

STRUCTURAL GENERAL NOTES

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

Roofs:	II	Standard
Ground Snow, Pg	50 psf	(used for drifting calculations)
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:		
Residential	40 psf	
Residential Decks	60 psf	
Corridors/Stairs	100 psf	
Lateral		
Wind	IBC 1603.1.4, ASCE 7-05	Analytic Method
	3 Second Gust Velocity	100 mph
	Importance Factor	1.0
	Building Category and Internal Pressure Coefficient	
	IBC 1609.2, ASCE Figure 6-5	Enclosed
	Exposure	C

- FOUNDATION:**
- * 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: 1,500 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 _c , psi 28day	Max W/C Ratio	Maximum Aggregate	Slump inches	Entrained Air Percent ±1.5%	Cement Type	Admixtures, Comments
footings	3,500	.6	3/4" Stone	4	---	I/II	
walls	4,000	.45	3/4" Stone	4	6%	I/II	
struct slab on deck	4,000	.5	3/4" Stone	4	---	I/II	6x6 - W2.1xW2.1 W.F.F.
formed struct slab	4,000	.45	3/4" Stone	4	3%	I/II	
exterior slab on grade	4,500	.45	3/4" Stone	4	6%	I/II	
interior slabs on grade	3,500	.5	3/4" Stone	4	---	I/II	Fibermesh
beams, columns	4,000	.45	3/4" Stone	4	6%	I/II	

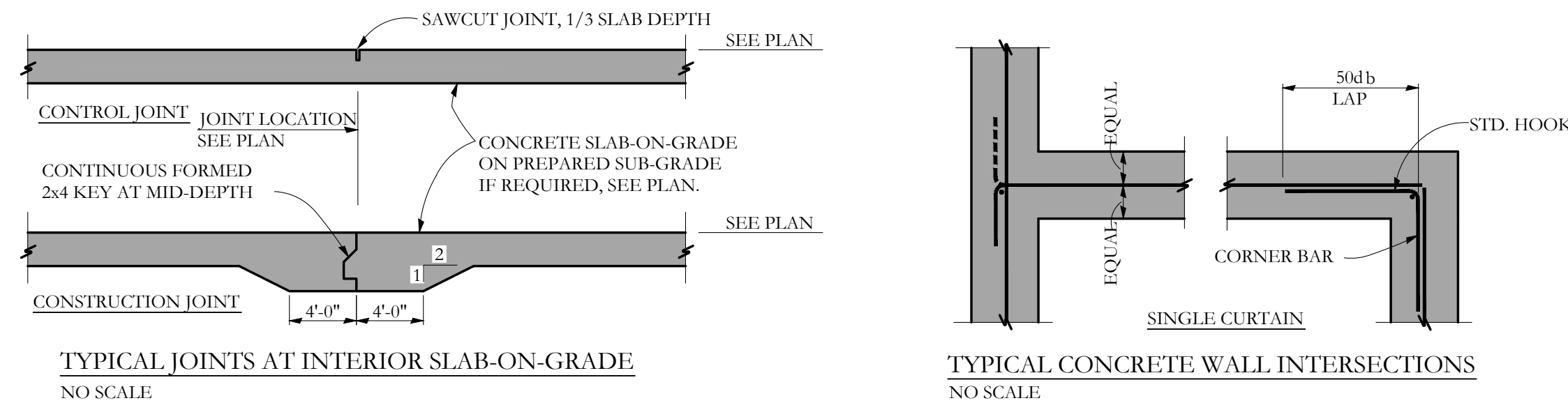
Detailing, fabrication, and placement of reinforcing steel shall be in accordance with the Manual of Standard Practice for Detailing Reinforced Concrete Structures (ACI 315).
Welded wire fabric shall conform to ASTM A185.
Reinforcing bars shall conform to ASTM A615, Grade 60,
except ties or bars shown 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-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 - typ.
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 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



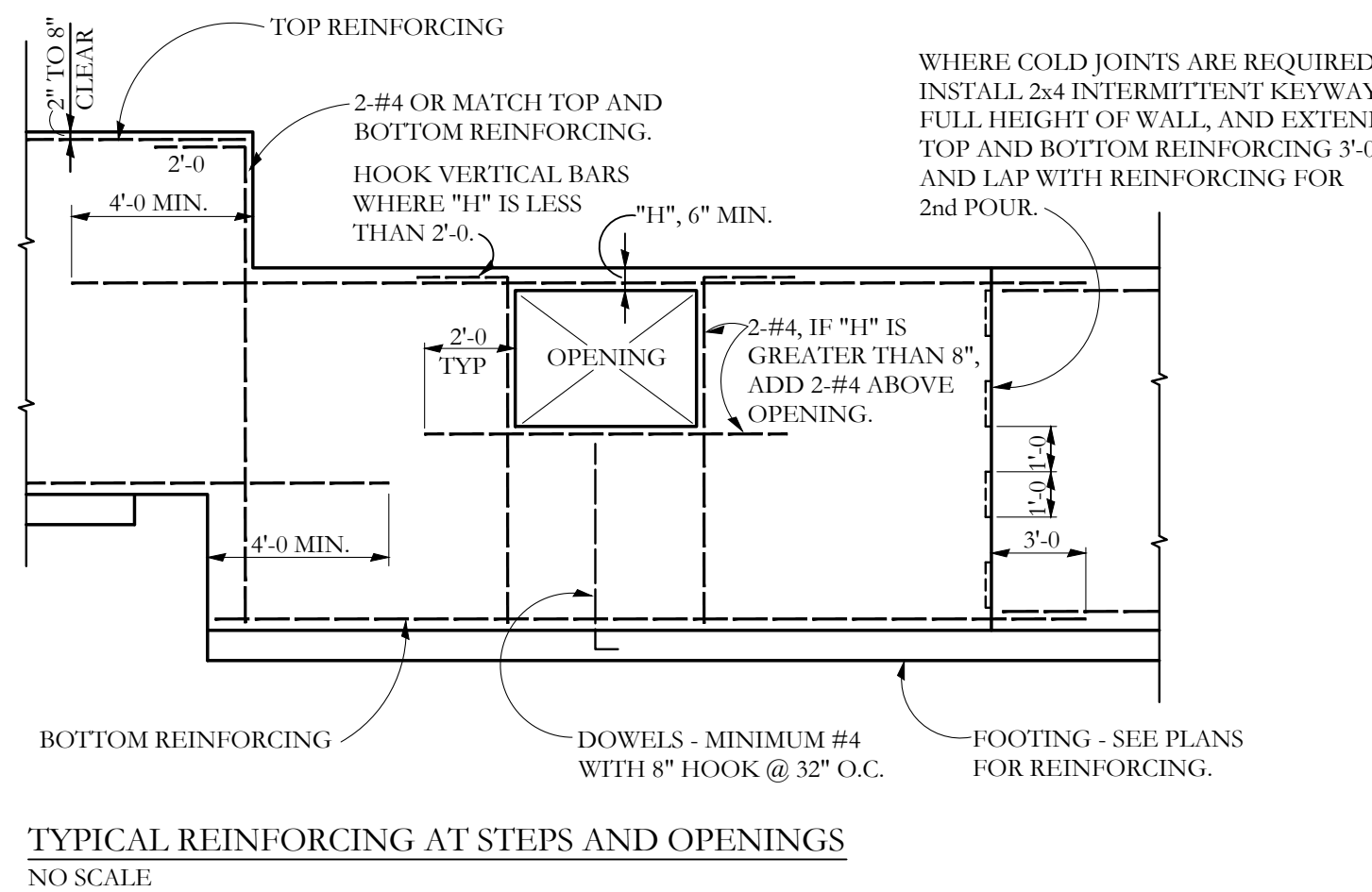
STRUCTURAL WOOD FRAMING:
In-Grade Base Values have been used for design.
2x Framing shall be Spruce-Pine-Fir S4S No. 2 and better unless noted.
All lumber shall be 19% maximum moisture content, unless noted.
Solid timber beams and posts shall be Douglas Fir-Larch No. 1.
Studs shall be Spruce-Pine-Fir S4S No. 2 and better.
Top and bottom plates shall be Spruce-Pine-Fir S4S No. 2 or better.
Wood in contact with concrete shall be pressure-treated Spruce-Pine-Fir S4S No. 2 or Southern Yellow Pine.
Conventional light framing shall comply with IBC Section 2308.
Except as noted otherwise, minimum nailing shall be provided as specified in IBC Table 2304.9.1 "Fastening Schedule."
ALL PLYWOOD SHEATHING SHALL BE OSB SHEATHING AND SHALL BE APA GRADED WITH PANEL IDENTIFICATION INDEX, THICKNESS, AND NAILING AS NOTED ON THE DRAWINGS.
Nail wall sheathing with 8d commons at 4" o.c. at panel edges, and 12" o.c. at intermediate framing except as noted.
SHEATH ALL EXTERIOR WALLS. SHEATH INTERIOR WALLS AS SHOWN ON THE DRAWINGS. BLOCK AND NAIL ALL EDGES BETWEEN STUDS.
Sheathing shall be continuous from bottom plate to top plate. Cut in "L" and "T" shapes around openings. Lap sheathing over rim joists min. 4" at all floors to tie upper and lower stud walls together.
Minimum height of sheathing panels shall be 16" to assure that plates are tied to studs.
Minimum 3-8d per stud and nail plates with "edge nail" spacing.
Sole plate at all perimeter walls and at designated shear walls shall be nailed as for braced panels with 3-16d x 3 1/2" long box nails (control or deformed shank) per 16". 12d nails are not acceptable.
Provide solid blocking between joists under jamb studs of openings.
Pre-engineered, prefabricated trusses shall be designed for the fabricator by a Professional Engineer Registered in the State of construction, and shall comply with Code Requirements.

Truss to truss connections specified shall be by truss supplier, unless specifically noted on the drawings.
Lower chord of gable end trusses shall be anchored to wall plate with framing anchors at 4'-0" spacing and laterally braced to roof framing at 8'-0" spacing.
Truss supplier shall specify all floor and roof truss bracing and bridging.
All roof rafters, joists, trusses, and beams shall be anchored to supports with metal framing anchors.
Light gage framing anchors shown or required, shall be Simpson "Strong Tie" or equal Code approved connectors and installed with the number and type of nails recommended by the manufacturer to develop the rated capacity.
Note that heavy-duty hangers and skewed hangers may not be stocked locally and require special order from the factory.
All beams and trusses shall be braced against rotation at points of bearing.
Unless otherwise indicated, install two lengths of solid blocking x joist depth x 12 inches long in floor framing under column loads. Columns must have a continuous load path to foundation.
Lead holes for lag screws shall be drilled in accordance with Table 6.23 of the AITC Timber Construction Manual, 3rd edition.

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 and structural steel.
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.

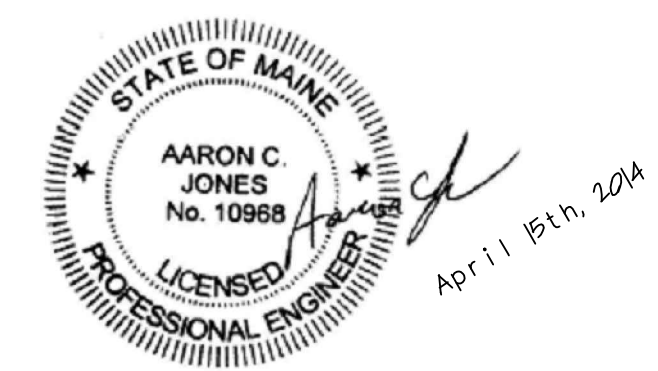


ABBREVIATIONS KEY

AB Anchor Rod (Bolt)	EF Each Face	MACH Machine	SC Slip Critical
ADDL 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 Microlam (Trus-joist brand LVL)	SLV Short Leg Vertical
AVG Average	E-W East to West		SOG Slabs 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 Smag 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 Corebore	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
CLG Ceiling	FTG Footing	OSB Oriented Strand Board	TB Top of Beam
CLR Clear	GA Gage (Gauge)	PAF Powder Actuated Fast'n	T&G Top of Concrete
CM Construction Manager (Management)	GAL Galvanized	PC Precast	TD Top of Deck
CMU Concrete Masonry Unit	GC General Contractor	PCF Pounds Per Cubic Foot	THD Thread
COL Column	GEN General	PEN Penetration	THK Thick, -ness
COM Common	GL Glue laminated (Glulam)	PERP Perpendicular	TJ Top of Joist
COMB Combination	GND Ground	PL Property Line	TL Total Load
CONC Concrete	GR Grade	PLF Pounds per Linear Foot	TRG 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	ID Inside Diameter	PSI Pounds per Square Inch	UNO Unless Noted Otherwise
CY Cubic Yard	IF Inside Face	PSL Parallel Strand Lumber (generic term)	VERT Vertical
DAB Deformed Anchor Bar	INT Interior (Intermediate)	PT (1) Post Tensioned	VIF Verify in Field
DET Detail	JB Joist Bearing	PT (2) Pressure Treated	WA Wedge Anchor
DEV Develop	JST Joist	PTN Partition	WP Work Point
DIAG Diagonal	JT Joint	PWD Plywood	WWF Welded Wire Fabric
DIM Dimension	K Kip (1,000 lbs.)	QTY Quantity	XS Extra Strong
DL Dead Load	LD Load	R Radius	XSECT Cross-section
DN Down	LL Live Load	RE Reference (refer to)	XXS Double Extra Strong
DP Drilled Pier	LLH Long Leg Horizontal	RECT Rectangle	(E) Existing
DT Double Tee	LLV Long Leg Vertical	REIN 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 Vener	RM Room	
E-E End to End		RMO Rough Masonry Opening	
		RO Rough Opening	

Structural Drawing Index

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GENERAL NOTES ETC.

DATE: 04/14/2014
PROJECT NO.: 2013-14

DRAWN: MKL
SCALE: NTS

S1.0