

REFERENCE SYMBOLS



EXISTING	9th	HOOK DEVELOPMENT LENGTH
(N)	LEBB	LEVEL
NUMBER	LLH	LONG LEG BACK TO BACK
AND	LLV	LONG LEG HORIZONTAL
AT	LLV	LONG LEG VERTICAL
A.A.	LOC	LOCATION
ANCHOR BOLT	LONGIT	LONGITUDINAL
ABOVE	L.P.	LOW POINT
ADD'L	LS	LAP SPICE LENGTH
ADJACENT	LSL	IMPERFORATED, LAMINATED
AGGR		STRAND LUMBER
AL		LIGHT
ALIT	LVL	MICROLLAM, LAMINATED
ANSI		VENER LUMBER
APPROX		LIGHT WEIGHT CONCRETE
ARCH	MAX	MAXIMUM
ASTM	M.B.	MACHINE BOLT
	MCH	MECHANICAL
	M.E.P.	MECHANICAL, ELECTRICAL, PLUMBING
	MEZZ	MEZZANINE
	MFG	MANUFACTURER
	MIN	MINIMUM
	MSC	MISCELLANEOUS
	BULK	MOUNTED
	BTG	METAL
BM or BMS	N	NORTH
B.N.	N.F.	NOT A FACE
BOUNDARY NAILING	N.I.C.	NOT IN CONTRACT
B.O. FTG	N. or #	NUMBER
BOT	NOM	NOMINAL DIAMETER
BP	N.S.	NEAR SIDE
BRG	N.T.S.	NOT TO SCALE
B.S.	NW	NORMAL WEIGHT CONCRETE
B.SMT	O.C.	ON CENTER
	CIP	CONSTRUCTION JOINT
CIP	C.J.	CENTERLINE
C	or	CEILING
CLG	OP	OPPOSITE
CL	OPNG	OPENING
CON	OPNG	OPEN WEB STEEL GIRDER
C.M.U.	OWSG	OPEN WEB STEEL JOIST
COL	OWSJ	PIECE or PIECES
CONCRETE	PC or PCS	PERPENDICULAR
CONN	PERP	PLATE
CONSTR	PL	PLYWOOD
CONT	PP	PARTIAL PENETRATION
CP	PP	PAIR
CSK	PRE	PRE CAST
C	PCSTR	PARALLAM, PARALLEL
d	PSL	STRAND LUMBER
DBL	PT	POINT
DEMOL	PTN	PARTITION
DET. or DETS	R	R or RAD
DIAG	REBAR	REINFORCING BAR
DIA	REF	REFERENCE
DIM. or Ø	REINF	REINFORCED or REINFORCING
DIM or DIMS	REQD	REQUIRED
DIST	REV	REVISE or REVISION
DKG or DKG	RF	ROOFING
DN	RF	ROOF DRAINING
DO	RSJ	ROLLED STEEL JOIST
DOW or DWS	S.A.D.	SCHEDULED
DOWL or DOWLS	SECT	SECTION
EA	SECT	SHEET
E	SHG	STEEL
ELEV	SHG	SHEATHING
ELEC	SIM	SIMILAR
EMBED	SLO	SLOPE
E.O.S.	S.M.S.	SHEET METAL SCREW
E.O.S.	S.O.G.	SLAB ON GRADE
EQUIP	SPEC	SPECIFICATION or SPECIFICATIONS
EQUIP	SQ	SQUARE
E.S.	S.S. or SST	STAINLESS STEEL
EV	STD	STANDARD or STAGGERED
E.W.	STD	STANDARD
EXCAV	STIFF	STIFFENER
EXPANSION	STIRR	STIRRUP or STIRRUPS
EXT	STL	STEEL
EXTD	STRUC	STRUCTURAL
EXTD	SUBST	SUBSTITUTE
FLR or FLRS	SUSP	SUSPENDED
FLR	SYM	SYMMETRICAL
F.L.	T&B	TOP and BOTTOM
F.O.	T&G	TONGUE AND GROOVE
F.O. CONC	THK	THICK
F.O. STU	THRD	THREADED
FFRF	THRU	THROUGH
FT	T.O.	TOP OF
FTG or FTGS	T.O. B.P.	TOP OF BASE PLATE
GA	T.O. CONC	TOP OF CONCRETE
GAUGE	T.O. STL	TOP OF STEEL
GALVANZ	T.O. LAB	TOP OF STRUCTURAL SLAB
GL	TRANS	TRANSVERSE
GL-LAM GLAZ	TRAD	TRAD
GRND	TS	TUBE, STEEL
GR	TYP	TYPICAL
GYP BD	U.O.N.	UNOBSERVED
HD	URM	UNREINFORCED MASONRY
H.D.G.	VENT	VENTILATE
HEAR	(or V)	VERTICAL
HK or HKS	Y.F.	VERIFY IN FIELD
HORIZ or (H)	W	WITH
	W/O	WITHOUT
H.S.B.	W or WF	WIDE FLANGE
HSS	WD	WOOD
HEIGHT	WF	WOOD POINT
I.D.	WT	WEIGHT
ID		WELDED WIRE MESH
INFO	WWW	EXTRA HEAVY
JOIST or JSTS	X HY	DOUBLE EXTRA HY
J	XX HY	EXTRA STRONG
K.O.	X STR	DOUBLE EXTRA STRONG
ANGLE	X STR	
		DEVELOPMENT LENGTH

- | | | | |
|------|----|-------|----------|
| 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

- ## XI. FIBER REINFORCED POLYMER

1. FIBER REINFORCED POLYMER: FFFE CO. LLC, TYO 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 1/8" MINIMUM RADIUS. BROOK CLEAR SURFACE TO RECEIVE FIBER REINFORCED POLYMER. THE SURFACE SHALL BE INSPECTED TO ENSURE THAT THERE ARE NO FINIS, 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.

- TABLE NOTES:

4. THE REQUIREMENTS FOR TESTING AND INSPECTION LISTED ABOVE MAY CHANGE DUE TO THE METHOD OF CONSTRUCTION SELECTED BY THE CONTRACTOR.

- 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 COORDINATE 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:

- *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 4000 PSF.

- ACTIVE/PASSIVE EQUIVALENT FLUID PRESSURES = 30H* PSF

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 = 1.361
BASE 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 = 2.041
S1 = 0.758 FOR
SDS = 1.361
SD1 = 0.758 FOR

OUT OF PLANE
 $F_p = 0.544 W_p$