

UC Seismic Evaluation – Drake Stadium

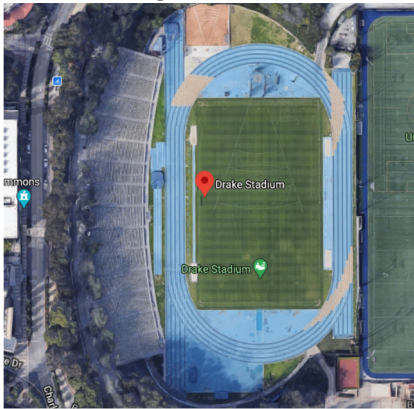
Date: 10/28/2020
UC Campus: UCLA
Building Name: Drake Stadium
Building Address: 340 Charles E. Young Drive, Los Angeles, CA 90095
CAAN ID: 4226
Auxiliary Building ID¹: N/A



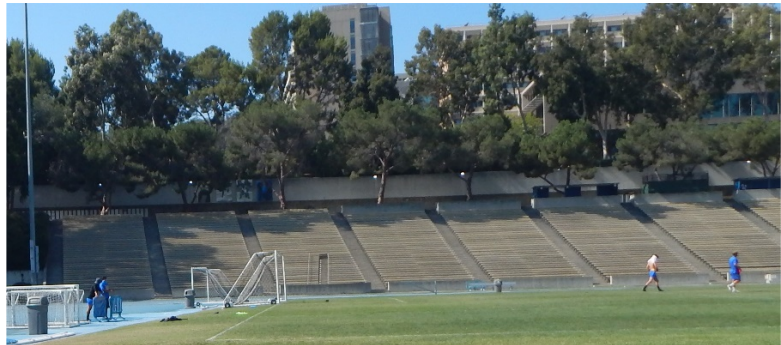
Summary of information provided by Evaluator:
 Nabih Youssef Associates Structural Engineers

UCOP Seismic Performance Level² (or “Rating”) based on ASCE 41-17 Tier 1/Tier 2 evaluation findings: V
 Tier 2 deficiency-based analysis addressed all potential deficiencies identified in the Tier 1 evaluation.

Plan Image or Aerial Photo



Exterior Elevation Photo



Site location coordinates (decimal):

Latitude: 34.072035
 Longitude: -118.449292

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: C2 – Concrete Shear Walls w/ stiff diaphragms
 Transverse Direction: C2 – Concrete Shear Walls w/ stiff diaphragms

Number of stories:

Above grade: 1
 Below grade: 0

¹ Applicable only for individual buildings that are structurally separate units within a building complex. Each auxiliary building shall be designated with the main building CAAN ID with a decimal number suffix (i.e. main building CAAN ID 5534; auxiliary building CAAN ID 5534.1). Auxiliary building ID is null for a single building or the main building in a building complex.

² The designated Seismic Performance Level shall be a Roman numeral associated with the most applicable performance description from Table A.1 in Appendix A of the UC Seismic Safety Policy.

³ If a building has multiple building types in one story, the model building type should be designated based on engineering judgement as the lateral system that would have the most predominantly negative effect on the seismic behavior of the building in that respective direction.

Original Building Design Code and Year: Uniform Building Code 1964 Edition
Retrofit Building Design Code and Year: N/A

Cost Range to Retrofit (if applicable)⁴: Low

“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 Richard R. Bradshaw Inc., “UCLA Track and Field Facility”, dated 05/22/1967

Scope for completing this form:

Reviewed structural drawings for original construction and performed ASCE 41-17 Tier 1 evaluation and deficiency based Tier 2 evaluation.

Brief description of structure:

The only above grade structure at Drake Stadium consists of a 1-story building along the west side of the stadium which is partially built into the hillside and daylights to the east. The structure has an area of approximately 8,030 square feet and was built in 1964 along with the field and stadium seating that is all on grade. The building is very long and narrow in-plan with a slight curve that wraps around the top of the stadium seating.

Foundation System: The foundation system consists of shallow strip footings supporting walls. A 4” thick concrete slab on grade forms the stadium seating and upper walkway.

Structural System for Vertical (gravity) loads: The roof consists of a reinforced concrete slab spanning to reinforced concrete beams. The concrete roof framing is supported by reinforced concrete walls that are continuous to the foundation. A portion of the structure near the north and south ends consists of a single cantilevered reinforced concrete retaining wall with a cantilevered slab at the roof.

Structural System for Lateral (seismic/wind) loads: The reinforced concrete slab acts as a structural diaphragm to transfer seismic forces to the concrete shear walls.

BACKGROUND INFORMATION

Site Information:

Site Class (A-F): D; Default

Geologic Hazards (Y or N):

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

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.

Site-specific Ground Motion Study? N

Site-modified Spectral Response (0.2s), Hazard Level BSE-1E, S_{XS} : 1.849

Site-modified Spectral Response (1.0s), Hazard Level BSE-1E, S_{XL} : 0.944

Estimated Fundamental Period (seconds):

- Longitudinal Direction: 0.15s
- Transverse Direction: 0.15s

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
- 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: Flexural capacity of the concrete shear walls in the transverse (i.e. east/west) direction of the structure.

Comments and Additional Deficiencies:

LSP analysis and Tier 2 evaluation was performed on the transverse concrete shear walls. The results of the tier 2 analysis indicate that transvers concrete shear walls are deficient when evaluated to the BPOE seismic performance criteria.

Seismic Retrofit Concept Sketches/Description (only if above-listed rating is V or greater): Strengthen existing transverse (i.e. east/west) concrete shear walls with reinforced shotcrete.

Appendices:

- A. ASCE 41-17 Tier 1 Checklists
- B. Quick Check Calculations
- C. ASCE 41-17 Tier 2 Calculations