Campus: UCLA
Building Name: CRA MOD UNIT
CAAN ID: 4480
Auxiliary Building ID:

UNIVERSITY OF CALIFORNIA

Date: April 14, 2021

FORM 1
CERTIFICATE OF SEISMIC PERFORMANCE LEVEL
☒ **UC-Designed & Constructed Facility**
☐ **Campus-Acquired or Leased Facility**

BUILDING DATA
Building Name: CRA MOD UNIT
Address: 101 De Neve Dr, Los Angeles CA 90024
Site location coordinates: Latitude 34.0732102 Longitudinal -118.4491284

UCOP SEISMIC PERFORMANCE LEVEL (OR "RATING"): V

ASCE 41-17 Model Building Type:

a. Longitudinal Direction: MH (Manufactured Housing)
b. Transverse Direction: MH (Manufactured Housing)

Gross Square Footage: 2,248
Number of stories *above* grade: 1
Number of basement stories *below* grade: 0

Year Original Building was Constructed: 1999
Original Building Design Code & Year: UBC-1994
Retrofit Building Design Code & Code (if applicable): N/A

SITE INFORMATION
Site Class: D Basis: Inferred
Geologic Hazards:
Fault Rupture: No Basis: CGS Earthquake Hazards Zone Application
Liquefaction: Yes Basis: CGS Earthquake Hazards Zone Application
Landslide: Yes Basis: CGS Earthquake Hazards Zone Application

ATTACHMENT
Original Structural Drawings: (N/A, N/A, N/A, N/A) or
Seismic Evaluation: (CRA MOD UNIT Seismic Evaluation Tier 1, KPFF, 4/14/2021, FEMA 154 Rapid Visual Screening)
Retrofit Structural Drawings: (N/A, N/A, N/A, N/A)

Campus: UCLA
Building Name: CRA MOD UNIT
CAAN ID: 4480
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UNIVERSITY OF CALIFORNIA

Date: April 14, 2021

CERTIFICATION & PRESUMPTIVE RATING VERIFICATION STATEMENT

I, Mark Hershberg, a California-licensed structural engineer, am responsible for the completion of this certificate, and I have no ownership interest in the property identified above. My scope of review to support the completion of this certificate included both of the following ("No" responses must include an explanation):

a) the review of structural drawings indicating that they are as-built or record drawings, or that they otherwise are the basis for the construction of the building: ☐ Yes ☑ No
b) visiting the building to verify the observable existing conditions are reasonably consistent with those shown on the structural drawings: ☐ Yes ☑ No

No as-built drawings were available, so evaluation performed using FEMA 154 Level 2 Rapid Visual Screening protocol on visual observations only.

Based on my review, I have verified that the UCOP Seismic Performance Level (SPL) is presumptively permitted by the following UC Seismic Program Guidebook provision (choose one of the following):

☐ 1) Contract documents indicate that the original design and construction of the aforementioned building is in accordance with the benchmark design code year (or later) building code seismic design provisions for UBC or IBC listed in Table 1 below.

☑ 2) The existing SPL rating is based on an acceptable basis of seismic evaluation completed in 2006 or later.

☐ 3) Contract documents indicate that a comprehensive[1] building seismic retrofit design was fully-constructed with an engineered design based on the 1997 UBC/1998 ***or later*** CBC, and (choose one of the following):

☐ the retrofit project was completed by the UC campus. Further, the design was based on ground motion parameters, at a minimum, corresponding to BSE-1E (or BSE-R) and BSE-2E (or BSE-C) as defined in ASCE 41, or the full design basis ground motion required in the 1997 UBC/1998 CBC ***or later*** for EXISTING buildings, and is presumptively assigned an SPL rating of IV.
☐ the retrofit project was completed by the UC campus. Further, the design was based on ground motion parameters, at a minimum, corresponding to BSE-1 (or BSE-1N) and BSE-2 (or BSE-2N) as defined in ASCE 41, or the full design basis ground motion required in the 1997 UBC/1998 ***or later*** CBC for NEW buildings, and is presumptively assigned an SPL rating of III.
☐ the retrofit project was not completed by the UC campus following UC policies, and is presumptively assigned an SPL rating of IV.

[1] A comprehensive retrofit addresses the entire building structural system as indicated by the associated seismic evaluation, as opposed to addressing selective portions of the structural system.

CERTIFICATION SIGNATURE

AFFIX SEAL HERE

Mark Hershberg	Principal
Print Name	Title
S5078	6/30/2021
CA Professional Registration No.	License Expiration Date
Signature	4/14/2021 Date

KPFF Inc., (213) 418-0201, 700 S. Flower St., Suite 2100, Los Angeles, CA 90017
Firm Name, Phone Number, and Address

Table 1: Benchmark Building Codes and Standards

Building Type[a,b]	Building Seismic Design Provisions	
	UBC	IBC
Wood frame, wood shear panels (Types W1 and W2)	1976	2000
Wood frame, wood shear panels (Type W1a)	1976	2000
Steel moment-resisting frame (Types S1 and S1a)	1997	2000
Steel concentrically braced frame (Types S2 and S2a)	1997	2000
Steel eccentrically braced frame (Types S2 and S2a)	1988[g]	2000
Buckling-restrained braced frame (Types S2 and S2a)	[f]	2006
Metal building frames (Type S3)	[f]	2000
Steel frame with concrete shear walls (Type S4)	1994	2000
Steel frame with URM infill (Types S5 and S5a)	[f]	2000
Steel plate shear wall (Type S6)	[f]	2006
Cold-formed steel light-frame construction—shear wall system (Type CFS1)	1997[h]	2000
Cold-formed steel light-frame construction—strap-braced wall system (Type CFS2)	[f]	2003
Reinforced concrete moment-resisting frame (Type C1)[i]	1994	2000
Reinforced concrete shear walls (Types C2 and C2a)	1994	2000
Concrete frame with URM infill (Types C3 and C3a)	[f]	[f]
Tilt-up concrete (Types PC1 and PC1a)	1997	2000
Precast concrete frame (Types PC2 and PC2a)	[f]	2000
Reinforced masonry (Type RM1)	1997	2000
Reinforced masonry (Type RM2)	1994	2000
Unreinforced masonry (Type URM)	[f]	[f]
Unreinforced masonry (Type URMa)	[f]	[f]
Seismic isolation or passive dissipation	1991	2000

Note: This table has been adapted from ASCE 41-17 Table 3-2. Benchmark Building Codes and Standards for Life Safety Structural Performed at BSE-1E.

Note: UBC = *Uniform Building Code*. IBC = *International Building Code*.

[a] Building type refers to one of the common building types defined in Table 3-1 of ASCE 41-17.

[b] Buildings on hillside sites shall not be considered Benchmark Buildings.

[c] not used

[d] not used

[e] not used

[f] No benchmark year; buildings shall be evaluated in accordance with Section III.J.

[g] Steel eccentrically braced frames with links adjacent to columns shall comply with the 1994 UBC Emergency Provisions, published September/October 1994, or subsequent requirements.

[h] Cold-formed steel shear walls with wood structural panels only.

[i] Flat slab concrete moment frames shall not be considered Benchmark Buildings.

700 S. Flower St., Suite 2100 Los Angeles, CA 90017 213.418.0201 kpff.com

UCLA – CRA MOD UNIT

DATE: 4/14/2021
FEMA 154 Rapid Visual Screening
Minimum Building Report Information

BUILDING DATA

Campus: UCLA
Building Name: CRA MOD UNIT
CAAN ID: 4480
Auxiliary Building ID:
Address: 101 De Neve Dr, Los Angeles CA 90024
Site location coordinates: Latitude 34.0732102 Longitudinal -118.4491284

Aerial Photo

Exterior Elevation

ASCE 41-17 Model Building Type:

a. Longitudinal Direction: MH (Manufactured Housing)
b. Transverse Direction: MH (Manufactured Housing)

Site-specific Ground Motion Study? No
Seismic Design Acceleration Parameters of Interest:

a. For BSE-1E S_{XS}=0.896g and S_{X1}=0.516g
b. For BSE-2E S_{XS}=1.540g and S_{X1}=0.944g

Estimated Fundamental Period (seconds)

a. Longitudinal: Unknown
b. Transverse: Unknown

Gross Square Footage: 2,248
Number of stories *above* grade: 1
Number of basement stories *below* grade: 0

Year Original Building was Constructed: 1999
Original Building Design Code & Year: UBC-1994
Retrofit Building Design Code & Code (if applicable): N/A

SITE INFORMATION

Site Class: D Basis: Inferred
Geologic Hazards:
Fault Rupture: No Basis: CGS Earthquake Hazards Zone Application
Liquefaction: Yes Basis: CGS Earthquake Hazards Zone Application
Landslide: Yes Basis: CGS Earthquake Hazards Zone Application

UCOP SEISMIC PERFORMANCE RATING (OR "RATING"): V

"BALLPARK" RETROFIT COST (if applicable)

- ☒ Minor (<$50/sf)
- ☐ Moderate (~$50-$200/sf)
- ☐ Major (>$200/sf)

SUMMARY 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)
- ☐ Lateral System Detailing (reinforcement ratio, confinement, aspect ratio, etc)
- ☒ 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 Diaphragm

☐ URM wall height to thickness ratio
☐ URM Parapets or Cornices
☐ URM Chimney
☐ Heavy Partitions Braced by Ceilings
☐ Appendages

POTENTIAL FALLING HAZARDS

☐ Heavy ceilings, features or ornamentation above large lecture halls, auditoriums, lobbies or other areas where large numbers of people congregate.
☐ Heavy masonry or stone veneer above exit ways.
☐ Unbraced masonry parapets, cornices or other ornamentation above exit ways.
☐ Unrestrained hazardous materials storage.
☐ Masonry chimneys.
☐ Unrestrained natural gas-fueled equipment such as water heaters, boilers, emergency generators, etc.
☒ None of the above.

BRIEF DESCRIPTION OF ANTICIPATED FAILURE MECHANISM

COMMENTS AND RECOMMENDATIONS

A FEMA 154 Level 2 Rapid Visual Screening was performed in lieu of an ASCE Tier 1 evaluation due to the construction type and lack of as-built documentation. Campus facilities were not able to provide access to view the base of the modular unit so KPFF assumed that dedicated footings and/or anchorage of the base of the modular unit was not provided, which results in a seismic rating of V. This is consistent with other similar buildings observed on campus.

Appendices

A. FEMA 154 Rapid Visual Screening

Rapid Visual Screening of Buildings for Potential Seismic Hazards — **Level 1**
FEMA P-154 Data Collection Form — **VERY HIGH Seismicity**

SKETCH

Address: 101 De Neve Dr
Los Angeles, CA **Zip:** 90024
Other Identifiers:
Building Name: CRA MOD UNIT
Use: Office
Latitude: 34.0732102 **Longitude:** -118.4491284
S_S: 2.022 **S_1:** 0.724
Screener(s): **Date/Time:** 4/22/21, 10:30am

No. Stories: Above Grade: 1 Below Grade: **Year Built:** 1999 ☐ EST
Total Floor Area (sq. ft.): 2,248 **Code Year:** UBC-1994
Additions: ☒ None ☐ Yes, Year(s) Built:

Occupancy: Assembly ☐ Commercial ☐ Emer. Services ☐ Historic ☐ Shelter
Industrial ☐ Office ☒ School ☐ Government
Utility ☐ Warehouse ☐ Residential, # Units:

Soil Type: ☐ A Hard Rock ☐ B Avg Rock ☐ C Dense Soil ☒ D Stiff Soil ☐ E Soft Soil ☐ F Poor Soil **DNK** *If DNK, assume Type D.*

Geologic Hazards: Liquefaction: Yes ☒ No/DNK ☐ Landslide: Yes ☐ No ☒ DNK Surf. Rupt.: Yes ☐ No ☒ DNK

Adjacency: ☐ Pounding ☐ Falling Hazards from Taller Adjacent Building

Irregularities: ☐ Vertical (type/severity) None
☐ Plan (type) None

Exterior Falling Hazards: ☐ Unbraced Chimneys ☐ Heavy Cladding or Heavy Veneer
☐ Parapets ☐ Appendages
☐ Other:

COMMENTS:

Structure is manufactured housing. Rests on posts that are not laterally braced.
(Assumed since we did not have access to the crawl space underneath the building)

☐ Additional sketches or comments on separate page

BASIC SCORE, MODIFIERS, AND FINAL LEVEL 1 SCORE, S_{L1}

FEMA BUILDING TYPE (Do Not Know)	W1	W1A	W2	S1 (MRF)	S2 (BR)	S3 (LM)	S4 (RC SW)	S5 (URM INF)	C1 (MRF)	C2 (SW)	C3 (URM INF)	PC1 (TU)	PC2	RM1 (FD)	RM2 (RD)	URM	MH
Basic Score	**2.1**	**1.9**	**1.8**	**1.5**	**1.4**	**1.6**	**1.4**	**1.2**	**1.0**	**1.2**	**0.9**	**1.1**	**1.0**	**1.1**	**1.1**	**0.9**	**1.1**
Severe Vertical Irregularity, V_{L1}	-0.9	-0.9	-0.9	-0.8	-0.7	-0.8	-0.7	-0.7	-0.7	-0.8	-0.6	-0.7	-0.7	-0.7	-0.7	-0.6	NA
Moderate Vertical Irregularity, V_{L1}	-0.6	-0.5	-0.5	-0.4	-0.4	-0.5	-0.4	-0.3	-0.4	-0.4	-0.3	-0.4	-0.4	-0.4	-0.4	-0.3	NA
Plan Irregularity, P_{L1}	-0.7	-0.7	-0.6	-0.5	-0.5	-0.6	-0.4	-0.4	-0.4	-0.5	-0.3	-0.5	-0.4	-0.4	-0.4	-0.3	NA
Pre-Code	-0.3	-0.3	-0.3	-0.3	-0.2	-0.3	-0.2	-0.1	-0.1	-0.2	0.0	-0.2	-0.1	-0.2	-0.2	0.0	0.0
Post-Benchmark	1.9	1.9	2.0	1.0	1.1	1.1	1.5	NA	1.4	1.7	NA	1.5	1.7	1.6	1.6	NA	0.5
Soil Type A or B	0.5	0.5	0.4	0.3	0.3	0.4	0.3	0.2	0.2	0.3	0.1	0.3	0.2	0.3	0.3	0.1	0.1
Soil Type E (1-3 stories)	0.0	-0.2	-0.4	-0.3	-0.2	-0.2	-0.2	-0.1	-0.1	-0.2	0.0	-0.2	-0.1	-0.2	-0.2	0.0	-0.1
Soil Type E (> 3 stories)	-0.4	-0.4	-0.4	-0.3	-0.3	NA	-0.3	-0.1	-0.1	-0.3	-0.1	NA	-0.1	-0.2	-0.2	0.0	NA
Minimum Score, S_{MIN}	*0.7*	*0.7*	*0.7*	*0.5*	*0.5*	*0.5*	*0.5*	*0.5*	*0.3*	*0.3*	*0.3*	*0.2*	*0.2*	*0.3*	*0.3*	*0.2*	*1.0*

FINAL LEVEL 1 SCORE, $S_{L1} \geq S_{MIN}$: 1.1

EXTENT OF REVIEW

Exterior: ☐ Partial ☒ All Sides ☐ Aerial
Interior: ☐ None ☐ Visible ☒ Entered
Drawings Reviewed: ☐ Yes ☒ No
Soil Type Source:
Geologic Hazards Source: CGS Earthquake Hazards App.
Contact Person:

LEVEL 2 SCREENING PERFORMED?

☒ Yes, Final Level 2 Score, S_{L2} 1.1 ☐ No
Nonstructural hazards? ☐ Yes ☒ No

OTHER HAZARDS

Are There Hazards That Trigger A Detailed Structural Evaluation?

☐ Pounding potential (unless S_{L2} > cut-off, if known)
☐ Falling hazards from taller adjacent building
☐ Geologic hazards or Soil Type F
☐ Significant damage/deterioration to the structural system

ACTION REQUIRED

Detailed Structural Evaluation Required?

☐ Yes, unknown FEMA building type or other building
☒ Yes, score less than cut-off
☐ Yes, other hazards present
☐ No

Detailed Nonstructural Evaluation Recommended? *(check one)*

☐ Yes, nonstructural hazards identified that should be evaluated
☐ No, nonstructural hazards exist that may require mitigation, but a detailed evaluation is not necessary
☒ No, no nonstructural hazards identified ☐ DNK

Where information cannot be verified, screener shall note the following: EST = Estimated or unreliable data OR DNK = Do Not Know

Legend: MRF = Moment-resisting frame; BR = Braced frame; RC = Reinforced concrete; SW = Shear wall; URM INF = Unreinforced masonry infill; TU = Tilt up; MH = Manufactured Housing; LM = Light metal; FD = Flexible diaphragm; RD = Rigid diaphragm

Rapid Visual Screening of Buildings for Potential Seismic Hazards **Level 2 (Optional)**

FEMA P-154 Data Collection Form **VERY HIGH Seismicity**

Optional Level 2 data collection to be performed by a civil or structural engineering professional, architect, or graduate student with background in seismic evaluation or design of buildings.

Bldg Name: CRA MOD UNIT	**Final Level 1 Score:**	S_{L1} = 1.1	*(do not consider S_{MIN})*
Screener:	**Level 1 Irregularity Modifiers:**	*Vertical Irregularity,* V_{L1} = 0	*Plan Irregularity,* P_{L1} = 0
Date/Time:	**ADJUSTED BASELINE SCORE:**	$S' = (S_{L1} - V_{L1} - P_{L1})$ = 1.1	

STRUCTURAL MODIFIERS TO ADD TO ADJUSTED BASELINE SCORE

Topic	Statement *(If statement is true, circle the "Yes" modifier; otherwise cross out the modifier.)*		Yes	Subtotals
Vertical Irregularity, V_{L2}	Sloping Site	W1 building: There is at least a full story grade change from one side of the building to the other.	-0.9	
		Non-W1 building: There is at least a full story grade change from one side of the building to the other.	-0.2	
	Weak and/or Soft Story *(circle one maximum)*	W1 building cripple wall: An unbraced cripple wall is visible in the crawl space.	-0.5	
		W1 house over garage: Underneath an occupied story, there is a garage opening without a steel moment frame, and there is less than 8' of wall on the same line (for multiple occupied floors above, use 16' of wall minimum).	-0.9	
		W1A building open front: There are openings at the ground story (such as for parking) over at least 50% of the length of the building.	-0.9	
		Non-W1 building: Length of lateral system at any story is less than 50% of that at story above or height of any story is more than 2.0 times the height of the story above.	-0.7	
		Non-W1 building: Length of lateral system at any story is between 50% and 75% of that at story above or height of any story is between 1.3 and 2.0 times the height of the story above.	-0.4	
	Setback	Vertical elements of the lateral system at an upper story are outboard of those at the story below causing the diaphragm to cantilever at the offset.	-0.7	
		Vertical elements of the lateral system at upper stories are inboard of those at lower stories.	-0.4	
		There is an in-plane offset of the lateral elements that is greater than the length of the elements.	-0.2	
	Short Column/ Pier	C1,C2,C3,PC1,PC2,RM1,RM2: At least 20% of columns (or piers) along a column line in the lateral system have height/depth ratios less than 50% of the nominal height/depth ratio at that level.	-0.4	
		C1,C2,C3,PC1,PC2,RM1,RM2: The column depth (or pier width) is less than one half of the depth of the spandrel, or there are infill walls or adjacent floors that shorten the column.	-0.4	
	Split Level	There is a split level at one of the floor levels or at the roof.	-0.4	
	Other Irregularity	There is another observable severe vertical irregularity that obviously affects the building's seismic performance.	-0.7	V_{L2} = 0
		There is another observable moderate vertical irregularity that may affect the building's seismic performance.	-0.4	*(Cap at -0.9)*
Plan Irregularity, P_{L2}	Torsional irregularity: Lateral system does not appear relatively well distributed in plan in either or both directions. *(Do not include the W1A open front irregularity listed above.)*		-0.5	
	Non-parallel system: There are one or more major vertical elements of the lateral system that are not orthogonal to each other.		-0.2	
	Reentrant corner: Both projections from an interior corner exceed 25% of the overall plan dimension in that direction.		-0.2	
	Diaphragm opening: There is an opening in the diaphragm with a width over 50% of the total diaphragm width at that level.		-0.2	
	C1, C2 building out-of-plane offset: The exterior beams do not align with the columns in plan.		-0.2	P_{L2} = 0
	Other irregularity: There is another observable plan irregularity that obviously affects the building's seismic performance.		-0.5	*(Cap at -0.7)*
Redundancy	The building has at least two bays of lateral elements on each side of the building in each direction.		+0.2	
Pounding	Building is separated from an adjacent structure by less than 1.5% of the height of the shorter of the building and adjacent structure and:	The floors do not align vertically within 2 feet.	-0.7	
		One building is 2 or more stories taller than the other.	-0.7	
		The building is at the end of the block.	-0.4	
		(Cap total pounding modifiers at -0.9)		
S2 Building	"K" bracing geometry is visible.		-0.7	
C1 Building	Flat plate serves as the beam in the moment frame.		-0.3	
PC1/RM1 Bldg	There are roof-to-wall ties that are visible or known from drawings that do not rely on cross-grain bending. *(Do not combine with post-benchmark or retrofit modifier.)*		+0.2	
PC1/RM1 Bldg	The building has closely spaced, full height interior walls (rather than an interior space with few walls such as in a warehouse).		+0.2	
URM	Gable walls are present.		+0.3	
MH	There is a supplemental seismic bracing system provided between the carriage and the ground.		+0.5	
Retrofit	Comprehensive seismic retrofit is visible or known from drawings.		+1.2	M = 0

FINAL LEVEL 2 SCORE, $S_{L2} = (S' + V_{L2} + P_{L2} + M) \geq S_{MIN}$: 1.1 + 0 = 1.1 (*Transfer to Level 1 form*)

There is observable damage or deterioration or another condition that negatively affects the building's seismic performance: ☐ Yes ☒ No

If yes, describe the condition in the comment box below and indicate on the Level 1 form that detailed evaluation is required independent of the building's score.

OBSERVABLE NONSTRUCTURAL HAZARDS

Location	Statement (*Check "Yes" or "No"*)	Yes	No	Comment
Exterior	There is an unbraced unreinforced masonry parapet or unbraced unreinforced masonry chimney.			
	There is heavy cladding or heavy veneer.			
	There is a heavy canopy over exit doors or pedestrian walkways that appears inadequately supported.			
	There is an unreinforced masonry appendage over exit doors or pedestrian walkways.			
	There is a sign posted on the building that indicates hazardous materials are present.			
	There is a taller adjacent building with an unanchored URM wall or unbraced URM parapet or chimney.			
	Other observed exterior nonstructural falling hazard:			
Interior	There are hollow clay tile or brick partitions at any stair or exit corridor.			
	Other observed interior nonstructural falling hazard:			

Estimated Nonstructural Seismic Performance (*Check appropriate box and transfer to Level 1 form conclusions*)

☐ Potential nonstructural hazards with significant threat to occupant life safety → Detailed Nonstructural Evaluation recommended

☐ Nonstructural hazards identified with significant threat to occupant life safety → But no Detailed Nonstructural Evaluation required

☒ Low or no nonstructural hazard threat to occupant life safety → No Detailed Nonstructural Evaluation required

Comments: