



**FORM 1**  
**CERTIFICATE OF SEISMIC PERFORMANCE LEVEL**

- UC-Designed & Constructed Facility**  
 **Campus-Acquired or Leased Facility**

**BUILDING DATA**

Building Name: Barker Hall  
Address: Core Campus, University of California, Berkeley  
Site location coordinates: Latitude 37.8739 Longitudinal -122.2656

**UCOP SEISMIC PERFORMANCE LEVEL (OR "RATING"): IV**

ASCE 41-17 Model Building Type:

- a. Longitudinal Direction: C2 Concrete Shear Wall
- b. Transverse Direction: C2 Concrete Shear Wall

Gross Square Footage: 90,230  
Number of stories *above* grade: Seven plus Attic (Eight total)  
Number of basement stories *below* grade: None

Year Original Building was Constructed: 1964  
Original Building Design Code & Year: UBC 1958  
Retrofit Building Design Code & Year (if applicable): 2003, 1995 CBC & University of California, Berkeley  
Seismic and Structural Engineering Guidelines "Rare" Earthquake pushover for Life Safety (working draft dated 3-9-99)

**SITE INFORMATION**

Site Class: C Basis: (Geologic Hazards and Site Classification, Geomatrix, Plate 2)  
Geologic Hazards:  
Fault Rupture: No Basis: California Geological Survey Website  
<https://maps.conservation.ca.gov/cgs/informationwarehouse/regulatorymaps/>  
Liquefaction: No Basis: California Geological Survey Website  
<https://maps.conservation.ca.gov/cgs/informationwarehouse/regulatorymaps/>  
Landslide: No Basis: California Geological Survey Website  
<https://maps.conservation.ca.gov/cgs/informationwarehouse/regulatorymaps/>

**ATTACHMENT**

Retrofit Structural Drawings: (Barker Hall Seismic Safety Corrections, Forell / Elsesser, December 2001, S0.01)




### CERTIFICATION

I, [Russell Berkowitz](#), 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:

- 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

Based on my review, I have verified that the UCOP Seismic Performance Level 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<sup>1</sup> building seismic retrofit design was fully-constructed with a design completed in 2000 or later, and that 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. Although drawings indicate 1995 CBC, the Code provisions for this building type and ground motions used for the design did not change between these code editions.
  - 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.

<u>Russell Berkowitz</u>	<u>Senior Associate</u>
Print Name	Title
<u>S4884</u>	<u>6/30/2020</u>
CA Professional Registration No.	License Expiration Date
<u></u>	<u>5/07/2019</u>
Signature	Date
<u>Forell / Elsesser Engineers, 415-837-0700, 160 Pine St., 6<sup>th</sup> Fl., San Francisco, CA 94111</u>	
Firm Name, Phone Number, and Address	

AFFIX SEAL HERE



<sup>1</sup> 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.



**Table 1: Benchmark Building Codes and Standards**

Building Type <sup>a,b</sup>	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 <sup>g</sup>	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 <sup>h</sup>	2000
Cold-formed steel light-frame construction—strap-braced wall system (Type CFS2)	f	2003
Reinforced concrete moment-resisting frame (Type C1) <sup>i</sup>	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.

<sup>a</sup> Building type refers to one of the common building types defined in Table 3-1 of ASCE 41-17.

<sup>b</sup> Buildings on hillside sites shall not be considered Benchmark Buildings.

<sup>c</sup> not used

<sup>d</sup> not used

<sup>e</sup> not used

<sup>f</sup> No benchmark year; buildings shall be evaluated in accordance with Section III.J.

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

<sup>h</sup> Cold-formed steel shear walls with wood structural panels only.

<sup>i</sup> Flat slab concrete moment frames shall not be considered Benchmark Buildings.

