

DESIGN LIVE LOADS: 2009 IBC/MUEBC, U.O.N.

- Snow 50 psf(P_g)
- Wind 100 mph, exp B, 3 second gust
- Floors 40/100 psf
- Upper Level Corridors 80 psf

CONCRETE AND REINFORCEMENT:

- Concrete shall conform to applicable provisions of ACI 301 and 318.
- Minimum 28 day compressive strength (F'_c)
- as follows:
 - Walls/Grade Beams 4,000 psi w/4-6% air entrainment
 - Slabs: 4,000 psi w/4-6% air entrainment
- Cement Type I/H
- Deformed reinforcement: ASTM A615 grade 60, except bars specified to be field_bent, stirraps, and ties which shall be grade 40.
- Fibremesh: 100% virgin polypropylene, fibrillated fibers as manufactured by Fibremesh Co. per ASTM C-1116 type 111 4.1.3 and ASTM C-1116 performance level one, 1.5 lb. per cubic yard.
- Welded Wire Fabric (WWF): ASTM A183. See also plan.
- Typical minimum foundation reinforcing: 2 #6 top and bottom, (except as noted) continuous at corners and steps.
- Reinforcement shall be fabricated and placed per ACI Manual of Standard Practice (ACI 315). At splices, lap bars 50 diameters unless noted otherwise.
- Minimum 2 #6 around all four sides of all openings, extend min. 2' 0" beyond openings.
- Concrete cover over reinforcing: 1 1/2" for concrete placed against forms, 3" for concrete placed against earth. See also drawings.
- In continuous members, splice top bars at mid span and bottom bars over supports.
- Keep reinforcement clean and free of dirt, oil, and scale. Oil forms prior to placing reinforcement.

STRUCTURAL STEEL:

- Structural Beams: ASTM A992
- Angles, misc: ASTM A36
- Anchor Bolts: ASTM A307 or A36.
- Expansion Anchors shall be ICC-ES approved, installed in accordance with manufacturers specifications.
- In concrete: Wedge Type
 - In solid masonry/Sleeve Type
- Non-slink gromt beneath column base and beam bearing plates shall be non-metallic with minimum compressive strength 5000psi.
- All structural steel shall be fabricated and erected per the current edition of AISC. Steel Construction Manual.
- Welding by qualified welders. E70XX electrodes, 3/16" fillet welds, unless noted otherwise.
- Except as noted, framed beam connections shall be detailed to develop 1.6 x Allowable Uniform Load values tabulated in the 9th Edition AISC Manual, Pp. 2-27 and following.
- All beams shall have full depth web stiffeners each side of webs above and below columns. (3" or as noted)
- Attach wood nailer plates to beams with 1/2" diameter machine or carriage bolts at maximum 16" o.c., or 3/8" diameter bolts at 16" with glued contact face, or 5/32" diameter powder actuated drive pins at 12" o.c., U.O.N.

MASONRY:

- Concrete masonry units (CMU) ASTM C90-N-1. Minimum compressive strength 1,900 psi based on average net area. USE UL LISTED FIRE RATED UNITS, SEE ARCH.
- Mortar Type "S" or "N"
- Grout: 2000 psi at 28 days. Vibrate to consolidate.
- Reinforcement: Standard Dur-O-Wall at 16" o.c. in CMU walls with 16" laps.
- Deformed reinforcement shall be ASTM A615 as specified for concrete unless otherwise noted. Laps shall be min. 48 diameters.
- If High Lift Grouting is used, cleanout holes shall be provided and bar positioners shall be located at bottom and at 120 diameter maximum spacing.
- Horizontal deformed reinforcement shall be placed in precut knock-out bond beam blocks.
- MSJC Level One Verifications Required through submittals

WOOD FRAMING:

- Dimension Lumber is designed and shall be supplied using BASE VALUES Design Criteria.
- S.P.F. #2 and better (Maximum Moisture Content 19%) U.O.N.
- Plugs: Sill plates: Pressure S.P.F. or Southern Pine.
- **Pressure treated lumber** shall be framing material of the specified species which has been pressure treated with a decay and insect resistant solution, meeting all current standards for wood in contact with concrete or earth.
- Sill plates in contact with masonry or concrete foundations, footings or slabs may be treated Timber Strand LSL (zinc borate treatment). Sodium borate treatment may also be acceptable for sill plate applications when protected from weather.
- Acceptable treatment mediums for wood in contact with earth or in exterior applications include ACQ-C and ACQ-D (Alkaline Copper Quaternary) and copper azole (CBA-A and CBA-B).
- DO NOT USE WOODS WHICH HAVE BEEN TREATED WITH AMMONIA BASED CARRIERS.
- All connectors shall meet the recommendations of the pressure treated wood manufacturer, but shall be not less than Hot Dipped Galvanized meeting requirements of ASTM A653, such as Simpson ZMAX, (G185). All screws, nails and bolts shall match hangers and other connectors, and shall meet ASTM A123 for individual connectors, and ASTM A153 for fasteners.
- For durability, it is our recommendation that connectors used in exposed conditions with treated lumber be stainless steel.
- Do not mix galvanized and stainless products.
- Do not allow aluminum to contact treated wood.
- Top and Bottom Plates: S.P.F.
- S.P.F. Studs U.O.N: 2 x 4 and 2 x 6 to 8'-0": stud grade
 - 2 x 4 over 8'-0": standard and better
 - 2 x 6 over 8'-0": No. 2 and better
- Floor Joists: SEE PLAN
- Rafter: SEE PLAN
- Laminated Veneer Lumber (LVL): Manufactured 1 3/4" wide Microlams (ML) by Trus Joist or equivalent. Fb=2,600 psi, E=1,900,000 psi, Fv=285 psi, depth noted on plans.
- LSL, Rim Joists = 1-1/4" x depth indicated laminated strand lumber by Trus Joist. No substitutions.
- All plywood and oriented strand board (OSB) sheathing shall be engineered grades with APA grade stamp indicating appropriate maximum spacing of supports.
- Floor sheathing: nominal 3/4", APA Sturd-i-floor @ 24 inch o.c. tongue & groove glued and nailed (Coordinate with architectural).
- Roof sheathing: minimum 5/8" CDX plywood, or 19/32" OSB, APA 40/20, nailed (Coordinate with architectural).
- Wall sheathing: 1/2" CDX plywood or 7/16" OSB, APA 24/16, blocked and nailed (Coordinate with architectural).
- Nail wall sheathing with 8d commons at 6" o.c. at panel edges, and 12" o.c. intermediate framing U.N.O. **BLOCK AND NAIL ALL EDGES BETWEEN STUDS.** Sheathing shall be continuous from bottom plate to top plate. Cut in "H" and "T" shapes around openings. Lap sheathing over rim joists min. 4" at all floors to tie upper and lower stud walls together. Minimum height of sheathing panels shall be 16" to assure that plates are tied to studs. Use minimum 3-8d per stud and nail plates with edge nail spacing.
- Sole plate at all perimeter walls and at designated shear walls shall be nailed as for braced panels with 3-16d x 3 1/2" long box nails (coated or deformed shank) per 16". 12d nails are not acceptable.

SHEATH ALL EXTERIOR WALLS. SHEATH INTERIOR WALLS AS SHOWN ON THE DRAWINGS.

- Minimum nailing shall comply with IBC Table 2304.9.1 except where more or larger nailing shown on drawings.
- All roof rafters, joists, trusses, beams shall be anchored to supports with metal framing anchors. Truss to truss connections specified by truss supplier, unless specifically noted on the drawings.
- Double joists under partitions where joists are parallel to partitions.
- Provide continuous wall studs each side of wall openings equal to one half or greater of number of studs interrupted by openings.
- All wall studs shall be continuous from floor to floor or from floor to roof.
- Cross bridge all dimension lumber roof and floor joists at midspan and provide solid blocking or rim joists at all joint supports and joist ends. Truss supplier shall specify all roof truss bracing and bridging. See prefabricated I-joist recommendations for blocking.
- Solid block between trusses at bearings.
- All prefabricated plywood Web I-type joists shall be installed per the manufacturer's recommendations. Do not cut or notch chords in any manner. Holes in webs shall not exceed manufacturer's published limit criteria.
- Metal connectors: Simpson Strong Tie unless otherwise noted, installed with number and type of nails to achieve maximum rated capacity. Note that heavy duty and skewed hangers may require special order.
- All beams shall be braced against rotation at points of bearing.
- Drypack grout all beam pockets full after beams are set.
- Unless otherwise indicated, install two lengths of solid blocking x joist depth x 12 inches long in floor framing under column loads. Columns must have a continuous load path to foundation.
- Lead holes for lag bolts shall be 60% to 70% of lag shank diameter in compliance with AITC criteria.

STRUCTURAL ERECTION AND BRACING REQUIREMENTS

- The structural drawings illustrate the completed structure with all elements in their final positions, properly supported and braced. The contractor, in the proper sequence, shall provide proper shoring and bracing as may be required to achieve the final completed structure.
- These plans have been engineered for construction at one specific building site. Builder assumes ALL responsibility for use of these plans at Any Other building site. Plans shall not be used for construction at any other building site without specific review by the engineer.
- Observations of foundation reinforcing or framing required by the owner, lender, insurer, building department or any other party will be accomplished by the engineer at the owner's expense. At least 24 hours advance notice is requested.
- All slabs on grade shall be separated from adjacent structural and finish elements to allow free movement of the slab, unless specifically shown and noted otherwise.
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ABBREVIATIONS KEY									
AB	Anchor Rod (Bolt)	EF	Each Face	MACH	Machine	SC	Slip Critical		
ADDL	Additional	EJ	Expansion Joint	MASY	Masonry	SCH	Schedule		
ADJ	Adjustable	ELEV	Elevation	MATL	Material	SDST	Self Drilling Self Tapping		
AF	Above Finished Floor	ELEC	Electric (Electrical)	MAX	Maximum	SECT	Section		
ALT	Alternate	ENGR	Engineer	MB	Machine bolt	SF	Square Feet		
AMT	Amount	EQ	Equal	MECH	Mechanical	SHT	Sheet		
ANCH	Anchor, Anchorage	EQUIP	Equipment	MEZZ	Mezzanine	SHTG	Sheathing		
APPROX	Approximate	EQUIV	Equivalent	MFR	Manufacture, _er, _ced	SIM	Similar		
ARCH	Architect, _ural	ES	Each Side	MIN	Minimum	SLH	Short Leg Horizontal		
ATR	All Thread Rod	EST	Estimate	ML	Microlam (Trus-joist brand LVL)	SLV	Short Leg Vertical		
AVG	Average	E-W	East to West			SOG	Slab on Grade		
BC	Bottom of Concrete	EXC	Excavate	MO	Masonry Opening	SP	Spaces		
BL	Brick Ledger	EXP	Expansion	MTL	Metal	SPEC	Specifications		
BLK	Block	EXT	Exterior	NF	Near Face	SQ	Square		
BLKG	Blocking	FND	Foundation	NIC	Not In Contract	ST	Snug Tight		
BM	Beam	FF	Far Face, Finished Floor	NS	Near Side	STD	Standard		
BOT	Bottom	F-F	Face to Face	N-S	North to South	STIFF	Stiffener		
BRG	Bearing	FIG	Figure	NTS	Not to Scale	STL	Steel		
BW	Bottom of Wall	FL	Flush	OCJ	OSHA Column Joist	STRUCT	Structure, _al		
CB	Counterbore	FLG	Flange	OD	Outside Diameter	SUPPT	Support		
CF	Cubic Foot	FLR	Floor	OF	Outside Face	SY	Square Yard		
CG	Center of Gravity	FO	Face of	OH	Opposite Hand	SYM	Symmetrical		
CIP	Cast in Place	FP	Full Penetration	OPNG	Opening	T&B	Top and Bottom		
CJ	Construction Joint (Control Joint)	FS	Far Side	OPP	Opposite	T&G	Tongue and Groove		
		FTG	Footing	OSB	Oriented Strand Board	TB	Top of Beam		
CLG	Ceiling	GA	Gage (Gauge)	PAF	Powder Actuated Fastener	TC	Top of Concrete		
CLR	Clear	GALV	Galvanized	PC	Precast	TD	Top of Deck		
CM	Construction Manager (Management)	GC	General Contractor	PCF	Pounds Per Cubic Foot	THD	Thread		
		GEN	General	PEN	Penetration	THK	Thick, _ness		
CMU	Concrete Masonry Unit	GL	Glue laminated (Glulam)	PERP	Perpendicular	TJ	Top of Joist		
COL	Column	GND	Ground	PL	Property Line	TL	Total Load		
COM	Common	GR	Grade	PLF	Pounds per Linear Foot	TPG	Topping		
COMB	Combination	PNL	Panel	PNL	Panel	TRANS	Transverse		
CONC	Concrete	GYP BD	Gypsum Board	PP	Panel Point	TW	Top of Wall		
CONN	Connection	HAS	Headed Anchor Stud	PS	Prestressed	TYP	Typical		
CONT	Continue (Continuous)	HORIZ	Horizontal	PSF	Pounds per Square Foot	ULT	Ultimate		
COORD	Coordinate, _sion	HT	Height	PSI	Pounds per Square Inch	UNO	Unless Noted Otherwise		
CS	Countersink	ID	Inside Diameter	PSL	Parallel Strand Lumber (generic term)	VERT	Vertical		
CTR	Center	IF	Inside Face			VERI	Verify in Field		
CY	Cubic Yard	IINT	Interior (Intermediate)	PT (1)	Post Tensioned	WA	Wedge Anchor		
DAB	Deformed Anchor Bar	JB	Joist Bearing	PT (2)	Pressure Treated	WP	Work Point		
DET	Detail	JST	Joist	PTN	Partition	WT	Weight		
DEV	Develop	JT	Joint	PWD	Plywood	WWF	Welded Wire Fabric		
DIAG	Diagonal	K	Kip (1,000 lbs.)	QTY	Quantity	XS	Extra Strong		
DIM	Dimension	L	Load	R	Radius	XSECT	Cross-section		
DL	Dead Load	LL	Live Load	RE	Reference (refer to)	XXS	Double Extra Strong		
DN	Down	LLH	Long Leg Horizontal	RECT	Rectangle				
DP	Drilled Pier	LLV	Long Leg Vertical	REINF	Reinforce, _ed, _ing	(E)	Existing		
DT	Double Tee	LOC	Location	REQ	Required	(N)	New		
DWG	Drawing	LSL	Laminated Strand Lumber (generic term)	REQMT	Requirement	(R)	Remove		
DWL	Dowel	RET	Retaining						
EA	Each	LT	Light	RM	Room				
ECC	Eccentric	LVL	Laminated Veneer Lumber (generic term)	RMO	Rough Masonry Opening				
E-E	End to End			RO	Rough Opening				

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Scale as noted				
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Project: GENERAL NOTES
10 EXCHANGE STREET
10 EXCHANGE STREET
PORTLAND, MAINE

S1.0

Structural Drawing Index	
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S1.1	Floor Plans
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