A – GENERAL

A1 THE STRUCTURAL DRAWINGS SHALL BE USED IN CONJUNCTION WITH ALL OTHER CONTRACT DRAWINGS AND SPECIFICATIONS. REFER TO ARCHITECTURAL, MECHANICAL, PLUMBING, ELECTRICAL, AND FIRE PROTECTION DRAWINGS FOR LOCATIONS, DIMENSIONS, AND DETAILS OF OPENINGS, SLEEVES, EMBEDMENTS, INSERTS, PADS, CURBS, DEPRESSIONS, ANCHOR BOLTS, AND OTHER PROJECT REQUIREMENTS NOT SHOWN ON STRUCTURAL DRAWINGS.

A2 VERIFY AND COORDINATE ALL DIMENSIONS AND ELEVATIONS RELATING TO EXISTING CONDITIONS.

A3 CODES AND STANDARDS

- 2009 INTERNATIONAL BUILDING CODE
- ASCE 7–05 – MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES
- "MANUAL OF STEEL CONSTRUCTION – ALLOWABLE STRESS DESIGN" AMERICAN INSTITUTE OF STEEL CONSTRUCTION – 13TH EDITION
- "STRUCTURAL WELDING CODE – STEEL" – AMERICAN WELDING SOCIETY AWS DI.I–2008
- "BUILDING CODE REQUIREMENTS FOR MASONRY STRUCTURES" ACI 530–08/ASCE 5–08/TMS 402–08
- "SPECIFICATIONS FOR MASONRY STRUCTURES", ACI 530.1–08/ASCE 6–08/TMS 602–08
- "DESIGN MANUAL FOR COMPOSITE DECKS, FORM DECKS, AND ROOF DECKS" – STEEL DECK INSTITUTE – SDI

A4 THE CONTRACTOR, OR HIS REPRESENTATIVE, SHALL DESIGN AND PROVIDE THE FOLLOWING PERMANENT ELEMENTS:
- RAILINGS
- STAIRS

FOR PERFORMANCE DESIGN REQUIREMENTS OF ELEMENTS LISTED ABOVE, REFER TO ADDITIONAL NOTES THIS SHEET AND TECHNICAL SPECIFICATIONS.

A5 STRUCTURAL REQUIREMENTS TO ACCOMMODATE FIXED EQUIPMENT, INCLUDING BUT NOT LIMITED TO ROOF TOP UNITS, AND EMBEDMENTS, ARE INCIDENTAL TO THE REQUIREMENTS OF A SPECIFIC EQUIPMENT MANUFACTURER. ALL WORK SHALL CONFORM TO APPROVED EQUIPMENT MANUFACTURER'S SHOP DRAWINGS AND INSTALLATION INSTRUCTIONS. THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER FOR APPROVAL ANY REQUIRED MODIFICATIONS TO ACCOMMODATE APPROVED EQUIPMENT DRAWINGS. SUCH MODIFICATIONS SHALL BE MADE AT NO COST TO THE OWNER.

A6 TYPICAL DETAILS AND NOTES SHOWN ON STRUCTURAL DRAWINGS SHALL BE APPLICABLE TO ALL PARTS OF THE STRUCTURAL WORK EXCEPT WHERE SPECIFICALLY REQUIRED OTHERWISE BY CONTRACT DOCUMENTS.

A7 DETAILS NOT SPECIFICALLY SHOWN SHALL BE SIMILAR TO THOSE SHOWN FOR THE MOST NEARLY SIMILAR CONDITION AS DETERMINED BY THE ENGINEER.

A8 STRUCTURAL WORK SHALL BE INSPECTED AND TESTED BY AN APPROVED TESTING AGENCY. THE INSPECTOR SHALL BE ENGAGED BY AND COSTS FOR ALL TESTING AND INSPECTION SHALL BE PAID BY THE CONTRACTOR.

A9 ELEVATIONS SHOWN REFER TO THE DATUM ESTABLISHED ON THE DRAWINGS.

A10 THE CONTRACTOR SHALL DESIGN AND PROVIDE ALL REQUIRED SHORING AND TEMPORARY BRACING TO RESIST FORCES ON THE STRUCTURES THROUGHOUT THE CONSTRUCTION PERIOD.

B – GENERAL DESIGN LOADS

B1 DEAD LOADS
(A) WEIGHT OF BUILDING COMPONENTS
(B) TYPICAL PARTITION ALLOWANCE (LL ≤ 80 PSF) 20 PSF
(C) WEIGHT OF FIXED SERVICE EQUIPMENT

B2 LIVE LOADS
(A) UNIFORM LOADS
CORRIDORS _____ 100 PSF
SIDEWALKS, RAMPS, VEHICULAR DRIVEWAYS _____ 250 PSF
OFFICES _____ 50 PSF

B3 SNOW LOADS
PER ASCE 7/IBC
(A) GROUND SNOW LOAD (60 PSF)
(B) FLAT ROOF SNOW LOAD (42 PSF)
(C) EXPOSURE FACTOR (B)
(D) IMPORTANCE FACTOR (1.0)

B4 WIND LOADS
PER ASCE 7/IBC
(A) BASIC WIND SPEED (V) = 90 MPH
(B) IMPORTANCE FACTOR (I) = 1.0
(C) EXPOSURE CATEGORY (B)
(D) DESIGN PRESSURE (P): MWFRS – WALLS: 8.6psf WINDWARD, –6.0psf LEEWARD
ROOF: ±10psf
COMPONENTS AND CLADDING – WALLS: ±15.8psf MAIN ZONE, ±19.5psf CORNERS
ROOF: ±14.6psf INTERIOR ZONE, ±24.4psf END ZONES, ±36.8psf CORNER ZONES

B5 SEISMIC LOADS PER ASCE 7/IBC
SITE CLASSIFICATION = D
SEISMIC DESIGN CATEGORY = B
IMPORTANCE FACTOR = 1.00
OCCUPANCY CATEGORY = III
0.2g SPECTRAL RESPONSE, Ss = 0.321
1 SEC SPECTRAL RESPONSE, S1 = 0.078
SEISMIC RESISTING SYSTEM = STEEL FRAMING NOT SPECIFICALLY DETAILED FOR SEISMIC RESISTANCE
RESPONSE MODIFICATION FACTOR, R = 3.0

SEISMIC ANALYSIS PROCEDURE = EQUIVALENT LATERAL FORCE ANALYSIS

C – FOUNDATIONS

C1 PRIMARY FOUNDATIONS FOR THIS PROJECT CONSIST OF A MAT FOUNDATION WITH HAUNCHED SLAB.

C2 FOUNDATION DESIGN BASED ON NET ALLOWABLE BEARING CAPACITY OF 2000 POUNDS PER SQUARE FOOT. IF UNSUITABLE MATERIAL IS ENCOUNTERED AT THE INDICATED ELEVATIONS, REMOVE AND REPLACE THE UNSUITABLE MATERIAL AS DIRECTED BY THE ENGINEER.

C3 THE CONTRACTOR SHALL DESIGN AND PROVIDE SHEETING, SHORING, BRACING, AND/OR UNDERPINNING IN ORDER TO PROTECT EXISTING UTILITIES FROM EXCESSIVE MOVEMENTS DURING THE CONSTRUCTION PERIOD.

C4 CARRY OUT CONTINUOUS CONTROL OF SURFACE AND SUBSURFACE WATER DURING CONSTRUCTION SUCH THAT FOUNDATION WORK IS DONE IN THE DRY AND ON UNDISTURBED SUBGRADE MATERIAL. NO FOUNDATION CONCRETE SHALL BE PLACED IN WATER OR ON FROZEN SUB GRADE MATERIAL.

D – CAST IN PLACE CONCRETE

D1 UNLESS OTHERWISE NOTED, CONCRETE SHALL BE NORMAL WEIGHT AND HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH AS FOLLOWS:
– SPREAD FOOTINGS, FOUNDATION WALLS, MAT SLABS _____ 4500 PSI
– FILL CONCRETE, HOUSEKEEPING PADS, SIDEWALKS _____ 3000 PSI

D2 CONCRETE WORK SHALL BE COORDINATED WITH ALL WATERPROOFING, ARCHITECTURAL, MECHANICAL, PLUMBING, AND ELECTRICAL WORK. THE CONTRACTOR SHALL VERIFY INSTALLATION AND LOCATIONS OF ALL EMBEDDED ITEMS INCLUDING BUT NOT LIMITED TO INSERTS, ANCHOR BOLTS, DOWELS, BLOCKOUTS, SLEEVES, EMBEDDED PIPING, AND EMBEDDED CONDUIT PRIOR TO CONCRETE PLACEMENT.

D3 ALL CONCRETE EXPOSED TO WEATHER SHALL INCLUDE 5% ENTRAINED AIR, ±1%.

D4 A MINIMUM OF 72 HOURS SHALL ELAPSE BETWEEN ADJACENT CONCRETE PLACEMENTS.

D5 CONCRETE SLABS SHALL BE PLACED SO THAT THE SLAB THICKNESS IS AT NO POINT LESS THAN THAT INDICATED ON THE DRAWINGS.

D6 PROVIDE 3/4 IN X 3/4 IN CHAMFER ON ALL EXPOSED VERTICAL AND HORIZONTAL OUTSIDE CORNERS UNLESS OTHERWISE NOTED.

E – CAST IN PLACE CONCRETE REINFORCEMENT

E1 REINFORCEMENT WORK OF DETAILING, FABRICATION, AND ERECTION SHALL CONFORM TO "ACI DETAILING MANUAL" – SP–66, "CRSI MANUAL OF STANDARD PRACTICE", AND "STRUCTURAL WELDING CODE – REINFORCING STEEL" – AWS D1.4.

E2 STEEL REINFORCEMENT, UNLESS OTHERWISE NOTED, SHALL CONFORM TO THE FOLLOWING:
(A) BARS, TIES, AND STIRRUPS _____ ASTM A615 GRADE 60
(B) WELDED WIRE FABRIC _____ ASTM A185

E3 REINFORCING STEEL SHALL BE UNCOATED AND DEFORMED.

E4 MINIMUM CONCRETE PROTECTIVE COVERING FOR REINFORCEMENT, UNLESS NOTED OTHERWISE, SHALL BE AS FOLLOWS:
(A) SURFACES CAST AGAINST AND PERMANENTLY IN CONTACT WITH EARTH _____ 3.0"
(B) FORMED SURFACES BACKFILLED WITH EARTH OR EXPOSED TO WEATHER _____ 2.0"
(C) SURFACES NOT IN CONTACT WITH EARTH OR EXPOSED TO WEATHER _____ 1.5"

E5 REINFORCING STEEL SHALL BE CONTINUOUS THROUGH ALL CONSTRUCTION JOINTS, CORNERS, AND INTERSECTIONS UNLESS OTHERWISE NOTED. REINFORCING SHALL BE LAPPED AT NECESSARY SPLICES OR HOOKED AT DISCONTINUOUS ENDS, UNLESS OTHERWISE NOTED.

E6 MECHANICAL SPLICES SHALL BE PERMITTED SUBJECT TO APPROVAL BY THE ENGINEER. MECHANICAL SPLICES SHALL DEVELOP AT LEAST 125 PERCENT OF THE SPECIFIED YIELD STRENGTH OF THE BAR.

E7 ADHESIVE ANCHORING SYSTEMS FOR DRILLED–IN REINFORCING BARS SHALL BE PERMITTED SUBJECT TO APPROVAL BY THE ENGINEER. THE ANCHORING SYSTEM SHALL BE CAPABLE OF DEVELOPING THE FULL YIELD STRENGTH OF THE BAR BASED ON THE RESULTS OF UNCONFINED PULL–OUT TESTING.

E8 DOWELS SHALL MATCH BAR SIZE AND NUMBER, UNLESS NOTED OTHERWISE.

E9 WELDED WIRE FABRIC SHALL LAP SEE ACI 12.19 AND SHALL BE WIRED TOGETHER AT ALL LAPS.

E10 REINFORCEMENT NOT DETAILED WITH WELDS SHALL NOT BE TACK WELDED.

E11 INSTALLATION OF REINFORCEMENT SHALL BE AVAILABLE FOR INSPECTION PRIOR TO THE SCHEDULED CONCRETE PLACEMENT.

F – STEEL DECK

F1 DESIGN, FABRICATION, AND ERECTION OF METAL DECK SHALL CONFORM TO THE "STRUCTURAL WELDING CODE – SHEET STEEL" (AWS D1.3–08) AND THE "DESIGN MANUAL FOR COMPOSITE DECKS, FORM DECKS, AND ROOF DECKS – STEEL DECK INSTITUTE" .

F2 STEEL DECK PANELS SHALL BE FORMED STEEL SHEETS CONFORMING TO ASTM A653 SQ GRADE 33 MINIMUM WITH COATING DESIGNATION: HOT DIP GALVANIZED G90 – ROOF DECK.

F3 DECK ATTACHMENT SHALL BE BY MECHANICAL FASTENERS. SPACING OF FASTENERS SHALL CONFORM TO SDI SPECIFICATIONS.

G – CONCRETE MASONRY

G1 CONCRETE MASONRY UNITS (CMU) SHALL BE PRE–INSULATED "OMNI BLOCK".

G2 CONCRETE MASONRY CONSTRUCTION SHALL CONFORM TO THE NATIONAL CONCRETE MASONRY ASSOCIATION "SPECIFICATION FOR THE DESIGN AND CONSTRUCTION OF LOAD BEARING CONCRETE MASONRY" (TR758), "BUILDING CODE REQUIREMENTS FOR MASONRY STRUCTURES" (ACI 530–08/ASCE 5–08/TMS 402–08), AND "SPECIFICATIONS FOR MASONRY STRUCTURES" (ACI 530.I–08/ASCE 6–08/TMS 602–08).

G3 COMPRESSIVE STRENGTH SHALL BE f'm = 1500 PSI MINIMUM (UNIT STRENGTH METHOD).

G4 MORTAR SHALL BE TYPE M OR S.

G5 GROUT SHALL HAVE A MINIMUM 28 DAY STRENGTH OF 3000 PSI.

G6 GROUT SHALL CONFORM TO THE REQUIREMENTS OF ASTM C476 UNLESS OTHERWISE NOTED.

G7 REINFORCING STEEL SHALL BE AS FOLLOWS:
A. DEFORMED BARS: ASTM A6I5 GR 60 UNCOATED
B. JOINT REINFORCEMENT: ASTM A82 WITH DEFORMED LONGITUDINAL WIRES; HOT DIP GALVANIZED IN ACCORDANCE WITH ASTM AI53

H – COLD FORMED LIGHT GAUGE STEEL FRAMING

H1 COLD FORMED STEEL FRAMING MEMBERS SHALL BE OF THE TYPE, SHAPE, SIZE, GAUGE, AND SPACING AS SHOWN ON THE DRAWINGS. MEMBER TYPES AND SIZES SHOWN ON THE DRAWINGS REFER TO MEMBERS MANUFACTURED BY THE DIETRICH INDUSTRIES, INC. MEMBERS EQUIVALENT IN SHAPE, SIZE, STIFFNESS, AND STRENGTH BY OTHER MANUFACTURERS MAY BE SUBSTITUTED FOR FRAMING MEMBERS SHOWN. ALTERNATE MEMBERS SHALL BE SUBJECT TO REVIEW AND APPROVAL BY THE ENGINEER AND STRUCTURAL ENGINEER PRIOR TO FABRICATION AND ERECTION.

H2 ALL COLD FORMED STEEL FRAMING SHALL CONFORM TO THE ANSI SPECIFICATION FOR THE DESIGN OF COLD–FORMED STRUCTURAL MEMBERS.

H3 COLD FORMED STRUCTURAL TRACKS AND STUDS 12, 14 AND 16 GAUGE MATERIALS SHALL BE FORMED WITH ASTM A446, GRADE D OR ASTM A570, GRADE 50 STEEL WITH A MINIMUM FY=50 KSI. COLD–FORMED STRUCTURAL TRACKS AND STUDS 18 GAUGE AND LIGHTER SHALL BE FORMED FROM ASTM A446, GRADE A OR ASTM A570, GRADE 33 GALVANIZED. FASTENINGS SHALL BE AS SHOWN ON THE DRAWINGS. FASTENINGS NOT SHOWN SHALL BE AS RECOMMENDED BY THE MANUFACTURER.

H4 SUBMIT COMPLETE COLD FORMED SHOP DRAWINGS FOR APPROVAL.

J – HANDRAIL, GUARDRAIL AND MISCELLANEOUS METALS

J1 STRUCTURAL STEEL FABRICATION, ERECTION, AND CONNECTION DESIGN SHALL CONFORM TO AISC'S "SPECIFICATION FOR THE DESIGN, FABRICATION, AND ERECTION OF STRUCTURAL STEEL" 13th EDITION.

J2 STRUCTURAL STEEL SHALL CONFORM TO THE FOLLOWING:
(A) ANGLES: ASTM A36
(B) RAILS AND POSTS: ASTM A53, GRADE B
(C) ANCHOR RODS: ASTM F1554, GRADE 36

J3 ALL STEEL SHALL BE FABRICATED AND SHIPPED AS SHOP PRIMED & PAINTED FROM ELEVATION 2'–0" AND BELOW. ALL REMAINING STEEL SHALL BE FABRICATED AND SHIPPED AS BARE STEEL UNLESS NOTED OTHERWISE.

J4 SUBMIT COMPLETE SHOP DRAWINGS FOR REVIEW PRIOR TO FABRICATION.

J5 HANDRAILS AND GUARDRAILS SHALL BE PRIMED WITH TNEMEC SERIES 90–97 TNEME–ZINC 3 TO 4 MILS DFT. HANDRAILS AND GUARDRAILS SHALL BE PAINTED WITH TNEMEC SERIES 27 TYPOXY, 4 TO 6 MILS DFT, COLOR: SAFETY YELLOW.

B

ISSUED FOR BID
NOT FOR CONSTRUCTION
JANUARY 5, 2017

STATE OF MAINE
BRIAN J. BEAULIEU
No. 12004
REGISTERED PROFESSIONAL ENGINEER
01/05/2017

REV	DESCRIPTION	DWN	APP	DATE
C	RE-ISSUED FOR BID	AKG	BJB	01/05/17
B	RE-ISSUED FOR BID	AKG	BJB	10/28/16
A	ISSUED FOR BID	AKG	BJB	08/19/16

ecomaine
64 BLUEBERRY ROAD, PORTLAND, ME

SCALE HOUSE WITH INSULATED BLOCK CONSTRUCTION

STRUCTURAL GENERAL NOTES

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SIZE: ANSI D
DATE: 09/02/2016
DES BY: AKG
DWN BY: AKG
CKD BY: BJB

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SHEET 19 OF 40
DRAWING NO. S-001