

GENERAL STRUCTURAL NOTES

- A1. All work shall conform to the requirements of the International Building Code (2006 IBC) and other codes having jurisdiction.
- A2. 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.
- A3. Contractor shall retain the services of a licensed structural engineer to design temporary shoring as needed. To prevent excessive settlement of existing brick walls above, Contractor shall provide uplift jacking of existing brick walls as necessary during removal of existing columns/ribs and during installation of corresponding new supports. Contractor shall repair/repaint existing brick walls if cracking in brick is noted after existing columns have been removed at grid A.
- A4. 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).
- A5. Contractor(s) shall provide experienced jobsite supervision to ensure that components are installed in accordance with the structural drawings and standards of quality workmanship.
- A6. 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.
- A7. Principal openings through structural components are shown on these drawings. The Contractor shall examine the project drawings for the required openings, as he shall provide for all openings whether or not shown on the structural drawings, and shall verify size and location of all openings with other project requirements. Any deviation from the openings shown on the structural drawings shall be brought to PSE's attention for approval.
- A8. Alternate connection details may be used if such details are submitted to PSE for review and written acceptance is granted. However, 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.
- A9. Work not indicated on a part of the drawings but reasonably implied to be similar to that shown at corresponding places, shall be included. Do not scale from drawings.
- A10. The contractor shall be completely responsible for the safety of adjacent structures, property, and the public. The contractor shall comply with all Federal, State, and Local requirements.
- A11. All contractors are required to examine the drawings and specifications carefully, visit the site and fully inform themselves as to all existing conditions and limitations, prior to submitting their bid. Failure to visit the site and familiarize themselves with the existing conditions and limitations will in no way relieve the successful bidder from furnishing any materials or performing any work in accordance with drawings and specifications (with no additional cost to the Owner).
- A12. Except where noted on the structural drawings, see architectural drawings for dimensions and locations of new materials.
- A13. See drawing S1.1 for abbreviations. See project specifications for additional requirements.
- A14. Where conflicts exist between codes, specifications, or drawings, the more stringent requirements shall govern. Notify PSE immediately when such conflicts are discovered.
- A15. Fire code provisions are not contained on structural drawings. See other project documents for requirements. Coordinate fire code requirements with code official, architect, and owner.
- A16. 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.
- A17. Submittals containing variations from the structural documents shall have such variations boldly labeled so that they may be specifically reviewed by PSE. Variations not labeled in this manner shall not be considered approved, regardless of the status indicated by the shop drawing submittal stamp.
- A18. 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.
- A19. 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.
- A20. At areas where existing structural components are uncovered and found to be inadequate, the contractor shall either properly reinforce the components or contact the Engineer (PSE) for the structural design of the modifications.
- A21. Details indicating existing conditions are based on assumptions, some of which have not yet been field verified. It is critical that the contractor verify actual existing conditions prior to purchasing or fabricating new materials and notify the engineer immediately if actual conditions differ from those indicated on the structural details.
- A22. See Architectural drawings for handrail and guardrail requirements at stairs and exterior decks. Add structural reinforcement so that rails can support either a continuous load of 50 lb/ft, in any direction or a concentrated load of 200 lb, in any direction.
- A23. Unless otherwise specified, structural materials shall be installed plumb, level, square, and straight.

FOUNDATIONS

Structural fill below slabs, adjacent to foundation walls and fill below footings shall conform to MDOT 703.06 Type B:

SCREEN OR SIEVE SIZE	PERCENT FINER BY WEIGHT
4 inch	100%
1/2 inch	35% - 75%
1/4 inch	25% - 60%
No. 40	0% - 25%
No. 200	0% - 5%

- B1. 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).
- B3. Crushed stone shall consist of clean angular fragments of quarried rock with uniform quality and conform to MDOT 703.22 Type C. Maximum stone size shall be 1".
- B4. Where foundation elements are to have fill on both sides, each side shall be filled and compacted simultaneously, maintaining a common elevation such that compacted fill on one side of the foundation does not exceed more than 12" above the compacted fill on the other side.

CONCRETE

- C1. All concrete work shall conform to the latest edition of the ACI Building Code (ACI 318), Specifications for Structural Concrete for Buildings (ACI 301) and to the 2006 IBC. In case of conflict, the more stringent requirements shall govern.
- C2. For locations listed below, concrete shall have 3/4" aggregate, 2"-4" slump, Type I or II ASTM C-150 Portland Cement and designated compressive strength (f_c) in 28 days as follows:

Location	f _c (psi)	Air Entrainment	Polypropylene Fibers	Max. Water:Cement Ratio
Footings, Elevated Interior Slabs	3000	None	None	.51
Retaining Walls, Foundation Walls	4000	6% ± 1.5%	None	.42
Interior Slabs on Grade (UON)	4000	None	1.5 lb / c.y.	.42
Miscellaneous Concrete	3000	6% ± 1.5%	None	.51
Exterior Slabs and Elevated Slabs	4000	6% ± 1.5%	1.5 lb / c.y.	.42

* Contractor shall not proceed with concrete placement until concrete mix design submittal has been reviewed and approved by the structural engineer. Water shall not be added to the concrete mix at the jobsite in excess of approved total water/cement ratio.

- C3. 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.
- C4. All footings shall be placed monolithically. See typical details for construction joint requirements.
- C5. All keys shall be 2" x 4" (nominal) unless otherwise shown on the drawings.
- C6. See architectural drawings for door and window openings, drips, washes, reglet, concrete finishes, masonry anchors, and for miscellaneous embedded plates, bolts, anchors, angles, etc. Refer to mechanical, electrical, and site drawings for other embedment requirements.
- C7. See Architectural Drawings for top of slab elevations.
- C8. Calcium chloride, aluminum or copper components shall not be placed in concrete. No conduits shall be placed in slabs on metal deck.
- C9. All embedments in concrete, including anchor bolts, shall be firmly secured by tie wire to prevent movement during concrete placement. Welding of embedments is not permitted.
- C10. All concrete materials, reinforcement and forms shall be free from frost or debris.
- C11. 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.
- C12. Consolidate all concrete with a vibrator or other means recommended by ACI 301. Honeycombed surfaces will not be permitted.
- C13. See architectural drawings for locations of floor drains. Slope slabs uniformly to drains (UON).
- C14. Coordinate concrete finish on floor slabs with owner's requirements and specifications.
- C15. Length of time to cure concrete slabs and materials applied to slab surfaces shall be compatible with floor finishes.
- C16. Slabs on grade shall contain ASTM C1116, Type III, #2 - 1 #2' long polypropylene fibers at a rate of 1.5 pounds (min.) per cubic yard unless steel reinforcement is specified.
- C17. All cast-in-place concrete shall be tested by an independent and certified testing agency. Tests shall be performed on each day's concrete placement exceeding 5 cubic yards plus one set for each additional 50 cubic yards or fraction thereof. Concrete shall be tested for 7- and 28-day compression strength, concrete temperature, slump, and air entrainment in accordance with ASTM standard procedures.
- C18. Surfaces of concrete construction joints, including exposed reinforcement, shall be cleaned and laitance removed. New concrete shall not be placed against existing hardened concrete until existing hardened concrete surface has been moistened (without standing water).
- C19. Depth of concrete specified at slabs on grade and elevated slabs is a minimum. Add additional concrete to level slab surfaces up to a maximum of 3/4-inch more than specified slab depth.

REINFORCING FOR CONCRETE

- D1. All concrete reinforcing bars shall conform to ASTM A615, Grade 60 except where noted. All reinforcing bars to be welded shall conform to ASTM A706.
- D2. All welded wire fabric (w.w.f) shall conform to ASTM A-185. W.W.F. shall be provided in flat sheets.
- D3. Detailing of concrete reinforcement and accessories shall be in accordance with ACI 315 - "Manual of Standard Practice for Detailing Reinforced Concrete Structures," latest edition.
- D4. Provide and schedule with the shop drawings, all necessary accessories to hold reinforcing securely in position. Reinforcement supports shall be spaced not more than 4'-0" on center and shall consist of pre-manufactured chairs.
- D5. All laps in W.W.F. shall be 1 1/2 mesh spaces or 1'-0", whichever is larger, and shall be wired together.
- D6. Reinforcing bars may not be welded except where designated by the structural engineer.
- D7. Concrete protection for reinforcement shall be provided as follows (UON):
 - a. Surfaces cast against and permanently exposed to earth 3 inches (clear)
 - b. Formed surfaces exposed to earth or weather
 - #6 through #18 bars 2 inches
 - #5 bars and smaller 1 1/2 inches
 - c. Formed surfaces not exposed to earth or weather
 - Slabs, walls, joists 3/4 inch
 - Beams, columns (including stirrups and ties) 1 1/2 inches
- D8. All hooks shown on drawings shall be standard hooks unless noted otherwise. Rotate hooks where necessary to provide adequate concrete cover.
- D9. Where continuous bars are called for, they shall run continuously around corners and lapped at necessary splices, or hooked at discontinuous ends. Lap lengths shall be as given in the splice and development table. Lap beam top bars at mid-span and beam bottom bars at supports, unless noted otherwise.


See ACI 318 for conditions not listed.

ROUGH CARPENTRY

- E1. Lumber shall bear the grade and trademark of the association under whose rules it is produced and a mark of mill identification. Lumber shall be sound, seasoned, kiln-dried to a moisture content not exceeding 19% and surfaced four sides.
 - a. Pressure Treated (PT) lumber shall be Southern Yellow Pine (SYP), Number 1 grade.
 - b. Except as noted above or designated otherwise, remaining lumber (including lumber used for beams, lintels, wall plates, jacks, king studs, and columns and posts) shall be No. 2 grade Spruce (or better), Pine, Fir (SPF). Individual studs within continuous walls may be stud grade (UON).
- E2. All fasteners (including nails, lag screws, and bolts) for pressure treated lumber shall be hot-dip galvanized. If ACQ preservative is used, fasteners shall either be stainless steel or be clearly specified as having a G185 galvanized coating and joist / beam hangers shall have additional galvanizing suitable for ACQ.
- E3. All plywood and sheathing shall conform to APA "Plywood Specification Grade Guide" and Product Standard PS-1. Plywood construction shall conform to APA Design/Construction Guide - Residential and Commercial, Form E308 for required applications.
- E4. Sheathing for floors shall be 3/4" thick Tongue & Groove APA rated plywood with 48/24 span rating or "Advantec" (by Huber Corp.). Fasten plywood floor sheathing with 10d nails at 6" o.c. along supported edges and 12" o.c. elsewhere. Drywall screws will not be permitted.
- E5. Reference to "Simpson" on Drawings indicates metal connectors manufactured by Simpson Strong-Tie. All holes in joist hangers and rafter hangers shall be nailed except where bolts, lag screws, or other fasteners are specified by Simpson.
- E6. Holes through framing members shall be drilled through middle third of lumber and shall not exceed 1" diameter. Contact Structural Engineer if larger holes are required.
- E7. The threaded portion of all lag screws shall be placed in predrilled holes which are one-half the nominal diameter of the lag screw. Bolts and lag screw shanks shall be installed in predrilled holes which are not more than 1/32 inch larger in diameter than the nominal bolt diameter. Anchor bolts for bottom wall plates shall be installed in predrilled holes which are not more than 1/4" larger in diameter than the nominal bolt diameter.

MASONRY CONSTRUCTION

- F1. Concrete masonry units shall be "normal weight" units conforming to ASTM C90, grade N, type I cement.
- F2. All masonry construction shall conform to the requirements of ACI 530-95 ("Building Code Requirements for Masonry Structures"), ACI 530.1/ASCE 6/TMS 602 ("Specification for Masonry Structures") and the project specifications. In case of conflict, the more stringent requirements shall apply.
- F3. Minimum compression strength of concrete masonry (f_m) shall be 2500 psi.
- F4. Mortar shall conform to ASTM C270 type S, minimum compressive strength shall be 2500 psi using Portland/Cement Lime, Cementitious Material and Proportion Specifications. Masonry cement shall not be used. Lime shall be hydrated lime, ASTM C207, Type S.
- F5. Masonry grout for lintels, bond beams and reinforced vertical cells shall have a 7-day strength of 2000 psi, 28-day strength of 3000 psi, conforming to ASTM C476 with 8"-10" slump.
- F6. Masonry reinforcement shall conform to ASTM A615, grade 60.
- F7. All reinforcement shall be fully grouted in place.
- F8. Vertical wall reinforcing shall extend from the foundation to the top course in each wall, continuous through bond beam and lintels. Masonry vertical cores to be grouted shall have mortar joints on all sides to prevent leakage during grouting operation.
- F9. Reinforcement lap splices shall be staggered with lap lengths of:
 - 2'-0" for #4 bars
 - 2'-0" for #5 bars
 - 3'-0" for #6 bars
- F10. Vertical cells to be filled shall have vertical alignment sufficient to maintain a continuous, clear cell. Overhanging mortar or other obstruction shall be removed from the inside of cell walls. Vertical reinforcement shall be held in position at top and bottom and at intervals not exceeding 192 bar diameters.
- F11. Grout shall be poured in lifts of 4 feet maximum height. Provide temporary support as necessary to prevent blowouts of masonry.
- F12. Horizontal wall reinforcement shall be continuous at corners and intersections, use prefabricated corners and tees.
- F13. Horizontal joint reinforcement shall be 2 wire galvanized 9-gage ladder reinforcement with cross rods and shall be lapped a minimum of 16 inches at splices. Joint reinforcement shall be spaced at 16 inches vertically on center in all masonry walls (UON).
- F14. Bond beam reinforcement shall be continuous through masonry control joints. Horizontal joint reinforcement shall be interrupted at masonry control joints.
- F15. All joints shall be tooled concave. Masonry shall be laid in running bond.
- F16. Exposed surfaces of masonry units shall be free from chipped edges or other imperfections.
- F17. As a minimum, all concrete masonry shall be reinforced as follows, unless larger amounts of reinforcement are specified elsewhere:
 - a. (1) #5 (vertical) at wall ends, corners, intersecting walls and each side of masonry control joints;
 - b. (2) #4 (horizontal) above and below each opening. Extend #5's not less than 30" beyond opening;
 - c. (1) #5 (vertical) @ 32" o.c. in all 8" CMU walls shown on structural drawings;
 - d. (2) #5 (vertical) @ 32" o.c., or (1) #6 @ 48" o.c. in all 12" CMU walls shown on structural drawings;
 - e. (1) #5 (vertical) @ 48" o.c. in all 8" CMU walls not shown on structural drawings;
 - f. Horizontal bond beams shall be continuous in all masonry walls and shall contain a minimum of (2) #5 bars. Bond beams shall be located at top of walls, floor levels and spaced vertically not more than 8'-0" on center;
 - g. (2) #5 (vertical) at each side of masonry openings in exterior walls, extending from bottom of wall to top of wall.
- F18. Provide dowels in slab/foundation walls to match vertical rebar size and spacing.
- F19. Install CMU control joints where shown on Drawings.
- F20. All masonry walls shall be adequately braced throughout construction in conformance with the Council for Masonry Wall Bracing document, "Standard Practice for Bracing Masonry Walls during Construction."
- F21. Shop Drawings for reinforcement within masonry shall be submitted and written approval obtained from structural engineer prior to fabrication.



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ISSUED FOR CONSTRUCTION JULY 21, 2009

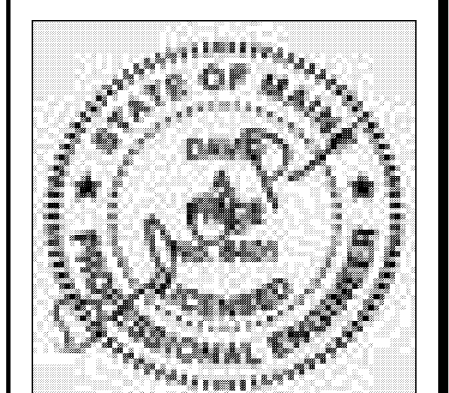
Owner: **BAYSIDE MAINE LLC**
 477 CONGRESS ST.
 SUITE 1012
 PORTLAND, MAINE, 04101

Development Consultant: **SHINBERG CONSULTING, LLC**

RENOVATIONS TO 645 CONGRESS ST.
 PORTLAND, ME 04101

Drawing Title: **GENERAL STRUCTURAL NOTES**

Scale: As Noted
 Date: 5/14/09
 Revisions:



Drawing Number: **S1.0**

* INDICATES ADDENDUM #1 REVISION