



BARBER & HOFFMAN, INC.
Consulting Engineers

PROJECT

Duquesne University Brottier Garage Restoration



Pittsburgh, PA
\$1,500K



PROJECT DESCRIPTION:

Brottier Hall is a 20-story student housing building at Duquesne University, which has 100-stall parking spaces at the lowest three levels. An assessment report recommended a three-year repair program that was developed to accommodate the University's budget and implemented during summer breaks.

ADDITIONAL PROJECT FACTS:

- Repairs incorporated high strength carbon fiber reinforcement concrete patching materials, and structural steel plate.
- Included approximately 40,000 square-feet of repair area and deck coatings over three parking levels / ramps.
- Developed phased repair program over three years to accommodate University budget.

The University purchased the 30-year Brottier Hall structure in 2004. Since that time, extensive renovations have been completed throughout the building. Parking repairs were required to the existing steel beam and 14-inch deep pre-cast concrete double tee planks. The first priority to the renovations included the central girder line of the garage where extensive steel beam reinforcement with additional plate materials as well as, pre-cast-tee stem reinforcing with carbon fiber at end bearing conditions.

The initiation of the parking renovations included a thorough assessment report with comprehensive observations and evaluation which led to phased repairs. Other repairs included replacement of portions of deteriorated steel beams along the ramp area and patching cracked pre-cast-tee flanges. New concrete topping materials were installed for most of the parking area as well as a new deck coating to improve long-term durability. Existing asphalt toppings were removed and replaced with a thin-set epoxy coating.

Since the construction phases were mainly limited to summer breaks, timely responses to contractor questions were essential to completing on schedule and within budget. Close communication with the contractor allowed for the design adjustments to the repairs leading to successful completion of the project.

