Campus: UCSF
Building Name: Mission Bay Housing North
CAAN ID: 3037
Auxiliary Building ID: NA

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: Mission Bay Housing North
Address: 525 UCSF Lane, San Francisco
Site location coordinates: Latitude 37.7695 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: 142,197
Number of stories *above* grade: 11
Number of basement stories *below* grade: 0

Year Original Building was Constructed: 2005
Original Building Design Code & Year: CBC- 1998
Retrofit Building Design Code & Code (if applicable): NA

SITE INFORMATION
Site Class: F Basis: (Skidmore, Owings, & Merrill, 9/19/2003, S002)
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: (UCSF Mission Bay Housing Project, SOM, 9/19/2003, S001P) or
Seismic Evaluation: NA
Retrofit Structural Drawings: NA

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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	8/16/2019
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 NOTES

GENERAL

1. ALL WORK SHALL COMPLY WITH THE DRAWINGS AND SPECIFICATIONS, AS WELL AS, THE MINIMUM REQUIREMENTS OF THE 1997 UNIFORM BUILDING CODE (UBC) WITH 1998 CALIFORNIA BUILDING CODE (CBC) AMENDMENTS.
2. NOTES, TYPICAL DETAILS AND SCHEDULES APPLY TO ALL DRAWINGS AND GOVERN UNLESS OTHERWISE SHOWN, NOTED OR SPECIFIED.
3. PROJECT DATUM ELEVATION 0' - 0" IN FEET AND INCHES CORRESPONDS TO MISSION BAY DATUM +103.52 (SAN FRANCISCO CITY DATUM +100 FT). ALL ELEVATIONS ARE PROJECT DATUM, UNLESS NOTED OTHERWISE.
4. DIMENSIONS ARE IN UNITS OF FEET AND INCHES, UNLESS NOTED OTHERWISE.
5. SEE CIVIL AND ARCHITECTURAL DRAWINGS FOR REFERENCE LOCATION OF PROJECT GRID LINES TO CAMPUS SURVEY COORDINATES.
6. WHERE DIMENSIONS ARE NOT INFERABLE FROM THE FRAMING PLAN AND FRAME ELEVATION DRAWINGS, CONTRACTOR MAY SCALE THE DRAWINGS ONLY TO ESTIMATE THE LENGTH OF MEMBERS FOR THE PURPOSE OF BIDDING. DRAWINGS SHALL NOT BE SCALED FOR THE PURPOSE OF PREPARING SHOP DRAWINGS AND CONSTRUCTION.
7. DISCREPANCIES IN DRAWINGS AND SPECIFICATIONS SHALL BE REFERRED TO THE OWNER'S CONSTRUCTION MANAGER FOR CLARIFICATION.
8. IF A CONFLICT EXISTS BETWEEN PROJECT SPECIFICATIONS AND DRAWINGS, THE MORE STRINGENT SHALL GOVERN UNLESS OTHERWISE PERMITTED BY THE PROJECT ENGINEER OF RECORD.
9. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS OF EXISTING STRUCTURES AND CONDITIONS WITHIN EXTENT OF PROJECT LIMITS. INFORM THE OWNER'S CONSTRUCTION MANAGER OF VARIATIONS FOUND IMMEDIATELY AND REQUEST FURTHER DIRECTION.

STRUCTURAL LATERAL LOAD CRITERIA

1. WIND LOADS (1997 UBC)

   A. PRIMARY LATERAL LOAD RESISTING SYSTEM
      1) DESIGN WIND PRESSURE, P (PSF) $P = C_E C_Q Q_S I_W$
      2) EXPOSURE = TYPE C
      3) BASIC WIND SPEED = 70 MPH
      4) $I_W = 1.00$

   B. ROOF PRIMARY STRUCTURAL SYSTEM – EAST BUILDING
      1) DESIGN WIND PRESSURE, P (PSF), AS ABOVE EXCEPT:
      2) $C_Q = 0.9$ OUTWARD OR 0.3 INWARD
      3) $C_E = 1.76$ (HT MAX = 155 FT, EXPOSURE C)
      4) $Q_S = 12.6$ PSF
      5) $I_W = 1.00$

   C. ROOF PRIMARY STRUCTURAL SYSTEM – NORTH, WEST, SOUTH BUILDINGS
      1) DESIGN WIND PRESSURE, P (PSF), AS ABOVE EXCEPT:
      2) $C_Q = 0.9$ OUTWARD OR 0.3 INWARD
      3) NORTH: $C_E = 1.61$ (HT MAX = 100 FT, EXPOSURE C)
      4) WEST: $C_E = 1.55$ (HT MAX = 85 FT, EXPOSURE C)
      5) SOUTH: $C_E = 1.48$ (HT MAX = 70 FT, EXPOSURE C)
      6) $Q_S = 12.6$ PSF
      7) $I_W = 1.00$

   D. EXTERIOR CLADDING AND ROOF ELEMENTS (UBC, TABLE 16-H)

2. SEISMIC LOADS (1997 UBC) – SUPERSTRUCTURE AND NON-STRUCTURAL COMPONENTS

   A. SEISMIC ZONE: 4
   B. ZONE FACTOR: Z = 0.4
   C. IMPORTANCE FACTOR: I = 1.00
   D. SOIL PROFILE TYPE: S_D (WEST BUILDING); S_F (EAST, NORTH AND SOUTH BUILDINGS)
   E. SEISMIC SOURCE TYPE: A
   F. NEAR SOURCE FACTOR: $N_A = 1.0$
   G. NEAR SOURCE FACTOR: $N_V = 1.08$
   H. LATERAL FORCE RESISTING SYSTEM: DUCTILE REINFORCED CONCRETE SHEAR WALLS ($R = 5.5$, $\Omega_0 = 2.8$)
   I. DYNAMIC ANALYSIS INCLUDING MODELLING FOR SOIL-STRUCTURE INTERACTION EFFECTS USING SITE RESPONSE SPECTRA PER UBC IS REQUIRED FOR NORTH, SOUTH AND EAST BUILDINGS, AND NOT REQUIRED FOR WEST BUILDING.

EXCAVATIONS

1. SEE CIVIL DRAWINGS FOR THE GENERAL DEMOLITION, EXCAVATION AND ROUGH GRADING, AND ADDITIONAL EXCAVATION AND SHORING NOTES.
2. PROVIDE EXCAVATION AND TEMPORARY SHORING AS REQUIRED.
3. ALL EXCAVATIONS SHALL BE RETAINED BY A SOIL RETENTION SYSTEM AS REQUIRED. THE DESIGN, INSTALLATION, MAINTENANCE, MONITORING AND REMOVAL SHALL BE THE COMPLETE AND SOLE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR SHALL PROVIDE ALL MEASURES AND PRECAUTIONS NECESSARY TO PREVENT DAMAGE AND MINIMIZE SETTLEMENT OF EXISTING OR NEW CONSTRUCTION (INCLUDING UTILITY LINES) INSIDE OR OUTSIDE OF THE PROJECT LIMITS. ANY DAMAGE TO THESE ELEMENTS CAUSED BY CONSTRUCTION OR MOVEMENT OF THE SOIL RETENTION SYSTEM, SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
4. THE CONTRACTOR SHALL COORDINATE ALL ELEMENTS OF THE SOIL RETENTION SYSTEM WITH ALL ELEMENTS OF THE PERMANENT BUILDING, EXISTING UTILITIES/CONDITIONS, ADJACENT STRUCTURES, ETC.
5. ALL EXCAVATION SHALL BE BASED ON ENGINEERED DRAWINGS PREPARED BY THE CONTRACTOR INCLUDING PLANS AND SECTIONS OF EXCAVATION SEQUENCES. THE EXCAVATION SEQUENCES SHALL BE CONTROLLED TO MATCH THE REQUIREMENTS OF THE DESIGN OF THE SOIL RETENTION SYSTEM AND TO PERMIT MONITORING OF WALL AND GROUND MOVEMENTS.
6. THE CONTRACTOR SHALL PROVIDE POSITIVE PROTECTION (MAT/SHEET COVERINGS) FOR ALL EXCAVATION SLOPES TO PROTECT SLOPES FROM INSTABILITY AND DETERIORATION DUE TO RAIN, WIND, ETC.
7. THE CONTRACTOR SHALL PROVIDE DEWATERING SYSTEMS INCLUDING SURFACE DRAINAGE CHANNELS, SUMPS, SUMP PUMPS, ETC., TO PROTECT ALL EXCAVATIONS FROM FLOODING. FLOODING OF ANY EXCAVATION AFTER APPROVAL OF ANY SUBGRADE WILL BE CAUSE FOR COMPLETE REMOVAL OF CONCRETE, MUD SLABS AND THE COMPLETE RE-PREPARATION AND APPROVAL OF THE SUBGRADE. CONTINUE DEWATERING SYSTEM OPERATION DURING PROGRESS OF WORK AND UNTIL BACKFILLING HAS BEEN COMPLETED. DEWATERING OPERATIONS SHALL NOT INDUCE MOVEMENT OR SETTLEMENT OF SOIL IN THE AREA SURROUNDING THE EXCAVATION.
8. REFER TO GEOTECHNICAL REPORTS FOR ADDITIONAL SPECIAL CONSIDERATIONS DURING DEWATERING OPERATIONS AS THEY RELATE TO EXISTING AND ADJACENT CONSTRUCTION.
9. THE UNIVERSITY'S REPRESENTATIVE SHALL REVIEW AND MONITOR THE EXCAVATION, ANY DEWATERING AND SOIL RETENTION SYSTEMS. THE CONTRACTOR SHALL PROVIDE, INSTALL AND SURVEY: (1) VERTICAL AND HORIZONTAL MOVEMENTS OF THE TOP OF THE SOIL RETENTION SYSTEMS; (2) BENCH MARKS ADJACENT TO AND AWAY FROM THE SITE PERIMETER FOR VERTICAL AND HORIZONTAL MOVEMENTS, AND; (3) OBSERVATION WELLS FOR MONITORING WATER LEVELS BELOW GROUND SURFACE, IF NECESSARY.
10. SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

FOUNDATIONS

1. REFER TO PROJECT GEOTECHNICAL RECOMMENDATIONS AND EXISTING CONDITIONS IN THE FOLLOWING REPORTS:

   "GEOTECHNICAL INVESTIGATION REPORT, BUILDING 20, UCSF MISSION BAY CAMPUS, SAN FRANCISCO, CALIFORNIA", PREPARED BY TREADWELL & ROLLO, INC., DATED DECEMBER 19, 2001.

   "SUPPLEMENTAL GEOTECHNICAL RECOMMENDATIONS, BUILDING 20, UCSF MISSION BAY CAMPUS, SAN FRANCISCO, CALIFORNIA", PREPARED BY TREADWELL & ROLLO, INC., DATED JANUARY 15, 2003.

   "SUMMARY OF PHASE 1 INDICATOR PILE DRIVING AND PRODUCTION TIP ELEVATIONS, BUILDING 20, UCSF MISSION BAY CAMPUS, SAN FRANCISCO, CALIFORNIA", PREPARED BY TREADWELL & ROLLO, INC., DATED FEBRUARY 6, 2003.

   THESE REPORTS WILL BE INCLUDED IN THE BID PACKAGE AND ANY ADDITIONAL PROJECT ADDENDA ARE AVAILABLE FOR INSPECTION FROM THE UNIVERSITY.
2. WHERE SPREAD COLUMN AND WALL FOOTINGS ARE INDICATED ON THE FOUNDATION PLANS, SCHEDULES, SECTIONS AND DETAILS, THE MAXIMUM ALLOWABLE SOIL PRESSURES SHALL BE AS INDICATED IN PROJECT GEOTECHNICAL RECOMMENDATIONS INCLUDING INCREASE IN ALLOWABLE SOIL PRESSURES PERMITTED UNDER THE COMBINED EFFECTS OF DEAD PLUS LIVE LOADS WITH SEISMIC OR WIND LOADS.
3. SEE PROJECT CIVIL AND ARCHITECTURAL DRAWINGS FOR EXISTING GRADES, CONDITIONS, ELEVATIONS AND LIMIT OF WORK AT GRADE LEVEL.
4. GENERAL CONTRACTOR TO COORDINATE ALL WORK SHOWN WITH WORK ON CIVIL, ARCHITECTURAL, MECHANICAL, PLUMBING, AND RELATED PROJECT DRAWINGS, AND, OTHER RELATED CONTRACT WORK.
5. SEE FOUNDATION PLANS AND DRAWINGS FOR TYPICAL FOUNDATION PILE CAPS, PRECAST PILES, GRADE BEAM SCHEDULES, SECTIONS AND DETAILS.
6. PILE CAPS AND GRADE BEAMS MAY BE POURED IN NEAT TRENCHES DIRECTLY AGAINST THE SOIL WITHOUT SIDE FORMS IF SPECIAL PRECAUTION IS TAKEN TO PREVENT EARTH AND DEBRIS FROM FALLING INTO AND/OR AGAINST EXCAVATIONS.
7. PILE CAPS AT VARYING ELEVATIONS SHALL BE STEPPED.
8. OVEREXCAVATED AREAS SHALL BE BACKFILLED WITH COMPACTED ENGINEERING FILL OR CONCRETE OF SAME DESIGN STRENGTH AS ELEMENT BEING POURED.
9. FOUNDATION EXCAVATIONS SHALL BE CLEANED OF LOOSE SOILS. NO DRILLED PIER, FOOTING AND/OR GRADE BEAM SHALL BE POURED INTO OR AGAINST SUBGRADE CONTAINING FREE WATER. IF REQUIRED, DEWATERING SHALL BE PROVIDED TO AVOID DISTURBING THE FOUNDATION SOILS.
10. APPROVED TESTING AGENCY AND THE GEOTECHNICAL ENGINEER SHALL CONDUCT FIELD QUALITY CONTROL.
11. THE GEOTECHNICAL ENGINEER SHALL INSPECT COMPACTION OF STRUCTURAL BACKFILL AND ALL ENGINEERED FILL UNDER GRADE BEAMS, SLABS, FOOTINGS, BURRIED CONDUIT, TUNNELS, ETC, AND BEHIND WALLS, PRIOR TO PLACEMENT OF REINFORCING STEEL.
12. THE GEOTECHNICAL ENGINEER SHALL INSPECT EXCAVATIONS BEFORE POURING OF CONCRETE FOR CONFORMANCE WITH SOIL REPORT AND ADDENDA.
13. SEE PROJECT SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS INCLUDING QUALITY CONTROL AND QUALITY ASSURANCE.
14. SEE PILE BID PACKAGE DRAWINGS AND SPECIFICATIONS DATED APRIL 9, 2003 INCLUDING ADDITIONAL ADDENDA FOR RELATED WORK AND EXISTING CONDITIONS.
15. SEE SUBSTRUCTURE AND UTILITIES PACKAGE DRAWINGS AND SPECIFICATIONS DATED MARCH 27, 2003 INCLUDING ADDITIONAL ADDENDA FOR RELATED WORK AND EXISTING CONDITIONS.

CONCRETE – GENERAL

1. ALL CONCRETE REINFORCEMENT SHALL BE DETAILED, FABRICATED, LABELED, SUPPORTED, SPACED IN FORMS AND SECURED IN PLACE IN ACCORDANCE WITH THE PROCEDURES AND MINIMUM REQUIREMENTS OUTLINED IN THE LATEST EDITION OF "ACI 315 - BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE", AND, "ACI 315 – MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES", AND APPLICABLE MINIMUM CBC REQUIREMENTS.
2. PLACE ALL CONCRETE PER RECOMMENDED ACI PROVISIONS FOR HOT AND COLD WEATHER CONCRETING CONDITIONS.
3. PROVIDE APPROVED CURING COMPOUND AND SEALER FOR THE TOP SURFACE OF ALL SLAB WORK, UNLESS NOTED OTHERWISE. PROVIDE APPROVED CURING COMPOUND, SEALER AND HARDENER FOR ALL SLABS IN M.E.P. AND STORAGE AREAS, UNLESS NOTED OTHERWISE. REMOVE CURING COMPOUNDS AS PER MANUFACTURER INSTRUCTIONS AT SLABS SHOWN ON ARCHITECTURAL DRAWINGS TO RECEIVE SUBSEQUENT TOPPINGS AND FINISHES.
4. WHERE REQUIRED, DOWELS SHALL MATCH THE SIZE AND NUMBER OF MAIN REINFORCING, UNLESS NOTED OTHERWISE. ALL WALLS AND SLABS SHALL BE DOWELED INTO SUPPORTING GRADE BEAMS, BEAMS, GIRDERS, OR WALLS AS INDICATED ON THE DRAWINGS.
5. ALL REINFORCING SPLICES SHALL CONFORM TO THE REQUIREMENTS OF ACI 318 AND DETAILS SHOWN; BUT IN NO CASE SHALL BE LESS THAN 36 BAR DIAMETERS, UNLESS NOTED OTHERWISE.
6. ALL WELDED WIRE FABRIC SHALL BE LAPPED A MINIMUM OF TWO FULL MESH PANELS AND TIED SECURELY.
7. ALL WALLS AND STRUCTURAL SLABS SHALL BE REINFORCED WITH AT LEAST 1 - #4 AT 12 INCHES ON CENTER, EACH WAY, EACH FACE, UNLESS NOTED OTHERWISE. ALL SLABS-ON-GRADE SHALL BE REINFORCED WITH AT LEAST ONE LAYER OF 6 X 6 - W2.9 X W2.9 WELDED WIRE FABRIC UNLESS NOTED OTHERWISE. PROVIDE ONE LAYER OF 6 X 6 - W1.4 X W1.4 WELDED WIRE FABRIC CONTINUOUS IN ALL CONCRETE FILLS ABOVE STRUCTURAL CONCRETE. ALL MECHANICAL, ELECTRICAL, AND PLUMBING EQUIPMENT PADS SHALL BE REINFORCED WITH AT LEAST ONE LAYER OF 6X6 - W4 X W4 WELDED WIRE FABRIC, UNLESS NOTED OTHERWISE. REFER TO MEP DRAWINGS FOR ADDITIONAL REINFORCING REQUIREMENTS FOR PADS.
8. ADDITIONAL REINFORCING BARS SHALL BE PROVIDED AROUND ALL WALL AND FLOOR OPENINGS AS INDICATED IN THE TYPICAL DETAILS. NO CORING IN FLOOR SLABS, WALLS, BEAMS, OR COLUMNS UNLESS PERMITTED BY THE STRUCTURAL ENGINEER.
9. PROVIDE ADDITIONAL REINFORCEMENT AT ALL SLAB-ON-GRADE, FOOTING, GRADE BEAM, FILL ON METAL DECK, AND, HORIZONTAL AND VERTICAL WALL REINFORCEMENT TO ALLOW FOR LAP SPLICES AT DISCONTINUOUS BARS PER TYPICAL CONCRETE DETAILS AND SPLICE SCHEDULE.
10. UNLESS NOTED OTHERWISE, THE MINIMUM CONCRETE COVERAGE FOR REINFORCING BARS SHALL BE ONE BAR DIAMETER AND NOT LESS THAN THE FOLLOWING:

FOOTINGS AND GRADE BEAMS		3"
CONCRETE CAST AGAINST EARTH	(NOT FORMED)	3"
CONCRETE CAST AGAINST EARTH	(FORMED)	2"
SLABS-ON-GRADE	(BOTTOM BARS)	3"
SLABS-ON-GRADE	(TOP BARS)	1"
COLUMN ENCASEMENTS	(TO TIES)	1 1/2"
COLUMN ENCASEMENTS	(TO MAIN BARS)	2"
SLABS		3/4"
BEAMS	(TO STIRRUP)	1 1/2"
WALLS	(EXTERIOR FACE)	2"
	(INTERIOR FACE)	3/4"
	(BARS IN SINGLE CURTAIN)	CENTERED

11. IN ADDITION TO SHOP DRAWING SUBMITTAL REQUIREMENTS PER PROJECT SPECIFICATIONS, THE CONTRACTOR SHALL SUBMIT FOR REVIEW COORDINATED REBAR PLACEMENT DRAWINGS COORDINATING THE WORK OF CONCRETE REINFORCEMENT AND STEEL ERECTION SUBCONTRACTORS. IN PARTICULAR, PLACEMENT DRAWINGS SHALL SHOW COORDINATED REINFORCEMENT IN WALLS, GRADE BEAMS, STEEL COLUMN ANCHOR BOLTS EMBEDDED IN CONCRETE, BELOW GRADE WF SECTIONS, GUSSET PLATES, OTHER EMBEDS, ETC.
12. BEAMS AND SLABS SHALL NOT BE SLEEVED, BOXED-OUT, OR HAVE THE REINFORCING INTERUPED FOR THE WORK OF OTHER TRADES, EXCEPT AS SHOWN ON THE STRUCTURAL DRAWINGS.
13. EMBEDDED CONDUIT OR PIPE DIMENSION SHALL NOT EXCEED 30% OF SLAB THICKNESS UNLESS SPECIFICALLY DETAILED OTHERWISE. ALL LARGER CONDUIT AND PIPES GREATER THAN 1-1/2 INCH IN OUTSIDE DIAMETER SHALL BE PLACED BELOW THE SLAB OR IN SUBSEQUENT FILL POURS. CONDUITS MAY BE GROUPED IN PAIRS WITH CENTERS 6 INCHES OR GREATER. CONDUIT PLACED WITHIN CONCRETE SLABS AND IN FILL ON METAL DECK PERMITTED ONLY IF CONFORMING TO REQUIREMENTS OF UBC.
14. DO NOT BACKFILL AGAINST RETAINING WALLS UNTIL THE SUPPORTING CONCRETE ELEMENTS ARE IN PLACE AND HAVE ACHIEVED FULL DESIGN STRENGTH.
15. NO CONSTRUCTION MATERIAL SHALL BE STORED OR CONSTUCTION ACTIVITY TAKING PLACE ON COMPOSITE FLOOR BEAMS AND GIRDERS BEFORE THE CONCRETE FILL ON METAL DECK HAS REACHED A MINIMUM STRENGHT OF 0.75 f c AND A MINIMUM OF 7 DAYS AFTER CASTING SLAB. THE CONSTRUCTION LOADS IMPOSED SHALL NEVER BE GREATER THAN THE SPECIFIED DESIGN LIVE LOADS.
16. PROVIDE SLAB EMBEDS WHERE SHOWN ON ARCHITECTURAL, MECHANICAL AND STRUCTURAL DRAWINGS. COORDINATE SLAB REINFORCEMENT AT EMBEDS PER TYPICAL DETAILS AS FOR SLAB HOLES. SLAB BLOCKOUTS AND ALTERNATE BOLTED CONNECTIONS NOT PERMITTED IN LIEU OF CAST-IN-PLACE EMBEDS.
17. CONSTRUCTION JOINTS IN WALLS SHALL BE SPACED NOT FURTHER THAN 60 FEET APART IN ANY DIRECTION. CONSTRUCTION JOINTS IN SLABS SHALL BE SPACED NOT FURTHER THAN 120 FEET APART IN ANY DIRECTION. PROVIDE ADDITIONAL POUR STRIPS BETWEEN ADJACENT SLAB POURS TO ALLOW FOR DRYING SHRINKAGE OF CONCRETE.
18. ALL CONSTRUCTION JOINTS SHALL BE WIRE BRUSHED, CLEANED CONCRETE WITH KEYED AND DOWELLED JOINTS, ALIGN ALL HORIZONTAL AND VERTICAL CAST-IN-PLACE CONSTRUCTION JOINTS WITH ARCHITECTURAL DETAILS, PROFILES AND ELEVATIONS.
19. PLACE ALL SLABS-ON-GRADE IN LONG STRIPS (PER ACI RECOMMENDATIONS REPORT NO. 302, 1R-19). PROVIDE MINIMUM CONTROL JOINTS ALONG COLUMN CENTERLINES WITH DIAMOND SHAPED CONFIGURATION AT COLUMN LOCATIONS. SAW-CUTTING CONTROL JOINTS WILL BE PERMITTED IF DONE WITHIN 24 HOURS.
20. ANCHOR BOLTS, STRAP ANCHORS, DOWELS, REINFORCING BARS, AND OTHER INSERTS SHALL BE SET AND SECURELY FASTENED PRIOR TO POURING OF CONCRETE.

CONCRETE - MATERIALS

1. ALL CAST IN PLACE CONCRETE SHALL HAVE THE FOLLOWING MINIMUM 28-DAY ULTIMATE COMPRESSIVE STRENGTHS USING NORMAL WEIGHT CONCRETE (145 PCF), UNLESS NOTED OTHERWISE.

TYPICAL, UNLESS NOTED OTHERWISE	f'_c = 4000 PSI
FOUNDATION PILE CAPS	f'_c = 6000 PSI
FOUNDATION GRADE BEAMS	f'_c = 5000 PSI
MISC. FOUNDATION WALLS, PITS, ETC.	f'_c = 5000 PSI
SLAB-ON-GRADE	f'_c = 5000 PSI
FRAME SHEAR WALLS	f'_c = 5000 - 8000 PSI
GRAVITY COLUMNS	f'_c = 5000 PSI
FLOOR SLABS	f'_c = 5000 PSI
MISC. MEP PADS, CURBS, WALLS	f'_c = 4000 PSI
MISC. SIDEWALKS, ETC.	f'_c = 3000 PSI

2. ALL CONCRETE SHALL CONTAIN AN APPROVED WATER REDUCING, PLASTICIZING ADMIXTURE. AN APPROVED HIGH RANGE, WATER REDUCING ADMIXTURE MAY BE USED. ALL CONCRETE PERMANENTLY EXPOSED TO THE WEATHER SHALL ALSO CONTAIN AN APPROVED AIR-ENTRAINED ADMIXTURE.
3. ALL REINFORCING BARS SHALL BE NEW BILLET STEEL CONFORMING TO ASTM A615 - GRADE 60, UNLESS NOTED OTHERWISE.
4. AT THE FOLLOWING LOCATIONS, REINFORCING BARS SHALL BE NEW BILLET STEEL CONFORMING TO ASTM A706 – GRADE 60, UNLESS NOTED OTHERWISE:
   1) ALL PRIMARY DIAGONAL REINFORCING BARS AT SHEARWALL LINK BEAMS.
   2) ALL LONGITUDINAL SHEARWALL BOUNDARY ZONE REINFORCING BARS.
   3) ALL LONGITUDINAL PRECAST PILE MILD STEEL REINFORCING BARS.
5. ALL WELDED WIRE FABRIC SHALL CONFORM TO ASTM A185.
6. WHERE REINFORCING BARS ARE SHOWN WELDED TO ANGLE EMBEDS, STEEL COLUMNS, ETC., REINFORCEMENT BARS SHALL CONFORM TO ASTM A706-GRADE 60, UNLESS NOTED OTHERWISE.
7. PROVIDE WELDED 4 BY 4 WIRE FABRIC IN CONCRETE FILLS OVER STRUCTRUAL SLAB OR METAL DECK AS FOLLOWS, UNLESS NOTED OTHERWISE. PLACE 1" BELOW TOP OF FILL, UNLESS NOTED OTHERWISE. THICKNESSES SHOWN BELOW ARE DEFINED AS TOTAL SLAB THICKNESS LESS METAL DECK HEIGHT.

W2.5 X W2.5	FILL ABOVE DECK OF 3-1/4" OR LESS
#3 AT 12" O.C. E.W.	4-1/2"
#4 AT 12" O.C. E.W.	6"
#3 AT 12" O.C. E.W.	5"

   FOR ADDITIONAL REINFORCEMENT AS REQUIRED, SEE STRUCTURAL FRAMING PLANS AND DETAILS. SEE TYPICAL CONCRETE DETAILS, FOR REINFORCEMENT OF ARCHITECTURAL CONCRETE FILLS.
8. CONCRETE THICKNESSES SHOWN ON FRAMING PLANS ARE MINIMUM THICKNESSES. NO ALLOWANCES HAVE BEEN SHOWN FOR ADDITIONAL CONCRETE FILL REQUIRED TO COMPENSATE FOR FRAMING OR SLAB DEFLECTIONS. PROVIDE ADDITIONAL CONCRETE FILL AS REQUIRED TO MAINTAIN SURFACE ELEVATIONS SHOWN AND TOLERANCES SPECIFIED.
9. THE CONTRACTOR SHALL PROVIDE FINISH SLAB SURVEYS FOR ALL CONCRETE SLABS INCLUDING SLAB-ON-GRADE AND SUSPENDED SLABS BY LICENSED SURVEYOR TO SUBSTANTIATE FLOOR LEVELNESS WITH SPECIFIED TOLERANCES FOR REVIEW BY CONSTRUCTION MANAGER.
10. THE CONTRACTOR SHALL PERFORM AND SUBMIT INSTRUMENT SURVEYS, DAILY, OF ALL ARCHITECTURALLY EXPOSED FORMED CAST-IN-PLACE REINFORCED CONCRETE BOTH BEFORE AND AFTER REMOVAL OF FORMWORK AND/OR TEMPORARY SHORING SYSTEMS.

POST-TENSION CONSTRUCTION

1. THE POST-TENSION SYSTEM SHALL CONSIST OF AN UNBONDED MONOSTRAND TENDON SYSTEM, STRANDS SHALL CONFORM TO ASTM A416 (LOW RELAXATION), LATEST REVIVION WITH A GUARANTEED MINIMUM ULTIMATE STRENGTH OF 270,000 PSI.
2. FRICTIONAL LOSSES SHALL BE BASED ON EXPERIMENTALLY DETERMINE WOBBLE AND CURVATURE COEFFICIENTS AND SHALL BE VERIFIED DURING STRESSING OPERATIONS. THE LOSS IN POST-TENSIONING DUE TO ELASTIC SHORTENING, SHRINKAGE, CREEP OF CONCRETE MATERIALS, AND RELAXATION OF STEEL SHALL BE CONSIDERED TO BE AT LEAST A MINIMUM OF 15 KSI.
3. THE STRESSING OF SLAB TENDONS MAY COMMENCE WHEN THE CONCRETE HAS OBTAINED A COMPRESSIVE STRENGTH OF 3000 PSI, UNLESS NOTED OTHERWISE.
4. TENDONS MAY BE TEMPORARILY OVERSTRESSED TO A MAXIMUM OF 0.85 OF THE GUARANTEED ULTIMATE TENSILE STRENGTH AND LOCKED OFF AT A MAXIMUM STRESS OF 0.70 OF THE ULTIMATE TENSILE STRENGTH.
5. UNLESS OTHERWISE SPECIFIED ON THE DRAWINGS, ALL TENDONS ARE TO BE PLACED IN SMOOTH PARABOLIC CURVES BETWEEN POINTS DIMENSIONED. HIGH AND LOW POINTS, INDICATED ON THE DRAWINGS CORRESPOND TO COLUMN/WALL CENTERLINES AND MIDSPANS RESPECTIVELY, UNLESS NOTED OTHERWISE. ALL DIMENSIONS LOCATING TENDON PROFILES APPLY TO THE CENTER OF THE GRAVITY OF THE TENDONS.
6. TENDON PLACEMENT SHALL NOT VARY MORE THAN 1/8" VERTICALLY FROM THE POINTS DIMENSIONED. TENDONS IN THE SLABS MAY BE MOVED LATERALLY TO CLEAR OPENINGS AND POSITIONED IN THEIR PROPER LOCATION PRIOR TO THE POURING OF CONCRETE.
7. THE CONTRACTOR SHALL PREPARE STRESSING RECORDS FOR EACH TENDON INDICATING BOTH THEORETICAL AND ACTUAL ELONGATIONS AND SUBMIT SUCH RECORDS TO THE ARCHITECT FOR REVIEW ON A DAILY BASIS.
8. AFTER REVIEW OF THE STRESSING RECORDS BY THE ARCHITECT, CUT THE TENDON TAILS APPROXIMATELY ½" INSIDE THE POCKET. SEAL THE TENDON END DRY PACK ALL POST-TENSIONING POCKETS WITH NON-SHRINK, NON-FERROUS GROUT UNLESS NOTED OTHERWISE.
9. CORING OF POST-TENSIONED CONCRETE SLABS WILL NOT BE PERMITTED WITHOUT THE REVIEW OF THE ARCHITECT. ALL OPENINGS AND/OR SLEEVES MUST BE SHOWNON THE SHOP DRAWINGS. ALL INSERTS MUST BE CAST-IN-PLACE. ANY ADDITIONAL OPENINGS NOT SHOWN ON THE APPROVED SHOP DRAWINGS WILL REQUIRE WRITTEN VERIFICATION FROM THE ARCHITECT PRIOR TO PLACEMENT.

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RECORD DOCUMENTS

UNIVERSITY OF CALIFORNIA SAN FRANCISCO FIRE MARSHAL
CDF—OFFICE OF STATE FIRE MARSHAL APPROVED 12/13/05
Approval of this plan does not authorize or approve any omission or deviation from applicable regulations. Final approval is subject to field inspection. One set of approved plans shall be available on the project site at all times.
Reviewed by: _____
Project #: M0445
Authorization #: S20013

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