

University of Missouri Health Care Hospital Garage Structural Repairs

Columbia, MO

Submitted by Structural Engineering Associates, Inc.



The University of Missouri Health Care Patient and Visitor Parking Structure (referred to as the MUHC Garage) was built in 1986 with a capacity of 448 vehicles. The MUHC Garage consists of three elevated post-tensioned (PT) concrete decks and a slab-on-ground.

The MUHC staff was immediately concerned upon discovering a broken PT tendon protruding from the underside of an elevated deck in March 2013. MUHC promptly retained a structural engineering firm to investigate the exposed tendon and perform a condition study. The study began with invasive exploratory observations at the PT live anchorages, followed by extensive forensics testing and structural evaluation of the concrete slabs and tendons, to develop an overall repair strategy and schedule.

The primary focus of structural repairs was to ensure the integrity of the elevated PT slabs. The immediate task was to replace 206 live anchorages at four failed expansion joints with new fully encapsulated anchorages, flanked by galvanic anodes connected to the reinforcing steel. This replacement would require installing various lengths of new tendons. Secondly, tendon breaks throughout the garage also required identification, splicing, and restressing. Other structural repairs were performed at columns, walls, beams, and overhead concrete.

Following repairs to the PT slab tendons and anchorages, all of the slab tendons were dehumidified to remove moisture within the existing cables and

check for further corrosion. After the “drying out” of all the elevated slab tendons, new anti-corrosion grease was installed in the individual tendons.

By the opening day deadline, the contractors had completed the structural repairs necessary to reopen the MUHC Garage for patient and visitor parking.

MUHC Garage

OWNER

University of Missouri Health Care
Columbia, MO

PROJECT ENGINEER/DESIGNER
Structural Engineering Associates, Inc.
Kansas City, MO

REPAIR CONTRACTOR
John Rohrer Contracting Company, Inc.
Kansas City, KS

MATERIAL SUPPLIERS/
MANUFACTURERS
Jacor Contracting, Inc.
Kansas City, MO

Vector Construction, Inc.
Cedar Rapids, IA

BASF Corporation
Shakopee, MN

Neogard Corporation
Dallas, TX