GENERAL STRUCTURAL NOTES

PART 1 – GENERAL REQUIREMENTS AND DESIGN CRITERIA

1.1 SPECIFICATIONS
A. The work of these drawings addresses structural information only. The structural documents include these S-series Drawings and General Notes. There are no technical specifications in addition to these General Notes

1.2 GENERAL
A. Unless otherwise noted, details, sections and notes contained in the structural contract documents shall be considered typical for all similar conditions even if not explicitly referenced.
B. Deficient work and/or work not in conformance with the contract documents shall be repaired at the contractor's expense. The contractor shall compensate the client for services arising from deficient work, review of modifications/contractor substitution, or expediting of submittals.
C. Cost of investigation and/or redesign incurred by the Engineer of Record due to contractor errors will be at the contractor's expense.
D. The contractor shall submit a single dimensioned and coordinated drawing for each level showing the locations of all sleeves and openings required by all trades prior to initiating any work.
E. Loads imposed on the base building structure and temporary conditions intended to accommodate construction means and methods are not explicitly considered in this design. The contractor shall advise the Engineer of Record regarding construction loads and temporary conditions imposed on the building structure and shall compensate the Engineer of Record for reviewing these conditions.

1.3 ELEVATIONS & DIMENSIONS
A. All elevations and dimensions shown for new construction are for information only. Dimensions for construction are to be taken from the Architectural Drawings. Field verify all elevations and dimensions before proceeding with construction.
B. Existing Dimensions: Existing dimensions are taken from the reference plans and are to be verified in the field by the contractor, as appropriate, prior to fabrication of members.

1.4 BUILDING CODE
A. Maine Uniform Building and Energy Code (MUEBC) which consists of the 2009 International Building Code.

1.5 DESIGN LOADS

A. Dead Loads
1. All permanent stationary construction, including mechanical equipment and their weights where noted on this drawings.

B. Seismic Load Parameters
1. Component Importance Factor, Ip = 1.5 (ASCE 7-05 Section 13.1.3)
2. Spectral Response Acceleration, Ss = 0.316g (Portland, ME)
3. Site Class = D (Assumed)
4. Spectral Response Coefficient, SDS = 0.326g
5. Seismic Design Category = C
6. Component Amplification Factor, ap = 2.5
7. Component Response Modification Factor, Rp = 6.0
8. Design Acceleration of Equipment = 0.25g

C. Wind Load Parameters
1. Basic Wind Speed, V = 99 mph (Portland, ME)
2. Wind Importance Factor, Iw = 1.15
3. Wind Exposure = B
4. Design methodology
   a. Use ASCE 7-05 procedure for design wind loads on Other Structures.
4. Design wind pressure on mechanical equipment = 48 psf

D. Snow Load Parameters
1. Ground Snow Load, pg = 40 psf (Portland, ME)
2. Design Snow Load on Equipment = 40 psf
3. Drifting loads per code.

PART 2 – PROCEDURE

A. The Contractor shall be responsible for construction quality control and compliance with the Contract Documents.

B. The Owner shall provide Special Inspections for all structural work as required by the MUEBC. Contractor shall provide full and ample means and assistance for testing materials and workmanship and proper facilities for inspection of the work in the shop and in the field. Refer to the Statement of Special Inspections for testing and inspection requirements.

C. Structural field conditions may occur where the existing condition differs from the reference plans or where existing conditions or obstructions require modification of the work as shown on these drawings. The Contractor shall document structural field conditions with applicable sketches and photos and shall provide this documentation to the Structural Engineer of Record (SER) for review prior to installation of work related to the field condition. Notify the SER immediately if existing conditions vary from those shown on the drawings in a manner that precludes execution of the work as shown.

E. All elevations and dimensions shown for new construction are based on the architectural and structural drawings of the existing building, field measurements, and on basis of design product specifications. Verification and documentation of all existing conditions and actual product specifications shall be completed prior to shop fabrication. Contractor is responsible for dimensions and fit.

F. Submit shop drawings for review by the SER. Do not fabricate until shop drawings are approved. Submit shop drawings at least 15 business days before date when reviewed submittals will be needed. Shop drawings will bear the contractor's stamp or approval which shall constitute certification that the Contractor has verified all field measurements, construction criteria, materials, and similar data, and has checked each drawing for completeness, coordination, and compliance with the contract documents. The shop drawings will provide space for the SER's review stamp. All submittals shall be made and returned in electronic (PDF) format. For the work shown on these documents, submittals shall include:

1. Structural steel detail (piece) drawings shall include details and dimensions of all pieces, steel material designations, details of cuts, connections, holes, welds (including weld electrode material, standard AWS designations for weld type, size, and length), finishing requirements, and piece identification marks cross-referenced to the erection drawings.
2. Structural steel erection and detail (piece) drawings
3. Structural steel mill certificates
4. Structural bolt mill certificates
5. Primer certificates
6. Galvanizing coating applicator's certificate of compliance that the hot-dip galvanizing coating meets or exceeds the specified requirements of ASTM A123 or ASTM A153 as applicable.
7. Base plate grout
8. Adhesive and expansion anchors
9. Welders' certificates
10. Weld electrode certificates

G. Approval of submittals is for general conformance with the contract documents and does not relieve the Contractor of responsibility for dimensions, fabrications, and correct fit of structural members. The Contractor is wholly responsible for the conformity of dimensions and details of the shop drawings with the Contract Documents.

H. Contractor shall provide any temporary shoring and bracing necessary to maintain safety and stability of structure during construction.

I. The Contractor is responsible for all construction means and methods. Protect the building and interior areas during the work from all risks associated with the work. All equipment used on the project shall comply with applicable municipal and safety regulations, including OSHA guidelines. The Contractor shall provide for the safety of the general public in the vicinity of all work areas. Take adequate protection against fire during field welding, including, but not limited to, adequate fire watches. Developing and implementing job site safety and construction procedures are the sole responsibility of the contractor.

J. The Contractor is responsible for coordinating the dimensions of all mechanical equipment and the framing shown on these drawings. The Contractor shall coordinate all connections between equipment and the framing shown on these drawings.

K. See architectural drawings and specifications for detailed information regarding finishes and waterproofing.

L. In case of conflict between the general notes and the details, the more stringent shall govern.

M. Remove and dispose of away from the site any erection aids, temporary lifting lugs, and other auxiliary or temporary steel components.

PART 3 – STRUCTURAL STEEL

3.1 STRUCTURAL SHAPES:

A. Wide Flange Shapes:	ASTM A992
B. Angles:	ASTM A36, UON
C. Plates:	ASTM A36, UON
D. Round HSS:	ASTM A500 Grade B

3.2 BOLTS
A. ASTM A325, Type I, with ASTM A563 Grade DH heavy hex, carbon steel nuts and ASTM F436 hardended carbon steel washers. Pre-tension all bolts. All bolts, nuts, and washers bolts shall be galvanized. Store bolts in original water-tight containers prior to installation.
B. Do not reuse existing bolts or previously pre-tensioned bolts.
C. Install all bolts in standard holes, UON.

3.3 WELDING ELECTRODES
A. Conform to AWS Specifications for electrodes based on welding process and the type and grade of steel.
B. E70XX electrodes (min.) for fillet welds.

3.4 FABRICATION
A. Shop fabricate to greatest extent possible by welding including beam stiffeners, column caps, and connections.
B. Coordinate with galvanizer to provide details that comply with Class 1 guidelines as described in AGA's "Recommended Details for Galvanized Structures." Seal weld all seams to be galvanized.
C. Submit complete shop drawings from field dimensions for the SER's approval of all structural steel prior to fabrication.
D. Cut, drill or punch holes; do not thermally cut bolt holes or enlarge holes by burning.
E. Load and store galvanized articles in accordance with accepted industry standards.
F. Min. ½" radius at all copes.

3.5 ERECTION
A. Provide leveling plates or shims as required to plumb posts.
B. Provide all other necessary connecting hardware.
C. Do not field cut or field modify any new or existing structural steel without prior written approval by SER for each specific case.
D. Touch up all damaged primer on new or existing interior structural steel. Touch up all damaged galvanizing on new or existing exterior structural steel with galvanizing repair paint.

3.6 SURFACE PREPARATION
A. Prepare new exterior structural steel to be galvanized in accordance with SSPC-SP6 "Commercial Blast Cleaning."
B. Prepare existing, exterior structural steel to remain in accordance with SSPC-SP3 "Power Tool Clean."
C. Surfaces to be coated shall be clean, dry, smooth and free from dust and foreign matter which will adversely affect adhesion or appearance. Wipe with manufacturer's approved solvent as necessary to remove grease and debris.
D. Remove slag metal and splatters from all welds by chipping and grinding.

3.7 GALVANIZING
A. Apply zinc coating by the hot-dip process to structural steel and fasteners after fabrication according to ASTM A123 and ASTM A153 as applicable. Provide a continuous coating of uniform thickness weighing not less than 2 oz. per square foot of surface. Provide passivating chromate dip or similar treatment to prevent wet storage stains.
B. Grind galvanizing from areas to be field welded and touch-up with galvanizing repair paint after welding.
C. Do not place vent or drain holes in vertical walls of hollow structural sections.
D. Plug vent and drain holes with zinc solder or plug welds treated with galvanizing repair paint.
E. Seal all weld seams not otherwise welded.

3.8 GALVANIZING REPAIR PAINT
A. All existing, exterior structural steel to remain shall be coated with galvanizing repair paint after surface preparation.
B. Product: ZRC Cold Galvanizing Compound. Apply by brush or roller to all exposed surfaces in strict accordance with manufacturer's instructions.

3.9 NON-SHRINK BASE PLATE GROUT
A. ASTM C1107 with a compressive strength of 8,000 psi prepared at fluid consistency.

3.10 STRUCTURAL TESTS AND INSPECTIONS
A. Structural tests and inspections are required for this project. Refer to Drawing S0-2.

3.11 STANDARD STANDARDS
A. AISC 360-10 Specification Structural Steel Buildings
B. RCSC Specification for Structural Steel Joints Using High-Strength Bolts (2009)
C. AWS D1.1 Structural Welding Code – Steel
D. AISC 303-10 Code of Standard Practice for Steel Buildings and Bridges
E. AGA "Inspection of Products Hot-Dip Galvanized after Fabrication."

PART 4 – CONCRETE WORK

4.1 POST-INSTALLED ANCHORS
A. Adhesive Anchors into Concrete: Hilti HIT HY 200 with galvanized HAS Grade B7 threaded rods UON.
B. Install in strict accordance with Hilti installation recommendations.

ABBREVIATIONS:

ABBREVIATION	WORD or PHRASE
ASD	Allowable Stress Design
Alt.	Alternate
ACI	American Concrete Institute
AISC	American Institute of Steel Construction
AISI	American Iron and Steel Institute
ASTM	American Society for Testing and Materials
AWS	American Welding Society
AB	Anchor Bolt
Arch.	Architect
@	At
Bal.	Balance
Bm	Beam
B or Bot.	Bottom
BEW	Bottom Each Way
CIP	Cast-in-Place
Ctrd.	Centered
℄	Centerline
Clr.	Clear
Col.	Column
Conc.	Concrete
CMU	Concrete Masonry Unit
CRSI	Concrete Reinforcing Steel Institute
Conn.	Connection
Const.	Construction
Const. Jt. or CJ	Construction Joint
Cont.	Continuous
Depr.	Depression
Det.	Detail
Dia. or ø	Diameter
Dim.	Dimension
Dir.	Direction
Dwls	Dowels
Dn	Down
Dwg	Drawing
(E)	Existing
Ea.	Each
EF	Each Face
EW	Each Way
E	East
El.	Elevation
Elev.	Elevator
EOS	Edge of Slab
EOR	Engineer of Record
EP	Embed Plate
Eq.	Equal
Exp. Bolt	Expansion Bolt
Ext.	Exterior

ABBREVIATION	WORD or PHRASE
Ft or '	Feet
Fin.	Finish
Fin. Fl.	Finish Floor
Fl.	Floor
Ftg.	Footing
Fnd	Foundation
FP	Full Penetration Weld
FS	Footing Steps
Galv.	Galvanized
Ga	Gauge
Gr.	Grade
HP	High Point
HSS	Hollow Structural Section
H or Horiz.	Horizontal
HEF	Horizontal Each Face
In. or "	Inch
Incl.	Inclusive or Including
Info.	Information
Jt	Joint
K	Kip (1000 pounds)
Ksf	Kips/Square Foot
LW	Lightweight
LWC	Lightweight Concrete
LRFD	Load & Resistance Factor Design
LLH	Long Leg Horizontal
LLV	Long Leg Vertical
LP	Low Point
Mfr	Manufacturer
Matl	Material
Max.	Maximum
Mech.	Mechanical
MEP+T	Mechanical, Electrical, Plumbing and Technology
Min.	Minimum
(N)	New
NWC	Normal Weight Concrete
N	North
NTS	Not to Scale
No. or #	Number

ABBREVIATION	WORD or PHRASE
OC	On Center
OD	Outer Diameter
Opng	Opening
Pc	Piece
Pl. or ℄	Plate
PLF	Pounds/Linear Foot
Psf	Pounds/Square Foot
Psi	Pounds/Square Inch
Ref.	Reference
Reinf.	Reinforce or Reinforcement
RD	Roof Drain
Sect.	Section
SC	Shear Connector or Slip Critical Bolt
SCJ	Slab Control Joint
Sht	Sheet
SLV	Short Leg Vertical
Sim.	Similar
SJI	Steel Joist Institute
Spa.	Spaces
SOG	Slab-on-Grade
S	South
Sq.	Square
SS	Stainless Steel
Std	Standard
Stl	Steel
SDI	Steel Deck Institute
Stiff.	Stiffener
Str.	Structural
Sym.	Symmetrical
T	Top
T&B	Top & Bottom
TOC	Top of Concrete
TOD	Top of Metal Deck
TOS	Top of Steel
TOW	Top of Wall
Typ.	Typical
UON	Unless Otherwise Noted
V or Vert.	Vertical
VEF	Vertical Each Face
VIF	Verify in Field
WWR	Welded Wire Reinforcement
W	West
W/	With
WP	Working Point

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06.24.2016
ISSUE CHART

NO	ISSUE	DATE
	ISSUED FOR PERMIT	06.24.2016

Job Number 152168.029
Checked MJB
Approved JHT

TITLE

GENERAL NOTES

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