STRUCTURAL GENERAL NOTES

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

Ground Snow,	Pg		60 psf (used for drifting calculations)
Uniform Snow low,	Pf		34 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:

Office floor	50 psf.
Corridors & Public Spaces	100 psf
Corridors above first floor	80 psf
Storage Areas	125 psf

Lateral:

Wind	IBC 1603.1.4, ASCE 7-05	Analytic Method	
	3 Second Gust Velocity	100 mph	
	Importance Factor	1.00	
	Building Category and Internal Pressure Coefficient		
	IBC 1609.2, ASCE Figure 6-5	Enclosed	GCpi=0.18
	Exposure	B	
	Components and Cladding Pressures	70 psf at parapets and overhangs 45 psf at all other zones, uno.	

REINFORCED CONCRETE:
Design is based on "Building Code Requirements for Reinforced Concrete"(ACI 318). Concrete work shall conform to "Standard Specifications for Structural Concrete" (ACI 301).
Structural concrete shall have the following properties: ***THE USE OF FLY ASH/ BLAST FURNACE SLAG TO REDUCE CEMENT CONTENT IS ENCOURAGED.***

Intended Use	f'c, psi 28day	Max W/C Ratio	Maximum Aggregate	Slump inches	Entrained Air Percent ±1.5%	Cement Type	Admixtures, Comments
Topping slab	4,000	.5	¾" Stone	4	---	I/II	6x6 – W1.4XW1.4 W.W.F. + fibermesh
interior slabs on grade	3,500	.5	¾" Stone	4	---	I/II	Fibermesh

Detailing, fabrication, and placement of reinforcing steel shall be in accordance with the Manual of Standard Practice for Detailing Reinforced Concrete Structures (ACI 315-99).
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"
Fibremesh admixture shall be 100% virgin polypropylene, fibrillated fibers as manufactured by Fibremesh 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 the 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", 1985.
All beams shall have full depth web stiffeners each side of webs above and below columns
Anchor rods shall conform to ASTM F1554, high strength Gr 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-ES 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-ES 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 43 mils (18 gauge) and heavier shall be 50 ksi yield.
33 mils (20 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)-(##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, light gauge steel framing, steel stair framing and misc metals.
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.

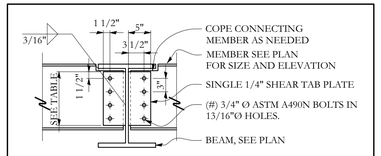
VERIFICATION OF FIELD CONDITIONS:
Contractor shall thoroughly inspect and survey to verify conditions that affect the work shown on the drawings.
Contractor shall report any variations or discrepancies to the Architect before proceeding.

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.

LETTERS OF CONSTRUCTION COMPLIANCE:
The General Contractor shall determine from the local building official at the time the building permit is obtained whether any letters of construction compliance will be requested from the Structural Engineer.
The Contractor shall notify the engineer about all such requirements in writing before the start of construction.
One-day advance notice shall be given when requesting site visits necessary as the basis for the compliance letter.

ABBREVIATIONS KEY

AB	Anchor Rod (Bolt)	EF	Each Face	MACH	Machine	SC	Slip Critical
ADDL	Additional	EJ	Expansion Joint	MASY	Masonry	SCH	Schedule
ADJ	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	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			SOG	Slab on Grade
BC	Bottom of Concrete	EXC	Excavate	MO	Masonry Opening	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
CIP	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'nt	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
		GEN	General	PEN	Penetration	THK	Thick, -ness
CMU	Concrete Masonry Unit	GL	Glue laminated (Glulam)	PERP	Perpendicular	TJ	Top of Joist
COL	Column	GND	Ground	PL	Property Line	TL	Total Load
COM	Common	GR	Grade	PLF	Pounds per Linear Foot	TPG	Topping
COMB	Combination	GT	Girder Truss	PNL	Panel	TRANS	Transverse
CONC	Concrete	GYP BD	Gypsum Board	PP	Panel Point	TW	Top of Wall
CONN	Connection	HAS	Headed Anchor Stud	PS	Prestressed	TYP	Typical
CONT	Continue (Continuous)	HORIZ	Horizontal	PSF	Pounds per Square Foot	ULT	Ultimate
COORD	Coordinate, -tion	HT	Height	PSI	Pounds per Square Inch	UNO	Unless Noted Otherwise
CS	Countersink	ID	Inside Diameter	PSL	Parallel Strand Lumber (generic term)	VERT	Vertical
CTR	Center	IF	Inside Face			VIF	Verify in Field
CY	Cubic Yard	INT	Interior (Intermediate)	PT (1)	Post Tensioned	WA	Wedge Anchor
DAB	Deformed Anchor Bar	JB	Joist Bearing	PT (2)	Pressure Treated	WP	Work Point
DET	Detail	JST	Joist	PTN	Partition	WT	Weight
DEV	Develop	JT	Joint	PWD	Plywood	WWF	Welded Wire Fabric
DIAG	Diagonal	K	Kip (1,000 lbs.)	QTY	Quantity	XS	Extra Strong
DIM	Dimension	LD	Load	R	Radius	XSECT	Cross-section
DL	Dead Load	LL	Live Load	RE	Reference (refer to)	XXS	Double Extra Strong
DN	Down	LLH	Long Leg Horizontal	RECT	Rectangle		
DP	Drilled Pier	LLV	Long Leg Vertical	REINF	Reinforce, -ed, -ing	(E)	Existing
DT	Double Tee	LOC	Location	REQ	Required	(N)	New
DWG	Drawing	LSL	Laminated Strand Lumber (generic term)	REQMT	Requirement	(R)	Remove
DWL	Dowel			RET	Retaining		
EA	Each	LT	Light	RM	Room		
ECC	Eccentric	LVL	Laminated Veneer Lumber (generic term)	RMO	Rough Masonry Opening		
E-E	End to End			RO	Rough Opening		



SINGLE-PLATE SHEAR CONNECTION SCHEDULE

CONN. BM. SIZE	# OF 3/4"Ø BOLTS	L (in.)	CONN CAP. (kips)
C8, C10, W8, W10	2	6	8
C12, C14, W12, W14	3	9	16
C16, W16	4	12	26

*ALL BOLTS TO BE ASTM A490 -TYP UNO

Structural Drawing Index

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S1-2	Existing 2nd Floor Framing Plan
S1-3	Existing Roof Framing Plan
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S1-5	New Roof Framing Plan
S2-1	Sections

1
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GENERAL NOTES ETC.

S1.0