BRIDGER VIEW HRDC STORY MILL ROAD & BRIDGER VIEW DRIVE BOZEMAN, MT 59715

COMMON BUILDINGS 30% CONSTRUCTION DOCUMENTS DELIVERABLE

SEPTEMBER 15, 2020





SHEET INDEX

GENERAL COVER SHEET PROJECT INFO

ARCHITECTUR DEVELOPMENT COMMON BUILI FLOOR PLAN ROOF PLAN **REFLECTED CE** EXTERIOR ELE BUILDING SECT EXTERIOR DET EXTERIOR DET EXTERIOR DET

STRUCTURAL STRUCTURAL (STRUCTURAL STRUCTURAL ABBREV & LEG STRUCTURAL I

	A0.1	STRUCTURAL FOUNDATION AND STUD AND SW PLANS	S2.1
RMATION	A0.2	STRUCTURAL ROOF FRAMING PLAN	S2.2
AL	A11C	STRUCTURAL FOUNDATION DETAILS	S4.1
DINGS	A1.1-G	STRUCTURAL FOUNDATION DETAILS	S4.2
	A2.1 A2.2	STRUCTURAL FOUNDATION DETAILS	S4.3
EILING PLAN EVATIONS	A3.1 A4.1	STRUCTURAL SHEAR WALL DETAILS	S5.1
TIONS TAILS	A5.1 A7.1	STRUCTURAL SHEAR WALL DETAILS	S5.2
TAILS TAIL	A7.2 A7.3	STRUCTURAL WOOD FRAMING DETAILS	S5.3
		STRUCTURAL WOOD FRAMING DETAILS	S5.4
GENERAL NOTES	S1.1	STRUCTURAL WOOD FRAMING DETAILS	S5.5
SHEET LIST, END	S1.2 S1.3	STRUCTURAL WOOD FRAMING DETAILS	S5.6
PLAN NOTES	S1.4		
PLAN NOTES	S1.4		

NOT ALL TAGS MAY BE USED	
INDICATED NORTH	NORTH ARROW
	BUILDING GRID
1 A101 SHEET NUMBER A101 SHEET	BUILDING SECTION
1 SIM	WALL SECTION
	DETAIL SECTION
Image: Simple state Image: Simple state Image: Simple state Image: Simple state Image: Simple state Image: Simple state	DETAIL / ENLARGED PLAN
ELEVATION NUMBER 1 SHEET NUMBER 1 Ref	ELEVATION
	DRAWING TITLE & INFORMATION
<u>Level</u> 100' - 0"	LEVEL
100' - 0"	ELEVATION / SECTION DATUM HEIGHT
ROOM NUMBER	ROOM TAG
	ROOF TAG
	WALL TAG
	WINDOW TAG
Ę	CENTER LINE
SHEET NUMBER	DRAWING REFERENCE
	DOOR TAG

ABBREVIATIONS

FT

FTG

FTN

FOOT/FEET

FOUNTAIN

FOOTING

<u>A</u>		<u>G</u>	
AB ABV	ANCHOR BOLT ABOVE	GA GALV	GAUGE GALVANIZED
ACI	AMERICAN CONCRETE INSTITUTE	GB	GRAB BAR
ACP ACT	ACOUSTIC CEILING TILE	GFCI GL or GLULAM	GROUND FAULT CIRCUIT INTERRUPTER
AD ADDT'	AREA DRAIN	GLB	
ADDTL ADJ	ADJUSTABLE	GUZ GWB	GYPSUM WALL BOARD
AFF	ABOVE FINISHED FLOOR AIR HANDLING UNIT	GWB-P	GYPSUM WALL BOARD PAINTED
ALT	ALTERNATE	GIF	GTFSUM WALL BOARD
ALUM AP	ALUMINUM ACCESS PANEL	н	
ARCH		<u></u> НВ	HOSE BIB
ASPH ASSY	ASSEMBLY	HC	
ASTM	AMERICAN SOCIETY OF TESTING &	HD HDWRE	HAND DRYER HARDWARE
		HDR HM	
В		H or HORIZ	HORIZONTAL
BD	BOARD	HR HS	HANDRAIL HOLLOW STEEL
BG	BELOW GRADE	HT(S)	HEIGHT(S)
BLDG BLKG	BUILDING BLOCKING	HVAC HVY	HEATING, VENTILATION, & AIR COND. HEAVY
BM B O	BEAM BOTTOM OF	-	
BOT	BOTTOM	Ī	
BRK BSMT	BRICK BASEMENT	IGU	
B.SPL	BACKSPLASH	INDIC	INDICATE(D)
BIWN	BEIWEEN	INSUL INT	
<u>C</u>		J	
CABT	CABINET	JC	JANITOR CLOSET
CG CIP	CORNER GUARD CAST-IN-PLACE	JST	JOIST
C/L or CL	CENTER LINE	1	
CLR CJ	CONTROL JOINT		
CLG	CEILING	LOC	LOCATION/S
CMU	CONCRETE MASONRY UNIT		LOW-PRESSURE DECORATIVE LAMINATE
C.O. COI	CLEANOUT COLUMN	LVT	LUXURY VINYL TILE
COMM	COMMUNICATIONS		
CONC	CONCRETE	<u>IVI</u>	
CONST	CONSTRUCTION	MAS	MASONRY
CONTR	CONTRACTOR	MECH	MECHANICAL
COORD CORR	COORDINATE	MEP MF77	MECHANICAL, ELECTRICAL, PLUMBING
CPT	CARPET	MH	MANHOLE
CI CTOP	CERAMIC TILE COUNTERTOP	MIN MIR	MINIMUM MIRROR/MIRRORED
CWO	COORDINATE W/ OWNER	MISC	MISCELLANEOUS
П		MNFR	MANUFACTURER
		M.O.	
DBL	DOUBLE DIAPER CHANGING STATION	MRKR	MARKER
DEMO('D)	DEMOLISH(ED)	MTL	MOUNTED METAL
DIA	DIAMETER		
DIM DK	DIMENSION DARK	N	
DN			
DR	DOOR	(N) N.I.C.	
DS DTI	DOWNSPOUT DETAIL	NO or #	NUMBER
DW	DISHWASHER	N.1.5.	NOTIO JOALE
DWG(S)	DRAWING(S)	0	
_		0.C.	ON CENTER
<u>E</u>		O.D. OFCI	OUTER DIMENSION OWNER FURNISHED, CONTRACTOR INSTALLED
EA	EACH	OFC	OFFICE
EIFS	EXTERIOR INSULATION FINISH SYSTEM	OHE	OVERHEAD ELECTRIC
EJ ELFC	EXPANSION JOINT ELECTRIC/ELECTRICAI	OP OPCI	
ELEV or EL	ELEVATION	OPN'G	OPENING
ENCL	ENGLOSURE EXPANDED POLYSTYRENE INSUL BD	OWSJ	OPEN WEB STEEL JOIST
EQ	EQUAL	Ρ	
EQUIP EXIST or (E)	EXISTING		
EXP	EXPANSION	PC	PRECAST
-//1		PERF PERP	PERFORATED PERPENDICULAR
		PL	PLATE/PROPERTY LINE
F		PLYWD	PLASTIC LAWINATE PLYWOOD
• FD	FLOOR DRAIN	PMR PNI	PER MNFR. RECOMMENDATION PANEI
FE		PNT or PNTG	PAINT/PAINTING
FEC	FIRE EATINGUISHER GABINE I FINISHED FLOOR	PREFAB	PAINTED PREFABRICATED
FHC	FIRE HOSE CABINET	PREFIN	
F&I	FURNISH(ED) & INSTALL	PTD	PRESSURE IREATED PAPER TOWEL DISPENSER
FL or FLR FLRG	FLOOR FLOORING	PVC	
FND'N	FOUNDATION	PORC. TILE	PORCELAIN TILE
⊦.O. FOS	FACE OF FACE OF STUD	^	
FPSC	FIRE PROOF SELF CLOSING	<u>u</u>	
гк FRM	FRAME	QT QU	ARRY TILE
	FRAMING		
FS	FOODSERVICE		

R	
RA RAD RB RD REF REFL REFR REFR REINF REQD REQMT RESIL RET REV RFG RI RM R.O.	RETURN AIR RADIUS RUBBER BASE ROOF DRAIN REFERENCE REFLECTIVE REFRIGERATOR REQUIRED REQUIRED REQUIREMENT RESILIENT RETAINING REVISION ROOFING RIGID INSULATION ROOM ROUGH OPENING
SAM SCD SCHED SCR SD SECT SED SF SFPD SG SHLVS SHT SHWR SIM SJ SMD SND SND SND SND SND SND SND SND SND SN	SELF ADHERED MEMBRANE SEE CIVIL DRAWINGS SCHEDULE SCREEN SOAP DISPENSER SECTION SEE ELECTRICAL DRAWINGS SQUARE FOOT SEE FIRE PROTECTION DRAWINGS SAFETY GLAZING SHELVES SHEET SHOWER SIMILAR SEISMIC JOINT SEE MECHANICAL DRAWINGS SANITARY NAPKIN DISPENSER SANITARY NAPKIN RECEPTACLE SLAB ON GRADE SPECIFICATION SQUARE SANITARY SEWER SEE STRUCTURAL DRAWINGS STRUCTURAL SILICONE GLAZING SOUND TRANSMISSION CLASS STANDARD STEEL STORAGE STORMWATER STAIRS STRUCTURE/STRUCTURAL STAINLESS STEEL SUBFLOOR SURFACE SUSPENDED, SUSPENSION SHEET VINYL
TB TEL TG/T T&G THK TK T.O. TPH TR TS TX TYP	TILE BASE TELEPHONE TEMPERED GLASS TONGUE & GROOVE THICK TACK TOP OF TOILET PAPER HOLDER TRASH RECEPTACLE TUBULAR STEEL TEXTURED TYPICAL
UGE UNFIN U.N.O. UR UTIL	UNDERGROUND ELECTRIC UNFINISHED UNLESS NOTED OTHERWISE URINAL UTILITY

<u>v</u>	
VB	VAPOR BARRIER
V or VERT	VERTICAL
VFY	VERIFY
VIF	VERIFY IN FIELD
VR	VAPOR RETARDEF

W

W/

WC

WD

WDB

WDW

WF

WH

WP

WRB

WSP

WT

WWF

WITH WATER CLOSET WOOD WOOD BASE WINDOW WIDE FLANGE WATER HEATER WATERPROOF, WATER PROOFING WEATHER RESISTANT BARRIER WET STANDPIPE WEIGHT WELDED WIRE FABRIC

YD YARD

PROJECT ROSTER

HUMAN RESOURCE DEVELOPMENT COUNCIL 32 S. TRACY AVE BOZEMAN, MT 59715 (406) 585-4840 CONTACTS: TRACY MENUEZ MARTIN JOHNSON

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PITTSBURGH, PA 15206

CONTACTS:

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1060 FOWLER AVE., SUITE 202

BEARTOOTH LIGHTING DESIGN

FIRE SUPPRESSION ENGINEER

113 EAST OAK STREET #1E

DCI ENGINEERS

BOZEMAN, MT 59718 (406) 556-8600

ELECTRICAL ENGINEER

BOZEMAN, MT 59715

COFFMAN ENGINEERS

BOZEMAN, MT 59715

CDS ENGINEERING

7540 CHURCHILL ROAD

LANDSCAPE ARCHITECT

BOZEMAN, MT 59715

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37 E MAIN STREET; SUITE 10

MANHATTAN, MT 59741

(406) 282-7082

(406) 582-1936

751 OSTERMAN DR. #104

SITE LIGHTING ENGINEER

(406) 551-3669

(412) 362-2100

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EVOLVE ENVIRONMENT::ARCHITECTURE

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KATE BARRETT; LAIT

KELLY OLINGER; PROJECT MANAGER

CHRISTINE MONDOR; FAIA, LEED AP CHRIS GUIGNON; AIA, LEED AP

DEVELOPMENT PARTNER HEADWATERS COMMUNITY HOUSING TRUST BOZEMAN, MT CONTACT: MICHAEL BROWN

OWNER'S REPRESENTATIVE/ PROJECT MANAGER BERNING PROJECT MANAGEMENT LLC VICTOR, ID (307) 699-3733 CONTACT: JASON BERNING

DEVELOPMENT CONSULTANT (CONTRACTED WITH OWNER) NAVIGATE, LLC

JACKSON HOLE, WY (307) 690-4487 CONTACT: CHRISTINE WALKER

<u>CIVIL ENGINEER</u> (CONTRACTED WITH OWNER) STAHLY ENGINEERING & ASSOCIATES, INC 851 BRIDGER AVE, SUITE 1 BOZEMAN, MT 59715 (406) 522-9526

CONTACT: CORDELL POOL; PE SUSTAINABILITY CONSULTANT

BEYOND EFFICIENCY, INC. 152 EAST GILL JACKSON HOLE, WY (307) 200-7236

CONTACT: KATY HOLLBACHER NATHAN ILTIS, KATIE DAHLGREN & KARA ROUSSELLE

GENERAL CONTRACTOR/ CONSTRUCTION MANAGER LANGLAS & ASSOCIATES, INC 1019 E MAIN STREET #101

BOZEMAN, MT 59715 (406) 585-3420 CONTACTS: LOREN CANTRELL BEN WALKER; PROJECT MANAGER

BENWALKER@LANGLAS.COM MECHANICAL ENGINEER (UNDER DESIGN / BUILD CONTRACT) CENTRAL PLUMBING, HEATING, AND EXCAVATION

437 FLOSS RD BELGRADE, MT 59714 (406) 388-1000 CONTACTS: ERIK RENNA; PE

BUILDING CODE SUMMARY

THIS CODE SUMMARY IS INTENDED TO ASSIST THE PERMIT REVIEWER(S) IN ASCERTAINING THE COMPLIANCE OF THE PROJECT AS DESCRIBED IN THESE DRAWINGS WITH APPLICABLE CODES AND REQUIREMENTS. IT IS NOT INTENDED AS A COMPREHENSIVE INVENTORY OF ALL APPLICABLE PROVISIONS. ADDITIONAL INFORMATION RELATING TO CODE-COMPLIANCE QUESTIONS MAY BE ELSEWHERE IN THIS SET OF DRAWINGS. ALL CONSTRUCTION SHALL COMPLY WITH ALL CURRENT AND APPLICABLE MUNICIPAL, STATE, AND FEDERAL BUILDING CODE REGULATIONS HAVING JURISDICTION INCLUDING ACCESSIBILITY CODE AND ADA REQUIREMENTS.

AUTHORITY HAVING JURISDICTION: BOZEMAN BUILDING DEPARTMENT:

20 EAST OLIVE, SUITE 208 PO BOX 1230 BOZEMAN, MT 59771 PHONE: (406) 582-2375 CHIEF BUILDING OFFICIAL: BOB RISK

APPLICABLE CODES:

2018 INTERNATIONAL BUILDING CODE 2012 ENERGY CONSERVATION CODE

2018 INTERNATIONAL MECHANICAL CODE

2018 UNIFORM PLUMBING CODE

2017 NATIONAL ELECTRICAL CODE ARM MODIFICATIONS TO THE ADOPTED BUILDING CODES

THE STRUCTURE DESCRIBED IN THESE DOCUMENTS IS A NEW SINGLE STORY PRIVATE GARAGE. MULTIPLE ITERATIONS OF THE BUILDING TYPES (UNIT) WILL BE CONSTRUCTED WITHIN A NEW HOUSING DEVELOPMENT. THE DRAWINGS DESCRIBE THE "BASIS OF DESIGN" UNIT, A SPECIFIC UNIT LOCATED ON AN INDIVIDUAL LOT WITHIN THE DEVELOPMENT. "UNIT VARIATIONS", THE RANGE OF OTHER CONFIGURATIONS OF THE UNIT THAT WILL BE CONSTRUCTED WITHIN THE DEVELOPMENT, WILL BE DESCRIBED IN SUBSEQUENT DRAWING STAGES.

THE PRIVATE GARAGE WILL NOT BE EQUIPPED WITH AN AUTOMATIC FIRE SPRINKLER SYSTEM.

THIS INDIVIDUAL BUILDING WILL BE COMPLETED IN ONE PHASE. IT IS PART OF A NEW HOUSING DEVELOPMENT THAT WILL BE CONSTRUCTED IN SEVERAL PHASES.

SEE STRUCTURAL DRAWINGS FOR DESIGN LOADS

OCCUPANCY CLASSIFICATION: U

CONSTRUCTION CLASSIFICATION: TYPE VB

FIRE RESISTANT CONSTRUCTION:

- AT THE SETBACK UNITS: NO FIRE RESISTANT CONSTRUCTION REQUIRED AT EXTERIOR WALLS OR PROJECTIONS. AT THE ZERO LOT LINE UNITS: 1 HOUR RATED FIRE RESISTANT CONSTRUCTION
- REQUIRED AT EXTERIOR WALLS PARALLEL TO THE PROPERTY LINE.

PROVIDE FIRE STOPS AT FLOOR, WALL, OR CEILING PENETRATIONS TO ACHIEVE THE MINIMUM RATING OF THE ITEM BEING PENETRATED. NOT ALL PENETRATIONS ARE INDICATED IN THE PLAN. CONTRACTOR TO PROVIDE FIRE STOPPING FOR ALL PENETRATIONS WHETHER INDICATED OR NOT.

NOTE: THIS IS ONLY A SUMMARY -- APPLICABLE CODES HAVE ADDITIONAL REQUIREMENTS

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DC

NOT FOR CONSTRUCTION.

This drawing is not intended nor shall it be used for construction purposes unless the signed professional stamp of a registered architect employed by Comma-Q Architecture, Inc. is affixed above.

www.evolveea.com

Date

CONSULTING ARCHITECT:

evolve environment **::** architecture 6020 Broad Street Pittsburgh, PA 15206 T 412.362.2100

REVISIONS No. Description

PROJECT #: 19-02

PROJECT INFORMATION

UNIT TYPE: G5

1 SITE PLAN - COMMON BUILDINGS A1.1-G 1" = 50'-0"

UNIT TYPE NOTES

THE FOLLOWING AUXILIARY STRUCTURE TYPES ARE INCLUDED IN THE DEVELOPMENT:

LOTS WHERE USED

UNIT TYPE CH G2 G2-R G3-F G3-F-m G3-P G5

C-1 C-2 & C-3 C-2 & C-3 C-6 C-6 C-2 C-4 & C-5

UNIT TYPE CH COMMON HOUSE G2 TWO CAR GARAGE **G2-R** TWO CAR GARAGE WITH RECYCLING AND TRASH **G3-F** THREE CAR GARAGE WITH BIKE PARKING G3-P THREE CAR GARAGE WITH TOOL SHED AND MAIL **G5** 5 CAR GARAGE

SITE PLAN LEGEND

<u> </u>	PROPERTY LINE SETBACKS	 ELECTRICAL - OH ELECTRICAL - UG
	EASEMENTS - ELECTRICAL	 COMMUNICATION - OH COMMUNICATIONS - UG
	EASEMENT - LIGHTING EASEMENT - WATER / SEWER	 WATER

SITE PLAN NOTES

1. X

	EXTERIOR GARAGE WALL ASSEMBLIES EXT-4# TYPICAL GARAGE WALL • SIDING; SEE EXTERIOR ELEVATIONS • PERMEABLE AIR BARRIER • 1/2" SHEATHING • 2X FRAMING 06 1000 # = .4 - INDICATES 2X4 STUD .6 - INDICATES 2X4 STUD	DAD & BRIDGER DRIVE BOZEMAN, MT 59715
	 (STOD BAYS EXPOSED TO INTERIOR) EXT-4X 1 HOUR RATED GARAGE WALL SIDING; SEE EXTERIOR ELEVATIONS PERMEABLE AIR BARRIER 5/8" GYP SHEATHING 2X4 FRAMING 06 1000 GYP SHEATHING SIMISHED TO LEVEL 3 WHERE APPLICABLE EXT-5 TYPICAL GARAGE SCREEN 5/4 X FIR SLATS FIR FRAMING EXPOSED TO INTERIOR FIR FRAMING EXPOSED TO INTERIOR 	Architecture 59715 T 406-585-1112 www.commaq.com STORY MILL R
1 A5.1 4 A4.1	FND-4 TYPICAL GARAGE FOUNDATION WALL • 6" CONCRETE WALL	e, Suite 1, Bozeman MT U
	GARAGE ROOF ASSEMBLIES R-4 TYPICAL GARAGE ROOF SHINGLE ROOFING UNDERLAYMENT 5/8" DECKING (FIRE RATED WHERE REQUIRED) (EXPOSED TO INTERIOR) 2 x PREFABRICATED TRUSSES (EXPOSED TO INTERIOR)	A North Rouse Avenu BRIDGER VIE HRDC
	GARAGE FLOOR ASSEMBLIES F-4 TYPICAL GARAGE FLOOR • 4" SLAB ON GRADE (SLOPED TO DOOR, SEE FLOOR PLAN)	PRELIMINARY. NOT FOR CONSTRUCTION.
		This drawing is not intended nor shall it be used for construction purposes unless the signed professional stamp of a registered architect employed by Comma-Q Architecture, Inc. is affixed above. CONSULTING ARCHITECT: CONSULTING ARCHITECT: evolve environment :: architecture 6020 Broad Street Pittsburgh, PA 15206 T 412.362.2100 www.evolveea.com
		REVISIONS No. Description Date
	 FLOOR PLAN NOTES 1. DIMENSIONS TO NEW CONSTRUCTION ARE TO FACE OF FRAMING UNLESS NOTED OTHERWISE. 2. SEE SITE PLANS FOR DETAILED SITE INFORMATION 	PROJECT #: 19-02 30% CONSTRUCTION DOCUMENTS DATE: 09-15-2020 FLOOR PLAN
		A2.1 ORIGINAL DRAWING SIZE: 24" x 36" UNIT TYPE: G5

	DOOR SCHEDULE					
				Details		
Door #	Width	Height	Jamb	Head	Threshold	
Level 1						
G5-01	9' - 0"	8' - 0"				
G5-02	9' - 0"	8' - 0"				
G5-03	9' - 0"	8' - 0"				
G5-10	3' - 0"	6' - 6"				
G5-11	3' - 0"	6' - 6"				
G5-12	3' - 0"	7' - 0"				
	•				•	

4 TYPICAL TRANSITION AT SIDING-1/SIDING-3 A7.1 3" = 1'-0"

6 TYPICAL RAKE DETAIL AT GARAGES

A7.1 3" = 1'-0"

5 TYPICAL EAVE DETAIL AT GARAGES A7.1 3" = 1'-0"

AB; SSD -

PT SOLE PLATE

CHAMFER EDGE OF CONC. CURB

6 TYPICAL GARAGE SCREEN CORNER DETAIL A7.2 1 1/2" = 1'-0"

 7
 TYPICAL GARAGE SCREEN DETAIL

 A7.2
 1 1/2" = 1'-0"

SEALANT-

5 OVERHEAD DOOR JAMB A7.2 3" = 1'-0"

•

_EXT TRIM-1; 07 #### 5/4x6 TRIM SEAL NAILING FLANGE TO SHEATHING

Architecture

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B

STORY MILL ROAD & BRIDGER DRIVE BOZEMAN, MT 59715

HRDC

PRELIMINARY. NOT FOR CONSTRUCTION.

This drawing is not intended nor shall it be used for construction purposes unless the signed professional stamp of a registered

0

REVISIONS

No. Description

architect employed by Comma-Q Architecture, Inc. is affixed above.

evolve

6020 Broad Street Pittsburgh, PA 15206 T 412.362.2100

www.evolveea.com

PROJECT #: 19-02

30%

CONSTRUCTION

DOCUMENTS

DATE: 09-15-2020

EXTERIOR DETAILS

A7.2

ORIGINAL DRAWING SIZE: 24" x 36"

CONSULTING ARCHITECT:

environment :: architecture

Date

UNIT TYPE: G5

STRUCTURAL - GENERAL NOTES

GENERAL REQUIREMENTS

GOVERNING CODE: Per "International Residential Code" (IRC), 2018 Edition, Section R301.1.3, "Engineered design in accordance with the International Building Code is permitted for all buildings and structures, and parts thereof, included in the scope of this code." Therefore, this project's structural design and construction is governed by the 2018 edition of the International Building Code (IBC), (hereafter referred to as the IBC), as adopted and modified by the City of **Bozeman**, **MT** understood to be the Authority Having Jurisdiction (AHJ).

REFERENCE STANDARDS: Refer to Chapter 35 of 2018 IBC. Where other Standards are noted in the drawings, use the latest edition of the standard unless a specific date is indicated. Reference to a specific section in a code does not relieve the contractor from compliance with the entire standard.

DEFINITIONS: The following definitions cover the meanings of certain terms used in these notes:

"Architect/Engineer" - The Architect of Record and the Structural Engineer of Record.

- "Structural Engineer of Record" (SER) The structural engineer who is licensed to stamp & sign the structural documents for the project. The SER is responsible for the design of the Primary Structural Sys-
- "Submit for review" Submit to the Architect/SER for review prior to fabrication or construction.
- "Per Plan" Indicates references to the structural plans, elevations and structural general notes.
- "Seismic Force Resisting System (SFRS)" A recognized structural system of components (beams, braces, drags, struts, collectors, diaphragms, columns, walls, etc) of the primary structure that are specially designed and proportioned to resist earthquake-induced ground motions and maintain stability of the structure. Fabrication and installation of components designated as part of the SFRS require the general contractor, subcontractor, or supplier who is responsible for any portion of SFRS fabrication or installation to comply with special requirements (including, but not limited to, material control, compliance certifications, personnel qualifications, documentation, reporting requirements, etc) and to provide the required Quality Control including the required coordination of Special Inspections (Quality Assurance – QA). Special provisions apply to any member designated as part of the SFRS. Refer to plans, elevations, details, Design Criteria and Symbols and Legends for applicable members and connections.
- "Specialty Structural Engineer" (SSE) A professional engineer (PE or SE), licensed in the State where the project is located, (typically not the SER), who performs specialty structural engineering services for selected specialty-engineered elements identified in the Contract Documents, and who has experience and training in the Specialty. Documents stamped and signed by the SSE shall be completed by or under the direct supervision of the SSE.
- "Bidder-designed" Components of the structure that require the general contractor, subcontractor, or supplier who is responsible for the design, fabrication and installation of specialty-engineered elements identified in the Contract Documents to retain the services of an SSE. Submittals of "Bidder-designed" elements shall be stamped and signed by the SSE.

SPECIFICATIONS: Refer to the project specifications issued as part of the contract documents for information supplemental to these drawings.

OTHER DRAWINGS: Refer to the architectural, mechanical, electrical, civil and plumbing drawings for additional information including but not limited to: dimensions, elevations, slopes, door and window openings, non-bearing walls, stairs, finishes, drains, waterproofing, railings, mechanical unit locations, and other nonstructural items.

STRUCTURAL DETAILS: The structural drawings are intended to show the general character and extent of the project and are not intended to show all details of the work. Use entire detail sheets and specific details referenced in the plans as "typical" wherever they apply. Similarly, use details on entire sheets with "typical" in the name wherever they apply.

STRUCTURAL RESPONSIBILITIES: The structural engineer (SER) is responsible for the strength and stability of the primary structure in its completed form.

COORDINATION: The Contractor is responsible for coordinating details and accuracy of the work; for confirming and correlating all quantities and dimensions; for selecting fabrication processes; for techniques of assembly; and for performing work in a safe and secure manner.

PRE-CONSTRUCTION MEETINGS: The Contractor is responsible for coordinating pre-construction meetings prior to commencing work. Pre-con meetings, scheduled approximately two weeks prior to the start of the relevant work, are required for the following phases of construction: Concrete and Wood Framing. Attendees for preconstruction meeting are to include contractor, relevant subcontractors, fabricators, inspectors, architect/SER, and representative of the Authority Having Jurisdiction where required. Meeting agendas are to include review of the work scope, project schedule relevant to the work, contact information of responsible parties, inspection points, review of materials and any special cases or issues, procedures for clarifications if required, testing and acceptance, etc

MEANS, METHODS and SAFETY REQUIREMENTS: The contractor is responsible for the means and methods of construction and all job related safety standards such as OSHA and DOSH (Department of Occupational Safety and Health). The contractor is responsible for means and methods of construction related to the intermediate structural conditions (i.e. movement of the structure due to moisture and thermal effects; construction sequence; temporary bracing, etc).

BRACING/SHORING DESIGN ENGINEER: The contractor shall at his discretion employ an SSE, a registered professional engineer for the design of any temporary bracing and shoring.

TEMPORARY SHORING, BRACING: The contractor is responsible for the strength and stability of the structure during construction and shall provide temporary shoring, bracing and other elements required to maintain stability until the structure is complete. It is the contractor's responsibility to be familiar with the work required in the construction documents and the requirements for executing it properly.

CONSTRUCTION LOADS: Loads on the structure during construction shall not exceed the design loads as noted in DESIGN CRITERIA & LOADS below or the capacity of partially completed construction as determined by the Contractor's SSE for Bracing/Shoring.

CHANGES IN LOADING: The contractor has the responsibility to notify the SER of any architectural, mechanical, electrical, or plumbing load imposed onto the structure that differs from, or that is not documented on the original Contract Documents (architectural / structural / mechanical / electrical or plumbing drawings). Provide documentation of location, load, size and anchorage of all undocumented loads in excess of 400 pounds. Provide marked-up structural plan indicating locations of any new equipment or loads. Submit plans to the Architect/Engineer for review prior to installation.

NOTE PRIORITIES: Plan and detail notes and specific loading data provided on individual plans and detail drawings supplements information in the Structural General Notes.

DISCREPANCIES: In case of discrepancies between the General Notes, Specifications, Plans/Details or Reference Standards, the Architect/Engineer shall determine which shall govern. Discrepancies shall be brought to the attention of the Architect/Engineer before proceeding with the work. Should any discrepancy be found in the Contract Documents, the Contractor will be deemed to have included in the price the most expensive way of completing the work, unless prior to the submission of the price, the Contractor asks for a decision from the Architect as to which shall govern. Accordingly, any conflict in or between the Contract Documents shall not be a basis for adjustment in the Contract Price.

SITE VERIFICATION: The contractor shall verify all dimensions and conditions at the site. Conflicts between the drawings and actual site conditions shall be brought to the attention of the Architect/Engineer before proceeding with the work.

ADJACENT UTILITIES: The contractor shall determine the location of all adjacent underground utilities prior to earthwork, foundations, shoring, and excavation. Any utility information shown on the drawings and details is approximate and not necessarily complete.

ALTERNATES: Alternate products of similar strength, nature and form for specified items may be submitted with adequate technical documentation (proper test report, etc.) to the Architect/Engineer for review. Alternate materials that are submitted without adequate technical documentation or that significantly deviate from the design intent of materials specified may be returned without review. Alternates that require substantial effort to review will not be reviewed unless authorized by the Owner.

DESIGN CRITERIA AND LOADS

OCCUPANCY:	Risk Category of Building per 2018 IBC Table 1604.5 =	п	
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WIND DESIGN:	MAIN WIND FORCE RESISTING SYSTEM		
	Ultimate Design Wind Speed, VULT (MPH)		107
	Exposure Category		с
	Internal Pressure Coefficient	Cpi =	+/- 0.18
	Topographic Factor	Kzt =	1.0
	Wind Analysis procedure used:		Directional

SEISMIC	Seismic Design Category:	S	DC =	D	
DESIGN:					
	Basic Structural System			Bearin	ng Wall
	Seismic Force Resisting System			Shear	Walls
	Response Modification Factor:		R =	6	
	System Over Strength Factor	Om	ega =	2.5	
	Deflection Amplification Factor		Cd =	4	
	Site Classification per IBC 1613.3.2 & ASCE 7-10, C Site Class =	Ch. 20)	D	
	Seismic Importance Factor per ASCE 7-10 Table 1.5	5-2	le =	1.0	
	Spectral Response Acceleration (Short Period)		S _s =	0.679	g
	Spectral Response Acceleration (1-Second Period) $S_1 =$			0.213	g
	Spectral Design Response Coefficient (Short Period) S _{DS} =			0.569	g
	Spectral Design Response Coefficient (1-Second Period) \mathbf{S}_{DI} =			0.309g)
	Seismic response coefficient(s) Cs =			0.088	
	Redundancy Factor (North/South Direction) N/S rho=			1.0	
	Redundancy Factor (East / West Direction)	E/W	rho=	1.0	
	Seismic Analysis procedure used:			Equiva Force	alent Lateral (ELF)
SNOW LOAD: (1)	Flat Roof Snow Load, (PSF)			р _f =	32.2 ⁽²⁾
	Snow Drift Loading required by Authority Having Jur	risdict	tion?		Yes
	Snow Load Importance Factor			ا _s =	1.0 ⁽³⁾
	Ground Snow Load, (PSF)			р _в =	46
	Snow Exposure Factor			C _e =	В
	Thermal Factor			C _t =	1.0

1) Snow Load is un-reducible and includes 5 psf rain-on-snow surcharge where ground snow load is greater than zero and 20 psf or less per ASCE 7-16 Section 7.10.

2) Snow Load based on Montana Snow Load Finder

<u>ESIGN LIVE</u> OADS	AREA
	Handrails & Pedestrian Gu
	Residential
	Balconies & Decks

(1) Top rail shall be designed to resist 50 PLF line load or 200 lb point load applied in any direction at any point. mediate rails (all those except the handrail), balusters and panel fillers shall be designed to withstand a horizontally applied normal load of 50 LB on an area not to exceed 1 ft square. These three loads are to be considered separately with worst case used for design.

(2) Unless otherwise noted, point loads to be distributed over a 2.5ft x 2.5ft area and located to produce maximum load effects on structural members.

DESIGN DEAD LOADS	BIDDER DESIGN
	Roof Dead Load, Total Top Chord Bottom Chord

SUBMITTALS

SUBMIT FOR REVIEW: SUBMITTALS of shop drawings, and product data are required for items noted in the individual materials sections and for bidder designed elements.

SUBMITTAL REVIEW PERIOD: Submittals shall be made in time to provide a minimum of TWO WEEKS or 10 WORKING DAYS for review by the Architect/Engineer prior to the onset of fabrication.

GENERAL CONTRACTOR'S PRIOR REVIEW: Prior to submission to the Architect/Engineer, the Contractor shall review the submittal for completeness. Dimensions and quantities are not reviewed by the SER, and therefore, must be verified by the General Contractor. Contractor shall provide any necessary dimensional details requested by the Detailer and provide the Contractor's review stamp and signature before forwarding to the Architect/ Engineer.

SHOP DRAWING REVIEW: Once the contractor has completed his review, the SER will review the submittal for general conformance with the design concept and the contract documents of the building and will stamp the submittal accordingly. Markings or comments shall not be construed as relieving the contractor from compliance with the project plans and specifications, nor departures there from. The SER will return submittals in the form they are submitted in (either hard copy or electronic). For hard copy submittals, the contractor is responsible for submitting the required number of copies to the SER for review.

SHOP DRAWING DEVIATIONS: When shop drawings (component design drawings) differ from or add to the requirements of the structural drawings they shall be designed and stamped by the responsible SSE.

DEFERRED SUBMITTALS

BIDDER-DESIGNED ELEMENTS Submit "Bidder-Designed" deferred submittals to the Architect and SER for review. The deferred submittals shall also be submitted to the city for approval, if required by the city.

Design of prefabricated, "bidder designed", manufactured, pre-engineered, or other fabricated products shall comply with the following requirements: Design considers tributary dead, live, wind and earthquake loads in combinations required by IBC.

- Submittal shall include:
- provals as applicable.

Snow Load Importance Factor per ASCE 7-16 Table 1.5-2.

	LIVE LOADS (PSF) UNO	REMARKS & FOOT- NOTES (2)
ardrails	50 PLF or 200 LB	(1)
	40	
		1.5 times the live load for area served. Not req'd to exceed 100 psf.

DEAD LOADS (PSF) UNO	REMARKS & FOOTNOTES
20 PSF 15 PSF 5 PSF	For Pre-Fabricated Wood Truss design,

Design within the Deflection Limits noted herein and as specified or referenced in the IBC. Design shall conform to the specifications and reference standards of the governing code.

Calculations prepared, stamped and signed by the SSE demonstrating code conformance. Engineered component design drawings are prepared, stamped and signed by the SSE. Product data, technical information and manufacturer's written requirements and Agency ap-

d. SSE may submit to the Architect/Engineer, a request to utilize relevant alternate design criteria of similar nature and generally equivalency which is recognized by the Code and acceptable to the Authority Having Jurisdiction. Submit adequate documentation of design.

DEFLECTION	VERTICAL	LIMIT	
LIMITS FOR SSE / BIDDER	Roof Members, Dead + Live or Snow or Wind, Total Load (TL) Deflection	L / 240, where (L is span length,inches)	
DESIGNED	Roof, Live or Snow or Wind Load (RLL)	L / 360	
ELEMENTS:	Floor Members, Total Load (TL) uno	L / 240	
	Floor Live Load (LL) uno	L / 360	
	SIP Panel Live Load Deflection	L / 360	
	HORIZONTAL	LIMIT and FOOTNOTE	
	Members Supporting Brittle Finishes	L/240 (1)	
	Members Supporting Flexible Finishes	L/180 (1)	

(1) Wind Load is reducible to 0.42 times the Component and Cladding Loads per Table 1604.3 footnote f.

GENERAL CONTRACTOR'S PRIOR REVIEW: Once the contractor has completed his review of the SSE component drawings, the SER will review the submittal for general conformance with the design of the building and will stamp the submittal accordingly. Review of the Specialty Structural Engineer's (SSE) shop drawings (component design drawings) is for compliance with design criteria and compatibility with the design of the primary structure and does not relieve the SSE of responsibility for that design. All necessary bracing, ties, anchorage, proprietary products shall be furnished and installed per manufacturer's instructions or the SSE's design drawings and calculations. These elements include but are not limited to:

 Prefabricated Wood Roof Trusses SIP – Structural Insulated Panels

INSPECTIONS, QUALITY ASSURANCE VERIFICATIONS AND TEST REQUIREMENTS

NSPECTIONS: Foundations, footings, under slab systems and framing are subject to inspection by the Building Official in accordance with IBC 110.3. Contractor shall coordinate all required inspections with the Building Official.

<u>SPECIAL INSPECTIONS, VERIFICATIONS and TESTS</u>: Special Inspections, Verifications and Testing shall be done in accordance with IBC Chapter 17, the STATEMENT AND SCHEDULES OF SPECIAL INSPECTIONS listed in these drawings, and the AHJ STATEMENT OF SPECIAL INSPECTION and/or STATEMENT OF STRUC-TURAL OBSERVATIONS.

STRUCTURAL OBSERVATION: per IBC Section 1704.6

Structural Observation is the visual observation of the structural system by a registered design professional for general conformance to the approved construction documents. It is not always required on a project, does not include or waive the responsibility for the special inspections and tests required by a Special Inspector per IBC Chapter 17, is not continuous, and does not certify conformance with the approved construction documents.

Structural Observation for this project is required per IBC Section 1704.6. Contractor shall notify the SER in a timely manner to allow required Structural Observations to occur. Reports will be distributed to the Architect, the Contractor, Special Inspector and the Authority Having Jurisdiction.

The frequency and extent of observations is at the discretion of the structural observer. Only significant stages of construction identified by the Structural Observer require observation. For repetitive or similar structural elements identified as significant, only the first element of a stage requires observation unless noted otherwise. The following significant stages of construction require observation: prior to foundation concrete placement, and after roof diaphragm is complete prior to roofing.

CONTRACTOR RESPONSIBILITY: Prior to issuance of the building permit, the Contractor is required to provide the Authority Having Jurisdiction a signed, written acknowledgement of the Contractor's responsibilities associated with the above Statement of Special Inspections addressing the requirements listed in IBC Section 1704.4. Contractor is referred to IBC Sections 1705.12.5 and 1705.12.6 for architectural and MEP building systems that may be subject to additional inspections (based on the building's designated Seismic Design Category listed in the CRI-TERIA), including anchorage of HVAC ductwork containing hazardous materials, piping systems and mechanical units containing flammable, combustible or highly toxic materials, electrical equipment used for emergency or standby power, exterior wall panels and suspended ceiling systems.

SOILS AND FOUNDATIONS

REFERENCE STANDARDS: Conform to IBC Chapter 18 "Soils and Foundations."

GEOTECHNICAL REPORT: Recommendations contained in Bridger View Redevelopment by Allied Engineer ing Services, INC dated May 2019 were used for design.

CONTRACTOR'S RESPONSIBILITIES: Contractor shall be responsible to review the Geotechnical Report and shall follow the recommendations specified therein including, but not limited to, subgrade preparations, pile installation procedures, ground water management and steep slope Best Management Practices.

GEOTECHNICAL SUBGRADE INSPECTION: The Geotechnical Engineer shall inspect all sub-grades and prepared soil bearing surfaces, prior to placement of foundation reinforcing steel and concrete. Geotechnical Engineers shall provide a letter to the owner stating that soils are adequate to support the "Allowable Foundation Bearing Pressure(s)" shown below.

DESIGN SOIL VALUES

Safety Factor per Soils Report	1.5	
Allowable Foundation Bearing Pressure	2000	PSF - Native
Passive Lateral Pressure	250	PSF/FT
Active Lateral Pressure (unrestrained)	45	PSF/FT
At-Rest Lateral Pressure (restrained)	60	PSF/FT
Coefficient of Sliding Friction	0.5	

FOUNDATIONS and FOOTINGS: Foundations shall bear on either on competent native soil or compacted structural fill as per the geotechnical report. Exterior perimeter footings shall bear not less than 48 inches below finish grade, unless otherwise specified by the geotechnical engineer and/or the building official.

FOOTING DEPTH: Tops of footings shall be as shown on plans with vertical changes as indicated with steps in the footings; locations of steps shown as approximate and shall be coordinated with the civil grading plans.

SLABS-ON-GRADE: All slabs-on-grade shall bear on compacted structural fill or competent native soil per the geotechnical report. All moisture sensitive slabs-on-grade or those subject to receive moisture sensitive coatings/ covering shall be provided with an appropriate capillary break and vapor barrier/retardant over the subgrade prepared and installed as noted in the geotechnical report, barrier manufacturer's written recommendations and coordinated with the finishes specified by the Architect.

CAST-IN-PLACE CONCRETE

- REFERENCE STANDARDS: Conform to:
- (1) ACI 301-16 "Specifications for Structural Concrete" (2) IBC Chapter 19 "Concrete"
- (3) ACI 318-14 "Building Code Requirements for Structural Concrete" (4) ACI 117-10 "Specifications for Tolerances for Concrete Construction and Materials"

FIELD REFERENCE: The contractor shall keep a copy of ACI Field Reference manual, SP-15, "Standard Specifications for Structural Concrete (ACI 301) with Selected ACI and ASTM References."

CONCRETE MIXTURES: Conform to ACI 301 Section 4 "Concrete Mixtures" and IBC Section 1904.1.

MATERIALS: Conform to ACI 301 Section 4.2.1 "Materials" for requirements for cementitious materials, aggregates, mixing water and admixtures.

SUBMITTALS: Provide all submittals required by ACI 301 Section 4.1.2. Submit mix designs for each mix in the table below. Substantiating strength results from past tests shall not be older than 24 months per ACI 318 Section 26.4.3.1 (b).

TABLE OF MIX DESIGN REQUIREMENTS

Member Type/Location	Strength f'c (psi)	Test Age (days)	Nominal Maximum Aggregate	Exposure Class	Max W/C Ratio	Air Con- tent	Notes (1 to 9 Typical UNO)
Footings	4000	28	1"	-	-	-	9
Exterior Slabs on Grade & Sidewalks	4500	28	1"	-	0.45	5%	-
Interior Slabs on Grade	3000	28	1"	-	0.50	-	-
Basement Walls & Stem Walls	4500	28	1"	-	0.45	5%	9
Site Retaining Walls	4500	28	1"	-	0.45	5%	9

ORMWORK & RESHORING: Conform to ACI 301 Section 2 "Formwork and Form Accessories." Removal of Forms shall conform to Section 2.3.2 except strength indicated in Section 2.3.2.5 shall be 0.75 f' c.

MEASURING, MIXING, AND DELIVERY: Conform to ACI 301 Section 4.3. HANDLING, PLACING, CONSTRUCTING AND CURING: Conform to ACI 301 Section 5. In addition, hot weather concreting shall conform to ACI 305R-10 and cold weather concreting shall conform to ACI 306R-10.

CONSTRUCTION JOINTS: Conform to ACI 301 Sections. 2.2.2.5 and 5.3.2.6. Construction joints shall be located and detailed as on the construction drawings. Submit alternate locations per ACI 301 Section 5.1.2.4(a) for review and approval by the SER two weeks minimum prior to forming. Use of an acceptable adhesive, surface retardant, portland cement grout or roughening the surface is not required unless specifically noted on the drawings.

Table of Mix Design Requirements Notes:

(1) W/C Ratio: Water-cementitious material ratios shall be based on the total weight of cementitious materials. Maximum ratios are controlled by strength noted in the Table of Mix Design Requirements and durability requirements given in ACI 318 Section 19.3.

(2) Cementitious Materials:

- a. The use of fly ash, other pozzolans, silica fume, or slag shall conform to ACI 318 Sections 19.3.2 and 26.4.2.2. Maximum amount of fly ash shall be 25% of total cementitious content unless reviewed and approved otherwise by SER.
- For concrete used in elevated floors, minimum cementitious-materials content shall conform to ACI 301 Table 4.1.2.9. Acceptance of lower cement content is contingent on providing supporting data to the SER for review and acceptance. Cementitious materials shall conform to the relevant ASTM standards listed in ACI 318 Section
- 26.4.1.1.1(a).
- (3) Air Content: Conform to ACI 318 Section 19.3.3.1. Minimum standards for exposure class are noted in the table. If freezing and thawing class is not noted, air content given is that required by the SER. Tolerance is $\pm 1-\frac{1}{2}$ %. Air content shall be measured at point of placement.
- (4) Aggregates shall conform to ASTM C33.
- (5) Slump: Conform to ACI 301 Section 4.2.2.2. Slump shall be determined at point of placement.
- (6) Chloride Content: Conform to ACI 318 Table 19.3.2.1.
- (7) Non- chloride accelerator: Non-chloride accelerating admixture may be used in concrete placed at ambient
- temperatures below 50°F at the contractor's option. (8) ACI 318, Section 19.3.1.1 exposure classes shall be assumed to be F2 unless different exposure classes
- are listed in the Table of Mix Design Requirements that modify these base requirements.
- (9) Structural design is based on strength of 2500 psi and therefore does not require special inspection. The 4500 psi compressive strength is specified for serviceability.

EMBEDDED ITEMS: Position and secure in place expansion joint material, anchors and other structural and nonstructural embedded items before placing concrete. Contractor shall refer to mechanical, electrical, plumbing and architectural drawings and coordinate other embedded items.

GROUTED REBAR: See Post-Installed Anchors to Concrete.

POST-INSTALLED ANCHORS to CONCRETE: Anchor location, type, diameter and embedment shall be as indicated on drawings. Reference the POST INSTALLED ANCHORS section for applicable Post-Installed Anchor Adhesives. Anchors shall be installed and inspected in strict accordance with the applicable ICC-Evaluation Service Report (ESR). Special inspection shall be per the TESTS and INSPECTIONS section.

BONDING AGENT: Use MasterEmaco ADH 326. Apply in accordance with manufacturer's instructions.

FLOOR FINISHES: The contractor must provide and correctly install an isolation membrane and properly detailed expansion joints to help minimize cracking of finishes with cementitious setting beds or finish properties (tile, stone, terrazzo, concrete topping, etc). The expansion joints shall be sized for an expected shortening movement of 0.01 inches per foot.

STRENGTH TESTING AND ACCEPTANCE:

Testing: Obtain samples and conduct tests in accordance with ACI 301 Section 1.6.3.2. Additional samples may be required to obtain concrete strengths at alternate intervals than shown below.

- Cure 4 cylinders for 28-day test age test 1 cylinder at 7 days, test 2 cylinders at 28 days, and hold 1 cylinder in reserve for use as the Engineer directs. After 56 days, unless notified by the Engineer to the contrary, the reserve cylinder may be discarded without being tested for specimens meeting 28-day strength requirements.
- The number of cylinders indicated above reference 6 by 12 in cylinders. If 4 by 8 in cylinders are to be used, additional cylinders must be cured for testing of 3 cylinders at test age per the table of mix design requirements.

Acceptance. Strength is satisfactory when:

- (1) The averages of all sets of 3 consecutive tests equal or exceed the specified strength.
- (2) No individual test falls below the specified strength by more than 500 psi.
- A "test" for acceptance is the average strength of two 6 by 12 in. cylinders or three 4 by 8 in. cylinders tested at the specified test age.

CONCRETE PLACEMENT TOLERANCE: Conform to ACI 117-10 for concrete placement tolerance.

CONCRETE REINFORCEMENT

REFERENCE STANDARDS: Conform to:

(1) ACI 301-16 "Standard Specifications for Structural Concrete", Section 3 "Reinforcement and Reinforcement Supports.

- (2) ACI SP-66(04) "ACI Detailing Manual" (3) CRSI MSP-09, 28th Edition, "Manual of Standard Practice."
- (4) ANSI/AWS D1.4: 2005, "Structural Welding Code Reinforcing Steel."
- (5) IBC Chapter 19-Concrete. (6) ACI 318-14 "Building Code Requirements for Structural Concrete."
- (7) ACI 117-10 "Specifications for Tolerances for Concrete Construction and Materials"

SUBMITTALS: Conform to ACI 301 Section 3.1.2 "Submittals." Submit placing drawings showing fabrication dimensions and placement locations of reinforcement and reinforcement supports.

MATERIALS:

Reinforcing Bars	ASTM A615, Grade 60, deformed bars.
-	ASTM A706, Grade 60, deformed bars.
Smooth Welded Wire Fabric	ASTM A1064
Deformed Welded Wire Fabric	ASTM A1064
Bar Supports	CRSI MSP-09, Chapter 3 "Bar Supports."
Tie Wire	16 gage or heavier, black annealed.
Anchor Rods (Anchor Bolts, typical) .	ASTM F1554, Gr. 36

FABRICATION: Conform to ACI 301, Section 3.2.2. "Fabrication", and ACI SP-66 "ACI Detailing Manual."

WELDING: Bars shall not be welded unless authorized. When authorized, conform to ACI 301, Section 3.2.2.2. Welding", AWS D1.4, and provide ASTM A706, grade 60 reinforcement.

PLACING: Conform to ACI 301, Section 3.3.2 "Placing." Placing tolerances shall conform to ACI 117.

CONCRETE COVER: Conform to the following cover requirements unless noted otherwise in the drawings. Concrete cast against earth. Concrete exposed to earth or weather ...

- Ties in columns and beams . 1-1/2"
- Bars in slabs... Bars in walls ...
- Exterior bars in Tilt-up Panels..

SPLICES: Conform to ACI 301, Section 3.3.2.7, "Splices". Refer to "Typical Lap Splice and Development Length Schedule" for typical reinforcement splices. Splices indicated on individual sheets shall control over the schedule. Mechanical connections may be used when approved by the SER.

FIELD BENDING: Conform to ACI 301 Section 3.3.2.8. "Field Bending or Straightening." Bar sizes #3 through #5 may be field bent cold the first time. Subsequent bends and other bar sizes require preheating. Do not twist bars. Bars shall not be bent past 45 degrees.

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PRELIMINARY NOT FOR CONSTRUCTION.

This drawing is not intended nor shall it be used for construction purposes unless the signed professional stamp of a registered architect employed by Comma-Q Architecture, Inc. is affixed above.

CONSULTANTING ARCHITECT

REVISIONS

RUCTION

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evolve environment :: architectur 6020 Broad Street Pittsburg, PA 15206 T 412.362.2100 www.evolveea.com

UNIT TYPE: G5

PROJECT #: **19-02**

30% CD

DATE: **09-15-2020**

STRUCTURAL GENERAL NOTES

ORIGINAL DRAWING SIZE: 24" x 3

POST-INSTALLED ANCHORS (INTO CONCRETE AND MASONRY)

REFERENCE STANDARDS: Conform to: 1) IBC Chapter 19 "Concrete"

- 2) ACI 318-14 "Building Code Requirements for Structural Concrete"
- IBC Chapter 21 "Masonry" TMS402-16 "Building Code Requirements for Masonry Structures"

POST-INSTALLED ANCHORS: Install only where specifically shown in the details or allowed by SER. All post-Installed anchors types and locations shall be approved by the SER and shall have a current ICC-Evaluation Service Report that provides relevant design values necessary to validate the available strength exceeds the required strength. Submit current manufacturer's data and ICC ESR report to SER for approval regardless of whether or not it is a pre-approved anchor. Anchors shall be installed in strict accordance to ICC-ESR and the manufacturer's printed installation instructions (MPII) in conjunction with edge distance, spacing and embedment depth as indicated on the drawings. The contractor shall arrange for a manufacturer's field representative to provide installation training for all products to be used, prior to the commencement of work. Only trained installer shall perform post installed anchor installation. A record of training shall be kept on site and be made available to the SER as reguested. Adhesive anchors installed in horizontally or upwardly inclined orientation shall be performed by a certified adhesive anchor installer (AAI) as certified through ACI/CRSI or approved equivalent. Proof of current certification shall be submitted to the engineer for approval prior to commencement of installation. No reinforcing bars shall be damaged during installation of post-installed anchors. Special inspection shall be per the TESTS and IN-SPECTIONS section. Anchor type, diameter and embedment shall be as indicated on drawings.

- ADHESIVE ANCHORS: The following Adhesive-type anchoring systems have been used in the design and shall be used for anchorage to CONCRETE as applicable and in accordance with corresponding current ICC ESR report. Reference the corresponding ICC ESR report for required minimum age of concrete, concrete temperature range, moisture condition, light weight concrete, and hole drilling and preparation requirements. Drilled-in anchor embedment lengths shall be as shown on drawings, or not less than 7 times the anchor nominal diameter (7D). Adhesive anchors are to be installed in concrete aged a minimum of 21 days, unless otherwise specified in the ICC ESR report.
 - a. HILTI "HIT-HY 200" ICC ESR-3187 for anchorage to CONCRETE with embedment depth less than or equal to 20 bar diameters
 - SIMPSON "SET-XP" ICC ESR 2508 for anchorage to CONCRETE
- SCREW ANCHORS: The following Screw type anchor is pre-approved for anchorage to CONCRETE in accordance with corresponding current ICC ESR report:
 - a. SIMPSON "TITEN HD" ICC ESR-2713 for CONCRETE Only and ICC ESR-1056 for MA-SONRY Only]
- b. HILTI "KWIK HUS-EZ" ICC ESR-3027 for anchorage to CONCRETE Only

METAL ROOF AND FLOOR DECK

REFERENCE STANDARDS: Conform to:

- SDI-DDM "Diaphragm Design Manual, 4th Edition ANSI/SDI NC-2017 – "Standard for Noncomposite Steel Floor Deck"
- ANSI/SDI RD-2017 "Standard for Steel Roof Deck"
- ANSI/SDI C-2017 "Standard for Composite Steel Floor Deck-Slabs"
- 5) AISI S100-16 "North American Specification for the Design of Cold-Formed Steel Structural Members" 6) AWS D1.3:2008 - "Structural Welding Code - Sheet Steel"

SUBMITTALS: Submit shop drawings to the Architect/Engineer for review. Shop drawings shall include material type, design loads, diaphragm capacities, span layout, deck attachments, metal deck edge form design & calculations, and shoring requirements. All openings shall be indicated. Any alternate deck types and gages shall be submitted to the Architect/Engineer for review prior to fabrication and shall include a valid ICC evaluation report, calculations & shop drawings (component design drawings) stamped by the SSE.

PRE-CONSTRUCTION MEETING: The contractor shall arrange a pre-construction meeting for composite steel construction. The contractor, structural engineer-of-record, subcontractors involved with the steel erection and placement of concrete on composite floors work, and representatives of the special inspection agency shall attend this meeting. Agenda items include but are not limited to:

- Pour sequence: Pours should start over the joists and work towards the girders. 2) Construction Joint locations and details: dowel construction joins with #4 x 5'-0" @ 18" oc unless noted
- otherwise on the drawings. Construction joints shall be located to fully load composite steel framing prior to achieving composite action with the concrete.
- 3) Screed points shall be placed to achieve a uniform thickness of concrete over the deck.

MATERIAL: ASTM A653 – SS Designation, Grade 33. Minimum yield strength shall be 33 ksi. Steel deck and accessories shall be galvanized to G60 minimum in accordance with ASTM A653

TYPE: Deck shall be as shown on the structural drawings based on 3-span, unshored condition. Shoring is required for conditions other than 3-span. To eliminate shoring, the contractor may choose to use a heavier gage deck with approval by the SER.

a. VERCO – IAPMO ER-217 b. VULCRAFT – ICC Report ESR-1227

DIAPHRAGM CAPACITY: Deck and attachments shall be capable of resisting the diaphragm shears where indicated on the drawings. Submit ICC Evaluation Report as proof of compliance.

INSTALLATION: Install deck in accordance with supplier's instructions and shop drawings. Attachments shall resist the uplift forces and the diaphragm shear forces shown on the drawings. Welding shall conform to AWS D1.3. Welders shall have current Light Gage Certification. Minimum end lap shall be 2" centered over supports. Minimum bearing shall be 2."

OPENINGS: Deck openings less than 6" do not require reinforcement. For larger openings, refer to typical details ACCESSORIES: Deck manufacturer shall furnish shoring plans, closure plates, ridge and valley plates, cant strips, sump pans, flashing and all other light gage steel material required to complete the work.

<u>CONCRETE FILL</u>: Conform to notes this sheet for CAST-IN-PLACE CONCRETE and CONCRETE REINFORCE-MENT. Provide minimum 3000 psi concrete and WWF 6x6-W1.4xW1.4 unless noted otherwise. Splice welded plain wire reinforcement per ACI 318 Section 25.5.4 or 12" minimum.

DECK FASTENING: Minimum deck fastening shall be as follows, unless noted otherwise on the drawings:

- 1/2" diameter puddle welds each rib at transverse and perimeter supports,
- 1/2" diameter puddle welds at 6" OC at longitudinal supports,
- Side lap connections to be welded or #10 TEK screws at 12" OC max.

WOOD FRAMING

REFERENCE STANDARDS: Conform to: (1) IBC Chapter 23 "WOOD"

- (2) NDS "2018 National Design Specification (NDS) for Wood Construction"
- (3) ANSI/AWC SDPWS-15: Special Design Provisions for Wind and Seismic
- (4) APA D510C-12 Plywood Design Specification (5) ANSI/TPI 1-2014 "National Design Standard for Metal-Plate-Connected Wood Truss Construction"
- (6) BCSI B1 "Guide to Good Practice for Handling, Installing, Restraining & Bracing of Trusses"
- (7) TPI DSB "Recommended Design Specification for Temporary Bracing of Metal Plate Connected Wood Trusses' (8) APA Report TT-045B "Minimum Nail Penetration for Wood Structural Panel Connections Subject to Lateral

DEFERRED SUBMITTALS: Submit product data and proof of ICC approval for framing members and fasteners that have been designed by others. Submit calculations prepared by the SSE in the state of Montana for all members and connections designed by others along with shop drawings. All necessary bridging, blocking, blocking panels and web stiffeners shall be detailed and furnished by the supplier. Temporary and permanent bridging shall be installed in conformance with the manufacturer's specifications. Deflection limits shall be as noted under DEF-FERRED SUBMITTLALS section specific details. Products included are:

- Metal plate connected trusses (prefabricated trusses) Conform to IBC Section 2303.4. HUD Truss Connector Bulletin for Metal Plate Connected Wood Trusses is required. Truss Supplier to provide design and materials for all permanent truss bracing. Shop drawings shall provide for shapes, bearing points, intersections, hips, and valleys shown on the drawings. The manufacturer shall provide special hip, valley and intersection areas (step down trusses, jack trusses and girder trusses) unless specifically indicated on the plans. Provide all truss-to-truss and truss-to-support connection details and required connection materials. Specify temporary and permanent bracing and connections on the shop drawings. Provide all truss reactions on shop drawings.
- Structural Insulated Panels-SIP (Deferred Submittal): The project design was based on Premier Industries 7-1/4" R-Control SIP per ICC Evaluation Service Report ESR-1882. Product shall be submitted as a Deferred Submittal and shall be designed for the loads specified. Submittals shall demonstrate conformance to the vertical and horizontal loading requirements noted on the drawing. Alternate products by other manufacturers may be substituted provided they have current ICC approval for equivalent or greater load and stiffness properties and are reviewed and approved by the Structural Engineer of Record.

IDENTIFICATION: All sawn lumber and pre-manufactured wood products shall be identified by the grade mark or a certificate of inspection issued by the certifying agency.

MATERIALS:

acceptable at interior walls only.

TABLE of SOLID SAWN LUMBER

Member Use	Size	Species	Grade
Wall Stud/ Top & Bot- tom Plates	2x4, 3x4, 2x6, 3x6	Doug Fir Larch	No. 2
Sill Plate (at concrete)	2x4, 3x4, 2x6, 3x6	PT Doug Fir Larch	No. 2
Post	4x4, 4x6, 4x8	Doug Fir Larch	No. 2
Floor or Roof Joist	2x6 through 2x12	Doug Fir Larch	No. 2
Beam	4x8 through 4x12	Doug Fir Larch	No. 2
Beam	6x8 through 6x12	Doug Fir Larch	No. 1
Post or Timber	6x6, 8x8	Doug-Fir Larch	No. 1

2" Tongue-And-Groove Heavy Timber Decking: Tongue-and-groove deck shall be random length laid with well-scattered joints (controlled random lay-up). The distance between end joints in adjacent courses must be at least 2 feet apart. End joints not over a support shall be end matched tongue and groove or use #10 gage metal spline and drive fit into precut slot in board. Each board shall bear on at least one support. Only one board out of three shall be spliced at a given location. Joints within 6 inches of each other shall be separated by at least 2 intervening courses. Decking is to be installed with tongues up on sloped or pitched roofs. It is to be laid with pattern faces down. Each piece should be toenailed through the tongue at each support with one 16d common nail and face nailed at each support with one 16d common nail. Decking lengths and moisture content must be in conformance with the AITC 112-93 "Standard for Tongue-and-Groove Heavy Timber Roof Decking."

TABLE of T&G DECKING

ember Use	Size	Species	Grade
T&G Decking	2x6 Solid	Doug-Fir Larch	KD-15 Commer- cial

on plans.

TABLE of GLULAM and GRADE

Member	Member Sizes		Comb. Sym- bol	Uses
Beams	All	DF/DF	24FV4	Simple Spans
Beams	All	DF/DF	24F-V8	Continuous or with Cantilever Spans
Columns	All	DF	L2	Post, Truss Member

wood Association. Unless noted otherwise, sheathing shall comply with the following table:

TABLE of SHEATHING - Use, Minimum Thickness and Minimum APA Rating

Location	Thickness	Span Rating	Plywood Grade	Exposure
Roof	19/32"	40/20	C-D	1
Floor	23/32" T&G	24 OC	STURD-I-FLOOR	1
Walls	15/32"	32/16	C-D	1

Unless noted otherwise on drawings, install roof and floor panels with long dimension across supports and with panel continuous over two or more spans. End joints shall occur over supports.

• Timber Connectors: Shall be "Strong Tie" by Simpson Company as specified in their latest catalog. Alternate connectors by other manufacturers may be substituted provided they have current ICC approval for equivalent or greater load capacities and are reviewed and approved by the SER prior to ordering. Connectors shall be installed per the manufacturer's instructions. Where connector straps connect two members, place onehalf of the nails or bolts in each member. Where straps are used as hold-downs, nail straps to wood framing just prior to drywall application, as late as possible in the framing process to allow the wood to shrink and the building to settle. Premature nailing of the strap may lead to strap buckling and potential finish damage.

Where connectors are in exposed exterior applications in contact with preservative treated wood (PT) other than CCA, connectors shall be either batch hot-dipped galvanized (HDG), mechanically galvanized (ASTM B695, Class 55 minimum) stainless steel, or provided with 1.85 oz/sf of zinc galvanizing equal to or better than Simpson ZMAX finish.

Nail straps to wood framing as late as possible in the framing process to allow the wood to shrink and the building to settle. Premature nailing of the strap may lead to strap buckling and potential finish damage.

- supplier
- Provide <u>washers</u> under the heads and nuts of all bolts and lag screws bearing on wood. • Lag Bolts/Bolts: Conform to ASTM A307 and IBC Section 2304.10.
- <u>Nails and Staples</u>: Conform to ASTM F1667 and IBC Sections 2303.6 and 2304.10.

TABLE of ENGINEERED WOOD Requirements

Sawn Lumber: Conform to grading rules of WWPA, WCLIB or NLGA and Table below. Finger jointed studs

Glued Laminated Timber: Conform to ANSI 117-2015 "Standard Specifications for Structural Glue-laminated imber of Softwood Species, Manufacturing and Design" and ANSI A190.1 "Structural Glued Laminated Timber." Camber all glued laminated beams, except cantilevered and continuous beams, to 3000' radius, unless shown otherwise on the plans. Fabricate cantilevered and continuous beams flat, unless shown otherwise

• <u>Wood Structural Sheathing (Plywood</u>): Wood APA-rated structural sheathing includes: all veneer plywood, oriented strand board, waferboard, particleboard, T1-11 siding, and composites of veneer and wood based material with T&G joint. Architect may disallow OSB. Confirm with Architect. Conform to "Construction and Industrial Plywood" based on Product Standard PS 1-09 by the U.S. Dept. of Commerce, and "Performance Standard for Wood-Based Structural-Use Panels" based on Product Standard PS 2-10 by the U.S. Dept. of Commerce and "Plywood Design Specification" based on APA D510C-12 by the American Ply-

• Fasteners (nails, bolts, screws, etc) attaching timber connectors (joist hangers, post caps and bases, etc) to T wood shall have similar corrosion resistance properties (matching protective treatments) as the protected connector. Fasteners (nails, bolts, screws, etc) attaching sawn timber members or sheathing (shear walls) to PT wood shall be corrosion resistant; nails and lag bolts shall be either HDG (ASTM A153) or stainless steel. Verify the suitability of the fastener protection/coating with the wood treatment chemical manufacturer/

· Engineered Wood Products (TrusJoist): The following materials are based on lumber manufactured by rusJoist and were used for the design as shown on the plans. Alternate products by other manufacturers may be substituted provided they have current ICC approval for equivalent or greater load and stiffness properties and are reviewed and approved by the Structural Engineer prior to ordering.

a. Laminated Veneer Lumber (LVL): Conform to ICC ES Report No. ESR-1387 or CCMC Report No.

b. Parallel Strand Lumber (PSL): Conform to ICC ES Report No. ESR-1387 or CCMC Report No.

Laminated Strand Lumber (LSL): Conform to ICC ES Report No. ESR-1387 or CCMC Report No.

Туре	Use	Widths	E(10 ⁶)	Fb	Fv	Fc//
			PSI	PSI	PSI	PSI
LSL Rimboard	Rimboard or Stair Stringer	1 1⁄2"	1.3E	1,700	425	1,835
Timberstrand LSL	Header, Beam or Col- umn < 9" depth	3 1/2"	1.3E	1,700	424	1,835
Timberstrand LSL	Wall Stud 2x4 & 2x6	1 1⁄2"	1.5E	1,700	425	1,835
	Wall Stud >2x6	1 1⁄2"	1.5E	2,525	505	2,105
Microllam LVL	Header, Beam	1 ¾"	2.0E	2,600	285	2,510
Parallam PSL	Header, Beam	3 ½", 5 ¼", 7"	2.0E	2,900	290	2,900
Parallam PSL	Column	3 ½", 5 ¼", 7"	1.8E	2,400	190	2,500

NAILING REQUIREMENTS: Conform to IBC Section 2304.10 "Connections and fasteners." Unless noted on plans, nail per Table 2304.10.1. Nailing for roof/floor diaphragms/shear walls shall be per drawings. Nails shall be driven flush and shall not fracture the surface of sheathing. Alternate nails may be used but are subject to review and approval by the Structural Engineer. Substitution of staples for the nailing of rated sheathing is subject to review by the structural engineer prior to construction.

STANDARD LIGHT-FRAME CONSTRUCTION: Unless noted on the plans, construction shall conform to IBC Section 2308 "Conventional Light-Frame Construction."

WOOD SHRINKAGE AND EXPANSION: Wood materials will expand or contract based on relative changes in moisture. The contractor is responsible for means and methods of construction related to mitigating and managing the effects of changes in moisture.

MOISTURE CONTENT: Wood material used for this project shall have maximum moisture content of 19% except for the pressure-treated wood sill plate. Refer to TESTING & INSPECTIONS for the verification of these limits. The maximum moisture content required may be less than 19% when based on a particular cladding/insulation system. Refer to the Architect's drawings, and project specifications, or with cladding installer for maximum recommended moisture content.

SHRINKAGE COMPENSATION FOR MECHANICAL, ELECTRICAL, AND PLUMBING SYSTEMS: MEP systems, including ductwork, pipes, and other elements that run continuously between levels shall be installed/designed in such a manner to accommodate shrinkage in the wood framing. Wood shrinkage amounts will vary depending on the construction process and materials used. The anticipated shrinkage under typical conditions is expected to range between 1/8" and 1/4" per floor.

CLADDING COMPATIBILITY: The Architect/Owner shall review the cladding and insulation systems proposed for the project with respect to their performance over wood studs with moisture contents greater than 19%. EIFS systems should be avoided on wood-framed projects due to problems with moisture proofing. Note that DCI is not responsible for the attachment of the cladding to the wood studs which needs to be verified and provided by the cladding supplier.

STORAGE & HANDLING: All storage and handling is to be a means and methods provided by the contractor. The contractor is to determine the best practices in order to avoid damage to the members during storage, such as fungal growth, exposure to weather conditions. The following are suggestions to aid the contractor. All materials should be stored level on site and must be raised off the ground a minimum of 6" by means of blocking and separating spacers. It is recommended that the materials are covered with an additional opaque water proof material (i.e. good quality tarpaulin). When members are wrapped in poly or another material which may inhibit air flow, the material should have slots in the material or perforations to allow for air flow and prevent the accumulation of water and or condensation. Ensure that all exposed members are protective material from exposure should be removed only after the roof or structure providing cover is installed. Members should be constantly protected from weather during transportation, storage, and erection.

For interior glulam members the heat in the building should be gradually increased over a two to three week period in order to provide a gradual change in moisture content. Do not direct any forced air heating systems onto the glulam members. It is recommended to apply the final finish to the glulam member before heat is applied.

Members that are to be exposed to view in the finished structure should be handled using nylon or fabric slings to prevent surface damage. The contractor should also use means to protect corners of members to prevent "crushing" during transportation, storage and erection. All bolts should be galvanized, or make sure that they are free of oil to prevent staining. Glulam members should be treated and stained per the architect of records recommendations. The following are provided in order to help guide the contractor in the best practices to preserve the quality of wood products. These notes are not intended to be comprehensive and an end all solution and should be taken under consideration by the contractor and supplemented as necessary.

PRESERVATIVE TREATMENT (PT): Wood materials that are required to be "treated wood" in accordance with IBC Section 2304.12. "Protection Against Decay and Termite Protection" shall conform to the appropriate standards of the American Wood-Preservers Association (AWPA) for sawn lumber, glued laminated timber, round poles, wood piles and marine piles. Follow American Lumber Standards Committee (ALSC) quality assurance procedures. Products shall bear the appropriate mark. Fasteners or anchors in treated wood shall be of stainless steel or hot-dipped galvanized or as per IBC 2304.10.5.

Mud sill plates in normally dry interior applications may be treated with Sodium Borate (DOT - Disodium Octaborate Tetrahydrate) as recent studies have noted less connector corrosion potential than other available wood treatments or the original CCA treated sill plates. Wood treated with Sodium Borate shall be protected during shipment, storage and installation to minimize leaching of the water-soluble preservative from the lumber. Sodium borate pressure treated plates do not require hot-dipped galvanized connectors.

If using preservative treatments other than CCA or sodium borate, fasteners must be hot dipped galvanized or stainless steel. Wood treated with Alkaline Copper Quaternary (ACQ) requires steel components in contact with the wood to be stainless (nails, bolts, screws, washers & lag screws). Fasteners (nails, bolts, screws, washers & lag screws) attaching timber connectors (joist hangers, post caps and bases, etc) to PT wood shall have similar corrosion resistance properties (matching protective treatments) as the protected connector; that is, use hot dipped galvanized or stainless-steel fasteners. Fasteners (nails, bolts, screws, washers & lag screws) attaching sawn timber members or sheathing (shear walls) to Pressure Treated wood shall be corrosion resistant (hot dipped galvanized or stainless steel).

Always verify the suitability of the fastener protection/coating with the wood treatment chemical manufacturer/ supplier.

SPECIAL INSPECTIONS

The following Statement and Schedules of Inspections are those Special Inspections and Tests that shall be performed for this project. Special Inspectors shall reference these plans and IBC Chapter 17 for all special inspection requirements.

The owner shall retain an "approved agency" per IBC 1703 to provide special inspections for this project. Special Inspectors shall be qualified persons per IBC 1704.2.1. Special inspection reports shall be provided on a weekly basis. Submit copies of all inspection reports to the Architect/Engineer and the Authority Having Jurisdiction for review. In addition to special inspection

reports and tests, submit reports and certificates noted in IBC 1704.5 to the Authority Having Jurisdiction. Final special inspection reports will be required by each special inspection firm per IBC 1704.2.4.

STATEMENT OF SPECIAL INSPECTIONS:

- This statement of Special Inspections has been written with the understanding that the Building Official will Review and approve the qualifications of the Special Inspectors
- Monitor the special inspection activity on the project site to assure that Special Inspectors are
- qualified and performing their duty as state within this statement. Review all Special Inspection Reports submitted to them by the Special Inspector Perform inspections as required by IBC Section 110.3.
- The following Special Inspections are applicable to this project:

Special Inspections for Standard Buildings (per IBC 1705.1) REQUIRED REQUIRED

Special Inspections for Seismic Resistance (per IBC 1705.12) Testing for Seismic Resistance (per IBC 1705.13) REQUIRED Special Inspections for Wind Resistance (per IBC 1705.11) NOT REQUIRED

SPECIAL INSPECTION OF SHOP FABRICATED GRAVITY LOAD-BEARING MEMBERS AND ASSEMBLIES: Special Inspection of shop fabricated Gravity Load Bearing Members & Assemblies shall be verified by the Special Inspector as stated in Section 1704.2.5 which includes the following:

- Prior to the start of fabrication: Special Inspector(s), representing the Owner, shall visit the Fabricator's shop(s) where the work is to be performed, and verifies that the Fabricator maintains detailed Fabrication and Quality Control procedures that provide a basis for inspection, control of workmanship, material control, and fabricator's ability to conform to approved Construction Documents and referenced Standards.
- Fabricator shall have available for Inspector's review, detailed procedures for material control that demonstrates the fabricator's ability to maintain suitable records and procedures such that, at any time during the fabrication process, the material specification, grade and applicable test reports for primary load-carrying members, are capable of being determined.

POST-INSTALLED ANCHORS TO CONCRETE AND MASONRY: shall comply with IBC Section 1703. Inspections shall be in accordance with the requirements set forth in the approved ICC Evaluation Report and as indicated by the design requirements specified on the drawings. Refer to the POST INSTALLED ANCHORS section of these notes for anchors that are the basis of the design. Special inspector shall verify anchors are as specified in the POST INSTALLED ANCHORS section of these notes or as otherwise specified on the drawings. Substitutions require approval by the SER and require substantiating calculations and current 2018 IBC recognized ICC Evaluation Services (ES) Report. Special Inspector shall document in their Special Inspection Report compliance with each of the elements required within the applicable ICC Evaluation Services (ES) Report.

PREFABRICATED CONSTRUCTION: All prefabricated construction shall conform to IBC Section 1703.

CONCRETE CONSTRUCTION: Special inspections for concrete construction not required per IBC Section 1705.3, Exceptions #2 - #5. All foundation concrete is designed with f'c=2500 psi, f'c=4500 psi is specified for durability.

SCHEDULES OF SPECIAL INSPECTIONS:

TABLE 1705.6 REQUIRED SPECIAL INSPECTIONS AND TESTS OF SOILS

TYPE	CONTINUOUS SPECIAL INSPECTION	PERIODIC SPECIAL INSPEC- TION
 Verify materials below shallow foundations are adequate to achieve the design bearing capacity 	-	x
Verify excavations are extended to proper depth and have reach proper material	-	х
 Perform classification and testing of com- pacted fill materials 	-	х
 Verify use of proper materials, densities and list thickness during placement and compac- tion of compacted fill 	x	-
Prior to placement of compacted fill, inspect subgrade and verify that site has been pre- pared properly	-	х

REQUIRED SPECIAL INSPECTIONS OF WOOD CONSTRUCTION

TYPE	CONTINUOUS SPECIAL IN- SPECTION	PERIODIC SPE- CIAL INSPEC- TION	REFERENCED STANDARD
. Shear Walls (where fastener spacing of the sheathing is 4 inches or less on center)			IBC Section 1705.11.1 IBC Section 1705.12.2
 a. Anchor Bolts including proper bottom plate sizes (2x and 3x) and plate washers 	-	x	
b. Hold-downs (HD) and Continuous Rod Tie-Down Systems (TDS) including squash blocks and anchors to concrete	-	х	
c. A35 and LPT shear connectors	-	х	
d. Strap Connectors	-	х	
e. Boundary Edge Nailing	-	x	
f. Plate Nailing and Panel Edge Nailing for size and spacing	-	х	
g. Blocking	-	х	
Moisture Content of wood studs, plates, beams, decking, and joists	-	×	
. Roof truss 'hurricane clips'	-	х	

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STRUCTURAL SHEET LIST

SHEET NUMBER	SHEET TITLE
S1.1	STRUCTURAL GENERAL NOTES
S1.2	STRUCTURAL GENERAL NOTES
S1.3	STRUCTURAL - STRUCTURAL SHEET LIST, ABBREV & LEGEND
S2.1	STRUCTURAL - STRUCTURAL FOUNDATION AND STUD AND SW PLANS
S2.2	STRUCTURAL ROOF FRAMING PLAN
S4.1	STRUCTURAL - STRUCTURAL FOUNDATION DETAILS
S4.2	STRUCTURAL - STRUCTURAL FOUNDATION DETAILS
S4.3	STRUCTURAL - STRUCTURAL FOUNDATION DETAILS
S5.1	STRUCTURAL - STRUCTURAL SHEAR WALL DETAILS
S5.2	STRUCTURAL - STRUCTURAL SHEAR WALL DETAILS
S5.3	STRUCTURAL - STRUCTURAL WOOD FRAMING DETAILS
S5.4	STRUCTURAL - STRUCTURAL WOOD FRAMING DETAILS
S5.5	STRUCTURAL - STRUCTURAL WOOD FRAMING DETAILS
S5.6	STRUCTURAL - STRUCTURAL WOOD FRAMING DETAILS
Sheet Total: 14	

2W4 \triangle 1 $\langle 1 \rangle$ 8" 00TB (SR_) C1 XX"xXX" /−T/FTG = X'-> 3 <u>\$</u>____ X SX.X 00 S0.0 XX/SXX.XX -----AB AB ADDL ADH ALT ARCH B or BOT B/ BLDG BLLG BMU BP BRBF BRG BTWN СВ C'BORE CL or & CLT CIP CJ CJP CLR CLG CMU COL CONC CONST CONT C'SINK CTRD DIA DB DB DBA DBL DEMO DEV DF DIAG DIST DL DN DO DP DWG (E) EA

MARK

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DRAWING LEGEND

	DESCRIPTION	MARK	DESCRIPTION
	FOOTING SYMBOL (REFER TO SPREAD FOOTING SCHEDULE)		INDICATES DIRECTION OF DECK SPAN
	PILE CAP SYMBOL (REFER TO PILE CAP SCHEDULE)	I	INDICATES WIDE FLANGE COLUMN
	TILT-UP/PRECAST CONCRETE WALL CONNECTION SYMBOL (REFER TO CONNECTION DETAIL)		INDICATES HOLLOW STRUCTURAL SECTION (HSS) COLUMN OR TUBE STEEL (TS) COLUMN
	SHEAR WALL SYMBOL (REFER TO SHEAR WALL SCHEDULE)	0	INDICATES HOLLOW STRUCTURAL SECTION (HSS) COLUMN OR STEEL PIPE COLUMN
	REVISION TRIANGLE		INDICATES WOOD POST
	TILT-UP/PRECAST CONCRETE WALL PANEL NUMBER (REFER TO TILT-UP/ PRECAST CONCRETE WALL ELEVATIONS)		INDICATES BUNDLED STUDS
	CMU WALL REINFORCING SYMBOL (REFER TO CMU WALL REINFORCING SCHEDULE)		INDICATES CONCRETE COLUMN
	CONTINUITY PLATE LENGTH (REFER TO TYPICAL DETAIL)		INDICATES PRECAST CONCRETE COLUMN
	INDICATES DOUBLE SHEAR CONNECTION (REFER TO THE DOUBLE SHEAR PLATE CONNECTIONS DETAIL)	►	INDICATES MOMENT FRAME CONNECTION
	INDICATES REINFORCING TYPE (REFER TO THE REINFORCING SCHEDULE)		INDICATES CANTILEVER CONNECTION
	INDICATES NUMBER OF STUD RAIL REQUIRED AT COLUMN (REFER TO STUD RAIL DETAILS)	•	INDICATES DRAG CONNECTION
	ROOF/FLOOR DIAPHRAGM NAILING SYMBOL (REFER TO DIAPHRAGM NAILING SCHEDULE)	÷•••••	INDICATES WOOD OR STEEL STUD BEARING WALL LINE PER KEY ON SHEET
]	STEEL/CONCRETE COLUMN SYMBOL (REFER TO STEEL COLUMN SCHEDULE)	⋡≣∎●≣ ∳	INDICATES WOOD OR STEEL STUD SHEAR WALL LINE AND HOLD-DOWNS PER KEY ON SHEET
'-X"	ELEVATION SYMBOL (T/ REFERS TO COMPONENT THAT THE ELEVATION REFERENCES)	\$	INDICATES MASONRY/CMU WALL
)	STUD BUBBLE (INDICATES NUMBER OF STUDS REQUIRED IF EXCEEDS NUMBER SPECIFIED IN PLAN NOTE)		INDICATES CONCRETE/TILT-UP CONCRETE WALL
	INDICATES STEP IN FOOTING (REFER TO TYPICAL STEP IN FOOTING DETAIL)	\$\$	INDICATES BEARING WALL BELOW
	DETAILS OR SECTION CUT (DETAIL NUMBER/SHEET NUMBER)	↓	INDICATES EXISTING WALL
	DETAILS OR SECTION CUT IN PLAN VIEW (DETAIL NUMBER/SHEET NUMBER)	 ;	POST-TENSION DEAD END (PLAN)
\langle	INDICATES LOCATION OF CONCRETE WALLS, SHEAR WALLS OR BRACED FRAME ELEVATIONS		POST-TENSION STRESSING END (PLAN)
•	STRUCTURAL EXTENT SYMBOL SINGLE ARROW - END OF EXTENT DOUBLE ARROW - CONTINUOUS	<u>→</u> 3→	POST-TENSION PROFILE (PLAN) (IN INCHES)
	EXTENT ALONG THE ELEMENT LINE UNTIL THE ELEMENT IS INTERRUPTED	è	INTERMEDIATE STRESSING (PLAN)

ABBREVIATIONS

L	Angle	EXT	Exterior	PREFAB
AB	Anchor Bolt	FD	Floor Drain	PSF
ADDL	Additional	FDN	Foundation	PSI
ADH	Adhesive	FIN	Finish	PSL
ALT	Alternate	FLR	Floor	P-T
ARCH	Architectural	FRP	Fiberglass Reinforced Plastic	PT
B or BOT	Bottom	FRT	Fire Retardant Treated	R
B/	Bottom Of	FTG	Footing	RD
BLDG	Building	F/	Face of	REF
BLKG	Blocking	GA	Gage	REINF
BIMU	Brick Masonry Unit	GALV	Galvanized	REQD
BP	Baseplate	GEOTECH		KEI
впрг	Buckling Restrained	GL	Giue Laminated Timber	SCBL
BBC	Boaring	UNB UND	Hondor	SCHED
BT\A/N	Between		Heddel Hem-Fir	SER
	Camber	HGB	Hanger	JLN
CB	Castellated Beam	HD	Hold-down	SEBS
C'BORF		HORIZ	Horizontal	01110
CL or C	Centerline	HP	High Point	SHTHG
CLT	Cross-Laminated Timber	HSS = TS	(Hollow Structural Section)	SIM
CIP	Cast in Place	IBC	International Building Code	SLBB
CJ	Construction or	ID	Inside Diameter	SMF
	Control Joint	IE	Invert Elevation	SOG
CJP	Complete Joint	IF	Inside Face	SP
	Penetration	INT	Interior	SPEC
CLR	Clear	k	Kips	SQ
CLG	Ceiling	KSF	Kips Per Square Foot	SR
CMU	Concrete Masonry Unit	LF	Lineal Foot	SF
COL	Column			551
CONC	Concrete			STAGG
CONIST	Construction			STIFE
CONT	Continuous	L P	Low Point	STI
C'SINK	Countersink		Longitudinal	STRUCT
CTRD	Centered	LSL	Laminated Strand Lumber	SWWJ
DIA	Diameter	LVL	Laminated Veneer Lumber	SYM
DB	Drop Beam	MAS	Masonry	Т
DBA	Deformed Bar Anchor	MAX	Maximum	T/
DBL	Double	MECH	Mechanical	T&B
DEMO	Demolish	MEZZ	Mezzanine	TC AX LI
DEV	Development	MFR	Manufacturer	TCX
DF	Douglas Fir	MIN	Minimum	TDS
DIAG	Diagonal	MISC	Miscellaneous	1&G
DIST	Distributed	NIC	Not In Contract	THKND
			Nall-Laminated Timper	
	Down		On Contor	
DP	Denth/Deen	OCBE	Ordinary Concentric Braced	TYP
DWG	Drawing	OCDI	Frame	
(F)	Existing	OD	Outside Diameter	URM
ĒA	Each	OF	Outside Face	-
EF	Each Face	OPNG	Opening	VERT
EL	Elevation	OPP	Opposite	W
ELEC	Electrical	OWSJ	Open Web Steel Joist	W/
ELEV	Elevator	OWWJ	Open Web Wood Joist	W/O
EMBED	Embedment	PL	Plate	WHS
EQ	Equal	PAF	Powder Actuated Fastener	WP
			Precast	VVVVF
	Each vvay		Planod	±
EAF EVD IT	Expansion loint		Partial Joint Ponotration	
		I JI		

REFAB	Prefabricated
3F CI	Pounda Dar Square Inch
	Pounds Per Square Inch
SL T	Parallel Strand Lumber
- -	Post-Tensioned
	Pressure Treated
	Radius
D	Roof Drain
EF	Refer/Reference
EINF	Reinforcing
EQD	Required
ET	Retaining
CBF	Special Concentric
	Braced Frame
CHED	Schedule
FR	Structural Engineer of
	Becord
FRS	Seismic Force-
1110	Popieting System
итис	Chaothing System
	Sheathing
	Similar
LBB	Short Leg Back-to-Back
MF	Special Moment Frame
OG	Slab on Grade
Р	Southern Pine
PEC	Specification
Q	Square
R	Studrail
F	Square Foot
ST	Stainless Steel
TAGG	Stagger/Staggered
TD	Standard
TIFF	Stiffener
TI	Steel
	Structural
	Solid Web Wood Joist
V V V V J V N A	Summetrical
1 1 1 1	Top
1	Top Top Of
0 0	
	Top Chord Axial Load
	Top Chord Extension
JS	Tie Down System
&G	Iongue & Groove
HKND	Thickened
HRD	Threaded
HRU	Through
RANSV	Transverse
ΥP	Typical
NO	Unless Noted Otherwise
RM	Unreinforced Masonry
	Unit
ERT	Vertical
/	Wide
//	With
//O	Without
/HS	Welded Headed Stud
/P	Working Point
ΛΛ/F	Welded Wire Fabric
	Plus or Minus
	I IUS ULIVIIIIUS

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REVISIONS No. Description	20 Broad Stree sburg, PA 152 12.362.2100 w.evolveea.co	et 206 om Date
UNIT	TYPF	: G5

PROJECT #: 19-02

30% CD

DATE: **09-15-2020**

STRUCTURAL SHEET LIST, ABBREV & LEGEND

S1.3

ORIGINAL DRAWING SIZE: 24" x 36"

FOUNDATION PLAN NOTES:

- 1. STRUCTURAL GENERAL NOTES, DESIGN CRITERIA, ABBREVIATIONS AND LEGEND PER S1.1, S1.2, S1.3.
- 2. VERIFY ALL DIMENSIONS AND ELEVATIONS WITH THE ARCHITECTURAL DRAWINGS.
- 3. CONTRACTOR SHALL LOCATE AND VERIFY THE FOLLOWING WITH OTHERS PRIOR TO POURING CONCRETE: ALL DOOR OPENINGS IN FOUNDATION WALLS; DRAINS AND SLOPES; BLOCKOUTS FOR COOLERS, PLUMBING, SPRINKLERS; AND HVAC. ALL DUCTS, CHASES AND PIPES PER MECHANICAL, PLUMBING, ELECTRICAL AND SPRINKLER DRAWINGS. STAIR DETAILS AND GUARDRAILS PER ARCHITECTURAL DRAWINGS. CONCRETE CURBS AND LOCATIONS PER ARCHITECTURAL DRAWINGS.
- 4. TOP OF SLAB ELEVATIONS PER PLAN. PROVIDE 6 MIL VAPOR BARRIER BELOW SLAB AT INTERIOR SPACES. PROVIDE FREE-DRAINING GRANULAR FILL PER GEOTECH REPORT.
- 5. TYPICAL TOP OF INTERIOR (T/FTG) FOOTING ELEVATION = PER PLAN, UNO. TYPICAL TOP OF EXTERIOR T/FTG) FOOTING ELEVATIONS = PER PLAN, UNO.
- 6. ALL FOOTINGS AND SLABS TO BEAR ON COMPETENT NATIVE SOIL AND/OR STRUCTURAL FILL. SUBGRADE PREPARATION, STRUCTURAL FILL, FOOTING DRAINS, AND OTHER REQUIREMENTS PER GEOTECH REPORT AS NOTED IN THE STRUCTURAL GENERAL NOTES.
- 7. CJ INDICATES CONTROL JOINT PER PLAN. COORDINATE CONTROL JOINT LAYOUT WITH ARCHITECT. SEE 5/S4.1 FOR MORE INFORMATION.
- 8. CONTRACTOR TO VERIFY TOP OF CONCRETE (T/WALL) WALL ELEVATIONS ON ALL PARTIAL HEIGHT RETAINING WALLS. MAINTAIN T/WALL ELEVATION A MINIMUM OF 8" ABOVE FINISH GRADE PER.
- 9. ALL WOOD EXPOSED TO CONCRETE, WEATHER, OR WITHIN 8" OF FINISHED GRADE SHALL BE PRESSURE-TREATED.
- 10. MOISTURE PROOF ALL CONCRETE STEM AND BASEMENT WALLS PER ARCHITECT.

ROOF FRAMING PLAN NOTES

- 1. STRUCTURAL GENERAL NOTES, DESIGN CRITERIA, ABBREVIATIONS AND LEGEND PER S1.1, S1.2 AND S1.3.
- 2. LUMBER GRADE PER STRUCTURAL GENERAL NOTES.
- 3. VERIFY ALL DIMENSIONS AND ELEVATIONS WITH THE ARCHITECTURAL DRAWINGS.
- 4. ALL DUCTS, CHASES AND PIPES SHALL BE PER MECHANICAL, PLUMBING, ELECTRICAL AND SPRINKLER DRAWINGS. STAIR DETAILS AND GUARDRAILS PER ARCHITECTURAL DRAWINGS.
- 5. ROOF SHEATHING PER PLAN AND STRUCTURAL GENERAL NOTES. SHEATHING TO BE NAILED TO ROOF FRAMING WITH 0.131"DIAx2 1/2" NAILS @ 6"OC AT SUPPORTED PANEL EDGES AND @ 12"OC FIELD, UNO. LAY SHEATHING WITH FACE GRAIN (LONG DIRECTION) PERPENDICULAR TO SUPPORTS AND STAGGER PANEL END JOINTS. ALLOW 1/8" SPACE BETWEEN PANEL ENDS AND EDGES. BLOCK AND NAIL PANEL EDGES PER SCHEDULE. PROVIDE PANEL SHEATHING CLIPS CENTERED BETWEEN FRAMING AT UNBLOCKED SHEATHING EDGES AS REQUIRED BY ROOFING WARRANTY.
- 6. ALL 2x HANGERS TO BE [TOP FLANGE BEARING SIMPSON JB TYPE, UNO. GLULAM, PARALLAM AND MICROLLAM HANGERS ARE AS SPECIFIED ON PLAN.
- 7. HEADERS SHOWN AS 'HDR' ARE TO BE (2) 2x8 MINIMUM. HEADER SHALL BE SUPPORTED BY (1) TRIMMER AND (1) KING STUD MINIMUM, UNO. WHERE MORE THAN (1) TRIMMER AND/OR KING STUD IS REQUIRED, HEADER SHALL BE NOTED THUS: (2) LVL 1 3/4x11 7/8 (2,3). INDICATING (2) TRIMMER AND (3) KING STUDS. TRIMMERS TO BE CONTINUOUS TO THE FOUNDATION. BLOCK SOLID AT FLOOR FRAMING.
- 8. BEAMS ARE FLUSH FRAMED WITH JOISTS UNLESS NOTED OTHERWISE ON DETAILS, OR ON PLANS AS "DB" INDICATING THAT DROPPED BEAM FRAMING IS REQUIRED. BEAM SUPPORTS TO BE (2) TRIMMER STUDS MINIMUM, UNO ON LEVEL BELOW, PROVIDE A35 CLIP EACH SIDE OF FLUSH BEAMS THAT BEAR ON DOUBLE TOP PLATES.
- 9. PROVIDE SIMPSON H2.5A TIES AT ALL ROOF JOISTS, AND TRUSSES TYPICAL.
- 10. PROVIDE SOLID BLOCKING OVER ALL SHEAR WALLS AND BEARING WALLS. AT SHEAR WALLS PARALLEL TO FRAMING, ALIGN JOIST OR TRUSS OVER SHEAR WALL (ADDITIONAL JOISTS OR TRUSSES MAY BE REQUIRED).
- 11. HORIZONTAL STRAP TIES INDICATED ON THE FRAMING PLAN ARE TO BE CENTERED OVER WALL TOP PLATE AND/OR HEADER, BLOCKING OR BEAM. NAIL PER HORIZONTAL STRAP FASTENER SCHEDULE ON 3/S5.2.
- 12. ALL RIM JOISTS AND BLOCKING TO BE 2x DOUGLAS FIR-LARCH MINIMUM UNO.

STUD AND SHEAR WALL PLAN NOTES:

- 2. LUMBER GRADE PER STRUCTURAL GENERAL NOTES.
- 3. ALL INTERIOR NON-BEARING, NON-STRUCTURAL WALL STUD REQUIREMENTS PER STRUCTURAL GENERAL NOTES.
- 4. HEADER AND BEAM SUPPORTS PER FLOOR FRAMING PLAN BELOW.
- 5. SHEAR WALL AND NAILING REQUIREMENTS PER SHEAR WALL SCHEDULE ON 1/S5.1.
- 6. ALL EXTERIOR WALLS REQUIRING WOOD SHEATHING PER THE ARCHITECT SHALL BE SHEAR WALL TYPE W6
- UNO.
- TO MATCH THE WIDTH OF THE WALL PLATES.
- AT PRESSURE-TREATED SILL PLATES.

- 13. ROOF TRUSSES SHALL BE DESIGNED FOR THE FOLLOWING CRITERIA:
 - REACTIONS TO STRUCTURE.

 - ON PLAN, IN ADDITION TO THE DESIGN DEAD AND LIVE LOADS.
 - SUPPORT OVER-FRAMING IN ADDITION TO THE SPECIFIED DESIGN LOADS.
 - SUBMIT TO ENGINEER GIRDER TRUSSES REACTIONS.

 - TRUSS HANGERS SHALL BE SUPPLIED AND DESIGNED BY THE TRUSS SUPPLIER.
 - GRAIN f'c = 425 PSI.
- 14. BEARING STUD, SHEAR WALL AND HOLD-DOWN PER STUD AND SHEAR WALL PLAN.

FLOOR FRAMING PLAN NOTES:

	STRUCTURAL GENERAL NC	TES, DESIGN CRITERIA,	ABBREVIATIONS AND	LEGEND PER S1.1, S1.2, S1.3
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- 2. LUMBER GRADE PER STRUCTURAL GENERAL NOTES.
- 3. VERIFY ALL DIMENSIONS AND ELEVATIONS WITH THE ARCHITECTURAL DRAWINGS.
- 4. FLOOR SHEATHING PER PLAN AND STRUCTURAL GENERAL NOTES. SHEATHING TO BE GLUED AND NAILED TO FRAMING WITH 0.131" DIAX2 1/2" NAILS @ 6"OC AT SUPPORTED PANEL EDGES AND @ 12"OC FIELD, UNO. LAY SHEATHING WITH FACE GRAIN (LONG DIRECTION) PERPENDICULAR TO SUPPORTS AND STAGGER PANEL END JOINTS. ALLOW 1/8" SPACE BETWEEN PANEL ENDS AND EDGES.
- 5. ALL DUCTS, CHASES AND PIPES SHALL BE PER MECHANICAL, PLUMBING, ELECTRICAL AND SPRINKLER DRAWINGS. STAIR DETAILS AND GUARDRAILS PER ARCHITECTURAL DRAWINGS.
- ALL WOOD EXPOSED TO CONCRETE, WEATHER, OR WITHIN 8" OF FINISHED GRADE SHALL BE PRESSURE-6. TREATED.
- ALL 2x HANGERS TO BE TOP FLANGE BEARING SIMPSON JB TYPE, UNO. GLULAM, PARALLAM AND MICROLLAM HANGERS ARE AS SPECIFIED ON PLAN.
- HEADERS SHOWN AS 'HDR' ARE TO BE (2) 2x8 MINIMUM. HEADER SHALL BE SUPPORTED BY (1) TRIMMER AND 8. (1) KING STUD MINIMUM, UNO. WHERE MORE THAN (1) TRIMMER AND/OR KING STUD IS REQUIRED, HEADER SHALL BE NOTED THUS: (2) LVL 1 3/4x11 7/8 (2,3). INDICATING (2) TRIMMER AND (3) KING STUDS. TRIMMERS TO BE CONTINUOUS TO THE FOUNDATION. BLOCK SOLID AT FLOOR FRAMING.
- BEAMS ARE FLUSH FRAMED WITH JOISTS UNLESS NOTED OTHERWISE ON DETAILS. OR ON PLANS AS "DB" 9. INDICATING THAT DROPPED BEAM FRAMING IS REQUIRED. BEAM SUPPORTS TO BE (2) TRIMMER STUDS MINIMUM, UNO ON FLOOR BELOW. PROVIDE A35 CLIP EACH SIDE OF FLUSH BEAMS THAT BEAR ON DOUBLE TOP PLATES.
- 10. PROVIDE FULL HEIGHT SOLID BLOCKING OR DOUBLE JOISTS UNDER ALL SHEAR WALLS AND BEARING WALLS. AT SHEAR WALLS PARALLEL TO FRAMING, ALIGN (1) JOIST OVER SHEAR WALL (ADDITIONAL JOISTS MAY BE REQUIRED).

• ROOF SYSTEM TO BE BIDDER DESIGNED. ROOF PLAN SHOWN IS A SUGGESTED LAYOUT. CHANGES MUST BE SUBMITTED TO THE ENGINEER-OF-RECORD THRU THE ARCHITECT WITH BEARING POINTS AND

TRUSS LAYOUT SHOWN IS APPROXIMATE. TRUSS SUPPLIER IS RESPONSIBLE FOR FINAL TRUSS LAYOUT AND CONFIGURATION. NOTIFY ENGINEER OF REVISIONS TO PLAN.

• STANDARD DEAD AND LIVE LOADS AND SUBMITTAL INFORMATION PER STRUCTURAL GENERAL NOTES.

• [2000LBS] INDICATES SHEAR TRANSFER LOAD IN ROOF TRUSS TO BE LOCATED ABOVE SHEAR WALLS TRUSS. MANUFACTURER SHALL DESIGN THESE TRUSSES FOR THE BRACKETED LATERAL LOAD SPECIFIED

SHADED REGION INDICATES APPROXIMATE AREA OF OVER-FRAMING. TRUSS MANUFACTURER IS RESPONSIBLE FOR DESIGNING THE OVER-FRAMING REQUIRED. TRUSSES SHALL BE DESIGNED TO

• ALL GIRDER TRUSSES SHALL BE SUPPORTED BY A MINIMUM OF TWO STUDS. TRUSS MANUFACTURER TO

ALL MULTIPLE STUDS SUPPORTING HIP MASTER AND GIRDER TRUSSES TO CONTINUE TO FOUNDATION.

TRUSS MANUFACTURER TO DESIGN BEARING AT TOP PLATES FOR COMPRESSION PERPENDICULAR TO

1. STRUCTURAL GENERAL NOTES, DESIGN CRITERIA, ABBREVIATIONS AND LEGEND PER S1.1, S1.2, S1.3.

7. AT STUD WALLS, BUNDLED STUDS, TRIMMER STUDS, KING STUDS, AND SHEAR WALL COMPRESSION STUDS ARE

INDICATES HOLD-DOWN TYPE PER HOLD-DOWN SCHEDULE ON 9/S5.1.

9. ANCHOR BOLTS TO BE 5/8" DIA x 7" MINIMUM EMBEDMENT. PROVIDE HOT-DIPPED GALVANIZED ANCHOR BOLTS

11. ALL RIM JOISTS AND BLOCKING TO BE 2x DOUGLAS FIR-LARCH MINIMUM UNO. 12. PROVIDE DOUBLE JOISTS AROUND ALL FLOOR AND ROOF OPENINGS GREATER THAN 24" ON ONE SIDE.

13. BEARING STUD, SHEAR WALL AND HOLD-DOWN BELOW PER STUD AND SHEAR WALL PLAN ON FLOOR BELOW.

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HOLD-DOWN/STRAP SCHEDUL	.E

	[1, 2, 11]							
	TYPE	NUMBER OF STUDS/POST [3, 12]	NAILS, SCREWS	ANCHOR				
				CONC EMBE		D/CAPACITY		
				DIAMETER [10]	STEMWALL [5]	FOOTING	NOTES	
			ON BOLIS		EMBED CIP [6, 14]	EMBED CIP [6]		
ОС	HDU2	(2) 2x	(6) SDS1/4x2 1/2	5/8"Ø	10"	8"		
CONCRETE TO WOO	HDU4	(2) 2x	(10) SDS1/4x2 1/2	5/8"Ø	10"	8"		
	HDU5	(2) 2×	(14) SDS1/4x2 1/2	5/8"Ø	10"	8"		
	HDU8	(3) 2x	(20) SDS1/4x2 1/2	7/8"Ø	10"	10"		
	HDU11	(1) 4x6 OR (1) 6x	(30) SDS1/4x2 1/2	1"Ø	10"	12"		
	HDU14	(1) 6x	(36) SDS1/4x2 1/2	1"Ø	10"	12"		
	CS16	(1) 2x	(22) 0.148"Øx3" NAILS				[9]	
WOOD TO WOOD	CS14	(2) 2×	(30) 0.148"Øx3" NAILS				[9]	
	MST48	(2) 2×	(32) 0.162"Øx3 1/2" NAILS				[9]	
	MST60	(2) 2×	(46) 0.162"Øx3 1/2" NAILS				[9]	
	CMST14	(2) 2×	(76) 0.148"Øx3" NAILS				[9]	
	CMST12	(2) 2x	(98) 0.148"Øx3" NAILS				[9]	

<u>NOTES:</u>

TRIMMER FOR HD BOLT HEADS AT WALL END -FLR OR ROOF FRMG PER PLANS & DETAILS ~ ← T/SHTHG PER PLAN

[1] SOME HOLD-DOWN TYPES MAY NOT BE USED ON THIS PROJECT. [2] TYPICAL HOLD-DOWN DETAILS PER 4/S5.1, 7/S5.1 AND 1/S5.2. ANCHOR REINFORCEMENT REQUIRED AT STEMWALLS. [3] PROVIDE PANEL EDGE NAILING PER SHEAR WALL SCHEDULE AT HOLD-DOWN STUDS/POSTS. [5] STEMWALLS SHALL BE 8" WIDE x 18" TALL MINIMUM.

[6] CAST-IN-PLACE (CIP) TYPE THREADED RODS AT HOLD-DOWNS SHALL HAVE TWO HEX HEAD NUTS WITH OVERSIZED WASHERS.

[9] TOTAL NAILS SPECIFIED, USE HALF THE NAILS AT THE STUDS ABOVE AND BELOW LEVEL BEING CONNECTED.

[10] AT PRESSURE TREATED SILLS, USE HOT DIPPED GALVANIZED BOLTS.

SOME CONDITIONS. CONTACT ENGINEER OF RECORD PRIOR TO CONSTRUCTION.

SHEAR WALL SCHEDULE.

HOLD-DOWN/STRAP SCHEDULE

SCALE: 1'' = 1'-0

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01431	SHEAR WALL SCHEDULE W6 FOR 0.131"Øx 2 1/2" NAILS [17] SOME SHEAR WALL TYPES NOTED MAY NOT BE USED ON THIS PROJECT.						
WALL	WALL SHEATHING	NAIL SIZE & SPACING	BLOCKING & STUD	RIM JOIST OR BLOCKING			ATTACHMENT
TYPE	APA-RATED [1, 2, 12, 13]	AT ALL PANEL EDGES [4, 5]	PANEL EDGES [3, 6, 14]	BELOW [7, 8]	JOIST OR BLOCKING BELOW	CONCRETE BELOW [10]	FOUNDATION [11]
W6	15/32"	0.131"Øx2 1/2" @ 6"OC	2x	CLIP @ 16"OC	0.148"Øx3 1/4" @ 8"OC	5/8"Ø @ 48"OC	2x
W4	15/32"	0.131"Øx2 1/2" @ 4"OC	2x	CLIP @ 16"OC	0.148"Øx3 1/4" @ 4"OC	5/8"Ø @ 48"OC	2x
W3	15/32"	0.131"Øx2 1/2" @ 3"OC STAGGERED	Зx	CLIP @ 12"OC	0.148"Øx3 1/4" @ 4"OC	5/8"Ø @ 32"OC	2x
2W4	15/32" BOTH SIDES	0.131"Øx2 1/2" @ 4"OC STAGGERED	Зх	CLIP @ 16"OC EACH SIDE	0.148"Øx3 1/4" @ 4"OC (2) ROWS [9]	5/8"Ø @ 24"OC	3x [16]
2W3	15/32" BOTH SIDES	0.131"Øx2 1/2" @ 3"OC STAGGERED	Зx	CLIP @ 12"OC EACH SIDE	0.148"Øx3 1/4" @ 4"OC (2) ROWS [9]	5/8"Ø @ 16"OC	3x [16]

NOTES:

[1] INSTALL PANELS EITHER HORIZONTALLY OR VERTICALLY.

[2] WHERE SHEATHING IS APPLIED ON BOTH SIDES OF WALL, PANEL EDGE JOINTS ON 2x FRAMING SHALL BE STAGGERED SO THAT JOINTS ON THE OPPOSITE SIDES ARE NOT LOCATED ON THE SAME STUD.

[3] BLOCKING IS REQUIRED AT ALL PANEL EDGES.

[4] PROVIDE SHEAR WALL SHEATHING AND NAILING FOR THE ENTIRE LENGTH OF THE WALLS INDICATED ON THE PLANS. ENDS OF FULL HEIGHT WALLS ARE DESIGNATED BY WINDOWS OR DOORWAYS OR AS DESIGNATED ON PLANS. HOLD-DOWN REQUIREMENTS PER PLANS. (ALTERNATE NOTE: WALLS SHOWN WITH HORIZONTAL STRAPS BELOW AND/OR ABOVE OPENINGS REQUIRE SHEATHING, SHEAR WALL NAILING, ETC ABOVE AND BELOW ALL OPENINGS).

[5] SHEATHING EDGE NAILING IS REQUIRED AT ALL HOLD-DOWN POSTS. EDGE NAILING MAY ALSO BE REQUIRED TO EACH STUD USED IN BUILT-UP HOLD-DOWN POSTS. ADDITIONAL INFORMATION PER HOLD-DOWN DETAILS.

[6] INTERMEDIATE FRAMING TO BE 2x MINIMUM MEMBERS. ATTACH SHEATHING TO INTERMEDIATE FRAMING WITH 0.131"Øx2 1/2" NAILS AT 12"OC WHERE STUDS ARE SPACED AT 16"OC AND 0.131"Øx2 1/2" NAILS AT 6"OC WHERE STUDS ARE SPACED AT 24"OC.

[7] BASED ON 0.131"ØX1 1/2" NAILS USED TO ATTACH FRAMING CLIPS DIRECTLY TO FRAMING. USE 0.131"Øx2 1/2" NAILS WHERE INSTALLED OVER SHEATHING.

[8] FRAMING CLIPS: A35 OR LTP5 OR APPROVED EQUIVALENT.

[9] WHERE BOTTOM PLATE ATTACHMENT SPECIFIES (2) ROWS OF NAILS OR SCREWS, PROVIDE DOUBLE JOIST, RIM JOIST OR EQUAL BELOW. STAGGER NAILS/SCREWS IN ROWS 1 1/2" APART MINIMUM.

[10] ANCHOR BOLTS SHALL BE PROVIDED WITH HOT-DIPPED GALVANIZED STEEL PLATE WASHERS 0.229"x3"x3" MINIMUM. THE HOLE IN THE PLATE WASHER MAY BE DIAGONALLY SLOTTED 13/16"x1 3/4" PROVIDED A STANDARD CUT WASHER IS PLACED BETWEEN THE PLATE WASHER AND NUT. PLATE WASHER TO EXTEND TO WITHIN 1/2" OF THE EDGE OF THE SILL PLATE ON THE SIDE(S) WITH SHEATHING. AT 2x6 WALLS WITH SHEATHING ON BOTH SIDES USE PLATE WASHER 0.229"x4 1/2" X4 1/2" MINIMUM. EMBED ANCHOR BOLTS 7" MINIMUM INTO THE CONCRETE.

[11] PRESSURE TREATED MATERIAL CAN CAUSE EXCESSIVE CORROSION IN THE FASTENERS. PROVIDE HOT-DIPPED GALVANIZED (ELECTRO-PLATING IS NOT ACCEPTABLE) NAILS AND CONNECTOR PLATES (FRAMING ANGLES, ETC) FOR ALL CONNECTORS IN CONTACT WITH PRESSURE TREATED FRAMING MEMBERS. ADDITIONAL INFORMATION PER STRUCTURAL GENERAL NOTES.

[12] 7/16" APA-RATED SHEATHING (OSB) MAY BE USED IN PLACE OF 15/32" SHEATHING PROVIDED THAT ALL STUDS ARE SPACED AT 16"OC MAXIMUM.

[13] WHERE WOOD SHEATHING (W) IS APPLIED OVER GYPSUM SHEATHING (G), CONTACT THE ENGINEER OF RECORD FOR ALTERNATE NAILING REQUIREMENTS.

[14] AT ADJOINING PANEL EDGES, (2) 2x STUDS NAILED TOGETHER MAY BE USED IN PLACE OF SINGLE 3x STUD. DOUBLE 2x STUDS SHALL BE CONNECTED TOGETHER BY NAILING THE STUDS TOGETHER WITH 3" LONG NAILS OF THE SAME SPACING AND DIAMETER AS THE PLATE NAILING, PER SECTION.

[15] CONTACT THE STRUCTURAL ENGINEER OF RECORD FOR ADHESIVE OR EXPANSION BOLT ALTERNATIVES TO CAST-IN-PLACE ANCHOR BOLTS. SPECIAL INSPECTION MAY BE REQUIRED.

[16] NAIL STUDS TO 3x SILL PLATES WITH EITHER (2) 0.148"Øx4" END NAILS OR (4) 0.131"Øx2 1/2" TOENAILS.

[18] EDGE NAILS SHALL BE LOCATED 3/8" FROM PANEL EDGES.

SHEAR WALL SCHEDULE

SCALE: 1" = 1'-0

[11] POST INSTALLED HOLD-DOWN OPTIONS MAY BE AVAILABLE AT

[12] NAIL LAMINATE MULTIPLE 2x STUDS WITH PLATE NAILING PER

[13] STUD WALLS SHALL BE 2x6, CENTER HOLD-DOWN IN STUD WALL.

[17] WX WHERE "W" INDICATES WOOD SHEATHING AND "X" INDICATES EDGE NAIL SPACING.

TYPICAL HOLD-DOWN AT THICKENED SLAB FOOTING (SCALE: 3/4" = 1'-0"

11

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HORIZONTAL STRAP FASTENER SCHEDULE STRAP NAILED TO TOP OF JOISTS/BEAMS (DF, PSL [3], LSL [3], LVL [3]) FASTENERS [1] STRAP STRAP ENDS [2] BALANCE (104) 0.131"Øx2 1/2" NAILS (2) ROWS OF CMST12 IN (2) ROWS @ 3 1/2"OC 0.131"Øx 2 1/2" NAILS @ 7"OC (2) ROWS OF (80) 0.131"Øx2 1/2" NAILS CMST14 IN (2) ROWS @ 3 1/2"OC 0.131"Øx 2 1/2" NAILS @ 7"OC (30) 0.131"Øx2 1/2" NAILS (2) ROWS OF CS14 IN (2) ROWS @ 4 1/8"OC 0.131"Øx 2 1/2" NAILS @ 8 1/4"OC (22) 0.131"Øx2 1/2" NAILS (2) ROWS OF CS16 IN (2) ROWS @ 4 1/8"OC 0.131"Øx 2 1/2" NAILS @ 8 1/4"OC

<u>NOTES</u>

SCALE: 1" = 1'-0"

3

[1] ROWS SHALL BE 1/2" MINIMUM APART, STAGGERED NAILS.

[2] PLACE HALF OF THE REQUIRED NAILS AT EACH END OF STRAP.

[3] WEYERHAEUSER PRODUCTS. CONTACT ENGINEER-OF-RECORD IF A DIFFERENT MANUFACTURE IS USED.

TYPICAL HOLD-DOWN AT FLOOR BEAM

HORIZONTAL STRAP FASTENER SCHEDULE

NON-BEARING WALL STUDS						
STUD SIZE	MAX DEPTH OF EDGE CUT OR NOTCH	MIN DEPTH REMAINING AFTER CUT OR NOTCH				
2x4	1 3/8"	2 1/8"				
2x6	2 3/16"	3 3/8"				

STUD

2x4

2x6

CUTTING AND NOTCHING WOOD STUDS

NOTE DO NOT NOTCH MORE THAN THREE ADJACENT STUDS WITHOUT REVIEW BY ENGINEER.

BORED HOLES IN WOOD STUDS

TUDS MAY NOT BE BORED IN EXCESS OF 60% OF TH

STUD. BORINGS SHALL NOT BE MADE AT THE SAME

SECTION WHERE CUT OR NOTCH HAS BEEN MADE.

NON-BEARING WALL STUDS

MAX DIAMETER

2 1/16"

3 1/4"

OF BORED HOLE

STUD

SIZE

2x4

2x6

MIN DEPTH REMAININ

AFTER BORED HOLE

5/8" EA SIDE OF HOLE

5/8" EA SIDE OF HOLE

NOTE BORED HOLE NOT PERMITTED IN MORE THAN THREE ADJACENT STUDS WITHOUT REVIEW BY ENGINEER.

(2) 2x4 LAMINATIONS W/ (1) ROW OF 0.148"Øx3 1/2" NAILS, STAGGERED

NOTE:

EACH ADDITIONAL LAMINATION OVER (3) LAMINATIONS SHALL BE NAILED TO THE ASSEMBLY W/ 0.148"Øx3 1/4" NAILS, STAGGERED EACH SIDE OF BUNDLED STUDS.

2. EACH SILL PLATE PIECE SHALL HAVE (2) BOLTS MINIMUM. HOLD-DOWN ANCHORS ARE NOT TO BE CONSIDERED AN ANCHOR BOLT.

3. LOCATE BOLTS WITHIN 1'-0" OF SILL PLATE PIECE ENDS AND AT 6'-0"OC MAXIMUM.

4. USE PLATE WASHER PER SHEAR WALL SCHEDULE AT EACH BOLT. STANDARD CUT WASHERS ARE ACCEPTABLE AT NON-SHEAR WALLS.

- 5. DO NOT DRILL OVERSIZE HOLES THRU SILL PLATE. USE 11/16"Ø DRILL BIT.
- 6. SILL PLATE THICKNESS AND FASTENING AT SHEAR WALLS PER SHEAR WALL SCHEDULE.

7. CONTACT THE ENGINEER-OF-RECORD FOR POST INSTALLED ANCHOR OPTIONS.

TYPICAL SILL PLATE ANCHORAGE TO CONCRETE

PLAN - TYPICAL SILL PLATE ANCHORAGE TO CONCRETE SCALE: 3/4" = 1'-0"

10

SCALE: 1" = 1'-0"

9

3. LOCATE BOLTS WITHIN 1'-0" OF SILL PLATE PIECE ENDS AND AT 6'-0"OC MAXIMUM.

7. CONTACT THE ENGINEER-OF-RECORD FOR POST INSTALLED ANCHOR OPTIONS.

6. SILL PLATE THICKNESS AND FASTENING AT SHEAR WALLS PER SHEAR WALL SCHEDULE.

5. DO NOT DRILL OVERSIZE HOLES THRU SILL PLATE. USE 11/16"Ø DRILL BIT.

WASHERS ARE ACCEPTABLE AT NON-SHEAR WALLS.

4. USE PLATE WASHER PER SHEAR WALL SCHEDULE AT EACH BOLT. STANDARD CUT

- NOTCH IN

SILL PLATE

L/3 NO NOTCHING

ALLOWED

NOTCHING OF FLOOR OR ROOF JOIST

 \otimes

HOLE BORING OF FLOOR OR ROOF JOIST

 \otimes_{-}

L/3

MAX

2d

NO HOLES

ALLOWED

ALLOWABLE HOLES AND NOTCHES IN JOISTS

4'-0" MIN SPLICE LAP

ÇL JOIST ÇL JOIST ÇL JOIST

PLAN - TYPICAL OPENING IN FLOOR FRAMING

PER PLAN PER PLAN PER PLAN

NOTCH & HOLE

BORING SCHEDULE

VIEMBER (d) d/3 d/4 d/6

2x4 | 1 1/8" | 7/8" | 5/8"

2x6 | 1 3/4" | 1 5/8" | 7/8"

2x8 2 5/8" 1 3/4" 1 1/8"

2x10 3" 2 1/4" 1 1/2

2x12 | 3 5/8" | 2 3/4" | 1 7/8

HOLES AND NOTCHES IN BEAMS ARE NOT ALLOWED UNLESS

OTHERWISE APPROVED IN WRITING BY THE STRUCTURAL

TYPICAL HOLES AND NOTCHES IN WOOD STUDS PER [06908].

- DBL TOP PLATE

- (2) ROWS 0.148"Øx3 1/4"

STAGG (WITHIN AREA

NAILS ((16) TOTAL)

OF SPLICE) @ 6"OC

- PLATE SPLICE TO

- STUD WALL PER PLAN

OCCUR OVER

∧ _ STUDS, TYP

CL JOIST

JOIST HGR,

MATCH DEPTH

& WIDTH, TYP

ENGINEER OF RECORD.

NOTE:

NOTE

L/3

MAX

2d

NO HOLES

ALLOWED

1 1/2" MIN

BRG TYP

SCALE: 1" = 1'-0

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3

NOTE:

FLOOR/ROOF JOISTS NOT SHOWN FOR CLARITY.

SCALE: 1" = 1'-0

JOIST PER PLAN

ALIGN DBL JOIST

2x HDR TO MATCH

JOIST DEPTH -

JOIST PER PLAN

SCALE: 3/4" = 1'-0"

11

PER PLAN, TYP-

TYPICAL PLATE SPLICE DETAIL

CL JOIST

PER PLAN

1 1/2"

(3) 2x6 LAMINATIONS W/

(2) ROWS OF 0.148"Øx3 1/2" NAILS,

EA LAYER, STAGGERED BTWN

LAYERS EA SIDE

- CTS218 STRAP,

STUD WALL PER PLAN

TYP

d/3

4 1/2" (MIN) 4 1/2" (MIN)

1'-0" (MAX) | 1'-0" (MAX) |

1 1/2"

(3) 2x4 LAMINATIONS W/

(1) ROW OF 0.148"Øx3 1/2" NAILS,

EA LAYER, STAGGERED BTWN

LAYERS EA SIDE

