Building Name: Mission Bay 3rd

Street Parking

CAAN ID: 3040

Auxiliary Building ID: NA 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 3rd St. Parking Garage

Address: 1650 3rd Street, San Francisco

Site location coordinates: Latitude 37.7693 Longitudinal -122.3896

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

ASCE 41-17 Model Building Type:

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

Gross Square Footage: 254,498 Number of stories *above* grade: 9

Number of basement stories below grade: 0

Year Original Building was Constructed: 2005 Original Building Design Code & Year: CBC- 2001

Retrofit Building Design Code & Code (if applicable): NA

SITE INFORMATION

Site Class: E Basis: (Jessen-Wright, 10/21/2005, S1.0)

Geologic Hazards:

Fault Rupture: No
Liquefaction: No
Basis: UCSF Presumptive Buildings – Geotechnical Assessment, Egan (2019)
Basis: UCSF Presumptive Buildings – Geotechnical Assessment, Egan (2019)
Basis: UCSF Presumptive Buildings – Geotechnical Assessment, Egan (2019)

ATTACHMENT

Original Structural Drawings: (Mission Bay Building 23B Parking Structure, Jessen-Wright, 10/21/2005,

S1.0) 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 building seismic retrofit design was fullyconstructed 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.

Date: 8/16/2019

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.

Building Name: Mission Bay 3rd

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Auxiliary Building ID: NA



Date: 8/16/2019

CERTIFICATION SIGNATURE

Maryann T. Phipps
President

Title

S2995
CA Professional Registration No.
License Expiration Date

8/16/2019
Date

AFFIX SEAL HERE

AFFIX SEAL HERE

PROFESS/ON

I. PHOTOLOGY

No. 2995
EXP. 6/30/20

SIgnature

9/4/2019

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

Firm Name, Phone Number, and Address

Building Name: Mission Bay 3rd

Street Parking

CAAN ID: 3040

Auxiliary Building ID: NA Date: 8/16/2019



Table 1: Benchmark Building Codes and Standards

	Building Seismic Design Provisions					
Building Type a,b	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.

 $^{^{\}it h}$ Cold-formed steel shear walls with wood structural panels only.

 $^{^{\}it i}$ Flat slab concrete moment frames shall not be considered Benchmark Buildings.

SECTION 1: GENERAL

- 1-1 CODE OF REFERENCE: ALL WORK SHALL CONFORM TO THE STANDARDS OF THE LATEST EDITION OF THE 2001 CALIFORNIA BUILDING CODE. ASTM STANDARDS REFERENCED ON THESE DRAWINGS SHALL BE OF THE LATEST EDITION.
- 1-2 STRUCTURAL OBSERVATION: STRUCTURAL OBSERVATION IS REQUIRED FOR THE STRUCTURAL SYSTEM IN ACCORDANCE WITH CBC SECTION 1702. STRUCTURAL OBSERVATION IS THE VISUAL OBSERVATION OF THE ELEMENTS AND CONNECTIONS OF THE STRUCTURAL SYSTEM AT SIGNIFICANT CONSTRUCTION STAGES AND THE COMPLETED STRUCTURE FOR GENERAL CONFORMANCE TO THE APPROVED PLANS AND SPECIFICATIONS. STRUCTURAL OBSERVATION DOES NOT WAIVE THE RESPONSIBILITY FOR THE INSPECTIONS REQUIRED BY THE BUILDING INSPECTOR OR THE DEPUTY INSPECTOR.
 - A FINAL OBSERVATION REPORT MUST BE SUBMITTED SHOWING THAT ALL OBSERVED DEFICIENCIES WERE RESOLVED AND THE STRUCTURAL SYSTEM GENERALLY CONFORMS WITH THE APPROVED PLANS AND SPECIFICATIONS. THE DEPARTMENT OF BUILDING AND SAFETY WILL NOT ACCEPT THE STRUCTURAL WORK WITHOUT THIS FINAL OBSERVATION REPORT AND THE CORRECTION OF THE SPECIFIC DEFICIENCIES NOTED DURING NORMAL BUILDING AND DEPUTY INSPECTION.
- 1-3 SPECIAL INSPECTION: FULL-TIME SPECIAL INSPECTION PER SECTION 1701 OF THE CBC SHALL BE PROVIDED FOR THE FOLLOWING TYPES OF CONSTRUCTION:
 - CONCRETE REINFORCING STEEL PRESTRESSING TENDONS CONCRETE BOLTS, EMBEDS, AND DRILLED ANCHORS WELDING OF STRUCTURAL OR REINFORCING STEEL

SPECIAL GRADING, EXCAVATING, AND FILLING

STRUCTURAL MASONRY

- PILE DRIVING THE SPECIAL INSPECTOR SHALL BE ACCEPTABLE TO THE STRUCTURAL ENGINEER AND BUILDING DEPARTMENT. SHALL BE ICBO QUALIFIED, AND THEIR EXPERIENCE SHALL BE COMMENSURATE WITH THIS TYPE OF PROJECT.
- 1-4 CONTRACTOR COORDINATION/VERIFICATION: THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND JOB SITE CONDITIONS. ANY DISCREPANCIES WITH THE SITE OR ON THE DRAWINGS SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT PRIOR TO CONSTRUCTION.
- IF A PARTICULAR FEATURE OF CONSTRUCTION IS NOT FULLY SHOWN ON THE DRAWINGS OR IN THE SPECIFICATIONS. THEN IT SHALL BE CONSTRUCTED IN THE SAME CHARACTER AS SIMILAR CONDITIONS THAT ARE SHOWN IN THE DESIGN DOCUMENTS, AND SHALL BE REVIEWED BY THE ARCHITECT.
- CONDITIONS NOTED IN THE DRAWINGS AS "EXISTING" SHALL BE FIELD VERIFIED BY THE CONTRACTOR. IF THERE ARE DISCREPANCIES, THE CONTRACTOR SHALL CONDITIONS NOTED IN IMMEDIATELY NOTIFY THE ENGINEER AND NOT PROCEED WITH CONSTRUCTION UNTIL FURTHER DIRECTION IS PROVIDED.
- 1-5 CONSTRUCTION METHODS: THE DRAWINGS AND SPECIFICATIONS REPRESENT THE FINISHED STRUCTURE, AND, UNLESS SPECIFICALLY NOTED OTHERWISE. DO NOT SHOW THE METHOD OF CONSTRUCTION. THE CONTRACTOR IS RESPONSIBLE FOR THE METHOD OF CONSTRUCTION, AND SHALL PROVIDE ALL MEASURES NECESSARY TO PROTECT THE PUBLIC.
- 1-6 OPENINGS IN STRUCTURAL ELEMENTS: OPENINGS, POCKETS, ETC. SHALL NOT BE PLACED IN SLABS, BEAMS, COLUMNS, WALLS, FOOTINGS, ETC., UNLESS SPECIFICALLY SHOWN ON THE STRUCTURAL DRAWINGS.
- THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER THE SIZES AND LOCATIONS OF ALL OPENINGS, POCKETS, ETC. TO BE DRILLED, CORED OR CUT IN SLABS, BEAMS, COLUMNS, WALLS, FOOTINGS, ETC. PRIOR TO INSTALLATION. THE CONTRACTOR SHALL TAKE ALL MEASURES NECESSARY TO AVOID DAMAGING CONCRETE OR MASONRY REINFORCEMENT.
- 1-7 DESIGN CRITERIA: THE STRUCTURE HAS BEEN DESIGNED FOR THE FOLLOWING CRITERIA:
 - SEISMIC ZONE: SOIL PROFILE TYPE: Se WIND SPEED: 70 MPH WIND EXPOSURE:
 - LIVE LOADS: PARKING LEVELS50 PSF REDUCIBLE

1-8 TYPICAL DETAILS: SEE SHEETS S3.0, S4.1, S4.2, S4.3, S4.4, & S4.5.

1-9 THESE STRUCTURAL DRAWINGS SHALL BE USED IN CONJUNCTION WITH THE STRUCTURAL SPECIFICATIONS FOR THIS PROJECT. IF THERE ARE ANY DISCREPANCIES, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE STRUCTURAL ENGINEER AND NOT PROCEED WITH CONSTRUCTION UNTIL FURTHER DIRECTION OR CLARIFICATION IS PROVIDED BY THE STRUCTURAL

SECTION 2: FOUNDATIONS

DATE:

- 2-1 GEOTECHNICAL REPORT: FOUNDATIONS BASED ON RECOMMENDATIONS IN THE FOLLOWING REPORT:
 - COMPANY: MACTEC PROJECT NUMBER: 4097030033,1
- 2-2 GRADING AND SITEWORK: ALL SOILS WORK SHALL BE DONE IN ACCORDANCE WITH THE GEOTECHNICAL REPORT.

SEPTEMBER 25, 2003

- 2-3 GEOTECHNICAL ENGINEER'S REVIEW: THE GEOTECHNICAL ENGINEER SHALL REVIEW THE FOLLOWING WORK, AND SUBMIT TO THE ARCHITECT AND BUILDING DEPARTMENT A LETTER OF COMPLIANCE:
 - ALL BACKFILL AND COMPACTION OPERATIONS ALL PILE DRIVING OPERATIONS

CAST-IN-PLACE CONCRETE

CONCRETE MASONRY UNITS ELEV

ELEVATION (DATUM)

SECTION 3: CONCRETE

- 3-1 MATERIALS:
 - A. AGGREGATES: AGGREGATE FOR NORMAL-WEIGHT CONCRETE SHALL CONFORM TO ASTM C-33. COARSE AGGREGATE SIZE SHALL BE NO. 467 (1-1/2" TO NO. 4) OR NO. 57 (1" TO NO. 4) FOR FOOTINGS AND MASS CONCRETE. AND NO. 57 OR NO. 67 (3/4" TO NO. 4) FOR ALL OTHER CONCRETE. 3/8" AGGREGATE MAY BE USED WITH THE ENGINEER'S REVIEW.
 - AGGREGATE FOR LIGHT-WEIGHT CONCRETE SHALL CONFORM TO ASTM C-330. COARSE AGGREGATE SIZE SHALL BE NO. 57 OR NO. 67.
 - AGGREGATES SHALL NOT CONTAIN MATERIAL WHICH ARE ALKALI REACTIVE AS DETERMINED BY ASTM C-227, 289 AND 295. IF TEST DATA IS UNAVAILABLE IN REGARDS TO ALKALI REACTIVE MATERIALS. PROVIDE CEMENT WITH A MAXIMUM ALKALI CONTENT LESS THAN 0.45% BY WEIGHT. OR PROVIDE FLY ASH PER NOTE 3-1,C.
 - B. CEMENT: CEMENT SHALL CONFORM TO ASTM C-150, TYPE II OR TYPE II-LOW ALKALI. CEMENT IN CONTACT WITH SOIL OR IRRIGATION WATER SHALL SHALL CONFORM TO ASTM C-150, TYPE II OR TYPE II-LOW ALKALI.
 - C. FLY ASH: FLY ASH MAY BE USED TO OFFSET CEMENT ON A 1 TO 1 BASIS (BY WEIGHT). FLY ASH SHALL CONFORM TO ASTM C-618, CLASS F. MAXIMUM LOSS ON IGNITION SHALL NOT EXCEED 3.0%. IF USED, CLASS F FLY ASH SHALL EXCEED 25% OF THE CEMENT PLUS FLY ASH BY WEIGHT AND SHALL CONTAIN A MAXIMUM OF 7% CALCIUM OXIDE.
- D. ADMIXTURES: NO ADMIXTURE MAY CONTAIN CALCIUM CHLORIDE, OR MORE THAN 0.05% CHLORIDE IONS.

3-2 MIX DESIGNS:

- A. SUBMITTALS: ALL CONCRETE MIX DESIGNS SHALL BE PREPARED BY AN ENGINEER LICENSED IN THE STATE OF CALIFORNIA, AND STAMPED & SIGNED COPIES SHALL BE SENT TO THE STRUCTURAL ENGINEER OF RECORD
- COMPRESSIVE STRENGTH TESTS SHALL ALSO INCLUDE TEST RESULTS FOR SLUMP AND ENTRAINED AIR (IF SPECIFIED), AND SHALL BE SENT TO THE
- B. MIX REQUIREMENTS: ALL CONCRETE SHALL CONTAIN A WATER REDUCING ADMIXTURE, AND A MINIMUM OF 5 SACKS OF CEMENT PER CUBIC YARD. CONCRETE IN CONTACT WITH SOIL OR IRRIGATION WATER SHALL HAVE A MAXIMUM WATER TO CEMENT RATIO OF 0.50.
- ALL SLAB CONCRETE SHALL HAVE A MAXIMUM WATER TO CEMENT RATIO OF 0.45 3-3 PERFORMANCE REQUIREMENTS:
- A. MINIMUM COMPRESSION STRENGTHS:

	•		
<u>ITEM</u>	STRENGTH (PSI)	DAYS	
SLABS AND BEAMS:	5000	56	
PRECAST BEAMS:	PER SUPPLIER		
COLUMNS:	PER SCHEDULE		
UPTURNED GRADE BEAMS & SOG:	4000	28	
FOUNDATION WALLS & PILASTERS, UI	NO: 4000	28	•
PILECAPS	4000	28	
ALL OTHER CONCRETE, UNLESS SPECIFICALLY NOTED:	3000	28	

- C. CONCRETE DENSITY: 150 PCF MAXIMUM
- D. SHRINKAGE: SHRINKAGE AT 28 DAYS (PER ASTM C-157) SHALL NOT EXCEED 0.055% FOR DRY CURING.
- E. MINIMUM CONCRETE SPLITTING TENSILE STRENGTH SHALL BE 390 PSI.
- 3-4 COMPRESSION TEST SAMPLES: SAMPLES SHALL BE PER CBC SECTION 1905.6, "EVALUATION AND ACCEPTANCE OF CONCRETE". EACH SAMPLE SHALL CONTAIN AT LEAST FOUR CYLINDERS, INCLUDING ONE FOR TESTING AT SEVEN DAYS AND TWO AT 28 DAYS. IF THE 28 DAY RESULTS ARE BELOW THE MINIMUM SPECIFIED 28 DAY STRENGTH, THE EXTRA CYLINDER SHALL BE TESTED AT 56 DAYS.
- 3-5 CONSTRUCTION JOINTS: THE HARDENED CONCRETE SURFACE AT CONSTRUCTION JOINTS SHALL HAVE A ROUGHNESS OF 1/4" AMPLITUDE, UNLESS SPECIFICALLY NOTED.
- 3-6 EMBEDDED ITEMS: ALL REBAR, PRESTRESSING TENDONS, ANCHOR BOLTS, STEEL EMBEDS AND OTHER EMBEDDED ITEMS SHALL BE SECURELY POSITIONED PRIOR TO PLACING CONCRETE. STEEL EMBEDS SHALL CONTAIN DRILLED HOLES FOR NAILS OR BOLTS FOR PLACEMENT.
- 3-7 CHAMFERS: ALL PROJECTING CORNERS OF BEAMS, SLABS, COLUMNS, ETC. SHALL BE FORMED WITH A 3/4" CHAMFER, UNLESS SPECIFICALLY NOTED OTHERWISE.
- 3-8 CONCRETE PUMP HOSES: PROVIDE INDEPENDENT SUPPORTS SO HOSES DO NOT REST ON SLAB REINFORCEMENT.
- 3-9 SLAB CONDUIT: UNLESS SPECIFICALLY NOTED OTHERWISE, CONDUIT OR EMBEDDED PIPE SIZE (OUTSIDE DIAMETER) SHALL NOT EXCEED 1/3 OF THE SLAB THICKNESS, AND SHALL BE LOCATED WITHIN THE CENTER 1/3 OF THE SLAB. CONDUIT AND PIPES SHALL BE SPACED AT LEAST THREE DIAMETERS ON CENTER (USE LARGEST DIAMETER).
- THE ELECTRICAL CONTRACTOR SHALL SUBMIT SHOP DRAWINGS WHICH CONTAIN PROPOSED CONDUIT LAYOUTS FOR THE STRUCTURAL ENGINEER'S REVIEW A MINIMUM OF TWO WEEKS PRIOR TO INSTALLATION.

SECTION 4: PRECAST CONCRETE

4-1 SUBMITTALS:

GALVANIZED

- A. BEAMS, GIRDERS, AND COLUMNS: CALCULATIONS AND SHOP DRAWINGS FOR BEAMS, GIRDERS. AND COLUMNS. STAMPED AND SIGNED BY AN ENGINEER LICENSED IN THE STATE OF CALIFORNIA, SHALL BE REVIEWED BY THE STRUCTURAL ENGINEER OF RECORD PRIOR TO FABRICATION. COLUMNS SHALL COMPLY WITH CBC SECTION 1921.7 AND COLUMN CONNECTIONS TO FOOTING SHALL COMPLY WITH CBC 1916.5.1.3.
- B. SHOP DRAWINGS: SHOP DRAWINGS SHALL BE SUBMITTED FOR THE ARCHITECT'S AND ENGINEER'S REVIEW PRIOR TO FABRICATION. SHOP DRAWINGS SHALL SHOW MEMBER DIMENSIONS, REINFORCEMENT, REVEALS, AND INSERT LOCATIONS. MEMBERS SHALL NOT BE ERECTED UNTIL THE REVIEWED SHOP DRAWINGS ARE RECEIVED IN THE FIELD.
- C. FIELD RECORDS: COPIES OF STRESSING FORCES, TENDON ELONGATIONS, CONCRETE COMPRESSION TESTS AND CONCRETE SLUMP FOR EACH DAY'S POUR AND FOR EACH TYPE OF UNIT SHALL BE SENT TO THE ENGINEER.
- 4-2 FABRICATION SHOP: ALL FABRICATION SHALL BE DONE IN A SHOP THAT IS ACCEPTABLE TO THE BUILDING DEPARTMENT. SPECIAL INSPECTION IS NOT REQUIRED AT MANUFACTURER'S PLANT THAT MEET THE REQUIREMENTS OF CBC SECTION 1701.7

4-3 CONSTRUCTION DESIGN: DESIGN OF ADDITIONAL REINFORCEMENT, INSERTS, ETC. REQUIRED FOR LIFTING AND HANDLING OPERATIONS SHALL BE PROVIDED BY THE

PRECAST MEMBER FABRICATOR. 4-4 SHORED CONSTRUCTION: ALL BEAMS AND GIRDERS SHALL BE SHORED PER THE PRECAST SUPPLIER. SHORES SHALL BE INSTALLED SNUG BEFORE CONCRETE IS PLACED, AND NOT BE REMOVED UNTIL THE CONCRETE HAS ATTAINED 3000 PSI. THE GENERAL CONTRACTOR IS

OVERSIZE ROUND HOLE

STEEL

SQUARE

SECTION 5: MASONRY

5-1 CONCRETE MASONRY UNITS: UNITS SHALL CONFORM TO CBC STANDARD 21-4,

GRADE N, TYPE I, AND SHALL BE SINGLE OR DOUBLE OPEN END BOND BEAM UNITS.

- 5-2 COMPRESSIVE STRENGTH: COMPRESSIVE STRENGTH OF INDIVIDUAL ELEMENTS OF CMU CONSTRUCTION SHALL EQUAL OR EXCEED THE SPECIFIED OVERALL I'm.
- A. OVERALL f'm: 1500 PSI, UNO
- B. GROUT: 2000 PSI MINIMUM AT 28 DAYS.
- C. MORTAR (TYPE S): 1800 PSI MINIMUM AT 28 DAYS.
- 5-3 COMPRESSION TESTING: I'm SHALL BE DETERMINED BY PRISM TESTING PER CBC SECTION 2105.3.

5-4 GROUTING REQUIREMENTS:

- A. GROUT EXTENT: FILL ALL CELLS.
- B. HIGH-LIFT PROCEDURE: FOR BLOCK LIFTS OVER FIVE FEET, PROVIDE CLEANOUTS AT EVERY BOTTOM CELL. TOTAL GROUT LIFT SHALL NOT EXCEED 6'-0", AND TOTAL POUR DEPTH SHALL NOT EXCEED CBC TABLE 21-C.
- C. ALL GROUT SHALL CONTAIN "GROUT AID" OR EQUAL.
- 5-5 REINFORCING STEEL: SEE SECTION 6, "REINFORCING STEEL", EXCLUDING CLEAR COVERAGE REQUIREMENTS. REBAR POSITIONERS ARE REQUIRED PER DETAIL 2/S4.5.
- 5-6 REBAR LAPS: LAP THE GREATER OF (60) BAR DIAMETERS OR 2'-0", UNLESS SPECIFICALLY NOTED.
- 5-7 ANCHORS: LOCATE ANCHOR BOLTS AND SLEEVE ANCHORS WITHIN 2" OF THE CENTER OF A CELL.
- 5-8 SHOP DRAWINGS: MASONRY CONTRACTOR SHALL PROVIDE REBAR SHOP DRAWINGS.

SECTION 6: REINFORCING STEEL

- 6-1 MATERIALS: REINFORCING STEEL SHALL BE ASTM A-615 GRADE 60. SHEAR WALL CHORD AND MOMENT FRAME REINFORCING (EXCLUDING TIES) SHALL BE ASTM A-706 OR SHALL MEET THE FOLLOWING REQUIREMENTS:
 - A. ACTUAL YIELD STRENGTH SHALL NOT EXCEED SPECIFIED YIELD STRENGTH BY MORE THAN 18 KSI (RETESTS SHALL NOT EXCEED THIS VALUE BY AN ADDITIONAL 3 KSI).
 - B. THE RATIO OF THE ACTUAL TENSILE ULTIMATE STRENGTH TO THE ACTUAL TENSILE YIELD STRENGTH SHALL NOT EXCEED 1.25
- REINFORCING STEEL THAT IS TO BE WELDED SHALL CONFORM TO ASTM A-706, UNLESS SPECIFICALLY NOTED OTHERWISE. OTHER GRADES, IF ALLOWED, SHALL HAVE A MAXIMUM CARBON EQUIVALENT OF 0.65%. WELDING ELECTRODES SHALL BE LOW - HYDROGEN, AND SHALL BE E90XX FOR 60 GRADE REINFORCING STEEL AND E70XX FOR 40 GRADE.
- WIRE MESH SHALL CONFORM TO ASTM A-185.
- 6-2 SHOP DRAWINGS: NO REINFORCING STEEL SHALL BE PLACED UNTIL SHOP DRAWINGS THAT HAVE BEEN REVIEWED BY THE ENGINEER HAVE BEEN RECEIVED ON THE JOB SITE.
- SHOP DRAWINGS SHALL CONTAIN ALL INFORMATION NECESSARY FOR CORRECTLY PLACING ALL REINFORCING STEEL WITHOUT REFERRAL TO THE STRUCTURAL DRAWINGS. SHOP DRAWINGS SHALL NOT CONTAIN ANY REPRODUCTIONS OF THE STRUCTURAL DRAWINGS.
- 6-3 CLEAR COVERAGE: CONCRETE CLEAR COVERAGE TO REINFORCING STEEL SHALL
- A. CAST-IN-PLACE CONCRETE:
- 1. CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO SOIL 3"
- 2. CONCRETE WITH SOIL OR WEATHER EXPOSURE:
- A. #5 BARS AND SMALLER 1 1/2" B. #6 BARS AND LARGER - 2"
- 3. CONCRETE WITHOUT SOIL OR WEATHER EXPOSURE: A. SLABS, WALLS, AND JOISTS:
- 1. #11 BARS AND SMALLER 3/4" 2. #14 BARS AND LARGER - 1 1/2"
- B. COLUMNS AND BEAMS TO PRIMARY REINFORCEMENT, TIES. STIRRUPS, AND SPIRALS - 1 1/2"
- B. PRECAST CONCRETE (PLANT CONTROL CONDITIONS):
- 1. CONCRETE WITH SOIL OR WEATHER EXPOSURE:
- A. WALL PANELS: 1. #11 BARS AND SMALLER - 3/4" 2. #14 BARS AND LARGER - 1 1/2"
- B. OTHER MEMBERS: 1. #5 BARS AND SMALLER - 1 1/4"
- 2. #6 THRU #11 BARS 1 1/2" 3. #14 BARS AND LARGER - 2'
- C. PRESTRESSED CONCRETE:
- CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO SOIL 3"
- 2. CONCRETE WITH SOIL OR WEATHER EXPOSURE:
- B. OTHER MEMBERS 1 1/2" 3. CONCRETE WITHOUT SOIL OR WEATHER EXPOSURE:
- A. SLABS, WALLS, AND JOISTS 3/4" B. COLUMNS AND BEAMS:

A. WALL PANELS, SLABS, JOISTS - 1"

- 1. TIES, STIRRUPS, AND SPIRALS 1" PRIMARY REINFORCEMENT - 1 1/2"
- 6-4 LAP SPLICES: REINFORCING BARS SHALL BE LAPPED AT LENGTHS AND LOCATIONS SHOWN ON THE DRAWINGS. ADDITIONAL LAPS SHALL BE REVIEWED BY THE ENGINEER. WIRE MESH SHALL BE LAPPED ONE WIRE SPACE PLUS 2" (8" MINIMUM) BETWEEN OUTERMOST CROSS WIRES OF ADJACENT SHEETS.

WELDED WIRE FABRIC

WTH

WITHOUT

6-5 FIELD BENDING: FIELD BENDING OF REINFORCING BARS SHALL BE REVIEWED BY THE ENGINEER. BENDING OF #8 BARS AND SMALLER SHALL BE MADE COLD. BENDING OF #8, #9, AND #10 BARS MAY BE UNIFORMLY PREHEATED TO 1400 TO 1600 DEGREES F. AND BENT PER CRSI RECOMMENDATIONS.

SECTION 10: POST-TENSIONED CONCRETE

10-1 MATERIALS:

- A. TENDONS: PRESTRESSING TENDONS SHALL BE UNCOATED. SEVEN-WIRE LOW RELAXATION STEEL STRAND, AND SHALL CONFORM TO ASTM A-416, GRADE 270. TENDONS SHALL BE 1/2" NOMINAL DIAMETER, WITH AN AREA OF 0.153 SQUARE INCHES.
- B. HARDWARE: ANCHORAGE AND COUPLING HARDWARE SHALL CONFORM TO THE REQUIREMENTS OF ACI 318 AND THE POST-TENSIONING INSTITUTE'S GUIDELINE SPECIFICATIONS.
- C. MISCELLANEOUS: SHEATHING, GREASE, TAPE, ETC. SHALL CONFORM TO THE REQUIREMENTS OF PTI SPECIFICATIONS. PROVIDE A COMPLETE ENCAPSULATED PROTECTION SYSTEM

10-2 SUBMITTALS:

- A. SHOP DRAWINGS: LAYOUT AND SUPPORT BAR SHOP DRAWINGS SHALL BE SUBMITTED FOR THE ENGINEER'S REVIEW PRIOR TO FABRICATION. LAYOUT DRAWINGS SHALL INDICATE ALL TENDONS THAT ARE TO BE STRESSED FROM ONLY ONE END. FIELD PLACEMENT SHALL NOT BEGIN UNTIL THE REVIEWED SHOP DRAWINGS ARE RECEIVED IN THE FIELD.
 - SHOP DRAWINGS SHALL NOT CONTAIN ANY REPRODUCTIONS OF THE STRUCTURAL DRAWINGS. SHOP DRAWINGS SHALL BE COMPLETE AND STAND ALONE, SUCH THAT THEY DO NOT REFER TO THE STRUCTURAL DRAWINGS.
- B. CALCULATIONS: CALCULATIONS FOR THE EFFECTIVE FORCE FOR EACH TENDON SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW. CALCULATIONS SHALL INCLUDE THE EFFECTS OF LONG TERM STRESS LOSSES DUE TO ELASTIC SHORTENING, CREEP, SHRINKAGE, AND TENDON RELAXATION, ASSUMING AN AVERAGE ANNUAL AMBIENT RELATIVE HUMIDITY OF 80%. SHORT TERM STRESS LOSSES DUE TO ANCHOR SLIPPAGE AND FRICTION SHALL ALSO BE CONSIDERED. FRICTION LOSSES MAY NOT BE CONSIDERED TO REDISTRIBUTE ALONG THE LENGTH OF THE TENDON, AND THE EFFECTIVE FORCE SHOWN IS THE MINIMUM
- WOBBLE AND CURVATURE VALUES ASSUMED IN THE CALCULATIONS SHALL BE FIELD VERIFIED.

REQUIREMENT ALONG THE LENGTH OF THE TENDON.

C. FINAL EFFECTIVE FORCES INDICATED ON STRUCTURAL DRAWINGS ARE BASED ON 26.4 KIPS PER CABLE.

10-3 INSTALLATION:

- A. TYPICAL DETAILS: FOR POST-TENSIONING DETAILS, SEE SHEET S4.2.
- B. SUPPORT BARS: SUPPORT BARS SHALL BE #4 OR LARGER AND SPACED AT A MAXIMUM OF 4'-0" ON CENTER, WITH 2'-0" MINIMUM LAP SPLICES. C. TENDON SECURING: TENDONS AND SUPPORT BARS SHALL BE FIRMLY
- HORIZONTAL POSITIONS. ALL SUPPORT BARS SHALL BE CHAIRED AT EACH TENDON. CONCRETE WILL BE PLACED SO AS TO NOT DISTURB TENDON PLACEMENT. ANY TENDON DISPLACED DURING CONCRETE PLACEMENT SHALL BE MOVED

ANCHORED TO PREVENT DISPLACEMENT FROM SPECIFIED VERTICAL AND

- BACK TO THE SPECIFIED PROFILE IMMEDIATELY. TENDON INTERFERENCE: WHEN PERPENDICULAR TENDONS REQUIRE THE SAME VERTICAL ORDINATE AT THE SAME LOCATION, ONE TENDON
- MAY BE MOVED HORIZONTALLY TO AVOID THE INTERFERENCE. THE SPECIFIED TENDON PROFILE GOVERNS WHEN REBAR OR CONDUITS INTERFERE WITH ANY TENDONS.
- E. SHEATHING REPAIR: ANY SHEATHING DAMAGE LONGER THAN ONE INCH, AND ALL SHEATHING TO STRESSING ANCHOR CONNECTIONS SHALL BE WRAPPED WITH TAPE TO PREVENT CEMENT SEEPAGE INTO THE
- TENDON BAND ANCHORAGE: TENDON BANDS (GROUPS OF 3 OR MORE) REQUIRE SPECIAL SLAB REINFORCEMENT. SEE DETAIL 5/S4.2.
- G. CLEAR COVER: TENDONS SHALL CLEAR OPENINGS PER DETAIL 6/S4.2.

10-4 STRESSING:

TENDON OR ANCHOR.

A. OPERATOR EXPERIENCE: ALL STRESSING OPERATIONS SHALL BE UNDER THE IMMEDIATE CONTROL OF A PERSON EXPERIENCED IN THIS TYPE OF WORK.

C. CALIBRATION: EACH HYDRAULIC JACK SHALL BE CALIBRATED WITH

- CONCRETE STRENGTH: STRESSING SHALL NOT COMMENCE UNTIL THE CONCRETE HAS REACHED AT LEAST 3000 PSI. AS INDICATED BY FIELD CURED COMPRESSION CYLINDERS.
- AN ACCURATE READING PRESSURE GAUGE. EACH UNIT SHALL HAVE A CERTIFIED CALIBRATION SHEET. IF THE MEASURED ELONGATIONS BECOME INCONSISTENT, THE UNIT SHALL BE RECALIBRATED. D. JACKING FORCE: THE MAXIMUM JACKING FORCE SHALL NOT EXCEED 80%

OF THE TENDON'S SPECIFIED TENSILE FORCE, NOR 94% OF THE TENDON'S

SPECIFIED YIELD FORCE. THE MAXIMUM FORCE IN THE TENDON AFTER ANCHORAGE SHALL BE 70% OF THE SPECIFIED TENSILE FORCE. E. ELONGATIONS: THE MEASURED TENDON ELONGATIONS SHALL BE WITHIN 7% OF THE CALCULATED ELONGATIONS, OR WITHIN 1/8" FOR

SHORT TENDONS. IF THE ELONGATIONS CONSISTENTLY EXCEED THIS

F. STRESSING SEQUENCE: 1. ALL TEMPERATURE TENDONS, WHERE OCCUR.

LIMIT, RECALIBRATE THE JACK UNIT.

- 2. ALL SLAB (DISTRIBUTED) TENDONS. G. TWO-WAY TENDON PULLS: FULL JACK FORCE SHALL BE APPLIED AT EACH END OF A TWO-WAY PULL. THE ANCHOR WEDGES AT THE OPPOSITE END OF THE PULL MUST BE FULLY SEATED AND CAUSE NO TENDON SLIPPAGE. THE TOTAL TENDON ELONGATION IS THE SUM OF THE ELONGATIONS AT EACH END.
- SAFETY: TAKE ALL NECESSARY SAFETY PRECAUTIONS. DO NOT ALLOW ANYBODY TO STAND BEHIND JACKS DURING STRESSING.
- 10-5 TENDON DAMAGE: NO DRILLING, CORING, OR POWDER SHOTS SHALL BE PLACED IN THE POST-TENSIONED SLAB THAT MAY DAMAGE OR CONTACT ANY TENDONS. THE GENERAL CONTRACTOR IS RESPONSIBLE FOR COORDINATING THE LOCATIONS OF ALL SLAB PENETRATIONS WITH TENDON DAMAGE POTENTIAL.

SECTION 19: PRECAST PRESTRESSED PILES

19-1 MATERIALS:

- A. CONCRETE: COMPRESSIVE STRENGTH SHALL BE A MINIMUM OF 5,000 PSI AT 28 DAYS, AND 4,000 PSI AT THE TIME OF DRIVING.
- B. TENDONS: PRESTRESSING TENDONS SHALL BE UNCOATED, SEVEN-WIRE LOW RELAXATION STEEL STRAND, AND SHALL CONFORM TO ASTM A-416 GRADE 270. TENDONS SHALL HAVE A MINIMUM NOMINAL
- C. MILD REINFORCEMENT: MILD REINFORCING STEEL SHALL CONFORM TO

- A. DESIGN: PILES SHALL BE DESIGNED BY THE PILE FABRICATOR PER THE REQUIREMENTS OF THE STRUCTURAL DRAWINGS AND THE UNIFORM BUILDING CODE. DESIGN FOR HANDLING AND DRIVING OPERATIONS SHALL BE CONSIDERED.
- B. CALCULATIONS: CALCULATIONS, STAMPED AND SIGNED BY AN
- C. SHOP DRAWINGS: SHOP DRAWINGS, STAMPED AND SIGNED BY AN ENGINEER LICENSED IN THE STATE OF CALIFORNIA, SHALL BE REVIEWED BY JESSEN-WRIGHT PRIOR TO PILE FABRICATION. SHOP DRAWINGS SHALL SHOW MATERIAL PROPERTIES, MEMBER DIMENSIONS, AND REINFORCEMENT.
- A. PILE SIZE: PILES SHALL BE 14" SQUARE. FOR ESTIMATING PURPOSES, ASSUME A PILE LENGTH OF 70'-0".
- B. MINIMUM PRESTRESS FORCE: DESIGN OF PILES SHALL CONFORM TO CBC SECTION 1808.5.3. THE MINIMUM NUMBER OF VERTICAL REINFORCING TENDONS AND/OR REBAR SHALL BE A TOTAL OF SIX.
- D. EARLY REFUSAL: LONGITUDINAL AND SPIRAL REINFORCEMENT SHALL BE EXTENDED TO ALLOW FOR THE POSSIBILITY OF AN EARLY DRIVING REFUSAL. ADDITIONAL LENGTH TO BE DETERMINED BY SOILS ENGINEER AFTER INDICATOR PILE TESTING.
- E. FLEXURAL AND SHEAR DESIGN LOADS: ALL PILES SHALL BE CONSIDERED AS FREE HEAD TYPE PILES. THE PILES SHALL BE DESIGNED FOR A MAXIMUM MOMENT OF 40 FT-KIPS AT 4'-0" BELOW THE BOTTOM-OF-PILECAP AND A MAXIMUM SHEAR OF 17.9 KIPS AT THE TOP
- F. AXIAL DESIGN LOADS: THE DESIGN LOADS ARE AS FOLLOWS: PILE TYPE

	<u> P1</u>	<u>P2</u>
MAXIMUM WORKING STRESS		
COMPRESSION LOAD	400 KIPS	535 KIPS
MAXIMUM ULTIMATE		
COMPRESSION LOAD	600 KIPS	750 KIPS
MAXIMUM WORKING STRESS		
TENSION LOAD	0 KIPS	125 KIPS
MAXIMUM ULTIMATE		
TENSION LOAD	0 KIPS	198 KIPS
, E. 101014 EO/10	5 Kii 5	.00 10.0

SECTION 20: MISCELLANEOUS

- PREMIXED, CEMENTITIOUS MIXTURE WITH NO SHRINKAGE AFTER PLACEMENT AND NO EXPANSION AFTER SET, PER ASTM C-827. COMPRESSIVE STRENGTH, PER ASTM C-109, SHALL BE AT LEAST 3000 PSI AT ONE DAY AND 5000 PSI AT
- 20-2 EXPANSION ANCHORS: EXPANSION ANCHORS IN CONCRETE SHALL BE RAMSET/REDHEAD TRUBOLT WEDGE ANCHORS PER ICBO #1372 OR EQUAL SLEEVE ANCHORS PER ICC #1372 OR EQUAL.
- 20-3 EPOXY/ADHESIVE ANCHORS: EPOXY ADHESIVE ANCHORS IN CONCRETE OR CMU SHALL BE RAMSET/REDHEAD EPCON SYSTEM ANCHORS PER ICC #4285 OR EQUAL.
- 20-6 STEEL STAIRS: STEEL STAIRS SHALL BE DESIGNED BY
- THE STRUCTURAL ENGINEER OF RECORD PRIOR TO STAIR FABRICATION. 20-7 EXTERIOR WALLS: EXTERIOR WALLS AND CONNECTIONS SHALL BE DESIGNED BY THE WALL FABRICATOR PER THE REQUIREMENTS OF THE ARCHITECTURAL DRAWINGS AND THE CBC. CALCULATIONS AND SHOP DRAWINGS, STAMPED AND SIGNED BY AN ENGINEER LICENSED IN THE STATE OF CALIFORNIA, SHALL BE

ENGINEER LICENSED IN THE STATE OF CALIFORNIA, SHALL BE REVIEWED BY

REVIEWED BY THE STRUCTURAL ENGINEER OF RECORD PRIOR TO WALL FABRICATION. 20-8 GENERAL CONTRACTOR SHALL KEEP A DIGITAL CAMERA ON-SITE AND PROVIDE PHOTOGRAPHS REQUESTED BY THE STRUCTURAL ENGINEER WITHIN TWO WORKING

SHEET INDEX

ABBREVIATIONS

RESPONSIBLE FOR PROVIDING ADEQUATE SHORES.

	ANCHOR BOLT	COL	COLUMN	EN	EDGE NAILING	H&L	HIGH AND LOW	MFR	MANUFACTURER	PLYWD	PLYWOOD	SWWR	STRUCTURAL WELDED
L'	ADDITIONAL	CONC	CONCRETE	EQ	EQUAL	HDR	HEADER	MIN	MINIMUM	PLCS	PLACES		WIRE REINFORCEMENT
	ADJACENT	CONN	CONNECTION	ES	EACH SIDE	HORIZ (H)	HORIZONTAL	MISC.	MISCELLANEOUS	PP	PARTIAL PENETRATION	SYM	SYMMETRICAL
	ALTERNATE	CONSTR	CONSTRUCTION	EXIST (E)	EXISTING	HSB	HIGH STRENGTH BOLTS	MTL	METAL	PT	PRESSURE TREATED	T&B	TOP & BOTTOM
;	ANCHOR	CONT	CONTINUOUS	EXP	EXPANSION	ID	INSIDE DIAMETER	(N)	NEW	P/C	PRECAST CONCRETE	T O (P)	TOP OF (PLYWOOD)
:H	ARCHITECTURAL	CONTR	CONTRACTOR	EXT	EXTERIOR	INT	INTERIOR	NOM	NOMINAL	P/T	POST-TENSIONED	TOC	TOP-OF-CONCRETE
G	BUILDING	CP	COMPLETE PENETRATION	EW	EACH WAY	JST	JOIST	NS	NEAR SIDE	REINF	REINFORCEMENT	TOF	TOP-OF-FOOTING
G	BLOCKING	CTR	CENTER	FF .	FINISH FLOOR	JT.	JOINT	NSA	NELSON STUD ANCHOR	REQ'D	REQUIRED	TOS	TOP-OF-STEEL
•	BEAM	CTSK	COUNTERSINK	FIN	FINISH	K	KIPS	NTS	NOT TO SCALE	SC	SLIP CRITICAL	TOW	TOP-OF-WALL
(B)	BOTTOM	DBA	DEFORMED BAR ANCHOR	FLR	FLOOR	1	ANGLE	OC	ON CENTER	SHG	SHEATHING	TYP	TYPICAL
(6)	BEAT TO FIT								OUTSIDE DIAMETER	SIM	SIMILAR	UNO	UNLESS NOTED OTHERWISE
.		DIA	DIAMETER	FNDN	FOUNDATION		LONG LEG HORIZ.	OD				VERT (V)	VERTICAL
N	BETWEEN	DO	DITTO	FOS	FACE OF STUD		LONG LEG VERT.	ОН	OPPOSITE HAND	SOG	SLAB-ON-GRADE	WP	WORKPOINT
	CONTROL JOINT	DWL	DOWEL	FS	FAR SIDE	LONG	LONGITUDINAL	OPNG	OPENING	SSL	SHORT SLOTTED HOLES		

MACHINE BOLTS

S1.0 GENERAL NOTES, ABBREVIATIONS & SHEET INDEX GROUND LEVEL FOUNDATION PARTIAL PLAN GROUND / 2ND LEVEL FOUNDATION PLAN

- 2ND LEVEL / 3RD LEVEL TYPICAL LEVEL (3RD-7TH) 8TH LEVEL / 9TH LEVEL
- S3.0 PILE CAP DETAILS S3.0a PILE CAP DETAILS

S2.5 9TH LEVEL / ROOF

- COLUMN SCHEDULE & DETAILS SHEAR WALL & MOMENT FRAME ELEVATIONS
 - CONCRETE DETAILS

CONCRETE DETAILS

- - DIAMETER OF 1/2", WITH AN AREA OF 0.153 SQUARE INCHES.
 - ASTM A-615.

19-2 SUBMITTALS:

- ENGINEER LICENSED IN THE STATE OF CALIFORNIA. SHALL BE REVIEWED BY JESSEN-WRIGHT PRIOR TO PILE FABRICATION.

19-3 PERFORMANCE REQUIREMENTS:

- C. TIES: SPIRAL REINFORCEMENT SHALL CONFORM TO CBC SECTION 1808.5.2. IN ADDITION, SPIRAL REINFORCEMENT FOR ALL PILES SHALL CONFORM TO CBC SECTION 1809.5. THE DESIGN FLEXURAL LENGTH SHALL BE ASSUMED TO BE 10'-0".
- OF THE PILE (WORKING STRESS VALUES)

	<u>P1</u>	<u>P2</u>
MAXIMUM WORKING STRESS		
COMPRESSION LOAD	400 KIPS	535 KIPS
MAXIMUM ULTIMATE		
COMPRESSION LOAD	600 KIPS	750 KIPS
MAXIMUM WORKING STRESS		
TENSION LOAD	0 KIPS	125 KIPS
MAXIMUM ULTIMATE		
TENCION LOAD	0 KIPS	198 KIP9

19-4 FABRICATION SHOP: ALL FABRICATION SHALL BE DONE IN A SHOP THAT IS ACCEPTABLE TO THE BUILDING DEPARTMENT. CONTINUOUS, FULL-TIME INSPECTION OF SHOP FABRICATION MAY BE WAIVED ONLY TO THE EXTENT. APPROVED BY THE BUILDING DEPARTMENT.

- 20-1 NON-SHRINK GROUT: NON-SHRINK GROUT SHALL BE A NON-METALLIC.
- EXPANSION ANCHORS IN MASONRY SHALL BE RAMSET/REDHEAD DYNABOLT
- 20-4 REINFORCING BAR TERMINATORS: REINFORCING BAR TERMINATORS SHALL BE LENTON PER ICC #3967 OR EQUAL.
- 20-5 FORMSAVERS: FORMSAVERS SHALL BE LENTON PER ICC #3967 OR EQUAL. THE STAIR FABRICATOR PER THE REQUIREMENTS OF THE ARCHITECTURAL DRAWINGS AND THE CBC FOR A 100 PSF LIVE LOAD. CALCULATIONS AND SHOP DRAWINGS, STAMPED AND SIGNED BY AN

DAYS VIA ELECTRONIC MAIL.

S4.10 BEAM ELEVATIONS

DETAILS

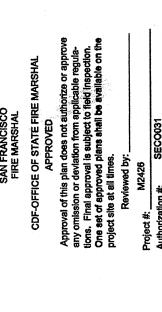
DETAILS

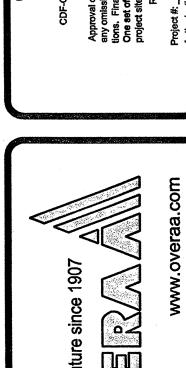
S5.2

S4.1 DETAILS S4.2 DETAILS DETAILS ALTERNATE SLAB REINFORCING & BEAM TIES TYPICAL MASONRY DETAILS

> DETAILS CONCRETE DETAILS CONCRETE DETAILS

S1.0





3

