Campus: UCSF
Building Name: Dolby Regeneration Medicine
CAAN ID: 3047
Auxiliary Building ID: IRM Building

UNIVERSITY OF CALIFORNIA

Date: 8/16/2019

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

BUILDING DATA
Building Name: Dolby Regeneration Medicine (includes structurally independent pedestrian bridge connecting to HSIR tower)
Address: 35 Medical Center Way
Site location coordinates: Latitude 37.7618 Longitudinal -122.4581

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

ASCE 41-17 Model Building Type:
a. Longitudinal Direction: S2: Ordinary Concentrically Braced Frames with Base Isolation
b. Transverse Direction: S2: Ordinary Concentrically Braced Frames with Base Isolation
Additional: Bridge contains independent trussed steel tower and steel piers cantilevered from the foundation

Gross Square Footage: 68,765
Number of stories *above* grade: 0
Number of basement stories *below* grade: 3

Year Original Building was Constructed: 2010
Original Building Design Code & Year: CBC-2007
Retrofit Building Design Code & Code (if applicable): NA

SITE INFORMATION
Site Class: C Basis: (Forell/Elesser, 9/30/2010, S0.0.1)
Geologic Hazards:
Fault Rupture: No Basis: UCSF Presumptive Buildings – Geotechnical Assessment, Egan (2019)
Liquefaction: No Basis: UCSF Presumptive Buildings – Geotechnical Assessment, Egan (2019)
Landslide: No Basis: UCSF Presumptive Buildings – Geotechnical Assessment, Egan (2019)

ATTACHMENT
Original Structural Drawings: (Institute of Regeneration Medicine Building, Forell/Elesser, 9/30/2010, S0.0.1) or
Seismic Evaluation: NA
Retrofit Structural Drawings: NA

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.

UNIVERSITY OF CALIFORNIA

Date: 8/16/2019

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	6/18/2019
Signature	Date

9/4/2019

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

1. REFER TO SPECIFICATIONS FOR COMPLETE REQUIREMENTS. MORE STRINGENT REQUIREMENT CONTROLS WHERE INFORMATION SHOWN ON DRAWINGS AND IN SPECIFICATIONS ARE IN CONFLICT.
2. CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE CALIFORNIA BUILDING CODE, 2007 EDITION.
3. DETAILS OF THE CONSTRUCTION NOT FULLY SHOWN OR NOTED ON THE DRAWINGS NOR CALLED FOR IN THE SPECIFICATIONS SHALL BE OF THE SAME SIZE AND CHARACTER AS FOR SIMILAR CONDITIONS WHICH ARE SHOWN AND NOTED.
4. THE WORD "TYPICAL" SHALL MEAN THAT THE INDICATED INFORMATION SHALL BE APPLIED TO ALL SIMILAR CONDITIONS WHETHER OR NOT THE INFORMATION IS SPECIFICALLY REFERENCED, UNLESS NOTED OTHERWISE ON THE DRAWINGS
5. THE CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS AND DIMENSIONS AT JOB SITE. THE CONTRACTOR SHALL COMPARE STRUCTURAL DRAWINGS WITH ARCHITECTURAL, CIVIL, LANDSCAPE, MECHANICAL, PLUMBING, AND ELECTRICAL DRAWINGS BEFORE COMMENCING WITH THE WORK AND SHALL NOTIFY THE ARCHITECT OF ANY DISCREPANCIES REQUIRING CLARIFICATION OR REVISION. DO NOT SCALE DRAWINGS.
6. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE SAFETY AND PRESERVATION OF THE BUILDING AND CONTENTS DURING CONSTRUCTION, AND SHALL BE SOLELY RESPONSIBLE FOR PROVIDING A SAFE PLACE TO WORK. THE CONTRACTOR SHALL EXECUTE WORK TO ENSURE SAFETY OF PERSONS AND PROPERTY AGAINST DAMAGE BY FALLING DEBRIS AND OTHER HAZARDS IN CONNECTION WITH THIS WORK, AND SHALL PROVIDE ADEQUATE SHORING AND BRACING DURING ALL DEMOLITION AND CONSTRUCTION.

DESIGN BASIS

THE DESIGN IS IN ACCORDANCE WITH THE CALIFORNIA BUILDING CODE, 2007 EDITION AND PROVIDES FOR THE FOLLOWING LOADS:

DEAD LOADS

SLAB AND FRAMING WEIGHTS AS SHOWN ON THE PLANS

SUPERIMPOSED DEAD LOADS

ROOFS		
OFFICE & MECHANICAL	40	PSF
LABORATORY (GREEN)	80	PSF
FLOORS		
LABORATORIES	30	PSF
OFFICES	35	PSF
MECHANICAL	45	PSF
STAIRS & RAMPS	10	PSF

LIVE LOADS

ROOFS		
OFFICE & MECHANICAL	20	PSF
LABORATORY (GREEN)	50	PSF
BRIDGE	20	PSF
FLOORS		
LABORATORIES	80	PSF
CORRIDORS, STAIRS, RAMPS	100	PSF
MECHANICAL	50	PSF
OFFICE	50	PSF
LOADING DOCK	100	PSF
BRIDGE	100	PSF

WIND LOADS

BASIC WIND SPEED = 85 MPH
EXPOSURE CATAGORY = C
Iw = 1.0
qh = 20 psf
h = 60 ft
GCpi = ± 0.18

SEISMIC LOADS

V (NORTH-SOUTH) =	0.14 W
V (EAST-WEST) =	0.14 W
Cs (NORTH-SOUTH) =	0.06 g
Cs (EAST-WEST) =	0.06 g
SEISMIC DESIGN CATAGORY =	D
OCCUPANCY CATAGORY =	II
I =	1.0

Sms = 1.285 g
Sm1 = 0.85 g
SOIL TYPE = Sc
Sds = 0.855 g
Sd1 = 0.565 g

SEISMIC LOAD RESISTING SYSTEMS

NORTH -SOUTH DIRECTION:
STEEL ORDINARY CONCENTRICALLY BRACED FRAME (OCBF) R = 1.0 Ω_o = 1.0

EAST-WEST DIRECTION:
STEEL ORDINARY CONCENTRICALLY BRACED FRAME (OCBF) R = 1.0 Ω_o = 1.0

THE SEISMIC LOAD RESISTING SYSTEMS CONSIST OF THE STEEL BRACED FRAME BEAMS AND COLUMNS, COLLECTORS, METAL DECK ROOFS AND FLOORS AND OTHER DRAWING SHEETS AND DETAILS NOTED AS SLRS. COLLECTORS ARE THOSE BEAMS NOTED ON THE PLANS TO HAVE DOUBLE ROW OF BOLTING OR SPECIAL COLLECTOR CONNECTIONS AT ONE OR BOTH ENDS.

NON -STRUCTURAL COMPONENTS

$$F_p = u_{ave} \frac{a_p}{R_p / I_p} W_p$$

u_{ave} = 0.3g AT LEVELS 9 & 10
= 0.6g AT OFFICE ROOFS

a_p = SEE ASCE 7-05

R_p = SEE ASCE 7-05

Ip = 1.0 (USE Ip = 1.5 FOR COMPONENTS REQUIRED FOR LIFE SAFETY OR CONTAINING HAZARDOUS MATERIALS)

DRILLED CONCRETE PILES

1. REFER TO GEOTECHNICAL REPORT, AS LISTED IN THE FOUNDATIONS SECTION OF THE GENERAL NOTES, FOR DRILLED PILE CRITERIA AND RECOMMENDATIONS.
2. ALLOWABLE VERTICAL CAPACITIES FOR DRILLED PILES ARE AS FOLLOWS:

DEAD LOAD + LIVE LOAD	10.0 KSF
DEAD PLUS LIVE + SEISMIC (OR WIND) LOAD	13.3 KSF
UPLIFT LOAD	8.9 KSF

3. SEE GEOTECHNICAL REPORT FOR DRILLED PILE LATERAL SHEAR AND BENDING DESIGN CURVES.
4. DRILLED PILES SHALL BE INSPECTED AND APPROVED BY THE UNIVERSITY'S GEOTECHNICAL ENGINEER PRIOR TO CONCRETE PLACEMENT.

SPECIAL INSPECTION

THE SPECIAL INSPECTION REQUIREMENTS OF CHAPTER 17 OF THE CALIFORNIA BUILDING CODE, 2007 EDITION, APPLY TO THE FOLLOWING:

- STEEL CONSTRUCTION
- CONCRETE CONSTRUCTION
- ANCHORS AND DOWELS IN RESIN
- EXPANSION ANCHORS
- SOILS
- PILE FOUNDATIONS

THE SUPPLEMENTAL SPECIAL INSPECTION REQUIREMENTS FOR SEISMIC RESISTANCE OF CBC SECTION 1707 APPLY TO THE FOLLOWING ELEMENTS OF THE SEISMIC LOAD RESISTING SYSTEM AND ARCHITECTURAL COMPONENTS:

- STRUCTURAL STEEL
- PILE FOUNDATIONS
- ARCHITECTURAL COMPONENTS:
  EXTERIOR NON-BEARING COLD-FORMED STEEL WALLS

THE SUPPLEMENTAL STRUCTURAL TESTING REQUIREMENTS FOR SEISMIC RESISTANCE OF CBC SECTION 1708 APPLY TO THE FOLLOWING ELEMENTS OF THE SEISMIC LOAD RESISTING SYSTEM:

- STRUCTURAL STEEL
- SEISMICALLY ISOLATED STRUCTURES

STRUCTURAL OBSERVATION

STRUCTURAL OBSERVATION FOR SEISMIC RESISTANCE SHALL BE PROVIDED IN ACCORDANCE WITH CBC SECTIONS 1702 AND 1709. AT THE CONCLUSION OF THE STRUCTURAL WORK, THE OBSERVER SHALL SUBMIT A WRITTEN STATEMENT TO THE BUILDING OFFICIAL THAT THE SITE VISITS HAVE BEEN MADE AND IDENTIFY ANY REPORTED DEFICIENCIES THAT, TO THE BEST OF THE STRUCTURAL OBSERVER'S KNOWLEDGE, HAVE NOT BEEN RESOLVED.

GEOTECHNICAL INFORMATION

1. THE UNIVERSITY'S GEOTECHNICAL ENGINEER, RUTHERFORD & CHEKENE, HAS PREPARED AN INVESTIGATION REPORT FOR USE ON THIS PROJECT, TITLED: "UPDATED DRAFT REPORT, GEOTECHNICAL INVESTIGATION, INSTITUTE FOR REGENERATIVE MEDICINE, UNIVERSITY OF CALIFORNIA, SAN FRANCISCO, CALIFORNIA", DATED 22 JANUARY 2008. LATERAL LOAD ANALYSES FOR DRILLED CONCRETE PILES WERE ALSO PROVIDED ON JULY 17, 2008 AND AUGUST 20, 2008.
2. THE CONTRACTOR SHALL REVIEW AND UNDERSTAND THE INFORMATION CONTAINED IN THE REPORT, BUT SHALL NOT ASSUME THAT SUCH INFORMATION IS SUFFICIENT FOR THE CONTRACTOR'S PURPOSES.
3. THE CONTRACTOR SHALL BE FAMILIAR WITH THE GEOTECHNICAL CONDITIONS AT THE PROJECT SITE.
4. THE CONTRACTOR SHALL BE RESPONSIBLE TO OBTAIN GEOTECHNICAL REPORT AND INFORMATION NECESSARY TO COMPLETE THE WORK.
5. THE CONTRACTOR SHALL OBTAIN THE SERVICES OF AN INDEPENDENT GEOTECHNICAL ENGINEER LICENSED IN THE STATE OF CALIFORNIA TO ANALYZE AVAILABLE INFORMATION AND TO MAKE ADDITIONAL INVESTIGATIONS AS NECESSARY TO COMPLETE THE WORK.

FOUNDATIONS

1. REFER TO GENERAL NOTES SECTION TITLED "GEOTECHNICAL INFORMATION".
2. SLABS ON GRADE AND FOUNDATIONS SHALL BEAR ON APPROVED NATIVE SUBGRADE OR COMPACTED SOIL.
3. PILE CAPS, FOOTINGS AND GRADE BEAMS SHALL BE CAST IN NEAT TRENCHED EXCAVATIONS (1" MINIMUM WIDER THAN SCHEDULED). IF FOOTINGS CANNOT BE CAST IN TRENCHES, FORM FOOTINGS TO SCHEDULED DIMENSIONS.
4. BOTTOM OF FOOTINGS SHALL BE CALCULATED USING INFORMATION SHOWN ON THE DRAWINGS AND MAY BE REVISED BY THE UNIVERSITY'S GEOTECHNICAL ENGINEER TO ENSURE MINIMUM FOOTING EMBEDMENTS OF TWO FEET INTO FIRM, APPROVED SOIL MATERIAL (UNDISTURBED NATURAL SOILS OR COMPACTED ENGINEERED FILL). TOP OF FOOTING DIMENSION FROM DATUM SHALL BE AS SHOWN ON PLANS.
5. COMPACTED NATURAL SOIL, FILL, AND BACKFILL IS TO BE UNIFORMLY COMPACTED WITH APPROVED COMPACTION EQUIPMENT. FILL MATERIAL AND OPERATIONS SHALL BE INSPECTED BY THE OWNER'S GEOTECHNICAL ENGINEER.
6. WATER SHALL NOT BE ALLOWED TO STAND IN TRENCHES OR FORMS BEFORE OR AFTER CONCRETE IS PLACED, AND SHALL BE PUMPED OUT. IF BOTTOMS OF TRENCHES BECOME SOFTENED DUE TO RAIN OR OTHER WATER BEFORE FOOTINGS ARE CAST, THE CONTRACTOR SHALL EXCAVATE THE SOFTENED MATERIAL AND REPLACE WITH CONCRETE.
7. ALLOWABLE BEARING PRESSURES FOR SPREAD FOOTINGS:

   DEAD PLUS LIVE LOAD = 3000 PSF

   TOTAL LOAD (INCLUDING SEISMIC) = 4000 PSF
8. CANTILEVER RETAINING WALL DESIGN PRESSURE: 40 PCF
9. BASEMENT WALLS (RESTRAINED AT THE TOP) DESIGN PRESSURE: 60 PCF
10. SEISMIC SOIL INCREMENT: 15H PSF
11. DO NOT BACKFILL BASEMENT WALLS UNTIL ATTACHED CONSTRUCTION IS COMPLETE AND CONCRETE SLAB AND FILL ON METAL DECK OF SUPPORTING LEVELS HAS ATTAINED ITS 28-DAY STRENGTH.
12. SPECIAL INSPECTION REQUIREMENTS APPLY TO FILL AND BACKFILL OPERATIONS. FOOTING EXCAVATIONS SHALL BE INSPECTED AND APPROVED BY THE UNIVERSITY'S GEOTECHNICAL ENGINEER PRIOR TO PLACING REINFORCEMENT STEEL.

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POST-TENSIONED THREADBARS

1. POST-TENSIONED THREADBARS SHALL BE ASTM A-722 GRADE 150 HIGH TENSILE ALLOY STEEL. ACCESSORIES PROVIDED BY MANUFACTURER SHALL INCLUDE MACHINED ANCHOR PLATES, DOME-HEAD ANCHOR NUTS, FLEXIBLE GALVANIZED METAL SHEATHS, COUPLERS AND GROUT TUBES. THREADBARS SHALL BE POST-TENSIONED TO CONFORM TO THE FOLLOWING TENSILE STRESS LEVELS:

AT JACKING:	120 KSI (MAX)
AT TRANSFER:	105 KSI (MAX)
LONG-TERM (AFTER ALL LOSSES)	90 KSI (MIN)

2. THREADBARS SHALL BE FULLY GROUTED WITH APPROVED CEMENT GROUT FOLLOWING INSPECTION OF STRESSING AND APPROVAL OF STRESSING RECORDS. STRESSING END ANCHORS SHALL BE COATED WITH APPROVED RUST-PREVENTIVE PAINT, AND BLOCKOUTS SHALL BE FILLED SOLIDLY WITH APPROVED PEA-GRAVEL CONCRETE, IN ACCORDANCE WITH THE SPECIFICATIONS.

STRUCTURAL STEEL

1. STEEL MATERIALS SHALL CONFORM TO THE FOLLOWING:

W-SHAPES, WT-SHAPES	ASTM A 992
CHANNEL AND ANGLE SHAPES	ASTM A 36
RECTANGULAR AND ROUND HSS	ASTM A 500, GRADE B
PIPE	ASTM A 53, GRADE B
PLATES	ASTM A 572, GRADE 50, ASTM A 36 WHERE INDICATED
BASE PLATES	ASTM A 572, GRADE 50, ASTM A 36 WHERE INDICATED
ANCHOR RODS	ASTM F 1554 GRADE 36, U.O.N.
MACHINE BOLTS	ASTM A 307
HIGH STRENGTH BOLTS	ASTM A 325-N TYP. U.O.N., SC OR X WHERE INDICATED
WELDED HEADED STUDS	ASTM A 108

2. STRUCTURAL STEEL SHALL CONFORM TO AISC SPECIFICATIONS FOR STRUCTURAL STEEL BUILDINGS.
3. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR REVIEW PRIOR TO FABRICATION. FABRICATE FROM APPROVED DRAWINGS ONLY.
4. HIGH-STRENGTH BOLTS IN THE SLRS AND IN AESS SHALL BE FULLY TENSIONED. OTHER HIGH STRENGTH BOLTS SHALL BE SNUG TIGHT ONLY UNLESS OTHERWISE NOTED ON THE DRAWINGS. TENSIONED BOLT CONNECTIONS SHALL BE TENSIONED IN ACCORDANCE WITH THE SPECIFICATIONS.
5. WELDING SHALL ONLY BE PERFORMED BY CERTIFIED WELDERS. WELDING SHALL CONFORM TO AWS SPECIFICATIONS. PROVIDE TEMPORARY BACK-UP PLATES OR WELDS AT ALL COMPLETE JOINT PENETRATION (CJP) WELD LOCATIONS AS REQUIRED; REMOVE PLATES AFTER CJP WELDING AND GRIND AREA SMOOTH WHERE EXPOSED.
6. WHERE FIELD WELDING IS SPECIFICALLY NOTED, THE DESIGNATION IS GIVEN AS A SUGGESTED CONSTRUCTION PROCEDURE ONLY. CONTRACTOR SHALL DETERMINE SUITABILITY OF SHOP OR FIELD WELDING FOR ALL CONDITIONS.
7. DO NOT CUT THROUGH ERECTED STEEL PLATES, BOLTS, ANGLES OR SHAPES WITHOUT PERMISSION OF THE ARCHITECT. WHERE STEEL WILL BE EXPOSED TO VIEW, SLAG AND ROUGH EDGES SHALL BE MECHANICALLY REMOVED TO PROVIDE A SMOOTH EDGE AFTER CUTTING OR BORING. ALL SURFACES CUT BY MANUAL THERMAL PROCESSES SHALL BE GROUND (1/32 INCH MIN.) TO BRIGHT METAL.
8. SHOP AND FIELD WELDING SHALL BE INSPECTED BY THE UNIVERSITY'S TESTING AGENCY.
9. SPECIAL WELD PROCEDURES WILL BE REQUIRED WHERE WELDING TO EXISTING STRUCTURAL STEEL IS REQUIRED. THE WELD PROCEDURES SHALL BE PROPOSED BY THE CONTRACTOR AND SUBMITTED FOR REVIEW BY THE ARCHITECT. PROCEDURES FOR WELDING TO EXISTING STRUCTURAL STEEL SHALL BE PRE-QUALIFIED BY THE UNIVERSITY'S TESTING AGENCY IN ACCORDANCE WITH AWS D1.1.
10. WHERE STRUCTURAL STEEL IS TO BE ATTACHED USING POST-INSTALLED ANCHORS, ANCHOR HOLES SHALL BE DRILLED PRIOR TO PREPARATION OF STEEL SHOP DRAWINGS AND FABRICATION. DRILLED HOLE LOCATIONS SHALL BE RECORDED AND TRANSFERRED USING TEMPLATES FOR THE PURPOSE OF ACCURATELY LOCATING HOLES IN STRUCTURAL STEEL.
11. SEE ARCHITECTURAL DRAWINGS FOR FINISHES AND SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS FOR ARCHITECTURALLY EXPOSED STRUCTURAL STEEL (AESS).
12. CUTTING AND BORING OF EXISTING STEEL SHALL NOT BE DONE EXCEPT WHERE SPECIFICALLY CALLED FOR ON THE DRAWINGS. HOLES THROUGH EXISTING STEEL MAY BE DRILLED, FLAME CUT, OR MADE USING AIR-ARC, AND SHALL NOT BE MORE THAN ½ INCH DIAMETER LARGER THAN REQUIRED TO PASS REINFORCEMENT, ANCHORS, ETC., SHOWN ON DRAWINGS, UNLESS OTHERWISE NOTED.
13. MANUAL FLAME CUTTING AND AIR-ARC CUTTING SHALL BE DONE ONLY BY CERTIFIED WELDERS. AFTER CUTTING OR BORING, SLAG AND ROUGH EDGES SHALL BE MECHANICALLY REMOVED TO PROVIDE A SMOOTH EDGE.
14. DEMAND CRITICAL WELDS: COMPLETE JOINT PENETRATION AND FULL DEPTH PARTIAL PENETRAION WELDS AT LEVEL 9 AND BELOW SHALL BE CONSIDERED AS DEMAND CRITICAL WELDS (DCW).
15. PROTECTED ZONES: THE FIRST TWO-FEET OF EACH END OF HSS BRACES AND BRACE GUSSET AND BASE PLATES SHALL BE CONSIDERED AS PROTECTED ZONES.

METAL DECK

1. SEE PLANS FOR DECK PROFILES.
2. STEEL DECK SHALL BE WELDED TO ALL STRUCTURAL STEEL AND TO ADJACENT DECK SECTIONS IN ACCORDANCE WITH THE DECK WELDING SCHEDULE. MINIMUM DECK WELDS TO STRUCTURAL STEEL SHALL BE ¾-INCH DIAMETER FUSION WELDS AT 24 INCHES O.C. OR ALTERNATE CELLS.
3. WELDING OF DECK SHALL BE IN ACCORDANCE WITH AWS STANDARDS AND PERFORMED BY WELDERS CERTIFIED FOR LIGHT-GAGE METALS.
4. PROVIDE VENTED DECK FOR DECKS TO RECEIVE CONCRETE FILL UNLESS OTHERWISE NOTED. DECKS WITHOUT CONCRETE FILL SHALL NOT BE VENTED.

CONCRETE

1. CONCRETE SHALL DEVELOP THE FOLLOWING COMPRESSIVE STRENGTHS AT 28 DAYS (AND 56 DAYS WHERE APPLICABLE):

NORMAL WEIGHT CONCRETE	28 DAYS	56 DAYS
DRILLED PILES	3000 PSI	4000 PSI
PILE CAPS & PEDESTALS	4000 PSI	5000 PSI
FOOTINGS, GRADE BEAMS	4000 PSI	
WALLS, PILASTERS	4000 PSI	
BRIDGE PIER & CAP	4000 PSI	
SLABS-ON-GRADE, CURBS	4000 PSI	
FILL ON METAL DECK	4000 PSI	
LIGHTWEIGHT CONCRETE		
FILL ON METAL DECK	4000 PSI	

2. REFER TO SPECIFICATIONS FOR CONCRETE CLASS DESIGNATIONS.
3. EXPOSED CORNERS OR EDGES OF COLUMNS, PILE S, WALLS, BEAMS, ETC., SHALL BE FORMED WITH A 3/4" CHAMFER UNLESS OTHERWISE NOTED ON DRAWINGS.
4. CONSTRUCTION JOINTS SHALL BE LOCATED WHERE SHOWN AND, IF NOT SHOWN, WHERE DIRECTED BY THE ARCHITECT. THEY SHALL BE LOCATED SO AS TO LEAST IMPAIR THE STRENGTH OF THE STRUCTURE AND TO MINIMIZE SHRINKAGE. PROVIDE DOWELS AND KEYS AS DETAILED AND DIRECTED, AND THOROUGHLY CLEAN AND REMOVE LAITANCE FROM SURFACES BEFORE PROCEEDING WITH THE NEXT PLACEMENT.
5. CONTRACTOR SHALL SUBMIT CONSTRUCTION JOINT LAYOUT FOR REVIEW.
6. FOR DRIP EDGES, REGLETS, REVEALS, AND OTHER FEATURES NOT SHOWN ON THE STRUCTURAL DRAWINGS, SEE ARCHITECTURAL DRAWINGS.

WELDED HEADED STUDS

1. STEEL BEAMS SUPPORTING CONCRETE SLABS OR CONCRETE FILL ON METAL DECK SHALL HAVE WELDED STUDS IN ACCORDANCE WITH THE SCHEDULE ON THE DRAWINGS. MINIMUM SIZE AND SPACING SHALL BE ¾" DIAMETER AT 12" O.C. UNLESS OTHERWISE NOTED.
2. EACH WELDED STUD MAY REPLACE ONE DECK WELD.

SEISMIC ISOLATORS

1. SEISMIC ISOLATORS SHALL BE FRICTION PENDULUM TYPE AS MANUFACTURERD BY EARTHQUAKE PROTECTION SYSTEMS OF VALLEJO, CALFIORNIA OR APPROVED EQUAL.
2. SEISMIC ISOLATORS SHALL BE DESIGNED BY A STRUCTURAL ENGINEER REGISTERED IN THE STATE OF CALIFORNIA, HIRED AND PAID BY THE CONTRACTOR, TO ACHIEVE THE TABULATED DESIGN PARAMETERS SHOWN IN THE SPECIFICATIONS.
3. SEE PLANS AND SPECIFICATIONS FOR DESIGN AND DETAILING INFORMATION.
4. ISOLATOR PROPERTIES:
   EFFECTIVE RADIUS: 167"
   FRICTION: 7.5%
   MCE DISPL.: 26"

TENSION RESTRAINTS

1. TENSION RESTRAINT DEVICES SHALL COMPLY WITH THE REQUIREMENTS OF THE DRAWINGS.
2. TENSION RESTRAINT UPLIFT CAPACITY: 200-KIPS

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CONCRETE REINFORCEMENT

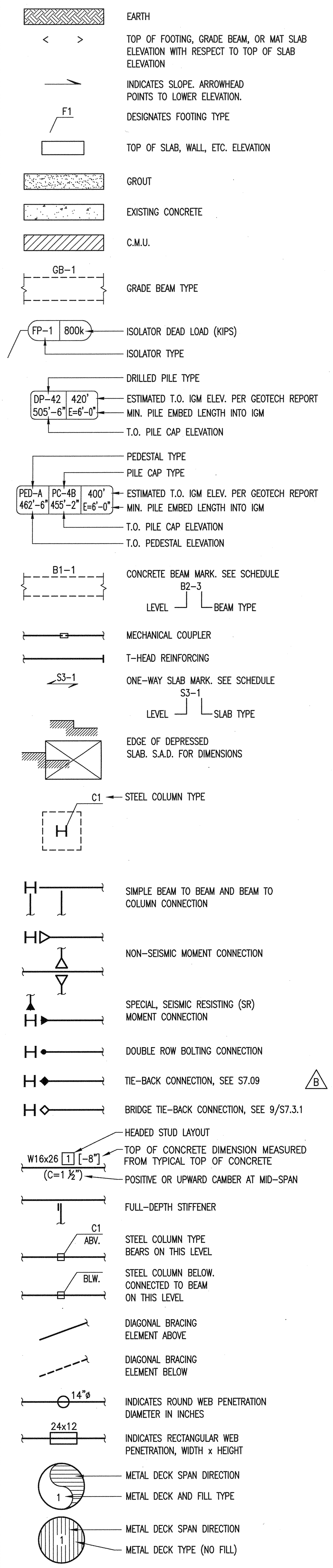
1. CONCRETE SHALL BE REINFORCED. REINFORCEMENT SHALL BE NEW DEFORMED STEEL BARS, ASTM A615, GRADE 60. USE ASTM A706 FOR BARS TO BE WELDED.
2. CONCRETE REINFORCEMENT DETAILS SHALL CONFORM TO ACI 315, "DETAILS AND DETAILING OF CONCRETE STRUCTURES."
3. CONCRETE COVER SHALL BE TO FACE OF BAR, MECHANICAL COUPLER, OR WELDED HEADED BAR AS FOLLOWS, UNLESS OTHERWISE NOTED ON DRAWINGS:

CAST-IN-PLACE CONCRETE	MINIMUM CONCRETE COVER
CAST AGAINST AND EXPOSED TO EARTH	3"
EXPOSED TO EARTH OR WEATHER	
#5 AND SMALLER	1 ½"
#6 AND LARGER	2"
NOT EXPOSED TO WEATHER OR IN CONTACT WITH EARTH	
SLABS	1"
WALLS	1 ½"
COLUMNS, BEAMS	1 ½"
SLABS ON GRADE	MID-DEPTH

4. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS OF REINFORCEMENT LAYOUTS AND DETAILS FOR REVIEW PRIOR TO FABRICATION. SHOW ALL PROPOSED SPLICE LOCATIONS. FABRICATE FROM APPROVED DRAWINGS ONLY.
5. THE LENGTHS AND SPLICES OF REINFORCEMENT SHOWN ON DRAWINGS REPRESENT A SUGGESTED CONSTRUCTION JOINT LAYOUT. BAR SPLICES MAY BE DELETED AND CONTINUOUS REINFORCEMENT USED AT THE CONTRACTOR'S OPTION. LONG BARS OR BENT BARS SHOWN MAY BE SPLICED IF NECESSARY FOR PLACEMENT OR EASE OF CONSTRUCTION PROVIDED MINIMUM SCHEDULED LAP LENGTHS ARE FOLLOWED WITH APPROVAL FROM THE ARCHITECT. MECHANICAL COUPLERS SHALL BE USED WHERE SHOWN ON THE DRAWINGS AND MAY BE USED IN LIEU OF LAP SPLICES WITH APPROVAL FROM THE ARCHITECT.
6. PROVIDE DOWELS OR CONTINUOUS REINFORCEMENT BETWEEN ALL CONCRETE ELEMENTS, UNLESS OTHERWISE NOTED. IN GENERAL, BAR SPLICES SHALL BE MADE AT POINTS OF MINIMUM STRESS. IN FRAMED BEAMS AND SLABS, SPLICE TOP BARS AT MID-SPAN, BOTTOM BARS OVER SUPPORTS, UNLESS OTHERWISE NOTED. IN GRADE BEAMS SUPPORTED ON SOIL, SPLICE TOP BARS AT COLUMNS, BOTTOM BARS AT MID-SPAN BETWEEN COLUMNS, UNLESS OTHERWISE NOTED ON DRAWINGS. IN GRADE BEAMS SUPPORTED ON PIERS OR PILES, SPLICE TOP BARS AT MID-SPAN BETWEEN SUPPORTS, BOTTOM BARS AT SUPPORTS, UNLESS OTHERWISE NOTED ON DRAWINGS. VERTICAL REINFORCEMENT FROM COLUMNS, PILASTERS AND WALLS SHALL BE DOWELED TO SUPPORTING FOOTINGS WITH BARS OF SAME SIZE AND SPACING AS VERTICAL REINFORCEMENT UNLESS OTHERWISE NOTED ON DRAWINGS.
7. SPLICES OF #9 AND LARGER REINFORCEMENT SHALL BE MADE USING TYPE II MECHANICAL COUPLERS, UNLESS OTHERWISE SHOWN. LAP SPLICES FOR #9 AND LARGER BARS SHALL NOT BE PERMITTED.
8. MECHANICAL COUPLERS SHALL NOT REQUIRE SPECIAL STIRRUPS OR HOOPS, OR VIOLATE THE REQUIRED CLEAR COVER OF CONCRETE. MECHANICAL COUPLERS SHALL BE STAGGERED A MINIMUM OF 3'-0" FROM MECHANICAL COUPLERS ON ADJACENT BARS, UNLESS OTHERWISE NOTED ON DRAWINGS.
9. CONTRACTOR SHALL ORDER ADEQUATE ADDITIONAL UNITS OF REINFORCEMENT SPLICED WITH MECHANICAL COUPLERS AND ADEQUATE ADDITIONAL UNITS OF REINFORCEMENT TERMINATED WITH WELDED HEADED BARS TO FACILITATE THE MINIMUM TESTING REQUIREMENTS TO BE PERFORMED BY THE UNIVERSITY'S TESTING AGENCY.
10. THE UNIVERSITY'S TESTING AGENCY SHALL TENSION TEST ONE TYPE II MECHANICAL COUPLER FOR EACH ONE HUNDRED DEVICES UTILIZED ON PROJECT. ROUND UP TO NEXT HIGHEST 100 FOR INTERMEDIATE NUMBER OF DEVICES, AND TEST A MINIMUM OF TWO DEVICES. UNIVERSITY'S TESTING AGENCY SHALL TENSION TEST ONE WELDED HEADED BAR FOR EACH ONE HUNDRED DEVICES UTILIZED ON PROJECT. ROUND UP TO NEXT HIGHEST 100 FOR INTERMEDIATE NUMBERS AND TEST TWO DEVICES MINIMUM. FAILURE OF A DEVICE SHALL REQUIRE ADDITIONAL TESTS OF ONE IN TEN DEVICES OF THE SAME HEAT OF DEVICE. ADDITIONAL REINFORCEMENT REQUIRED DUE TO FAILED DEVICES SHALL BE AT THE EXPENSE OF THE CONTRACTOR.
11. THE UNIVERSITY'S TESTING AGENCY SHALL TORQUE TEST TEN PERCENT OF IN-PLACE TYPE II MECHANICAL COUPLERS TO THE MANUFACTURER'S RECOMMENDED INSTALLATION TORQUE. IF ANY ONE TORQUE TEST FAILS, ALL TYPE II MECHANICAL COUPLERS INSTALLED THAT DAY SHALL BE TORQUE TESTED BY THE UNIVERSITY'S TESTING AGENCY. THE CONTRACTOR SHALL CORRECT ALL TYPE II MECHANICAL COUPLERS IDENTIFIED AS HAVING FAILED TORQUE TESTS. UNIVERSITY'S TESTING AGENCY SHALL RETEST ALL FAILED COUPLERS.
12. REINFORCEMENT INTERRUPTED BY STRUCTURAL STEEL SHAPES OR PLATES SHALL BE WELDED TO THE INTERRUPTING ELEMENT WITH COMPLETE JOINT PENETRATION WELDS, UNLESS OTHERWISE APPROVED BY THE ARCHITECT.

LIST OF DRAWINGS

LEGEND



ABBREVIATIONS

&	AND
@	AT
A.B.	ANCHOR BOLT
ABV.	ABOVE
ALT.	ALTERNATE
A.R.	ANCHOR ROD
BLW.	BELOW
BM.	BEAM
B.N.	BOUNDARY NAILING
B.O.	BOTTOM OF
BOTT.	BOTTOM
BRBF.	BUCKLING-RESISTING BRACED FRAME
BRG.	BEARING
B.S.	BACK SIDE
BTW/	BETWEEN
C.I.P.	CAST-IN-PLACE
C.J.	CONSTRUCTION JOINT
CJP	COMPLETE PENETRATION JOINT
C.L.	CENTERLINE
CLR.	CLEAR
C.M.U.	CONCRETE MASONRY UNIT
COL.	COLUMN
CONC.	CONCRETE
COND.	CONDITION
CONN.	CONNECTION
CONT.	CONTINUOUS
CTR'D.	CENTERED
C.S.	CONCRETE SCREW
d	PENNY (nail size, as in 10d)
D.B.A.	DEFORMED BAR ANCHOR
DBL.	DOUBLE
DET.	DETAIL
D.F.	DOUGLAS FIR
DIA. OR Ø	DIAMETER
DIAG.	DIAGONAL
DN.	DOWN
DWG.	DRAWING(S)
DWL.	DOWEL
(E)	EXISTING
EA.	EACH
EBF.	ECCENTRIC BRACED FRAME
E.F.	EACH FACE
E.J.	EXPANSION JOINT
EL. or ELEV.	ELEVATION
E.N.	END NAILING
E.P.S.	EXPANDED POLYSTYRENE
EQ.	EQUAL
E.S.	EACH SIDE
E.W.	EACH WAY
EXA	EXPANSION ANCHOR
FDN.	FOUNDATION
FIN.	FINISH
FLG.	FLANGE
FLR.	FLOOR
F.N.	FIELD NAILING
F.O.C.	FACE OF CONCRETE
F.O.S.	FACE OF STUD
F.O.W.	FACE OF WALL
FRMG.	FRAMING
F.S.	FAR SIDE
FTG.	FOOTING
GALV.	GALVANIZED
G.B.	GRADE BEAM
G.L.	GLU-LAM
GR.	GRADE
H. or HORIZ.	HORIZONTAL
HDR.	HEADER
H.S.	HEADED STUD
HSB	HIGH STRENGTH BOLT
HSS	HOLLOW STRUCTURAL SHAPE
I.F.	INSIDE FACE
IGM	INTERMEDIATE GEOMATERIAL
JST.	JOIST
JT.	JOINT
LLH	LONG LEG HORIZONTAL
LLV	LONG LEG VERTICAL
L.S.	LAG SCREW
MAX.	MAXIMUM
MB	MACHINE BOLT
MIN.	MINIMUM
(N)	NEW
N/A	NOT APPLICABLE
N.I.C.	NOT IN CONTRACT
N.S.	NEAR SIDE
N.T.S.	NOT TO SCALE
O.C.	ON CENTER
O.F.	OUTSIDE FACE
O.H.	OPPOSITE HAND
OP'G OR OPG.	OPENING
O.S.B.	ORIENTED STRAND BOARD
O.W.S.J.	OPEN WEB STEEL JOIST
PDF	POWDER DRIVEN FASTENER
PJP	PARTIAL JOINT PENETRATION
PL.	PLATE
PLY. or P.W.	PLYWOOD
P.T.	POST-TENSION OR PRESSURE TREATED
R.D.	RESIN DOWEL
REINF.	REINFORCEMENT
REQ.	REQUIRED
R.O.	ROUGH OPENING
RWD.	REDWOOD
S.A.D.	SEE ARCHITECTURAL DRAWINGS
S.B.	SOLID BLOCKING
S.C.D.	SEE CIVIL DRAWINGS
SECT.	SECTION
S.E.D.	SEE ELECTRICAL DRAWINGS
SHT.	SHEET(S)
SIM.	SIMILAR
S.J.	SEISMIC JOINT
S.M.D.	SEE MECHANICAL
S.M.S.	SHEET METAL SCREW
S.P.D.	SEE PLUMBING DRAWINGS
SPECS.	SPECIFICATIONS
SQ.	SQUARE
S.R.	SEISMIC RESISTING
STAGG'D.	STAGGERED
STD.	STANDARD
STIFF.	STIFFENER
STL.	STEEL
SYMM.	SYMMETRICAL
T&B	TOP AND BOTTOM
T&G	TONGUE AND GROOVE
T.B.	TIE BEAM
T.F.F.	TOP OF FINISHED FLOOR
T.O.C.	TOP OF CONCRETE
T.O.S.	TOP OF STEEL
TYP.	TYPICAL
U.A.	UNDERCUT ANCHOR
U.O.N.	UNLESS OTHERWISE NOTED
V.I.F.	VERIFY IN FIELD
(V) or VERT.	VERTICAL
W/	WITH
W/O	WITHOUT
W.P.	WORK POINT
W.S.	WOOD SCREW
W.T.S.	WELDED THREADED STUD
W.W.F.	WELDED WIRE FABRIC

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INSTITUTE FOR REGENERATION MEDICINE BUILDING

UCSF PROJECT NUMBER: M3444
UCSF FILE NUMBER: 10876

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ISSUED FOR	REV	DATE
PKG. #4 - Addendum #1	A	02-27-2009
PKG. #6 - Permit Set	B	06-17-2009
Record Drawings		09-30-2010

SEALS AND SIGNATURES

KEYPLAN

PROJECT NORTH

DRAWING TITLE
GENERAL NOTES

AS NOTED
SCALE

PROJECT NUMBER

S0.0.1
DRAWING NUMBER