GENERAL STRUCTURAL NOTES

11-0072
Greenwell Residence
Peaks Island, ME

DESIGN LIVE LOADS: 2009 IBC/IRC, MUEBC

* Snow 50 psf (Pg)
* Wind 100 mph, exp C, 3 second gust
* Floor 50 psf

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: 1,750 psf

FOUNDATION WALLS:

* Design lateral soil pressure (equivalent fluid pressure):
  Walls: 50 pcf.
* Backfill all retaining walls with free draining granular material except the top two feet.
* Provide perimeter drain system with invert minimum of 6" below bottom of basement slab. Extend perimeter drain to daylight or to sump.
* Slope perimeter grade away from building.
* Place concrete continuously without horizontal cold joints.
* Slab must be in place prior to backfilling tall walls above slab height, or provide adequate shoring and bracing.

CONCRETE AND REINFORCEMENT:

* Concrete shall conform to applicable provisions of ACI-301 and 318.
  Minimum 28 day compressive strength (F'c) as follows:

Footings:	3,000	psi
Foundation Walls:	3,500	psi w/4-6% air entrainment
Interior Slabs:	3,500	psi w/fibermesh
Exterior Slabs:	4,500	psi w/4-6% air entrainment and fiber mesh

* 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.
* Fibremesh: 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 lb. per cubic yard.
* Welded Wire Fabric (WWF): ASTM A185. See also plan.
* Typical minimum foundation reinforcing: 2 #4 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 #4 around all four sides of all openings, extend min. 2'-0 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.

WOOD FRAMING:

* Dimension Lumber is designed and shall be supplied using BASE VALUES Design Criteria.
* SPF #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 LSL (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: SPF No 2 and better
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
2x 6 over 8'-0: No. 2 and better

* Columns: Douglas Fir No. 1, Fb=1200 psi, E=1,600,000 psi
* Laminated Veneer Lumber (LVL): Manufactured 1 3/4" wide Microllams (ML) by Ilevel/Trus Joist or equivalent.
  Fb=2,600 psi, E=1,900,000 psi, Fv=285 psi, depth noted on plans.
* LSL Rim Joists = 1-1/8" x depth indicated laminated strand lumber or OSB. No substitutions.
* Glued, laminated framing members per ANSI Standard A190.1-92. Mark members with an AITC Quality
* All plywood and oriented strand board (OSB) sheathing shall be engineered grades with APA grade stamp indicating appropriate maximum spacing of supports.
  Roof sheathing: minimum 5/8" CDX plywood, or 19/32" OSB, APA 40/20, nailed.
  Wall sheathing: $^1/_2$" CDX plywood or $^7/_{16}$" OSB, APA 24/16, blocked and nailed.
* 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 "I" 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.

* 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.
* 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 joist supports and joist ends.
* 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.

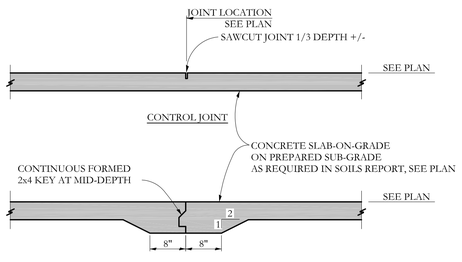
STRUCTURAL ERECTION AND BRACING REQUIREMENTS

* 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.

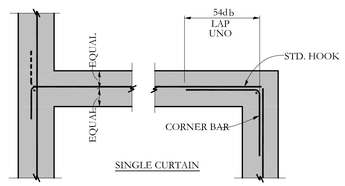
SHOP DRAWINGS

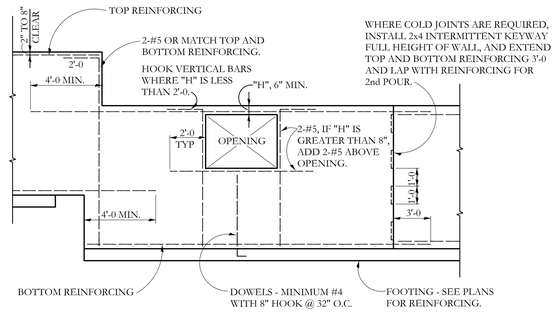
Fabricator and / or supplier of rebar shall submit shop and erection drawings for architect and engineer review. Submit one reproducible and two prints for each drawing. Allow five working days for review.



TYPICAL JOINTS AT INTERIOR SLAB-ON-GRADE

*SAW CUT JOINTS W/ GREEN SAW WITHIN 24 to 36 HRS -TYP UNO





TYPICAL REINFORCING AT STEPS AND OPENINGS
NO SCALE

Structural Drawing Index

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ISSUE	DATE
PERMIT	09.7.2011
STRUCTURAL ENGINEERING	08.12.2011
ZONING REVIEW	07.20.2011

DATE: 09.07.2011

GENERAL NOTES, Etc.

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