

UC Seismic Evaluation – Manoukian Medical Building

Date: 11/23/20
UC Campus: UCLA – on campus
Building Name: Manoukian Medical Building
Building Address: 100 Medical Plaza Driveway, Los Angeles, CA 90095
CAAN ID: 4006
Auxiliary Building ID¹: N/A



Summary of information provided by Evaluator:
Nabih Youssef Associates Structural Engineers

UCOP Seismic Performance Level² (or “Rating”) based on ASCE 41-17 Tier 1 evaluation findings: V

Plan Image or Aerial Photo



Exterior Elevation Photo



Site location coordinates (decimal):

Latitude: 34.065635
 Longitude: -118.445823

Is this a “Partial” Building (i.e., a single structure in a complex building? (Y or N): N

ASCE 41-17 Model Building Type³:

Longitudinal Direction: Main Building: S1 – Steel Moment Frames (with Stiff Diaphragms)
 Below Grade Parking: C2 – Concrete Shear Walls (with Stiff Diaphragms)
Transverse Direction: Main Building: S1 – Steel Moment Frames (with Stiff Diaphragms)
 Below Grade Parking: C2 – Concrete Shear Walls (with Stiff Diaphragms)

Number of stories:

Above grade: 7
 Below grade: 2

⁴ Assume a complete retrofit conforming to the current UC Seismic Safety Policy. Note this range includes all construction costs, including code upgrades (e.g., ADA, fire and life safety, mechanical, electrical, plumbing) triggered by the seismic retrofit. No specific estimate is required to be supplied at this time (i.e., provide an approximate cost to retrofit using Low, Medium, High or Very High cost-range categories). It is acknowledged that such a cost range is assumed to be based only on the engineer’s rough estimate and is not intended to require input from a professional cost estimator. For estimation purposes, CSEs may judgmentally determine an approximate cost range for seismic retrofits based on recent relevant experience, and then apply a multiplier to approximate total construction costs.

Original Building Design Code and Year: Uniform Building Code, 1979 Edition
Title 24, California Administrative Code

Retrofit Building Design Code and Year: N/A

Cost Range to Retrofit (if applicable)⁴: Medium/High

“Low” cost-range corresponds to a complete retrofit cost less than \$50 per square foot (sf), “Medium” cost-range corresponds to a complete retrofit cost greater than \$50 per sf and less than \$200 per sf, “High” cost-range corresponds to a complete retrofit cost greater than \$200 per sf and less than \$400 per sf, and “Very High” cost-range corresponds to a complete retrofit cost greater than \$400 per sf.

Building information used in this evaluation:

Structural drawings by Forell/Elsesser Engineers, “University of California, Los Angeles Ambulatory Care Complex”, dated January 22, 1988

Scope for completing this form:

Reviewed structural drawings for original construction and performed ASCE 41-17 Tier 1 evaluation.

Brief description of structure:

The 7-story L-shaped steel-framed building has an area of approximately 123,000 square feet and was built in 1991. The building footprint expands at and below grade to include a subterranean concrete parking structure. The parking structure is structurally tied to the Manoukian Building and seismically independent from the Goldberg and Morton medical buildings.

Foundation System: The typical foundation system consists of concrete pile caps with 16” square precast prestressed concrete piles at columns.

Structural System for Vertical (gravity) loads: At the main building, the floor framing consists of metal deck with concrete fill supported by steel wide flange beams spanning to steel wide flange girders. The girders are supported by steel wide flange columns that are continuous to the foundations. At the subterranean parking structure, the floor framing consists of concrete slab spanning to concrete beams and girders. The concrete girders are supported by concrete columns that are continuous to the foundations.

Structural System for Lateral (seismic/wind) loads: At the main building, the metal deck with concrete fill acts as diaphragms to transfer seismic forces to steel moment frames in each direction that are continuous to the foundation. At the subterranean parking structure, the concrete slab acts as diaphragm to transfer seismic forces to concrete retaining walls.

BACKGROUND INFORMATION

Site Information:

Site Class (A-F): D; Default

Geologic Hazards (Y or N):

- Fault Rupture: N; EZRIM Beverly Hills
- Liquefaction: Y; EZRIM Beverly Hills
- Landslide: N; EZRIM Beverly Hills

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Site-specific Ground Motion Study? N

Site-modified Spectral Response (0.2s), Hazard Level BSE-1E, S_{XS} : 0.896

Site-modified Spectral Response (1.0s), Hazard Level BSE-1E, S_{X1} : 0.516

Estimated Fundamental Period (seconds):

- Longitudinal Direction: 1.37s
- Transverse Direction: 1.37s

Falling Hazards Assessment Summary: None observed.

Summary of Tier 1 Seismic Evaluation Structural Non-compliances/Findings Significantly Affecting Rating Determination:

Significant Structural Deficiencies, Potentially Affecting *Seismic Performance Level* Designation:

- Lateral System Stress Check (wall shear, column shear or flexure, or brace axial as applicable)
- Load Path
- Adjacent Buildings
- Weak Story
- Soft Story
- Geometry (vertical irregularities)
- Torsion
- Mass – Vertical Irregularity
- Cripple Walls
- Wood Sills (bolting)
- Diaphragm Continuity
- Openings at Shear Walls (concrete or masonry)
- Liquefaction (Based on the existing drawings, the potential hazard of liquefaction should be mitigated as the building utilizes deep pile foundations)
- Slope Failure
- Surface Fault Rupture
- Masonry or Concrete Wall Anchorage at Flexible Diaphragm
- URM wall height to thickness ratio
- URM Parapets or Cornices
- URM Chimney
- Heavy Partitions Braced by Ceilings
- Appendages

Brief Description of Anticipated Failure Mechanism: The existing moment frames utilize pre-Northridge welded connections, which have the potential for premature brittle failure.

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Comments and Additional Deficiencies:

Column splice connections have partial penetration welds at flanges and webs. The subterranean structure is subject to unbalanced soil loads.

Seismic Retrofit Concept Sketches/Description (only if above-listed rating is V or greater): Minimum scope of retrofit includes repair/modification of existing welded moment connections and strengthening of existing column splice connections. Recommend Tier 3 evaluation of the building to assess the unbalanced soil loads below grade and the existing seismic joints provided at the South and West basement walls that are adjacent to the other buildings' parking structure.

Appendices:

- A. ASCE 41-17 Tier 1 Checklists
- B. Quick Check Calculations

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