

# STRUCTURAL GENERAL NOTES

## DESIGN LOADS:

- DESIGN LOADS: 2021 INTERNATIONAL BUILDING CODE, ASCE 7-16
- RISK CATEGORY: II STANDARD
- ROOFS:
  - ROOF DEAD LOAD 20 PSF
  - GROUND SNOW LOAD,  $P_g$  145 PSF
  - FLAT-ROOF SNOW LOAD,  $P_f$  112 PSF
  - SNOW EXPOSURE FACTOR,  $C_e$  1.0
  - SNOW IMPORTANCE FACTOR,  $I_s$  1.0
  - THERMAL FACTOR,  $C_t$  1.1
- FLOOR LIVE LOADS:
  - RESIDENTIAL 40 PSF
  - DECKS (COVERED) 60 PSF
  - DECKS (UNCOVERED) pf
- WIND:
  - ULTIMATE DESIGN WIND SPEED,  $V_{ult}$ , (3-SECOND GUST) 115 MPH
  - NOMINAL DESIGN WIND SPEED,  $V_{50}$ , (3-SECOND GUST) 90 MPH
  - WIND EXPOSURE C
- SEISMIC:
  - DESIGN CATEGORY C

## FOUNDATION DESIGN:

- REFER TO SOILS REPORT JOB NO. 24-13336 BY NWCC, INC. DATED JUNE 24, 2024. GEOTECHNICAL ENGINEER SHALL VERIFY SOIL CONDITIONS AND TYPES DURING EXCAVATION AND PRIOR TO PLACEMENT OF PIERS, FORMWORK OR CONCRETE.
- MINIMUM FROST DEPTH SHALL BE 4'-0" BELOW EXTERIOR GRADE.

## DRILLED PIERS (CAST-IN-PLACE DEEP FOUNDATIONS):

- STRAIGHT SHAFT DRILLED PIERS ARE DESIGNED FOR
  - MAXIMUM END BEARING PRESSURE 30,000 PSF
  - ALLOWABLE SIDE SHEAR IN BEDROCK 3,000 PSF
  - MINIMUM PENETRATION INTO BEDROCK 6 FEET
  - MINIMUM TOTAL LENGTH 15 FEET

- SEE PLANS FOR ADDITIONAL PENETRATION AND LENGTH REQUIREMENTS.
- SEE BORING LOGS IN THE SOILS REPORT FOR INDICATED VARIATION IN BEDROCK SURFACE.
- MUSHROOMING AT THE TOPS OF PIERS IS NOT PERMITTED.
- PROVIDE FOR OVERRUN OR UNDERRUN IN DRILLING LENGTHS AND INSTALLED QUANTITIES OF CONCRETE AND REINFORCING.
- PIER HOLES SHALL BE THOROUGHLY CLEANED AND DETERGERED AND SHALL BE INSPECTED BY THE GEOTECHNICAL ENGINEER PRIOR TO CONCRETE PLACEMENT.

## EARTH RETAINING STRUCTURES:

- EARTH EQUIVALENT FLUID LATERAL PRESSURE:
  - RESTRAINED WALLS (AT REST) 55 PCF
  - PASSIVE RESISTING 250 PCF
- COEFFICIENT OF SLIDING FRICTION 0.35

## REINFORCED CONCRETE:

- DESIGN IS BASED ON ACI 318 "BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE."
- CONCRETE WORK SHALL CONFORM TO ACI 301 "STANDARD SPECIFICATIONS FOR STRUCTURAL CONCRETE."
- STRUCTURAL CONCRETE SHALL HAVE THE FOLLOWING PROPERTIES:

INTENDED USE	EXPOSURE CLASS	PSI 28 DAYS	f'c	MAX W/CM RATIO	MAXIMUM AGGREGATE	SLUMP, INCHES (+/- 1")	AIR CONTENT (+/- 1.5%)	CEMENT TYPE
FOOTINGS	FO-SO-WO-C1	3000	0.52	3/4" STONE	5	2"	2%	I/II
WALLS & GRADE BEAMS	FO-SO-WO-C1	4000	0.45	3/4" STONE	4	4"	6%	I/II
INTERIOR SLAB ON GRADE	FO-SO-WO-C0	4000	0.45	3/4" STONE	4	4"	3%	I/II

- DETAILING, FABRICATION, AND PLACEMENT OF REINFORCING STEEL SHALL BE IN ACCORDANCE WITH ACI 315 "DETAILS AND DETAILING OF CONCRETE REINFORCEMENT."
- WELDED WIRE FABRIC SHALL CONFORM TO ASTM A185.
- REINFORCING BARS SHALL CONFORM TO ASTM A615, GRADE 60, EXCEPT TIES OR BARS SHOWN TO BE FIELD-BENT, WHICH SHALL BE GRADE 40.
- BAR TIES SHALL CONFORM TO ASTM A706.
- UNLESS NOTED OTHERWISE ON THE STRUCTURAL DRAWINGS, LAP BARS 50 DIAMETERS (MINIMUM).
- AT CORNERS AND INTERSECTIONS, MAKE HORIZONTAL BARS CONTINUOUS OR PROVIDE MATCHING CORNER BARS FOR EACH LAYER OF REINFORCEMENT.
- TRIM OPENINGS IN WALLS AND SLABS WITH (2)#5 FOR EACH LAYER OF REINFORCEMENT, FULLY DEVELOPED BY EXTENSION OR HOOK.
- IN CONTINUOUS MEMBERS, SPLICE TOP BARS AT MID-SPAN AND SPLICE BOTTOM BARS OVER SUPPORTS.
- EXCEPT AS NOTED ON THE DRAWINGS, CONCRETE PROTECTION FOR REINFORCEMENT IN CAST-IN-PLACE CONCRETE SHALL BE AS FOLLOWS:
  - CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH: 3"
  - EXPOSED TO EARTH OR WEATHER: 1-1/2"
  - NOT EXPOSED TO WEATHER OR IN CONTACT WITH GROUND: 3/4"
- FIBER ADMIXTURE SHALL BE 100% VIRGIN POLYPROPYLENE, FIBRILLATED FIBERS, TYPE III 4.1.3, PERFORMANCE LEVEL ONE, PER ASTM C1116

## POST-INSTALLED ANCHORS:

- ALL CAST IN PLACE ANCHORS DESIGNED IN ACCORDANCE WITH ACI 318.
- POST-INSTALLED ANCHORS SHALL ONLY BE USED WHERE SPECIFIED ON THE CONSTRUCTION DOCUMENTS. THE CONTRACTOR SHALL OBTAIN APPROVAL FROM THE ENGINEER-OF-RECORD PRIOR TO INSTALLING POST-INSTALLED ANCHORS IN PLACE OF MISSING OR MISPLACED CAST-IN-PLACE ANCHORS.
- CARE SHALL BE TAKEN IN PLACING POST-INSTALLED ANCHORS TO AVOID CONFLICTS WITH EXISTING REBAR. EXISTING REINFORCING BARS SHALL NOT BE CUT UNLESS APPROVED BY THE EOR.
- ALL ANCHORS MUST BE INSTALLED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S PRINTED INSTALLATION INFORMATION (MPII) IN CONJUNCTION WITH EDGE DISTANCE, SPACING, AND EMBEDMENT DEPTH AS INDICATED ON THE DRAWINGS. HOLES SHALL BE DRILLED AND CLEANED IN ACCORDANCE WITH THE MPII.
- ADHESIVE ANCHORS MUST BE INSTALLED IN CONCRETE AGED A MINIMUM OF 21 DAYS (ACI 318-11 D 2.2, ACI 318-14 17.1.2).
- ALL POST INSTALLED ANCHORS SHALL BE INSTALLED IN DRY HOLES THAT HAVE BEEN DRILLED, CLEANED, AND PREPARED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S PRINTED INSTALLATION INFORMATION AND THE RESPECTIVE ICC-ES EVALUATION REPORTS.

## CORROSION CONTROL:

- ALL STEEL MEMBERS EXPOSED TO WEATHER SHALL BE HOT DIPPED GALVANIZED PER ASTM A123.
- FASTENERS AND HARDWARE SHALL BE HOT DIPPED GALVANIZED PER ASTM A153 OR ASTM B695 CLASS 50 (A490 BOLTS SHALL NOT BE HOT DIPPED GALVANIZED). STAINLESS STEEL FASTENERS AND HARDWARE MAY ALSO BE USED.
- ALL FIELD CUT OR DAMAGED SURFACES, FIELD WELDED AREAS AND AUTHORIZED NON-GALVANIZED MEMBERS AS INDICATED ON THE STRUCTURAL DRAWINGS SHALL BE REPAIRED WITH (2) COATS OF A 95% ZINC RICH PAINT PER ASTM A780 (ZRC PREFERRED).

## STRUCTURAL STEEL:

- STRUCTURAL STEEL SHALL BE DETAILED, FABRICATED, AND ERECTED IN ACCORDANCE WITH THE "SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS" (AISC 360) AND THE "CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES" (AISC 303) BY THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC).
- STRUCTURAL STEEL WIDE FLANGE BEAMS SHALL CONFORM TO ASTM A992, 50 KSI YIELD.
- OTHER ROLLED SHAPES, INCLUDING PLATES, CHANNELS, WTS, AND ANGLES SHALL CONFORM TO ASTM A36, 36 KSI YIELD.
- HOLLOW STRUCTURAL SECTION (HSS) RECTANGULAR SHAPES SHALL CONFORM TO ASTM A500, GRADE C, 50 KSI YIELD.
- HSS ROUND SHAPES SHALL CONFORM TO ASTM A500, GRADE C, 46 KSI YIELD.
- PIPE SHAPES SHALL CONFORM TO ASTM A53, GRADE B, 35 KSI YIELD.
- ALL BEAMS SHALL HAVE FULL DEPTH WEB STIFFENERS EACH SIDE OF WEBS ABOVE AND BELOW COLUMNS.
- ANCHOR RODS SHALL CONFORM TO ASTM F1554, GRADE 36 AS NOTED ON THE STRUCTURAL DRAWINGS WITH WELDABILITY SUPPLEMENT S1.
- HEADED ANCHOR STUDS (HAS) SHALL CONFORM TO ASTM A108 AND SHALL BE CONNECTED TO STRUCTURAL STEEL WITH EQUIPMENT APPROVED BY THE STUD MANUFACTURER ACCORDING TO THE STUD MANUFACTURER'S RECOMMENDATIONS.
- WELDING SHALL BE DONE BY A CERTIFIED WELDER IN ACCORDANCE WITH THE AISC DOCUMENTS LISTED ABOVE. THE AMERICAN WELDING SOCIETY (AWS) D11: STRUCTURAL WELDING CODE, AND THE RECOMMENDATIONS FOR USE OF WELD E70 ELECTRODES. WHERE NOT SPECIFICALLY NOTED, MINIMUM WELD SHALL BE 3/16" FILLET BY LENGTH OF CONTACT EDGE.
- ALL POST-INSTALLED ANCHORS SHALL HAVE CURRENT INTERNATIONAL CODE COUNCIL EVALUATION SERVICE (ICC-ES) REPORTS AND SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S REQUIREMENTS.
- EXPANSION ANCHORS SHALL BE APPROVED "WEDGE" TYPE UNLESS SPECIFICALLY NOTED TO BE "SLEEVE" TYPE AS NOTED ON THE STRUCTURAL DRAWINGS.
- CHEMICAL ANCHORS SHALL BE APPROVED EPOXY OR SIMILAR ADHESIVE TYPE AS APPROPRIATE FOR INSTALLATION IN SOLID AND NON-SOLID BASE MATERIALS.
- GROUT BENEATH COLUMN BASE AND BEAM BEARING PLATES SHALL HAVE A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 7,500 PSI AND SHALL BE NON-SHRINK, NON-METALLIC, AND TESTED IN ACCORDANCE WITH ASTM C1107.

## STRUCTURAL WOOD FRAMING:

- IN-GRADE BASE VALUES HAVE BEEN USED FOR DESIGN.
- DIMENSIONAL LUMBER FRAMING SHALL BE S4S HEM FIR NO. 2 AND BETTER UNO.
- SOLID TIMBER BEAMS AND POSTS SHALL BE DOUGLAS FIR-LARCH NO. 1 AND BETTER UNO.
- STUDS SHALL BE HEM FIR NO. 2 AND BETTER UNO.
- TOP AND BOTTOM PLATES SHALL BE HEM-FIR NO. 2 AND BETTER UNO.
- ALL LUMBER SHALL BE 19% MAXIMUM MOISTURE CONTENT AT THE TIME OF INSTALLATION UNO.
- ALL WOOD EXPOSED TO WEATHER OR IN CONTACT WITH CONCRETE OR MASONRY SHALL BE PRESSURE TREATED DOUGLAS FIR-LARCH OR SOUTHERN YELLOW PINE. PRESERVATIVE-TREATED WOOD SHALL BE TREATED IN ACCORDANCE WITH AWPA STANDARDS U1 AND M4. TREATMENTS SHALL HAVE NO AMMONIA ADDED AND SHALL BE THE FOLLOWING USE CATEGORY:
  - UC2 AT INTERIOR
  - UC3B AT EXTERIOR WITH NO GROUND CONTACT
  - UC4B AT EXTERIOR WITH GROUND CONTACT
- FASTENERS FOR USE WITH TREATED WOOD SHALL BE CORROSION RESISTANT IN ACCORDANCE WITH IBC SECTION 2304.9.5.
- ALL CONNECTORS USED WITH PRESSURE-TREATED MATERIAL SHALL BE STAINLESS STEEL ASTM 304 OR 316, OR HAVE A SIMPSON Z-MAX (G185) OR HDG COATING. STANDARD COATING (G90) IS ACCEPTABLE AT INTERIOR CONDITIONS WITH NON PRESSURE-TREATED LUMBER ONLY. CONNECTORS ARE TO BE IN ACCORDANCE WITH ASTM A653 OR ASTM 123.
- ALL IRON AND STEEL PRODUCTS ATTACHED TO TREATED LUMBER SHALL BE HOT-DIPPED GALVANIZED IN ACCORDANCE WITH ASTM A123 OR SHALL BE TYPE 304 OR 316 STAINLESS STEEL.
- STRUCTURAL MEMBERS SHALL NOT BE CUT FOR PIPES, ETC. UNLESS SPECIFICALLY NOTED OR DETAILED ON THE STRUCTURAL DRAWINGS.
- ALL BOLTS SHALL BE RETIGHTENED PRIOR TO CLOSING IN OF WALLS, FLOORS, AND ROOFS.
- ALL BOLTS BEARING ON WOOD SHALL HAVE STANDARD CUT WASHERS UNDER HEAD AND/OR NUT, UNO.
- METAL FRAMING ANCHORS SHOWN OR REQUIRED, SHALL BE SIMPSON STRONG-TIE OR EQUAL CODE APPROVED CONNECTORS AND INSTALLED WITH ALL HOLES FILLED (ROUND AND TRIANGULAR) WITH THE MAXIMUM SIZE NAIL RECOMMENDED BY THE MANUFACTURER TO DEVELOP THE MAXIMUM RATED CAPACITY.
- CONNECTOR BOLTS AND LAG SCREWS SHALL CONFORM TO ANSI/ASME B18.2.1 AND ASTM SAE J429 GRADE 1.
- NAILS AND SPIKES SHALL CONFORM TO ASTM F1667.
- WOOD SCREWS SHALL CONFORM TO ANSI/ASME B18.6.1.
- LEAD HOLES FOR LAG SCREWS SHALL BE 40%-70% OF THE SHANK DIAMETER AT THE THREADED SECTION AND EQUAL TO THE SHANK DIAMETER AT THE UNTHREADED SECTION.
- CONVENTIONAL LIGHT FRAMING SHALL COMPLY WITH IBC SECTION 2308.
- COLUMNS / MULTIPLE STUDS IN BEARING WALLS SUPPORTING ALL BEAMS AND HEADERS SHALL OCCUR CONTINUOUSLY THROUGH EACH FLOOR LEVEL DOWN TO THE FOUNDATION OR ANOTHER SUPPORT BEAM. SOLID SQUASH BLOCKING EQUIVALENT IN AREA TO THE COLUMN/MULTIPLE STUDS ABOVE SHALL BE PROVIDED WITHIN THE JOIST SPACE BENEATH THE COLUMN/MULTIPLE STUDS.
- ALL BEAMS AND TRUSSES SHALL BE BRACED AGAINST ROTATION AT POINTS OF BEARING.
- 2X BLOCKING SHALL BE PLACED BETWEEN JOISTS OR RAFTERS AT ALL SUPPORTS, UNO.
- CROSS-BRIDGING OR SOLID BLOCKING SHALL BE PROVIDED AT 8'-0" MAX. FOR ALL JOISTS AND RAFTERS MORE THAN 10" IN DEPTH, 2X3 OR APPROVED METAL TYPE BRIDGING MAY BE USED.
- PROVIDE A MINIMUM OF (3) STUDS AT EACH CORNER, UNO.
- ALL JOISTS AND BEAMS (EXCLUDING I-JOISTS) SHALL BE SEAT-CUT FOR FULL UNIFORM BEARING AT SUPPORTS, SEATS, CAPS, ETC.
- VENTING IS REQUIRED IN ALL ENCLOSED ROOF AND CRAWL SPACE FRAMING CAVITIES. SEE ARCHITECTURAL DRAWINGS.
- EXCEPT AS NOTED OTHERWISE, MINIMUM NAILING SHALL BE PROVIDED AS SPECIFIED IN IBC TABLE 2304.9.1.
- ALL MULTIPLE MEMBER BEAMS SHALL BE NAILED TOGETHER WITH MAX NUMBER OF 10D NAILS VERTICALLY @ 3" AND HORIZONTALLY @ 12" PER PLY.
- TONGUE AND GROOVE DECKING SHALL BE INSTALLED IN ACCORDANCE WITH THE "STANDARD FOR TONGUE AND GROOVE HEAVY TIMBER ROOF DECKING", AITC 112. WHERE DECKING MUST BE NAILED FROM THE BOTTOM SIDE, USE (2) 16d GALVANIZED FINISH NAILS AT EACH SUPPORT, COUNTERSUNK AND FILLED.
- ALL ROOF RAFTERS, JOISTS, TRUSSES, AND BEAMS SHALL BE ANCHORED TO SUPPORTS WITH H2.54 METAL FRAMING ANCHORS UNO. PROVIDE (2) WITHIN 4'-0" OF ALL CORNERS.

## WOOD SHEATHING:

- PLYWOOD AND ORIENTED STRAND BOARD (OSB) FLOOR AND ROOF SHEATHING SHALL BE APA RATED WITH STAMP INCLUDING APA TRADEMARK AND PANEL SPAN RATING.
  - MINIMUM FLOOR SHEATHING: 23/32" APA STURD-I-FLOOR RATED 24 INCH O.C. TONGUE & GROOVE, GLUED AND NAILED.
  - MINIMUM ROOF SHEATHING: 19/32" OSB OR CDX PLYWOOD, APA 32/16, NAILED.
  - MINIMUM WALL SHEATHING: 7/16" OSB OR CDX PLYWOOD, APA 24/16, BLOCKED AND NAILED.
- NAIL WALL SHEATHING WITH MINIMUM 8d COMMON OR 10d BOX AT 6" AT PANEL EDGES, AND 12" AT INTERMEDIATE FRAMING EXCEPT AS NOTED. BLOCK AND NAIL ALL EDGES BETWEEN STUDS.
- MINIMUM (3) 8d NAILS PER STUD. NAIL ALL PLATES USING EDGE NAIL SPACING INDICATED.
- SHEATH ALL EXTERIOR WALLS. SHEATH THE INTERIOR WALLS AS DESIGNATED ON THE DRAWINGS.
- SHEATHING SHALL BE CONTINUOUS FROM BOTTOM PLATE TO TOP PLATE. CUT IN "L" AND "T" SHAPES AROUND OPENINGS. LAP SHEATHING OVER SINGLE 2X PLATE MEMBER AT RIM JOIST. AT RIM JOIST PROVIDE A MINIMUM OF 3" BETWEEN SHEATHING EDGE AND TOP/BOTTOM EDGE OF RIM.
- MINIMUM HEIGHT OF SHEATHING PANELS SHALL BE 16" TO ENSURE THAT PLATES ARE TIED TO STUDS.
- ALL SHEATHING SHEETS SHALL HAVE 1/8" GAP AT ALL EDGES AND JOINTS.
- FULLY NAIL FLOOR SHEATHING IMMEDIATELY AFTER GLUING (DO NOT SPOT NAIL).
- PROVIDE (1) PANEL SHEATHING CLIP AT ALL UNSUPPORTED ROOF SHEATHING PANEL EDGES. WHERE SPANS ARE GREATER THAN 32" PROVIDE (2) CLIPS.

## ENGINEERED LUMBER:

- STRUCTURAL CAPACITIES OF STRUCTURAL COMPOSITE LUMBER SHALL BE IN CONFORMANCE WITH SECTION 2303.1.9 (2303.1.10 OF THE 2015 IBC) OF THE IBC.
- MANUFACTURER OF STRUCTURAL COMPOSITE LUMBER PRODUCTS SHALL HAVE PROPER CODE EVALUATION REPORTS FOR ALL PRODUCTS AND SHALL BE APPROVED BY THE STRUCTURAL ENGINEER.
- THE CONTRACTOR SHALL NOT CUT, NOTCH, OR OTHERWISE ALTER STRUCTURAL COMPOSITE LUMBER MEMBERS WITHOUT WRITTEN PERMISSION OF THE STRUCTURAL ENGINEER AND THE MANUFACTURER; HOWEVER, HOLES MAY BE CUT IN MEMBERS IN ACCORDANCE WITH THE MANUFACTURER'S ALLOWABLE HOLE CHART.
- MEMBERS NOTED AS LVL (LAMINATED VENEER LUMBER) ON PLAN SHALL BE 1-3/4" WIDE X DEPTH INDICATED, PLANT-FABRICATED, AND HAVE THE FOLLOWING MINIMUM ALLOWABLE DESIGN VALUES:
  - $F_b = 2600$  PSI
  - $F_c = 285$  PSI
  - $F_{parallel} = 2460$  PSI
  - $F_{perp} = 750$  PSI
  - $E = 1900$  KSI
- MEMBERS NOTED AS LSL (LAMINATED STRAND LUMBER) ON PLAN SHALL BE PLANT-FABRICATED AND HAVE THE FOLLOWING MINIMUM ALLOWABLE DESIGN VALUES:
  - $F_b = 1700$  PSI
  - $F_c = 400$  PSI
  - $F_{parallel} = 1400$  PSI
  - $F_{perp} = 680$  PSI
  - $E = 1300$  KSI
- BRIDGING AND BLOCKING SHALL BE INSTALLED ACCORDING TO THE FABRICATOR'S REQUIREMENTS.
- WOOD I-JOISTS SHALL HAVE THE DEPTH, SPACING, SPAN, AND LAYOUT SHOWN ON THE DRAWINGS. MEMBERS SHALL BE FACTORY MANUFACTURED WITH ORIENTED STRAND BOARD (OSB) WEBS, LAMINATED VENEER LUMBER (LVL) OR MACHINE STRESS RATED (MSR) LUMBER FLANGES PER CODE APPROVAL BY ICB OR NER. STRUCTURAL WOOD FLANGES AND WEBS SHALL BE DESIGNED FOR STRUCTURAL CAPACITIES AND DESIGN PROVISIONS ACCORDING TO ASTM D 5055. SUBSTITUTION OF EQUIVALENT SERIES BY OTHERS SHALL BE SUBMITTED TO THE STRUCTURAL ENGINEER FOR APPROVAL.
- JOISTS SHALL BE INSTALLED PER THE MANUFACTURER'S RECOMMENDATIONS. HOLES IN WEBS SHALL NOT EXCEED MANUFACTURER'S PUBLISHED LIMIT CRITERIA.

## LIGHT-METAL-PLATE-CONNECTED WOOD TRUSSES:

- TRUSS MANUFACTURER SHALL COMPLY WITH ALL REQUIREMENTS AS STATED IN SECTION 2303.4 OF THE IBC.
- ALL PRE-ENGINEERED GABLE END TRUSSES OR TRUSSES WITH INTEGRATED PARAPETS SHALL BE DESIGNED FOR WIND FORCES PERPENDICULAR TO THE TRUSS.
- ALL PRE-ENGINEERED TRUSSES SHALL BE FABRICATED SUCH THAT THEY INCORPORATE ALL ROOF PLANES. AT CONTRACTOR'S OPTION, STANDARD SHAPE TRUSSES MAY BE USED IN CONJUNCTION WITH OVERFRAMING.
- FULL HEIGHT BLOCKING SHALL BE PLACED BETWEEN TRUSSES AT ALL SUPPORTS.
- CROSS BRIDGING DESIGN SHALL BE PROVIDED BY TRUSS MANUFACTURER AS REQUIRED FOR LATERAL EFFECTS.
- TRUSS MEMBERS AND COMPONENTS SHALL NOT BE CUT, NOTCHED, DRILLED, SPLICED OR OTHERWISE ALTERED IN ANY WAY WITHOUT WRITTEN APPROVAL OF A REGISTERED DESIGN PROFESSIONAL.
- MANUFACTURE AND INSTALLATION OF METAL PLATED WOOD TRUSSES SHALL COMPLY WITH ANSI/TPI 1 "NATIONAL DESIGN STANDARD FOR METAL-PLATE-CONNECTED WOOD TRUSS CONSTRUCTION"; BCSP (BUILDING COMPONENT SAFETY INFORMATION) "GUIDE TO GOOD PRACTICE FOR HANDLING."
- INSTALLING & BRACING OF METAL PLATE CONNECTED WOOD TRUSSES," AND DSB-89 "RECOMMENDED DESIGN SPECIFICATION FOR TEMPORARY BRACING OF METAL PLATE CONNECTED WOOD TRUSSES."
- PRE-ENGINEERED, PREFABRICATED TRUSSES SHALL BE DESIGNED BY AN ENGINEER REGISTERED IN THE STATE IN WHICH TO PROJECT IS LOCATED TO CARRY THE LOADS INDICATED ON THE STRUCTURAL DRAWINGS IN WHICH THE PROJECT IS LOCATED.
- TRUSSES SHALL BE DESIGNED TO SUPPORT THE FULL DEAD LOADS AND THE SUPERIMPOSED DESIGN LOADS NOTED ABOVE OR ON THE DRAWINGS.
- STRESSES SHALL NOT EXCEED THOSE LISTED IN THE NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION (AF&PA NDS). NO INCREASES IN STRESS ARE ALLOWED FOR DURATION OF LOAD.
- SCISSOR TYPE TRUSSES SHALL BE DESIGNED FOR A MAXIMUM OF 1/2" TOTAL HORIZONTAL DEFLECTION UNDER DEAD PLUS LIVE LOADS.
- THE FABRICATOR SHALL DETERMINE TRUSS WEB ARRANGEMENTS AND MEMBER FORCES.
- TRUSS TO TRUSS CONNECTIONS SPECIFIED SHALL BE BY TRUSS SUPPLIER, UNLESS SPECIFICALLY NOTED ON THE DRAWINGS.
- TRUSSES SHALL BE DESIGNED IN BEARING TO NOT EXCEED THE PERPENDICULAR TO GRAIN BEARING VALUES FOR THE TOP PLATE GRADES INDICATED IN THE "STRUCTURAL WOOD FRAMING" GENERAL NOTES. WHERE TRUSS BEARING EXCEEDS THIS VALUE THE TRUSS MANUFACTURER SHALL PROVIDE BEARING ENHANCERS TO COMPENSATE FOR OVERSTRESSES. TRUSS MANUFACTURER SHALL SPECIFY SIZE, SPECIES, AND NAILING FOR BEARING BLOCKS.
- TRUSS FABRICATOR SHALL SPECIFY ALL FLOOR AND ROOF TRUSS BRACING AND BRIDGING.
- CALCULATIONS AND SHOP DRAWINGS, INCLUDING MEMBER SIZES, LUMBER SPECIES AND GRADES, AND SUBSTANTIATING DATA FOR CONNECTOR CAPACITIES, SHALL BE SUBMITTED TO THE ARCHITECT, GC, AND STRUCTURAL ENGINEER FOR REVIEW PRIOR TO FABRICATION.
- TRUSS DESIGN SHALL INCLUDE A 250 LBS LOAD PER NFPA TO SUPPORT SPRINKLER LOADS LOCATED ANYWHERE ALONG THE BOTTOM CHORD OF THE TRUSS.
- DEFLECTION LIMITS FOR TRUSSES SHALL NOT EXCEED THE FOLLOWING DEFLECTION CRITERIA:
  - ROOF LIVE LOAD = L/360
  - ROOF TOTAL LOAD = L/240 (1" MAXIMUM)
  - FLOOR LIVE LOAD = L/480
  - FLOOR TOTAL LOAD = L/240 (1" MAXIMUM)

## SHOP DRAWINGS:

- THE STRUCTURAL DRAWINGS ARE COPYRIGHTED AND SHALL NOT BE COPIED FOR USE AS ERECTION PLANS OR SHOP DETAILS. USE OF FULCRUM'S ELECTRONIC FILES AS THE BASIS FOR SHOP DRAWINGS REQUIRES PRIOR APPROVAL BY FULCRUM. A SIGNED RELEASE OF LIABILITY BY THE GENERAL CONTRACTOR AND/OR HIS SUBCONTRACTORS, AND DELETION OF FULCRUM'S NAME AND LOGO FROM ALL SHEETS SO USED.
- THE GENERAL CONTRACTOR SHALL SUBMIT IN WRITING ANY REQUESTS TO MODIFY THE STRUCTURAL DRAWINGS OR PROJECT SPECIFICATIONS.
- ALL SHOP AND ERECTION DRAWINGS SHALL BE CHECKED AND STAMPED (AFTER HAVING BEEN CHECKED) BY THE GENERAL CONTRACTOR PRIOR TO SUBMISSION FOR STRUCTURAL ENGINEER'S REVIEW; SHOP DRAWING SUBMITTALS NOT CHECKED BY THE GENERAL CONTRACTOR PRIOR TO SUBMISSION TO THE STRUCTURAL ENGINEER WILL BE RETURNED WITHOUT REVIEW.
- FURNISH ELECTRONIC VERSION (PDF) OF SHOP AND ERECTION DRAWINGS TO THE STRUCTURAL ENGINEER FOR REVIEW PRIOR TO FABRICATION FOR:
  - STRUCTURAL STEEL
  - PRE-ENGINEERED WOOD TRUSSES
- SUBMIT IN A TIMELY MANNER TO PERMIT 10 WORKING DAYS FOR REVIEW BY THE STRUCTURAL ENGINEER.
- SHOP DRAWINGS SUBMITTED FOR REVIEW DO NOT CONSTITUTE "REQUEST FOR CHANGE IN WRITING" UNLESS SPECIFIC SUGGESTED CHANGES ARE CLEARLY MARKED. IN ANY EVENT, CHANGES MADE BY MEANS OF THE SHOP DRAWING SUBMITTAL PROCESS BECOME THE RESPONSIBILITY OF THE ONE INITIATING THE CHANGE.

## FIELD VERIFICATION OF EXISTING CONDITIONS:

- THE GENERAL CONTRACTOR SHALL THOROUGHLY INSPECT AND SURVEY THE EXISTING STRUCTURE TO VERIFY CONDITIONS THAT AFFECT THE WORK SHOWN ON THE DRAWINGS.
- THE GENERAL CONTRACTOR SHALL REPORT ANY VARIATIONS OR DISCREPANCIES TO THE ARCHITECT AND STRUCTURAL ENGINEER BEFORE PROCEEDING.

## STRUCTURAL ERECTION AND BRACING REQUIREMENTS:

- THE STRUCTURAL DRAWINGS ILLUSTRATE AND DESCRIBE THE COMPLETED STRUCTURE WITH ELEMENTS IN THEIR FINAL POSITIONS, PROPERLY SUPPORTED, CONNECTED, AND/OR BRACED.
- THE STRUCTURAL DRAWINGS ILLUSTRATE TYPICAL AND REPRESENTATIVE DETAILS TO ASSIST THE GENERAL CONTRACTOR. DETAILS SHOWN APPLY AT ALL SIMILAR CONDITIONS UNLESS OTHERWISE INDICATED. ALTHOUGH DUE DILIGENCE HAS BEEN APPLIED TO MAKE THE DRAWINGS AS COMPLETE AS POSSIBLE, NOT EVERY DETAIL IS ILLUSTRATED AND NOT EVERY EXCEPTIONAL CONDITION IS ADDRESSED.
- ALL PROPRIETARY CONNECTIONS AND ELEMENTS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
- ALL WORK SHALL BE ACCOMPLISHED IN A WORKMANLIKE MANNER AND IN ACCORDANCE WITH THE APPLICABLE CODES AND LOCAL ORDINANCES.
- THE GENERAL CONTRACTOR IS RESPONSIBLE FOR COORDINATION OF ALL WORK, INCLUDING LAYOUT AND DIMENSION VERIFICATION, MATERIALS COORDINATION, SHOP DRAWING REVIEW, AND THE WORK OF SUBCONTRACTORS. ANY DISCREPANCIES OR OMISSIONS DISCOVERED IN THE COURSE OF THE WORK SHALL BE IMMEDIATELY REPORTED TO THE ARCHITECT AND STRUCTURAL ENGINEER FOR RESOLUTION.
- CONTINUATION OF WORK WITHOUT NOTIFICATION OF DISCREPANCIES RELIEVES THE ARCHITECT AND STRUCTURAL ENGINEER FROM ALL CONSEQUENCES.
- UNLESS OTHERWISE SPECIFICALLY INDICATED, THE STRUCTURAL DRAWINGS DO NOT DESCRIBE METHODS OF CONSTRUCTION.
- THE GENERAL CONTRACTOR, IN THE PROPER SEQUENCE, SHALL PERFORM OR SUPERVISE ALL WORK NECESSARY TO ACHIEVE THE FINAL COMPLETED STRUCTURE, AND TO PROTECT THE STRUCTURE, WORKMEN, AND OTHERS DURING CONSTRUCTION. SUCH WORK SHALL INCLUDE, BUT NOT BE LIMITED TO TEMPORARY BRACING, SHORING FOR CONSTRUCTION EQUIPMENT, SHORING FOR EXCAVATION, FORMWORK, SCAFFOLDING, SAFETY DEVICES AND PROGRAMS OF ALL KINDS, SUPPORT AND BRACING FOR CRANES AND OTHER ERECTION EQUIPMENT.
- TEMPORARY BRACING SHALL REMAIN IN PLACE UNTIL ALL FLOORS, WALLS, ROOFS AND ANY OTHER SUPPORTING ELEMENTS ARE IN PLACE.
- THE ARCHITECT AND STRUCTURAL ENGINEER BEAR NO RESPONSIBILITY FOR THE ABOVE ITEMS, AND OBSERVATION VISITS TO THE SITE DO NOT IN ANY WAY INCLUDE INSPECTIONS OF THESE ITEMS.

## PRECAUTIONARY NOTES ON STRUCTURAL BEHAVIOR:

- INTERIOR ARCHITECTURAL FINISH DETAILING MUST ACCOMMODATE THE RELATIVE DIFFERENTIAL MOVEMENTS OF SUPPORTING STRUCTURAL ELEMENTS.
- WHERE THE ROOF FRAMING ELEMENT SPANS ARE LONG, APPLIED LOADING WILL NATURALLY CAUSE SUBSTANTIAL DEFLECTION. INTERIOR ELEMENTS HUNG FROM THE ROOF STRUCTURE WILL DEFLECT WITH THE ROOF.
- THE FLOOR IS A FLOATING CONCRETE SLAB-ON-GRADE AND MAY EXPERIENCE MOVEMENTS INDEPENDENT OF THE STRUCTURAL FOUNDATIONS. INTERIOR ELEMENTS SUPPORTED ON THE SLAB-ON-GRADE FLOOR WILL MOVE WITH THE FLOOR. INTERIOR ELEMENTS SUPPORTED ON FOUNDATIONS AND COLUMNS WILL NOT EXPERIENCE SIMILAR OR MEASURABLE MOVEMENTS.
- EXTERIOR/PERIMETER WALL ASSEMBLIES HUNG FROM THE EDGE OF THE BUILDING STRUCTURE WILL BE DIRECTLY AFFECTED (TO SOME DEGREE) BY CHANGES IN EXTERNAL TEMPERATURE AND FLOOR DEFLECTION.
- EXTERIOR/PERIMETER AND INTERIOR ARCHITECTURAL FINISH DETAILS SHOULD ALLOW FOR RELATIVE MOVEMENTS BETWEEN ELEMENTS WITH DIFFERENT SUPPORT CONDITIONS.

## LETTERS OF CONSTRUCTION COMPLIANCE:

- THE GENERAL CONTRACTOR SHALL DETERMINE FROM THE LOCAL BUILDING AUTHORITY, AT THE TIME THE BUILDING PERMIT IS OBTAINED, WHETHER ANY LETTERS OF CONSTRUCTION COMPLIANCE WILL BE REQUESTED FROM THE STRUCTURAL ENGINEER.
- THE CONTRACTOR SHALL NOTIFY THE STRUCTURAL ENGINEER OF ALL SUCH REQUIREMENTS IN WRITING PRIOR TO THE START OF CONSTRUCTION.
- TWO-DAY ADVANCE NOTICE SHALL BE GIVEN WHEN REQUESTING SITE VISITS NECESSARY AS THE BASIS FOR THE COMPLIANCE LETTER.
- THE GENERAL CONTRACTOR SHALL PROVIDE COPIES OF ALL THIRD-PARTY TESTING AND INSPECTION REPORTS TO THE ARCHITECT AND STRUCTURAL ENGINEER A MINIMUM OF ONE WEEK PRIOR TO THE DATE THAT THE COMPLIANCE LETTER IS NEEDED.

SHEET SCHEDULE	
SHEET NUMBER	SHEET NAME
50	GENERAL NOTES
51	DRILLED PIER PLAN
52	FOUNDATION PLAN
53	MAIN LEVEL AND ROOF FRAMING PLAN
54	FOUNDATION SECTIONS
55	FOUNDATION SECTIONS
56	FRAMING SECTIONS

**REVIEWED FOR CODE COMPLIANCE**  
09/16/2024



PO BOX 811  
GRANBY, CO 80446  
PHONE: 575.650.9368  
EMAIL: eric@fulcrumstructural.com



Fitch Modular  
27200 Golden View Trail  
Routt County, CO

No.	Date	Revision Description
1	8/26/24	REV 1

Drawn by ETV  
Job # 1255  
Date 08/20/24  
Issue CONSTRUCTION

## SHEET TITLE

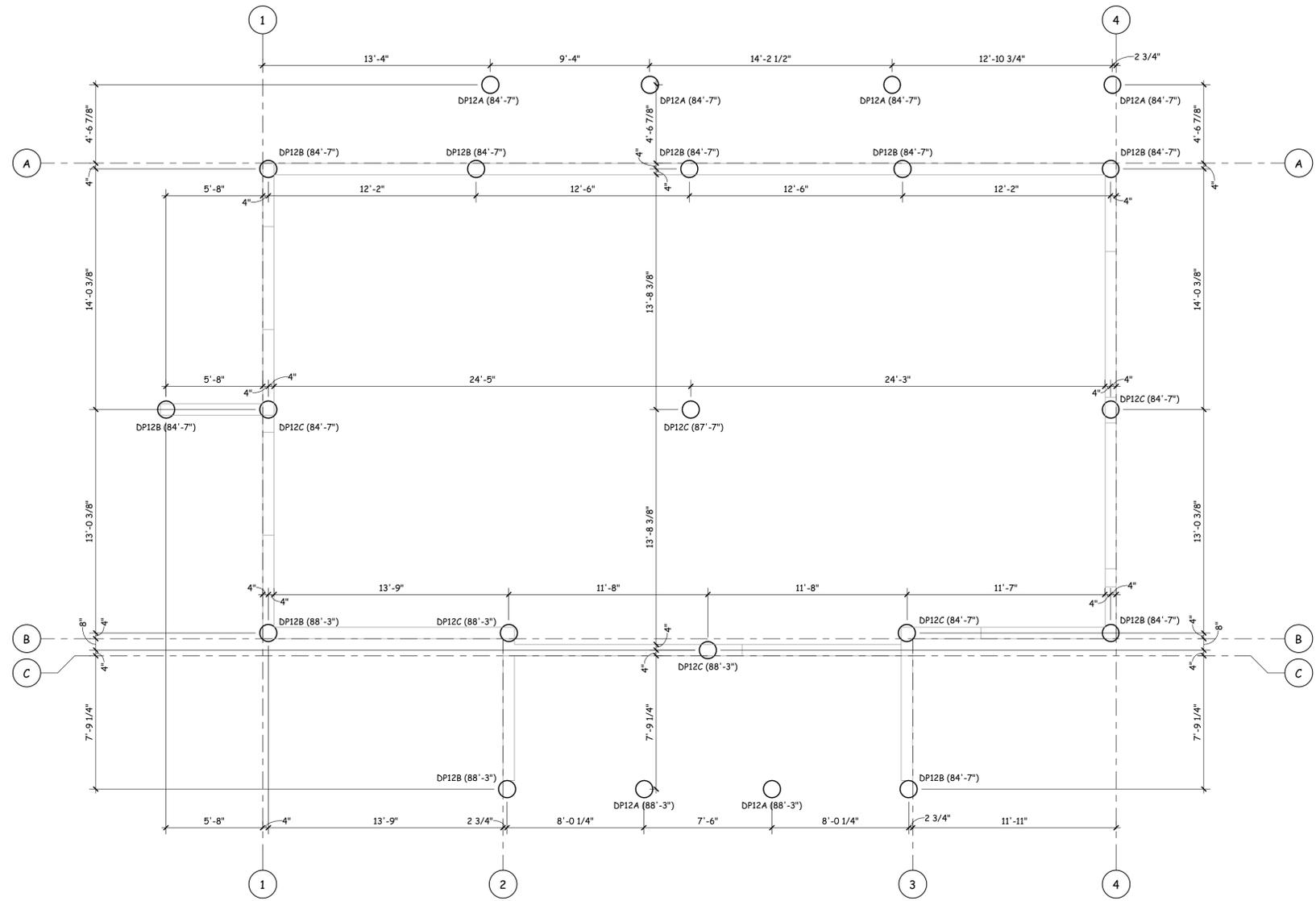
GENERAL NOTES

## SHEET No.

50



**Fitch Modular**  
27200 Golden View Trail  
Routt County, CO



**DRILLED PIER PLAN**  
1/4" = 1'-0"  
NORTH

- TOP OF DRILLED PIER ELEVATION INDICATED BY: (XX'-XX")
- CENTER DRILLED PIERS UNDER FOUNDATION WALLS, PIER CAPS, AND WALL CORNERS
- ALL DRILLED PIERS TO BE 12"Ø, DP12. REFER TO [ ] FOR DRILLED PIER SCHEDULE.

**REVIEWED  
FOR  
CODE  
COMPLIANCE**  
09/16/2024

No.	Date	Revision Description

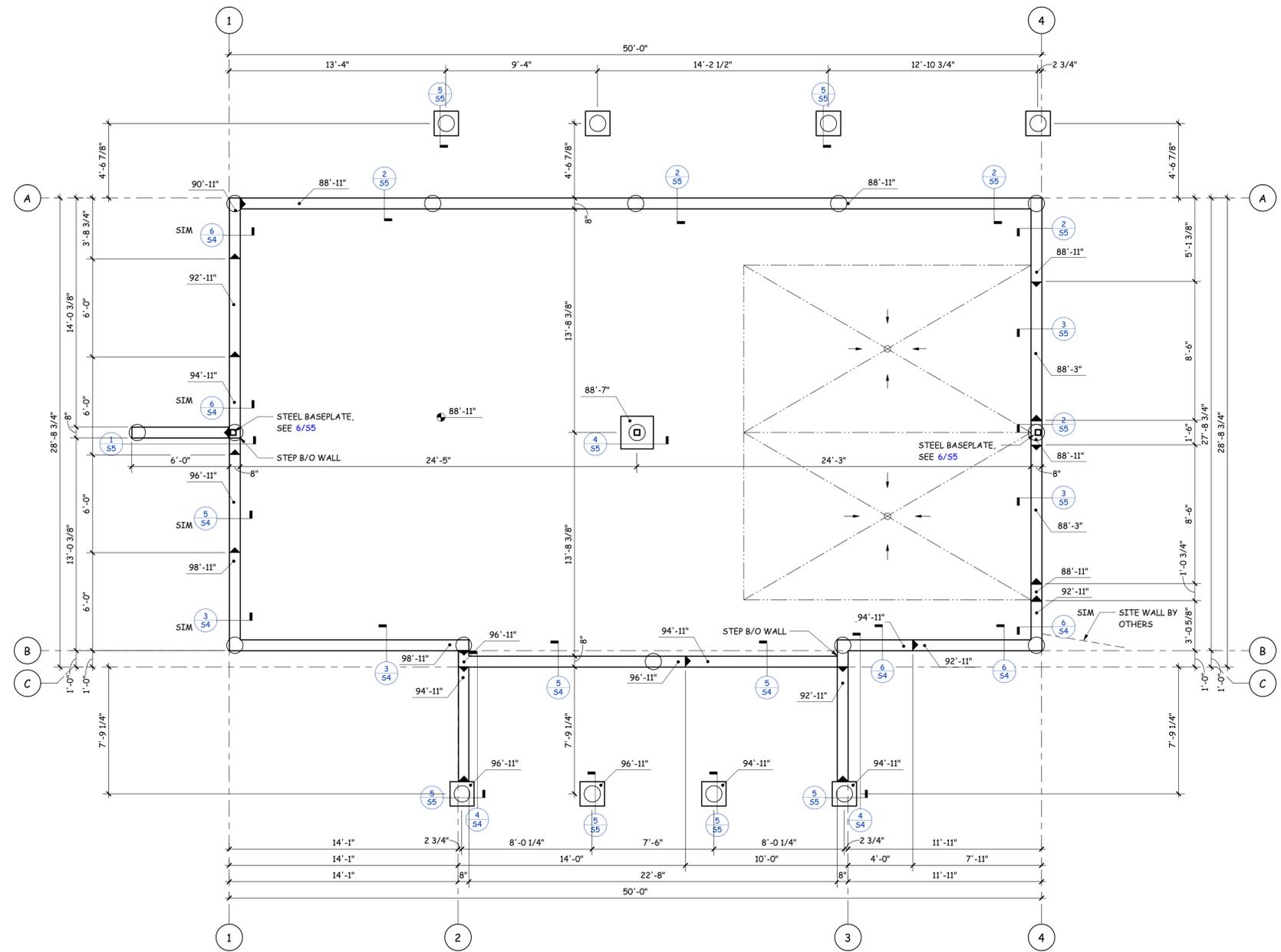
Drawn by ETV  
Job # 1255  
Date 08/20/24  
Issue CONSTRUCTION

SHEET TITLE  
DRILLED PIER PLAN

SHEET No.  
**S1**



**Fitch Modular**  
27200 Golden View Trail  
Routt County, CO



**FOUNDATION PLAN**

1/4" = 1'-0"

NORTH

- TYPICAL SLAB-ON-GRADE:  
FLOATING 4" FIBER REINFORCED CONCRETE SLAB ON SUB-GRADE PER SOILS REPORT. PROVIDE 1/8" x 1" TOOLED CONTROL JOINTS AT 10'-0" EA WAY. ADD (2) #4 x 4'-0" DIAGONAL BARS AT MID-DEPTH OF SLAB AT ALL RE-ENTRY CORNERS.
- TOP OF CONCRETE SLAB ELEVATION INDICATED BY: XXX'-X"
- TOP OF CONCRETE WALL ELEVATION INDICATED BY: XXX'-X"
- STEP IN TOP OF CONCRETE WALL INDICATED BY: ▸
- RADON MITIGATION SYSTEM BY OTHERS SHALL BE INSTALLED PER 2021 IRC APPENDIX F

**REVIEWED  
FOR  
CODE  
COMPLIANCE  
09/16/2024**

No.	Date	Revision Description
1	8/26/24	REV 1

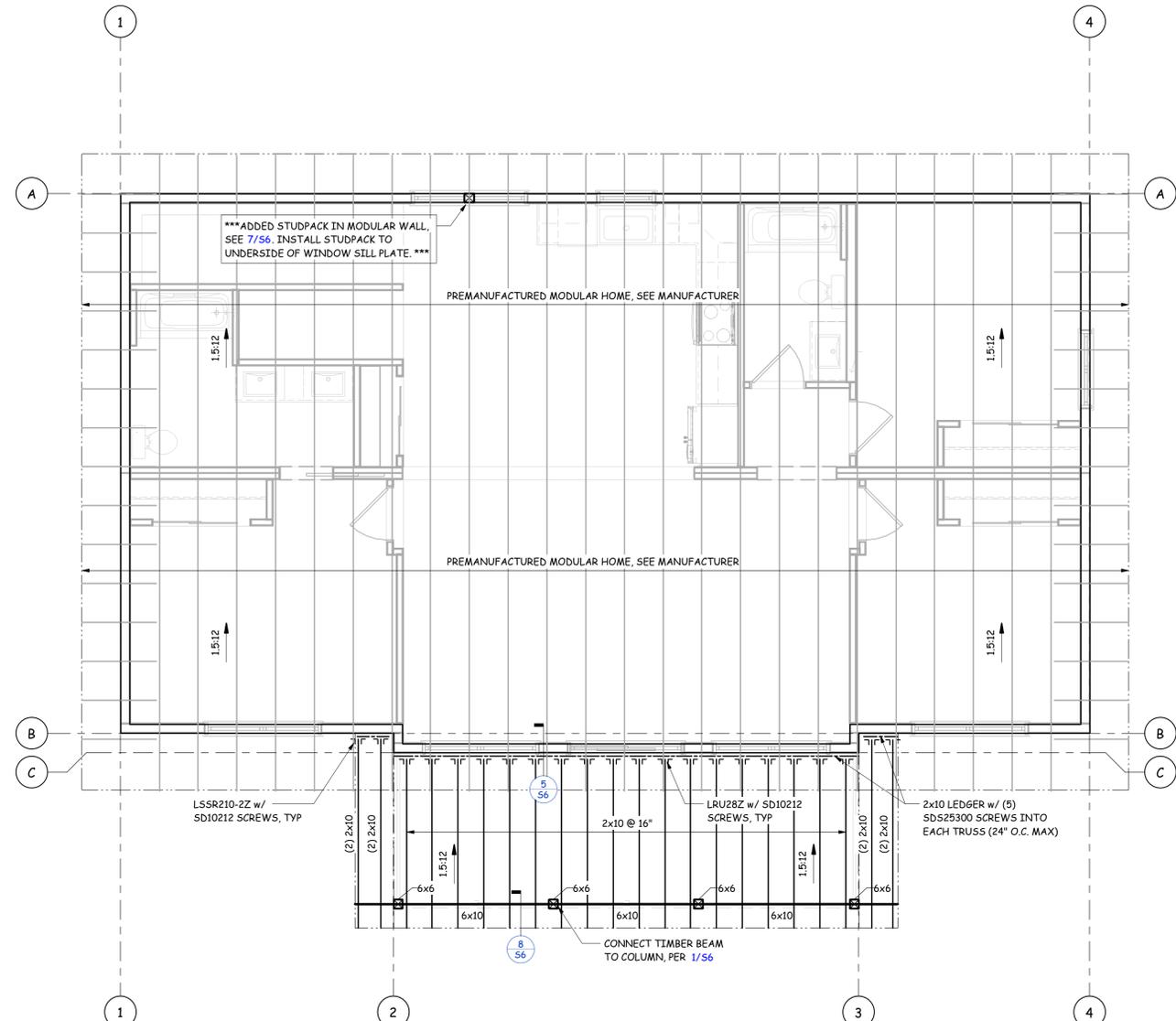
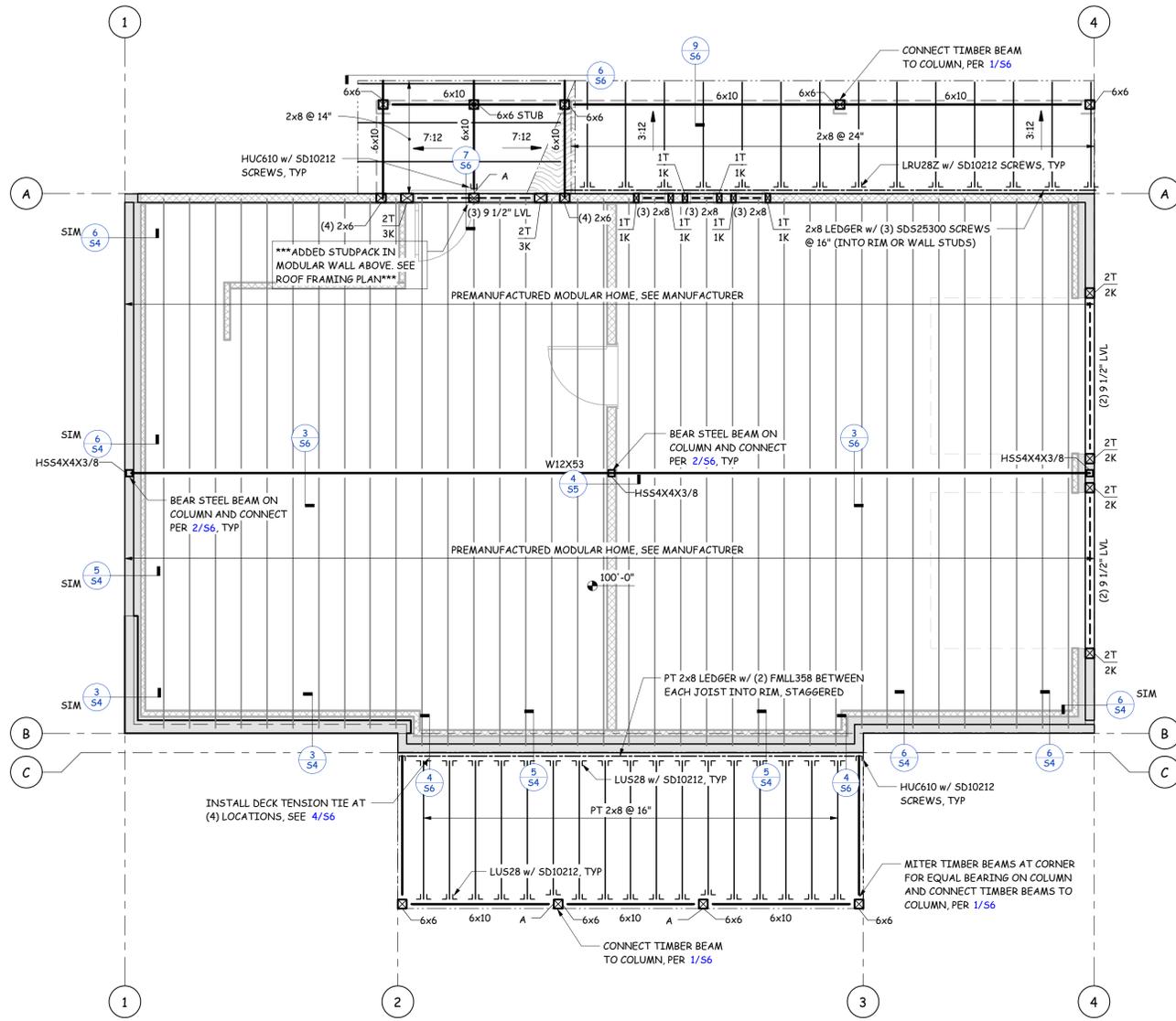
Drawn by: ETV  
Job #: 1255  
Date: 08/20/24  
Issue: CONSTRUCTION

SHEET TITLE  
FOUNDATION PLAN

SHEET No.  
**S2**



**Fitch Modular**  
27200 Golden View Trail  
Routt County, CO



**MAIN LEVEL FRAMING PLAN**  
1/4" = 1'-0"



NORTH

- TYPICAL EXTERIOR WALL:**
- 2x6 HEM FIR STUD GRADE OR BETTER STUDS @ 16" SHEATHED WITH 7/16" CDX PLYWOOD OR OSB, APA 24/16 EXTERIOR FACE
  - NAIL WALL SHEATHING TO STUDS WITH 8d 6UN NAILS (0.113"Øx2 3/8") @ 6" AT PANEL EDGES AND @ 12" IN FIELD OF PANEL
  - BLOCK AND NAIL ALL EDGES BETWEEN STUDS.
  - HEADERS TO CONSIST OF (2) 2x6, UNLESS NOTED OTHERWISE ON PLAN
  - K/T TO CONSIST OF 1T/1K, TYPICAL, UNLESS NOTED OTHERWISE ON PLAN
  - PROVIDE 2K MIN AT ALL DOOR OPENINGS, UNLESS NOTED OTHERWISE

- TYPICAL ROOF SHEATHING:**
- 5/8" NOMINAL APA 40/20 RATED SHEATHING FASTENED WITH 8d 6UN NAILS (0.113"Øx2 3/8") @ 6" ALONG PANEL EDGES AND @ 12" ALONG INTERMEDIATE FRAMING MEMBERS. LAY PANELS PERPENDICULAR TO FRAMING MEMBERS AND STAGGER PANEL JOINTS.
  - CONNECT EACH RAFTER/TRUSS TO BEARING (WALL OR BEAM) W/ H2.5T UNLESS NOTED OTHERWISE. INSTALL (2) H2.5T WITHIN 6'-0" OF CORNERS.

**ROOF FRAMING PLAN**  
1/4" = 1'-0"



NORTH

- TYPICAL ROOF SHEATHING:**
- 5/8" NOMINAL APA 40/20 RATED SHEATHING FASTENED WITH 8d 6UN NAILS (0.113"Øx2 3/8") @ 6" ALONG PANEL EDGES AND @ 12" ALONG INTERMEDIATE FRAMING MEMBERS. LAY PANELS PERPENDICULAR TO FRAMING MEMBERS AND STAGGER PANEL JOINTS.
  - CONNECT EACH RAFTER/TRUSS TO BEARING (WALL OR BEAM) W/ H2.5T UNLESS NOTED OTHERWISE. INSTALL (2) H2.5T WITHIN 6'-0" OF CORNERS.

No.	Date	Revision Description

Drawn by ETV  
Job # 1255  
Date 08/20/24  
Issue CONSTRUCTION

SHEET TITLE  
MAIN LEVEL AND  
ROOF FRAMING PLAN

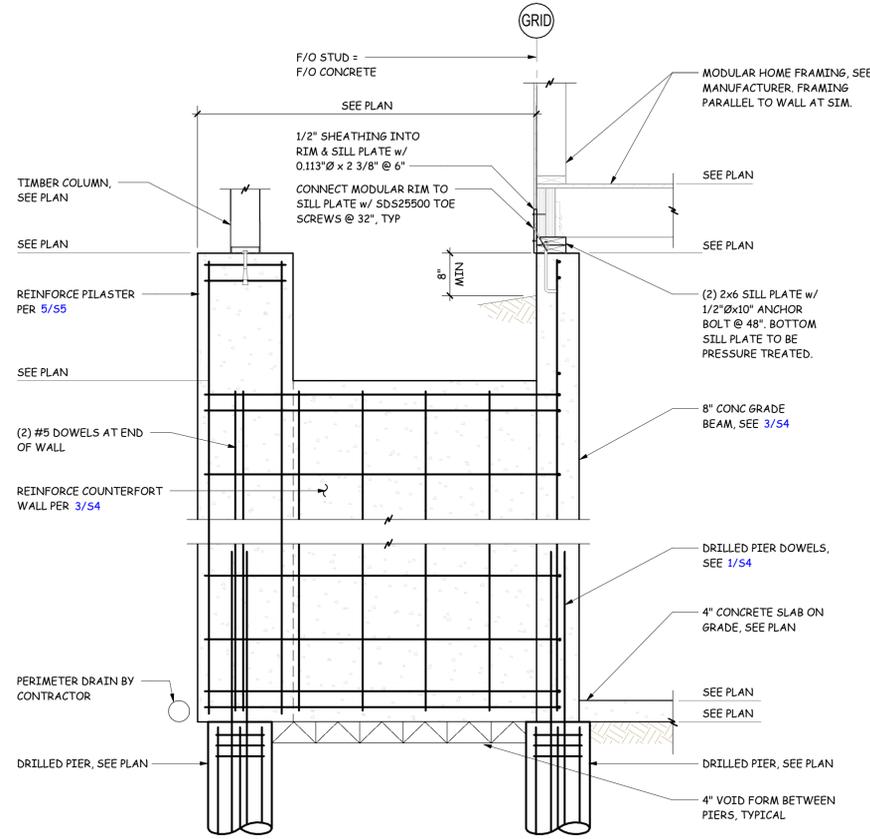
SHEET No.

**S3**

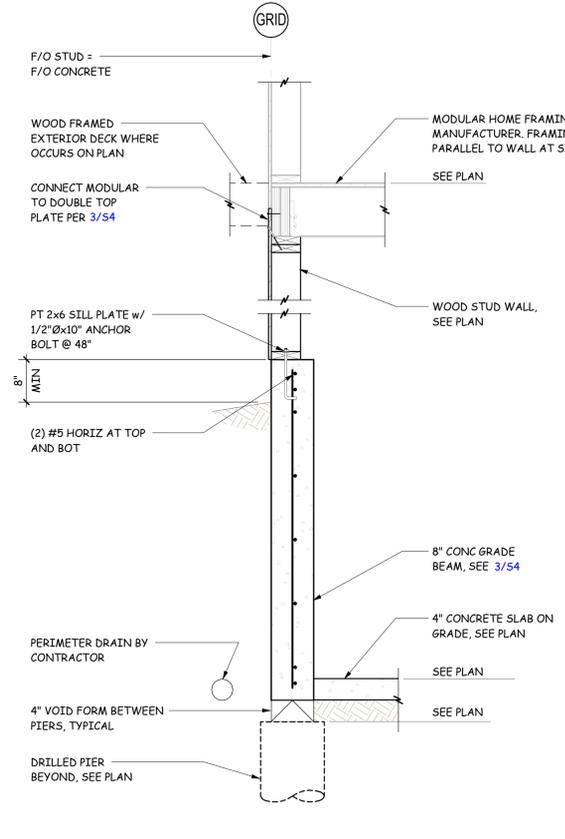


**REVIEWED  
FOR  
CODE  
COMPLIANCE**  
09/16/2024

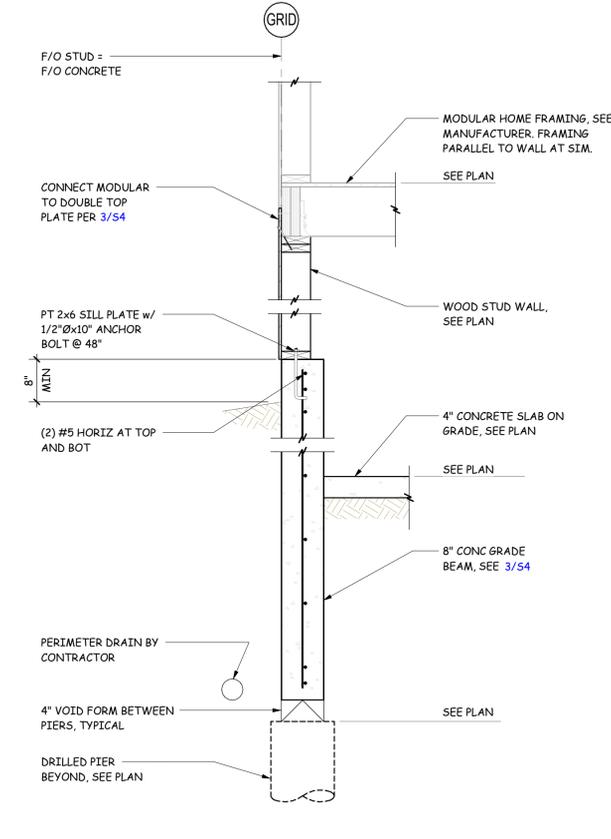
**Fitch Modular**  
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Routt County, CO



**4 SECTION**  
S4 3/4" = 1'-0"

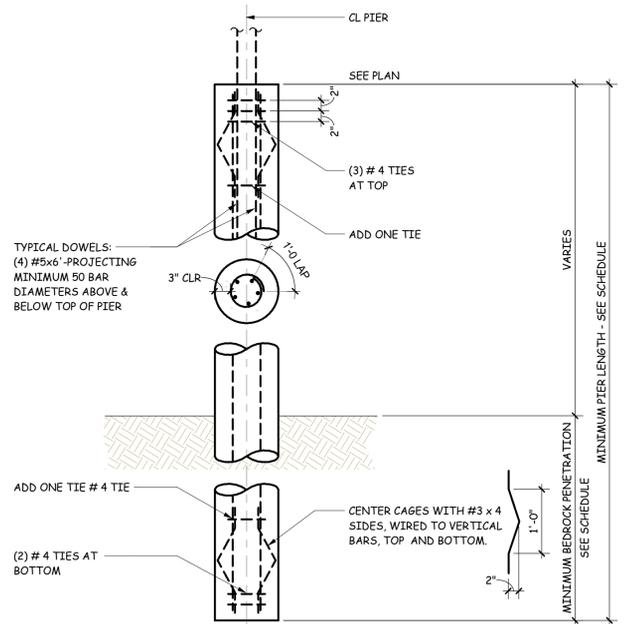


**5 SECTION**  
S4 3/4" = 1'-0"

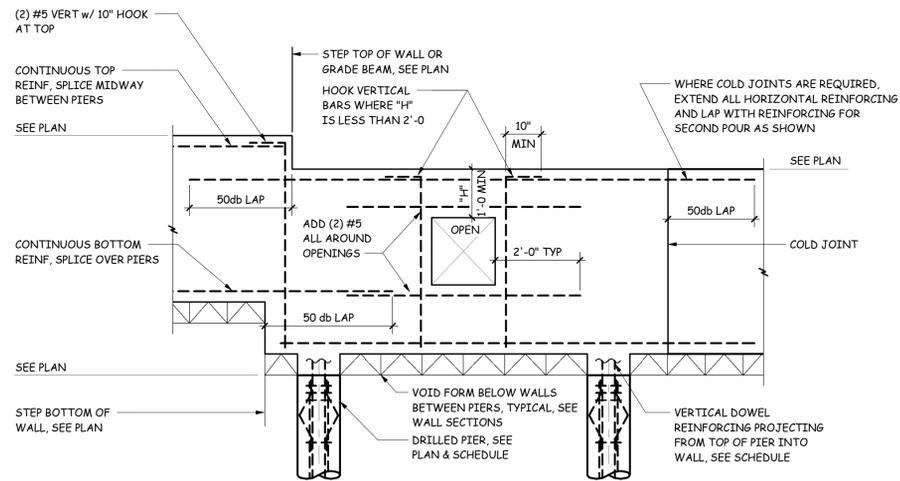


**6 SECTION**  
S4 3/4" = 1'-0"

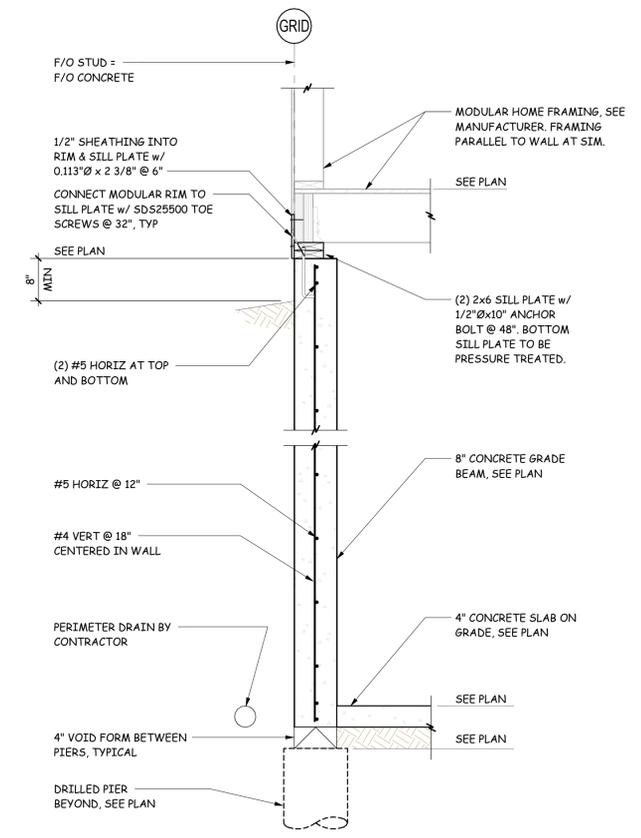
PIER SCHEDULE				
MARK	DIAMETER	PENETRATION INTO BEDROCK (MINIMUM)	MINIMUM PIER LENGTH	REINFORCING
DP12A	1'-0"	6'-0"	15'-0"	(4) #5
DP12B	1'-0"	8'-0"	15'-0"	(4) #5
DP12C	1'-0"	10'-0"	15'-0"	(4) #5



**1 DRILLED PIER SCHEDULE**  
S4 3/4" = 1'-0"



**2 TYPICAL DETAILING AT STEPS AND OPENINGS**  
S4 1/2" = 1'-0"



**3 SECTION**  
S4 3/4" = 1'-0"

No.	Date	Revision Description

Drawn by: ETV  
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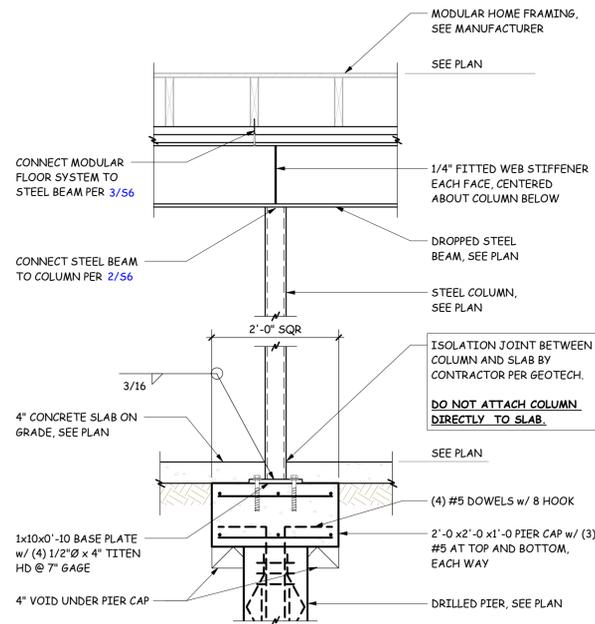
SHEET TITLE  
FOUNDATION SECTIONS

SHEET No.

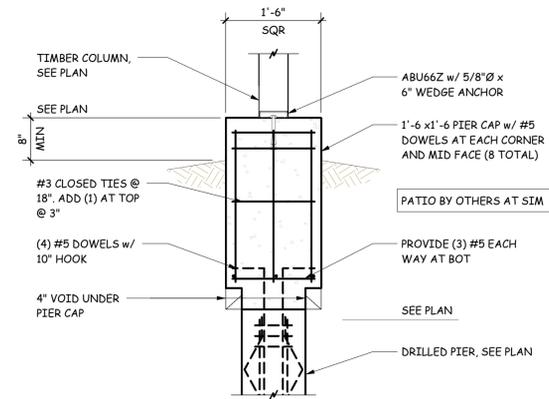


**Fitch Modular**  
27200 Golden View Trail  
Routt County, CO

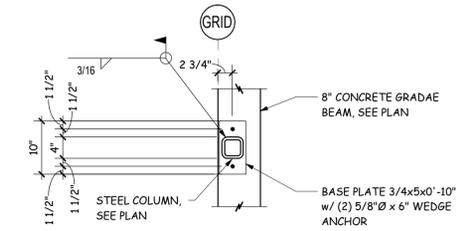
**REVIEWED FOR CODE COMPLIANCE**  
09/16/2024



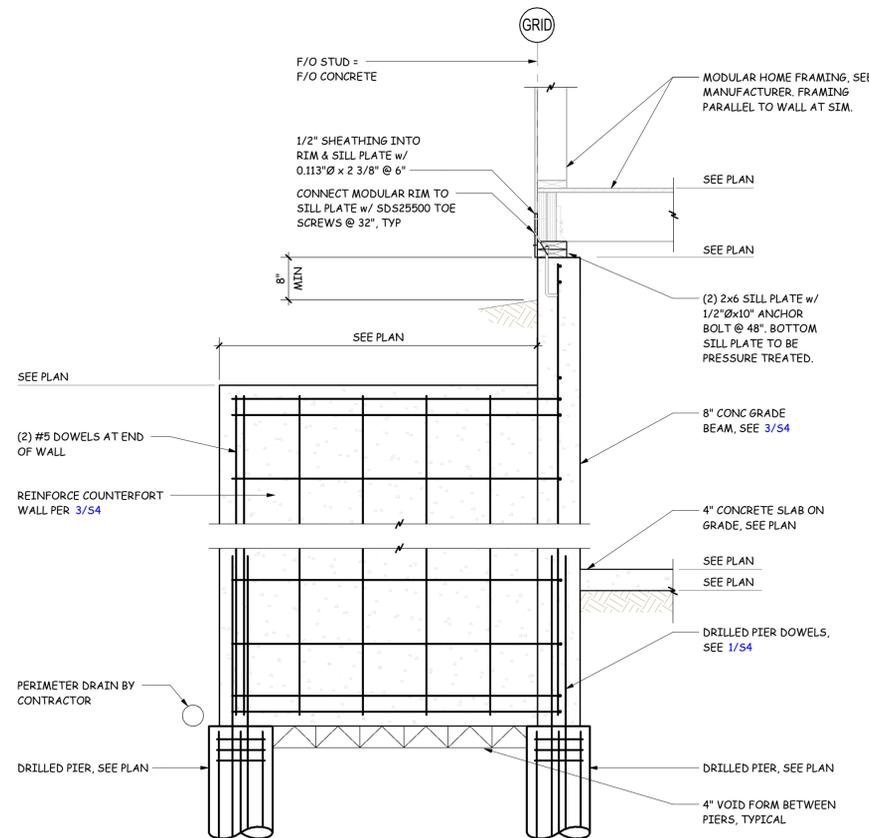
**4 SECTION**  
S5 3/4" = 1'-0"



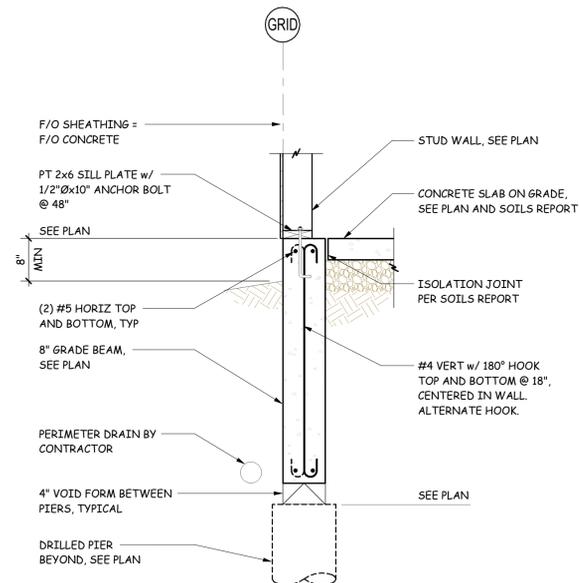
**5 SECTION**  
S5 3/4" = 1'-0"



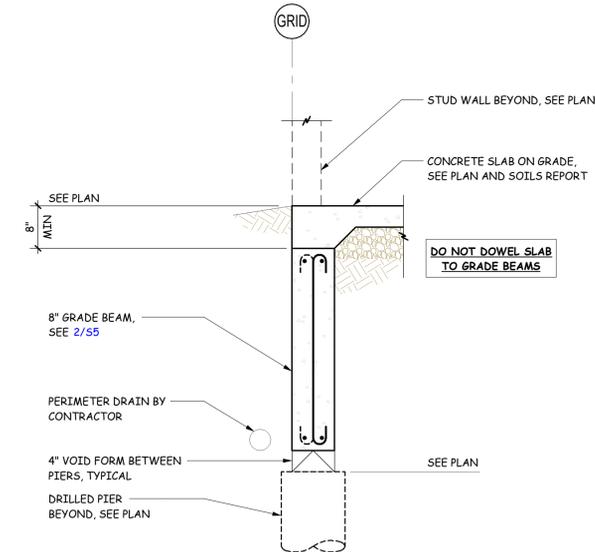
**6 DETAIL**  
S5 3/4" = 1'-0"



**1 SECTION**  
S5 3/4" = 1'-0"



**2 SECTION**  
S5 3/4" = 1'-0"



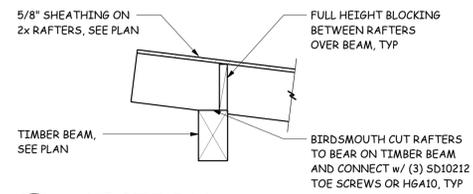
**3 SECTION**  
S5 3/4" = 1'-0"

No.	Date	Revision Description

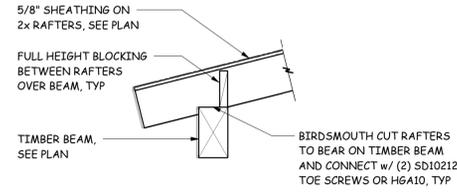
Drawn by: ETV  
Job #: 1255  
Date: 08/20/24  
Issue: CONSTRUCTION

SHEET TITLE  
FOUNDATION SECTIONS

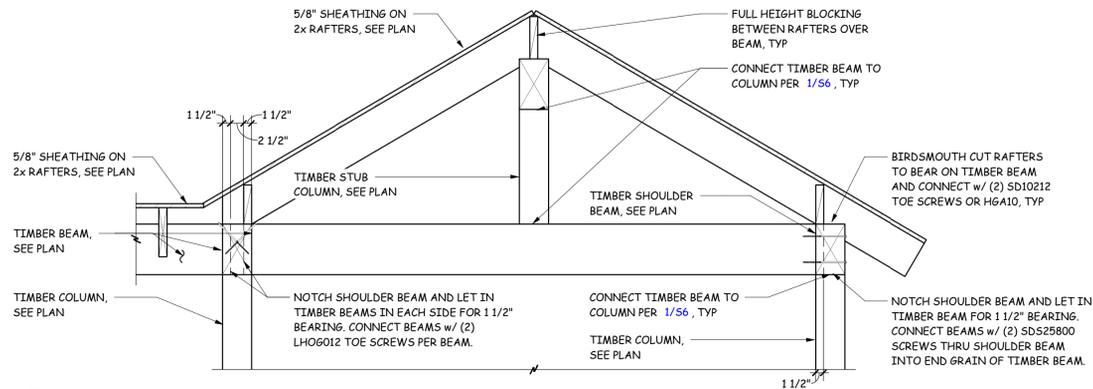
SHEET No.  
**S5**



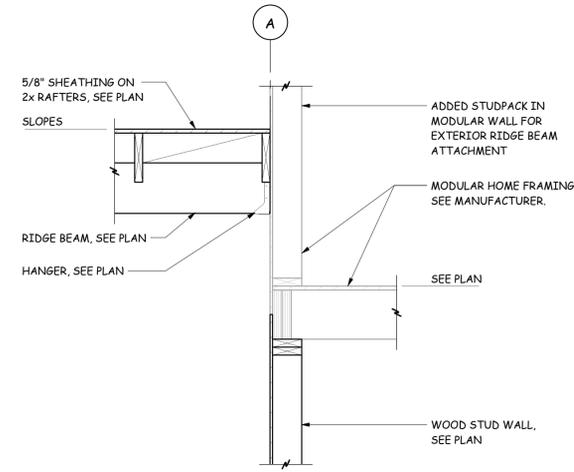
**8 SECTION**  
S6 3/4" = 1'-0"



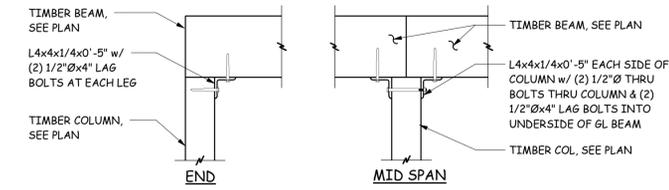
**9 SECTION**  
S6 3/4" = 1'-0"



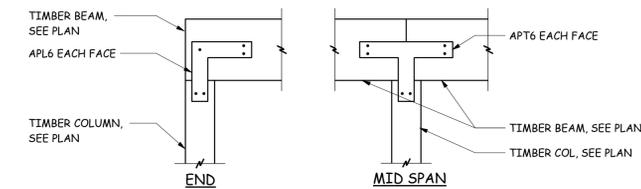
**6 SECTION**  
S6 3/4" = 1'-0"



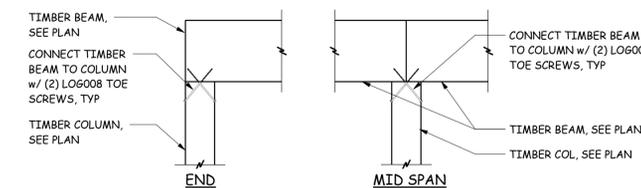
**7 SECTION**  
S6 3/4" = 1'-0"



**OPTION 1**

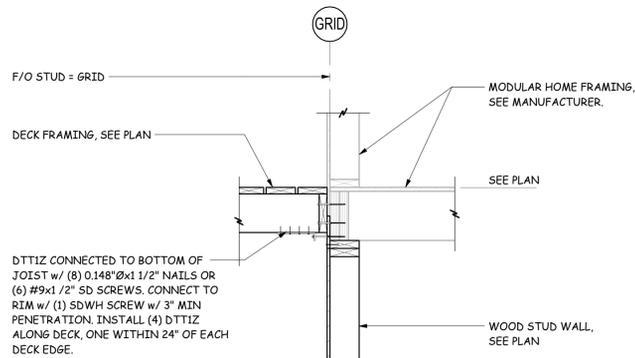


**OPTION 2**

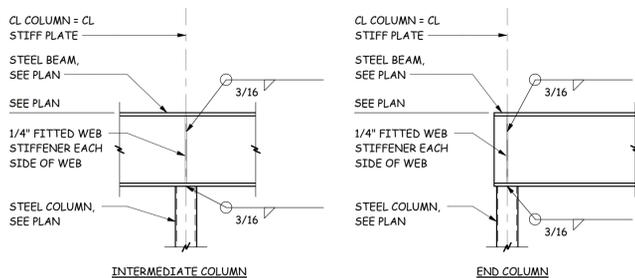


**OPTION 3**

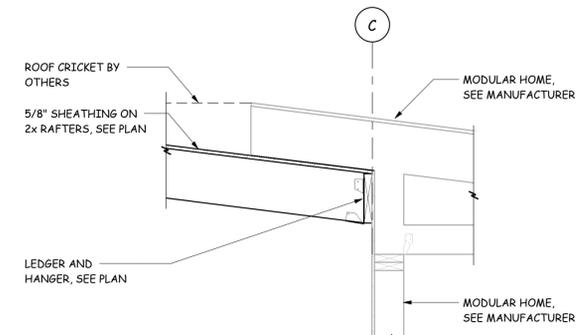
**1 TIMBER BEAM-TO-COLUMN CONNECTION**  
S6 3/4" = 1'-0"



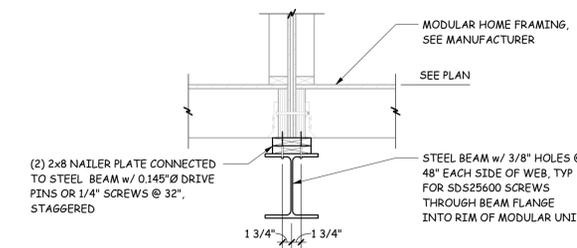
**4 SECTION**  
S6 3/4" = 1'-0"



**2 SECTION**  
S6 3/4" = 1'-0"



**5 SECTION**  
S6 3/4" = 1'-0"



**3 SECTION**  
S6 3/4" = 1'-0"

No.	Date	Revision Description

Drawn by: ETV  
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SHEET TITLE  
FRAMING SECTIONS

SHEET No.  
S6