

**STRUCTURAL GENERAL NOTES**

**Grime Studios – Portland, ME**  
SI Job # 17-0188

**DESIGN LOADS:** International Building Code, IBC 2009 Edition, except as noted

Occupancy Category, Table 1604.5 II Standard

Floors: Office 50 psf  
Stairs 100 psf

**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 <sub>c</sub> , psi 28day	Max W/C Ratio	Maximum Aggregate	Slump inches	Entrained Air Percent ±1.5%	Cement Type	Admixtures, Comments
footings	3,500	.6	¾" Stone	4	---	I/II	
walls	4,000	.45	¾" Stone	4	6%	I/II	
grade beams, pile caps	4,000	.5	¾" Stone	4	3%	I/II	
struct slab on deck	4,000	.5	¾" Stone	4	---	I/II	6x6 – W2, 1xW2, 1 W.F.F.
formed struct slab	4,000	.45	¾" Stone	4	3%	I/II	
exterior slab on grade	4,500	.45	¾" Stone	4	6%	I/II	
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:

- 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"
- 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-X 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" filled by length of contact edge.

All post-installed anchors shall have current National 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 National 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 lintels and headers at openings where not specifically detailed.

Member sizes noted on drawings are in the new SSMA standard nomenclature:

(##d)(sd)(#w)-##1

(#d) Member Depth (inches hundredths)

(sd) Style Designation (see Style Designation in table below)

(#w) Flange Width (inches hundredths)

(##1) Material Thickness (mils) (see Mils vs equivalent Gauge in table below)

(sd) Style Designation

Member Type

(##1) 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 light gauge framing, structural steel, and stair framing.

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.

**ABBREVIATIONS KEY**

AB	Anchor Rod (Bolt)	EF	Each Face	MACH	Machine	SC	Slip Critical
ADDD	Additional	EJ	Expansion Joint	MASY	Masonry	SCH	Schedule
ADJ	Adjustable	ELEV	Elevation	MATL	Material	SDST	Self Drilling Self Tapping
AF	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	SHT	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 (Trus-joist brand LVL)	SLV	Short Leg Vertical
AVG	Average	E-W	East to West	MO	Masonry Opening	SOG	Slabs on Grade
BC	Bottom of Concrete	EXC	Excavate	NF	Near Face	SP	Spaces
BL	Brick Ledge	EXP	Expansion	MTL	Metal	SPEC	Specifications
BLK	Block	EXT	Exterior	NF	Near Face	SQ	Square
BLKG	Blocking	FND	Foundation	NIC	Not In Contract	ST	Snug Tight
BM	Beam	FF	Far Face, Finished Floor	NS	Near Side	STD	Standard
BOT	Bottom	F-F	Face to Face	N-S	North to South	STIFF	Stiffener
BRG	Bearing	FIG	Figure	NTS	Not to Scale	STL	Steel
BW	Bottom of Wall	FL	Flush	OCJ	OSHA Column Joist	STRUCT	Structure, -al
CB	Counterbore	FLG	Flange	OD	Outside Diameter	SUPT	Support
CF	Cubic Foot	FLR	Floor	OF	Outside Face	SY	Square Yard
CG	Center of Gravity	FO	Face of	OH	Opposite Hand	SYM	Symmetrical
CP	Cast in Place	FP	Full Penetration	OPNG	Opening	T&B	Top and Bottom
CJ	Construction Joint (Control Joint)	FS	Far Side	OPP	Opposite	T&G	Tongue and Groove
		FTG	Footing	OSB	Oriented Strand Board	TB	Top of Beam
CLG	Ceiling	GA	Gage (Gauge)	PAF	Powder Actuated Fast'n's	TC	Top of Concrete
CLR	Clear	GALV	Galvanized	PC	Precast	TD	Top of Deck
CM	Construction Manager (Management)	GC	General Contractor	PCF	Pounds Per Cubic Foot	THD	Thread
CMU	Concrete Masonry Unit	GEN	General	PEN	Penetration	THK	Thick, -ness
COL	Column	GL	Glue laminated (Glulam)	PERP	Perpendicular	TJ	Top of Joist
COM	Common	GND	Ground	PL	Property Line	TL	Total Load
COMB	Combination	GR	Grade	PLF	Pounds per Linear Foot	TPG	Topping
CONC	Concrete	GT	Girder Truss	PNL	Panel	TRANS	Transverse
CONN	Connection	GYP BD	Gypsum Board	PP	Panel Point	TW	Top of Wall
CONTR	Contract	HAS	Headed Anchor Stud	PS	Prestressed	TYP	Typical
COORD	Coordinate, -tion	HORIZ	Horizontal	PSF	Pounds per Square Foot	ULT	Ultimate
CS	Countersink	HT	Height	PSI	Pounds per Square Inch	LUNO	Unless Noted Otherwise
CTR	Center	ID	Inside Diameter	PSL	Parallel Strand Lumber (generic term)	VERT	Vertical
CY	Cubic Yard	IF	Inside Face	PT (1)	Post Tensioned	VIF	Verify in Field
DAB	Deformed Anchor Bar	INT	Interior (Intermediate)	PT (2)	Pressure Treated	WA	Wedge Anchor
DET	Detail	JB	Joist Bearing	PTN	Partition	WP	Work Point
DEV	Develop	JST	Joist	PWD	Plywood	WT	Weight
DIAG	Diagonal	JT	Joint	WWF	Welded Wire Fabric	XS	Extra Strong
DIM	Dimension	K	Kip (1,000 lbs.)	QTY	Quantity	XSECT	Cross-section
DL	Dead Load	LD	Load	R	Radius	XXS	Double Extra Strong
DN	Down	LL	Live Load	RE	Reference (refer to)		
DP	Drilled Pier	LLH	Long Leg Horizontal	RECT	Rectangle	(E)	Existing
DT	Double Tee	LLV	Long Leg Vertical	REINF	Reinforce, -ed, -ing	(N)	New
DWG	Drawing	LOC	Location	REQ	Required	(R)	Remove
DWL	Dowel	LSL	Laminated Strand Lumber (generic term)	REQMT	Requirement		
EA	Each	LT	Light	RET	Retaining		
ECC	Eccentric	LVL	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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S1.1	Second Floor Framing Plan
S2.1	Details

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**GRIME STUDIOS**  
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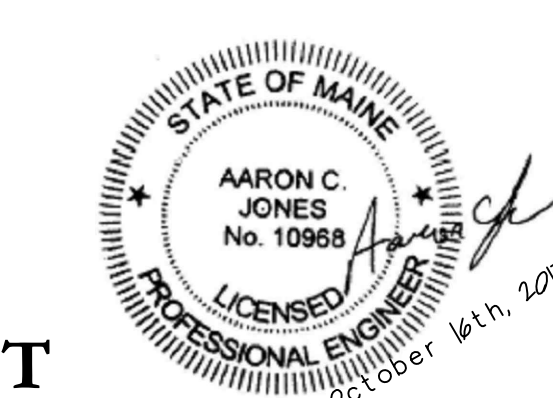
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**S1.0**



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