

UCI MEDICAL CENTER PARKING STRUCTURE, ORANGE, CALIFORNIA

OWNER:

UCI Medical Center
Orange, California

ARCHITECT:

Wayne Banks & Associates
Irvine, California

STRUCTURAL ENGINEER:

Bijan, Florian & Assoc., Inc.
Structural Engineering
Consultants, Redwood City,
California

CONTRACTOR:

Saffell & McAdam, Inc.
Irvine, California

The typical level of the UCI Medical Center parking structure is 126' x 277' in plan. The parking layout is 90 degree stalls on each side of the bay with a central driveway. One bay is horizontal and the other functions as a ramp with a 5 degree slope.

The concrete frame is cast-in-place. The floor system consists of one-way post-tensioned slabs supported by post-tensioned beams at 20 feet on center. The beams were formed using a mechanized aluminum forming system developed by the Contractor. The structure is laterally supported by cast-in-place shear walls in each direction. 4000 psi concrete using hardrock aggregate was specified for the entire structure except for the foundations. The structure is supported on conventional spread footings.

Due to the involved exterior architectural finish stipulated by the University, pre-cast construction was considered. The University staged a design-build competition. A comparative cost analysis of several design-build structural systems showed that cast-in-place, post-tensioned concrete was, by far, the most economical alternative. The University welcomed the cast-in-place solution as the successful system due to the redundancy against lateral forces, and the frames low maintenance requirements.

