

**GENERAL NOTES:**

- The notes on the drawings are not intended to replace specifications. See specifications for requirements in addition to general notes.
- Structural drawings shall be used in conjunction with job specifications and architectural, mechanical, electrical, plumbing, and site drawings. Consult these drawings for locations and dimensions of openings, chases, inserts, registers, sleeves, depressions, and other details not shown on structural drawings.
- All dimensions and conditions must be verified in the field. Any discrepancies shall be brought to the attention of the engineer before proceeding with the affected part of the work. Do not scale plans.
- The structure is designed to be self supporting and stable after the erection is complete. It is the contractor's sole responsibility to determine erection procedures and sequencing to ensure the safety of the building and its components during construction. This includes the addition of necessary shoring, sheeting temporary bracing, guys or tie-downs. Such material shall remain the property of the contractor after completion of the project.
- Sections and details shown on any structural drawings shall be considered typical for similar conditions.
- All applicable federal, state, and municipal regulations shall be followed, including the federal department of labor occupational safety and health act.

**DESIGN LOADS & DESIGN CRITERIA:**

- Building code: INTERNATIONAL BUILDING CODE (IBC 2003)
- Design Live Loads:
  - Roof ..... 50 PSF plus drift
  - Dwelling Units ..... 40 PSF
  - Corridors ..... 100 PSF
  - Stairs & Exit Ways ..... 100 PSF
  - Mechanical/Electrical Rm ..... 80 PSF
- Design wind loads are based on exposure B using 85 mph basic wind speed.
- Seismic Design Utilize the following design criteria:
  - Building framing system: Reinforced load bearing masonry walls.
  - Analysis Procedure: Equivalent Lateral Force Procedure.
  - Seismic Hazard Exposure Group: "1"
  - Seismic performance category: "C"
  - Soil profile type: "S1"
  - Peak velocity-related acceleration ( $A_v$ ): "0.10"
  - Peak acceleration ( $A_p$ ): "0.10"
  - Response modification factor ( $R$ ): "3 1/2"
  - Deflection amplification factor ( $C_d$ ): "3"

**FOUNDATION NOTES:**

- Foundations have been designed to conform with recommendations provided in the geotechnical report provided by Sabago Technics, Inc. dated September 17, 2004 titled "Report on Subsurface and Foundation Investigation". Two reports have been submitted.
- Foundation preparation and excavation shall conform with the recommendations provided in the geotechnical report.
- Bottoms of exterior strip and spread footings shall be founded a minimum of 4'-8" below finished grade.
- Interior spread footings and exterior strip footings shall be founded on native soil, compacted structural fill or bedrock.
- Slabs-on-grade shall bear on a minimum of 12" of 3/4" crushed stone. If loose or undesirable fills are encountered at the slab subgrade level, they shall be over excavated to the surface of the natural soil and replaced with structural fill. Refer to drawings and specifications for vapor barrier requirements.
- Structural fill shall be used at all locations below footings and slabs and adjacent to the foundation walls. Prior to placement of structural fill, remove all topsoil and other unsuitable material. Compacted structural fill shall consist of clean granular material free of organics, loam, trash, snow, ice, frozen soil or any other objectionable material. It shall be well graded within the following limits:
 

SCREEN OR SIEVE SIZE	PERCENT FINER BY WEIGHT
8 INCH	100
#4	30-90
#40	10-50
#200	0-8
- Structural foundation backfill shall be placed in layers not exceeding 6 inches in loose measure and compacted by self-propelled compaction equipment at appropriate optimum moisture content to a dry density of at least 95% of the maximum in place dry density as determined by the modified proctor test (ASTM D-1557).
- Open excavations shall be adequately braced or properly benched.
- Backfill both sides of foundation walls simultaneously.
- Provide 4'-0" of compacted structural fill beneath all Entrances.

**CONCRETE NOTES:**

- All concrete work shall conform to ACI 318-89.
- Concrete strength at 28 days shall be:
  - 4,000 Psi for footings, walls & piers.
  - 3,500 Psi for slabs-on-grade.
  - 3,000 Psi for 2" concrete topping.
- All concrete shall be air entrained per the specifications.
- Concrete shall not be placed in water or on frozen ground.
- Provide PVC sleeves where pipes pass through concrete walls or slabs.
- Reinforcing bars shall conform to ASTM A615 Grade 60 deformed bars, and shall be detailed, fabricated and erected in accordance with ACI 315-Latest edition.
- Welded wire fabric shall be provided in flat slabs.
- Fiber reinforced concrete shall conform to ASTM C-1116.
- Complete shop drawings and schedules of all reinforcing steel shall be prepared by the contractor and submitted to the engineer for review prior to commencement of that portion of the work. All accessories must be shown on the shop drawings. Submit (2) blue line prints and (1) reproducible (septo) to the Architect.
- Splices of reinforcing bars shall be in accordance with ACI 318-89 or as shown on the drawings. Splices of WWF shall be 6" minimum.
- Concrete finishes: See specifications and Architectural drawings for additional information.
- Anchor bolts shall conform to ASTM A307 unless noted otherwise on plan.
- Provide control/construction joints in foundation walls at a maximum spacing of 15 ft. from any corner or 20 ft. along length of wall. At control joints, discontinue every other horizontal bar. At construction joints all reinforcing shall be continuous through the joint.
- The general contractor shall be responsible for coordination of Door handout locations, slab depressions & bandout locations with Architectural, Mechanical Electrical & Plumbing drawings as necessary to properly install each specific item.

**PRECAST CONCRETE**

- Structural precast concrete shall conform to the Pre-stressed Concrete Institute's manual for quality control, publication MNL 116.
- Extent of structural precast concrete work is shown on drawings and in schedules.
- Structural precast concrete includes all 8" hollow core panels.
- Reinforcing Bars: ASTM A 615, Grade 60.
- Tendons shall be 7 wire stress relieved strand complying with ASTM A 418. Use 270 ksi 7 wire strand.
- Install tendons to produce units having a UL fire rating of 1 hour.
- Steel Wire shall meet ASTM A 82, plain, cold-drawn, steel.
- Welded Wire Fabric: ASTM A 185.
- Deformed Welded Wire Fabric: ASTM A 497.
- Portland Cement: ASTM C 150, Type I or Type II.
- Aggregates: ASTM C 33. Provide aggregates from a single source for exposed concrete.
- Water shall be potable and free from foreign materials in amounts harmful to concrete and embedded steel.
- Air-Entraining Admixture: ASTM C 260.
- Water-Reducing Admixture: ASTM C 494, Type A. Types B, C, D or E may be used, subject to the Architect's approval.
- Accessories: Provide clips, hangers, and other accessories required for installation of precast units and for supports of subsequent construction or finishes.
- Compressive strength: 3000 psi minimum at 28 days.
- Release strength for pre-stressed units ( $f_{cr}$ ): 3000 psi.
- Use air-entraining admixture in concrete, unless otherwise indicated.
- Bearing Pads (1/8"x3"): Provide bearing pads for precast hollow slab units: KORO-LATH or approved alternate.
- Install flexible bearing pads where indicated, as precast units are being erected. Set pads on level, uniform bearing surfaces and maintain in correct position until precast units are placed.
- Powder-Actuated Fasteners are not permitted for surface attachment of accessory items in precast, pre-stressed units, unless otherwise accepted by precast manufacturer, architect and engineer of record.
- Grouting Connections and Joints: After precast concrete units have been placed and secured, grout open spaces at connection and joints where shown on the plans.
- Provide precast lintel wire shown on the architectural drawings in brick veneer system. Lintels shall have 2#4 bars T&B top.

**MASONRY NOTES:**

- All hollow load bearing concrete masonry units shall be ASTM C90 grade N, type I standard weight standard blocks including stretchers & corner blocks unless noted otherwise.
- All load bearing concrete masonry units shall conform to ASTM C90 grade N, type I standard weight standard blocks including stretchers & corner blocks.
- Masonry prism strength ( $f_m$ ) shall be 1,500 psi.
- Mortar shall conform to ASTM Specification C270, type M or S.
- Concrete masonry units shall be laid in running bond.
- Wall penetrations shall be coordinated with the Architect and Owners vendors/designers and shall be field located.
- Provide joint reinforcing per drawings & specifications in all concrete masonry unit construction.
- All masonry reinforcement shall be spliced 48 bar diameters.
- Reinforcing bars shall conform to ASTM A615 grade 60 deformed bars and shall be detailed, fabricated and erected in accordance with ACI 318-Latest Edition.
- Masonry walls which support structural members shall have cells grouted solid full height under bearing with 2-#5 minimum vertical reinforcing bar in each cell UMG on plan.
- Band beams shall be filled with grout capable of achieving 3000 psi compressive strength at 28 days. Reinforcing shall be supported prior to placing concrete to provide a minimum 1/2" clearance around all bars.
- Cells of masonry units containing vertical reinforcing shall be filled with grout. Unless otherwise noted, maximum grout fill without cleanouts and inspection shall be 4'-0". Support all vertical bars in units as shown on the drawings.
- Provide precast lintels for all masonry openings unless a steel lintel is indicated. Refer to lintel schedule for lintel sizes and architectural drawings for precast lintel sizes.

**STRUCTURAL STEEL NOTES:**

- Structural steel fabrication, erection, and connection design shall conform to AISC Specification for the design, fabrication, and erection of structural steel-Ninth edition.
- Structural steel:
  - Structural steel shall conform to ASTM A-36.
  - Structural tubing shall conform to ASTM A-500 GR.B.
- Design connections for the reactions shown on the drawings or the maximum end reaction that can be produced by a laterally supported uniformly loaded beam for each given beam size and span.
- Field connections shall be bolted using 3/4" diameter ASTM A325 high strength bolts except where field welding is indicated on the drawings.
- All welding shall conform to AWS D1.1-Latest edition. Welding electrodes shall be E70XX.
- Provide galvanized steel lintels where shown on the drawings. Refer to the lintel schedule on drawing B3.2 for lintel sizes.
- Support metal pan slabs shown on architectural drawings using the 8" masonry walls. Provide bearing plates at all connections. Connections shall be detailed on the shop drawings.

**LIGHT GAGE METAL FRAMING**

**General:**

- Acceptable light gage Manufacturer: See Specifications
- The extent of the work for the exterior metal stud roof system is detailed on the Architectural drawings. These notes shall be worked in conjunction with those drawings and the specifications.
- The following specifications and publications shall be followed:
  - American Iron and Steel Institute cold form design manual, specification for the design of cold form steel structural members - latest edition.
  - American Society for Testing and Materials (ASTM).
  - American Institute of Steel Construction Manual of Steel Construction - 8TH Edition.
- Fabrication of light gage steel shall conform with requirements of ASTM A446 with the following minimum yield points (Fy):
  - 18 gage, end member - Fy = 50,000 psi (Grade D)
  - 18 gage, - Fy = 33,000 Psi (Grade A)
  - 20 gage, - Fy = 33,000 PSI (Grade A)
- Manufacturer of studs, runners, tracks and other framing members shall comply with ASTM C686.
- Framing components and accessories shall be galvanized per ASTM A525 minimum G90 coating.
- Screws and other attachment devices shall have a protective coating equivalent to cadmium or zinc plating and shall comply with ASTM A185 Type NS, self tapping screws shall be of the minimum diameter as indicated on the design drawings for each specific attachment detail. Penetration through joined materials shall not be less than three exposed threads.
- Standard steel shapes, plates, etc. shall conform to the material and finish specifications under Division 5.

**Exterior Wall System:**

- Provide channel shaped studs, joists, runners, tracks, blocking, clip angles, shoes, reinforcement, fasteners and other accessories recommended by the manufacturer for a complete framing system.
- The exterior wall framing subcontractor shall submit shop drawings and design calculations as specified in the previous mentioned specifications and publications. These drawings shall illustrate the design of the steel stud exterior wall framing and sheathing including steel lintels, heads, jambs etc. and all structural steel stiffening and bracing.
- The design wind pressure shall be as indicated in BOCA 1999.
- Welding of framing components will be permitted only where indicated on structural drawings or as approved by the Engineer of Record.
- Field cutting of holes in steel framing members shall not be permitted.
- Touch up all steel bared by welding with zinc rich paint.
- Splice of axially loaded members shall not be permitted.
- Wire tying of members is not permitted.
- Complete bearing on supports shall be maintained for studs in axially loaded assemblies.

**REQUIRED SUBMITTALS & TESTING**

For each submittal, submit (3) copies and (1) reproducible septo to the Architect.

- Concrete reinforcing, concrete mix design & testing. (D3300): Submit complete shop drawings and schedules of all reinforcing steel. Drawings shall be prepared by the contractor and submitted to the engineer for review prior to commencement of that portion of the work. All accessories, schedules, band types etc. shall be shown on the shop drawings. Compressive Strength Tests: ASTM C39; prepare one set for each 100 cubic yards or fraction thereof, of each concrete class placed in any one day or for each 5,000 square feet of surface area placed; test 1 specimen at 7 days, 2 specimens at 28 days, and reserve 1 specimen for later testing if required.
- Structural Steel
  - Submit detailed drawings including complete details and schedules for fabrication and assembly of structural steel members, procedures and diagrams. Including details of cuts, copes, connections, corner, holes and other pertinent data.
  - Indicate welds by standard AWS symbols, and show size, length, and type of each weld.
  - Provide setting drawings, templates and directions for installation of anchor bolts and other anchorages to be installed by others.
- Metal Deck
  - Submit shop drawings, prepared under the supervision of a professional engineer licensed to practice in the State of Maine, showing timber species, sizes and stress grade of lumber to be used; pitch, span, member, configuration, and spacing for each type of truss required; type size, material, finish, design value and location of metal connector plates; including bearing and anchorage details.
- Light Gage Steel Framing
  - Submit shop drawings and calculations, prepared under the supervision of a professional engineer licensed to practice in the State of Maine. Shop drawings shall include but not be limited to member sizes, spacing and steel yield stress.

Engineer Stamp: Provide a final set of shop drawings which have been signed and stamped by a structural engineer licensed to practice in the State of Maine if the submittal is for Arch/Eng review only.

**CWS Architects**  
 Architects  
 Space Planning  
 Value Design  
 424 Cumberland Avenue  
 Portland, ME 04111  
 Phone: (207)774-1441  
 Fax: (207)774-4816  
 www.CWSArch.com

**CCYSRO, L.P.**  
 c/o Cumberland County YMCA  
 70 Forest Ave. Portland, ME 04101  
 201 874-1111

**YMCA APARTMENTS**  
 at 231  
**HIGH STREET**  
 High Street - Portland, Maine

Project No: 23031

Drawing Title  
**GENERAL NOTES**

Scale: NO SCALE  
 Date: DECEMBER 10, 2004

Revisions:  
 VALUE ENGINEERING REVISIONS.

Drawing Number:  
**S0.1**

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