

STRUCTURAL GENERAL NOTES

Grisanti
60 Munjoy Street, Portland, ME
SI # 17-0060

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

Floors:	Residential	40 psf
Roofs & Exposed Garage Areas:	Ground Snow, (Pg)	60 psf (used for drifting calculations)
	Flat Roof/Snow Load (Pf)	42 psf
	Deck	40 psf

FOUNDATION DESIGN:

- * 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).

Intended Use	f'c, psi 28day	Max WC 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	
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

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.

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"

Fibremesh 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 AISC Specifications, 1989, and Code of Standard Practice, 2000.

- 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"

3" 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 Form Load values tabulated in the 9th Edition AISC Manual, Pgs. 2-27 and following.

All beams shall have fitted web stiffeners welded to each side of webs above and below columns. (1/4" 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

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."

Plywood and oriented strand board (OSB) floor and roof sheathing 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.

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" 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.

FIELD VERIFICATION OF EXISTING CONDITIONS:

Contractor shall thoroughly inspect and survey existing structure to verify conditions that affect the work shown on the drawings.

Contractor shall report any variations or discrepancies to the Architect before proceeding.

STRUCTURAL ERECTION AND BRACING REQUIREMENTS:

The structural drawings illustrate the completed structure with elements in their final positions, properly supported and braced.

These construction documents contain typical and representative details to assist the contractor.

Details shown apply at all similar conditions unless otherwise indicated.

Although due diligence has been applied to make the drawings as complete as possible, not every detail is illustrated, nor is every exceptional condition addressed.

All proprietary connections shall be installed in accordance with the manufacturers' recommendations.

All work shall be accomplished in a workmanlike manner and in accordance with the applicable code and local ordinances.

The general contractor is responsible for coordination of all work, including layout and dimension verification, materials coordination, shop drawing review, and the work of subcontractors.

Any discrepancies or omissions discovered in the course of the work shall be immediately reported to the architect for resolution.

Continuation of work without notification of discrepancies relieves the architect and engineer from all consequences.

Unless otherwise specifically indicated, the drawings do not describe methods of construction.

The contractor, in the proper sequence, shall perform or supervise all work necessary to achieve the final completed structure, and to protect the structure, workmen, and others during construction.

Such work shall include, but not be limited to, bracing, shoring for construction equipment, shoring for excavation, formwork, scaffolding, safety devices and programs of all kinds, support and bracing for cranes and other erection equipment.

Do not backfill against basement or retaining walls until supporting slabs and floor framing are in place and securely anchored, unless adequate bracing is provided.

Temporary bracing shall remain in place until all floors, walls, roofs and any other supporting elements are in place.

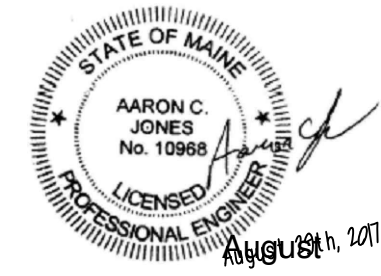
The architect and engineer bear no responsibility for the above items, and observation visits to the site do not in any way include inspection of them.

ABBREVIATIONS KEY			
AB	Anchor Rod (Bolt)	EF	Each Face
ADDD	Additional	EJ	Expansion Joint
ADDJ	Adjustable	ELEV	Elevation
AFF	Above Finished Floor	ELEC	Electric (Electrical)
ALT	Alternate	ENGR	Engineer
AMT	Amount	EQ	Equal
ANCH	Anchor, Anchorage	EQUIP	Equipment
APPROX	Approximate	EQUIV	Equivalent
ARCH	Architect, -ural	ES	Each Side
ATR	All Thread Rod	EST	Estimate
AVG	Average	E-W	East to West
BC	Bottom of Concrete	EXC	Excavate
BL	Brick Ledge	EXP	Expansion
BLK	Block	EXT	Exterior
BLKG	Blocking	FND	Foundation
BM	Beam	FF	Far Face, Finished Floor
BOT	Bottom	F-F	Face to Face
BRG	Bearing	FIG	Figure
BW	Bottom of Wall	FL	Flush
CB	Counterbore	FLG	Flange
CF	Cubic Foot	FLR	Floor
CG	Center of Gravity	FO	Face of
CIP	Cast in Place	FP	Full Penetration
CJ	Construction Joint (Control Joint)	FS	Far Side
CLG	Ceiling	FTG	Footing
CLR	Clear	GA	Gage (Gauge)
CM	Construction Manager (Management)	GALV	Galvanized
CMU	Concrete Masonry Unit	GC	General Contractor
COL	Column	GEN	General
COM	Common	GL	Glue laminated (Glulam)
COMB	Combination	GND	Ground
CONC	Concrete	GR	Grade
CONN	Connection	GT	Girder Truss
CONT	Continue (Continuous)	GYP BD	Gypsum Board
COORD	Coordinate, -tion	HAAS	Headed Anchor Stud
CS	Countersink	HORIZ	Horizontal
CTR	Center	HT	Height
CY	Cubic Yard	ID	Inside Diameter
DAB	Deformed Anchor Bar	IF	Inside Face
DET	Detail	INT	Interior (Intermediate)
DEV	Develop	JB	Joist Bearing
DIAG	Diagonal	JST	Joist
DIM	Dimension	JT	Joint
DL	Dead Load	K	Kip (1,000 lbs.)
DN	Down	LD	Load
DP	Drilled Pier	LL	Live Load
DT	Double Tee	LLH	Long Leg Horizontal
DWG	Drawing	LLV	Long Leg Vertical
DWL	Dowel	LOC	Location
EA	Each	LSL	Laminated Strand Lumber (generic term)
ECC	Eccentric	LTL	Light Lumber (generic term)
E-E	End to End	MACH	Machine
		MASY	Masonry
		MATL	Material
		MAX	Maximum
		MB	Machine bolt
		MECH	Mechanical
		MEZZ	Mezzanine
		MFR	Manufacture, -er, -ed
		MIN	Minimum
		ML	Microllam (Truss-joist brand LVL)
		MO	Masonry Opening
		MTL	Metal
		NF	Near Face
		NIC	Not In Contract
		NS	Near Side
		N-S	North to South
		NTS	Not to Scale
		OCJ	OSHA Column Joist
		OD	Outside Diameter
		OF	Outside Face
		OH	Opposite Hand
		OPNG	Opening
		OPP	Opposite
		OSB	Oriented Strand Board
		PAF	Powder Actuated Fastn
		PC	Precast
		PCF	Pounds Per Cubic Foot
		PEN	Penetration
		PERP	Perpendicular
		PL	Property Line
		PLF	Pounds per Linear Foot
		PNL	Panel
		PP	Panel Point
		PS	Prestressed
		PSF	Pounds per Square Foot
		PSI	Pounds per Square Inch
		PSL	Parallel Strand Lumber (generic term)
		PT (1)	Post Tensioned
		PT (2)	Pressure Treated
		PTN	Partition
		PWD	Plywood
		QTY	Quantity
		R	Radius
		RE	Reference (refer to)
		RECT	Rectangle
		REINF	Reinforce, -ed, -ing
		REQ	Required
		REQMT	Requirement
		RET	Retaining
		RM	Room
		RMO	Rough Masonry Opening
		RO	Rough Opening
		SC	Slip-Critical
		SCH	Schedule
		SIDST	Self-Drilling Self-Tapping
		SECT	Section
		SE	Square Feet
		SFT	Sheet
		SHTG	Sheathing
		SIM	Similar
		SLH	Short Leg Horizontal
		SLV	Short Leg Vertical
		SOG	Slab on Grade
		SP	Spaces
		SPEC	Specifications
		SQ	Square
		ST	Snug Tight
		STD	Standard
		STIFF	Stiffener
		STL	Steel
		STRUCT	Structure, -al
		SUPT	Support
		SY	Square Yard
		SYM	Symmetrical
		T&B	Top and Bottom
		T&G	Tongue and Groove
		TB	Top of Beam
		TC	Top of Concrete
		TD	Top of Deck
		THD	Thread
		THK	Thick, -ness
		TI	Top of Joist
		TL	Total Load
		TPG	Topping
		TRANS	Transverse
		TW	Top of Wall
		TYP	Typical
		ULT	Ultimate
		UNO	Unless Noted Otherwise
		VERT	Vertical
		VIF	Verify in Field
		WA	Wedge Anchor
		WP	Work Point
		WT	Weight
		WWF	Welded Wire Fabric
		XS	Extra Strong
		XSECT	Cross-section
		XXS	Double Extra Strong
		(E)	Existing
		(N)	New
		(R)	Remove

Structural Drawing Index

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FOR PERMIT



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

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