

STRUCTURAL GENERAL NOTES

Project: Lafayette Building Renovation
Park Street, Portland, ME
SI #: 16-0133

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

Floors:	Residential	40 psf
	Corridors above 1 st floor	100 psf
	1 st floor retail	100 psf
Roofs & Exposed Garage Areas:		
	Ground Snow, (Pg)	60 psf (used for drifting calculations)
	Flat Roof Snow, (PF)	46.2 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)	1.1

FOUNDATION DESIGN:

* Foundations are designed without an engineer's soil investigation. Foundation design criteria was assumed for purposes 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.)

* Footings shall be placed on undisturbed natural soil or compacted fill tested and approved by soils engineer.

* Maximum design soil pressure: 3,000 psf

REINFORCED CONCRETE:

We encourage the use of blast furnace slag in mix designs. Design is based on "Building Code Requirements for Reinforced Concrete"(ACI 318). Concrete work shall conform to "Standard Specifications for Structural Concrete" (ACI 301).

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	3/4" Stone	4	--	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 reinforcing in cast-in-place concrete shall be as follows:

- Cast against and permanently exposed to earth 3"
- 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"

Fibremesh admixture shall be 100% virgin polypropylene, fibrillated fibers as manufactured by Fibremesh Co. or equal 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 maximum uniform loads tabulated in Part 2 of the AISC Manual, 9th Edition unless loads are otherwise noted on plan. 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

STRUCTURAL MASONRY:

Design is based on Unit Strength Method

MSJC, Section SC-1.4 B.2.

Compressive strength of masonry assembly used for design is 1500 psi, based on net-bedded area.

Hollow load-bearing concrete masonry (CMU) shall be medium-weight units conforming to ASTM C90, Grade N1, minimum compressive strength 1,900 psi based on average net area.

Mortar shall be Type S conforming to ASTM C270.

Masonry cement shall not be used.

Provide full shovled mortar in all head and bed joints.

Admixtures shall not be added for any reason unless approved by the Architect.

Except for lintels, bond beam units shall be produced from standard vertically voided units with pre-cut knockout cross walls.

Grout used in masonry walls and block cells shall be:

course grout, as defined by ASTM C476, with a minimum cube strength = 2,000 psi.

3000 psi concrete using 5/8" diameter aggregate, placed by vibrating unless an approved self consolidating mix is used

Lifts shall not exceed five feet in height

If grout pour height exceeds 5 feet, clean-out holes shall be provided.

Space continuous horizontal joint reinforcing at 16" maximum in all CMU walls.

Joint reinforcing shall be welded type with 9 gage side-wires and 9 gage trussed or ladder cross wires.

Reinforcing bars shall be as for reinforced concrete except as noted.

At splices, lap bars 48 diameters.

Provide reinforced grouted vertical cells at corners, ends of walls, jambs of openings, each side of vertical control joints, and at spacing shown on drawings.

Reinforcement shall be secured against displacement prior to grouting by wire bar locators or other suitable devices at intervals not exceeding 200 bar diameters or 10 feet.

Where noted on the drawings,

provide clearance between masonry and structural elements, or wrap steel with polyethylene film.

Provide vertical control joints in all masonry walls as located on architectural drawings or at 25'-0" maximum spacing.

at both jambs of openings wider than six feet.

Submit for review

Certificates for materials used in masonry construction indicating compliance with the contract documents

Special Inspection is required by design. See Special Inspection Notes.

MSJC Level 2 Quality Assurance, MSJC Table 1.14.2

Prism and grout tests will be required prior to the start of masonry work shall consist of five (5) masonry prisms.

Test specimens shall be made by the masons, at the direction of the owner's representative,

with materials and techniques currently being used in the wall.

Specimens shall be protected and field cured for 48 hours before being transported to a testing agency.

The testing agent will be hired by the owner and shall be responsible for laboratory care and curing of specimens, testing, and reporting results to the owner, contractor, architect, and engineer in accordance with ASTM E447-92

LOOSE LINTELS:

Unless noted otherwise, provide galvanized loose lintels per general notes detail.

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.

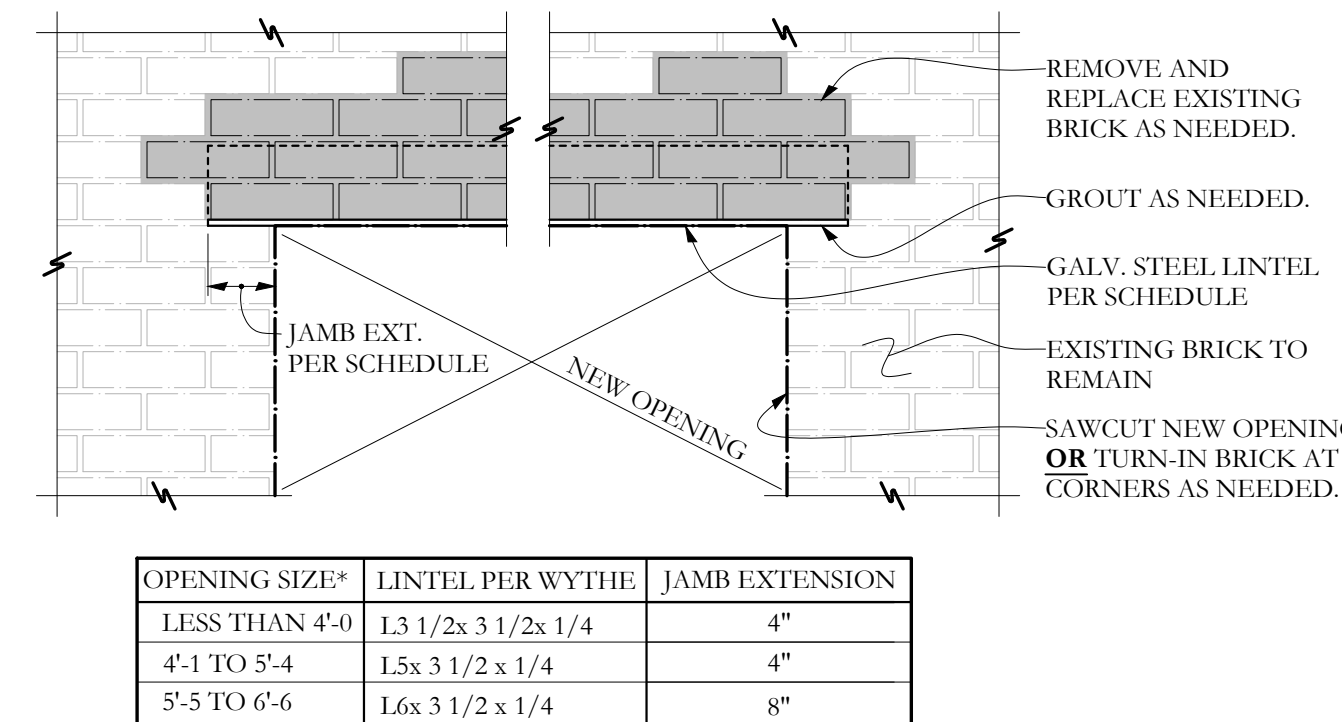
The architect and engineer bear no responsibility for the above items, and observation visits to the site do not in any way include inspection of them.

ABBREVIATIONS KEY

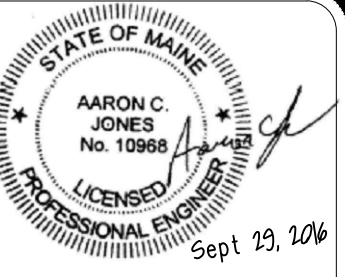
AB	Anchor Rod (Bolt)	EF	Each Face	MACH	Machine	SC	Slip-Critical
ADDD	Additional	EJ	Expansion Joint	MASY	Masonry	SCH	Schedule
ADDJ	Adjustable	ELEV	Elevation	MATL	Material	SDST	Self-Drilling Self-Tapping
AFF	Above Finished Floor	ELEC	Electric (Electrical)	MAX	Maximum	SECT	Section
ALT	Alternate	ENGR	Engineer	MB	Machine bolt	SF	Square Feet
AMT	Amount	EQ	Equal	MECH	Mechanical	SFT	Sheet
ANCH	Anchor, Anchorage	EQUIP	Equipment	MEZZ	Mezzanine	SHTG	Sheathing
APPROX	Approximate	EQUIV	Equivalent	MFR	Manufacture, -er, -ed	SIM	Similar
ARCH	Architect, -ural	ES	Each Side	MIN	Minimum	SLH	Short Leg Horizontal
ATR	All Thread Rod	EST	Estimate	ML	Microllam (Truss-joist brand LVL)	SLV	Short Leg Vertical
AVG	Average	E-W	East to West	MO	Masonry Opening	SOG	Slab on Grade
BC	Bottom of Concrete	EXC	Excavate	MTL	Metal	SP	Spaces
BL	Brick Ledge	EXP	Expansion	NF	Near Face	SPEC	Specifications
BLK	Block	EXT	Exterior	NIC	Not In Contract	SQ	Square
BLKG	Blocking	FND	Foundation	NS	Near Side	ST	Snug Tight
BM	Beam	FF	Far Face, Finished Floor	N-S	North to South	STD	Standard
BOT	Bottom	F-F	Face to Face	NTS	Not to Scale	STIFF	Stiffener
BRG	Bearing	FIG	Figure	OCJ	OSHA Column Joist	STL	Steel
BW	Bottom of Wall	FL	Flush	OD	Outside Diameter	STRUCT	Structure, -al
CB	Counterbore	FLG	Flange	OF	Outside Face	SUPPT	Support
CG	Cubic Foot	FLR	Floor	OH	Opposite Hand	SY	Square Yard
CF	Center of Gravity	FO	Face of	OPP	Opposite	SYM	Symmetrical
CIP	Cast in Place	FP	Full Penetration	OSB	Oriented Strand Board	T&B	Top and Bottom
CJ	Construction Joint (Control Joint)	FS	Far Side	OSB	Oriented Strand Board	T&G	Tongue and Groove
CLG	Ceiling	FTG	Footing	PAF	Powder Actuated Fastn	TB	Top of Beam
CLR	Clear	GALV	Galvanized	PC	Precast	TC	Top of Concrete
CM	Construction Manager (Management)	GC	General Contractor	PCF	Pounds Per Cubic Foot	TD	Top of Deck
CMU	Concrete Masonry Unit	GEN	General	PCF	Pounds Per Cubic Foot	THD	Thread
COL	Column	GL	Glue laminated (Glulam)	PEN	Penetration	THK	Thick, -ness
COM	Common	GND	Ground	PERP	Perpendicular	TI	Top of Joist
COMB	Combination	GR	Grade	PL	Property Line	TL	Total Load
CONC	Concrete	GRD	Grade	PLF	Pounds per Linear Foot	TPG	Topping
CONN	Connection	GT	Girder Truss	PNL	Panel	TRANS	Transverse
CONT	Continue (Continuous)	GYP BD	Gypsum Board	PP	Panel Point	TW	Top of Wall
COORD	Coordinate, -tion	HAS	Headed Anchor Stud	PS	Prestressed	TYP	Typical
CS	Countersink	HORIZ	Horizontal	PSF	Pounds per Square Foot	ULT	Ultimate
CTR	Center	HGT	Height	PSI	Pounds per Square Inch	UNO	Unless Noted Otherwise
CY	Cubic Yard	ID	Inside Diameter	PSL	Parallel Strand Lumber (generic term)	VERT	Vertical
DAB	Deformed Anchor Bar	IF	Inside Face	PT (1)	Post Tensioned	VIF	Verify in Field
DET	Detail	INT	Interior (Intermediate)	PT (2)	Pressure Treated	WA	Wedge Anchor
DEV	Develop	JB	Joist Bearing	PTN	Partition	WP	Work Point
DIAG	Diagonal	JST	Joist	PWD	Plywood	WT	Weight
DIM	Dimension	JT	Joint	QTY	Quantity	WWF	Welded Wire Fabric
DL	Dead Load	K	Kip (1,000 lbs)	R	Radius	XS	Extra Strong
DN	Down	LD	Load	RE	Reference (refer to)	XSECT	Cross-section
DP	Drilled Pier	LL	Live Load	RECT	Rectangle	XSS	Double Extra Strong
DPT	Double Tee	LLH	Long Leg Horizontal	REINF	Reinforce, -ed, -ing	(E)	Existing
DWG	Drawing	LLV	Long Leg Vertical	REQ	Required	(N)	New
DWL	Dowel	LOC	Location	REQMT	Requirement	(R)	Remove
EA	Each	LSL	Laminated Strand Lumber (generic term)	RET	Retaining		
ECC	Eccentric	LTL	Laminated Veneer Lumber (generic term)	RM	Room		
E-E	End to End			RMO	Rough Masonry Opening		
				RO	Rough Opening		

Structural Drawing Index

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S-1.1	Foundation Plan
S-1.2	Framing Plan
S-2.1	Sections



NEW LINTEL INSTALLATION IN EXISTING BRICK
N.T.S.



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SHEET TITLE:

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S-1.0