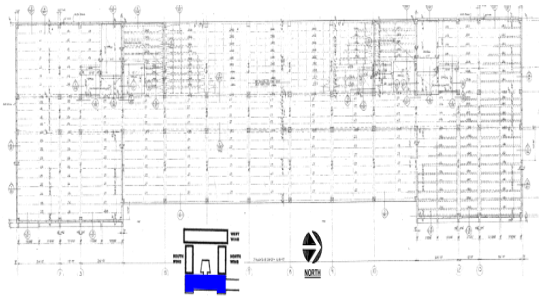
UNIVERSITY OF CALIFORNIA

BUILDING REPORT REQUIREMENTS
ASCE 41-17 TIER 1 SEISMIC EVALUATIONS

BUILDING REPORT

1) UC Campus: Los Angeles
2) Building Name: Boelter Hall - East Wing
3) Building CAAN ID: 4343
4) Auxiliary Building ID:
5) Date of Evaluation: 8/27/2020
6) Evaluation by: Englekirk, AB
7) Seismic Performance Rating and Basis of Rating: V, ASCE 41-17 Tier 1



8) Plan Image or Aerial Photo

9) Exterior Elevation Photo

10) Site Location
    (a) Latitude Decimal Coordinates: 34.0692388
    (b) Longitude Decimal Coordinates: -118.4432392
11) ASCE 41-17 Model Building Type and Description
    (a) Longitudinal Direction: C2 and C2a: Reinforced concrete shear walls
    (b) Transverse Direction: C2 and C2a: Reinforced concrete shear walls
12) Number of Stories
    (a) Above grade: 7 (Level 2 to Level 8)
    (b) Below grade: 0
13) Original Building Design Code & Year: UBC-1955
14) Retrofit Building Design Code & Year (if applicable):
15) Cost Range to Retrofit (if applicable): (Low, Medium, High or Very High): Medium

Comments: Insufficient confinement of secondary components for deflection compatibility. Sloping site creates unbalanced soil loads on the building lateral system. Level 2 is at grade on the west side while Level 5 is at grade on the east side of the building.

BACKGROUND INFORMATION

Site Information

16) Site Class (A – F) and Basis of Assessment
- (a) Site Class: D
- (b) Site Class Basis: Unknown (Default)
- (c) Site Class Company: None
- (d) Site Class Report Date: None
- (e) Site Class Ref Page No.: None

17) Geologic Hazards
- (a) Fault Rupture (Yes, No or Unknown) and Basis of Assessment: No, CGS Maps
- (b) Liquefaction (Yes, No or Unknown) and Basis of Assessment: No, CGS Maps
- (c) Landslide (Yes, No or Unknown) and Basis of Assessment: No, CGS Maps

18) Site-specific Ground Motion Study? (Yes or No) No

Seismic design acceleration parameters of interest:	
For BSE-1N	1.631 and 0.827
For BSE-1E	0.897 and 0.517

19) Estimated Fundamental Period (seconds)
- (a) Longitudinal: 0.611
- (b) Transverse: 0.611

20) Falling Hazards Assessment Summary: None noted.

21) Structural Non-Compliances/Findings Significantly Affecting Rating Determination Summary
Significant Structural Deficiencies, Potentially Affecting *Seismic Performance Rating* Designation:

- (a) Lateral System Stress Check (wall shear, column shear or flexure, or brace axial as applicable): Yes, wall shear stress deficiency noted
- (b) Load Path: No deficiency noted
- (c) Adjacent Buildings: Yes, deficiency noted (All floor levels align with adjacent building floors, pounding of floors not critical)
- (d) Weak Story: No deficiency noted
- (e) Soft Story: No deficiency noted
- (f) Geometry (vertical irregularities): Yes, deficiency noted. Insufficient strength of the columns below the discontinuous shear walls to transfer the overturning forces.
- (g) Torsion: No deficiency noted
- (h) Mass – Vertical Irregularity: No deficiency noted
- (i) Cripple Walls: Not Applicable
- (j) Wood Sills (bolting): Not Applicable
- (k) Diaphragm Continuity: No deficiency noted
- (l) Openings at Shear Walls (concrete or masonry): Yes, deficiency noted

(m) Liquefaction: No
(n) Slope Failure: No
(o) Surface Fault Rupture: No
(p) Masonry or Concrete Wall Anchorage at Flexible Diaphragm: Not Applicable
(q) URM wall height to thickness ratio: Not Applicable
(r) URM Parapets or Cornices: Not Applicable
(s) URM Chimney: Not Applicable
(t) Heavy Partitions Braced by Ceilings: No deficiency noted
(u) Appendages: No deficiency noted

22) Brief Description of Anticipated Failure Mechanism

Shear failure of lightly confined concrete gravity columns due to deformation compatibility. Shear cracking and flexural compression failure of relatively thin, lightly reinforced and inadequately confined concrete shear walls. Due to stair openings adjacent to shear walls, floor diaphragms have limited capacity of transfering seismic forces to the walls.

23) Seismic Retrofit Concept Sketches/Description (only required for buildings rated V or worse)

Increase confinement of concrete columns via FRP overlay, added shear walls strength using thickened cross-section or FRP overlay or energy dissipation to reduce drift. Number of Non-compliant gravity columns vary per floor from 93% to 63% above Level 5 and from 23% to 8% at Level 4 to Level 2 due to some columns having spiral tied reinforcement.

Building Report Appendices

A) ASCE 41-17 Tier 1 Checklists (Structural only)

B) Quick Check Calculations