Campus: UCSF
Building Name: Weill Neurosciences Institute
CAAN ID: 3112
Auxiliary Building ID: NA

UNIVERSITY OF CALIFORNIA

Date: 2/24/2020

FORM 1

CERTIFICATE OF SEISMIC PERFORMANCE LEVEL

☒ **UC-Designed & Constructed Facility**

☐ **Campus-Acquired or Leased Facility**

BUILDING DATA

Building Name: MB Weill Neurosciences Institute (aka Block 23A)
Address: 1647 4th St., San Francisco
Site location coordinates: Latitude 37.7683 Longitudinal -122.3904

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

ASCE 41-17 Model Building Type:

a. Longitudinal Direction: C2: Concrete Shear Walls
b. Transverse Direction: C2: Concrete Shear Walls

Gross Square Footage: 274,000
Number of stories *above* grade: 6
Number of basement stories *below* grade: 0

Year Original Building was Constructed: 2020
Original Building Design Code & Year: CBC- 2016
Retrofit Building Design Code & Code (if applicable): NA

SITE INFORMATION

Site Class: D Basis: (Kleinfelder, 10/31/2017, 35)
Geologic Hazards:
Fault Rupture: No Basis: Kleinfelder,10/31/2017
Liquefaction: No Basis: Kleinfelder,10/31/2017
Landslide: No Basis: Kleinfelder,10/31/2017

ATTACHMENT

Original Structural Drawings: (Joan and Sanford I. Weill Neurosciences Building, Degenkolb, 11/9/2017, S-0001) or
Seismic Evaluation: NA
Retrofit Structural Drawings: NA

Campus: UCSF
Building Name: Weill Neurosciences Institute
CAAN ID: 3112
Auxiliary Building ID: NA

UNIVERSITY OF CALIFORNIA

Date: 2/24/2020

CERTIFICATION & PRESUMPTIVE RATING VERIFICATION STATEMENT

I, Maryann T. Phipps, 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

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.

Campus: UCSF
Building Name: Weill Neurosciences Institute
CAAN ID: 3112
Auxiliary Building ID: NA

UNIVERSITY OF CALIFORNIA

Date: 2/24/2020

CERTIFICATION SIGNATURE

AFFIX SEAL HERE

Maryann T. Phipps	President
Print Name	Title
S2995	6/30/2020
CA Professional Registration No.	License Expiration Date
Maryann T. Phipps	2/24/2020
Signature	Date

2/24/2020

Estructure, (510) 235-3116, 1144 65th St Suite A, Oakland
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.

GENERAL NOTES:

I GENERAL

1. MATERIALS AND WORKMANSHIP TO CONFORM WITH THE 2016 EDITION OF THE CALIFORNIA BUILDING CODE AND THE REQUIREMENTS OF THE CONTRACT DOCUMENTS.
2. THESE GENERAL NOTES SUPPLEMENT THE REQUIREMENTS OF THE PROJECT SPECIFICATIONS. IN CASE OF CONFLICT BETWEEN THE PLANS AND SPECIFICATIONS, CONTACT THE OWNER'S REPRESENTATIVE.
3. DRAWINGS INDICATE GENERAL AND TYPICAL DETAILS OF CONSTRUCTION. WHERE CONDITIONS ARE NOT SPECIFICALLY INDICATED BUT ARE OF SIMILAR CHARACTER TO DETAILS SHOWN, USE SIMILAR DETAILS OF CONSTRUCTION, SUBJECT TO REVIEW BY THE OWNER'S REPRESENTATIVE.
4. DETAILS AND DETAILS ON SHEETS TITLED "TYPICAL" APPLY TO SITUATIONS OCCURRING ON THE PROJECT THAT ARE THE SAME OR SIMILAR TO THOSE SPECIFICALLY REFERENCED. SUCH DETAILS ARE NOT NOTED AT EACH LOCATION THAT THEY OCCUR.
5. DO NOT SCALE THE DRAWINGS.
6. PROVIDE MEASURES NECESSARY TO PROTECT THE STRUCTURE DURING CONSTRUCTION. SUCH MEASURES INCLUDE, BUT MAY NOT BE LIMITED TO, BRACING AND SHORING FOR LOADS DURING CONSTRUCTION. RETAIN A REGISTERED CIVIL ENGINEER WHOM IS PROPERLY QUALIFIED TO DESIGN BRACING, SHORING, ETC.
7. INFORMATION SHOWN ON THE DRAWINGS RELATED TO EXISTING CONDITIONS REPRESENTS THE PRESENT KNOWLEDGE, BUT WITHOUT GUARANTEE OF ACCURACY. REPORT CONDITIONS THAT CONFLICT WITH THE CONTRACT DOCUMENTS TO THE OWNER'S REPRESENTATIVE. DO NOT DEVIATE FROM THE CONTRACT DOCUMENTS WITHOUT WRITTEN DIRECTION FROM THE OWNER'S REPRESENTATIVE.
8. REFER TO ARCHITECTURAL DRAWINGS FOR SIZE AND LOCATION OF FLOOR, ROOF AND WALL OPENINGS NOT SHOWN ON THE STRUCTURAL DRAWINGS. COORDINATE THE SIZE AND LOCATION OF OPENINGS ASSOCIATED WITH, BUT NOT LIMITED TO, ELECTRICAL, MECHANICAL AND PLUMBING TRADES. SUBMIT FINAL SIZING AND LOCATION REQUIREMENTS OF OPENINGS TO THE OWNER'S REPRESENTATIVE FOR REVIEW.
9. REFERENCE DATUM FOR THE ELEVATIONS IS FINISH FIRST FLOOR, PER CIVIL DRAWINGS, ELEVATION = 105.5'.

II. FOUNDATION AND SITE WORK

1. THE DESIGN OF THE FOUNDATION SYSTEM IS BASED UPON THE CRITERIA AND RECOMMENDATIONS CONTAINED IN THE GEOTECHNICAL INVESTIGATION REPORT ENTITLED "FINAL GEOTECHNICAL REPORT BLOCK23A NEUROSCIENCES RESEARCH BUILDING" BY KLEINFELDER, DATED OCTOBER 31, 2017.
2. THE GEOTECHNICAL REPORT IS PART OF THE CONSTRUCTION DOCUMENTS.
3. LOCATE AND PROTECT EXISTING UTILITIES TO REMAIN DURING AND/OR AFTER CONSTRUCTION.
4. REMOVE ABANDONED FOOTINGS, UTILITIES, ETC. WHICH INTERFERE WITH NEW CONSTRUCTION, UNLESS OTHERWISE INDICATED.
5. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR EXCAVATION PROCEDURES INCLUDING LAGGING, SHORING, UNDERPINNING AND PROTECTION OF EXISTING CONSTRUCTION.
6. EXCAVATIONS FOR FOUNDATIONS MUST BE ACCEPTED BY THE GEOTECHNICAL ENGINEER PRIOR TO PLACING REINFORCING AND CONCRETE. NOTIFY THE GEOTECHNICAL ENGINEER WHEN EXCAVATIONS ARE READY FOR INSPECTION.
7. PLACE BACKFILL BEHIND RETAINING WALLS AFTER CONCRETE HAS ATTAINED FULL DESIGN STRENGTH. BRACE BUILDING AND PIT WALLS BELOW GRADE FROM LATERAL LOADS UNTIL ATTACHED FLOORS AND SLABS ON GRADE ARE COMPLETE AND HAVE ATTAINED FULL DESIGN STRENGTH.
8. MECHANICALLY COMPACT EXCAVATION BACKFILLS IN LAYERS. PROVIDE THE FOLLOWING MINIMUM COMPACTION IN ACCORDANCE WITH THE ASTM D1557 TEST METHOD:

LOCATION	MAXIMUM DRY DENSITY
TRENCH AND WALL BACKFILL	90%
UPPER 6" OF SOIL BENEATH FILL	90%
FILL BENEATH SLAB ON GRADE	90%
FILL BENEATH PILECAPS	90%
OTHER	90%

III. REINFORCING STEEL

1. REINFORCING TO CONFORM TO THE FOLLOWING, UNLESS OTHERWISE NOTED:

REINFORCING STEEL	TYPE
#5 AND SMALLER	ASTM A706 OR A615, 60 KSI
#6 AND LARGER & BARS TO BE WELDED	ASTM A706, 60 KSI
HIGH STRENGTH REINF WHERE NOTED ON DWGS AS "HS"	ASTM A706, 80 KSI
SMOOTH DOWELS IN SLAB ON GRADE	ASTM A36, 36 KSI

2. MECHANICAL COUPLERS: TYPE 2 PER ACI-318, UNLESS OTHERWISE NOTED.
3. TERMINATE REINFORCING STEEL IN STANDARD HOOKS, UNLESS OTHERWISE SHOWN.

IV. CAST-IN-PLACE CONCRETE

1. CONCRETE IS REINFORCED AND CAST-IN-PLACE UNLESS OTHERWISE NOTED. WHERE REINFORCING IS NOT SPECIFICALLY SHOWN OR WHERE DETAILS ARE NOT GIVEN, PROVIDE REINFORCING SIMILAR TO THAT SHOWN FOR SIMILAR CONDITIONS, SUBJECT TO REVIEW BY THE OWNER'S REPRESENTATIVE. SUBSTITUTION OF SHOTCRETE FOR CAST-IN-PLACE CONCRETE IS NOT ACCEPTABLE.
2. ROUGHEN CONCRETE SURFACES OF CONSTRUCTION JOINTS TO 1/4 INCH AMPLITUDE AND CLEAN OF LAITANCE, FOREIGN MATTER, AND LOOSE PARTICLES AT THE FOLLOWING LOCATIONS: WHERE CAST AGAINST EXISTING CONCRETE; AT WALL, COLUMN AND BEAM JOINTS; WHERE CAST AGAINST EXISTING MASONRY/STONE, ETC.
3. REFER TO ARCHITECTURAL AND MECHANICAL DRAWINGS FOR LOCATIONS OF ADDITIONAL CONCRETE CURBS AND HOUSEKEEPING PADS NOT SHOWN.
4. CONCRETE CLEAR COVER TO REINFORCING BARS IS AS FOLLOWS, UNLESS OTHERWISE NOTED:

LOCATION	CLEAR COVER
BEAMS, GIRDERS AND COLUMNS NOT EXPOSED TO WEATHER OR EARTH:	1 1/2 INCHES
WALL OR SLAB SURFACES NOT EXPOSED TO WEATHER OR EARTH:	
#5 & SMALLER	3/4 INCH
#6 & #7	1 INCH
#8, #9, #10 & #11	1 1/2 INCHES
#14 & #18	2 1/2 INCHES
FORMED SURFACES EXPOSED TO WEATHER OR EXPOSED TO EARTH W/ A WATERPROOFING BARRIER:	
#6 BARS AND LARGER	2 INCHES
#5 BARS AND SMALLER	1 1/2 INCHES
PILE CAPS, GRADE BEAMS AND ALL ELEMENTS PLACED IN THE EARTH WITHOUT WATERPROOFING BARRIER:	3 INCHES

5. CONCRETE TYPES:
   - A. FOUNDATIONS (PILE CAP AND GRADE BEAMS):
     - a. 28-DAY STRENGTH: F'C = 5,000 PSI
     - b. TYPE: NORMAL WEIGHT
   - B. WALLS:
     - a. 56-DAY STRENGTH: F'C = 8,000 PSI
     - b. TYPE: NORMAL WEIGHT
   - C. COLUMNS:
     - a. 28-DAY STRENGTH: F'C = 6,000 PSI
     - b. TYPE: NORMAL WEIGHT
   - D. SLABS AND BEAMS:
     - a. 28-DAY STRENGTH: F'C = 5,000 PSI
     - b. TYPE: NORMAL WEIGHT
   - E. MISC. CURBS, HOUSEKEEPING PADS, ETC.:
     - a. 28-DAY STRENGTH: F'C = 5,000 PSI
     - b. TYPE: NORMAL WEIGHT
6. CONCRETE FILL THICKNESS SHOWN ON THE FRAMING PLANS ARE MINIMAL THICKNESSES. NO ALLOWANCES HAVE BEEN SHOWN FOR ADDITIONAL CONCRETE FILL REQUIRED TO COMPENSATE FOR FRAME, DECK, OR FORMWORK DEFLECTIONS TO MAINTAIN SURFACE TOLERANCES SPECIFIED.
7. NON-SHRINK GROUT: ASTM C1107, WITH MINIMUM COMPRESSIVE STRENGTH OF 7,000 PSI.

V. STRUCTURAL STEEL

1. STRUCTURAL STEEL TO CONFORM TO THE FOLLOWING UNLESS OTHERWISE NOTED:

SECTIONS	TYPE
ROLLED SHAPES:	
WIDE FLANGES	ASTM A992
CHANNELS, ANGLES, & OTHER:	ASTM A36
PLATES	
COLUMN BASE PLATES	ASTM A572, GR 50
BRACE GUSSET PLATES	ASTM A572, GR 50
BEAM SHEAR CONNECTION PLATES	ASTM A572, GR 50
COLUMN CONTINUITY PLATES	ASTM A572, GR 50
BEAM STIFFENER PLATES	ASTM A572, GR 50
EDGE OF DECK BENT PLATE	ASTM A36 OR A572
OTHER	ASTM A572, GR 50
STEEL PIPE	ASTM A53 GRADE B
COLD FORMED STRUCTURAL TUBING (HSS)	ASTM A500 GRADE B
STAINLESS STEEL SHAPES, PLATES & BARS	ASTM A276, TYPE 304L
BOLTS	ASTM A325X, F1852X
MACHINE BOLTS	ASTM A307, GRADE A
STAINLESS STEEL BOLTS	ASTM A193 B8M, CLASS 1
ALL-THREAD ROD AND THRU BOLTS	ASTM A36, U.O.N.
ANCHOR RODS	ASTM F1554, GR55 W/ WELDABLE SUPPLEMENT S1
HIGH STRENGTH ALL-THREAD ROD	ASTM A193 B7, GR105
STAINLESS STEEL ALL-THREAD ROD	ASTM A193 B8M CLASS 2
HANGER ROD	ASTM A572, GR50
WELDED SHEAR STUD CONNECTORS	ASTM A29-12, GRADE 1010 TO1020
WELDED THREADED STUDS	ASTM A29-12, GRADE 1010 TO 1020
NUTS FOR BOLTS AND MACHINE BOLTS	ASTM A563
STAINLESS STEEL NUTS	ASTM A194 GR8M
HARDENED WASHERS FOR BOLTS	ASTM F436
UNHARDENED FLAT WASHERS	ASTM F844, ANSI B18.22.1
STAINLESS STEEL WASHERS	ASTM A276, TYPE 304
BEVELED WASHERS	ANSI B18.23.1

2. HOT DIP GALVANIZE IN ACCORDANCE WITH ASTM A123 AND ASTM A153 STRUCTURAL STEEL AND FASTENERS THAT ARE PERMANENTLY EXPOSED TO THE WEATHER. REPAIR GALVANIZING AFTER WELDING IN ACCORDANCE WITH ASTM A780.
3. STRUCTURAL STEEL AND CONNECTIONS EXPOSED TO VIEW IN THE COMPLETED BUILDING ARE DESIGNATED ARCHITECTURALLY EXPOSED STRUCTURAL STEEL (AESS).
4. ARC-WELDING ELECTRODES/FILLER METALS TO BE LOW HYDROGEN TYPES E7XTX, E7XTXX OR E70MM-H4 AS APPLICABLE. ELECTRODES WITH CHARPY V-NOTCH TESTS VALUES OF A MINIMUM 20 FOOT-POUNDS AT 0 DEGREES FAHRENHEIT AND 40 FOOT- POUNDS AT 70 DEGREES FAHRENHEIT ARE TO BE USED AT ALL WELDS OF THE SEISMIC LATERAL FORCE RESISTING SYSTEM (SLRS), WHERE DESIGNATED "DC" ON THE DRAWINGS.
5. WHERE FIELD WELDING IS NOTED, THE DESIGNATION IS GIVEN AS A SUGGESTED CONSTRUCTION PROCEDURE ONLY.

VI. COLD-FORMED METAL FRAMING

1. STUDS: ASTM C955 AND ASTM A1003, "C" SHAPED WITH LIPPED FLANGES AND PUNCHED WEB. PROVIDE G60 COATING MINIMUM.
   - A. 43 MIL (18 GAGE) AND LIGHTER: GRADE 33 TYPE H
   - B. 54 MIL (16 GAGE) AND HEAVIER: GRADE 50 TYPE H
2. TRACK: ASTM C955 AND ASTM A1003, "U" SHAPED WITH UN-PUNCHED WEB. PROVIDE G60 COATING MINIMUM.
   - A. MATCH DEPTH, THICKNESS AND GRADE OF STUDS.
3. JOISTS: ASTM A1003. PROVIDE G60 COATING MINIMUM.
   - A. 43 MIL (18 GAGE) AND LIGHTER: GRADE 33 TYPE H
   - B. 54 MIL (16 GAGE) AND HEAVIER: GRADE 50 TYPE H
4. FRAMING DESIGNATIONS ON PLANS ARE BASED ON THE STEEL STUD MANUFACTURER'S ASSOCIATION (SSMA) PRODUCT TECHNICAL GUIDE (ICC-ESR-3064P). ALTERNATE FRAMING MAY BE PROPOSED IF A CURRENT ICC EVALUATION REPORT IS PROVIDED SHOWING EQUIVALENCY WITH SSMA PROPERTIES.
5. INSTALL STUDS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS AND ASTM C1007. INSTALL JOISTS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
6. SHEET METAL SCREWS: SELF-DRILLING, SELF-TAPPING, HDG PER ASTM A153. PAN OR HEX WASHER HEAD AS REQUIRED BY FINISH.
   - A. PRODUCTS: ITW-BUILDEX TEKS SELECT (ICC-ESR-3223), GRABBER DRIVALL (ICC ESR-1271) OR APPROVED EQUIVALENT.
7. MINIMUM SCREW SPACING AND EDGE DISTANCE TO BE 3/4".
8. ATTACH STUD TO TRACK WITH (1) #12 SHEET METAL SCREW AT EACH FLANGE, UNLESS OTHERWISE NOTED.
9. POWDER ACTUATED FASTENERS: HILTI LOW-VELOCITY X-U (ICC-ESR-2269).

BASE MATERIAL	MINIMUM EMBEDMENT	MINIMUM EDGE DISTANCE
STEEL	PER MANUF	1/2"
CONCRETE	1"	3"

10. WELDING TO BE IN ACCORDANCE WITH AWS D1.3. WELDERS TO BE QUALIFIED IN ACCORDANCE WITH AWS D1.1.
    - A. WELDING ELECTRODE: E70XX
11. INSTALL BLOCKING AT 4'-0" OC AT ALL STUDS AND JOISTS, UNLESS OTHERWISE NOTED.

VII. METAL STRUT SYSTEM

1. METAL STRUT FRAMING COMPONENTS AND HARDWARE DESIGNATIONS SHOWN ON THE DRAWINGS ARE BASED ON UNISTRUT PART NUMBERS. ALTERNATE METAL STRUT FRAMING SYSTEMS WITH EQUIVALENT PROPERTIES MAY BE SUBMITTED FOR REVIEW AND APPROVAL PRIOR TO INSTALLATION.
2. INSTALL METAL STRUT FRAMING SYSTEM IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
3. USE 1/2" DIAMETER BOLTS WITH SPRING NUTS AT CONNECTIONS UNLESS OTHERWISE NOTED. TIGHTEN BOLTS TO A TORQUE OF 50 FOOT-POUNDS.
4. METAL STRUT FRAMING FINISH: PRE-GALVANIZED (PG), G90 PER ASTM A653.
   - A. WHERE EXPOSED TO WEATHER, PROVIDE HOT-DIP GALVANIZED FINISH TO STRUT FRAMING, BOLTS, NUTS, WASHERS, AND OTHER HARDWARE PER ASTM A123 OR A153.
5. STRUT TO BE SOLID (NO SLOTS) OR WITH HS HOLE PATTERN STYLE ONLY. SLOTTED, HALF SLOTTED, PUNCHED OR CHANNELS WITH KNOCKOUTS ARE NOT PERMITTED UNLESS OTHERWISE NOTED.
6. ALL THROUGH BOLT CONNECTIONS AT STRUT FRAMING OR STRUCTURAL STEEL MEMBERS TO INCLUDE A NUT AND STANDARD WASHER ABOVE AND BELOW CONNECTED MEMBER, UNLESS OTHERWISE NOTED.

VIII. MECHANICAL ANCHORS

1. EXPANSION OR WEDGE ANCHORS INTO CONCRETE: HILTI KB-TZ (ICC-ESR-1917), SIMPSON STRONG-BOLT 2 (ICC-ESR-3037) OR POWERS POWER-STUD+ SD2 (ICC-ESR-2502). UNLESS SPECIFICALLY NOTED OTHERWISE.
2. HEAVY DUTY SLEEVE ANCHORS INTO CONCRETE: HILTI HSL-3 ANCHORS (ICC-ESR-1545) OR POWERS POWER-BOLT+ (ICC-ESR-3260).
3. UNDERCUT ANCHORS: HILTI HDA (ICC-ESR-1546)[, SIMPSON STRONG-TIE TORQ-CUT (ICC-ESR-2705); POWERS ATOMIC+ UNDERCUT (ICC-ESR-3067).]
4. SCREW ANCHORS: HILTI HUS-EZ (ICC-ESR-3027), SIMPSON STRONG-TIE TITEN-HD (ICC-ESR-2713), POWERS WEDGE-BOLT+ (ICC-ESR-2526)
5. ALL EMBEDMENT DEPTHS NOTED ON DRAWINGS ARE EFFECTIVE EMBEDMENT PER MANUFACTURER.
6. INSTALL ANCHORS IN ACCORDANCE WITH LATEST ICC-ESR REPORT AND MANUFACTURER INSTRUCTIONS.
7. PROVIDE STAINLESS STEEL FASTENERS FOR EXTERIOR USE OR WHEN EXPOSED TO WEATHER. PROVIDE GALVANIZED CARBON STEEL ANCHORS AT OTHER LOCATIONS, UNLESS OTHERWISE NOTED.
8. IF REINFORCEMENT IS ENCOUNTERED DURING DRILLING, ABANDON AND SHIFT THE HOLE LOCATION TO AVOID THE REINFORCEMENT. PROVIDE A MINIMUM OF 2 ANCHOR DIAMETERS OR 1 INCH, WHICHEVER IS LARGER, OF SOUND CONCRETE BETWEEN THE DOWEL AND THE ABANDONED HOLE. FILL THE ABANDONED HOLE WITH NON-SHRINK GROUT. IF THE ANCHOR MAY NOT BE SHIFTED AS NOTED ABOVE, THE ENGINEER WILL DETERMINE A NEW LOCATION.
9. LOCATE REINFORCEMENT AND CONFIRM FINAL ANCHOR LOCATIONS PRIOR TO FABRICATING PLATES, MEMBERS, OR OTHER STEEL ASSEMBLIES ATTACHED WITH MECHANICAL ANCHORS.
10. ANCHORS REQUIRE PERIODIC SPECIAL INSPECTION AND ARE TO BE PROOF-TESTED BY OWNER'S TESTING AND INSPECTION AGENCY.
11. TEST ANCHORS NO SOONER THAN 24 HOURS AFTER INSTALLATION.
12. TEST 25% OF ANCHORS TO THE MANUFACTURER'S RECOMMENDED INSTALLATION TORQUE OR RECOMMENDED TORQUE IN ICC-ESR REPORT.

IX. ADHESIVE ANCHORS AND DOWELS

1. ANCHORS AND DOWELS INSTALLED INTO CONCRETE: HILTI HY-200 (ICC-ESR-3187), SIMPSON STRONG-TIE SET-XP (ICC-ESR-2508) OR POWERS PURE 110+ (ICC ESR-3298). ALL EMBEDMENT DEPTHS NOTED ON DRAWINGS ARE EFFECTIVE EMBEDMENT PER MANUFACTURER.
2. THE TESTING LABORATORY IS TO PERFORM TENSION TESTS ON 25% OF ANCHORS AND DOWELS TO THE FOLLOWING TEST LOADS:

ROD DIA OR BAR SIZE	CMIN	TEST LOAD (LBS)	
		ANCHOR LOCATED > CMIN & < 12" FROM EDGE	ANCHOR LOCATED > 12" FROM EDGE
3/8", #3	2"	1,300	1,600
1/2", #4	2 1/2"	2,000	3,400
5/8", #5	3"	2,800	4,200
3/4", #6	4"	3,700	5,000
7/8", #7	4 1/2"	3,700	5,000
1", #8	5"	4,800	6,100

3. ANCHORS: ASTM A36 THREADED RODS WITH ASTM A563 GRADE A NUTS AND ANSI B18.22.1 TYPE A WASHERS, UNLESS OTHERWISE NOTED. ANCHORS DESIGNATED AS ASTM A193 GRADE B7 THREADED RODS TO USE ASTM A563 GRADE DH HEAVY HEX NUTS AND ASTM F436 WASHERS.
4. REBAR DOWELS: ASTM A615 GRADE 60 REINFORCING STEEL.
5. INSTALL ANCHORS IN ACCORDANCE WITH LATEST ICC-ESR REPORT AND MANUFACTURER INSTRUCTIONS.
6. IF REINFORCEMENT IS ENCOUNTERED DURING DRILLING, ABANDON AND SHIFT THE HOLE LOCATION TO AVOID THE REINFORCEMENT. PROVIDE A MINIMUM OF 2 ANCHOR DIAMETERS OR 1 INCH, WHICHEVER IS LARGER, OF SOUND CONCRETE BETWEEN THE DOWEL AND THE ABANDONED HOLE. FILL THE ABANDONED HOLE WITH NON-SHRINK GROUT. IF THE ANCHOR OR DOWEL MAY NOT BE SHIFTED AS NOTED ABOVE, THE ENGINEER WILL DETERMINE A NEW LOCATION.
7. LOCATE REINFORCEMENT AND CONFIRM FINAL ANCHOR LOCATIONS PRIOR TO FABRICATING PLATES, MEMBERS, OR OTHER STEEL ASSEMBLIES ATTACHED WITH ADHESIVE ANCHORS.

X. STRUCTURAL TESTS, INSPECTIONS, AND OBSERVATIONS

1. AN INDEPENDENT TESTING AGENCY AND SPECIAL INSPECTORS WILL BE RETAINED BY THE OWNER TO PERFORM TESTS AND INSPECTION.
2. THE FOLLOWING ITEMS REQUIRE TESTS AND INSPECTIONS IN ACCORDANCE WITH THE REQUIREMENTS OF THE CHAPTER "STRUCTURAL TESTS AND INSPECTIONS" OF THE APPLICABLE CODE. REQUIREMENTS FOR TESTS AND INSPECTIONS ARE IDENTIFIED IN THE SPECIFICATIONS.
   - A. SOILS AND EXCAVATIONS
   - B. PILES
   - C. REINFORCING STEEL
   - D. CAST-IN-PLACE CONCRETE
   - E. STRUCTURAL STEEL
   - F. POST-INSTALLED ANCHORS
   - G. SEISMIC LATERAL RESISTING SYSTEM (SLRS)
3. PROVIDE TESTS AND INSPECTIONS IN ACCORDANCE WITH THE 2016 CBC TESTING AND INSPECTION FORM. REQUIREMENTS FOR TESTS AND INSPECTIONS ARE IDENTIFIED IN THE SPECIFICATIONS.
4. NOTIFY THE ENGINEER AT SIGNIFICANT CONSTRUCTION STAGES 72 HOURS IN ADVANCE AND PROVIDE ACCESS FOR THE FOLLOWING STRUCTURAL OBSERVATIONS:
   - A. FOUNDATIONS (PILE CAPS)
     - a. REINFORCEMENT
   - B. STEEL FRAMING
     - a. FRAMING – BEAMS AND COLUMNS
   - C. CONCRETE
     - a. WALL REINFORCEMENT AND BOUNDARY ELEMENTS
     - b. FRAME REINFORCEMENT – BEAMS AND COLUMNS
     - c. SUSPENDED SLAB REINFORCING

XI. DESIGN CRITERIA

1. APPLICABLE CODE: 2016 CALIFORNIA BUILDING CODE IN CONCURANCE WITH UCSF'S TECHNICAL PERFORMANCE CRITERIA DATED APRIL 3, 2017.
2. FOUNDATIONS HAVE BEEN DESIGNED WITH THE FOLLOWING CRITERIA:
   - A. AUGER CAST PILES:
     - a. ALLOWABLE COMPRESSION CAPACITY: 400 KIPS
     - b. ALLOWABLE TENSION CAPACITY: 250 KIPS
3. LONG TERM SOIL SETTLEMENT:
   - A. 6" MAX SOIL SETTLEMENT. SEE GEOTECH REPORT.
4. SOIL RETAINING STRUCTURES HAVE BEEN DESIGNED WITH THE FOLLOWING CRITERIA:
   - A. LATERAL DESIGN PRESSURES (SEE GEOTECH REPORT):
     - a. RESTRAINED: 60 PCF
     - b. UNRESTRAINED: 40 PCF
     - c. SURCHARGE = 100 PLF FOR LIGHT TRAFFIC LOADS.
5. GRAVITY LOADS:
   - A. DEAD LOADS: VARY BASED ON ACTUAL BUILDING AND EQUIP OPERATING WEIGHTS. SEE LOAD DIAGRAMS IN S-0100 SERIES.
   - B. LIVE LOADS: VARY BASED ON LOCATION. SEE LOAD DIAGRAMS IN S-0100 SERIES.
6. CODE BASED SEISMIC DESIGN:
   - A. SEISMIC RESPONSE COEFFICIENT: Cs= 0.169
   - B. DESIGN BASE SHEAR:
     V = 10,225 KIPS (NORTH-SOUTH)
     V = 10,225 KIPS (EAST-WEST)
     WHERE: R= 6 FOR SPECIAL REINFORCED CONCRETE SHEAR WALL
     SS= 1.5g (MAPPED)
     S1= 0.6g (MAPPED)
     SDS= 1.12g (SITE SPECIFIC)
     SD1= 0.9g (SITE SPECIFIC)
     SEISMIC IMPORTANCE FACTOR (Ie): 1.25
     RISK CATEGORY: III
     SITE CLASS: SITE SPECIFIC, SEE GEOTECHNICAL REPORT
     SEISMIC DESIGN CATEGORY: D
     RHO= 1.0
   - C. ANALYSIS PROCEDURE: LINEAR DYNAMIC
   - D. BASE LEVEL, USED IN ANALYSIS: LEVEL 1
   - E. STRUCTURAL IRREGULARITIES:
     - a. VERTICAL: NONE
     - b. HORIZONTAL: TYPE 2 - REENTRANT CORNER IRREGULARITY
7. PERFORMANCE BASED SEISMIC DESIGN:
   - A. APPLICABLE CODE: ASCE 41-13 WITH ADD'L UCSF PERFORMANCE REQUIREMENTS DETAILED IN THE TECHNICAL PERFORMANCE CRITERIA (TPC) DOCUMENT, DATED APRIL 3, 2017
   - B. TECHNICAL PERFORMANCE CRITERIA
     - a. SEISMIC PERFORMANCE OBJECTIVE: TIER 2
       - INCLUDES ALL MINIMUM CODE REQUIREMENTS
     - b. SEISMIC DEMAND: MODERATE SCENARIO EARTHQUAKE
       - MOMENT MAGNITUDE Mw = 7.0 ON THE SAN ANDREAS PENNINSULA SEGMENT OR HAYWARD NORTH SEGMENT FAULTS
     - c. STRUCTURAL PERFORMANCE LEVEL: S-2 (DAMAGE CONTROL)
     - d. NONSTRUCTURAL PERFORMANCE LEVEL: N-B (POSITION RETENTION)
   - C. ANALYSIS PROCEDURE: NONLINEAR TIME HISTORY ANALYSIS
8. WIND DESIGN:
   - A. BASIC WIND SPEED V (ULTIMATE): 115 MPH
   - B. WIND EXPOSURE: C
   - C. RISK CATEGORY: III
   - D. INTERNAL PRESSURE COEFFICIENT: GCPI = +/- 0.18 FOR ENCLOSED BUILDINGS
9. VIBRATION DESIGN CRITERIA:
   - A. SLABS HAVE BEEN EVALUATED FOR WALKING INDUCED VIBRATIONS USING THE FINITE ELEMENT PROCEDURE DESCRIBED IN WILFORD AND YOUNG'S, " A DESIGN GUIDE FOR FOOTFALL INDUCED VIBRATION OF STRUCTURES (NOVEMBER 2006)."
   - B. VELOCITY VIBRATION VALUES LISTED IN ROOM MAPS CONSIDER A MEDIUM (75 PACES PER MINUTE) WALKING PACE IN AREA OF INTEREST AND A FAST WALKING PACE (100 PACES PER MINUTE) IN MAIN CORRIDORS IDENTIFIED.
   - C. WALKER WEIGHT = 185 LBS
   - D. VIBRATION MAPS PER S-0103 AND S-0104.
10. DEFLECTION CRITERIA:
    - A. LONG-TERM DUE TO SUPER-IMPOSED DEAD + LIVE LOADS (INCLUDES CREEP. EXCLUDES INITIAL SELF-WEIGHT DEFLECTION):
      - a. FLOORS = 1"
      - b. ROOF = 1"
    - A. FLOOR DIRECTLY ABOVE OR BELOW EXTERIOR WALL:
      - a. LONG-TERM = 1/2"
      - b. LIVE LOAD ONLY = 3/8"
11. SEISMIC DRIFT:
    - A. CLADDING AND GLAZING, STAIRS, PARTITIONS, MEP SYSTEMS, ETC DESIGNED BY OTHERS ARE TO ACCOMMODATE AN INTER-STORY DRIFT OF 1.5% TIMES THE STORY HEIGHT. THE LISTED DRIFT RATIO IS NOT INCLUSIVE OF Ie.
    - B. CONNECTING SITE UTILITIES TO ACCOMMODATE 1" HORIZONTAL DISPLACEMENT AT THE FIRST FLOOR STRUCTURE IN ANY DIRECTION.
12. SUSPENDED LOADING FROM STRUCTURE:
    - A. ALLOWABLE SUSPENDED LOADS FROM CONCRETE FLOORS AND ROOF ARE AS FOLLOWS:
      - a. MAX POINT LOAD ON SLAB OR BEAM = 1,000 LBS.
      - b. MAX TOTAL LOAD WITHIN THE TRIBUTARY AREA OF ANY SLAB OR BEAM = SEE LOADING DIAGRAMS S-0100 SERIES
    - B. CONNECTION TO STEEL FRAMING TO BE CONCENTRIC AND NOT IMPART TORSIONAL FORCES.
    - C. MAX EXTERIOR WALL LOADS ON EDGE OF SLAB: SEE LOADING DIAGRAMS ON S-0100 SERIES.
13. THE FOLLOWING ARE ITEMS, AND THEIR CONNECTION TO THE STRUCTURE ARE TO BE DESIGNED BY A SPECIALTY ENGINEER IN ACCORDANCE WITH THE ABOVE LOADING, DESIGN CRITERIA AND THE APPLICABLE DESIGN CODE:
    - A. STAIRS
    - B. EXTERIOR WALL SYSTEMS
    - C. ELEVATOR SYSTEMS
    - D. EQUIPMENT ANCHORAGE AND BRACING
    - E. EXCAVATION SUPPORT AND PROTECTION
14. DESIGN TEAM

RAY PUGLIESI	PROJECT PRINCIPAL
ADAM HUGO-HOLMAN	ASSOCIATE
MELISSA VICKERY	PROJECT ENGINEER
ARIEL CREAGH	DESIGN ENGINEER
KELLY DUDECK	DESIGNER
KATIE BOISSEREE	DESIGNER
MIGUEL MARASIGAN	PROJECT CAD/BIM SPECIALIST

UCSF

UNIVERSITY OF CALIFORNIA SAN FRANCISCO

JOAN AND SANFORD I. WEILL NEUROSCIENCES BUILDING

XXXX 4TH ST. SAN FRANCISCO, CA 94158

CAAN 3112

SMITHGROUP JJR

ARCHITECT OF RECORD
301 BATTERY STREET
7TH FLOOR
SAN FRANCISCO, CA 94111
415.227.0100
www.smithgroupjjr.com

CAVAGNERO
MARK CAVAGNERO ASSOCIATES ARCHITECTS

DESIGN ARCHITECT
1045 Sansome Street, Suite 200
San Francisco, CA 94111
415.398.6944

DPR CONSTRUCTION

CONSTRUCTION MANAGER AT RISK
945 Front Street
San Francisco, CA 94111
415.782.3700

DEGENKOLB
STRUCTURE
375 Beale street, Suite 500
San Francisco, CA 94105
415.392.6952

CRITCHFIELD MECHANICAL, INC.
MECHANICAL
1901 Junction Ave.
San Jose, CA 95131
408.437.7199

SOUTHLAND INDUSTRIES
PLUMBING
33225 Western Ave.
Union City, CA 94587
510.477.3300

REDWOOD ELECTRIC GROUP
ELECTRICAL
2775 Northwestern Pkwy.
Santa Clara, CA 95051
408.450.4800

O | CB
LANDSCAPE
146 Eleventh Steet
San Francisco, CA
94103

ISSUED FOR	REV	DATE
UNDERGROUND AND FOUNDATION CD		09 NOV 2017

SEALS AND SIGNATURES

REGISTERED PROFESSIONAL ENGINEER
RAYMOND S. PUGLIESI
No. 3968
STRUCTURAL
STATE OF CALIFORNIA

PROJECT NUMBER	UCSF PROJECT NUMBER
22513.000	M4641

SHEET TITLE

GENERAL NOTES

SCALE: NOT TO SCALE

CAMPUS	CAAN
MB	3112

PROJECT PHASE	SHEET NUMBER
CD	S-0001

PACKAGE I - VOLUME I - UNDERGROUND

Plot Date: 11/9/2017 12:10:22 PM MAM

Discussion of Rating

As stated on Sheet S0.001, Block 23A was originally designed to satisfy three structural performance objectives:

HAZARD LEVEL	STRUCT'L PERFORMANCE LEVEL	ANALYSIS
BSE-1N	S-3	Linear Dynamic (Code-based, Risk Cat 3)
BSE-2N	S-5	Linear Dynamic (Code-based, Risk Cat 3)
Moderate Site-Specific EQ	S-2	NLRH

In order to qualify for Seismic Performance Level II, the following is required (UC Policy and California Existing Building Code excerpts below):

HAZARD LEVEL	STRUCTURAL PERFORMANCE LEVEL
BSE-1N	S-2
BSE-2N	S-4

A building evaluated as meeting or exceeding the requirements of CBC Part 10 Chapter 3 for Risk Category IV performance criteria.	II

TABLE 317.5
SEISMIC PERFORMANCE REQUIREMENTS BY BUILDING REGULATORY AUTHORITY AND RISK CATEGORY.

Building Regulatory Authority	*Risk Category*	PERFORMANCE CRITERIA	
		Level 1	*Level 2*
State-Owned [BSC]	*I, II, III*	*BSE-R, S-3, N-C*	*BSE-C, S-5, N-D*
State-Owned [BSC]	*IV*	*BSE-R, S-2, N-B*	*BSE-C, S-4, N-D*

Since the moderate earthquake spectrum exceeds the BSE-1N spectrum at the fundamental period of the building and lower in both directions (see attached), the BSE-1N/S-2 criterion is met. However, the BSE-2N/S-4 criterion was not explicitly checked. A quantitative assessment is required to presumptively rate 23A II. The design satisfies the structural performance requirements associated with Seismic Performance Level III.

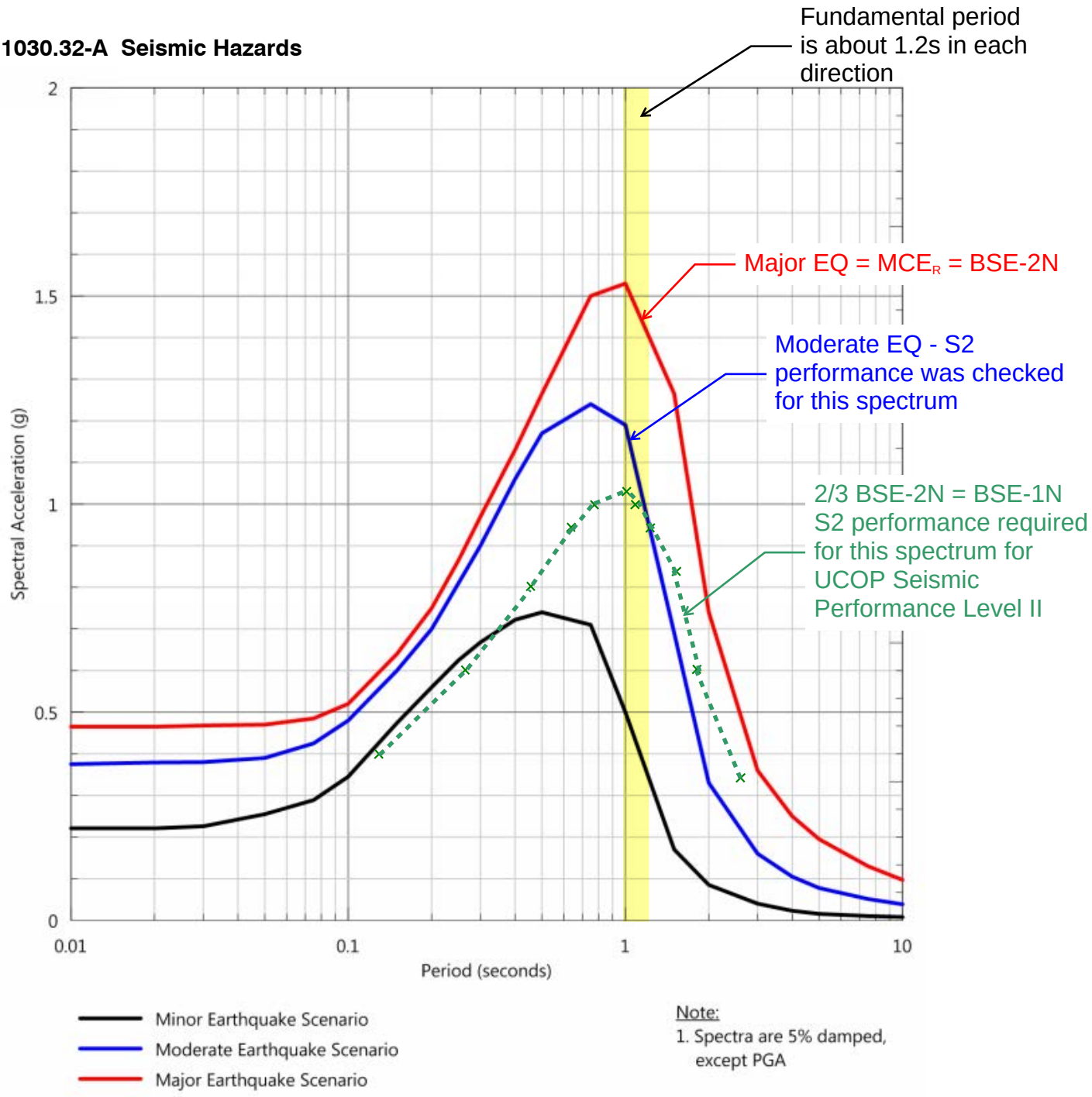
Nonstructural design was in accordance with the 2016 CBC, which satisfies the mandated requirements for SPL II:

HAZARD LEVEL	NONSTRUCTURAL PERFORMANCE LEVEL
BSE-1N	N-B (Position Retention)
BSE-2N	N-D

Based on the structural performance criteria, Block 23A (Weill Institute) meets Seismic Performance Level III.

By: Maryann Phipps, S.E.
Estructure
2/24/2020

Figure F 1030.32-A Seismic Hazards



F 1030.33 Seismic Performance Levels

For purposes of evaluation of seismic performance, a building is to be considered as including all the structural and non-structural elements of the building permanently attached to the structure. The cladding system is considered to be a part of the non-structural system and evaluated.

a. Four earthquake performance levels are used to characterize post-earthquake damage states described in Section 1030.31. Only three of these are used for design of new buildings.
    I. FULLY OPERATIONAL PERFORMANCE STATE: A building in the Fully Operational performance state following an earthquake is expected to experience only incidental