

SI Job # 05-0018  
Akerlind Renovation  
Portland, Maine

**GENERAL STRUCTURAL NOTES**

- DESIGN LIVE LOADS:** 2003 IBC/IRC, U.O.N.  
 \* Ground Snow, P<sub>g</sub> 50 psf  
 \* Wind 90 mph, exp B, 3 second gust  
 \* Floor 40 psf  
 \* Exterior Decks 60 psf

**FOUNDATIONS:** Foundations are designed without an engineer's soil investigation. Foundation design criteria was assumed for purposes of foundation design based on site observations and past experience.  
 \* Footings shall be placed on undisturbed natural soil or compacted fill.  
 \* Maximum design soil pressure: 1,500 psf

**CONCRETE AND REINFORCEMENT:**

- \* Concrete shall conform to applicable provisions of ACI-301 and 318.
- \* Minimum 28 day compressive strength (F'<sub>c</sub>) as follows:
  - All Concrete: 3,000 psi
  - Concrete Type: I/II
- \* Deformed reinforcement: ASTM A615 grade 60, except bars specified to be field-bent, strapps, and ties which shall be grade 40.
- \* Reinforcement shall be fabricated and placed per ACI Manual of Standard Practice (ACI-315). At splices, lap bars 50 diameters unless noted otherwise.
- \* 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 present knock-out bond beam blocks.
- \* Mortar: Type S or N
- \* Grout: 2000 psi at 28 days. Vibrate to consolidate.
- \* Reinforcement: Standard Bar-C/Wall at 16" o.c. in CMU.
- \* 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 1/3rd diameter maximum spacing.
- \* Quality Assurance Level 1, Special Inspection is not required by design.

**STRUCTURAL STEEL:**

- \* Structural Beams: A992
- \* Angles, misc.: ASTM A36
- \* Anchor Bolts: ASTM A307 or A36
- \* Connector bolts: ASTM A307
- \* Admissible pipe, columns: 3" diameter 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
- \* 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, Pg. 2-27 and following.
- \* 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 girth 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.
- \* Species: Pine-Fir #2 and better (Maximum Moisture Content 19%) U.O.N.
- \* Plates: Sill plates: Pressure Treated SPF 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 (give borate treatment). Sodium borate treatment may also be acceptable for sill plate applications when protected from weather.
- \* Acceptable treatment products for wood in contact with earth or in exterior applications include AOC-C and AOC-D (Alkaline Copper Quaternary) and copperazole (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 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: SPF
- \* SPF 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: SPF. See Plan
- \* Beams: Douglas Fir No. 1, P<sub>g</sub>=1350 psi, E=1,600,000 psi
- \* Laminated Veneer Lumber (LVL): Manufactured 1 3/4" wide Microlams (ML) by Trus Joist or equivalent.
- \* P<sub>g</sub>=2,600 psi, E=1,900,000 psi, F<sub>y</sub>=285 psi, depth noted on plans.
- \* LSL Rim Joists = 1-1/4" x depth indicated laminated strand lumber by Trus Joist. No substitutions.
- \* Glued, laminated framing members per ANSI Standard A1901-92. Mark members with an ATTC Quality Stamp and furnish an ATTC Certificate of Conformance. Southern Yellow Pine, P<sub>g</sub> = 2400 psi, E = 1,800,000
- \* Simple span: Combination Symbol: 24F-V3, zero camber.

- \* 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 1/2", APA Stud-1-floor "2x4" tongue & groove girded and nailed.
- \* Roof sheathing: minimum 5/8" CDX Plywood or 7/16" OSB, APA 24/16, blocked and nailed.
- \* Wall sheathing: 1/2" CDX Plywood or 7/16" OSB, APA 24/16, blocked and nailed.
- \* Nail wall sheathing with 8d common nails 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 "T" and "W" shapes around openings. 1-4p sheathing over rim joists min. 4" at all floors to the upper and lower stud walls together. Minimum height of sheathing panels shall be 16" to assure that panels 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 10'. 12d nails are not acceptable.

**SHEATH ALL NEW EXTERIOR WALLS**

- \* Minimum nailing shall comply with IRC 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 bridle all dimension lumber roof and floor joists at midspan and provide solid blocking or rim joists at all joist supports and joist ends. Truss supplier shall specify all roof truss bracing and bridging. See pre-detailed 1-joist recommendations for blocking.
- \* Metal Block between trusses at bearings.
- \* Solid Block between Simpson Strong-Tie unless otherwise noted. Install 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 girt 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 ATTC 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.

**SHOP DRAWINGS**

Fabricator and / or supplier of structural steel, spiral stairs shall submit shop and erection drawings for architect and engineer review. Submit one reproducible and two prints for each drawing. Allow five working days for review.

**ABBREVIATIONS KEY**

AB	Another Roof Flash	EP	Each Face	MCH	Mechanics	SC	Site General
ADDL	Additional	EL	Elevation Joint	MNV	Masonry	SCS	Schedule
ADI	Adhesive	ELR	Elevation	MNT	Metal	SDST	Self-Drilling Self-Tapping
AIE	Aluminum Finished Floor	ELR	Elevation (External)	MNX	Maximum	SDCT	Section
AIT	Aluminum	ENGR	Engineer	MIB	Machinist Bolt	SFE	Splice Feet
AMT	Asphalt	EQ	Equal	MCH	Machinist Bolt	SFT	Sheet
ANB	Anchor, Anchorage	EQUP	Equipment	MZZ	Mechanism	SHG	Sheathing
ANPH	Approximate	EQUP	Equipment	MFR	Manufacture, et-ed	SIM	Similar
ARCH	Architect, -and	ES	Each Side	MN	Minimum	SHH	Short Leg Horizontal
AVG	Average	EST	Estimate	ML	Microfilm (Thermoseal LVL)	SHV	Short Leg Vertical
AVG	Average	EW	East to West	MO	Masonry	SKG	Skid on Grade
BC	Bottom of Concrete	EXC	Excavate	MND	Masonry Draining	SP	Spaces
BL	Block	EXP	Expansion	MNT	Metal	SPC	Specifications
BLK	Block	EXT	Exterior	NF	Near Face	SPQ	Splice
BLKG	Blocking	FDN	Foundation	NIC	Near Face	ST	Stair, Stair
BM	Beam	F-P	Face to Face	NS	Near Side	ST	Steel
BRG	Bracing	FG	Figure	NNS	Near to South	STL	Steel
BW	Bottom of Wall	FL	Flush	OCJ	OSHA Column Joint	STRCT	Structural, -al
CB	Counterbore	FR	Flange	OD	Outside Diameter	SLPT	Support
CC	Cable, Core	FR	Flange	OF	Outside Face	SV	Splice, Veld
CG	Center of Gravity	FO	Face of	OH	Outside Face	SYM	Symmetrical
CD	Cast in Place	FP	Full Penetration	ONG	Ongoing	T&B	Top and Bottom
CJ	Connection Joint (Control Joint)	FS	Face Side	OPP	Opposite	T&G	Top and Gouge
CLG	Ceiling	FTG	Footing	OSB	Oriented Strand Board	TR	Trim
CLM	Clear	GA	Gate (Gate)	PAE	Passer Assured Fastened	TC	Top of Concrete
CMA	Construction Manager (Always/very)	GMV	General	PC	Precast	TD	Top of Deck
CMU	Concrete Masonry Unit	GN	General	PEF	Precast Per Cable Fastened	THD	Thread
COM	Common	GL	Grade (Unfinished/Galvan)	PEN	Penetration	THK	Thick, -ness
COM	Common	GR	Grade	PERP	Perpendicular	TI	Top of Joist
COMB	Combination	GR	Grade	PL	Prepary Line	TL	Total Load
CONC	Concrete	GT	Grate	PNL	Panel	TRNS	Transverse
CONC	Concrete	GYP	Gypsum Board	PP	Panel Point	TW	Top of Wall
CONC	Concrete	HAS	Headed Anchor Stud	PS	Pre-stressed	TYT	Typical
CONNT	Connection (Continuous)	HORIZ	Horizontal	PSF	Pounds Per Square Foot	UT	Ultimate
COOR	Coordinate, -ion	HT	Height	PSI	Pounds Per Square Inch	UNO	Unless Noted Otherwise
CS	Counter-slab	ID	Inside Diameter	PSL	Pounds Per Square Foot	VER	Vertical
CTR	Center	IF	Inside Face	PT	Post-Tensioned OR (genere term)	VH	Verify in Field
CY	Cubic Yard	INT	Interior (Dimensional)	PT	Post-Tensioned OR	WA	Welded Anchor
DAB	Declined Anchor Bar	IB	Inside Bearing	PTN	Partition	WP	Welded Wire Fabric
DET	Detail	IB	Inside Bearing	PVD	Prevent	WVF	Welded Wire Fabric
DEV	Develop	IT	Light	QTY	Quantity	SN	Steel
DIAG	Diagonal	K	Kip (1,000 lbs)	QT	Quantity	SNSCT	Cross-section
DIM	Dimension	LD	Load	R	Radius	XXS	Double Extra-Strong
DL	Dead Load	LL	Live Load	RE	Reference (refer to)		
DN	Down	LH	Long Leg Horizontal	RECT	Rectangle (refer to)		
DP	Double Plate	LIV	Living	RENF	Reinforce, -ed, -ing		
DR	Double Tie	LTC	Location	REO	Reinforced		
DWG	Drawing	LSL	Laminated Strand Lumber (genere term)	REQD	Required		
DWL	Dowel	LVL	Laminated Veneer Lumber (genere term)	REI	Reinforcing		
EAC	Each	LY	Light	RH	Room		
ECC	Eccentric	LVL	Laminated Veneer Lumber (genere term)	RMD	Round Memory Opening		
E-F	End to End			RO	Round Opening		

**Structural Drawing Index**

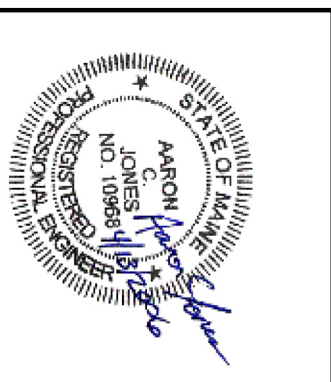
S1	General Notes, Abbreviations, Etc.
S2	Main and Second Level Framing Plans
S3	Third Level and Roof Framing Plans
S4	Sections

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**Akerlind Residence  
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Title

GENERAL NOTES, ETC.

Scale: NTS  
Date: 2/1/06

Revisions  
FOR CONST. 3/24/06

Sheet

S1

