

STRUCTURAL GENERAL NOTES

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

	II	Standard
Floors:		
Ground Snow, Pg	60 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	
Lateral		Analytic Method
Wind	IBC 1603.1.4, ASCE 7-05	100 mph
	3 Second Gust Velocity	1.0
	Importance Factor	1.0
	Building Category and Internal Pressure Coefficient	
	IBC 1609.2, ASCE Figure 6-5	Enclosed
	Exposure	C

FOUNDATION:

- * Foundations are designed without an engineer's soil investigation. Foundation design criteria was assumed for purposes of foundation design and shall be confirmed by a soils engineer, at owner's expense, prior to construction. (This procedure may require revisions to foundation design, at additional expense to the owner, if soils engineer determines that such design criteria are inappropriate for this building site.)
- * Footings shall be placed on undisturbed natural soil or compacted fill tested and approved by soils engineer.
- * Maximum design soil pressure: 1,500 psf

REINFORCED CONCRETE:

We encourage the use of blast furnace slag. Design is based on "Building Code Requirements for Reinforced Concrete"(ACI 318). Concrete work shall conform to "Standard Specifications for Structural Concrete" (ACI 3019). Structural concrete shall have the following properties:

Intended Use	f'c, psi 28day	Max W/C Ratio	Maximum Aggregate	Slump inches	Entrained Air Percent ±1.5%	Cement Type	Admixtures, Comments
footings	3,500	.6	3/4" Stone	4	---	I/II	
walls	4,000	.45	3/4" Stone	4	6%	I/II	
struct slab on deck	4,000	.5	3/4" Stone	4	---	I/II	6x6 - W2.1xW2.1 W.F.F.
formed struct slab	4,000	.45	3/4" Stone	4	3%	I/II	
exterior slab on grade	4,500	.45	3/4" Stone	4	6%	I/II	
interior slabs on grade	3,500	.5	3/4" Stone	4	---	I/II	Fibermesh
beams, columns	4,000	.45	3/4" Stone	4	6%	I/II	

Detailing, fabrication, and placement of reinforcing steel shall be in accordance with the Manual of Standard Practice for Detailing Reinforced Concrete Structures (ACI 315).

Welded wire fabric shall conform to ASTM A185.

Reinforcing bars shall conform to ASTM A615,

Grade 60,

except ties or bars shown to be field-bent, which shall be Grade 40.

Epoxy coated reinforcing bars shall conform to ASTM 775.

Zinc coated (galvanized) reinforcing bars shall conform to ASTM 767.

Bars to be welded shall conform to ASTM 706.

At splices, lap bars 50 diameters unless noted otherwise.

At corners and intersections, make horizontal bars continuous or provide matching corner bars.

Around openings in walls and slabs, provide 2-#5, extending 2'-0" beyond edge of opening.

In continuous members, splice top bars at mid-span and splice bottom bars over supports.

In continuous members, splice top bars at mid-span and splice bottom bars over supports.

Provide intermittent shear keys at all construction joints and elsewhere as shown on the drawings.

Except as noted on the drawings, concrete protection for reinforcement in cast-in-place concrete shall be as follows:

- Cast against and permanently exposed to earth 3"
- Exposed to earth or weather:
 - #6 through #18 bars 2"
 - #5 bar, W31 or D31 wire, and smaller 1-1/2"
- Not exposed to weather or in contact with ground:
 - Slabs, walls, joists: #11 bar and smaller 3/4"
 - Beams, columns:
 - Primary reinforcement 1-1/2"
 - Stirrups, ties, spirals 1-1/2"

Fibermesh admixture shall be 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 lbs per cubic yard of concrete.

Anchor bolts and rods for beam and column-bearing plates shall be placed with setting templates.

Permanent corrugated steel forms for concrete floor slabs shall be manufactured and erected according to the "Specifications and Code of Standard Practice" of the Steel Deck Institute.

All concrete work is subject to inspection by a qualified special inspector employed by the owner in accordance with IBC Section 1704.4.

STRUCTURAL STEEL:

Structural steel shall be detailed, fabricated, and erected in accordance with latest AISC Specifications, and Code of Standard Practice.

Structural steel wide flange beams shall conform to ASTM A992.

Except as noted, framed beam connections shall be bearing-type with 3/4" diameter, snug tight, A325-N bolts, detailed in conformance with Part 4, Tables II and III, for 0.6 times the allowable uniform loads tabulated in Part 2 of the AISC Manual, 9th Edition. Install bolts in accordance with AISC "Specification for Structural Joints Using ASTM A325 or A490 Bolts".

All beams shall have full depth web stiffeners each side of webs above and below columns -typ.

Anchor rods shall conform to ASTM F1554, Grade 55, with weldability supplement S1.

Headed anchor studs (HAS) shall be attached to structural steel with equipment approved by the stud manufacturer according to the stud manufacturer's recommendations.

Welding shall be done by a certified welder in accordance with AISC and AWS specifications and recommendations using E70-electrodes. Where not specifically noted, minimum weld shall be 3/16" fillet by length of contact edge.

All post-installed anchors shall have current National Evaluation Report, and shall be installed in accordance with the manufacturer's requirements.

Expansion anchors shall be approved "wedge" type unless specifically noted to be "sleeve" type.

Chemical anchors shall be approved epoxy or similar adhesive type and shall have current National Evaluation Report. Where base material is not solid, approved screen tubes shall be used.

Grout beneath column base and beam-bearing plates shall be

minimum 28-day compressive strength of 7,500 psi,

approved pre-bagged, non-metallic, non-gaseous, bleed free,

non-shrink, when tested in accordance with ASTM C1107

Grade B or C at a flow cone fluid consistency of 20 to 30 seconds

STRUCTURAL WOOD FRAMING:

In-Grade Base Values have been used for design.

2x framing shall be Spruce-Pine-Fir S4S No. 2 and better unless noted.

All lumber shall be 19% maximum moisture content, unless noted.

Solid timber beams and posts shall be Douglas Fir-Larch No. 1.

Studs shall be Spruce-Pine-Fir S4S No. 2 and better.

Top and bottom plates shall be Spruce-Pine-Fir S4S No. 2 and better.

Wood in contact with concrete shall be pressure-treated Spruce-Pine-Fir S4S No. 2 or Southern Yellow Pine.

Conventional light framing shall comply with IBC Section 2308.

Except as noted otherwise, minimum nailing shall be provided as specified in IBC Table 2304.9.1 "Fastening Schedule."

ALL PLYWOOD SHEATHING SHALL BE OSB SHEATHING AND SHALL BE APA GRADED WITH PANEL IDENTIFICATION INDEX, THICKNESS, AND NAILING AS NOTED ON THE DRAWINGS.

Nail wall sheathing with 8d commons at 4" o.c. at panel edges, and 12" o.c. at intermediate framing except as noted.

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

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.

Provide solid blocking between joists under jamb studs of openings.

Pre-engineered, prefabricated trusses shall be designed for the fabricator by a Professional Engineer Registered in the State of construction, and shall comply with Code Requirements.

Truss to truss connections specified shall be by truss supplier, unless specifically noted on the drawings.

Lower chord of gable end trusses shall be anchored to wall plate with framing anchors at 4'-0" spacing and laterally braced to roof framing at 8'-0" spacing.

Truss supplier shall specify all floor and roof truss bracing and bridging.

All roof rafters, joists, trusses, and beams shall be anchored to supports with metal framing anchors.

Light gage framing anchors shown or required, shall be Simpson "Strong Tie" or equal Code approved connectors and installed with the number and type of nails recommended by the manufacturer to develop the rated capacity.

Note that heavy-duty hangers and skewed hangers may not be stocked locally and require special order from the factory.

All beams and trusses shall be braced against rotation at points of bearing.

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 screws shall be drilled in accordance with Table 6.23 of the AITC Timber Construction Manual, 3rd edition.

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
AFB	Above Finished Floor	ELEG	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, -cr, -cd	SIM	Similar
ARCH	Architect, -ural	ES	Each Side	MIN	Minimum	SLH	Short Leg Horizontal
ARH	All Thread Rod	EST	Estimate	ML	Microllam (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	Spaces
BL	Brick Ledge	EXP	Expansion	NF	Near Face	SPEC	Specifications
BLK	Block	EXT	Exterior	NIC	Not In Contract	SQ	Square
BLKG	Blocking	FND	Foundation	NS	Near Side	ST	Snug Tight
BM	Beam	FF	Far Face, Finished Floor	N-S	North to South	STD	Standard
BOT	Bottom	F-F	Face to Face	NTS	Not to Scale	STHF	Stiffener
BRG	Bearing	FIG	Figure	OCJ	OSHA Column Joist	STL	Steel
BW	Bottom of Wall	FL	Flush	OD	Outside Diameter	STRUCT	Structure, -al
CB	Counterbore	FLG	Flange	OF	Outside Face	SUPT	Support
CF	Cubic Foot	FLR	Floor	OH	Opposite Hand	SY	Square Yard
CG	Center of Gravity	FO	Face of	OPNG	Opening	SYM	Symmetrical
CIP	Cast in Place	FP	Full Penetration	OPP	Opposite	T&B	Top and Bottom
CJ	Construction Joint (Control Joint)	FS	Far Side	OSB	Oriented Strand Board	T&G	Tongue and Groove
CLG	Ceiling	FTG	Footing	PAF	Powder Actuated Fast'n	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
CMU	Concrete Masonry Unit	GEN	General	PEN	Penetration	THK	Thick, -ness
COL	Column	GL	Glue laminated (Glulam)	PERP	Perpendicular	TJ	Top of Joist
COM	Common	GND	Ground	PL	Property Line	TL	Total Load
COMB	Combination	GR	Grade	PLF	Pounds per Linear Foot	TPG	Topping
CONC	Concrete	GT	Girder Truss	PNL	Panel	TRANS	Transverse
CONN	Connection	GYP BD	Gypsum Board	PP	Panel Point	TW	Top of Wall
CONT	Continue (Continuous)	HAS	Headed Anchor Stud	PS	Prestressed	TYP	Typical
COORD	Coordinate, -tion	HORIZ	Horizontal	PSF	Pounds per Square Foot	ULT	Ultimate
CS	Countersink	HT	Height	PSI	Pounds per Square Inch	UNO	Unless Noted Otherwise
CTR	Center	ID	Inside Diameter	PSL	Parallel Strand Lumber (generic term)	VERT	Vertical
CY	Cubic Yard	IF	Inside Face	PT (1)	Post Tensioned	VIF	Verify in Field
DAB	Deformed Anchor Bar	INT	Interior (Intermediate)	PT (2)	Pressure Treated	WA	Wedge Anchor
DET	Detail	JB	Joist Bearing	PTN	Partition	WP	Work Point
DEV	Develop	JST	Joist	PWD	Plywood	WT	Weight
DIAG	Diagonal	JT	Joint	QTY	Quantity	WWF	Welded Wire Fabric
DIM	Dimension	K	Kip (1,000 lbs.)	R	Radius	XS	Extra Strong
DL	Dead Load	LD	Load	RE	Reference (refer to)	XSECT	Cross-section
DN	Down	LL	Live Load	RECT	Rectangle	XNS	Double Extra Strong
DP	Drilled Pier	LEH	Long Leg Horizontal	REINF	Reinforce, -ed, -ing	(E)	Existing
DT	Double Tee	LEV	Long Leg Vertical	REQ	Required	(N)	New
DWG	Drawing	LOC	Location	REQMT	Requirement	(R)	Remove
DWL	Dowel	LSL	Laminated Strand Lumber (generic term)	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		

Structural Drawing Index

S101	General Notes, Etc.
S102	Foundation Plan
S103	First Floor Framing Plan
S104	Roof Framing Plan
S201	Sections
S301	Canopy Plans / Sections / Details

41 edgewood ave
portland, maine 04103
telephone 207 450 0750

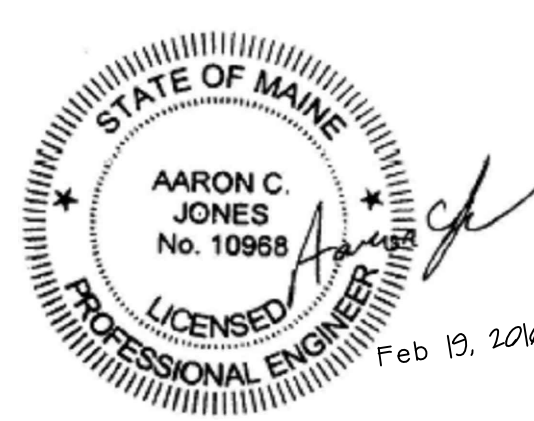
e-mail matthewwinch@earthlink.net



SI # 15-0191

77 Oak Street
Portland, ME, 04101
p. 207-774-4614
f. 866-793-7835
www.structuralinteg.com

BUILD WITH CONFIDENCE
©2012 Structural Integrity Consulting Engineers, Inc.



project name

32 Thomas Street
Apartments

project location

32 Thomas Street
Portland Maine 04101

Revisions

date

date Feb 19, 2016

scale AS NOTED

project # 2011-018

drawing title Parish House

GENERAL NOTES

drawing number

S100