Rating form completed by:

RUTHERFORD + CHEKENE
ruthchek.com
Evaluator: BL
Date: 06/28/2019

Text in green is to be part of UC Santa Cruz building database and may be part of UCOP database

DATE: 2018-06-28

UC Santa Cruz building seismic ratings

EBASK Building D

CAAN #7496
433 Baskin Arts Service Road, Santa Cruz, CA 95064
UCSC Campus: Main Campus

Southwest Elevation (Looking Northeast)

Plan

Rating summary	Entry	Notes
UC Seismic Performance Level (rating)	IV (Fair)	
Rating basis	Level 1	**FEMA P-154**[1]
Date of rating	2019	
Recommended UC Santa Cruz priority category for retrofit	None	Priority A=Retrofit ASAP Priority B=Retrofit at next permit application
Ballpark total construction cost to retrofit to IV rating[2]	None	
Is 2018-2019 rating required by UCOP?	Yes	Building was not previously rated
Further evaluation recommended?	No	

[1] We translate this FEMA 154 evaluation to a Seismic Performance Level rating using professional judgment. Non-compliant items or a certain score in the FEMA 154 evaluation do not automatically put a building into a particular rating category, but we evaluate such items along with the combination of building features and potential deficiencies, focused on the potential for collapse or serious damage to the gravity supporting structure that may threaten occupant safety. See Section III.B of the 19 May 2017 *UC Seismic Safety Policy* and Method B of Section 321 of the 2016 *California Building Code*.

[2] Per Section III.A.4.i of the 26 March 2019 *UC Seismic Program Guidebook, Version 1.3*, the cost includes all construction cost necessitated by the seismic retrofit, including restoration of finishes and any triggered work on utilities or accessibility. It does not include soft costs such as design fees or campus costs. The cost is in 2019 dollars.

Building information used in this evaluation

- Architectural drawings by Marquis Associates Architecture/Planning/Interior/Design, "University of California at Santa Cruz Visual Arts Facilities," dated 14 December 1983, Sheets A1.1 to A1.10, A2.1 to A2.4, A3.1 to A3.4, A4.1, A5.1, A5.2, A6.1, A7.1, A7.2.
- Structural drawings by Ephraim Hirsch & Associates, "University of California at Santa Cruz Visual Arts Facilities," as-built dated 14 December 1983, Sheets S-1 to S-8.

Additional building information known to exist

- None

Scope for completing this form

The architectural and structural drawings were reviewed, a brief site observation was made on 23 May 2019, and a FEMA P-154 Level 1 evaluation was completed.

Brief description of structure

The Elena Baskin Visual Arts Studios Building D is a wood framed building with a gable roof. It is located within the Elena Baskin Visual Arts Studios on the main UC Santa Cruz campus. It is rectangular in shape and measures 32'-8" in the northeast-southwest direction by 28'-0" in the northwest-southeast direction. The structure is located on a sloping site with grade at a high point on the southwest elevation and a low point on the northeast elevation. The grade changes by approximately a full story height. It has one-story above grade and a partial basement below grade. The at-grade story is utilized as a classroom and the below grade story contains a small electrical room. The structure is approximately 1,400 square feet. It is not eligible to be benchmarked because it is located on a sloping site with a full story height and contains narrow wall piers on the basement exterior wall.

The floor is framed with 2 x 12 wood joists spaced at 16" o.c that span in the northwest-southeast direction to the exterior walls. The roof is clad with metal standing seam roofing over 3/8" plywood sheathing that is supported by wood joists. The joists consist of 2 x 10 framing spaced at 24" o.c. that span between the exterior wood walls and steel and wood truss located at the ridge of the roof. The exterior walls are framed with 5/8" plywood sheathing over 2 x 6 wood studs. The building walls are clad with vertical wood sliding on the exterior. In general, the structure appears to be in good condition.

Brief description of seismic deficiencies and expected seismic performance including mechanism of nonlinear response and structural behavior modes

Identified seismic deficiencies of the building include the following:

- The structure location meets the definition of a hillside site/sloping site. The one-story above grade walls are stiffer than the two-story tall wall located on the site downslope. However, the extent of wall on the downslope side is considered sufficient for the relatively small size of the building.

FEMA P-154 Score

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, $S_{L1} \geq S_{MIN}$: 1.5														UCOP SEISMIC PERFORMANCE LEVEL (OR "RATING") IV				

Summary of review of nonstructural life-safety concerns, including at exit routes.[3]

No falling hazards that pose a risk to the building occupants were observed.

UCOP nonstructural checklist item	Life safety hazard?	UCOP nonstructural checklist item	Life safety hazard?
Heavy ceilings, feature or ornamentation above large lecture halls, auditoriums, lobbies or other areas where large numbers of people congregate	None observed	Heavy partitions braced by ceilings	None observed
Heavy masonry or stone veneer above exit ways and public access areas	None observed	Appendages	None observed
Unbraced masonry parapets, cornices or other ornamentation above exit ways and public access areas	None observed	Unrestrained hazardous materials storage	None observed
Masonry chimneys	None observed	Unrestrained natural gas-fueled equipment such as water heaters, boilers, emergency generators, etc.	None observed

Discussion of rating

Although the building is located on a sloping site, it is rated IV as the building proportions are approximately square, it is well-detailed, in good condition, and the walls do not contain significant openings and demands are anticipated to be relatively low.

Recommendations for further evaluation or retrofit

No further analysis is required.

Peer review of rating

This seismic evaluation was discussed in a peer review meeting on 28 May 2019. Reviewers present were Joe Maffei of Maffei Structural Engineering and Holly Razzano and Jay Yin of Degenkolb Engineers. Comments from the reviewers have been incorporated into this report. The reviewers agreed with the assigned rating.

[3] For these Tier 1 evaluations, we do not visit all spaces of the building; we rely on campus staff to report to us their understanding of if and where nonstructural hazards may occur.

Additional building data	Entry	Notes
Latitude	36.99475	
Longitude	-122.060600	
Are there other structures besides this one under the same CAAN#	No	
Number of stories above lowest perimeter grade	2	
Number of stories (basements) below lowest perimeter grade	0	
Building occupiable area (OGSF)	1,404	
Risk Category per 2016 CBC Table 1604.5	II	Classroom
Site data		
Site class	D	
Site class basis	Geotech[4]	See footnote below
Liquefaction potential	Low	
Liquefaction assessment basis	County map	See footnote below
Landslide potential	Low	
Landslide assessment basis	County map	See footnote below
Active fault rupture identified at site?	No	
Fault rupture assessment basis	County map	See footnote below
Applicable code		
Applicable code or approx. date of original construction	Built: 1984 Code: 1982 UBC	Code inferred based on design year
Applicable code for partial retrofit	None	No partial retrofit
Applicable code for full retrofit	None	No full retrofit
Model building data		
Model building type North-South		
Model building type East-West		
FEMA P-154 score	1.5	
Previous ratings		
Most recent rating	None	
Date of most recent rating		

[4] Determination of site class and assessment of geotechnical hazards are based on correspondence with Pacific Crest Geotechnical Engineers and Nolan, Zinn, and Associates Geologists. [*Revised Geology and Geologic Hazards, Santa Cruz Campus, University of California*, Job # 04003-SC 13 May 2005]. Site class is taken as D throughout the main campus of UC Santa Cruz. The following links provide hazard maps for liquefaction, landslide, and fault rupture:
https://gis.santacruzcounty.us/mapgallery/Emergency%20Management/Hazard%20Mitigation/LiquifactionMap2009.pdf
https://gis.santacruzcounty.us/mapgallery/Emergency%20Management/Hazard%20Mitigation/LandslideMap2009.pdf
https://gis.santacruzcounty.us/mapgallery/Emergency%20Management/Hazard%20Mitigation/FaultZoneMap2009.pdf

2nd most recent rating	-
Date of 2nd most recent rating	-
3rd most recent rating	-
Date of 3rd most recent rating	-
Report attachments	
P-154 Level 1 Form and Additional Photos	

APPENDIX A

FEMA P-154 Form and Additional Photos

Berkeley
UNIVERSITY OF CALIFORNIA

Rapid Visual Screening of Buildings for Potential Seismic Hazards

FEMA P-154 Data Collection Form

Level 1
VERY HIGH Seismicity

Southwest facade (looking northeast)

[redacted]

SKETCH

Address: 433 Baskin Arts Service Road
Santa Cruz, CA **Zip:** 95064
Other Identifiers: CAAN 7496
Building Name:
Use: Classroom
Latitude: 36.99475 **Longitude:** -122.060600
S_S: 1.468g (MCE_R Site Class B) **S_1:** 0.50g (MCE_R, Site Class B)
Screener(s): Emma Meehan/Jorge Moreno **Date/Time:** 5/23/19 / 9:32AM

No. Stories: Above Grade: 1 Below Grade: 1 **Year Built:** 1984 ☐ EST
Total Floor Area (sq. ft.): 1,404 **Code Year:** 1982
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) Sloping site/severe
☐ Plan (type)

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

COMMENTS:
1. Plywood sheathed stud-frame walls function as the vertical load-carrying system and the lateral force-resisting system.
2. Site is sloping down to the northeast, leading to a the full story grade change from one side of the building to the other.
4. Plan dimensions of the lower floor are smaller than the upper floor due to the sloping site. Intermediate wall at soil interface at lower floor does not extend to story above.
5. Note that FEMA P-154 uses the MCE_R Site Class B site parameters to determine the Seismicity Region. The Very High Seismicity Region applies here since S_S =1.5 >= 1.5.

☒ 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, $S_{L1} \geq S_{MIN}$: 1.5 **UCOP SEISMIC PERFORMANCE LEVEL (OR "RATING")** IV

EXTENT OF REVIEW

Exterior: ☐ Partial ☒ All Sides ☐ Aerial
Interior: ☐ None ☐ Visible ☒ Entered
Drawings Reviewed: ☒ Yes ☐ No
Soil Type Source: Default campus site class
Geologic Hazards Source: County of Santa Cruz maps
Contact Person:

LEVEL 2 SCREENING PERFORMED?

☐ Yes, Final Level 2 Score, S_{L2} _____ ☒ 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?

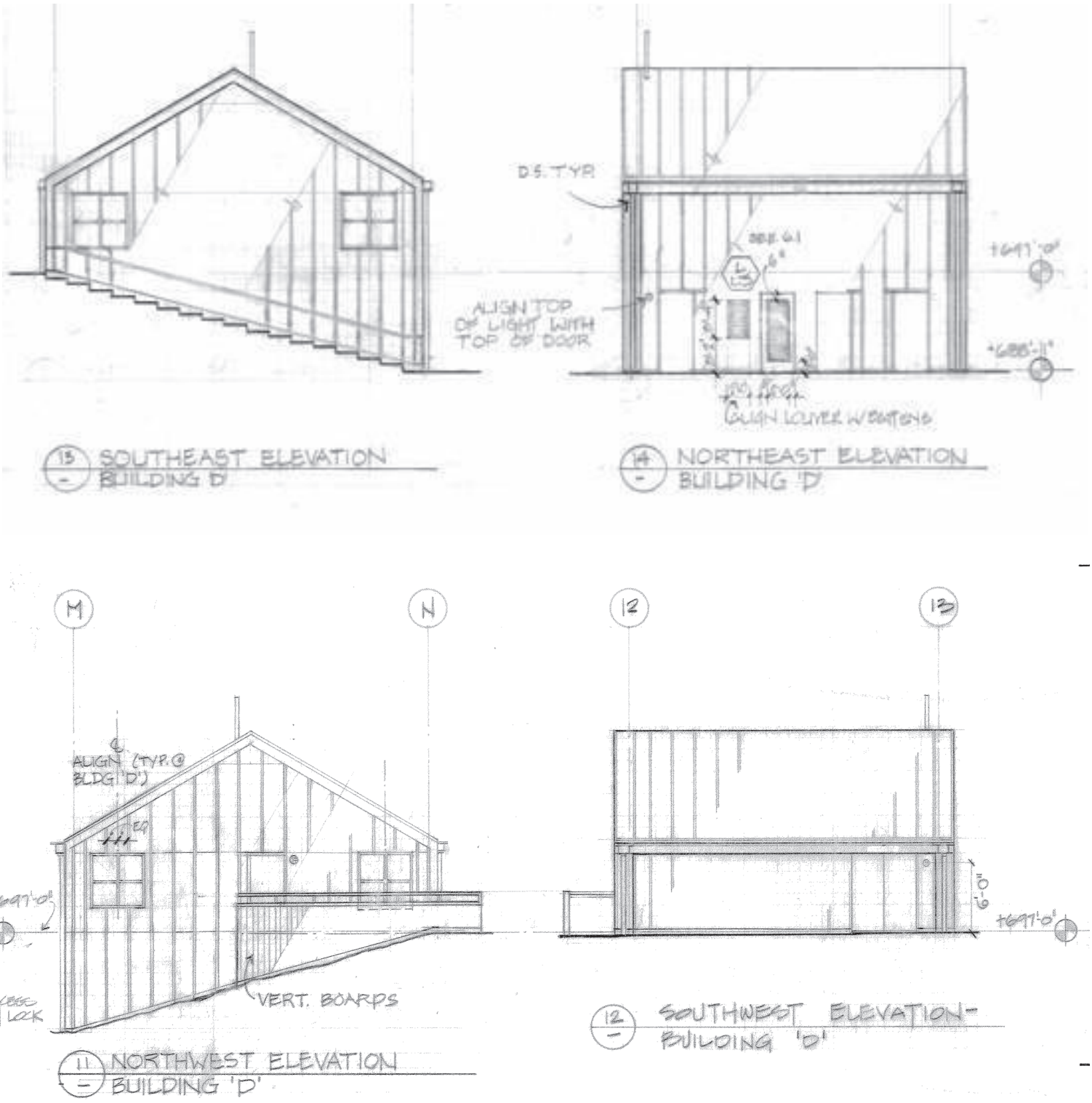
☐ Yes, unknown FEMA building type or other building
☐ Yes, score less than cut-off
☐ Yes, other hazards present
☒ No

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



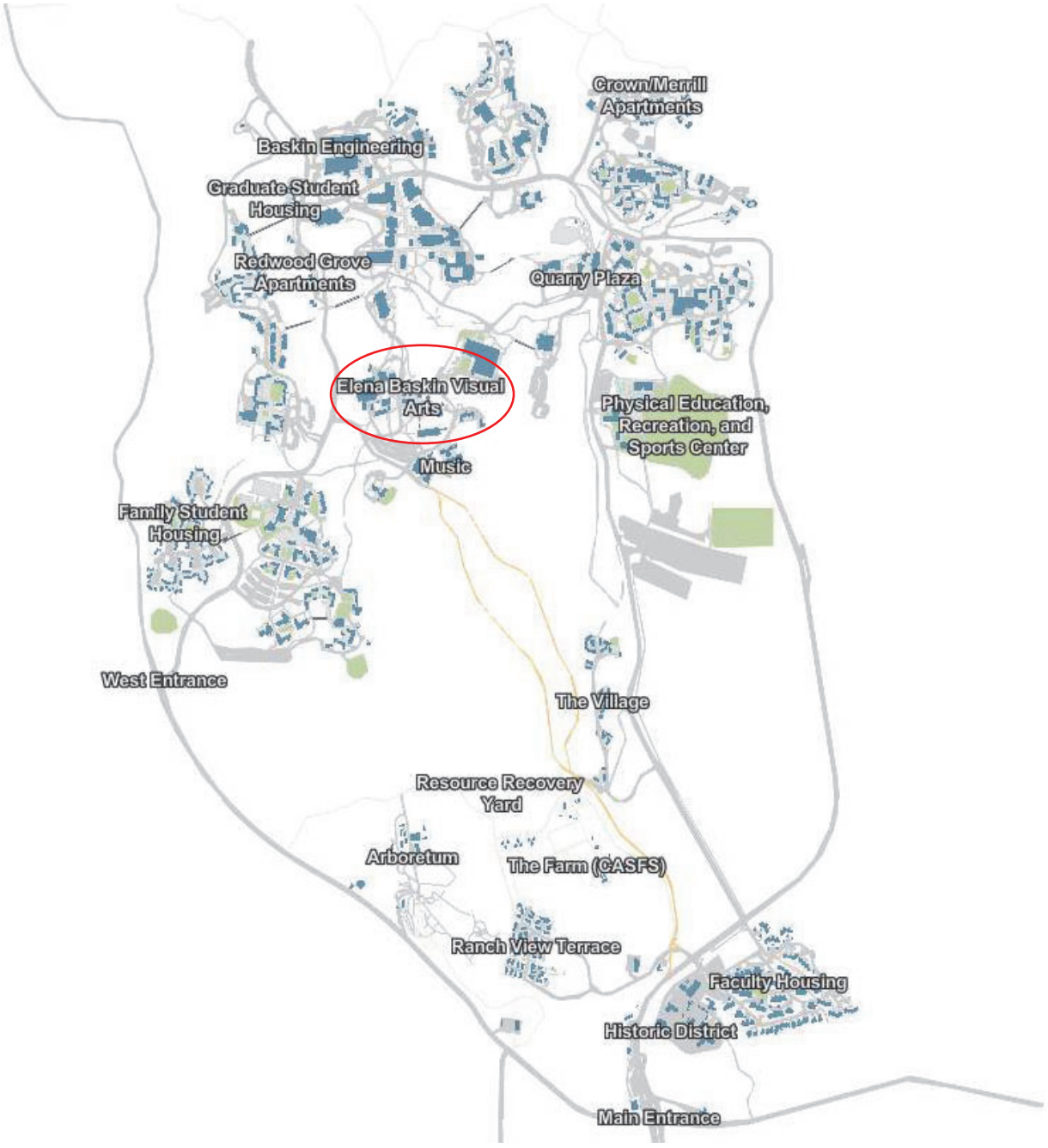
Elevations from the architectural drawings

Sloping site to the northeast (looking north)

Classroom in upper floor (looking north)

Wood and steel truss below roof

Mechanical equipment at lower floor



UC Santa Cruz Map

UC Santa Cruz Map - Elena Baskin Visual Arts