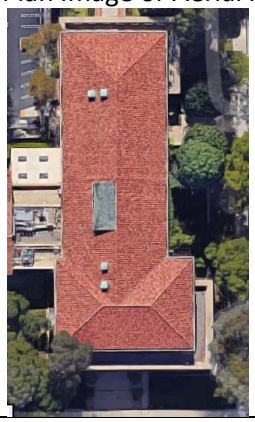
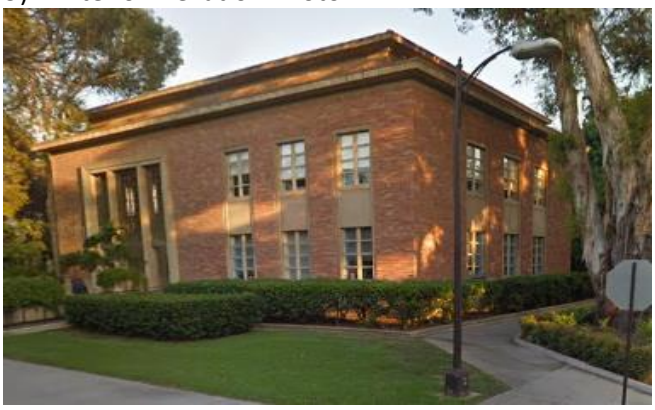
BUILDING REPORT

1) UC Campus: **UCLA**
2) Building Name: **Murphy Hall**
3) Building CAAN ID: **4200**
4) Auxiliary Building ID[1]: **4200.2**
5) Date of Evaluation: **04/09/2019**
6) Evaluation by: **Englekirk Institutional, JC/TS**
7) Seismic Performance Level (SPL)[2] Rating and Basis of Rating: **V; ASCE41-17 Tier 1&2 Check. Discontinuous shear walls occur and columns supporting these walls may lack sufficient confinement. The shear demand-capacity ratio of some shear walls is greater than 1.**

8) Plan Image or Aerial Photo



9) Exterior Elevation Photo



10) Site Location
    a. Latitude Decimal Coordinates: **34.071621**
    b. Longitude Decimal Coordinates: **-188.438710**
11) ASCE 41-17 Model Building Type and Description[3]
    a. Longitudinal Direction: **Concrete shear wall building C2 consisting of mainly 4" or 5" slab supported by concrete beams and girders. Beam and girders are supported by concrete columns. The foundation consists of caissons under the columns and walls connected through grade beams.**
    b. Transverse Direction: **Same configuration as longitudinal direction.**
12) Number of Stories
    a. Above grade: **3**
    b. Below grade: **1**
13) Original Building Design Code & Year: **1950 (based on the record drawing provided).**
14) Retrofit Building Design Code & Year (if applicable): **No retrofit record is provided.**
15) Cost Range to Retrofit (if applicable)[4] (Low, Medium, High or Very High): **Low**

[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 123; auxiliary building CAAN ID 123.1)
[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.
[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

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

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.

BACKGROUND INFORMATION

Site Information

16) Site Class (A – F) and Basis of Assessment: **D; Default value assumed.**
17) Geologic Hazards
    a. Fault Rupture (Yes, No or Unknown) and Basis of Assessment
       No, based on CGS for Beverly Hills Quadrangle.
    b. Liquefaction (Low, Moderate or High) and Basis of Assessment
       Low, based on CGS for Beverly Hills Quadrangle.
    c. Landslide (Low, Moderate or High) and Basis of Assessment
       Low, based on CGS for Beverly Hills Quadrangle.

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

The seismic design acceleration parameters of interest are $\mathbf{S_{XS} = 1.556}$ and $\mathbf{S_{X1} = 0.91}$ for BSE-2E based on US Seismic Design Maps.

19) Estimated Fundamental Period (seconds)
    a. Longitudinal(N-S): **0.142**
    b. Transverse(E-W): **0.193**

20) Falling Hazards Assessment Summary

To comply with Seismic Safety Policy Section III.B.3, all building evaluations must include a survey of potential falling hazards that pose a significant life or safety hazard to occupants. Scope of falling hazard evaluations shall include representative building walk-through observations (including public access areas such as walkways, building perimeters, assembly areas, as well as ingress and egress pathways of travel) and reporting of features presenting a high potential life or safety hazard to occupants or hazardous materials that pose a safety hazard. Risk assessment should be based on engineering judgment, guided by observed past seismic performance of similar features and does not require completion of an ASCE 41 "Nonstructural Checklist". Such hazards may include, but shall not be limited to:

    a. Heavy ceilings, features or ornamentation above large lecture halls, auditoriums, lobbies or other areas where large numbers of people congregate; **No**
    b. Heavy masonry or stone veneer above exit ways and public access areas; **Yes**
    c. Unbraced masonry parapets, cornices or other ornamentation above exit ways and public access areas; **No**
    d. Unrestrained hazardous materials storage; **No**
    e. Masonry chimneys; and **No**
    f. Unrestrained natural gas-fueled equipment such as water heaters, boilers, emergency generators, etc. **No**

21) Structural Non-Compliances/Findings Significantly Affecting Rating Determination Summary

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

a. Lateral System Stress Check (wall shear, column shear or flexure, or brace axial as applicable): **Yes, a few shear walls fail the shear check.**
b. Load Path: **No**
c. Adjacent Buildings: **No**
d. Weak Story: **No**
e. Soft Story: **No**
f. Geometry (vertical irregularities): **Discontinuous shear walls occur.**
g. Torsion: **No**
h. Mass – Vertical Irregularity: **No**
i. Cripple Walls: **N/A**
j. Wood Sills (bolting): **N/A**
k. Diaphragm Continuity: **No**
l. Openings at Shear Walls (concrete or masonry): **No**
m. Liquefaction: **No**
n. Slope Failure: **No**
o. Surface Fault Rupture: **No**
p. Masonry or Concrete Wall Anchorage at Flexible Diaphragm: **N/A**
q. URM wall height to thickness ratio: **N/A**
r. URM Parapets or Cornices: **N/A**
s. URM Chimney: **N/A**
t. Heavy Partitions Braced by Ceilings: **N/A**
u. Appendages: **N/A**

22) Brief Description of Anticipated Failure Mechanism

Shear failure may occur at a few shear walls. The columns supporting the discontinuous shear walls may buckle under seismic forces due to insufficient confinement.

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

This sketch or description is intended to communicate the basic concept of a proposed retrofit. Sketches are not mandatory if a description suffices; however, if a sketch is used, it may be a simple manual sketch, electronic image, or other form of graphic representation with simple notations. The choice of either a sketch or a written description may be based on whichever method most efficiently communicates the retrofit concept.

Use fiberwrap reinforcing to strengthen the walls that may fail in shear.

Use fiberwrap to provide extra confinement to the columns under the discontinuous shear walls.

Attachment 3 Appendices

A. ASCE 41-17 Tier 1 Checklists (Structural only)
B. Quick Check Calculations