GENERAL NOTES - STRUCTURAL

1. General Information:

- A. The contractor shall verify dimensions and conditions before construction and notify the engineer of any discrepancies, inconsistencies, or difficulties affecting the work before proceeding.
- B. The contractor shall coordinate all disciplines, verifying size and location of all openings, whether shown on structural drawings or not, as called for on architectural, mechanical, or electrical drawings. In the case of work in an existing building the contractor shall scan existing structure to locate all rebar in the area of the new core/opening using ground penetrating radar and notify the engineer of record for review prior to coring/cutting. Conflicts,
- inconsistencies, or other difficulties affecting structural work shall be called to the architect or engineer's attention for direction before proceeding. C. All design and construction work for this project shall conform to the
- requirements of the following governing design codes:
- 1. International Building Code (IBC 2018) as amended by the City of Lee's Summit, Missouri. 2. Minimum Design Loads for Buildings and Other Structures (ASCE7-16) 3. Specification for Structural Steel Buildings (AISC 360-16)
- Member Design Basis is Allowable Stress Design (ASD)
- Connection Design Basis is Allowable Stress Design (ASD)
- 4. Structural Welding Code (AWS D1.4-17) 5. Building Code Requirements for Structural Concrete (ACI 318-14)
- Building Code Requirements for Masonry Structures (TMS 402-16)
- 7. North American Specification for the Design of Cold-Formed Steel Structural Members (AISI S100-16)

= 25 psf

= 20 psf

- 8. National Design Specification (NDS) for Wood Construction with 2012 Supplements (ANSI/AWC NDS-2018)
- 9. Special Design Provisions for Wind and Seismic (AWC SDPWS-2015)
- D. These drawings are for this specific project and no other use is authorized.
- 2. Structural Design Load Criteria:
 - A. Dead Loads: Roof
 - B. Live Loads:

 - C. Snow = Pg= 20 psf, Pf=14.0psf, ls = 1.0 Ce=1.0, Ct=1.0, Cs=1.0 Drift per ASCE/SEI 7-16
 - D. Lateral Loads:
 - 1. Wind V= 110 mph, exposure C Occupancy [Risk] Category II, Iw=1.0 GCpi=+/-0.18 Design wind pressures to be used for the design of exterior component and cladding materials on the designated zones of wall and roof surfaces shall be per section 30.7 and Table 30.7-2 of
 - ASCE/SEI 7-16. Tabulated pressures shall be multiplied by effective area reduction factors, exposure adjustment factors, and topographic factors where applicable. 2. Seismic = Ss = 0.099g, S1 = 0.068g
 - Occupancy [Risk] Category II, le=1.0
 - Site Classification C; Sds=0.086g; Sd1=0.068g Seismic Design Category B
 - Equivalent Lateral Force Procedure
 - A.17 Light framed walls with shear panels of all materials R = 2; Omega = 2.5; Cd = 2; V = 0.283W
 - E. This project is designed to resist the most critical effects resulting from the load combinations of section 1605.3 of the 2018 International Building Code.
- 3. Concrete:
 - A. All concrete for foundations (grade beams and footings) shall develop minimum ultimate compressive design strength of 3500 psi in 28 days, but not less than 500 pounds of cement shall be used per cubic yard of concrete regardless of strengths obtained, not over 6 gallons of water per 100 pounds of cement and not over 4 inches of slump.
 - B. All concrete for interior flat work and walls shall develop minimum ultimate compressive design strength of 4000 psi in 28 days, but not less than 550 pounds of cement shall be used per cubic yard of concrete regardless of strengths obtained, not over 5.5 gallons of water per 100 pounds of cement and not over 4 inches of slump.
 - C. Concrete for exterior flatwork shall have a minimum design compressive strength of 4500psi in 28 days, with not less than 560 pounds of cement per cubic yard of concrete, not over 5 gallons of water per 100 pounds of cement, with 6% +/- 1% air entrainment, and a maximum of 4 inches of D. The preceding minimum mix requirements may have water-reducing
 - admixtures conforming to ASTM C494 added to the mix at manufacturer's dosage rates for improved workability.
 - E. The preceding minimum mix requirements may have up to 15% maximum of the cement content replaced with an approved ASTM C618 Class C fly ash, provided the total minimum cementitious content is not reduced.
 - F. Combined aggregate (coarse plus fine) for all concrete shall be well graded from coarsest to finest with no more than 18 percent and not less than 8 percent retained on an individual sieve, except that less than 8 percent may be retained on coarsest sieve and on No. 50 and finer sieves. Submit this gradation report with the concrete mix design shop drawings.
 - G. All interior concrete slabs on grade shall be placed over 15 mil, Class A Vapor Barrier per ASTM E1745 with less than 0.01 perms, tested after mandatory conditioning. All joints shall be lapped and sealed per manufacturer's recommendations. All penetrations, as well as damaged vapor barrier material shall also be sealed per manufacturer's recommendation prior to concrete placement. Install barrier per manufacturer recommended details at all discontinuous edges (at interior columns, exterior edge of slab, etc.) to ensure terms of warranty are followed. The vapor barrier shall be placed over free-draining granular material as prescribed by the project soils report.
 - H. All concrete is reinforced concrete unless specifically called out as unreinforced. Reinforce all concrete not otherwise shown with same steel as in similar sections or areas. Any details not shown shall be detailed per ACI 315 and meet requirements of ACI 318, current editions.
 - I. Contractor shall verify that all concrete inserts, reinforcing and embedded items are correctly located and rigidly secured prior to concrete placement J. No aluminum items shall be embedded in any concrete.
- 4. Reinforcing Steel:
- A. All reinforcing steel shall conform to the requirements of ASTM A615 or A706 grade 60 steel. Welded plain wire fabric shall be supplied in sheets and conform to the requirements of ASTM A185.
- B. Clear minimum coverage of concrete over reinforcing steel shall be as follows: Concrete placed against earth: 3"

1-1/2"

- 2. Formed concrete against earth: 2" 3. Slabs:
- Beams or Columns:
- . Other All coverage shall be nominal bar diameter minimum
- C. All dowels shall be the same size and spacing as adjoining main bars (splice lap 48 bar diameters or 24" minimum unless noted otherwise).
- D. At corners of all walls, beams, and grade beams supply corner bars (minimum 2'-0" in each direction or 48 bar diameters) in outside face of wall, matching size and spacing of horizontal bars. Where there are no vertical bars in outside face
- of wall, supply 3 #4 vertical support bars for corner bars. E. Bars marked continuous and all vertical steel shall be lapped 48 bar diameters (2'-0" minimum) at splices and embedments, unless shown otherwise. Splice top bars near midspan and splice bottom bars over supports, unless noted
- otherwise F. At all holes in concrete walls and slabs, add 2 - #5 bars (opening dimension plus 96 diameters long) at each of four sides and add 2 - #5 x 5'-0" diagonally at each of four corners of hole. Openings in 8" thick walls are reinforced similar, but with 1 - #5 instead of 2 - #5, respectively.
- G. Accessories shall be as specified in latest edition of the ACI Detailing Handbook and the concrete Reinforcing Steel Institute Design Handbook. Maximum accessory spacing shall be 4'-0" on center, and all accessories on exposed surfaces are to have plastic coated feet.
- H. Allow 0.5 tons of reinforcing bars #4 or larger to be used as directed in the field for special conditions by the engineer of record (labor for placing same to be included)

5. Foundations:

- A. The soil investigation was prepared by Terracon Consultants, Inc., and the project number is 02225125 and the telephone number is 913-492-7777.
- B. Spread footings, grade beams, and retaining walls are designed to bear on undistrurbed clay soil or geotechnical approved structural fill capable of safely sustaining 2,500 psf.
- C. Concrete contractor shall provide for dewatering at excavations from either
- surface water or seepage D. Moisture content in soils beneath building locations should not be allowed to change after footing excavations and after grading for slabs on grade are completed. If subgrade materials become desiccated or softened by water content specified for engineered fill. Do not place concrete on frozen ground.
- Post-Installed Anchors:
- A. Post-installed anchors shall be used only where specified on the drawings unless approved in writing by the engineer of record. See drawings for anchor diameter, spacing and embedment. Performance values of the anchors shall be obtained for specified products using appropriate design procedures and/or standards as required by the governing building code. Anchors installed in concrete shall have an ICC-ES Evaluation Service Report. Special inspection is required for all post installed anchors. The contractor shall coordinate an on-site meeting with the post installed anchor manufacturer field representative to educate the construction team on the anchor installation guidelines and requirements.
- B. Mechanical anchors used in cracked and uncracked concrete shall have been tested and qualified for use in accordance with ACI 355.2 and ICC-ES AC193. All anchors shall be installed per the anchor manufacturer's written instructions.
- Adhesive anchors used in cracked and uncracked concrete shall have been tested and qualified for use in accordance with ICC-ES AC308. All anchors shall be installed per the anchor manufacturer's written instructions.
- 7. Timber and Wood Framing:
- A. Quality and construction of wood framing members and their fasteners for load supporting purposes not otherwise indicated on the drawings shall be in accordance with the 2018 International Building Code.
- B. All studs shall be Douglas Fir No. 2 grade or Southern yellow pine No. 2 grade, visually graded lumber, with an allowable fiber stress in bending of 900si minimum and an elastic modulus of 1,400,000 psi unless noted otherwise. All joist, top & bottom plates, and headers to be Douglas Fir or Southern yellow pine, No. 2 grade, (unless noted otherwise). All lumber for exterior decks and balconies shall be preservative-treated Southern yellow pine No. 2 grade,
- visually graded unless noted otherwise. C. Bridging of stud bearing walls and shear walls shall be solid, matching sheathing joints.
- D. Joist blocking and bridging shall be solid wood or cross bridging of either wood or metal straps. Spacing, in any case, shall not exceed 8'-0".
- E. Wood members and sheathing shall be fastened with number and size of fasteners not less than that set forth in Table 2304.9.1 of the 2018 International Building Code. All fasteners into chemically treated material shall be hot-dipped galvanized. Floor sheathing shall be APA rated tongue and groove Sturd-I-Floor, exposure 1, glued and nailed with 10d nails or # 10 screws at 6" on center to supports at edges and 12" on center field. Roof diaphragms shall be edge screwed with #10 screws at 6" on center and screwed to intermediate framing and/or blocking members with #10 screws at 12"on center unless noted on the drawings.
- F. Sill plates shall be bolted to concrete slabs with 1/2" diameter bolts at 32" on center (UNO, Re: shearwall sched). Provide plate washers at sill plate anchors for shearwalls per shearwall sched. Plates in direct contact with concrete or masonry shall be treated lumber.
- G. All hangers, ties and connections shown are based on Simpson Strong Tie as the basis of design, provide Simpson Strong Tie or an approved equal. Joist hangers shall be equal to "LUS" for wood application and "LB" for steel weld-on application. Roof truss ties shall be equal to "H2.5A" and tie the roof truss to the top plate (provide 2) "H2.5A" Diagonally across from each other when uplift load shown in truss shop submittal exceeds 545 lbs). Roof girder ties shall be equal to a "LGT2", "LGT3" or "LGT4" tie (dependent on number of plies) and tie the truss girder to the top track. Provide "H2.5A" at the top of each stud to top plate when the top track has roof truss attached."
- I. Service condition dry with moisture content at or below 19% in service. Laminated strand lumber (LSL) shall have an allowable flexural stress (Fb) of 1,700 psi (reduced by size factor) and an elastic modulus (E) of 1,300,000
- J. Laminated veneer lumber (LVL) shall have an allowable flexural stress (Fb) of 2,600 psi (reduced by size factor) and an elastic modulus (E) of 2,000,000 psi K. Parallel Strand Lumber (PSL) shall have an allowable flexural stress (Fb) of 2,900 psi (reduced by size factor) and an elastic modulus (E) of 2,000,000 psi.
- ((E) = 2,200,000 psi for members > 18") Glulams shall have the following minimum structural properties: flexural stress (Fb) of 2,400 psi, shear stress (Fv) of 265 psi, compressive stress (Fc) of 560
- psi and elastic modulus (E) of 1,800,000 psi M. Pre-engineered wood trusses shall be designed in accordance with the Truss Plate Institute's national design standard for metal-plate connected wood truss construction (ANSI/TPI-1 latest edition). Trusses shall be designed and manufactured by an authorized member of the Wood Truss Council of America (WTCA). Truss design shall conform to specified codes, allowable stress increases, deflection limitations and other applicable criteria of the governing
- N. Shop drawings showing complete erection and fabrication details and calculations (including connections) shall be submitted to the project architect / engineer for review prior to fabrication and/or erection. Calculations shall bear the seal of a professional engineer, registered in the state of the project location. Shop drawings shall also be submitted to the local government controlling agency when requested by that agency.
- O. All trusses shall be securely braced both during erection and permanently, as indicated on the approved truss design drawings and in accordance with TPI's commentary and recommendations for handling, installing and bracing metalplate connected wood trusses (HIB-91, booklet) and the latest edition of ANSI/TPI-1.
- P. The truss manufacturer shall supply all hardware and fasteners for joining truss members together and fastening truss members to their supports. Metal connector plates shall be manufactured by a member of the Wood Truss Council of America (WTCA) and shall be 20 gauge minimum. Connector plates shall meet or exceed ASTM A653, grade 33, with ASTM A924 galvanized coating designation G60.
- Q. Shipment, handling, and erection of trusses shall be by experienced, qualified persons and shall be performed in a manner so as not to endanger life or property. Apparent truss damage shall be reported to the truss manufacturer for evaluation prior to erection. Cutting or alteration of trusses is not permitted.

R.	Roof Truss Design criteria:		
	Top Chord Dead Load	=	15 psf.
	Top Chord Live Load	=	20 psf. (Plus Rooftop Equipment)
	Top Chord Snow Load	=	20 psf or 14 psf plus Drift
	Bottom Chord Dead Load	=	10 psf
	Bottom Chord Live Load	=	0 psf
	Live Load Deflection	=	L/360
	Total Load Deflection	=	L/300 (1" MAX)

- S. Roof trusses shall be designed per IBC 2018 for net uplift resulting from wind
- loading based on component and cladding loading. T. Construction bracing shall be provided by the contractor as required to keep the

building and studs plumb.

- U. Structural members shall not be cut for pipes, etc., unless specifically detailed. Notching and boring of studs and top of plates shall conform to the provisions of section 2308.9.10 and 2308.9.11 of the IBC. Where top plates or sole plates are cut for pipes, ametal tie with minimum 0.058 inches thick and 1 1/2" inches wide shall be fastened to each plate across and to each side of the opening with not less than (6) 16d nails, in accordance section 2308.9.8 of the IBC. V. All fasteners for wood to wood connections and wood connectors shall be as
- indicated in structural drawings or manufacturer literature to achieve full capacity of connector. Submittal must show that alternative will not reduce the capacity of the connection. All fasteners into chemically treated material shall be hotdipped galvanized.

8. Shop Drawing Review:

- A. Bob D. Campbell and Company, Inc. will review the General Contractor's (GC) shop drawings and related submittals (as indicated below) with respect to the ability of the detailed work, when complete, to be a properly functioning integral element of the overall structural system designed by Bob D. Campbell and Company, Inc.
- B. Prior to submittal of a shop drawing or any related material to Bob D. Campbell and Company, Inc., the GC shall: 1. Review each submission for conformance with the means, methods, techniques, sequences and operations of construction and safety precautions and programs incidental thereto, all of which are the sole responsibility of the GC.
- 2. Review and approve each submission. Stamp each submission as approved.
- C. Bob D. Campbell and Company, Inc. shall assume that no submission comprises a variation unless the GC advises Bob D.
- Campbell and Company, Inc. with written documentation. D. Shop drawings and related material (if any) required are indicated below. Should Bob D. Campbell and Company, Inc. require more than ten (10) working days to perform the review, Bob D. Campbell
- and Company, Inc. shall so notify the GC. Miscellaneous anchors shown on the structural drawings.
- 2. Construction and control joint plans and/or elevations.
- 3. Wood truss design and calculations and detailed erection and fabrication drawings. 4. Wood shearwall holdown system.
- 5. Concrete mix designs and material certificates including admixtures and compounds applied to the concrete after placement.
- E. Bob D. Campbell and Company, Inc. shall review shop drawings and related materials with comments provided that each submission has met the above requirements. Bob D. Campbell and Company, Inc. shall return without comment unrequired material or submissions without GC approval stamp.

Deferred Submittals:

- A. Submit deferred submittals to Bob D. Campbell and Company for review. After review by Bob D. Campbell and notation indicating that the deferred submittal are in general conformance with the design of the building, the contractor shall forward the deferred submittal documents to the building official.
- B. Do not install deferred submittal items until their design and submittal documents have been appoved by the building official. C. Deferred submittals shall be prepared under the direct supervision of a
- licensed professional engineer licensed in the state for which the projected is located and the submittal shall bear their seal and signature. D. Deferred submittals shall include supporting calculations.
- E. Submittal requiring a deferred submittal:
- 1. Wood truss design calculations and detailed erection and fabrication drawings
- 2. Handrails, guardrails, and grab bar.
- 3. Pre-fabricated canopies.

10. Structural Special Inspection:

- A. The structural design for this project is based on completion of special inspections during construction in accordance with section 1704 of the International Building Code. The owner shall employ one or more qualified special inspectors to provide the required special inspections.
- B. The special inspector shall furnish inspection reports to the building official,
- owner, architect and structural engineer, and any other designated person. All discrepancies shall be brought to the immediate attention of the contractor for correction, then, if uncorrected, to the proper design authority, building official and structural engineer
- D. The special inspector shall submit a final signed report stating that the work requiring special inspection was, to the best of the inspector's knowledge, in conformance with the approved plans and specifications and the applicable workmanship provisions of the building code.
- E. The following inspections and tests are required with the frequency (continuous or periodic) as defined within the referenced section or standard listed below. The General Contractor shall provide notification to the inspector when items requiring inspection are ready to be inspected and provide access
- for those inspections. 1. Shop Fabrication – pre-engineered wood trusses per Section 1704.2.5 unless TPI certified shop 2. Concrete Construction per Section 1705.3 and Table 1705.3
- a. Cast in Place Anchors
- b. Post Installed Anchors c. Design Mix Verification
- d. Concrete Sampling and Testing
- . Concrete Placement
- Concrete Curing g. Formwork Shape, Location and Dimensions
- Verification of Soils per Table 1705.6
- 6. Wood Lateral System (periodic)
- a. Wood shearwalls (include sheathing, rim board and bottom plate attachments)
- b. Portal frames
- Shear wall and portal frame holdowns d. Shear wall tension rod system
- 7. Wood Gravity Framing and Placement (adjust frequency of random
- sampling where indicated as required) a. Heavy timber/SCL/glulam beams and supports (periodic)
- b. Headers and jambs (random sampling)
- c. Bearing walls (random sampling) d. Connector/hardware installation (random sampling)
- e. Floor and roof trusses (random sampling)

11.Copyright and Disclaimer:

- A. All drawings in the structural set (S-series drawings) are the copyrighted work of Bob D. Campbell and company, Inc. These drawings may not be photographed, traced, or copies in any manner without the written permission of Bob D. Campbell and Company, Inc. Exception: Original drawings may be printed for distribution to the owner, architect, and general contractor for coordination, bidding, and construction. Subcontractors may not reproduce these drawings for any purpose or in any manner.
- B. I, Christopher A. Beverlin, P.E., registered engineer and a representative of Bob D. Campbell and Company, Inc., do hereby accept professional responsibility as required by the professional registration laws of this state for the structural design drawings consisting of S-series drawings. I hereby disclaim responsibility for all other drawings in the construction document package, they being the responsibility of other design professionals whose seals and signed statements may appear elsewhere in the construction document package.

LEGEND:

	 SPAN DIRECTION OF DECK - DECK TYPE PER SCHEULE ON S0.01
A#	 BEAM OR HEADER PER SCHED ON S0.02
#-u)	 UPSET BEAM OR HEADER PER SCHED ON S0.02
#	 BEARING WALL TYPE PER SCHED ON S0.02
\overline{A}	 SHEARWALL HOLDDOWN TYPE PER SCHED ON S0.03
¥/#	 NUMBER OF RESPECTIVE JACK/KING STUDS IN A STUD PACK. REFER TO DETAIL 4/S0.02
#	 NUMBER OF WALL STUDS IN STUD PACK EQUAL TO KING & JAMB STUDS FROM HEADER ABOVE TYP @ ALL LOCATIONS WITHIN A PILASTER
\widehat{A}	 INDICATED PLAN NOTE PER SCHEDULE ON PLAN SHEET WHERE INDICATED
W#	 SHEARWALL TYPE PER SCHED ON S0.03
3.0	 SPREAD FOOTING PER CONCRETE FOOTING SCHEDULE ON S0.01

@	AT
&	AND
Ø	ROUND, DIAMETER
ADTL	ADDITIONAL
AFF	ABOVE FINISHED FLOOR
ALT	ALTERNATE
ARCH	ARCHITECTURAL
BLDG	BUILDING
B/	BOTTOM OF
BM	BEAM
BOTT	BOTTOM
BRG	BEARING
C	CAMBER
CD-#	CONCRETE DECK TYPE
CIP	
CUF	
COL	
CONC	
CONN	CONNECTION
CONT	CONTINUOUS
	COORDINATE
COV, CVR	COVER
DBL	DOUBLE
DET	DETAIL
DIA	DIAMETER
DIM	DIMENSION
DL	DEAD LOAD
DWG	DRAWING
EA	EACH
EF	EACH FACE
EJ	EXPANSION JOINT
EL, ELEV	ELEVATION
EMBED	EMBEDMENT, EMBEDDED
ENGR	ENGINEER
EOD	EDGE OF DECK
EOR	ENGINEER OF RECORD
EOS	EDGE OF SLAB
EQ	EQUAL
FQUIP	FQUIPMENT
FW	EACH WAY
EXP	EXPANSION
EXT	EXTERIOR
EXTC EVIST	EXISTING
FIN	FINISH

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FDN FF FIN

STRUCTURAL SHEET LIST

		Current	Current Revision
Sheet Number	Sheet Name	Revision	Date
S0.01	GENERAL NOTES		
S0.02	TYPICAL WOOD DETAILS & SCHEDULES		
S0.03	WOOD SHEARWALL DETAILS		
S0.04	TYPICAL WOOD DETAILS		
S2.40	FOUNDATION PLAN		
S2.41	ROOF FRAMING PLAN		
S2.42	SHEARWALL & BEARING WALL PLAN		
S3.00	FOUNDATION SECTIONS		
S3.01	FOUNDATION SECTIONS		
S3.10	FRAMING SECTIONS		
S3.11	FRAMING SECTIONS		
S3.12	FRAMING SECTIONS		

ST	RUCTURAL DECK & SLAB SCHEDULE
	DECODIDION

MARK	DESCRIPTION			
SOG-1	4" CONC. SLAB (4000psi) REINFORCE WITH 6x6-W2.9xW2.9 WWF OR MACRO FIBER REINFORCMENT BATCHED TO BE EQUAL ATOP 4" OF 3/4" CLEAN GRANULAR LEVELING COURSE, ATOP SUITABLE SUBGRADE MATERIAL PER GEOTECH SPECIFICATIONS. T/SLAB EL. = PER PLAN, SLOPE TO DRAIN.			
SOG-2	4" CONC. SLAB (4500psi, AIR ENTRAINED) REINFORCE WITH 6x6-W2.9xW2.9 WWF OR MACRO FIBER REINFORCMENT BATCHED TO BE EQUAL ATOP 4" OF 3/4" CLEAN GRANULAR LEVELING COURSE, ATOP SUITABLE SUBGRADE MATERIAL PER GEOTECH SPECIFICATIONS. T/SLAB EL. = PER PLAN, SLOPE TO DRAIN.			
RD-1	19/32" APA-RATED, EXP I SHEATHING ATTACHED WITH #10 SCREWS @ 6"o.c. AT EDGES & 12"o.c. AT FIELD			
NOTES: 1. FD = FLOOR DECK TYPE. 2. SOG = SLAB-ON-GRADE TYP.				

3. RD = ROOF DECK TYP.

CONCRETE FOOTING SCHEDULE					
BRG PRESSURE (PSF): 2,000 CONCRETE (P			SI): 3,500	REBAR (KSI): 60	
TYPE FOOTING SIZE (FT.) THICKNESS (IN.)		QTY/SIZE OF BARS			
3.0	3.0 3'-0" x 3'-0" x 12"		#4 @ 6"oc EA WAY BOTTOM		
3A 3'-0" x 3'-0" x 2'-8"		#4 @ 6"oc EA WAY TOP & BOTTOM			

1.) EXTERIOR FOOTINGS OR FOOTING AT GRADE BEAM SHALL MATCH GRADE BEAM DEPTH AND BE PLACE WITH GRADE BEAM. PROVIDE SPECIFIED REBAR TOP AND BOTTOM WITH 4 STANDEES TO SUPPORT MATS.

2.) CENTER FOOTINGS ON COLUMNS AND/OR WALL CENTER LINES PER PLAN U.N.O. 3.) SPREAD FOOTINGS LOCATED AT INTERIOR SHALL BE POURED MONOLITHIC WITH THE SLAB AS A THICKENED PORTION OF SLAB INLESS THEY HAVE A STEEL COLUMN BEARING ATOP.

STRUCTURAL ABBREVIATIONS

	FLR	FLOOR	PL	PLATE
	FS	FAR SIDE	PLF	POUNDS PER LINEAR FOOT
	FTG	FOOTING	PIP	
	FV			
	GA			
	GALV	GALVANIZE(D)	QIY	QUANTITY
	GEN	GENERAL	RAD	RADIUS
	GR	GRADE	RD-#	ROOF DECK TYPE
	HORIZ	HORIZONTAL	REF	REFERENCE
	HSS	HOLLOW STRUCTURAL SECTION	REINF	REINFORCEMENT
	IF	INSIDE FACE	REQD	REQUIRED
	INFO	INFORMATION	REV	REVISION
	INT	INTERIOR	RLL	ROOF LIVE LOAD
	JST	JOIST	RTU	ROOF TOP UNIT
OINT	JT	JOINT	SC	SLIP CRITICAL
TION	К	KIPS (1000 LBS)	SCHED	SCHEDULE(D)
	KSF	KIPS PER SQUÁRE FOOT	SECT	SECTION
	KSI	KIPS PER SQUARE INCH	SHT	SHEET
	LBS.#	POUNDS	SIM	SIMILAR
	Ld	DEVELOPMENT LENGTH	S.I	SAW JOINT
			SI	SNOWLOAD
			SOG	SLAB-ON-GRADE
			SOG-#	SLAB-ON-GRADE TYPE
			SPCC	
			SPCG	
			SFEC	
			SPRI	
			SQ	
			55 001 T	
	MECH	MECHANICAL	SSLI	SHORT-SLOTTED HOLE TRANSVERSE
	MFGR	MANUFACIURER	SID	STANDARD
	MIN	MINIMUM	STIFF	STIFFENER
	MISC	MISCELLANEOUS	STIR	STIRRUP
	MSRY	MASONRY	STL	STEEL
	MTL	METAL	STRUCT	STRUCTURE, STRUCTURAL
	NF	NEAR FACE	Τ/	TOP OF
	NS	NEAR SIDE	THRU	THROUGH
	NTS	NOT TO SCALE	TOS	TOP OF STEEL, TOP OF SLAB
	NW	NORMAL WEIGHT	TRANS	TRANSVERSE
	OC	ON CENTER	TRS	TRUSS
	OF	OUTSIDE FACE	TYP	TYPICAL
	OPNG	OPENING	UNO	UNLESS NOTED OTHERWISE
	OPP	OPPOSITE	V	SHEAR FORCE
	OVS	OVERSIZED HOLE	VERT	VERTICAL
	P	AXIAL FORCE	W/	WITH
	PAF	POWDER ACTUATED FASTENER	W/0	WITHOUT
	PC	PRECAST	WF	WIDE FLANGE
	PCF	POUNDS PER CUBIC FOOT	WI	WINDLOAD
	PEMR		WP	WORK POINT
	PERP	PERPENDICIJI AR		WEI DED WIRE FABRIC



GENERAL NOTES





TYPICAL MULTI-PLY HEADER CONNECTION



STUD BEARING WALL SCHEDULE

WALL TYPE	1st FLOOR WALLS (ROOF FRAMING)	NOTES
EXTERIOR WALL	2x6 @ 16"oc	-
TYPICAL INTERIOR	2x6 @ 16"oc OR 2x4 @ 16"oc WITH AN ADDT'L 2x4 AT 32oc	REFER TO ARCH DWGS FOR WALL SIZE
1	(2)2x8 @ 16"oc	SEE S2.42 FOR LOCATION
2	(2)2x6 @ 16"oc	SEE S2.42 FOR LOCATION

NOTES: 1. PROVIDE 2x BLOCKING AT MID HEIGHT (5'-0" MAX) AT ALL LOAD BEARING WALLS NOT SHEATHED ON BOTH SIDES AND ALL STUDS LARGER THAN 2x6. 2. ALL STUDS TO BE №. 2 GRADE U.N.O.

- 3. RE: 3/S0.02 FOR NAILING OF MULTIPLE STUDS
- 4. REFER TO ARCH/MEP DRAWING FOR LOCATIONS OF FURRED OUT WALLS TO ACCOMODATE PLUMBING OR MEP ITEMS.
- 5. REFER TO FRAMING PLANS AND ARCH PLANS FOR LEVEL(S) AT WHICH WALLS OCCUR. 6. WHERE SCHEDULE LISTS DIFFERENT WALL SIZES WITH AN "OR", REFER TO ARCHITECTURAL DRAWINGS FOR LOCATIONS WHERE EACH SIZE IS TO BE USED.

HEADER SCHEDULE					
MARK	MEMBER SIZE	JAMB TYPE	NOTES		
A1	(2) 2x8	1 JACK / 2 KING	-		
C1	(2) 2x12	1 JACK / 1 KING	-		
D1	(3) 2x8	1 JACK / 1 KING	-		
D2	(3) 2x8	1 JACK / 3 KING	-		
E1	(3) 2x10	1 JACK / 2 KING	-		
E2	(5) 2x10	COLUMN PER PLAN	-		
F1	(3) 2x12	2 JACK / 2 KING			
F2	(4) 2x12 BOX HEADER WITH 2x10 PLATE ABOVE & BELOW	2 JACK / 3 KING 2x10s	-		
N1	(3) 1 3/4" x 11 1/4" LVL	2 JACK / 2 KING	-		
Q1	(3) 1 3/4" x 14" LVL	3 KING	-		

	PLAN NOTES				
	24" DEEP (MIN) PRE-ENGINEERED ROOF TRUSSES @ 24"oc (MAX) WITH 1/4"/FT SLOPED TOP CHORD				
B	2x10 AT 16"oc				
¢	8x8 WOOD COLUMN ATOP SIMPSON ABU88Z BASE WITH (2)5/8Øx6"Lg SIMPSON TITEN HD SCREW ANCHORS AND A SIMPSON BC8 COLUMN CAP				
	(3)2x10 STRUCTURAL FACIA WITH SIMPSON HUC210-3 AT EA END				
E	(3)2x10 STRUCTURAL FACIA WITH SIMPSON HHUS210-4 INVERTED TO AT 3 JACKS / 2 KINGS AT WALL	E2			

NAILING SCHEDULE

(REFER TO NOTES #1 and #2)

CONNECTION	ATTACHMENTS	(REF NOTE #3 and #4)
JOIST TO SILL OR GIRDER	3- 3" x 0.131" NAILS-TOENAIL	3-8d NAILS-TOENAIL
BRIDGING TO JOIST	2- 3" x 0.131" NAILS-TOENAIL EACH END	2-8d NAILS-TOENAIL EACH END
SOLE PLATE TO JOIST OR BLOCKING	3" x 0.131" NAILS AT 8"o.c TYPICAL FACE NAIL 4-3" x 0.131" NAILS AT 6"o.c. BRACED WALL PANELS	16d BOX NAILSZ AT 16"o.c. MAX. FACE NAILING 3-16d BOX NAILS AT 16"o.c. BRACED WALL PANEL
TOP PLATE TO STUD	3- 3" x 0.131" NAILS-END NAIL	2-16d NAILS-END NAIL
STUD TO SOLE PLATE	4- 3" x 0.131" NAILS-TOENAIL OR 3- 3" x 0.131" NAILS-END NAIL	4-8d NAILS-TOENAIL OR 2-16d NAILS-END NAIL
DOUBLE STUDS	3" x 0.131" NAILS AT 8"o.cFACE NAIL	16d BOX NAILS AT 24"o.c. MAX. FACE NAIL
DOUBLED TOP PLATES	3" x 0.131" NAILS AT 12"o.cFACE NAIL	16d BOX NAILS AT 16"o.c. MAX. FACE NAIL
DOUBLE TOP PLATE LAPS AND INTERSECTIONS	12-3" x 0.131" NAILS 8	3-16d NAILS
BLOCKING BETWEEN JOISTS OR RAFTERS TO TOP PLATE	3-3" x 0.131" NAILS -TOENAIL	3-8d NAILS-TOENAIL
RIM JOIST TO TOP PLATE	3" x 0.131" NAILS AT 6"o.cTOENAIL	8d NAILS AT 6"o.c. MAXTOENAIL
TOP PLATE LAPS AND INTERSECTIONS	3- 3" x 0.131" NAILS-FACE NAIL	2-16d NAILS-FACE NAIL
CONTINUOUS HEADER, TWO PIECES	3" x 0.131" NAILS AT 10"o.c. ALONG EACH EDGE	16d NAILS AT 16"o.c. MAX. ALONG EACH EDGE-TOENAIL
CEILING JOISTS TO PLATE	5- 3" x 0.131" NAILS-TOENAIL	3-8d NAILS-TOENAIL
CONTINUOUS HEADER TO STUD	4- 3" x 0.131" NAILS-TOENAIL	4-8d NAILS-TOENAIL
CEILING JOISTS, LAPS OVER PARTITIONS	4- 3" x 0.131" NAILS-FACE NAIL	3-16d NAILS-FACE NAIL
CEILING JOISTS TO PARALLEL RAFTERS	4- 3" x 0.131" NAILS-FACE NAIL	3-16d NAILS-FACE NAIL
RAFTER TO PLATE	3- 3" x 0.131" NAILS-TOENAIL	3-8d NAILS-TOENAIL
1" BRACE TO EACH STUD AND PLATE	2- 3" x 0.131" NAILS-FACE NAIL	2-8d NAILS-FACE NAIL
BUILT-UP CORNER AND MULTIPLE STUDS	3" x 0.131" NAILS AT 16"o.c.	16d NAILS AT 24"o.c. MAX.
BUILT-UP GIRDER AND BEAMS	3" x 0.131" NAILS AT 24"o.c. FACE NAILED TOP AND BOTTOM STAGGERED ON OPPOSITE SIDES 3- 3" x 0.131" NAILS AT ENDS AND EACH SPLICE	20d NAILS AT 32"o.c. MAX. TOP AND BOTTOM, STAGGERED ON 0PPSITE SIDES. 2-20d NAILS AT ENDS AND EACH SPLICE
BUILT-UP LAMINATED VENEER LUMBER BEAMS	3" x 0.131" NAILS AT 6"o.c. TOP AND BOTTOM ALONG EDGE	16d NAILS AT 12"o.c. TOP AND BOTTOM ALONG EDGE
2" PLANKING	4- 3" x 0.131" NAILS AT EACH SUPPORT	16d NAILS AT EACH SUPPORT
RIM BOARD TO TRUSS	2- 3" x 0.131" FACE NAILS (IT/IB @ EA. TRUSS)	2- 10d NAILS - FACE NAILS (IT/IB @ EA. TRUSS)
BUILD-UP STUD-PACK COLUMNS	REFER TO DETAIL 3/S0.02	REFER TO DETAIL 3/S0.02

1. ALL NAILS SHALL BE AS NOTED UNO SPECIFIED ON STRUCTURAL DWGS OR ALTERNATE PROVIDED BY EOR IN WRITING. 2. CONDITIONS NOT SPECIFIED SHALL BE IN ACCORDANCE WITH CURRENT INTERNATIONAL BUILDING CODE 3. NAILING DESIGNATION:

4 - 3" x 0.131" NAILS

— NAIL LENGTH

— QUANITY 4. ALL NAILS NOTED AS 8d, 10d, 16d, ETC. SHALL BE COMMON NAILS UNLESS NOTED BOX.



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TYPICAL WOOD DETAILS & SCHEDULES

S0.02

SHEARWALL SCHEDULE

SHEARWALL TYPE		FLOOR	SILL PLATE CONNECTION (RE: NOTES 6 & 7)	NUMBER OF WALL STUDS AT HOLDOWN (RE: NOTE 4)	
		1st FLOOR WALLS			
SW-1	MATERIAL & THICKNESS	5/8" GYPSUM SHEATHING ONE SIDE, w/ EDGES BLOCKED			
	NAIL SIZE & SPACING	6d NAILS 4/4			
SW-2	MATERIAL & THICKNESS	7/16" OSB SHEATHING ONE SIDE, w/ EDGES BLOCKED			
	NAIL SIZE & SPACING	8d NAILS 6/12			

NOTES 1. NAILING SHALL BE TO ALL STUDS, TOP & BOTTOM PLATES, AND BLOCKING WHERE INDICATED.

- 2. HOLDOWNS PER PLAN & SCHEDULE ON THIS SHEET. WHERE THE ENDS OF PERPENDICULAR SHEAR WALLS INTERSECT AND ONLY ON HOLDOWN SHOWN ON PLAN, FASTEN ALL STUDS TOGETHER PER SCHEDULE AND USE LARGER OF THE TWO HOLDOWNS SHOWN IN THE SHEARWALL SCHEDULE. 4. PROVIDE 2 WALL STUDS AT EACH HOLDDOWN UNLESS NOTED OTHERWISE IN SCHEDULE. AT LOCATIONS WHERE A SHEARWALL TERMINATES AT AN OPENING
- JAMB, PROVIDE NUMBER OF STUDS PER JAMB SCHEDULE PLUS AN ADDITIONAL STUD FOR THE SHEARWALL. ATTACH ALL STUDS TOGETHER PER 3/S0.02. NAIL AND STAPLE SPACING SHOWN AS (#/#) INDICATES FASTENERS SPACING IN INCHES AT THE EDGES/FIELD WHERE FIELD IS THE INTERMEDIATE MEMBERS.
 TYPICAL SILL PLATE TO WOOD SHALL BE 1/4"Ø SDS SCREWS PER DETAIL 3/S3.00 AT 12"oc UNLESS NOTED OTHERWISE IN SCHEDULE. 7. TYPICAL SILL PLATE TO CONCRETE SHALL BE 1/2"Øx6" Lg SIMPSON TITEN HD ANCHOR:
- AT 2x4 WALLS SPACE AT 24"oc MAX WITH 1/4"x2 1/2"x2 1/2" PLATE WASHER OR SIMPSON BPS1/2-3 @ CONTRACTORS OPTION AT 2x6 WALLS SPACE AT 24"oc MAX WITH 1/4"x2 1/2"x4 1/2" PLATE WASHER OR SIMPSON BPS1/2-6 @ CONTRACTORS OPTION
- 8. PLATE WASHERS TO MAINTAIN MAX OF 1/2" BETWEEN EDGE OF SILL PLATE AND EDGE OF PLATE WASHER. 9. OSB @ INTERIOR WALL SHALL BE IN ADDITION TO 5/8" GYP SHEATHING.

HOLDOWN SCHEDULE				
MARK	HOLDOWN			
A	HDU2			
В	SIMPSON DTT2Z TO STUD PACK SUPPORTING GIRDER TRUSS OR HEADER ABOVE			

INTO SLAB AT HDUs AND 1/2"Ø AT DTT2Zs.

NOTES: 1. HOLDOWN TYPES ARE BASED UPON MANUFACTURER SIMPSON STRONG-TIE. 2. REFER TO SECTION DETAILS ON S0.03 FOR TYPICAL HOLDOWN DETAILS. 3. WHERE THE ENDS OF PERPENDICULAR SHEAR WALLS INTERSECT AND ONLY ONE HOLDOWN SHOWN ON PLAN, FASTEN ALL STUDS TOGETHER PER SCHEDULE AND USE LARGER OF THE TWO HOLDOWNS SHOWN ON THE SHEARWALL SCHEDULE. AT LOCATINS WHERE A SHEARWALL TERMINATES AT AN OPENING JAMB, PROVIDE NUMBER OF STUDS PER JAMB SCHEDULE PLUS

- AN ADDITIONAL STUD FOR THE SHEARWALL. 4. ALL HOLDOWN POSTS TO BE (2) 2x's (MIN.) (U.N.O.) TO MATCH STUD SIZE & GRADE NOTED IN WALL SCHEDULE. PROVIDE ADDITIONAL STUDS AS REQ'D TO
- MEET QUANTITY NOTED IN SCHED. 5. USE 5/8"Ø ASTM F1554 (GR 36) THREADED ROD, DRILL & EPXOY w/ 10" EMBED







SHEARWALL SHEATHING TO BE

CONT. PAST INTERIOR WALL

SHEARWALL SCHED.

SHEATHING

NAILING PER

SHEARWALL SCHED.

SHEATHING PER ARCH.

SHEATHING PER





INTERIOR NON-LOAD BRG. WALL

PER ARCH.

 $-\pi\sqrt{\pi}$

PER SCHED

SHEARWALL EDGE

SHEATHING PER

SHEARWALL

SCHED.

2x4 WALL

ARCH

SHEATHING PER

SHEARWALL EDGE NAILING

PER SCHED. EACH SIDE OF JOINT FASTENED TO COMMON MEMBER

NAILING PER SCHED.



S0.03





- FOUNDATION NOTES:
 REFER TO GENERAL NOTES ON SHEET S0.01.
 REFER TO CIVIL AND ARCH DRAWING FOR SLAB ELEVATIONS.
 ELEVATION 100'-0" EQUALS CIVIL DATUM ELEVATION.
 TOP OF FOOTING ELEVATIONS = 99'-0" U.N.O. ON PLAN
- REFER TO FOOTING SCHEDULE ON S0.01.
- REFER TO ARCH AND MECH DRAWINGS FOR LOCATIONS OF SPOT AND TRENCH DRAINS. REFER TO S3.00 SERIES DRAWINGS FOR TYPICAL FOUNDATION DETAILS.





- 6) REFER TO S3.10-SERIES DRAWINGS FOR ADDITIONAL ROOF FRAMING DETAILS NOT INDICATED HERE.









TYPICAL PLUMBING RISER THRU THICKENED SLAB



TYP INTERIOR

TYPICAL









5 $\frac{\text{SECTION}}{3/4" = 1'-0"}$





S3.10







2 <u>SECTION</u> 3/4" = 1'-0"

HOLDOWNS PER 1/S3.11

HOLDOWN @ EA
 CRIPPLE STUD TO
 HEADER PER 1/S0.04

HEADER PER PLAN & SCHED.

WINDOW PER ARCH