Los Angeles Edition

CALIFORNIA CONSTRUCTION REVIEW

California's Most Challenging & Unique New Construction Projects

value engineering
site planning
network sourcebook

construction communications

Photo courtesy of Morley Construction Co., by Gary Krueger

University of Southern California Edward L. Doheny Memorial Library

The Edward L. Doheny Memorial Library, originally built in 1931 is an example of Northern Italian Revival architecture on the University of Southern California (USC) campus.

In 1994, when the Northridge earthquake struck, the masonry building held up extremely well. The library was fortunate enough to only sustain cosmetic damage with hairline cracks. It was closed for more than a year, however, in order to bring it up to current seismic standards.

"The purpose of the construction project was to improve the performance of the building during a potential seismic event for life safety purposes, said Steven Lohr, project director for USC Facilities Management Services. "We also wanted to protect the extensive book collection.

Embarking on a construction project was not taken lightly by the university. As in 1931 when the library was originally built, the library serves as the central information resource for USC as well as an integral part of the physical academic core of the university.

"The greatest challenge was the protection of the historic element from the messy job of putting in reinforced concrete shear walls, said Taylor Louden, AIA, project architect and director of historic preservation for Fields Devereaux Architects & Engineers, the project's architect. "People still had to be able to access the library stacks for books.

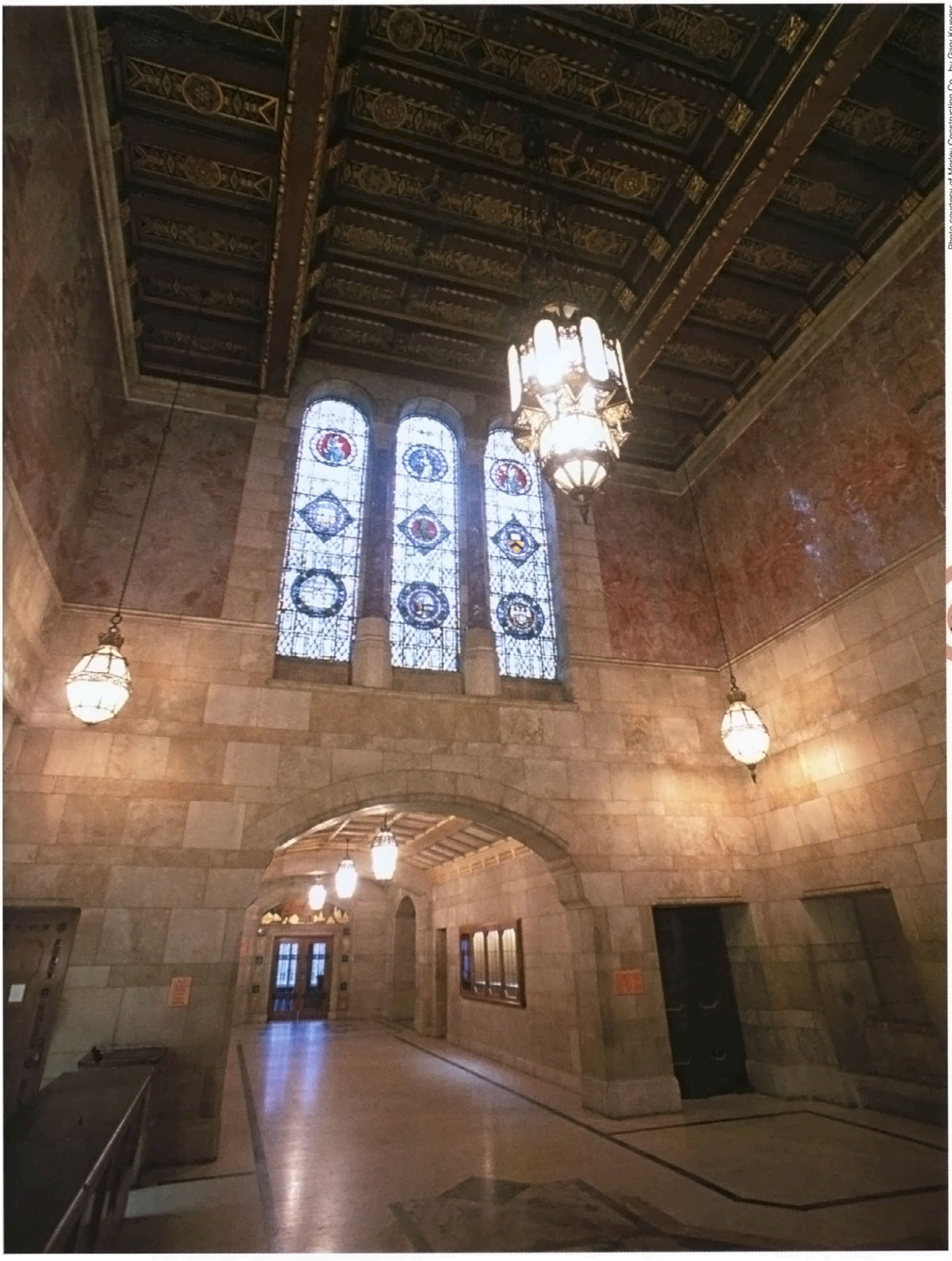
Of course, closure of a large portion of the university book stacks presented a challenge. The university moved most of the collection off campus and initiated a system through which a desired book could be requested on the university web page and the book would be dropped off to a central location for pickup.

"The construction project actually consisted of three projects seismic mitigation, historic materials repair and the installation of fire sprinklers, said Alan Merson, vice president and project executive for Morley Construction Co., the project's general contractor. "For the mitigation project/seismic upgrade of the entire building we installed concrete shear walls at approximately 90 locations throughout the

concept to completion

The Need:
Bringing a library up to current seismic standards following earthquake damage

The Challenge:
Relocating the library and its services during construction



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building as determined by the structural engineer, Englekirk and Sabol." The mitigation work affected 25 to 30 percent of the building.

Repair work consisted of restoration of architecture that was damaged in the earthquake, including cracks and chips in decorative plaster ceilings, walls and limestone.

"Six months into the restoration project the university decided to add fire sprinklers to the building, said Merson. "The planning process for this installation had to consider the impact to the historic fabric in locations in which we were not previously working, since the fire sprinkler installation would affect the entire building. Even with the addition of the fire sprinklers to the original contract, the work was still completed two months ahead of schedule.

"Northern Italian Revival architecture has brick, limestone and decorative marble, said Louden. "So what made this project unique was the strengthening scheme to use 8- and 12-inch-thick shear walls, which were put in from the ground floor up, without ruining the decorative aspects of the building. We wanted no visible marks nothing to show that anything had happened to the walls so the historic fabric would be preserved intact.

Other concerns were the removal and reinstallation of plaster, cutting the plaster panels, having the plaster panels repainted by a restoration painter, and ensuring the invisibility of the cut line on the plaster panels.

In order to accommodate future expansion, Louden said, the library is outfitted with network flexibility since it will be completely wired in the future. Incorporated into the shear walls are sleeves for future pipes and wires to pass through the walls efficiently.

A number of items were considered in setting the budget for the project, according to Lohr. Such considerations included the mechanical, electrical and plumbing (MEP) systems in relationship to the shear wall construc-

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tion; the protection of interior corridors, walls and floors during transportation of work materials to construction areas; the closure of the library; and the relocation of the books and artifacts collections.

The construction project was financed through a combination of funds from the Federal Emergency Management Agency (FEMA) and university funding.

Although value engineering did not apply in the traditional sense, another form of efficiency was applied to this restoration project, according to Merson. "What made this project a success for the entire project team was the decision by the owner to bring a general contractor on board early for preconstruction services, he said. "Finishing the project two months early was a direct result of the up-front efforts.

A key element of preconstruction services was producing a complete study of the existing conditions through a system of photo documentation and developing a cataloging system for historic elements and features. In another effort to be proactive, the owner and architect created and installed access doors in the existing walls for access and observation into the wall cavities to assist with the design process.

"The biggest cost-effective design aspect was that if there is another major earthquake the owners won't have to pick up pieces of the building and wonder what to do with them. We saved the building and avoided replacement costs. We saved the building for future generations, said Louden.

Lohr said the project team had experience undertaking similar projects involving the retrofitting of historic structures. This experience allowed the team to anticipate issues and gave the team the ability to plan ahead and not merely react to situations. Due to the successful efforts of the project team and USC, the project stayed on task and was a grand achievement.

The University of Southern California Edward L. Doheny Memorial Library was honored with an award for historic renovation and restoration on May 17 2001, when construction was completed, given by the Los Angeles Conservancy. In the end, there couldn't be a better way of acknowledging a job well done than the accolades bestowed upon the newly restored and retrofitted library. ●

— J.S.

facts & figures

Name:
University of Southern California
Edward L. Doheny Memorial Library

Location:
Los Angeles

Owner:
University of Southern California (USC),
Los Angeles

Type of Project:
Renovation of a historic library building

Architects:
Fields Devereaux Architects & Engineers,
Los Angeles; Kaplan Chen Kaplan
Architects & Planners, Santa Monica
(historic architect)

Construction Manager:
Swinerton Management
& Consulting, Los Angeles

General Contractor:
Morley Construction Co., Santa Monica

Size:
168,000 square feet

Construction Time:
January 2000 - August 2001(opening)