



STEEL : ROLLED SHAPES PLAN OR SECTION

PLWOOD IN SECTION

_U-LAM BEAM IN

WOOD BLOCKING IN SECTION

CONTINUOUS WOOD FRAMING

ABBREVIATIONS HOOK DEVELOPMENT LENGTH LONG LEG BACK TO BACK NUMBER LONG LEG HORIZONTAL LONG LEG VERTICAL ADHESIVE ANCHOR LONGIT ANCHOR BOLT LONGITUDINAL LOW POINT AP SPLICE LENGTH 「IMBERSTRAND,LAMINATED AGGREGATE STRAND LUMBER ALUMINUM MICROLLAM, LAMINATED ALTERNATE AMERICAN NATIONAL VENEER LUMBER LIGHT WEIGHT CONCRETE STANDARDS INSTITUT APPROXIMATE MAXIMUM MACHINE BOLT ARCHITECTURAL AMERICAN SOCIETY for MECHANICAL MECHANICAL, ELECTRICAL, PLUMBING ESTING and MATERIALS ASPHALT CONCRETE MEZZANINE AMERICAN WIRE GUAGE MANUFACTURER MINIMUM **MISCELLANEOUS** LOCKING MOUNTED BEAM or BEAMS BOUNDARY NAILING NEAR FACE BOTTOM OF FOOTING NOT IN CONTRACT NUMBER NOMINAL DIAMETER BOTH SIDES NEAR SIDE BASEMENT NORMAL WEIGHT CONCRETE CONSTRUCTION JOINT OUTSIDE DIAMETER (DIM) CENTERLINE OPPOSITE HAND CONCRETE MASONRY UNIT OPEN WEB STEEL GIRDER DPEN WEB STEEL JOIST CONCRETE

CONNECTION PERPENDICULAR CONSTRUCTION PLYWD CONTINUOUS PLYWOOD COMPLETE PENETRATION PARTIAL PENETRATION COUNTERSINK PRCST PARALLAM, PARALLEL STRAND LUMBER REINFORCING BAR DIAMFTFI DIMENSION or DIMENSIONS REFERENCE REINFORCED or REINFORCING DECK or DECKING REVISE OR REVISION ROUGH OPENING DOWEL or DOWELS SEE ARCH. DOCUMENTS EXPANSION JOINT LAVATOR SIMILAR EMBEDMENT SHEET METAL SCREW SLAB ON GRADE SPECIFICATION or SPECIFICATIONS STAGGER or STAGGERED EXCAVATE or EXCAVATION STIRRUP or STIRRUPS FOUNDATION FAR FACE USPENDER FLR or FLRS FLOOR or FLOORS TONGUE AND GROOVE TOP OF BASE PLATE FOOTING or FOOTINGS TOP OF CONCRETE TOP OF STRUCTURAL SLAB GALVANIZED TRANSVERSE GLU-LAM BEAM UNLESS OTHERWISE NOTED GYPSUM BOARD UNREINFORCED MASONRY URM VENT VERT or (V) HOT DIPPED GALVANIZED VERTICAL VERIFY IN FIELD HOOK or HOOKS HORIZONTAL HIGH STRENGTH BOLTS WIDE FLANGE

HOLLOW STRUCTURAL SECTION

KNOCK-OUT

DEVELOPMENT LENGTH

WORK POINT

EXTRA HEAVY

X HVY

XX HVY

WELDED WIRE MESH

DOUBLE EXTRA HVY.

DOUBLE EXTRA STRONG

GENERAL STRUCTURAL NOTES (CONT.)

X. ADHESIVE ANCHORS AND DOWELS

1. ANCHORS AND DOWELS INSTALLED INTO CONCRETE: HILTI HIT-RE 500-SD (ICC #ESR 2322), SIMPSON SET-XP (ICC #ESR 2508), OR APPROVED EQUAL. EMBEDMENT DEPTH, MINIMUM EDGE DISTANCE, AND MINIMUM SPACING FOR ANCHORS AND DOWELS ARE AS FOLLOW, UNLESS OTHERWISE NOTED IN DRAWINGS. PROVIDE SPECIAL INSPECTION AS REQUIRED BY THE ICC EVALUATION REPORT: TOOD DIA OD TEMPEDMENT TMINIMUM EDGE TMINIMUM TMINIMUM DAGE

-1	ROD DIA OR	EMBEDMENT	MINIMUM EDGE	MINIMUM	MINIMUM BASE
	BAR SIZE		DISTANCE	SPACING	MATERIAL THICKNESS
	1/2"	5"	15"	3"	8" NOMINAL
	5/8"	6"	18"	3-3/4"	12" NOMINAL
	3/4"	7"	21"	4-1/2"	12"
	7/8"	9"	27"	5-1/4"	14"
	1"	11"	33"	6"	14"
	#4	6-1/2"	19-1/2"	3"	14"
	# 5	8"	24"	3-3/4"	14"
	#6	10"	30"	4-1/2"	14"
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2. ANCHORS AND DOWELS INSTALLED INTO GROUT-FILLED MASONRY UNITS: HIT HY-150 MAX BY HILTI (ICC #ESR 1967), EPOXY-TIE SET BY SIMPSON STRONG-TIE (ICBO #ESR-1772), OR APPROVED EQUAL. EMBEDMENT DEPTH FOR ANCHORS AND DOWELS IS AS FOLLOWS, UNLESS OTHERWISE NOTED IN DRAWINGS. PROVIDE SPECIAL INSPECTION AS

REQUIRED BY T	HE ICC EVALUAT	TION REPORT:		
ROD DIA OR BAR SIZE	EMBEDMENT	MINIMUM EDGE DISTANCE	MINIMUM SPACING	MINIMUM BASE MATERIAL THICKNESS
1/2"	4-1/2"	20"	17"	8" NOMINAL
5/8"	5-5/8"	20"	20"	8" NOMINAL
3/4"	6-3/4"	27"	27"	8" NOMINAL

- 3. IF FIELD CONDITION DOES NOT MEET THE EMBEDMENT, MINIMUM EDGE DISTANCE, O MINIMUM SPACING REQUIREMENT AS NOTED IN TABLES ABOVE. NOTIFY THE OWNER'S REPRESENTATIVE FOR FURTHER INSTRUCTIONS.
- 4. ANCHORS: ASTM A193 GRADE B7 THREADED RODS WITH ASTM A 563 GRADE DH HEAVY HEX NUTS AND ASTM F 436 WASHERS.
- 5. DOWELS: ASTM A615 GRADE 60 REINFORCING STEEL.
- 6. REMOVE GREASE, OIL, RUST, AND OTHER LAITANCE FROM RODS AND DOWELS PRIOR TO INSTALLATION.
- 7. THE DIAMETER OF THE HOLES IS PER THE MANUFACTURER'S INSTRUCTIONS. DRILL HOLES FOR CONCRETE AND FULLY GROUTED CONCRETE MASONRY ANCHORS AND DOWELS WITH CARBIBE-TIPPED DRILL BITS COMPLYING WITH ANSI B212.15-1994. DRILL HOLES FOR ANCHORS AND DOWELS IN UNREINFORCED BRICK MASONRY WITH A NON-IMPACT ROTARY DRILL. PRIOR TO INSTALLING ANCHORS OR DOWELS, WIRE BRUSH HOLES TO REMOVE RESIDUE, BLOW OUT WITH OIL-FREE COMPRESSED AIR, AND ALLOW HOLE TO DRY.
- 8. PLACE ADHESIVE WITH THE MANUFACTURER'S RECOMMENDED APPLICATION TOOL TO A DEPTH AS SPECIFIED BY THE MANUFACTURER AND TO MINIMIZE THE AMOUNT OF ADHESIVE THAT WILL OVERFLOW OUT OF THE HOLE WHEN THE BAR IS INSERTED. REMOVE EXCESS ADHESIVE ON THE ADJACENT SURFACES.

9. INSERT THE ANCHOR OR DOWEL IN THE HOLE WITH A TWISTING MOTION TO THE

- REQUIRED EMBEDMENT DEPTH. DO NOT PUMP THE ANCHOR OR DOWEL IN AND OUT OF
- 10. WEDGE BARS TIGHT AND CENTERED IN THE HOLE WITH WOODEN WEDGES (GOLF TEES) TO HOLD IT IN PLACE UNTIL THE ADHESIVE SETS.
- 11. 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.
- 12. LOCATE REINFORCEMENT AND CONFIRM FINAL ANCHOR LOCATIONS PRIOR TO FABRICATING PLATES, MEMBERS, OR OTHER STEEL ASSEMBLIES ATTACHED WITH ADHESIVE ANCHORS.
- 13. OWNER'S TESTING LABORATORY WILL PERFORM TENSION TESTS ON 25% OF ANCHOR AND DOWELS FOR THE FOLLOWING TEST LOADS. ANCHORS SHALL BE TESTED AFTER ANCHORS

HAVE PROPERLY CURED. S	SEE ICBO REPORTS F	OR CURE TIME REQU	IREMENTS.
ROD DIA OR BAR SIZE	EMBEDMENT	TEST LOAD	BASE MATERIAL
3/8"	4"	1800#	CONCRETE
1/2"	5"	3200#	CONCRETE
5/8"	6"	5000#	CONCRETE
3/4"	7"	7100#	CONCRETE
7/8"	9"	9700#	CONCRETE
1"	11"	12800#	CONCRETE
#3	5"	3000#	CONCRETE
#4	6 1/2"	5400#	CONCRETE
#5	8"	8400#	CONCRETE
#6	10"	11900#	CONCRETE
#7	12"	16200#	CONCRETE
#8	14"	21300#	CONCRETE

14. REPLACE ANCHORS AND DOWELS THAT FAIL DURING TESTING AND RETEST. IF MORE THAN 10% OF THE TESTED DOWELS AND ANCHORS FAIL TO ACHIEVE THE SPECIFIED TEST LOAD, NOTIFY OWNER'S REPRESENTATIVE AND TEST 100% OF THE DOWELS AND ANCHORS INSTALLED IN THE LAST 2 DAYS OF ANCHOR INSTALLATION.

XI. FIBER REINFORCED POLYMER

- 1. FIBER REINFORCED POLYMER: FYFE CO. LLC, TYFO FIBERWRAP SYSTEMS (ESR #2103) OR APPROVED EQUIVALENT WITH CURRENT ICC EVALUATION REPORT. INSTALL FIBER REINFORCED POLYMER PER DRAWINGS, MANUFACTURER'S RECOMMENDATIONS, AND ICC REPORT CRITERIA.
- 2. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS AND CALCULATIONS TO VERIFY COMPLIANCE WITH THE DESIGN CRITERIA AS SPECIFIED IN THE DRAWINGS. DESIGN OF FIBER REINFORCED POLYMER SHALL BE BASED ON VERIFIED MATERIAL PROPERTIES AND CORRESPONDING LAYER THICKNESS. THE DESIGN OF THE FIBER REINFORCED POLYMER SHALL BE PREPARED BY REGISTERED CIVIL OR STRUCTURAL ENGINEER IN STATE OF CALIFORNIA. ALL DOCUMENTATION SHALL BEAR THE STAMP AND SIGNATURE OF THE REGISTERED CIVIL OR STRUCTURAL ENGINEER.
- 3. ROUND EXISTING CONCRETE OR MASONRY COLUMN CORNERS TO 1/3" MINIMUM RADIUS. BROOM CLEAN SURFACE TO RECEIVE FIBER REINFORCED POLYMER. THE SURFACE SHALL BE INSPECTED TO ENSURE THAT THERE ARE NO FINS, SHARP EDGES, OR FREE/LOOSE MATERIAL.
- 4. APPLY THE REQUIRED PRIME COAT OF THICKENED EPOXY AND THE REQUIRED THICKNESS AND LAYERS OF FIBER REINFORCED POLYMER TO IDENTIFIED AREA PER SUBMITTED AND APPROVED SHOP DRAWINGS AND PROJECT SPECIFICATIONS.
- 5. PATCH EXISTING FINISHES PER ARCHITECTURAL DRAWINGS.
- 6. CONTRACTOR SHALL TAKE MEASURES NECESSARY TO PREVENT DISTRESS OR DAMAGE TO EXISTING CONCRETE CAUSED BY TEMPERATURE FLUCTUATION DUE TO DIRECT SUNLIGHT, ETC. DURING FRP INSTALLATION.

XII. STRUCTURAL TESTS, INSPECTIONS, AND OBSERVATIONS

- AN INDEPENDENT TESTING AGENCY AND SPECIAL INSPECTORS WILL BE RETAINED BY THE OWNER TO PERFORM THE FOLLOWING TESTS AND INSPECTION. PROVIDE ACCESS AND FURNISH SAMPLES TO THE AGENCY AS REQUIRED BY THE CONTRACT DOCUMENTS.
- 2. IF INITIAL TESTS OR INSPECTIONS MADE BY THE OWNER'S TESTING AGENCY REVEAL THAT ANY PORTION OF THE WORK DOES NOT COMPLY WITH THE CONTRACT DOCUMENTS, ADDITIONAL TESTS, INSPECTIONS, AND NECESSARY REPAIRS WILL BE MADE AT THE CONTRACTOR'S EXPENSE.
- 3. THE FOLLOWING ITEMS REQUIRE TESTS AND INSPECTIONS IN ACCORDANCE WITH THE REQUIREMENTS OF THE CHAPTER "STRUCTURAL TESTS AND INSPECTIONS" OF THE CODE OF THE GOVERNING JURISDICTION AS NOTED IN THE GENERAL SECTION OF THESE GENERAL NOTES. ADDITIONAL ITEMS AND REQUIREMENTS FOR TESTS AND INSPECTIONS ARE IDENTIFIED IN THE SPECIFICATIONS.

√ P	JRAL STEEL Review Mill Certificates & Test Reports						
√ F √ P	Review Welding Procedure Specification & Welder Certifications						
√ P							
	Sample & Test Sections As Specified ✓ As Required Sample & Test High—Strength Bolts & Washers						
√ P	Shop Material Identification						
√ P	Field Erection Inspection						
√ F √ P							
	'						
√ C							
<u>√ P</u> √ P							
√ P	Bolting Inspection						
	Composite Stud Inspection & Testing Steel Joist Load Test						
NACTAL C							
METAL [Review Mill Certificates & Test Reports						
√ P √ P	'						
√ F √ P	<u>'</u>						
	CING STEEL Devices Mill Contification to Test Deports						
√ P	Review Mill Certificates & Test Reports						
	Sample & Test: Reinforcing Bars Welded Wire Fabric						
√ P	· ·						
√ C	Welding Inspection						
	Test Existing Reinforcing for Weldability						
	EINFORCED POLYMER (FRP)						
√ C							
	ORK/FOUNDATIONS						
√ C	Review of Import Material Test Reports						
	Acceptance Tests of Materials						
√ C	Placement and Excavation Inspection \(\sqrt{Continuous} \) As Order						
√ C	Compaction Test						
	Bearing Capacity Test						
	Pile Driving Inspection						
	Pier & Caisson Drilling Inspection						
MISCELL	ANEOUS						
√ C	Drilled-In Concrete Anchors						
√ C	Epoxy or Grouted Dowels						
√ C	Bolts Cast in Concrete						
	Ceiling Hanger & Bracing Wires						
	Cold Form Metal Framing Welding						
CONCRE	TE, GUNITE, GROUT & MORTAR						
Concrete	Shotcrete Grout Mortar						

Cold Form Metal Framing Welding				
CONCRET	E, GUNITE, G	ROUT & M	ORTAR	
Concrete	Shotcrete	Grout	Mortar	
				Aggregate Tests
				Cement Test
√ P	√ P	√ P		Mix Design Review
				Continuous Batch Plant Inspection
✓	√			Batch Plant Inspections
√ C	√ C	√ C		Cast, Pick-up, And Compression Test Samples
√ C	√ C			Slump, Entrained Air, & Temperature Test
√ P				Unit Weight Test / Wet / Dry
√ P	√P			Shrinkage Test
√ C	√ C	√ C		Placement Inspection
				Core & Test

TABLE NOTES:

- P = PERIODIC SPECIAL INSPECTION REQ'D.
- C = CONTINUOUS SPECIAL INSPECTION REQ'D.
- 4. THE REQUIREMENTS FOR TESTING AND INSPECTION LISTED ABOVE MAY CHANGE DUE TO THE METHOD OF CONSTRUCTION SELECTED BY THE CONTRACTOR.
- 5. THE TESTING AGENCY AND SPECIAL INSPECTOR SHALL REVIEW CONSTRUCTION DOCUMENTS AND COORDINATE WITH CONTRACTOR TO DEVELOP A PLAN FOR TESTING AND INSPECTION. SUBMIT THE PLAN FOR TESTING AND INSPECTION TO OWNER'S REPRESENTATIVE FOR
- 6. THE CONTRACTOR SHALL NOTIFY STRUCTURAL FOCUS 72 HOURS IN ADVANCE OF THE SIGNIFICANT CONSTRUCTION STAGES NOTED BELOW AND PRIOR TO PLACING CONCRETE. APPLYING FIREPROOFING, DRYWALL, OR OTHERWISE COVERING THE STRUCTURAL ELEMENTS, AND SHALL THEN PROVIDE ACCESS FOR STRUCTURAL OBSERVATIONS.

AS REQUIRED BY THE APPLICABLE BUILDING CODE, STRUCTURAL FOCUS WILL PERFORM A VISUAL OBSERVATION OF THE STRUCTURAL SYSTEMS FOR GENERAL CONFORMANCE WITH THE APPROVED CONTRACT DOCUMENTS AT SIGNIFICANT STAGES OF CONSTRUCTION STRUCTURAL FOCUS WILL, BASED ON OUR JUDGMENT AS ENGINEER-OF-RECORD DETERMINE WHICH STAGES OF CONSTRUCTION ARE SIGNIFICANT. AND COORDINATI STRUCTURAL OBSERVATION OF THOSE STAGES WITH THE GENERAL CONTRACTOR.

THE LIST OF STAGES OF CONSTRUCTION IDENTIFIED BELOW IS NOT INTENDED TO IMPLY THAT STRUCTURAL FOCUS WILL PROVIDE A STRUCTURAL OBSERVATION AT EACH AND EVERY OCCURRENCE. STRUCTURAL OBSERVATION MAY BE LIMITED TO THE FIRST SIGNIFICANT OCCURRENCE OF A PARTICULAR STAGE OF CONSTRUCTION. SIGNIFICANT STAGES OF CONSTRUCTION MAY INCLUDE THE FOLLOWING:

- A. FOUNDATIONS
- 1. FOOTING REINFORCEMENT . GRADE BEAM REINFORCEMENT
- RETAINING WALL REINFORCEMENT 4. ANCHOR BOLT PLACEMENT
- 5. SLAB-ON-GRADE REINFORCEMENT
- B. CONCRETE 1. COLUMN REINFORCEMENT
- 2. BEAM REINFORCEMENT 3. SLAB REINFORCEMENT
- 4. WALL/SHEAR WALL REINFORCEMENT
- C. STEEL FRAMING
 - 1. GENERAL FRAMING METAL DECKING

XIII. DESIGN CRITERIA

- 1. APPLICABLE CODE: 2010 CALIFORNIA BUILDING CODE
- 2. FOUNDATIONS HAVE BEEN DESIGNED WITH THE FOLLOWING CRITERIA:

INDIVIDUAL SPREAD FOOTINGS: ALLOWABLE NET SOIL PRESSURE FOR DL + LL = 2000* PSF ALLOWABLE NET SOIL PRESSURE FOR DL + LL + EQ = 2666* PSF COEFFICIENT OF FRICTION = 0.30PASSIVE RESISTANCE = 350

CONTINUOUS STRIP/ WALL FOOTINGS: ALLOWABLE NET SOIL PRESSURE FOR DL + LL = 2000* PSF ALLOWABLE NET SOIL PRESSURE FOR DL + LL + EQ = 2666* PSF COEFFICIENT OF FRICTION = 0.30PASSIVE RESISTANCE = 350

*ALLOWABLE SOIL BEARING PRESSURES ARE FOR FOOTINGS HAVING A WIDTH AND DEPTH EQUAL TO TWO FEET. THE ALLOWABLE PRESSURES MAY BE INCREASED BY 500 PSF FOR EACH ADDITIONAL FOOT OF DEPTH AND 250 PSF FOR EACH ADDITIONAL FOOT OF WIDTH UP TO A MAXIMUM VALUE OF

3. NEW SOIL RETAINING STRUCTURES HAVE BEEN DESIGNED WITH THE FOLLOWING CRITERIA:

ACTIVE/PASSIVE EQUIVALENT FLUID PRESSURES = 30H* PSF

*"H" IS THE HEIGHT OF THE RESTRAINED RETAINING WALL

4. GRAVITY LOADS:

DEAD LOADS - VARY BASED ON ACTUAL BUILDING AND EQUIPMENT OPERATING WEIGHTS

LIVE LOADS: ROOF: 20 PSF (REDUCIBLE)

TYPICAL FLOOR: 65 PSF (REDUCIBLE)

5. SEISMIC DESIGN:

IN MEETING THE REQUIREMENTS OF THE CALIFORNIA HISTORICAL BUILDING CODE, THE SEISMIC CRITERIA IS BASED ON ASCE 41-06 FOR A COLLAPSE PREVENTION PERFORMANCE OBJECTIVE WITH SEISMIC HAZARDS LEVEL OF 10% PROBABILITY OF EXCEEDANCE IN 50 YEARS. THE STRENGTHENING ALSO MEETS THE ASCE 41-06 LIFE SAFETY PERFORMANCE OBJECTIVE WITH SEISMIC HAZARDS LEVEL OF 20% PROBABILITY OF EXCEEDANCE IN 50 YEARS.

BUILDING EVALUATION USING ASCE-41-06 STANDARD SEISMIC HAZARD LEVEL: BSE-1 (10%/50 YEAR)* PERFORMANCE OBJECTIVE: COLLAPSE PREVENTION* *MEETING INTENTION OF CALIFORNIA HISTORIC BUILDING CODE GROUND ACCELERATION SA = 1.361BASE SHEAR V = 1.10*W

SITE CLASS = D PER GEOTECHNICAL REPORT SEISMIC DESIGN CATEGORY: E ANALYSIS PROCEDURE: MODAL RESPONSE SPECTRUM ANALYSIS REDUNDANCY FACTOR: 1.0 SPECTRAL RESPONSE ACCELERATION VALUES PER ASCE 7-10 SS = 2.041S1 = 0.758 FOR

SDS = 1.361SD1 = 0.758 FOR

Fp = 0.544 Wp

<u>CONSULTANTS</u>

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