

INDUSTRY INSIGHTS

3rd Quarter 2009

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Detroit Metropolitan Airport Blue Deck Garage – Winner of 2009 IPI Award of Excellence (Restoration)

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INNOVATION IN RESTORATION PROJECTS

By Mark Postma, P.E.

In today's uncertain economy, companies who succeed find ways of applying **innovation** to their products or services to maximize their customer's or client's investment. Innovation happens to be one of **Carl Walker's** core values. We believe our ability to apply the industry's latest techniques and technologies to solve our client's problems in the most creative and cost-effective way sets us apart from the competition.

Restoration and renovation are areas in which innovation can play a decisive part in the success of the project. To help illustrate how **Carl Walker** uses innovation to provide value to our clients, this article highlights several of our more inventive restoration solutions.

Tower Self-Park Garage Conversion to Retail,

Chicago, IL—Although the idea to convert some of the street level parking to retail in this 1973 Chicago landmark came from a nationally known parking facility management company, we assisted in making their vision a reality. Parking demand is high and can be financially profitable in urban centers. Potentially greater profit margins can be achieved by converting some at-grade existing parking to retail. To make this conversion in an older parking structure with low floor-to-floor heights, the area being converted had to be excavated and lowered. Modifications of structural members along with various code modifications related to accessible ramps, HVAC, and fire protection had to be considered. The result was very marketable tenant space that benefited from the on-site parking, creating parking demand for the structure.



SUNY Health Science Center Floor Strengthening,

Brooklyn, NY—Like many old parking structures, this one has a history. When it was originally built, there



was a construction flaw that resulted in the floors being deemed unsafe. In 1967, the repair method chosen was to install up to a 6" thick reinforced concrete topping over the interior parking stalls on all nine levels. This created a very inconvenient "bump"

at the end of these parking stalls. After 40 years of exposure, the concrete topping was severely deteriorating due to reinforcing steel corrosion and loss of bond of the original epoxy bonding agent. Attempts to patch spalls and pin the topping were only marginally successful.

Carl Walker's creative repair strategy was to entirely remove the overlay (and the trip hazard) and utilize state-of-the-art fiber reinforced polymer (FRP) technology to strengthen the floor. This repair project won the **2008 International Concrete Repair Institute (ICRI) Award of Excellence in the Strengthening Category.**



Old Orchard Mall Plaza Restoration, Chicago, IL—

Plazas are areas that provide space for pedestrians or parking above occupied space, which necessitates waterproofing. **Carl Walker** was selected to develop plaza design guidelines for the National Institute of

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Old Orchard Mall



Building Sciences online *Whole Building Design Guide* and we have performed restoration services for many plaza projects that have prematurely failed due to improper design/

construction methods. Harsh exposure conditions from moisture, thermal effects, weathering, and traffic often reduce these systems' serviceability at a rate even surpassing that of parking and bridge decks. The Old Orchard rooftop parking plaza was deteriorating due to all the classic poor design and construction methods. We applied our plaza design guidelines to successfully restore this plaza area for the long term.



City of Dayton Façade Restoration, Dayton, OH

The six-story Dayton City Hall Building, originally constructed in 1908, consists of exterior rough-cut marble and clay brick masonry walls with an interior structural steel frame encased in concrete. A marble clad portico is located at the main entrance to the building. During our evaluation of the building façade, we observed cracked, broken, and severely displaced stone panels. We recommended the removal of the stone during the facade restoration, examination and repair/replacement of the underlying structure, and reinstallation of the existing stone. During the repairs, the stone panels were completely removed from the portico to reveal a severely deteriorated reinforced cast-in-place concrete beam. At the time



of the original construction, the stone was actually used as the formwork; the resulting concrete beam was very irregular in shape. Our restoration design involved the design of a new deep, conventionally reinforced cast-in-place concrete beam. The existing stone was reinstalled utilizing a number of shelf angles for gravity support of the stone (due to stones being previously broken) versus the original self-supporting stone panels spanning from column to column.



Foxwoods Casino Vehicular Barrier Strand Upgrade, Mashantucket, CT

Many older parking structures have vehicular barrier systems at the perimeter of the structure or along internal ramp areas that do not meet safety

standards in current codes. This deficiency can provide a potentially unsafe condition and a liability for owners. The parking structure at Foxwoods Casino was an example of a structure with outdated vehicular barrier systems. They also had problems with trailer hitches catching on the existing railings. **Carl Walker** designed a retrofit pedestrian railing system that solved the hitch problem and eliminated the liability of non-conforming vehicular restraints.



Hopefully, some of these innovative ideas might be applied to your specific restoration needs. The restoration specialists at **Carl Walker** would like the opportunity to creatively apply new concepts and technologies to help you solve problems with your parking structures, building facades, plaza areas or other structures. For more information, please contact Mark Postma, P.E., at mpostma@carlwalker.com or 269-381-2222.

Two major projects for Colorado universities



The Lake Street Parking Garage (Colorado State University, Fort Collins) is the first multi-story parking garage on campus and will consist of four levels

with 850 spaces for vehicles. As part of the University's green initiative, the garage will include more than 9,000 solar panels and is being constructed on established land to help conserve existing campus green space. Project team includes: **Carl Walker** (Structural/Functional Design); H+L Architects (Lead Designer); Tetrattech (Civil); Shaffer Baucom (MEP); and Long Energy (LEED).

The 323,000 sq. ft. Center for Community at University of Colorado at Boulder will serve as a student hub and dining hall. The upper floors will house student services, cultural centers, and office areas. **Carl Walker** designed the parking layout and traffic circulation for the two-level, 500-space underground parking garage and also provided durability consulting and a review of the lighting and plumbing systems. Other project team members include Davis Partnership (Prime Consultant/Architect of Record) and Centerbrook Architects (Lead Designer).



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MESSAGE FROM THE PRESIDENT



Those of us with careers in parking realize how important it is to the viability of our cities and economy. Consequently, our industry will benefit from an upcoming display,

sponsored in part by **Carl Walker**, at the National Building Museum in Washington D.C. that will help the general public realize the significance of parking in their daily lives.

The National Building Museum will open the *House of Cars: Innovation and the Parking Garage* exhibit during the National Parking Association's (NPA) Annual Conference in Washington D.C. on October 14. The exhibit will be on display to the public from October 17, 2009 through July 11, 2010. The NPA is the Presenting Sponsor and many of the exhibit artifacts will be provided by its members.

A news release by the NPA noted that the "House of Cars will be the first exhibition of its kind to explore parking garages and the parking industry... the exhibition covers engineering, design, and the future of parking, and its dynamic design and ideas will engage the Museum's visitors of all ages from around the country and the world."

Carl Walker is pleased to be a co-sponsor with the NPA and other member firms including Impark, Colonial Parking, Harwood Properties, and WPS North America.

I look forward to seeing some of you at the NPA Conference and at the opening of the *House of Cars* exhibit!

Gary Cudney, P.E.