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**GENERAL NOTES:**

1. REFERENCE ARCHITECTURAL PLANS FOR DIMENSIONS NOT SHOWN. REFERENCE MECHANICAL, ELECTRICAL, AND ARCHITECTURAL PLANS FOR SIZES AND LOCATIONS OF WALL AND SLAB OPENINGS, DUCTS, PIPING, CURBS, AND EQUIPMENT PADS. IN THE EVENT OF A CONFLICT BETWEEN THE DRAWINGS, SPECIFICATIONS, OR NOTES ON THE DRAWINGS, THE ENGINEER SHALL BE NOTIFIED PRIOR TO CONSTRUCTION.
2. EXISTING DIMENSIONS AND CONDITIONS ARE FOR REFERENCE ONLY. CONTRACTOR SHALL VERIFY ALL EXISTING CONSTRUCTION AND DIMENSIONS IN THE FIELD PRIOR TO CONSTRUCTION OR FABRICATION. ALL DISCREPANCIES SHALL BE REPORTED TO THE ENGINEER PRIOR TO COMMENCING WORK.
3. THE CONTRACTOR SHALL NOTIFY THE ENGINEER IF DEVIATIONS OR CHANGES ARE REQUIRED TO THE CONTRACT DOCUMENTS OR APPROVED SHOP DRAWINGS DUE TO INTERFERENCES, FABRICATION ERRORS, OR OTHER CAUSES.
4. THE STRUCTURE IS SELF-SUPPORTING AND STABLE AFTER THE ENTIRE BUILDING IS COMPLETELY CONSTRUCTED. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR ERECTION PROCEDURES AND SEQUENCING DURING CONSTRUCTION AND ERECTION TO PROVIDE AND ENSURE LOCAL AND OVERALL STABILITY OF THE BUILDING AND ITS COMPONENTS DURING CONSTRUCTION AND ERECTION. THE CONTRACTOR SHALL RETAIN A LICENSED STRUCTURAL ENGINEER TO DESIGN TEMPORARY BRACING/SHORING AND DETERMINE WHERE THE TEMPORARY BRACING/SHORING IS NEEDED.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ERECTION PROCEDURES, SEQUENCING AND FOR COMPLYING WITH ALL APPLICABLE SAFETY REGULATIONS DURING THE WORK.
6. ONE ELECTRONIC COPY OR TWO SETS OF HARD COPIES OF SHOP DRAWINGS SHALL BE SUBMITTED TO THE ENGINEER. ONE HARD COPY WILL BE RETURNED TO THE CONTRACTOR AND ONE HARD COPY WILL BE RETAINED BY THE ENGINEER.
7. REFERENCE THE PROJECT SPECIFICATIONS FOR MATERIAL, WORKMANSHIP AND ADDTIONAL INFORMATION NOT COVERED IN THESE NOTES (WHERE APPLICABLE)

**DESIGN CRITERIA:**

1. BUILDING CODES:
   INTERNATIONAL BUILDING CODE (IRC), 2009 EDITION
   ASCE 7-05 MINIMUM DESIGN LOADS FOR BUILDING AND OTHER STRUCTURES
2. LIVE LOADS:
   FIRST FLOOR LIVING AREAS = 40 PSF
   EXTERIOR DECKS = 50 PSF
3. SNOW LOADS:
   GROUND SNOW LOAD (Pg) = 50 PSF
   SNOW EXPOSURE FACTOR (Ce) = 1.0
   SNOW LOAD IMPORTANCE FACTOR (Is) = 1.0
   THERMAL FACTOR (Ct) = 1.1
   FLAT ROOF SNOW LOAD (Pf) = 39 PSF + DRIFT
4. WIND LOADS:
   BASIC WIND SPEED = 100 MPH
   IMPORTANCE FACTOR (Iw) = 1.0
   WIND EXPOSURE B
   MAIN WINDFORCE-RESISTING SYSTEM (INCLUDES WINDWARD + LEEWARD) = xx PSF
   COMPONENTS & CLADDING – PER ASCE 7-05
5. SEISMIC CRITERIA:
   BASED ON EQUIVALENT LATERAL FORCE PROCEDURE
   OCCUPANCY CATEGORY II
   SOIL SITE CLASSIFICATION = D
   SEISMIC IMPORTANCE FACTOR (Ie) = 1.0
   DESIGN SPECTRAL RESPONSE ACCELERATION PARAMETER:
   Sds = .371
   Sd1 = .160
   SEISMIC DESIGN CATEGORY C
   RESPONSE MODIFICATION COEFFICIENT (R) = 6.5 (WOOD FRAMED SHEAR WALLS)
   SEISMIC RESPONSE COEFFIENT (Cs) = 0.057

**FOUNDATION NOTES:**

1. FOUNDATIONS HAVE BEEN DESIGNED USING A PRESUMED ALLOWABLE BEARING PRESSURE PER TABLE 1806.2 OF THE INTERNATIONAL BUILDING CODE BASED ON TYPICAL SOILS FOUND IN THIS AREA. IF CLAY, MUD, ORGANIC SILT, PEAT OR UNPREPARED FILL IS FOUND DURING CONSTRUCTION, NOTIFY ENGINEER IMMEDIATELY, AS THE ALLOWABLE LOADS USED IN DESIGN WILL NEED TO BE VERIFIED BY A GEOTECHNICAL ENGINEER. CASCO BAY ENGINEERING RECOMMENDS PROCURING A GEOTECHNICAL ENGINEER TO VERIFY EXISTING SOIL CONDITIONS.
2. ALLOWABLE SOIL BEARING CAPACITY USED IN DESIGN = 2,000 PSF
3. MINIMUM FROST DEPTH COVER = 4'-0" FOR EXTERIOR FOOTINGS BELOW FINAL EXTERIOR GRADE.
4. EXCAVATION, BACKFILL, COMPACTION, GRADATION REQUIREMENTS, FOUNDATION DRAINAGE AND PERMANENT DEWATERING REQUIREMENTS SHALL BE PROVIDED BY A GEOTECHNICAL ENGINEER.
5. CONCRETE SLABS ON GRADE SHALL BE CONSTRUCTED ON A MINIMUM 12" THICK LAYER OF PROPERLY COMPACTED STRUCTURAL FILL, UNLESS OTHERWISE DIRECTED BY A GEOTECHNICAL ENGINEER.
6. FOUNDATIONS SHALL BEAR ON UNDISTURBED NATIVE SOIL, UNLESS NOTED OTHERWISE. THE CONTRACTOR SHALL NOTIFY THE GEOTECHNICAL AND STRUCTURAL ENGINEER IF ANY UNSUITABLE SOILS ARE ENCOUNTERED PRIOR TO PLACING FOUNDATIONS.
7. FOUNDATION WALLS AND SLAB-ON-GRADES SHALL REACH THEIR FULL 28 DAY COMPRESSIVE STRENGTH PRIOR TO BACKFILLING. THE CONTRACTOR SHALL PROVIDE TEMPORARY SHORING/BRACING FOR WALLS WHEN BACKFILL IS PLACED PRIOR TO CONCRETE ACHIEVING ITS FULL 28 DAY STRENGTH. CONTRACTOR SHALL PROVIDE TEMPORARY SHORING/BRACING FOR WALLS AND OTHER STRUCTURAL ELEMENTS PRIOR TO INSTALLATION OF PERMANENT BRACING/FLOOR/STRUCTURE.
8. PROTECT FOUNDATIONS FROM FROST AND KEEP BOTTOM OF TRENCH DRY DURING CONSTRUCTION. IF GROUNDWATER IS ENCOUNTERED NEAR OR ABOVE THE BASE OF THE FOOTINGS, EXCAVATIONS SHALL BE DEWATERED DURING CONSTRUCTION. SURFACE WATER SHALL BE DIVERTED AWAY FROM EXCAVATIONS.
9. DO NOT UNDERMINE EXISTING FOUNDATIONS OF ADJACENT STRUCTURES. CONTRACTOR SHALL BE RESPONSIBLE FOR THE SHORING, BRACING AND UNDERPINNING OF EXISTING STRUCTURES DURING EXCAVATION, BACKFILLING, AND CONSTRUCTION. CONTRACTOR SHALL SLOPE EXCAVATIONS TO ACHIEVE SOIL STABILITY.

**CONCRETE NOTES:**

1. ALL WORK SHALL CONFORM TO IBC 2009 REFERENCED EDITIONS OF "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE" (ACI 318) AND "SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS" (ACI 301).
2. REQUIRED CONCRETE PARAMETERS ARE AS FOLLOWS:

| LOCATION | MAX W/C RATIO | f'c | AIR-ENTRAINMENT |
|---|---|---|---|
| INT. WALLS/ELEV. SLABS | .52 | 3,000 PSI | 2% ± 1½% |
| FOUNDATIONS, FOOTINGS, & FOUNDATION WALLS | .45 | 4,500 PSI | 6% ± 1½% |
| INT. SLAB-ON-GRADE | .45 | 4,500 PSI | 2% ± 1½% |
| EXT. SLAB-ON-GRADE | .45 | 4,500 PSI | 6% ± 1½% |

   WHERE: W/C = WATER TO CEMENT RATIO AND
   f'c = COMPRESSIVE STRENGTH OF CONCRETE AT 28 DAYS

   USE PORTLAND CEMENT TYPE II, IN CONFORMANCE WITH ASTM 150
   AIR ENTRAINING ADMIXTURES SHALL CONFORM TO ASTM C 260
   ADMIXTURES SHALL CONFORM TO ASTM C 494
   FLY ASH USED AS ADMIXTURES SHALL CONFORM TO ASTM C 618
3. MAXIMUM AGGREGATE SIZE SHALL BE ¾", IN CONFORMANCE WITH ASTM C33.
4. CALCIUM CHLORIDE OR ADMIXTURES CONTAINING CALCIUM CHLORIDE IS NOT PERMITTED.
5. MAXIMUM SLUMP AFTER THE ADDITION OF A WATER-REDUCING ADMIXTURE IS 6 INCHES.
6. CONTRACTOR SHALL NOT PLACE CONCRETE ON FROZEN GROUND OR IN WATER. ADEQUATE EQUIPMENT SHALL BE PROVIDED FOR HEATING CONCRETE MATERIALS AND PROTECTING CONCRETE DURING NEAR-FREEZING OR FREEZING WEATHER. REFERENCE ACI 306, AS NOTED ABOVE, FOR RECOMMENDATIONS FOR COLD WEATHER CONCRETING.
7. VERTICAL CONSTRUCTION JOINTS IN WALLS SHALL NOT EXCEED A SPACING OF 40 FEET, U.N.O.
8. ANCHOR BOLTS SHALL BE HEADED RODS AND CONFORM TO ASTM F1554, GRADE 36 KSI WELDABLE STEEL, U.N.O. ON DRAWINGS. PROVIDE GALVANIZED ANCHOR BOLTS WHERE IN CONTACT WITH PRESSURE TREATED LUMBER.
9. REINFORCING BARS SHALL CONFORM TO ASTM A615, GRADE 60, DEFORMED BARS.
10. WELDED WIRE FABRIC (WWF) SHALL CONFORM TO ASTM A185 AND BE PROVIDED IN FLAT SHEETS. PROVIDE ADEQUATE SUPPORT FOR WWF TO ENSURE PROPER LOCATION WITHIN SLAB DURING CONCRETE PLACEMENT.
11. MINIMUM CONCRETE COVER FOR REINFORCEMENT SHALL BE AS FOLLOWS:
    A. CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH — 3 INCHES
    B. FORMED CONCRETE IN CONTACT WITH EARTH OR EXPOSED TO WEATHER — 2 INCHES
    C. CONCRETE NOT EXPOSED TO EARTH OR WEATHER IN SLABS & WALLS — 1½ INCHES
12. WELDING OF REINFORCEMENT IS NOT PERMITTED.
13. PROVIDE NON-SHRINK GROUT BENEATH LEVELING PLATES & BEARING PLATES w/ MINIMUM COMPRESSIVE STRENGTH OF 7,000 PSI AT 28 DAYS.
14. PROVIDE CONTINUOUS REINFORCEMENT AT ALL CORNERS AND INTERSECTIONS, SEE TYPICAL FOUNDATION WALL DETAILS ON FOUNDATION DETAILS SHEET.
15. REINFORCING BARS AND ALL EMBEDDED ITEMS, INCLUDING ANCHOR BOLTS, MUST BE ACCURATELY PLACED AND ADEQUATELY SECURED BEFORE CONCRETE IS PLACED. "WET SETTING" OF EMBEDDED ITEMS INTO CONCRETE IS STRICTLY PROHIBITED.
16. UNLESS NOTED ON DRAWINGS, FOLLOW ACI STANDARDS FOR LAP SPLICE LENGTHS OF REINFORCING BARS.

REBAR LAP SPLICE TABLE

| BAR SIZE | #3 | #4 | #5 | #6 | #7 | #8 | #9 |
|---|---|---|---|---|---|---|---|
| 3000 PSI CONCRETE | 18" | 24" | 30" | 36" | 48" | 56" | 64" |
| 4500 PSI CONCRETE | 16" | 20" | 24" | 30" | 40" | 48" | 54" |

**WOOD NOTES:**

1. ALL TIMBER FRAMING SHALL BE IN ACCORDANCE WITH IBC 2009 REFERENCED EDITIONS OF THE AITC TIMBER CONSTRUCTION MANUAL AND AF&PA NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION (NDS).
2. ALL FRAMING SHALL BE SPRUCE-PINE-FIR, No.2 OR BETTER U.N.O. AND HAVE A MAXIMUM MOISTURE CONTENT OF 19%.
3. ALL WOOD IN CONTACT WITH MASONRY OR CONCRETE OR EXPOSED TO WEATHER SHALL BE PRESSURE TREATED (PT) SOUTHERN YELLOW PINE.
4. WHERE "LVL" IS NOTED ON DRAWINGS, PROVIDE LAMINATED VENEER LUMBER, WHICH HAS THE FOLLOWING MINIMUM ALLOWABLE STRESSES:
   Fb = 2600 PSI  Fc = 2510 PSI (PARALLEL TO GRAIN)
   Fv = 285 PSI  Fc = 750 PSI (PERPENDICULAR TO GRAIN)
   Ft = 1555 PSI  E = 2,000,000 PSI
5. WHERE "PSL" IS NOTED ON DRAWINGS, PROVIDE PARALLAM STRAND LUMBER, WHICH HAS THE FOLLOWING MINIMUM ALLOWABLE STRESSES:
   Fb = 2900 PSI  Fc = 2900 PSI (PARALLEL TO GRAIN)
   Fv = 290 PSI  Fc = 750 PSI (PERPENDICULAR TO GRAIN)
   Ft = 2025 PSI  E = 2,000,000 PSI
6. ALL ENGINEERED LUMBER THAT IS EXPOSED TO WEATHER SHALL BE WOLMANIZED.
7. ALL FLOOR SHEATHING SHALL BE ¾" TONGUE AND GROOVE, GLUED AND NAILED TO FLOOR FRAMING WITH 10d RINK SHANK NAILS AT 6" o.c. AT SUPPORTED PANEL EDGES, 12" o.c. AT INTERMEDIATE SUPPORTS UNLESS NOTED OTHERWISE ON DRAWINGS. INSTALL WITH ADHESIVE.
8. ALL ROOF SHEATHING (⅝") AND WALL SHEATHING (½") SHALL BE APA PERFORMANCE-RATED. ATTACH TO SUPPORTED PANEL EDGES WITH 10d NAILS AT 6" o.c. AND AT INTERMEDIATE SUPPORTS WITH 10d NAILS AT 12" o.c. U.N.O. SEE DRAWINGS FOR MORE STRINGENT NAILING REQUIREMENTS AT WOOD SHEAR WALLS.
9. SHEATHING SHALL BE ORIENTED WITH LONG DIMENSION PERPENDICULAR TO THE SUPPORTS AND BE CONTINUOUS OVER TWO OR MORE SUPPORTS. STAGGER ALL JOINTS & PROVIDE ADEQUATE JOINT SPACING (⅛" TYP) AS RECOMMENDED BY MANUFACTURER.
10. PROVIDE FULL DEPTH BLOCKING AT ENDS AND INTERIOR SUPPORTS OF ALL JOISTS AND RAFTERS WHERE JOISTS AND RAFTERS FRAME OVER SUPPORTS. PROVIDE 1x3 DIAGONAL BRIDGING OR FULL DEPTH SOLID BLOCKING FOR EACH 8'-0" OF SPAN FOR ALL JOISTS AND RAFTERS.
11. WHERE BEAMS ARE LABELED ON PLAN, DO NOT SPLICE BEAM NOR ANY PLY OF BEAM BETWEEN SUPPORTS.
12. ALL CONNECTION HARDWARE SHALL BE BY SIMPSON STRONG-TIE (OR APPROVED EQUIVALENT) AND SHALL BE HOT-DIPPED GALVANIZED. HARDWARE IN CONTACT WITH PRESSURE TREATED (PT) LUMBER SHALL BE GALVANIZED G185 (ZMAX). REFER TO MANUFACTURERS LITERATURE FOR PROPER INSTALLATION GUIDELINES.
13. FASTENERS USED EXPOSED TO SALT AIR SHALL BE STAINLESS STEEL, OR OTHER FINISH APPROVED BY ENGINEER.
14. ALIGN COLUMNS SUCH THAT COLUMNS BEAR CONTINUOUSLY TO FOUNDATION SUPPORT. INSTALL ADDITIONAL SOLID BLOCKING WITHIN FLOOR PACKAGE TO PROVIDE CONTINUITY OF LOAD PATH.
15. PROVIDE HORIZONTAL BLOCKING FOR ALL LOAD BEARING WALLS AT 4'-0" O.C. VERTICAL, MAXIMUM.
16. SUBMIT SHOP DRAWINGS FOR ALL PREFABRICATED WOOD JOISTS AND WALL PANELS TO ENGINEER FOR REVIEW PRIOR TO CONSTRUCTION.

**ABBREVIATION:**

| | | | |
|---|---|---|---|
| AB | ANCHOR BOLT | L | ANGLE |
| ABV | ABOVE | LL | DOUBLE ANGLE |
| ADDL | ADDITIONAL | LB | POUND |
| ARCH | ARCHITECT | LF | LINEAR FOOT |
| & | AND | LLH | LONG LEG HORIZONTAL |
| | | LLV | LONG LEG VERTICAL |
| B/FTG, BOF | BOTTOM OF FOOTING | | |
| BLDG | BUILDING | MAX | MAXIMUM |
| BM | BEAM | MECH | MECHANICAL |
| BOT | BOTTOM | MFR | MANUFACTURER |
| BRG | BEARING | MIN | MINIMUM |
| BTWN | BETWEEN | MISC | MISCELLANEOUS |
| C | STRUCTURAL STEEL CHANNEL | NF | NEAR FACE |
| CANT | CANTILEVER | NO | NUMBER |
| CIP | CAST-IN-PLACE CONCRETE | NS | NEAR SIDE |
| CJ | CONTROL JOINT | NTS | NOT TO SCALE |
| CL | CENTERLINE | | |
| CLR | CLEAR | OC | ON CENTER |
| CMU | CONCRETE MASONRY UNIT | OF | OUTSIDE FACE |
| CNJ | CONSTRUCTION JOINT | OPNG | OPENING |
| COL | COLUMN | OPP | OPPOSITE |
| CONC | CONCRETE | | |
| CONN | CONNECTION | P | PIER DESIGNATION |
| CONT | CONTINUOUS | PL | PLATE |
| CONTR | CONTRACTOR | PP | PARTIAL PENETRATION WELD |
| CP | COMPLETE PENETRATION WELD | PREFAB | PREFABRICATED |
| CY | CUBIC YARD | PSF | POUNDS PER SQUARE FOOT |
| | | PSI | POUNDS PER SQUARE INCH |
| DIA | DIAMETER | | |
| DIM | DIMENSION | REINF | REINFORCING STEEL |
| DISCONT | DISCONTINUOUS | REQ, REQD | REQUIRED |
| DWG | DRAWING | RD | ROOF DRAIN |
| (E), EX, EXIST | EXISTING | SC | SLIP CRITICAL |
| EA | EACH | SECT | SECTION |
| EF | EACH FACE | SHEATH | SHEATHING |
| EL, ELEV | ELEVATION | SIM | SIMILAR |
| EQ | EQUAL | SOG | SLAB-ON-GRADE |
| EQUIP | EQUIPMENT | SPAC | SPACING |
| ES | EACH SIDE | SPECS | SPECIFICATIONS |
| EW | EACH WAY | SS | STAINLESS STEEL |
| EXP | EXPANSION | STD | STANDARD |
| EXT | EXTERIOR | STIFF | STIFFENER |
| | | STL | STEEL |
| F | FOOTING DESIGNATION | STR | STRAIGHT |
| FDN | FOUNDATION | STRUCT | STRUCTURAL |
| FT | FINISH FLOOR | | |
| FLG | FLANGE | T | TOP |
| FLR | FLOOR | T&B | TOP AND BOTTOM |
| FT | FOOT | TOC, T/CONC | TOP OF CONCRETE |
| FTG | FOOTING | T/FTG, TOF | TOP OF FOOTING |
| FV | FIELD VERIFY | TEMP | TEMPERATURE |
| | | T/SHELF | TOP OF SHELF |
| G | GAGE | T/SLAB | TOP OF SLAB |
| GALV | GALVANIZED | T/STL | TOP OF STEEL |
| | | T/WALL | TOP OF WALL |
| HOR, HORIZ | HORIZONTAL | TS | STRUCTURAL TUBING |
| HSS | HOLLOW STRUCTURAL SHAPE | TYP | TYPICAL |
| HT | HEIGHT | | |
| | | UNO | UNLESS NOTED OTHERWISE |
| IF | INSIDE FACE | | |
| IN | INCH | VER, VERT | VERTICAL |
| INFO | INFORMATION | VIF | VERIFY IN FIELD |
| | | | |
| JT | JOINT | W | STRUCTURAL STEEL WIDE FLANGE |
| | | w/ | WITH |
| K | KIP (1 KIP = 1,000 LBS) | w/O | WITHOUT |
| KSI | KIPS PER SQUARE INCH | WP | WORK POINT |
| | | WT | WEIGHT |
| | | WWF | WELDED WIRE FABRIC |

Reviewed for Code Compliance
Inspections Division
Approved with Conditions
Date: 07/13/16


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STATE OF MAINE
PETER D. RAND
No. 9714
LICENSED PROFESSIONAL ENGINEER
6-22-16

STENZEL - WALSH
PEAKS ISLAND, PORTLAND, MAINE
NEW RESIDENCE

ISSUED

| No. | DESCRIPTION | DR. BY | CKD. BY | DATE |
|---|---|---|---|---|
| A | ISSUED FOR PERMIT | PR | | 4-1-16 |
| B | ISSUED FOR PRICING | PR | | 5-26-16 |
| C | GENERAL REVISIONS | PR | | 6-8-16 |
| 0 | ISSUED FOR CONSTRUCTION | PR | | 6-22-16 |

SHEET TITLE:
STRUCTURAL NOTES

| | |
|---|---|
| DESIGNED: | PR |
| DRAWN: | PR |
| DATE: | 03-29-16 |
| PROJECT NUMBER: | 16-010 |

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