# GENERAL STRUCTURAL NOTES

- All work shall co The structural design of the building is based on the full interaction of all its connected parts, including all reinforced concrete. No provisions have been made for any temporary conditions that may arise during construction prior to the completion of the structure. The contractor shall be responsible for adequate design and construction of all forms, shoring and temporary bracing during the progress of the project. Building Code (2003 IBC) and
- The information shown on the structural drawings is intended for this project only and shall not be used for any other purpose. Changes to structural documents (including notes, details, plans, and specifications) shall not be made without written approval from Price Structural Engineers, Inc. (PSE).
- The structural documents for this project (including notes, details, drawings, and specifications) are interdependent. Use of some but not all of the structural documents or changes to structural documents without the written approval of PSE is not permitted. ntractor(s) shall provide experienced jobsite wings and standards of quality workmanship.
- Principal openings through structural components are shown on these drawings. The Contractor shall examine the project drawings the required openings, as he shall provide for all openings whether or not shown on the structural drawings, and shall verify size and ocation of all openings with other project requirements. Any deviation from the openings shown on the structural drawings shall be prought to PSE's attention for approval.
- Alternate connection details may be used if such details are submitted to PSE for review and written acceptance is granted. How PSE shall be the sole judge of acceptability and the contractor's bid shall anticipate the use of those specific details shown on the drawings. The contractor shall be responsible for the design of any alternate details which he proposes.
- Work not indicated on a part of the drawings but reasonably implied to be similar to that shown at cornincluded. Do not scale from drawings. nding places, shall be
- A9. The contractor shall be completely responsible for the safety of adjacent structures, property, and the public comply with all Federal, State, and Local requirements. The contractor shall
- actors are required to examine the drawings and specifications carefully, visit the site and fully inform the conditions and limitations, prior to submitting their bid. Failure to visit the site and familiarize themselves are and limitations will in no way relieve the successful bidder from furnishing any materials or performing are with drawings and specifications (with no additional cost to the Owner). nemselves as to all s with the existing any work in
- <u>A</u>12. <u>></u> -Where conflicts exist between codes, specifications, or drawings, the more stringent requirements shall govern. Notify PSE in when such conflicts are discovered. uctural drawings, see architectural draw vings for dim
- <u>≯</u>4. <u>≯</u>3. Substitutions for specified manufactured materials shall not be made without written approval from PSE. Manufactured materials shall be installed in accordance with manufacturer's requirements and recommendations. Fire code provisions are not contained on structural drawings. Coordinate fire code requirements with owner, code official, and architect. See other project documents for requirements.
- <u>A</u> 6. PSE has performed the structural design of the structural components only for this project, as designated by the structural drawings. Structural documents do not contain provisions for non-structural features including fire protection, ADA disability access, drainage, emergency egress requirements, flashing, finishes, ventilation, watertightness, soundproofing, or any other sitework, architectural, mechanical, electrical or environmental features.

Stored materials shall be stacked on pallets in a manner that prevents distortion or damage, above the ground, covered and kept in a dry condition. New materials shall be installed plumb, level and square, unless noted otherwise.

## REINFORCING FOR CONCRETE

- All concrete reinforcing bars shall conconform to ASTM A706. to ASTM A615, Grade 60 except where noted. All reinforcing bars
- All welded wire fabric (w.w.f.) shall conform to ASTM A-185. W.W.F. shall be provided in flat sheets. orts shall be
- D3. Provide all necessary accessories to hold reinforcing securely in position. Reinfor on center and shall consist of pre-manufactured chairs.
- <u>Q</u> All laps in W.W.F. shall be 1 1/2 mesh spaces or 1'-0", whichever , and shall be
- Concrete protection for reinforcement shall be provided as follows (UON): Reinforcing bars may not be welded except where designated by the structur
- Surfaces cast against and permanently exposed to earth .... 3 inches (clear)

- See ACI 318 for conditions not listed.
- D7. All hooks shown on drawings shall be concrete cover.
- Where continuous bars are called for, they shall run continuo discontinuous ends. Lap lengths shall be as given in the splice bottom bars at supports, unless noted otherwise.
- splice for #4 and #5 bars shall be 2'-0" (UON)

## FOUNDATIONS

- No foundati
- All footing excavations are to be finished by hand. All finished four any concrete is placed. Bedrock surfaces shall be swept clean and ndation excavations shall be inspected by the project loose debris removed prior to placement of footings
- Structural fill below SCREEN OR SIEVE SIZE ıdjacent to foundation footings shall conform to MDOT 703.06 Type B: PERCENT FINER BY WEIGHT

- Crushed stone shall consist of clean angular fragn Maximum stone size shall be 1". Structural fill shall be compacted in 8" (max) lifts (loose measure) to 95% of its maximum dry density in accordance with ASTM D1557 Hand vibratory equipment shall be used to compact backfill at confined areas and adjacent to basement using 6" lifts (loose measure). ents of quarried rock with uniform quality and conform to MDOT 703.22 Type C.
- foundation units shall be centered under supported m

В7.

В6.

- Where foundation elements are to have fill on both sides, each side shall be filled and compacted simultaneously, maintaining a commor elevation such that compacted fill on one side of the foundation does not exceed more than 12" above the compacted fill on the other
- Contractor shall provide coconstruction, so that all exc ntinuous drainage by mechanical methods to control surface and underground water as required during avations are dry. Water level shall be maintained at 12 inches below bottom of excavations at all times.
- ting foundati ns to at least 3 feet belo
- Shoring, bracing, or sheeting used to provide later and below ground level are complete. All holes in foundation walls shall have plastic sleeves. Coordinate size and locations of sleethan 10" diameter shall have additional (2)  $\#4 \times 5$ '-0" rebar on 4 sides of sleeves. until all pe ructural syster
- Pipes shall not pass under o or through footings. Lower wall footings by stepping to avoid interference (see typical stepped footing detail)
- Contractor shall take necessary precautions to avoid disturbing existing soil beneath footings. As a minimum, a smooth edge bucket shall be used for excavation at these areas.

BI 3.

B12.

<u>B</u> -

Footings shall not bear on bedrock if bedrock slope exceeds 4'-I" (Horiz.: Vert.) unless footing is pinned to bedrock surface with #4 rebar @ 24" o.c. Provide 90° hook in rebar at top, 5" embedment into bedrock, and use anchoring cement approved by PSE. When excavating for new below grade.

tings, contractor shall take the necessary precautions to avoid disturbing existing utilities which may exist

### CONCRETE

- All concrete work shall conform to the latest edition of the ACI Building Code (ACI 318), Specifications for Structural Buildings (ACI 301) and to the 2003 IBC. In case of conflict, the more stringent requirements shall govern.
- E2. For locations listed below, compressive strength (fc) in oncrete shall have 3/4" aggregate, 2"-4" slump, Type I or II ASTM C-150 Portlar 28 days as follows:

Location (	f'c	Air	Polypropolene	Max. Water:Cement
	(psi)	Entrainment	Fibers	Ratio
tings aining Walls, Foundation Walls, Piers 4 rior Slabs on Grade (UON) 4 cellaneous Concrete 3	3000	None	None	.5
	4000	4% - 7%	None	.42
	4000	None	I 5. lb / c.y.	.42
	3000	4% - 7%	None	.5

# Water shall not be added

- A "foundation wall" shall be considered a "retaining wall" if final grade elevation on one side of wall is more than 15 inches above the final grade on the opposite side of wall.
- All footings shall be placed monolithically. See typical details for construction joint requirements.
- Pipes or conduits placed in than 1/3 of the slab thickne slabs on grade shall not be placed closer than 3 diar
- All keys shall be 2" × 4" (nc
- E
- No concrete shall be cast owner's representative. All exposed edges of conc bers shall be chamfered 3/4" unless shown otherwise on drawi

₩.

- E9. See architectural drawings f miscellaneous embedded p requirements. for door and window openings, drips, washes, reglet, concrete finishes, masonry anchors, and for blates, bolts, anchors, angles, etc. Refer to mechanical, electrical, and site drawings for other embedment
- Calcium chloride, aluminur nts shall not be placed in concrete. No conduits shall be placed in slabs on metal deck
- EI2. Ξ. All embedments in concrete, including anchor bolts, shall be firmly secured by tie wire to prevent mover Welding of embedments is not permitted.
- ent and forms shall be free from frost or debris.
- $\frac{\mathbb{H}}{\omega}$ Concrete shall be maintained above 50 degrees F, and in moist condition for at least the first seven days after placement. Contractor shall provide blankets, tenting, and heat as necessary to ensure this condition exists. Contractor shall keep two operable concrete thermometers on site throughout concrete construction when temperatures are predicted to be less than 40 degrees F.
- <u>E</u> 4 ded by ACI 301. Ho
- EI 6. EI5. ontrol joints in slabs on gralls are mandatory. See t architectural dra for locations of floor drains. Slope slabs uniformly to drains (UON). ade are mandatory. See typical details. Control joints in four pical details.
- E17. Coordinate concrete finish on floor slabs with owner's requirements and specifications
- <u>E</u> 8.
- Concrete slabs, including those on steel deck, shall be placed so that slab thickness equals or exceeds thickness specified on drawings. This will require that slabs may not be dead level where supported by beams or trusses with camber.

- Length of time to cure cor ete slabs and materials applied to slab surfaces shall be cor
- um freefall of wet co crete during placement shall not exceed 5'-0".

E21.

Surfaces of concrete const not be placed against exist Slabs on grade shall contain ASTM C1116, Type III,  $\mbecksymbol{\mathcal{L}}$ " - 1 $\mbecksymbol{\mathcal{L}}$ " long polypropounless steel reinforcement is specified. e than specified slab depth. ruction joints, including exposed reinforcement, shall be cleaned and laitence removed. New concrete shall ing hardened concrete surface has been moistened (without standing water)

blene fibers at a rate of 1.5 pounds (min.) per cubic yard

Depth of concrete specific maximum of 3/4-inch mor

Isolation joints in concrete with tooled joint surface.

## ROUGH CARPENTRY

- Lumber shall bear the grade and trademark of the association under whose rules it is produced an Lumber shall be sound, seasoned, kiln-dried to a moisture content not exceeding 19% and surface Pressure Treated (PT) lumber shall be Southern Yellow Pine (SYP), Number I grade.
- Except as noted above, lumber (including lumber used for studs, beams, lintels, wall plates, janual be No. 2 grade Spruce (or better), Pine, Fir (SPF).
- Lumber and wood in exterior applications, at sills, at porches and in contact with concrete and m preservative with a minimum net retention of  $0.40~\rm pcf$ , or equivalent pressure treating system. All fasteners (including nails, lag screws, and bolts) for pressure treated lumber shall be hot-dip ga fasteners shall either be stainless steel or be clearly specified as having a G185 galvanized coating additional galvanizing suitable for ACQ.
- Cut ends of pressure treated lumber and timber posts and sills shall be dipped in a preservative to minutes. Where pressure treated members must otherwise be cut during erection, apply a field 1 AWPA M4. ninimum of fifteen rvative to comply v

9

<u>C</u>6.

- <u>C</u>5. bers, units of less than 1:1 slope, with natural cor up to pr
- As a minimum, carpentry work shall comply with AFPA's "National Design Specification for Wood components shall be securely attached with sound connections and without splitting. As a minim IBC 2003, Table 2304.9.1, "Fastening Schedule." Contractor shall be aware that more stringent redeciments." onstruction," 2001 Edition. Wood wood fasteners shall conform to rements are specified within these

Wood

ing ing Plate Sides

ximum
ne Dept. of T
chanical
unfacturer
imum
sellaneous
& Washer
ir Face
in Contract
to Scale
Center
side Diametel
side Face
osite Hand
ning

Ing Ited Strand Board -rated sheathing) ler Activated Faste ds per Cubic Foot rmed Joint Filler

s per Square Foot s per Square Inch cement

om of Fc

- All plywood and sheathing shall conform to APA "Plywood Spcification Grade Guide" and Produc shall conform to APA Design/Construction Guide Residential and Commercial, Form E30B for r Sheathing end joints for floors and roof shall be staggered. Plywood shall be placed such that plywords to rafter span (3 span minimum). Floor sheathing shall be glued to top of supports wit "PL400 Subfloor Adhesive," manufactured by OSI Sealants, Inc. or other adhesive conforming to A t Standard PS-1. Plyvequired applications. ood surface grain is transverse to 3/8" diameter continuous bead of AFG-01 and ASTM D3498.
- athing for floors shall be 3/4" thick Tongue & Groove APA rated plywood with 48/24 span raten plywood floor sheathing with 10d nails at 6" o.c. along supported edges and 12" o.c. elsew mitted ing or "Advantec" (by Huber Corp.) nere. Drywall screws will not be
- wood for roofs shall be 5/8" thick, APA rated sheathing with 40/20 span rating. Install "H" clips th 10d common nails at 6" on center along supported edges and 12" on center elsewhere.

 $\frac{\cap}{\cdot}$ 

<u>C</u>10.

<u>C</u>9.

8

- Wall sheathing shall be 7/16" thick, APA rated plywood or OSB sheathing suitable for exterior use as possible. All edges of wall sheathing shall be supported by lumber framing (nominal 2" thick); ac sheathing shall be fastened to studs with galvanized 8d common nails having 4" spacing at supporte (U.O.N.) except that all wall sheathing at grids 8, 8.1, A, and AA shall have nail spacing reduced to shall be applied at all exterior walls and at interior walls where designated on drawings. use (UON). Use full size sheets as mud; add blocking as necessary. Wall prited edges and 6" spacing elsewhere to 2" o.c. at all edges. Wall sheathing
- ference to "Simpson" on Drawings indicates metal connectors manufactured by Simpson Stror
- Reference to "Versalam" and "BCI" on Drawings indicates materials manufactured by Boise Casca installed in strict accordance with Boise Cascade requirements.
- Floor and roof framing around chase openings for mechanical ducts shall consist of the following Double floor length joists each side of openings with joist depth same as adjacent floor fram
- uble joist hangers.
- oles through framing members shall be drilled through middle third of lumber and shall not ex ngineer if larger holes are required.
- Double top plate at exterior and load-bearing walls shall be lapped a minin rows of 16d nails spaced at 6" on center (total of 18 nails). ım of 4'-0" and be fas

(2)

<u>C</u> 6.

<u>C</u> | 5.

<u>\_4</u>

 $\frac{1}{3}$ 

C17.

- Spike together all framing members which are built up using two rows of 16d nails at 12" O.C. sta
- $\frac{1}{8}$ Provide double top plate in all exterior walls and all interior bearing walls with lapped connection
- <u>C</u> 19. All nails shall be "common" unless noted otherwise. Pre-drill holes as necessary to prevent splittir
- ovide Simpson connection post caps and post bases at posts and columns.
- C22.  $\Omega$ The threaded portion of all lag screws shall be placed in predrilled holes which are one-half the nearly lag screw shanks shall be installed in predrilled holes which are not more than 1/32 inch large diameter. Anchor bolts for bottom wall plates shall be installed in predrilled holes which are not the nominal bolt diameter. g screw. Bolts minal bolt liameter than
- C23. Wood framing shall be a minimum of 2" clear from masonry chimneys and 6" clear from flue ope where specified by codes or other requirements having jurisdiction. ne additional floor joist directly If wall is less than half the joist "
- C24. Where any interior walls are parallel with floor joists below for more than half the joist span, add below interior wall centerline (additional joist may be omitted if joist already exists at this location add transverse blocking between joists to support the wall. Blocking shall be at wall ends and at  $^{2}$
- Adjust setting of nail guns such that top of nail head does not penetrate below surface of APA ra To avoid popping nails and minor cracking in drywall finishes, drywall shall not be placed until fran less than 14 percent (verified by calibrated moisture meter).
- e column) directly belo undation.
- Where columns are shown, contractor shall install additional studs (equal to the same width as the on each floor and between floors such that continuous support for the column extends to the for the points (or rafters) are framed to the sides of beams, the gap between the ends of joists (or are connected shall not exceed 1/16 inch.

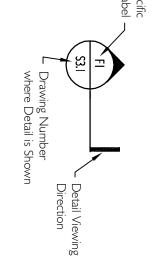
C27.

C26.

C25.

- Wall plates shall be face-nailed to each stud (and each individual 2x at built-up columns) with (2)
- All holes in joist and rafter hangers shall have one 10d nail unless larger nails are specified by Simp  $\times$  1-1/2 nails at hangers mounted to 1-1/2" thick lumber. All holes in beam hangers shall have one Simpson or on drawings.
- All floors shall have solid blocking between joists spaced at not more than 8'-0" on cerblocking can be face-nailed to joists at both ends. et 1.5" so that







WLET WILLIAM 75 farms edge road north yarmouth, maine 04097 telephone 207 846 0099 fax 207 846 1633

CANONA X SYN

NE OF SA

tructural Engineers, I

Inc.

Design By Bruce B. Butler

116 Parsons Road Portland Maine

SCALE

RESIDENCE

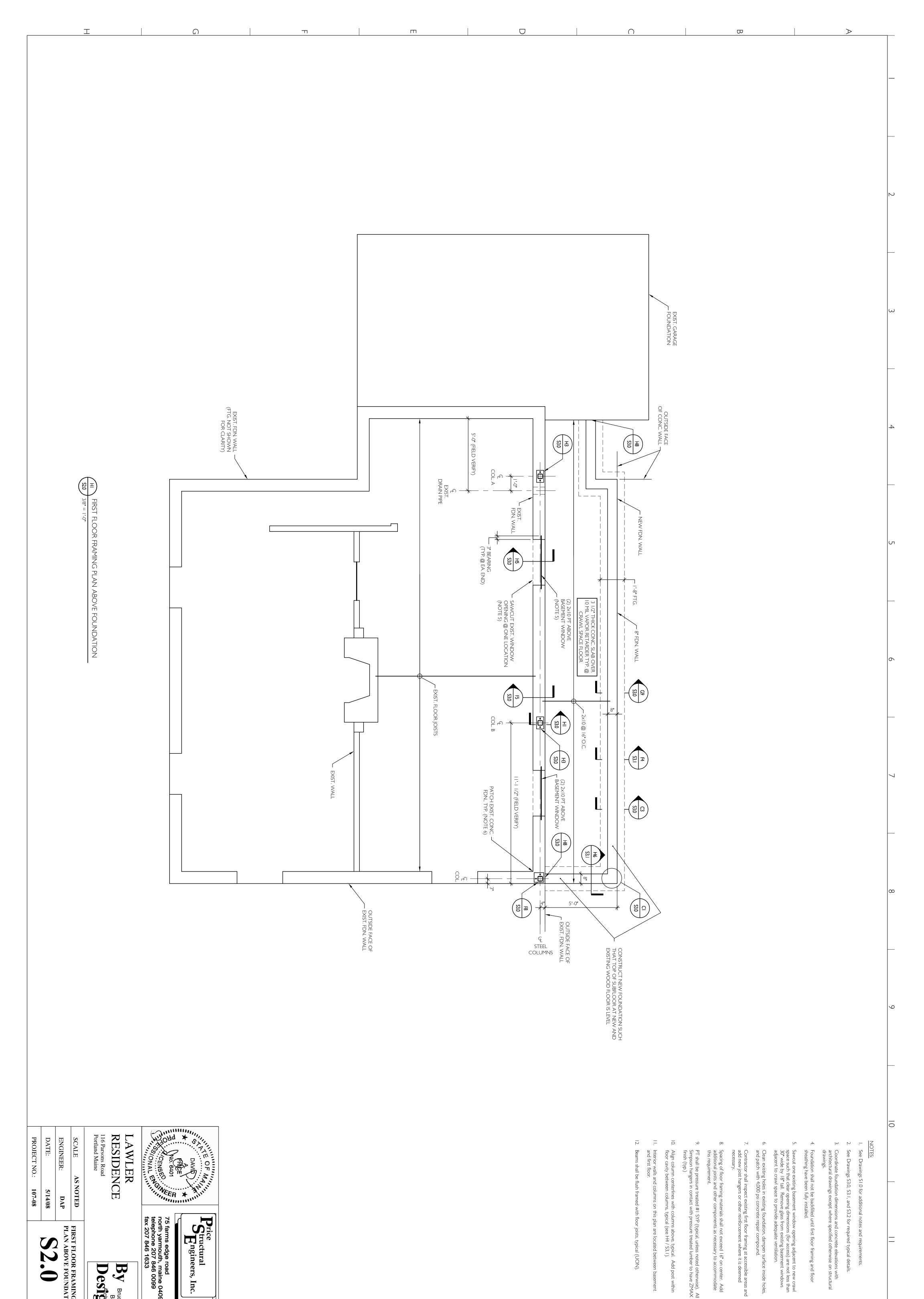
AWLER

AS NOTED 5/16/08 DAP GENERAL STRUCTURAL NOTES

DATE:

ENGINEER:

PROJECT NO.:



FIRST FLOOR FRAMING PLAN ABOVE FOUNDATION

By Bruce B.
Butler
Design

Price
Structural
Engineers, Inc.

75 farms edge road north yarmouth, maine 04097 telephone 207 846 0099 fax 207 846 1633

