STRUCTURAL GENERAL NOTES

Bangor Savings Bank, 20 South Street
Bangor, ME

SI Job #: 16-0266

DESIGN LOADS: International Building Code; IBC 2009 Edition, except as noted
Occupancy Category, Table 1604.5 — II Standard

Roofs:

Ground Snow,	Pg		80 psf (used for drifting calculations)
Sloped Roof Snow,	Ps		56 psf
Flat Roof Snow,	Pf		56 psf
Snow Exposure Factor	Ce	Table 1608.3.1	1.0
Snow importance Factor,	Is	Table 1604.5	1.0
Snow Thermal Factor,	Ct	Table 1608.3.2	1.0

Floors:

Lobby and Public Spaces	100 psf
Office	50 psf
Corridors above First Floor	80 psf

Lateral:

Wind	IBC 1603.1.4, ASCE 7-05		Analytic Method		
	3 Second Gust Velocity		90 mph		
	Importance Factor		1.0		
	Building Category and Internal Pressure Coefficient				
	IBC 1609.2, ASCE Figure 6-5		Enclosed	GCpi=0.18	
	Exposure		B		
	Components and Cladding Pressures		DP 45 uno. Also see specs		
Seismic	Use Group		I		
	Importance Factor		1.0		
	Spectral Response	Acceleration		Coefficient	
	Short Period	S_S	0.294 g	S_{DS}	0.306 g
	One Second	S_1	0.075 g	S_{D1}	0.121 g
	Soils Site Class	Table 1615.1.1	D		
	Design Category	Table 1616.3	B		
	Basic Force Resisting System, Table 1617.6.2				
	Design Base Shear		109 kips		
	Seismic Response Coefficient	Cs	0.042		
	Response Modification Coefficient	R	6		
	Analysis Procedure		Equivalent Lateral Force		

FOUNDATION DESIGN:
Foundations are designed without an engineer's soil investigation. Foundation design criteria was assumed for purpose of foundation design and shall be confirmed by a soils engineer, at owner's expense, prior to construction. (This procedure may require revisions to foundation design, at additional expense to the owner, if soils engineer determines that such design criteria are inappropriate for this building site.)

REINFORCED CONCRETE:
We encourage the use of blast furnace slag.
Design is based on "Building Code Requirements for Reinforced Concrete"(ACI 318). Concrete work shall conform to "Standard Specifications for Structural Concrete" (ACI 3019).
Structural concrete shall have the following properties:

Intended Use	f'c, psi 28day	Max W/C Ratio	Maximum Aggregate	Slump inches	Entrained Air Percent ±1.5%	Cement Type	Admixtures, Comments
footings	3,000	.6	¾" Stone	4	---	I/II	
walls	4,000	.45	¾" Stone	4	6%	I/II	
exterior slab on grade	4,500	.45	¾" Stone	4	6%	I/II	Fibermesh
interior slabs on grade	3,500	.5	¾" Stone	4	---	I/II	Fibermesh
beams, columns	4,000	.45	¾" Stone	4	6%	I/II	

Detailing, fabrication, and placement of reinforcing steel shall be in accordance with the Manual of Standard Practice for Detailing Reinforced Concrete Structures (ACI 315).
Welded wire fabric shall conform to ASTM A185.
Reinforcing bars shall conform to ASTM A615,
Grade 60,
except ties or bars shown to be field-bent, which shall be Grade 40.
Epoxy coated reinforcing bars shall conform to ASTM 775.
Zinc coated (galvanized) reinforcing bars shall conform to ASTM 767.
Bars to be welded shall conform to ASTM 706.
At splices, lap bars 50 diameters unless noted otherwise.
At corners and intersections, make horizontal bars continuous or provide matching corner bars.
Around openings in walls and slabs, provide 2-#5, extending 2'-0 beyond edge of opening.
In continuous members, splice top bars at mid-span and splice bottom bars over supports.
Provide intermittent shear keys at all construction joints and elsewhere as shown on the drawings.
Except as noted on the drawings, concrete protection for reinforcement in cast-in-place concrete shall be as follows:

a. Cast against and permanently exposed to earth	3"
b. Exposed to earth or weather:	
#6 through #18 bars	2"
#5 bar, W31 or D31 wire, and smaller	1-1/2"
c. Not exposed to weather or in contact with ground:	
Slabs, walls, joists: #11 bar and smaller	3/4"
Beams, columns:	
Primary reinforcement	1-1/2"
Stirrups, ties, spirals	1-1/2"

Fibermesh admixture shall be 100% virgin polypropylene, fibrillated fibers as manufactured by Fibermesh Co. per ASTM C-1116 type 111 4.1.3 and ASTM C-1116 performance level one, 1.5 lbs per cubic yard of concrete.
Anchor bolts and rods for beam and column-bearing plates shall be placed with setting templates.
Permanent corrugated steel forms for concrete floor slabs shall be manufactured and erected according to the "Specifications and Code of Standard Practice" of the Steel Deck Institute.
All concrete work is subject to inspection by a qualified special inspector employed by the owner in accordance with IBC Section 1704.4.

STRUCTURAL STEEL:
Structural steel shall be detailed, fabricated, and erected in accordance with latest AISC Specifications, and Code of Standard Practice.
Structural steel wide flange beams shall conform to ASTM A992.
Except as noted, framed beam connections shall be bearing-type with 3/4" diameter, snug tight, A325-N bolts, detailed in conformance with Part 4, Tables II and III, for 0.6 times the allowable uniform loads tabulated in Part 2 of the AISC Manual, 9th Edition. Install bolts in accordance with AISC "Specification for Structural Joints Using ASTM A325 or A490 Bolts".
All beams shall have full depth web stiffeners each side of webs above and below columns
Anchor rods shall conform to ASTM F1554, Grade 55), with weldability supplement S1.
Headed anchor studs (HAS) shall be attached to structural steel with equipment approved by the stud manufacturer according to the stud manufacturer's recommendations.
Welding shall be done by a certified welder in accordance with AISC and AWS specifications and recommendations using E70-electrodes. Where not specifically noted, minimum weld shall be 3/16" fillet by length of contact edge.
All post-installed anchors shall have current ICC Evaluation Report, and shall be installed in accordance with the manufacturer's requirements.

Expansion anchors shall be approved "wedge" type unless specifically noted to be "sleeve" type.
Chemical anchors shall be approved epoxy or similar adhesive type and shall have current ICC Evaluation Report. Where base material is not solid, approved screen tubes shall be used.
Grout beneath column base and beam-bearing plates shall be
minimum 28-day compressive strength of 7,500 psi,
approved pre-bagged, non-metallic, non-gaseous, bleed free,
non-shrink, when tested in accordance with ASTM C1107
Grade B or C at a flow cone fluid consistency of 20 to 30 seconds

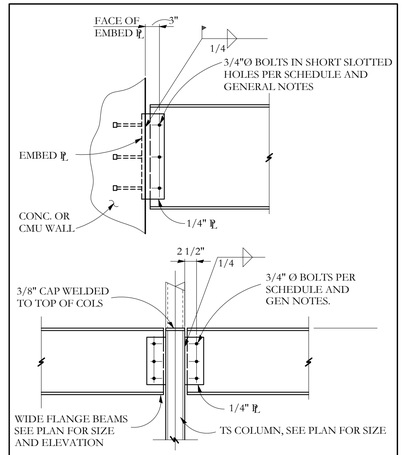
LIGHT GAUGE STRUCTURAL STEEL FRAMING:
Member forming shall conform to AISI Cold-Formed Steel Specifications.
All structural framing (studs, joists, track, runners, bracing, and bridging) shall be galvanized sheet steel conforming to ASTM A525, G-60.
Studs and joists 54 mils (16 gauge) and heavier shall be 50 ksi yield.
43 mils (18 gauge) and lighter shall be, 33 ksi yield.
Subcontractor shall provide bridging and blocking at a maximum of 6 foot spacing or as required for stability and stiffness of the final assembly wherever sheathing does not provide adequate bracing.
Supplier shall design required jambs, lintels and headers at openings where not specifically detailed.
Member sizes noted on drawings are in the new SSMA standard nomenclature:
(###d)(sd)(##w)-(##t)
(##d) Member Depth (inches.hundredths)
(sd) Style Designation (see Style Designation in table below)
(##w) Flange Width (inches.hundredths)
(##t) Material Thickness (mils) (see Mils vs equivalent Gauge in table below)

(sd) Style Designation	Member Type		(##t) Mils Thickness	Equivalent Gauge
S	Punched C-Section		18	25
J	Unpunched C-Section		27	22
T	Track		30	20 – Drywall
U	Channel		33	20 – Structural
F	Furring Channel		43	18
			54	16
			68	14
			97	12

SHOP DRAWINGS:
Construction Documents are copyrighted and shall not be copied for use as erection plans or shop details.
Use of SI Inc.'s electronic files as base for shop drawings requires prior approval by SI Inc,
signed release of liability by subcontractor,
payment of an administration fee of $100 per drawing sheet to SI Inc, and
deletion of SI Inc's name and Logo from all sheets so used.
The General Contractor and his subcontractors shall submit in writing any requests to modify the plans or specifications.
All shop and erection drawings shall be checked and stamped by the General Contractor prior to submission for Engineer's review.
Unchecked submittals will be returned without review.
Furnish one (1) reproducible and two (2) prints of shop and erection drawings to the Structural Engineer for review prior to fabrication for, reinforcing steel, structural steel, and decking.
Submit in a timely manner to permit ten (10) working days for review.
Shop drawings submitted for review do not constitute "in writing" unless specific suggested changes are clearly marked.
In any event, such changes by means of the shop drawing submittal process become the responsibility of the one initiating such change.

FIELD VERIFICATION OF EXISTING CONDITIONS:
Contractor shall thoroughly inspect and survey existing structure to verify conditions that affect the work shown on the drawings.
Contractor shall report any variations or discrepancies to the Architect before proceeding.

STRUCTURAL ERECTION AND BRACING REQUIREMENTS:
The structural drawings illustrate the completed structure with elements in their final positions, properly supported and braced.
These construction documents contain typical and representative details to assist the contractor.
Details shown apply at all similar conditions unless otherwise indicated.
Although due diligence has been applied to make the drawings as complete as possible, not every detail is illustrated, nor is every exceptional condition addressed.
All proprietary connections shall be installed in accordance with the manufacturers' recommendations.
All work shall be accomplished in a workmanlike manner and in accordance with the applicable code and local ordinances.
The general contractor is responsible for coordination of all work, including layout and dimension verification, materials coordination, shop drawing review, and the work of subcontractors.
Any discrepancies or omissions discovered in the course of the work shall be immediately reported to the architect for resolution.
Continuation of work without notification of discrepancies relieves the architect and engineer from all consequences.
Unless otherwise specifically indicated, the drawings do not describe methods of construction.
The contractor, in the proper sequence, shall perform or supervise all work necessary to achieve the final completed structure, and to protect the structure, workmen, and others during construction.
Such work shall include, but not be limited to, bracing, shoring for construction equipment, shoring for excavation, formwork, scaffolding, safety devices and programs of all kinds, support and bracing for cranes and other erection equipment.
Do not backfill against basement or retaining walls until supporting slabs and floor framing are in place and securely anchored, unless adequate bracing is provided.
Temporary bracing shall remain in place until all floors, walls, roofs and any other supporting elements are in place.
The architect and engineer bear no responsibility for the above items, and observation visits to the site do not in any way include inspection of them.

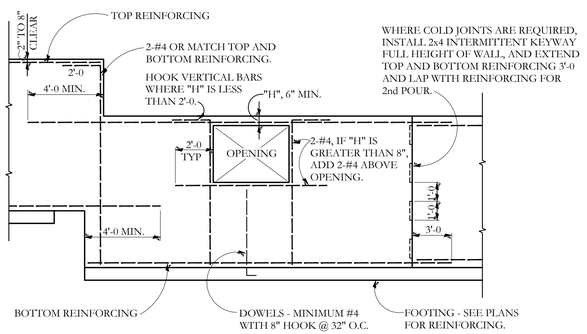


SINGLE-PLATE SHEAR CONNECTION SCHEDULE

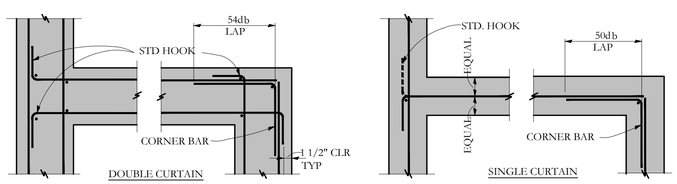
BM. SIZE	# OF 3/4"Ø BOLTS	L (in.)	CONN CAP. (kips)
W8, W10	2	6	16.3
W12, W14	3	9	25.6
W16	4	12	34.8
W18	5	15	43.5
W21	6	18	51.6
W24	7	21	59.7

*ALL BOLTS TO BE ASTM A325 -TYP UNO
TYPICAL SINGLE PLATE SHEAR CONNECTION
(PROVIDE SIMILAR BOLTING AT BEAM-TO-BEAM CONNECTION)

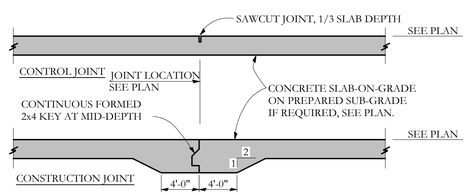
Structural Drawing Index



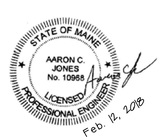
TYPICAL REINFORCING AT STEPS AND OPENINGS
NO SCALE



TYPICAL CONCRETE WALL INTERSECTIONS
NO SCALE



TYPICAL JOINTS AT INTERIOR SLAB-ON-GRADE
NO SCALE



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SI # 16-0024

BUILD WITH CONFIDENCE

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NO.	DATE	DESCRIPTION

FOR CONSTRUCTION
02.13.18

TAC Architectural Group Inc.

BANGOR SAVINGS BANK - RENOVATIONS TO 280 FORE STREET

PORTLAND, MAINE

PROJECT NO:	16-226
CAD DWG FILE:	
DRAWN BY:	CJO
CHK'D BY:	ACJ
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SHEET TITLE

GENERAL NOTES

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