

STRUCTURAL GENERAL NOTES

DESIGN LOADS: International Building Code, IBC 2009 Edition, except as noted
Occupancy Category, Table 1604.5

	II	Standard
Roofs:		
Ground Snow, Pg	50 psf	(used for drifting calculations)
Snow Exposure Factor, Ce	Table 1608.3.1	1.0
Snow importance Factor, Is	Table 1604.5	1.0
Snow Thermal Factor, Ct	Table 1608.3.2	1.0
Floors:		
Residential	40 psf	
Office	50 psf	
Restaurant	100 psf	
Corridors/Stairs	100 psf	
Lateral		
Wind IBC 1603.1.4, ASCE 7-05	Analytic Method	
3 Second Gust Velocity	100 mph	
Importance Factor	1.0	
Building Category and Internal Pressure Coefficient		
IBC 1609.2, ASCE Figure 6-5	Enclosed	
Exposure	C	
Components and Cladding Pressures	DP 40 uno.	Also see arch.

CONCRETE AND REINFORCEMENT:

- Concrete shall conform to applicable provisions of ACI-301 and 318.
- Minimum 28 day compressive strength (F'c) as follows:
 - Interior Slabs: 4,000 psi w/ fibermesh
 - Cement Type: I/II
- Deformed reinforcement: ASTM A615 grade 60, except bars specified to be field_bent, stirrups, and ties which shall be grade 40.
- Fibermesh: 100% virgin polypropylene, fibrillated fibers as manufactured by Fibermesh 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 A185. See also plan.
- Typical minimum foundation reinforcing: 2 #5 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 #5 around all four sides of all openings, extend min. 2' 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.

MASONRY:

- Concrete masonry units (CMU) ASTM C90-N-1. Horizontal deformed reinforcement shall be placed in precast knock-out bond beam blocks.
- Mortar: Type S or N
- Grout: 2500 psi at 28 days. Vibrate to consolidate.
- Reinforcement: Standard Dur-O-Wall at 16" o.c. in CMU walls and rebar as noted on drawings
- Deformed reinforcement shall be as specified for concrete unless otherwise noted, except that laps shall be min. 48 diameter. 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.
- MSJC Level One Inspections are required.

STRUCTURAL STEEL:

- Structural Beams: ASTM A992
- Angles, misc.: ASTM A36
- Anchor Bolts: ASTM A307 or A36
- Standard pipe columns: ASTM A 53, Grade B.
- Tube Columns: ASTM A500, Grade B, 46 ksi
- Connector bolts: ASTM A307
- Adjustable pipe columns: 3" diameter, 11 (eleven) gage, shall be certified by the manufacturer for a safe load capacity of 13,500 lbs. at 7'-6" diameter "Heavy Duty" schedule 40 (3.5" O.D.) Columns shall be certified for 28,000 lbs. at 7'-6". Maximum screw extension 2".
- Expansion Anchors shall be NER approved, installed in accordance with manufacturers specifications
- In concrete: Wedge Type
- In solid masonry: Sleeve Type
- Non-shrink grout 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.
- Except as noted, framed beam connections shall be detailed to develop 0.6 x Allowable Uniform Load values tabulated in the 9th Edition AISC Manual, Pp. 2-27 and following.
- All beams shall have fitted web stiffeners welded to each side of webs above and below columns. ("r" plate or as noted)
- Attach wood nailer plates to beams with 1/2" diameter machine or carriage bolts at maximum 32" o.c., or 3/8" diameter bolts at 32" with glued contact face, or 5/32" diameter powder actuated drive pins at 24" o.c., U.O.N.

WOOD FRAMING:

- Dimension Lumber is designed and shall be supplied using BASE VALUES Design Criteria.
- Hem-Fir #2 and better (Maximum Moisture Content 19%) U.O.N.
- Plates: Sill plates: Pressure-Treated Hem Fir 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 LSI (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
- Rafters: 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.
- LVL 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 "L" 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 joint 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.

ABBREVIATIONS KEY

AB	Anchor Rod (Bolt)	EF	Each Face	MACH	Machine	SC	Ship Critical
ADDL	Additional	EJ	Expansion Joint	MASY	Masonry	SCH	Schedule
ADJ	Adjustable	ELEV	Elevation	MATL	Material	SDST	Self Drilling Self Tapping
AFE	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, -ed	SIM	Similar
ARCH	Architect, -ural	FS	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	MO	Masonry Opening	SOG	Slab on Grade
BC	Bottom of Concrete	EXC	Excavate	MTL	Metal	SP	Space
BL	Brick Ledge	EXP	Expansion	NF	Near Face	SPEC	Specifications
BLK	Block	EXT	Exterior	NS	Not In Contract	SQ	Square
BLKG	Blocking	FND	Foundation	NTS	North to South	ST	Snug Tight
BM	Beam	FF	Far Face, Finished Floor	NS	Near Side	STD	Standard
BOT	Bottom	F-F	Face to Face	NTS	North to South	STHF	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	SUPP	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 Fastn	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, -ness	Thickness
CMU	Concrete Masonry Unit	GL	Gluc 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	GT	Girder Truss	PNL	Panel	TRANS	Transverse
CONC	Concrete	GYP BD	Gypsum Board	PP	Panel Point	TY	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, -ion	HIT	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	PT	Post Tensioned	VIF	Verify in Field
CY	Cubic Yard	INT	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	LD	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	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		

FRAMING PLAN SYMBOLS KEY

	WOOD POST
	STEEL COLUMN
	NUMBER OF WOOD STUDS IN POST BELOW
	COLUMN ABOVE THIS LEVEL
	COLUMN CONTINUOUS THROUGH THIS LEVEL
	JOIST BEARING
	CONTINUOUS JOIST WITH INTERMEDIATE BEARING
	FLUSH FRAMED JOIST BEARING WITH HANGER
	WOOD STUD BEARING WALL BELOW
	OVER FRAMING BY OTHERS -TYP
	NUMBER OF TRIM STUDS UNDER HEADER
	NUMBER OF KING STUDS ADJACENT TO HEADER

Structural Drawing Index

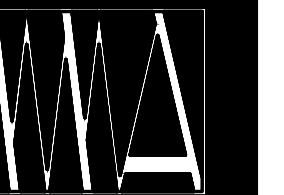
S1.0	General Notes, Etc.
S1.1	Foundation / Main Floor Plan
S1.2	Main Level Framing Plan
S2.1	Sections

**PRELIMINARY
NOT FOR CONSTRUCTION**

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**RENOVATIONS TO
46 MARKET ST.
PORTLAND, MAINE**

GENERAL NOTES ETC.

REVISIONS

DATE

JAN 2nd, 2014

PROJECT

46 MARKET ST. RENOV

DRAWN BY

MKL

CHECK BY

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