CASE STUDY

ICR. ias
JOINT VENTURE

Structural Steel Strengthening of I-Beams on Mine Site

Overview

Critical structural steel I-beams at a mine site had suffered significant loss of cross section, reducing their structural capacity. The composite repair was required to restore the beams to their original capacity and prevent future corrosion of the steel substrate.

Scope

The structural steel had the following specifications:

Structure	Steel I-beams of various sizes
Surface Prep	Sa 2.5
Design Temperature	65°C
Application Temperature	35°C
Design Life	5 years
Repair Length	Approx 50 m
Weight of Repair	Approx 300 kg
Corrosion Type	Through wall and surface
Defect Details	• Complete loss of cross section to top and bottom flanges and web at localised areas • General loss of cross section throughout • Corrosion of connection plates and bolts • Coating deterioration

Loss of cross section to parts of structural steel beams

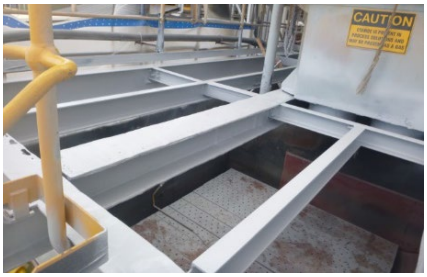
Application of Technowrap™ SRS to web of I-beam

Solution

- Highly skilled team of wrapping specialists with experience in application of laminates to complicated geometries operating around the clock for 24 hour delivery in confined space conditions
- Technowrap™ High Ambient (HA) used with vacuum bagging to address accelerated resin curing times (30°C at night) and complex geometry
- Combination of Technowrap 2K™ HA system and Technowrap™ Structural Rehabilitation System (SRS) used to restore the structural capacity of the beams.
- Surface preparation, Technowrap™ and final coating delivered as part of turn key project

Benefits

- Repair completed during a shut-down of the mine site with ongoing simultaneous operations adjacent to the work area
- Technowrap designed to resist high heat and cyclonic conditions in the desert.
- Optimal sequencing of works to ensure preparation completed during day shift and Technowrap™ application completed during night shift
- Onsite engineering presence to manage unscheduled interruptions to works due to other shut-down maintenance works



Complete Technowrap™ repair with client specified protective coating