

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)
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, 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.
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 5d 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:

- a. Cast against and permanently exposed to earth 3"
- b. Exposed to earth or weather:
 - #6 through #18 bars 2"
 - #5 bar, W31 or D31 wire, and smaller 1-1/2"
- c. 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 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 Load values tabulated in the 9th Edition AISC Manual, Ps. 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.

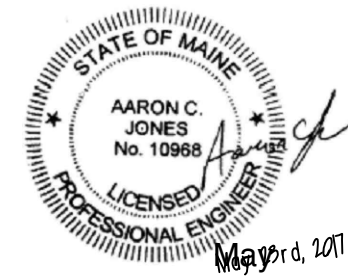
ABBREVIATIONS KEY

AB Anchor Rod (Bolt)	EF Each Face	MACH Machine	SC Slip-Critical
ADDD Additional	EJ Expansion Joint	MASY Masonry	SCH Schedule
ADJ Adjustable	ELEV Elevation	MATL Material	SDST Self-Drilling Self-Tapping
AFF 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	SFT Sheet
ANCH Anchor, Anchorage	EQUIP Equipment	MEZZ Mezzanine	SHTG Sheathing
APPROX Approximate	EQUIV Equivalent	MFR Manufacture, -er, -ed	SIM Similar
ARCH Architect, -ural	ES Each Side	MIN Minimum	SLH Short Leg Horizontal
ATR All Thread Rod	EST Estimate	ML Microlam (Truss-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	STIFF 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	GA Gage (Gauge)	PAF Powder Actuated Fastn	TB Top of Beam
CLR Clear	GALV Galvanized	PC Precast	TC Top of Concrete
CM Construction Manager (Management)	GC General Contractor	PCF Pounds Per Cubic Foot	TD Top of Deck
CMU Concrete Masonry Unit	GEN General	PEN Penetration	THD Thread
COL Column	GL Glue laminated (Glulam)	PERP Perpendicular	THK Thick, -ness
COM Common	GND Ground	PL Property Line	TI Top of Joist
COMB Combination	GR Grade	PLF Pounds per Linear Foot	TL Total Load
CONC Concrete	GT Girder Truss	PNL Panel	TPG Topping
CONN Connection	GYP BD Gypsum Board	PP Panel Point	TRANS Transverse
CONNT Continue (Continuous)	HAS Headed Anchor Stud	PS Prestressed	TW Top of Wall
COORD Coordinate, -tion	HORIZ Horizontal	PSF Pounds per Square Foot	TYP Typical
CS Countersink	HT Height	PSI Pounds per Square Inch	ULT Ultimate
CTR Center	ID Inside Diameter	PSL Parallel Strand Lumber (generic term)	UNO Unless Noted Otherwise
CY Cubic Yard	IF Inside Face	PT (1) Post Tensioned	VERT Vertical
DAB Deformed Anchor Bar	INT Interior (Intermediate)	PT (2) Pressure Treated	VIF Verify in Field
DET Detail	JB Joist Bearing	PIN Partition	WA Wedge Anchor
DEV Develop	JST Joist	PWD Plywood	WP Work Point
DIAG Diagonal	JT Joint	QTY Quantity	WT Weight
DIM Dimension	K Kip (1,000 lbs.)	R Radius	WWF Welded Wire Fabric
DL Dead Load	L Live Load	RE Reference (refer to)	XS Extra Strong
DN Down	LLH Long Leg Horizontal	RECT Rectangle	XSECT Cross-section
DP Drilled Pier	LLV Long Leg Vertical	REINF Reinforce, -ed, -ing	XXS Double Extra Strong
DT Double Tee	LOC Location	REQ Required	(E) Existing
DWG Drawing	LVL Laminated Strand Lumber (generic term)	REQM Requirement	(N) New
DWL Dowel	LVT Laminated Veneer Lumber (generic term)	RET Retaining	(R) Remove
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

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PERMIT SET



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