

Restoration of Deteriorated Air Handlers

CUSTOMER
University Facility

DATE OF APPLICATION
January 2022

LOCATION
New Jersey

SUBSTRATE
Galvanized Steel

PROBLEM

A severely deteriorated rooftop air handler was leaking water directly into an active animal research lab located below, posing significant risk to sensitive research operations and equipment. The air handler could not be easily replaced as adjacent train tracks made the roof inaccessible with a crane.

The university required an alternative solution that would stop the leaks without disrupting ongoing research activities.

Mechanical Epoxy Solutions recommended using specialized structural composite materials designed for sensitive indoor environments for a permanent restoration of the deteriorated air handler.

Installation steps:

1. The surface was prepared by scraping loose rust from surface and bristle blasting down to manufacturer recommendation.
2. Epoxy impregnated carbon fiber reinforced polymer (CFRP) materials were applied to reinforce weakened steel components and restore structural integrity.
3. A protective, flexible, odorless, and non-flammable coating system was installed to extend the service-life of the air handler.

All materials used were zero-VOC and suitable for occupied facilities, ensuring no impact to the laboratory below.

- The project avoided an estimated \$600,000 in equipment replacement and crane costs.
- The entire restoration was completed during one overnight shift, causing no disruption to research activity.
- The restoration process sealed leaks, reinforced compromised metal surfaces, and extended the service life of the air handler without requiring removal or replacement of the unit.

SOLUTION

BENEFITS



Fig. 1 Roof area below air handler



Fig. 2 Deteriorated air handler

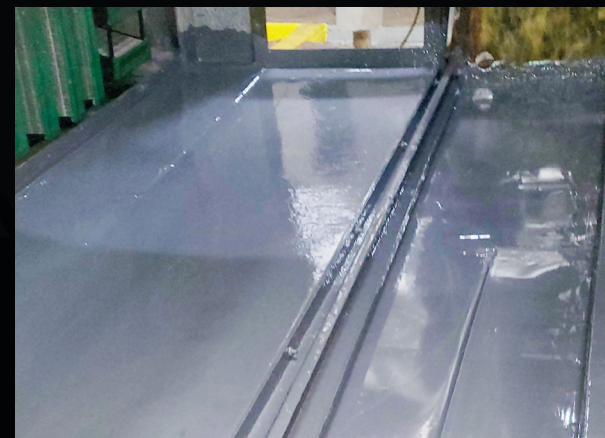


Fig. 3 Finished product