GENERAL STRUCTURAL NOTES

A1. All work shall conform to the requirements of the International Building Code (2003 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. 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).

A4. Contractor(s) shall provide experienced jobsite supervision to ensure that components are installed in accordance with the structural drawings and standards of quality workmanship.

A5. 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.

A6. 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.

A7. 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.

A8. 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.

A9. 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.

A10. 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).

A11. Except where noted on the structural drawings, see architectural drawings for dimensions and locations of new materials.

A12. See drawing S1.1 for abbreviations. See project specifications for additional requirements.

A13. Where conflicts exist between codes, specifications, or drawings, the more stringent requirements shall govern. Notify PSE immediately when such conflicts are discovered.

A14. Fire code provisions are not contained on structural drawings. See other project documents for requirements.

A15. 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.

A16. 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.

A17. 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.

A18. Include provision and installation of elevator support beams, guide rails, embedments, inserts, and other materials required by elevator manufacturer, as part of project bid.

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.

FOUNDATIONS

B1. Foundation design is based on the geotechnical report, dated 9/22/05 with supplemental pile requirements dated 11/2/05 and 11/4/05 prepared by Summit Geo Engineering Services. Fill below footings and backfill adjacent to foundations shall be in conformance with the recommendations contained within this document.

B2. No foundations shall be placed in water or on frozen ground.

B3. All footing excavations are to be finished by hand. All finished foundation excavations shall be inspected by the project foreman before any concrete is placed. Bedrock surfaces shall be swept clean and loose debris removed prior to placement of footings on bedrock.

B4. Backfill adjacent to grade beams and pile caps shall be Foundation Backfill with gradation as follows:

SCREEN OR SIEVE SIZE	PERCENT FINER BY WEIGHT
3 inch	100 %
No. 40	0 % -70%
No. 200	0 % -5%

Slabs on grade shall bear on 12 inch thick layer of Structural Backfill or 3/4 inch crushed stone. Structural Backfill shall conform to:

SCREEN OR SIEVE SIZE	PERCENT FINER BY WEIGHT
3 inch	100 %
1/4 inch	0 % -70%
No. 200	0 % -10%

B5. Structural fill shall be compacted in 6" (max) lifts to 95 % of its maximum dry density in accordance with ASTM D1557.

B6. 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".

B7. Unless otherwise noted, all foundation units shall be centered under supported members.

B8. 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.

B9. Contractor shall provide continuous drainage by mechanical methods to control surface and underground water as required during construction, so that all excavations are dry. Water level shall be maintained at 12 inches below bottom of excavations at all times.

B10. Remove existing foundations to at least 3 feet below bottom of proposed slabs and foundations.

B11. All holes in foundation walls shall have plastic sleeves. Coordinate size and locations of sleeves prior to placing concrete. Sleeves larger than 10" diameter shall have additional (2) #4 x 5' 0" rebar on 4 sides of sleeves.

B12. Shoring, bracing, or sheeting used to provide lateral support of excavations shall remain in place until all permanent structural systems at and below ground level are complete.

B13. When excavating for new footings, contractor shall take the necessary precautions to avoid disturbing existing utilities which may exist below grade.

DESIGN LOADS

C1. Floor Live Loads

a. Typical Elevated Floor = 80 psf.
b. Ground Floor = 100 psf.
c. Stairs = 100 psf or 300 lb concentrated load.
d. Mechanical Equipment (see plan).

C2. Snow Load

a. Ground Snow Load = 60 psf.
b. Ps = 42 psf.
c. Ce = 1.0.
d. Is = 1.0.
e. Ct = 1.0.

C3. Wind Load

a. Basic Wind Speed = 100 mph.
b. Iw = 1.0.
c. Exposure = "B."
d. Main wind force resisting system (horiz.) = 21 psf (max.).
e. Components & Cladding = 48 psf.

C4. Seismic

a. IE = 1.0.
b. Spectral Response Accelerations:
Ss = .369.
S1 = .098.
c. Soil Site Class = "D."
d. Spectral Response Coefficients:
SDS = .522.
SD1 = .229.
e. Seismic Design Category = "D."
f. Seismic Force Resisting Systems:
Special Concentrically Braced Steel Frame.
g. Design Base Shear:
E = 231,000 pounds.
Cs = .087.
h. R = 6.0.
i. Cd = 5.
j. Design Procedure = "Equivalent Lateral Force."

C5. Geotechnical Parameters (specified by Geotechnical Engineer):

a. Bearing Capacity = 3500 psf.
b. Frost Depth = 4' 0".
c. Retaining Wall Parameters
* Ka = .3.
* Kp = 3.2.
* Soil Unit Weight = 130 pcf.
* Sliding Coefficient = .50.
* Slab Subgrade Modulus = 175 psi.
* Allowable Pile Capacity:
- Compression = 90 tons / pile.
- Uplift = 25 tons / pile.
- Lateral = 2 tons / pile.

C6. Mechanical Equipment Loads: As shown on drawings.

PRELIMINARY

NOT FOR CONSTRUCTION

UNDER NO CIRCUMSTANCES SHALL THIS DRAWING BE USED TO DEVELOP SHOP DRAWINGS OR FABRICATE NEW MATERIALS.

CONCRETE

D1. 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 2003 IBC. In case of conflict, the more stringent requirements shall govern.

D2. For locations listed below, concrete shall have 3/4" aggregate, 4 ½-7% air entrainment, 2" 4" slump, Type I or II ASTM C-150 Portland Cement and designated compressive strength (fc) in 28 days as follows:

Beams, Elevated Slabs . . . . . 4000 psi
Slabs, Columns, Retaining Walls . . . . 4000 psi
Piers, Foundation Walls . . . . . 4000 psi
Footings, Misc. Concrete . . . . . 4000 psi

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.

D3. All concrete exposed to the weather shall contain 5 % -7% air entrainment admixture.

D4. All footings shall be placed monolithically. See typical details for construction joint requirements.

D5. Pipes or conduits placed in slabs on grade shall not be placed closer than 3 diameters on center and shall have an outside diameter less than 1/3 of the slab thickness.

D6. All keys shall be 2" x 4" (nominal) unless otherwise shown on the drawings.

D7. No concrete shall be cast until review and written approval of the reinforcing and embedded items have been obtained from the owner's representative.

D8. All exposed edges of concrete members shall be chamfered 3/4" unless shown otherwise on drawings.

D9. 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.

D10. See Architectural Drawings for top of slab elevations.

D11. Calcium chloride, aluminum or copper components shall not be placed in concrete. No conduits shall be placed in slabs on metal deck.

D12. 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.

D13. All concrete materials, reinforcement and forms shall be free from frost or debris.

D14. 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.

D15. Consolidate all concrete with a vibrator or other means recommended by ACI 301. Honeycombed surfaces will not be permitted.

D16. See architectural drawings for locations of floor drains. Slope slabs uniformly to drains (UON).

D17. Control joints in slabs on grade are mandatory. See typical details.

D18. Coordinate concrete finish on floor slabs with owner's requirements and specifications.

D19. See specifications for concrete testing requirements.

D20. Length of time to cure concrete slabs and materials applied to slab surfaces shall be compatible with floor finishes.

D21. Maximum freefall of wet concrete during placement shall not exceed 5' 0".

D22. Slabs on grade shall contain ASTM C1116, Type III, ½" -1½" long polypropolene fibers at a rate of 1.5 pounds (min.) per cubic yard unless steel reinforcement is specified.

D23. Surfaces of concrete construction joints shall be cleaned and laitence removed.

D24. 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

E1. 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.

E2. All welded wire fabric (w.w.f.) shall conform to ASTM A-185. W.W.F. shall be provided in flat sheets.

E3. Detailing of concrete reinforcement and accessories shall be in accordance with ACI 315 -"Manual of Standard Practice for Detailing Reinforced Concrete Structures," latest edition.

E4. 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.

E5. All laps in W.W.F. shall be 1 1/2 mesh spaces or 0' 6", whichever is larger, and shall be wired together.

E6. Reinforcing bars may not be welded except where designated by the structural engineer.

E7. 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

See ACI 318 for conditions not listed.

E8. All hooks shown on drawings shall be standard hooks unless noted otherwise.

E9. 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.

E10. Show foundation wall control joints on rebar shop drawings.

E11. Notify owner's representative in a timely manner so that installed reinforcement can be inspected. Installation of reinforcement shall be completed 24 hours before scheduled concrete placement.

E12. For slabs on grade with wire mesh, support wire mesh with dense concrete brick at 4' 0" o.c. each way.

COLD-FORMED METAL FRAMING

F1. Contractor shall submit erection drawings for exterior cold-formed framing with all field connection details showing quantity of fasteners and size/gauge/location of clip angles.

F2. All stud walls connected to bottom flanges of beams shall have slip tracks at top which permit vertical beam deflection of span/1240 at floor framing and span/180 at roof framing.

F3. Splices in exterior or axially loaded studs shall not be permitted. Exterior wall studs shall be 18 ga. minimum.

F4. Contractor shall submit stamped calculations for exterior cold-formed framing and for structural metal framing for projected roof areas (see architectural drawings). Structural engineer shall be currently registered in Maine. Maximum horizontal deflection of wall studs shall not exceed 1/360 of wall height at EIFS wall panels or 1/600 of wall height at walls with masonry veneer.

F5. All exterior wall studs shall be marked with the manufacturer's name and gage size of material, and it shall be incumbent upon this contractor to notify the manufacturer, in writing, of this requirement.

F6. All studs shall be formed from steel having a minimum G-60 galvanized coating, in conformance with the requirements of ASTM A-525.

F7. All galvanized studs 12, 14, and 16 gage shall be formed from steel that corresponds to the minimum requirements of ASTM A-446, Grade D with a minimum yield of 50,000 psi. All galvanized 18 gage studs, all galvanized track, bridging end closures, and accessories shall be formed from steel that corresponds to the requirements of ASTM A-446, Grade A with a minimum of 33,000 psi.

F8. All work shall meet the requirements of the latest edition of the following standards:

a. American Iron and Steel Institute (AISI) Specification for the Design of Cold Formed Steel Structural Members.

b. American Welding Society (AWS) D1.3 Structural Welding Code -Sheet Steel.

c. American Society for Testing and Materials (ASTM).

d. All pertinent federal, state, and local codes.

F9. All fasteners connecting light gage members and accessories shall be a minimum of No. 12 size screws spaced not closer than 0.75 inch on center. Number of fasteners shall be as shown on details. All fasteners shall be galvanized or cadmium plated.

F10. All studs shall be seated squarely in tracks and have full bearing against inside track web (top and bottom) prior to stud and track attachment. Tracks shall be attached to a common structural element.

F11. Minimum 10" unpunched steel is required at both ends of joists and studs. When field cutting reduces this minimum 10" unpunched steel, web stiffener shall be installed.

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MULTI-TENANT OFFICE BUILDING
MARGINAL WAY
PORTLAND, MAINE
04101

Owner:
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50 PORTLAND PIER
SUITE 400
PORTLAND, MAINE
04101

REVISIONS:

Description:	Date:
Issued for Permit Only	11 / 11 / 05

CAD Filename: CWS / Marginal Way / Notes

Drawing Title: **GENERAL STRUCTURAL NOTES**

Scale: As Noted
Date: 10 / 25 / 05
PSE Proj. No.: 127-05

Drawing Number:
S1.0