Campus: UC Santa Cruz
Building Name: Porter Academic – South Addition
CAAN ID: 7306 Auxiliary Building ID: 7306.1
Text in green is to be part of UC Santa Cruz building database and may be part of UCOP database Date: 2018-12-31

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

BUILDING DATA
Building Name: Porter Academic – South Addition
Address: 405 Porter-Kresge Road, Santa Cruz, CA 95064
Site location coordinates: Latitude 36.994116 Longitudinal -122.06505

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

ASCE 41-17 Model Building Type:
a. Longitudinal Direction: W1a: Wood Light Frames
b. Transverse Direction: W1a: Wood Light Frames

Gross Square Footage: 3,000
Number of stories *above* grade: 2
Number of basement stories *below* grade: 0
Building structural height, h_n (ft): 22.6' Fundamental period *(*longit/transverse, seconds): 0.21/0.21

Year Original Building was Constructed: 1990
Original Building Design Code & Year: UBC-1988
Retrofit Building Design Code & Code (if applicable): N/A

SITE INFORMATION
Site Class: D Basis[1]: (See footnote below)
Geologic Hazards:
Fault Rupture: No Basis: County map, see footnote below
Liquefaction: No Basis: County map, see footnote below
Landslide: No Basis: County map, see footnote below

ATTACHMENT
Original Structural Drawings: "Porter College Faculty Offices" by Don Upfer & Assoc, 10 Aug 1990, Sheet S1
Seismic Evaluation: n/a
Retrofit Structural Drawings: n/a

[1] 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

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Date: 2018-12-31

CERTIFICATION

I, Joe Maffei, 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[2] 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. Note: We reviewed as-built structural drawings by Don Urfer and Associates, entitled "Porter College Faculty Offices" dated 7 May 1990, and visited the site. The lateral resisting system of the building is wood shear walls. This is a Model Building Type W1, designed to the 1988 UBC which is later than the 1976 UBC benchmark.

☐ 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[3] 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.

☐ 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.

[2] Typically, we only observe the building exterior
[3] 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.

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CERTIFICATION SIGNATURE

Joseph Maffei	Principal
Print Name	Title
SE 3694	
CA Professional Registration No.	
	31 December 2018
Signature	Date

Maffei Structural Engineering
415-329-6100
98 Battery Street, San Francisco CA 94111

AFFIX SEAL HERE

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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.

GENERAL NOTES

(SEE SPECIFICATIONS FOR ADDITIONAL INFORMATION)

Site Condition: The Contractor shall examine and check all existing conditions, dimensions, levels and material and notify the Owner's REPRESENTATIVE of any discrepancies.

Footings: Footings shall rest on engineered fill or existing soil. Footings shall extend a minimum of 18" into rough pad grade. Footings are proportioned for an allowable soil pressure of 2000 psf for dead plus live load. See Steven Raas & Assoc. soils investigation letters dated November 7, 1989 and March 30, 1990.

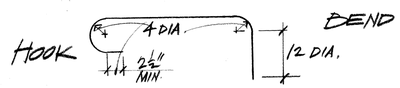
Concrete: Concrete shall be proportioned to give a 28 day compressive strength of at least 2500 PSI for slabs and 2000 PSI for foundations. The slump shall be the minimum consistent with the condition of placing but in general shall not exceed 4½ inches. All concrete construction shall be in accordance with Chapter 26 of the Uniform Building Code, 1988 Edition.

Reinforcing Bars: Reinforcing bars shall be deformed bars conforming to ASTM Standard Specification A615-76 Grade 40. Reinforcing shall be placed in as long lengths as possible. Bars shall lap 40 diameters at splices unless otherwise shown or noted in the plans, using the diameter of the larger bar in case of difference in size. Splices shall be staggered and bars may be wired together at splices. Bend steel around corners 12" minimum. All reinforcing steel shall be in accordance with Chapter 26 of the Uniform Building Code, 1988 Edition.

Bar coverage (face of bar to face of concrete) shall be as follows:

Concrete slab on grade	1½" min.
Concrete surface against earth	3" min.
When poured against forms	2" min.
All others	See details

Bars shall have bends and hooks as follows except as otherwise shown or noted:



Welded Wire Fabric: Welded wire fabric shall be per ASTM A185 of the gage and mesh size indicated on the plans, and shall be lapped a minimum of one mesh at all splices. Fabric shall be raised to the center of slab depth with hooks as the pour progresses.

Structural Steel: Structural steel shall conform to ASTM A-36. Fabrication, erection, welding and painting shall be in accordance with the latest edition of the American Institute of Steel Construction Specifications. All steel exposed to weather shall be galvanized.

Glulaminated Beams: Glulaminated beams shall be Douglas Fir, 1½" laminations, combination 20F-V3, with exterior glue. Fabricate in accordance with AITC 117-84 MANUFACTURING, Chapter 25 of the Uniform Building Code, 1988 Edition and to Uniform Building Code Standard 25-11. All beams shall be Industrial appearance grade. Submit Certificate of Inspection by an approved agency certifying that the beams were manufactured in accordance with the drawings and specifications.

Lumber: Lumber shall be Douglas Fir No. 2 S4S or better for 4x and smaller and Douglas Fir No. 1 for 6x and larger unless otherwise shown. Pieces with serious defects shall be discarded. All joists and beams shall be yard seasoned and the maximum moisture content at time of installation shall be 18% or less. Redwood shall be Foundation Grade Redwood. Plywood shall be APA CDX & Struct I in accordance with U.S. Commercial Standard PS1-74.

Nailing: Nailing shall be common wire nails, galvanized when exposed to the exterior. Subdrill where there is danger of splitting. Size and spacing shall be as follows:

Plywood	See Schedule Sheet S5.
All others	See Table 25-Q and Section 2510 (F) Uniform Building Code, 1988 Edition.

Bolts: Bolt holes in wood shall be 1/16 inch oversize. Washers shall be used on all bearings of heads and nuts against wood. Washers shall be standard plain washers except as otherwise noted. Bolts shall conform to ASTM A-307. Bolts, nuts and washers shall be galvanized where exposed to the weather.

Bolt Tightening: All nuts shall be tightened when placed and retightened at completion of project or immediately before finishing construction work which will make them inaccessible.

Wood Sills: Wood sills resting on concrete shall be Foundation Grade Redwood or pressure preservative treated Douglas Fir. Unless otherwise noted, anchor bolts shall be 5/8 inch diameter by 12 inches spaced no greater than 4'-0" o.c. with at least two bolts per piece of sill. All sill bolts shall have malleable iron washers.

Holes: Holes in wood sills or plates of shear and bearing walls shall be placed neatly in the center of piece and shall be no larger in diameter than one-third the width of sill or plate. Notching will not be allowed. Holes larger than noted above may be bored in the sills providing the sill is considered cut in two and anchor bolts placed accordingly.

Stud Walls: Horizontal bridging shall be installed in all walls and partitions where studs are greater than 8' in height. Stud walls supporting beams shall have posts under bearing unless otherwise noted.

Double Plates: Double plates shall lap a minimum of four feet at splices and be nailed with no less than 12-16d nails except as otherwise noted or shown. All cuts in plates shall occur over a bearing.

Lintels: Lintels over opening shall consist of a solid member the width of the studs and a nominal depth as given below unless otherwise noted.

Maximum Span	Nominal Depth
4'-0"	4"
6'-0"	6"
8'-0"	8"
10'-0"	10"
12'-0"	12"

Ceiling Joists: Ceiling joists where required shall be as follows (see drawings for areas of furred down ceilings).

Span	Joist
Up to 9'-0"	2x4 @ 16" o.c.
9'-0" to 15'-0"	2x6 @ 16" o.c.
15'-0" to 20'-0"	2x8 @ 16" o.c.

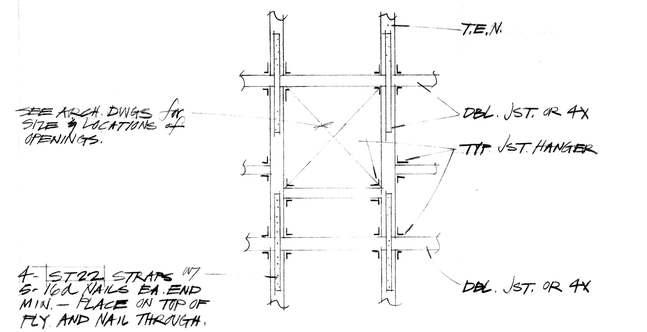
Cutting: Cutting of joists and beams for pipes shall not be permitted without the approval of the Engineer.

Framing Anchors: Joist hangers, sheet metal framing clips and angles shall be as manufactured by Simpson Company or equal.

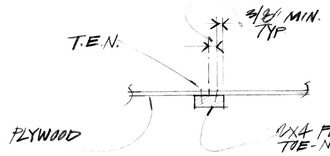
Note: All construction not specifically detailed shall be built to conform with similar construction shown and the requirements of the Uniform Building Code, latest edition.

ABBREVIATIONS

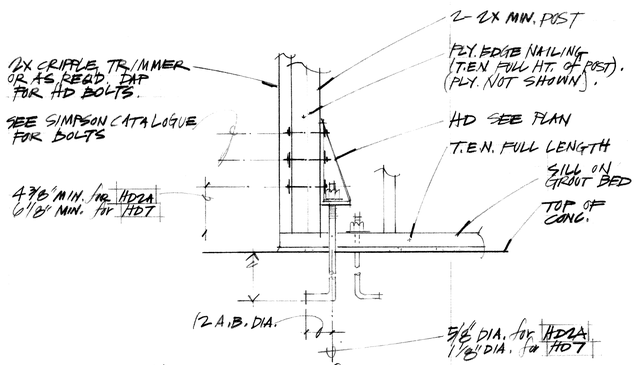
A.B.	=	Anchor Bolt	F.O.C.	=	Face of Concrete	Ply.	=	Plywood
Arch. Dwgs.	=	Architectural Drawings	F.O.S.	=	Face of Studs	#	=	Plate
Blk.	=	Block	Ft.	=	Foot, Feet	Reinf.	=	Reinforcing
Blkg.	=	Blocking	Ftg.	=	Footing	Ret.	=	Retaining
Bm.	=	Beam	Ga.	=	Gage	Req.	=	Requirements
Bott.	=	Bottom	Galv.	=	Galvanized	Rf.	=	Roof
℄	=	Center Line	Hdr.	=	Header	Rm.	=	Room
Clr.	=	Clear	Ht.	=	Height	Rdw.	=	Redwood
Col.	=	Column	Horiz.	=	Horizontal	S.B.	=	Solid Blocking
Compl. Pen.	=	Complete Penetration	Jst.	=	Joist	Sim.	=	Similar
Conc.	=	Concrete	Max.	=	Maximum	Sq.	=	Square
Cont.	=	Continuous	M.B.	=	Machine Bolt	Std.	=	Standard
Dbl.	=	Double	Mech.	=	Mechanical	T.E.N.	=	Typical Edge Nailing
Dia.	=	Diameter	Min.	=	Minimum	T & G	=	Tongue & Groove
(E)	=	Existing	(N)	=	New	TS	=	Structural Steel Tube
Ea.	=	Each	N.T.S.	=	Not to Scale	Typ.	=	Typical
Flr.	=	Floor	O.C.	=	On Center	Vert.	=	Vertical
Fnd.	=	Foundation	P.M.P.	=	Perforated Metal Pipe	W.W.F.	=	Welded Wire Fabric
			Perf.	=	Performed	W.	=	Steel Beam



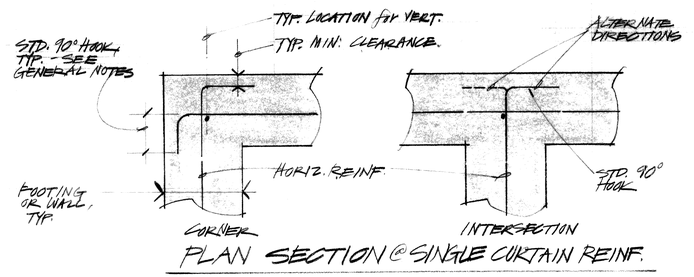
TYPICAL ROOF OPENING — 6/S1



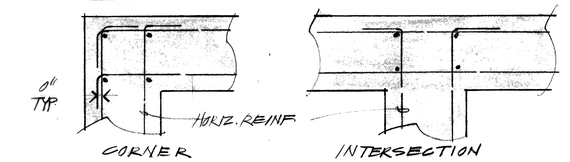
TYPICAL BLOCKING for PLYWOOD WHERE OCCURS — 7/S1



TYPICAL HOLDOWN (HD) — 8/S1

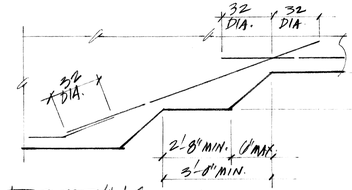


PLAN SECTION @ SINGLE CURTAIN REINF.

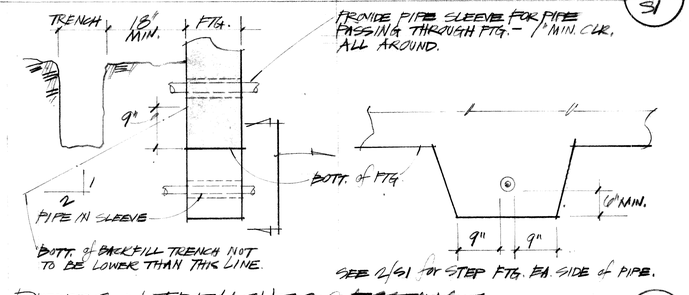


PLAN SECTION @ DBL CURTAIN REINF.

TYP. WALL & FTG REINF. @ CORNERS & INTERSECTIONS — 1/S1

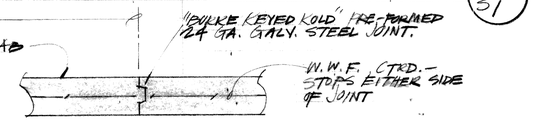


STEP FOOTING — 2/S1

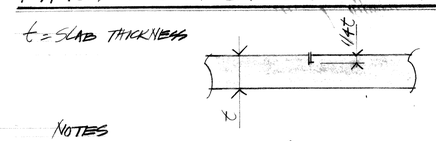


SEE 2/S1 for STEP FTG. EA. SIDE of PIPE.

PIPES and TRENCHES @ FOOTINGS — 3/S1



TYPICAL CONSTRUCTION JOINT — 4/S1



NOTES
1. SAWCUT WITHIN 18 HOURS of POUR.
2. MAXIMUM AREA BTWN SAWCUTS AND CONSTRUCTION JOINTS TO BE 225 SQ.FT.

TYPICAL SAWCUT — 5/S1

CALIFORNIA STATE FIRE MARSHAL

APPROVED

APPROVAL OF THIS PLAN DOES NOT CONSTITUTE OR APPROVE ANY OMISSION OR DEVIATION FROM THE REQUIREMENTS OF THE REGULATIONS. APPROVAL IS SUBJECT TO THE INSPECTION AND TESTING OF SPECIFIED ITEMS SHALL BE MADE AT THE TIME

REVIEWED BY

UNIVERSITY OF CALIFORNIA, SANTA CRUZ

PORTER COLLEGE FACULTY OFFICES

SANTA CRUZ, CA

DAVID C BOONE FAIA ARCHITECT

DON URFER & ASSOC. STRUCTURAL ENGINEER

File #3024

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