also passivates the steel to prevent further rust formation. It forms an excellent bond with Flexcrete repair mortars and **Monomix** was subsequently applied. **Monomix** is a single component, polymer modified, high build, non-shrinking mortar certified to EN 1504. Its dense matrix provides excellent protection against moisture and chlorides and it is waterproof to 10 bar pressure. Its quick hardening properties and ability to be rapidly mixed and applied on-site were all crucial considerations. The gallery maintenance catwalk also needed further protection as the weather conditions are particularly severe at the top of the lighthouse beneath the helipad. Following removal of the previous coating, **Monolevel 844SP** was applied as a fairing coat prior to the application of **Cementitious Coating 851** which provides excellent protection against the elements and chloride attack.



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