

RECONSTRUCTION OF EAST MEZZANINE SLAB JOHN G. SHEDD AQUARIUM

Abstract

Reconstruction of the east mezzanine slab at the John G Shedd Aquarium building presented numerous structural and construction challenges. Located in the historic aquarium structure, constructed in 1927, the slab was originally designed to function as a roof enclosure for the chiller room. Growth of the aquarium necessitated use of the mezzanine as occupied space.

Not only was the mezzanine significantly deteriorated due to the high chloride in the concrete because of the proximity of salt filters, it had a load-carrying capacity of only 10 PSF. This limited the functionality of the 3,200 sq. ft. space for the proposed use required by the Aquarium.

Some of the challenges of this project included:

- The chiller room for the aquarium, located below the mezzanine floor, was to remain operational throughout the duration of the project. In addition, high density mechanical, electrical and plumbing equipment was mounted below the underside of the slab, limiting access for repair and shoring. Because of the continual use of the equipment, most of the conduits and piping could not be removed to facilitate construction.
- Because of this the original slab, where possible, was left in place and used only as forming for a new structural slab cast above.
- The original concrete slab was supported by concrete columns; however, steel columns supported the floor above. Developing continuity and transferring the new slab loads into the columns needed to be accomplished through non-traditional detailing due to constraints of the existing construction and mechanical systems below.

An analytical review of the load path facilitated detailing to work within the existing construction constraints. Contractor coordination was important to minimize relocation of existing mechanical systems to accommodate the required structural design on time and within budget.



INTERNATIONAL
CONCRETE REPAIR
INSTITUTE

August 11, 2010

Homa Ghaemi
Klein and Hoffman, Inc.
150 South Wacker Drive, Suite 1900
Chicago, IL 60606

Dear Homa,

I am pleased to inform you that your submission for the Reconstruction of East Mezzaine Slab project has been chosen by the judges to receive an Award of Merit in the Special Projects category in the ICRI 2010 Project Awards Program. On behalf of ICRI, I offer congratulations on receiving this honor.

The formal award will be given at a dinner honoring all the winners to be held at the Omni William Penn Hotel, in Pittsburgh, Pennsylvania, on Thursday evening, October 21, 2010, during the ICRI fall convention. Further details about the program can be found in the convention brochure, which will be available shortly or visit www.icri.org.

I look forward to seeing you in Pittsburgh and welcoming you to the very select group of companies that have received an ICRI project award.

Sincerely,

Kelly M. Page
Executive/Technical Director