

# STRUCTURAL NOTES:

- Governing Codes and Standards:**
- A. 2018 International Building Code (and local amendments)
  - B. 2018 International Residential Code (and local amendments)
  - C. "Minimum Design Loads for Buildings and Other Structures" - ASCE 7-16
  - D. "Steel Construction Manual" - AISC Fourteenth Edition
  - E. "National Design Specification for Wood Construction" - ANSI/APA/NDS 2018
  - F. "Building Code Requirements for Structural Concrete" - ACI318-14

## 2. BUILDING RISK CATEGORY II

**3. ROOF LOAD:**

DEAD LOAD	A.	20 PSF
SNOW LOAD (HOUSE ROOF)	B.	86 PSF
SNOW LOAD (DECK ROOF)	C.	94 PSF

**3. FLOOR LOAD:**

DEAD LOAD	A.	15 PSF
LIVE LOAD (OFFICE)	B.	50 PSF
LIVE LOAD (BATHROOM)	C.	75 PSF

**4. SNOW LOAD CRITERIA:**

A. GROUND SNOW LOAD, P <sub>g</sub>	A.	112 PSF
B. FLAT ROOF SNOW LOAD, P <sub>f</sub>	B.	94 PSF
C. EXPOSURE FACTOR, C <sub>e</sub>	C.	1.0
D. THERMAL FACTOR, C <sub>t</sub> (HOUSE)	D.	1.1
E. THERMAL FACTOR, C <sub>t</sub> (DECK)	E.	1.2
F. IMPORTANCE FACTOR, I	F.	1.0
G. SLIDING SNOW LOAD, P <sub>s</sub>	G.	22 PSF

**5. WIND CRITERIA (PER ASCE 7-16):**

A. BASIC WIND SPEED (ULTIMATE)	A.	115 MPH
B. EXPOSURE	B.	B
C. INT. PRESSURE COEFF. GCP1	C.	±0.18

## PROJECT GENERAL NOTES

- A. MATERIAL AND DESIGN SPECIFICATIONS CITED HEREIN SHALL BE THOSE CONFORMING WITH THE VERSION OF THE APPLICABLE SPECIFICATION OR CODE MOST RECENTLY ADOPTED BY THE PERMITTING AUTHORITIES. THESE STRUCTURAL NOTES ARE TO BE USED AS A SUPPLEMENT TO THE SPECIFICATIONS, U.N.O.
- B. REFER TO THE ARCHITECTURAL DOCUMENTS FOR ALL DIMENSIONS NOT SHOWN ON THE STRUCTURAL CONTRACT DOCUMENTS. DO NOT SCALE THE STRUCTURAL CONTRACT DOCUMENTS.
- C. THE GENERAL CONTRACTOR SHALL VERIFY ALL DIMENSIONS, ELEVATIONS, AND CONDITIONS WITH ARCHITECTURAL, MECHANICAL, ELECTRICAL, PLUMBING, AND CIVIL DRAWINGS AND NOTIFY THE ARCHITECT/ENGINEER OF ANY DISCREPANCIES OR INCONSISTENCIES.
- D. THE SIZE, WEIGHTS AND LOCATIONS OF ALL EQUIPMENT PADS, ROOF MOUNTED MECHANICAL UNITS, AND PENETRATIONS REQUIRED FOR MECHANICAL, ELECTRICAL, AND PLUMBING WORK SHALL BE VERIFIED BY THE CONTRACTOR. ALL PENETRATIONS ARE SUBJECT TO APPROVAL BY THE ARCHITECT/ENGINEER.
- E. ANY CONTRACTOR INDUCING LOADS ON THE STRUCTURE NOT SPECIFIED ON THE CONTRACT DOCUMENTS MUST OBTAIN APPROVAL FROM THE ARCHITECT/ENGINEER PRIOR TO ERECTION.  
FIELD ALTERATIONS FOR ANY STRUCTURAL MEMBER SHALL NOT BE EXECUTED WITHOUT APPROVAL FROM THE ARCHITECT/ENGINEER
- F. ARCHITECT/ENGINEER'S APPROVAL SHALL BE SECURED FOR ALL SUBSTITUTIONS.
- G. THE STRUCTURE AND ALL OF ITS PARTS MUST BE ADEQUATELY BRACED AGAINST WIND, LATERAL EARTH, AND SEISMIC FORCES UNTIL THE PERMANENT LATERAL-FORCE RESISTING SYSTEMS HAVE BEEN CONSTRUCTED AND ALL OF ITS PARTS HAVE BEEN INSTALLED.
- H. SHOP DRAWINGS, VENDOR DRAWINGS, OR ANY MATERIAL PREPARED AND SUBMITTED BY THE CONTRACTOR OR SUBCONTRACTOR ARE NOT CONSIDERED PART OF THE STRUCTURAL CONTRACT DOCUMENTS. ANY ENGINEERING DESIGN PROVIDED BY OTHERS AND SUBMITTED FOR REVIEW SHALL BEAR THE SEAL OF AN ENGINEER REGISTERED IN THE STATE WHERE THE PROJECT IS BEING BUILT.
- I. DURING CONSTRUCTION THE CONTRACTOR MAY ENCOUNTER EXISTING CONDITIONS WHICH WERE NOT KNOWN DURING DESIGN OR ARE AT VARIANCE WITH THE PROJECT DOCUMENTATION. SUCH CONDITIONS MAY INTERFERE WITH NEW CONSTRUCTION, REQUIRE PROTECTION AND/OR SUPPORT OF EXISTING WORK, OR MAY CONSIST OF DAMAGED OR DETERIORATION OF STRUCTURAL MATERIALS/COMPONENTS WHICH COULD JEOPARDIZE THE STRUCTURAL INTEGRITY OF THE BUILDING. THE CONTRACTOR SHALL NOTIFY THE ENGINEER OF RECORD OF ALL DISCOVERIES HE BELIEVES MAY INTERFERE WITH PROPER EXECUTION OF THE WORK OR JEOPARDIZE THE INTEGRITY OF THE BUILDING PRIOR TO PROCEEDING WITH WORK RELATED TO SUCH DISCOVERIES.
- J. THE STRUCTURAL ENGINEER SHALL NOT HAVE CONTROL OR CHARGE OF AND SHALL NOT BE RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, PROCEDURES, NOR SITE SAFETY.
- K. THE STRUCTURAL DRAWINGS HAVE BEEN PREPARED USING AVAILABLE INFORMATION REGARDING THE EXISTING CONDITIONS. NO ATTEMPT HAS BEEN MADE TO VERIFY ANY EXISTING CONDITIONS AGAINST INFORMATION PROVIDED BY OTHERS. THE CONTRACTOR SHALL COMPARE THE EXISTING DOCUMENTS AND NOTIFY THE ARCHITECT OF ANY DIFFERENCES BEFORE PROCEEDING WITH WORK.
- L. ITEMS, IN THE OPINION OF THE CONTRACTOR, THAT APPEAR TO BE DEFICIENCIES, OMISSIONS, CONTRADICTIONS, OR AMBIGUITIES IN THE PLANS AND / OR SPECIFICATIONS SHALL BE BROUGHT TO THE ATTENTION OF THE STRUCTURAL ENGINEER. PLANS AND / OR SPECIFICATIONS WILL BE CORRECTED OR WRITTEN INTERPRETATIONS OF THE ALLEGED DEFICIENCY, OMISSION, CONTRADICTION OR AMBIGUITY WILL BE MADE BY THE STRUCTURAL ENGINEER. WORK SHALL NOT PROCEED IN THESE AREAS BEFORE A RESPONSE IS RECEIVED FROM THE STRUCTURAL ENGINEER.
- M. ALL PRODUCTS AND MATERIALS USED BY THE CONTRACTOR SHALL BE INSTALLED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.
- N. THE GENERAL CONTRACTOR SHALL DETERMINE FROM THE LOCAL BUILDING OFFICIAL WHEN THE PERMIT IS OBTAINED WHETHER ANY LETTERS OF CONSTRUCTION COMPLIANCE WILL BE REQUESTED FROM THE STRUCTURAL ENGINEER. IF SO, THE CONTRACTOR SHALL NOTIFY THE ENGINEER IN WRITING BEFORE THE START OF CONSTRUCTION.
- A. **FOUNDATIONS** DESIGNS ARE BASED ON OWNER ACCEPTED RECOMMENDATIONS PROVIDED BY NORTHWEST COLORADO CONSULTANTS, INC. (NWC) IN SOILS REPORT NUMBER 20-11733, DATED SEPTEMBER 24, 2020.
- B. OWNER IS AWARE AND UNDERSTANDS THE RISK OF USING A SHALLOW FOUNDATION FOR THIS BUILDING AND ACCEPTS DIFFERENTIAL MOVEMENTS BETWEEN 1 AND 2 INCHES AS OUTLINED IN THE SOILS REPORT.
- C. FOUNDATION DESIGNS ARE BASED ON THE FOLLOWING:  
1. MAXIMUM BEARING PRESSURE = 3,500 PSF (FOR NATURAL CLAYS)  
2. MINIMUM BEARING PRESSURE = 900 PSF (FOR NATURAL CLAYS)
- D. ALL OVER EXCAVATION AND FILL SHALL BE PLACED AS DIRECTED BY THE GEOTECHNICAL ENGINEER.
- E. ALL FOUNDATIONS AND SLABS SHALL BE PLACED ON UNDISTURBED OR COMPACTED CONTROL FILL AS PER THE GEOTECHNICAL REPORT.
- F. ALL FORMS AND ORGANIC DEBRIS SHALL BE REMOVED PRIOR TO BACKFILLING.
- G. DO NOT PLACE BACK-FILL AGAINST FOUNDATION WALLS UNTIL FLOOR SLABS AT THE TOP AND BOTTOM ARE IN PLACE OR ADEQUATE BRACING IS INSTALLED AND CONCRETE IS CURED.
- H. DIFFERENTIAL MOVEMENTS ON THE ORDER OF 1 TO 2 INCHES COULD STILL OCCUR IF CLAYS UNDERGO MOISTURE CHANGES. THE OWNER MUST BE WILLING TO ACCEPT THE RISK OF FOUNDATION MOVEMENT ASSOCIATED WITH PLACING SHALLOW FOUNDATIONS ON EXPANSIVE SOILS/BEDROCK.

## CONCRETE - CAST IN PLACE

- A. STRUCTURAL CONCRETE SHALL BE TYPE 1, AND HAVE A MINIMUM 28 DAY STRENGTH OF 3,000 PSI; EXTERIOR CONCRETE SLABS SHALL BE TYPE 1 AND HAVE A MINIMUM 28 DAY STRENGTH OF 4,000 PSI. ALL CONCRETE SHALL HAVE A MIN 6% (+/- 1.5%) ENTRAINED AIR FOR DURABILITY AND A 4" (+/- 1) SLUMP. THE MAXIMUM AGGREGATE SIZE SHALL BE 3/4". CONCRETE SHALL NOT BE PLACED ON FROZEN GROUND AND SHALL BE PROTECTED FROM FREEZING FOR A MINIMUM OF 7 DAYS. DURING COLD WEATHER THE METHODS AND SPECIFICATIONS SET FORTH IN ACI 306R-88 SHALL BE FOLLOWED TO PREVENT FROST DAMAGE.
- B. ALL CONCRETE WORK SHALL CONFORM TO THE REQUIREMENTS OF AC1318 AND 301, LATEST EDITION.
- C. ALL EXPOSED EDGES SHALL HAVE A 3/4" CHAMFER.
- D. CONCRETE SHALL BE ADEQUATELY CONSOLIDATED/VIBRATED DURING PLACEMENT TO ENSURE IT IS THOROUGHLY PLACED AROUND ALL REINFORCING STEEL AND EMBEDDED FIXTURES.
- E. UNLESS NOTED OTHERWISE, SLABS, FOOTINGS AND WALLS SHALL NOT HAVE ANY HORIZONTAL 'COLD JOINTS.' ALL CONSTRUCTION JOINTS SHALL BE DETAILED OR REVIEWED BY THE ENGINEER OF RECORD.
- F. INTERIOR CONCRETE SLAB FINISH SHALL BE STEEL TROWEL FINISHED AND EXTERIOR CONCRETE SLABS SHALL BE BROOM FINISHED.
- G. ALL CONCRETE SHALL BE NORMAL WEIGHT AGGREGATE UNLESS NOTED OTHERWISE.
- H. CONCRETE TOPPING FOR METAL DECK'S SHALL NOT INCLUDE ANY ADD MIXTURES CONTAINING CHLORIDE SALTS.
- I. ALL LIGHTWEIGHT AGGREGATE CONCRETE SHALL HAVE A MAXIMUM UNIT WEIGHT OF 110 pcf.

## CONCRETE REINFORCING STEEL

- A. REINFORCING BARS SHALL CONFORM TO ASTM SPEC. A615-79 AND SHALL BE GRADE 60.
- B. AT SPLICES, LAP BARS A MINIMUM OF 38 DIAMETERS. AT CORNERS AND INTERSECTIONS, MAKE HORIZONTAL CONTINUOUS OR PROVIDE MATCHING CORNER BARS. AROUND OPENINGS IN WALLS AND SLABS, PROVIDE (2) #5 BARS EXTENDING A MINIMUM OF 2 FEET BEYOND THE EDGE OF THE OPENING. CONTINUOUS TOP BARS IN WALLS SHALL BE SPLICED AT MID-SPAN. CONTINUOUS BOTTOM BARS IN WALLS SHALL BE SPLICED AT SUPPORTS.
- C. CONCRETE COVER SHALL CONFORM TO ACI 318-14, 7.7. UNLESS A GREATER COVER IS REQUIRED, CONCRETE CAST AGAINST EARTH SHALL HAVE 3IN. MIN. COVER; CONCRETE EXPOSED TO EARTH OR WEATHER SHALL HAVE 2IN. MIN. COVER FOR NO. 6 BARS & GREATER, & 1IN. MIN. COVER FOR NO. 5 BARS & SMALLER. CONCRETE NOT EXPOSED TO WEATHER SHALL HAVE 1" MIN. COVER FOR NO. 11 BARS & SMALLER.
- D. WELDED WIRE FABRIC SHALL CONFORM TO ASTM 185 AND SHALL BE LAPPED ONE FULL MESH AT SPLICES AND TIED TOGETHER.
- E. CONCRETE REINFORCING STEEL SHALL CONFORM WITH ASTM A 615 DEFORMED GRADE 60 (WELDABLE REINFORCEMENT SHALL BE ASTM A706, GRADE 60) UNLESS NOTED OTHERWISE.
- F. PLACE 2'-0" x 2'-0" BARS AT CORNERS AND INTERSECTIONS FOR WALLS AND FOUNDATIONS EQUAL IN SIZE AND NUMBER TO HORIZONTAL REINFORCING. UNLESS NOTES OTHERWISE.
- G. ALL REINFORCING STEEL SHALL BE DETAILED, FABRICATED AND PLACED IN ACCORDANCE WITH ACI DETAILING MANUAL 315.
- H. ALL REINFORCING STEEL SHALL BE ACCURATELY AND SECURELY PLACED.
- I. MINIMUM COVER FROM CONCRETE SURFACES TO REINFORCING STEEL SHALL BE:
  - a. 3" TO BOTTOM OF FOOTING/GRADE BEAMS
  - b. 2" TO EARTH FACE OF WALL
  - c. 1 1/2" TO INSIDE FACE OF WALL
  - d. 1 1/2" MAIN BEAMS AND COLUMNS
  - e. 1" TO TOP AND BOTTOM CONCRETE SLAB SURFACES CENTER OF SLABS-ON-GRADE
- J. PROVIDE TWO EXTRA #5'S AROUND ALL OPENINGS IN CONCRETE WALLS AND SLAB WHICH ARE GREATER THAN 1'-6" IN ANY DIRECTION. EXTEND TO THE 2'-0" PAST OPENINGS AND HOOK IF NECESSARY. UNLESS NOTED OTHERWISE.
- K. START FIRST REBAR 3" IN FROM THE EDGE, WHERE SLAB REBAR IS CALLED 'ON CENTER' AS 'ON CENTER (OC)' SPACING.
- L. ALL WELDED WIRE FABRIC SHALL MAINTAIN A MINIMUM LAP SPLICE OF 6" UNLESS NOTED OTHERWISE.
- M. INSTALL REBAR CHAIRS WITH APPROPRIATE MATERIAL FOR ANTICIPATED CONCRETE EXPOSURE.

TENSION DEVELOPMENT "DEV" FOR UNCOATED BARS						
Bar Size	Lap Class	Lengths (In.) per Concrete Strength (psi)				
		3000 psi		4000 psi		5000 psi +
		Top Bars	Typ Bars	Top Bars	Typ Bars	Typ Bars
#3	A	22	17	19	15	17
#4	A	29	22	25	19	22
#5	A	36	28	31	24	28
#6	A	43	33	37	29	33
#7	A	63	48	54	42	49
#8	A	72	55	62	48	55
#9	A	81	62	70	54	63
#10	A	91	70	79	61	70
#11	A	101	78	87	67	78
#14	N/A	125	96	108	83	97
#18	N/A	161	124	139	107	125

"LAP" SPLICE LENGTH FOR UNCOATED BARS						
Bar Size	Lap Class	Lengths (In.) per Concrete Strength (psi)				
		3000 psi		4000 psi		5000 psi +
		Top Bars	Typ Bars	Top Bars	Typ Bars	Typ Bars
#3	B	28	22	24	19	22
#4	B	37	29	32	25	29
#5	B	47	36	40	31	36
#6	B	56	43	48	37	43
#7	B	81	63	70	54	63
#8	B	93	72	80	62	72
#9	B	105	81	91	70	81
#10	B	118	91	102	79	91

- NOTES**
- TABULATED VALUES ARE BASED ON GRADE 60 UNCOATED (NO EPOXY COATED) REINFORCING BARS AND NORMAL WEIGHT CONCRETE. LENGTHS ARE IN INCHES.
  - TOP BARS ARE HORIZONTAL BARS WITH MORE THAN 12" OF CONCRETE CAST BELOW THE BARS. VERTICAL BARS ARE NOT CONSIDERED TOP BARS.
  - SPLICE LENGTHS FOR REBAR WITH DIFFERENT SIZES SHALL BE BASED ON THE SPLICE LENGTH FOR THE SMALLER SIZE BAR.
  - TABLE ASSUMES BARS HAVE COVER GREATER THAN BAR DIAMETERS AND CENTER TO CENTER SPACING GREATER THAN BAR DIAMETERS.
  - FOR LIGHTWEIGHT AGGREGATE CONCRETE, MULTIPLY THE TABULATED VALUES BY 1.3.

REVIEWED FOR CODE COMPLIANCE 11/09/2022

## STRUCTURAL WOOD FRAMING

- A. UNLESS NOTED OTHERWISE, ALL 2" LUMBER SHALL BE DOUGLAS FIR S4S NO. 2 OR BETTER. ALL SOLID TIMBER BEAMS AND POSTS SHALL BE DF-L NO. 1 OR BETTER.
- B. UNLESS NOTED OTHERWISE, MINIMUM NAILING SHALL BE PROVIDED AS SPECIFIED IN TABLE NO. 2304.9.1, "FASTENING SCHEDULE", OF THE 2018 IBC OR TABLE NO. R602.3(1), "FASTENER SCHEDULE FOR STRUCTURAL MEMBERS", OF THE 2015 IRC.
- C. WALL AND FLOOR SHEATHING SHALL BE APA RATED WITH EXTERIOR GLUE AND GRADED IN ACCORDANCE WITH APA STANDARDS. PANEL IDENTIFICATION AND THICKNESS SHALL BE AS NOTED ON THE DRAWINGS.
- D. WHERE LIGHT GAUGE FRAMING ANCHORS ARE SHOWN OR REQUIRED, THEY SHALL BE SIMPSON "STRONG TIE" (OR EQUAL APPROVED BY ICBO). THEY SHALL BE INSTALLED WITH THE NUMBER AND TYPE OF FASTENERS RECOMMENDED BY THE MANUFACTURER TO DEVELOP THE RATED CAPACITY.
- E. FLOOR JOISTS SHALL BE PLANT FABRICATED I SERIES WITH LVL OR SOLID WOOD FLANGES AND PLYWOOD OR OSB WEBS, AND SHALL CARRY ICBO APPROVAL FOR A COMPLETE SECTION. JOISTS SHALL BE DESIGNED TO CARRY FULL LIVE AND DEAD LOADS OF THE ROOF(S), FLOOR(S), AND ANY SUPERIMPOSED LOADS.
- F. ROOF OVERFRAMING SHALL BE 2X6 RAFTERS @ 24" O.C. W/ 2X6 STUDS @ 24" O.C. TO STACK OVER RAFTERS OR PURLINS BELOW.
- G. ALL MEMBERS 3x OR LESS (LEAST DIMENSIONS) SHALL BE KILN-DRY WITH 19% MOISTURE CONTENT, MAXIMUM.
- H. PROVIDE SOLID BLOCKING (SAME DEPTH OF MEMBER) AT ALL POINTS OF BEARING.
- I. ALL PLATES AND LEDGERS IN CONTACT WITH CONCRETE OR MASONRY SHALL BE PRESSURE TREATED IN ACCORDANCE WITH AWPA STANDARD C-2 PRESSURE-TREATED LUMBER SHALL BEAR THE AWPA (AMERICAN WOOD PRESERVERS BUREAU) QUALITY MARK.
- J. PLYWOOD SHEATHING SHALL BE LAID WITH END JOINTS STAGGERED.
- K. BLOCK ALL SHEAR WALL SHEATHING WITH 2 x 4 FLAT BLOCKING AT ALL EDGES.
- L. NAILING INDICATED ON PLANS AND DETAILS ARE "COMMON" NAILS AS DEFINED BY THE NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION (NDS), UNO. THE MINIMUM NAIL SIZES ARE AS FOLLOWS:
  - a. 8D = 0.131" DIA X 2 1/2" LONG
  - b. 10D = 0.148" DIA X 3" LONG
  - c. 16D = 0.162" DIA X 3 1/2" LONG
- M. LAY OUT PLYWOOD TO ELIMINATE ANY WIDTH LESS THAN 1'-0", EXCEPT AT PLYWOOD FLOORS WHERE MINIMUM DIMENSION SHALL BE 2'-0". UNLESS ALL EDGES OF THE UNDERSIZED SHEETS ARE SUPPORTED BY BLOCKING.
- N. ORIENTED STRAND BOARD CONFORMING WITH IBC AND MANUFACTURED WITH EXTERIOR GLUE MAY BE SUBSTITUTED FOR PLYWOOD PROVIDED IT HAS EQUAL LOAD/SPAN RATING INDEX AND BEARS THE APA TRADEMARK OF THE AMERICAN PLYWOOD ASSOCIATION.
- O. SOLID BRIDGING AT MAXIMUM OF 8'-0" ON CENTER SHALL BE REQUIRED WHERE JOIST HAVE A FIVE-TO-ONE OR GREATER DEPTH-TO-THICKNESS RATIO AND WHERE ONE EDGE IS NOT HELD IN LINE BY SHEATHING, WALLBOARD, BRACING, ETC.
- P. DOUBLE UP STUDS AT CORNERS OF BEARING WALLS, UNO. SEE PLANS FOR BEARING WALL LOCATIONS.
- Q. PROVIDE (3) 2x STUDS NAILED TOGETHER UNDER ALL BEARING POINTS OF ROOF GIRDER TRUSSES, CONCENTRATED LOADS AND BEAM BEARINGS, UNLESS NOTED OTHERWISE. STUDS SHALL EXTEND FROM TOP OF FOUNDATION TO BOTTOM OF MEMBERS.
- R. CONTRACTOR IS TO PROTECT FLOOR AND ROOF SHEATHING FROM EXTREME WET CONDITIONS TO LIMIT MOVEMENTS DUE TO EXPANSION CAUSED BY MOISTURE. ADDITIONALLY, PROVIDE PROPER PANEL SPACING PER THE AMERICAN PLYWOOD ASSOCIATION RECOMMENDATIONS.
- S. WHERE PRESSURE-TREATED PLYWOOD IS INDICATED ON THE DRAWINGS, IT SHALL CONFORM WITH AWPA STANDARD C-9 AND SHALL EXCEED THE AWPB (AMERICAN WOOD PRESERVERS BUREAU) QUALITY MARK.
- T. JOISTS SHALL BE TREATED IF W/IN 18" ABOVE GRADE & BEAMS SHALL BE TREATED IF W/IN 12" ABOVE GRADE.
- U. ALL LUMBER EXPOSED TO WEATHER SHALL BE NATURALLY DURABLE, PRESERVATIVE TREATED OR PRESSURE TREATED IF NOT COVERED BY A ROOF OVERHANG OR COVERING TO PREVENT MOISTURE OR WATER ACCUMULATION ON THE SURFACE.
- V. ALL FASTENERS (NAILS, SCREWS, ANCHOR BOLTS, ETC.) IN CONTACT WITH PRESSURE TREATED OR FRT LUMBER SHALL BE CORROSION RESISTANT IN ACCORDANCE WITH IBC 2304.10.5.
- W. ALL CONNECTORS USED WITH PRESSURE TREATED MATERIAL OR EXPOSED TO WEATHER SHALL BE STAINLESS STEEL OR HAVE A SIMPSON Z-MAX/HDG COATING OR EQUAL. ALL CONNECTORS EXPOSED TO THE EXTERIOR SHALL BE G185 GALVANIZED OR APPROVED EQUAL.
- X. PROVIDE 2x4 BLOCKING AROUND ALL OPENINGS IN ROOF. NAIL THE PANELS TO BLOCKING WITH 10d NAILS AT 4" OC. PROVIDE 2x8 BLOCKING AROUND ALL OPENINGS IN FLOORS NAIL WITH 10d NAIL AT 4" OC AROUND THE OPENING.
- Y. PROVIDE SOLID BLOCKING UNDER ALL COLUMNS FROM TOP OF FOUNDATION OR BEAM BEARING TO THE BOTTOM OF COLUMN OR POST.
- Z. PROVIDE ONE 1/4"x3"x3" MINIMUM GALVANIZED PLATE WASHER (CONFORMING TO THE 2008 NATIONAL DESIGN SPECIFICATION SPECIAL DESIGN PROVISIONS FOR WIND AND SEISMIC) UNDER ALL SHEAR WALL ANCHOR BOLTS. PLATE WASHER SHALL EXTEND TO WITHIN 1/2" OF THE EDGE OF THE BOTTOM PLATE ON THE SIDE WITH SHEAR WALL SHEATHING. WHERE SHEATHING OCCURS ON BOTH SIDES OF WALL, STAGGER PLATE WASHERS.
- AA. ALL FLOOR DECKING SHALL BE GLUED AND NAILED TO JOISTS. ALL FLOOR DECKING SHALL BE TONGUE AND GROOVE WITH GLUED JOINTS.
- AB. ENGINEERED WOOD BEAMS SHALL BE AS MANUFACTURED BY I-LEVEL (OR APPROVED EQUAL) AND HAVE THE FOLLOWING MINIMUM PROPERTIES:
 

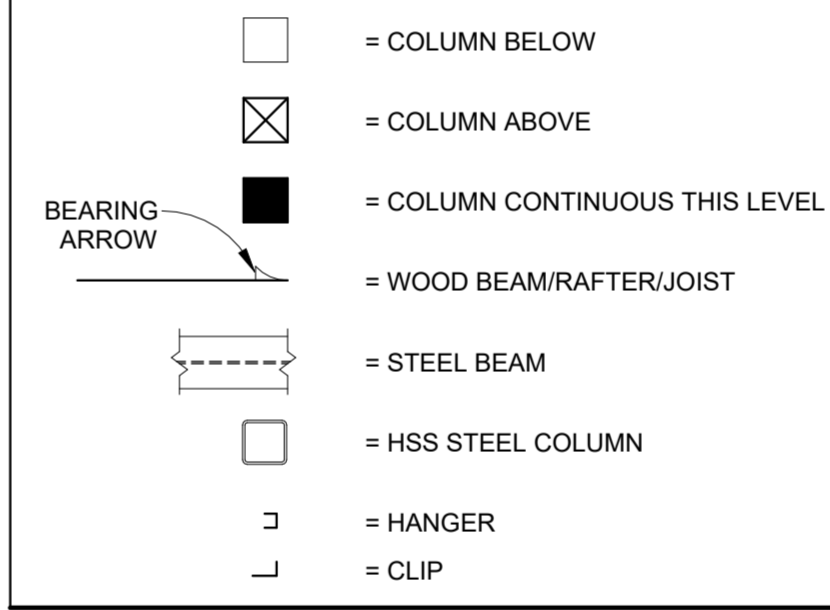
	E	Eb	Et	Fc,perp	Fc,parallel	Fv
LSL (<9.5")	1,300ksi	1,700psi	1,075psi	680psi	1,400psi	400psi
LSL (9.5"+)	1,550ksi	2,325psi	1,070psi	800psi	2,050psi	310psi
LVL	2,000ksi	2,600psi	1,555psi	750psi	2,510psi	285psi
PSL	2,000ksi	2,900psi	2,025psi	750psi	2,900psi	290psi
- AC. GLUE LAMINATED BEAMS SHALL BE AS MANUFACTURED BY BOISE CASCADE (OR APPROVED EQUAL) AND HAVE THE FOLLOWING MINIMUM PROPERTIES:
 

	E	Fb,top	Fb,bot	Fc,perp	Fc,parallel	Fv
GLB 24F-V4	1,800ksi	2,400psi	1,850psi	650psi	1,650psi	240psi
GLB 24F-V8	1,800ksi	2,400psi	2,400psi	650psi	1,650psi	240psi
- AD. ALL RIM JOISTS SHALL BE AS NOTED ON PLANS AND DETAILS. RIM MATERIAL SHALL BE ICC APPROVED FOR RIM JOIST APPLICATIONS

## POST INSTALLED ANCHORS

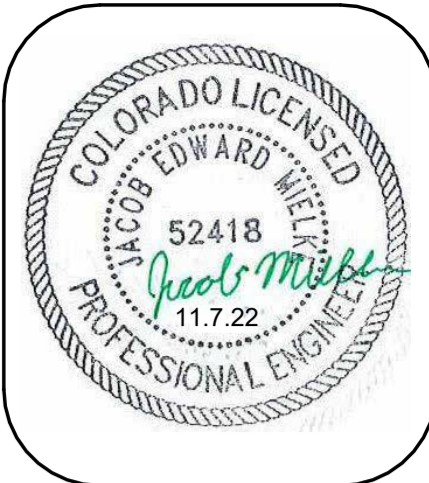
- A. EXPANSION ANCHORS SHALL BE ICC-APPROVED (ZINC PLATED IN ACCORDANCE WITH ASTM B 633, HOT-DIPPED GALVANIZED IN ACCORDANCE WITH ASTM A 153, AISI 304 STAINLESS STEEL) AND CONFORM WITH FS-S-325, GROUP II, TYPE 4, CLASS 1.
- B. EXPANSION BOLTS CALLED FOR ON THE DRAWINGS SHALL BE SIMPSON "WEG-ALL", "STRONG-BOLT 2" OR APPROVED WEDGE TYPE ANCHORS WITH THE FOLLOWING MINIMUM EMBEDMENTS: 3/4" DIAMETER BOLTS - 3", 5/8" DIAMETER BOLTS - 2", 1/2" DIAMETER BOLTS - 2".
- C. ADHESIVE ANCHORS SHALL BE ICC-APPROVED AND SHALL CONSIST OF ALL-THREAD ANCHOR ROD, NUT WASHER AND ADHESIVE CAPSULE. ANCHOR RODS SHALL COMPLY WITH ASTM A307. (NOT USED AT PT SLAB.)
- D. ALL EPOXY SHALL BE SIMPSON "SET-XP" AND SHALL BE INSTALLED PER THE "ANCHORING AND FASTENING SYSTEMS FOR CONCRETE AND MASONRY" SIMPSON CATALOG #C-SAS-2012 BY A QUALIFIED PERSONNEL.
- E. HEAVY DUTY SCREW ANCHORS SHALL BE STAINLESS STEEL: SIMPSON TITEN HD OR APPROVED EQUAL.

## STRUCTURE LEGEND



## SHEET INDEX

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HEADQUARTERS BUILDING

54880 Co Rd 129  
Clark, CO 80428

AN ADDITION TO:  
HOME RANCH

**ISSUE DATES**

PERMIT SET  
7. 11. 22

REVISD PERMIT SET  
11. 7. 22

DESIGNED BY: MVS  
REVIEWED BY: CWM  
PROJECT #: 21125

GENERAL NOTES

S-0

- ### FOUNDATION NOTES
- ELEVATIONS SHOWN ARE REFERENCED FROM TOP OF PLWD. ELEVATION = 100'-0".
  - PROVIDE TYPICAL PERIMETER DRAIN - 4"Ø PERF. PVC PIPE, MIN. 6" BELOW BOTTOM OF FOOTING - SLOPE 1/8"/FT. TO DAYLIGHT - SURROUND w/ 1 CU. FT./LIN FT. WASHED ROCK IN MIRAFI 140N FABRIC ENVELOPE - REFER SOILS REPORT.
  - TYPICAL - PROVIDE DAMP-PROOFING & INSULATED DRAIN BOARD FASTENED TO EXTERIOR OF ALL CONCRETE WALLS.
  - TYPICAL - UPPER 2-3 FT. OF BACKFILL WITHIN 10 FT. OF FOUNDATIONS SHALL BE IMPERVIOUS SOIL TO PREVENT SURFACE WATER INFILTRATION INTO BACKFILL PER SOILS REPORT.
  - ALL FOOTINGS SHALL BE PLACED ON NATURAL CLAYS PER SOILS REPORT.
  - JOISTS SHALL BE TREATED IF w/ IN 18" OF GRADE + BEAMS SHALL BE TREATED IF w/ IN 12" OF GRADE.
  - TYPICAL - PROVIDE 0'-4" TALL X 4'-0" LONG VOID, CENTERED BELOW WINDOWS/DOORS, U.N.O.

### COLUMN LEGEND & SCHEDULE

MARK	SIZE	REMARKS
C1	12"Ø TIMBER LOG	BELOW DECK BM.
C2	(4) - 2X6	BELOW GL. BM.
C3	(2) - 2X6	BELOW GL. BM.

NOTES:  
 □ INDICATES COLUMNS BELOW  
 ◊ INDICATES COLUMNS ABOVE  
 ■ INDICATES CONTINUOUS COLUMNS

### PIER SCHEDULE

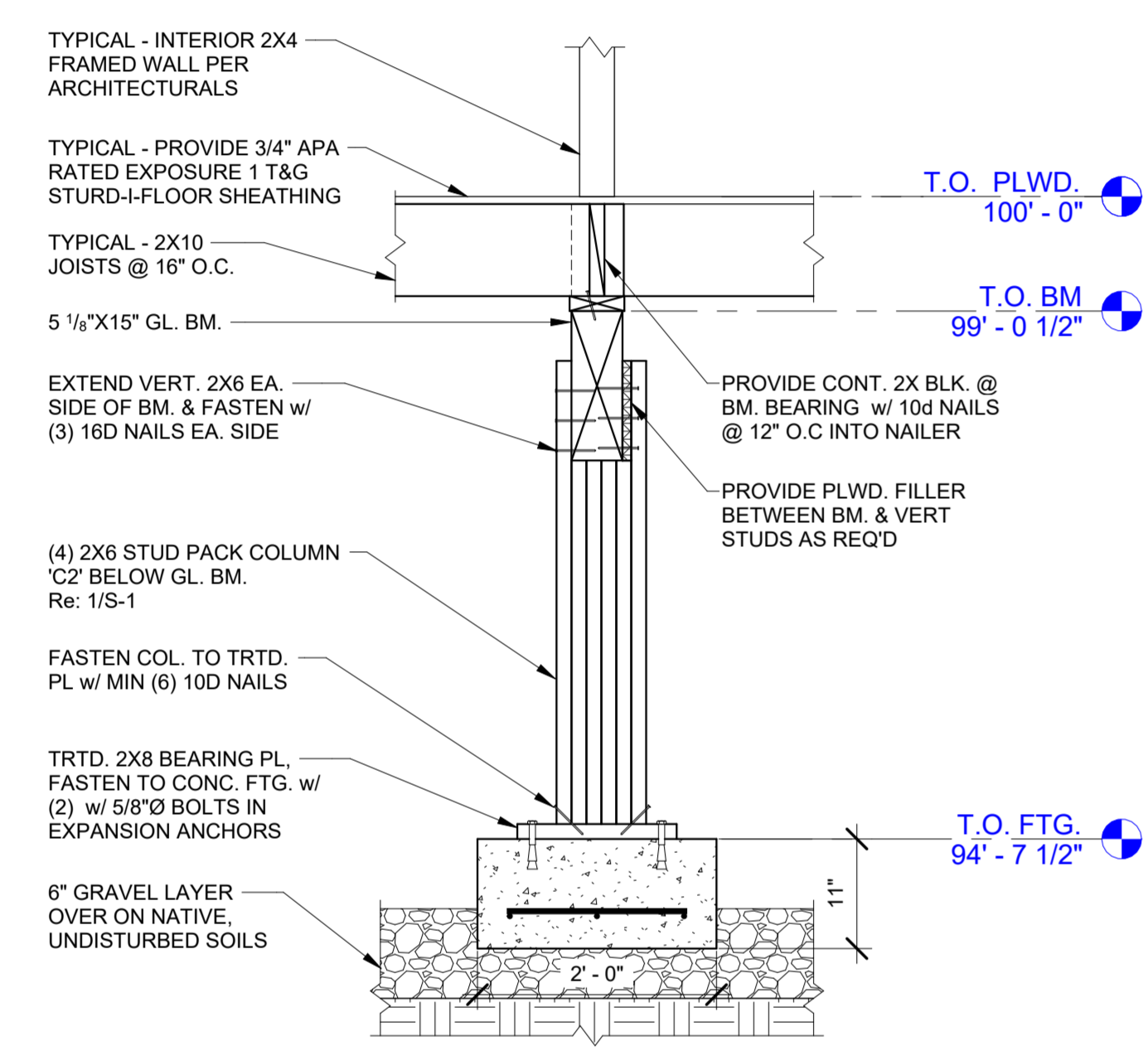
(THIS SHEET ONLY)  
NOTE: PROVIDE #4 DOWELS EACH CORNER OF PIERS

Px MARK	SIZE	REINFORCING	REFERENCE
P1	2'-0" X 2'-0" X 5'-0" FOURED 'NEAT' IN PLACE	#4 VERTS EA. CORNER & #3 HOOP TIES @ 12" O.C. w/ (3) IN TOP 5"	1/S-1.1
P2	2'-0" X 1'-0" X 5'-8" PIER INTEGRATED INTO FOOTING 'D'	#4 VERTS EA. CORNER & #3 HOOP TIES @ 12" O.C. w/ (3) IN TOP 5" - PROVIDE STANDARD #4 U-TIES X 2'-0" X 1'-0" X 2'-0" THREADED THROUGH HOLES IN GALV. COB6 CAP	5/S-1.1

Px INDICATES RECTANGULAR PIER

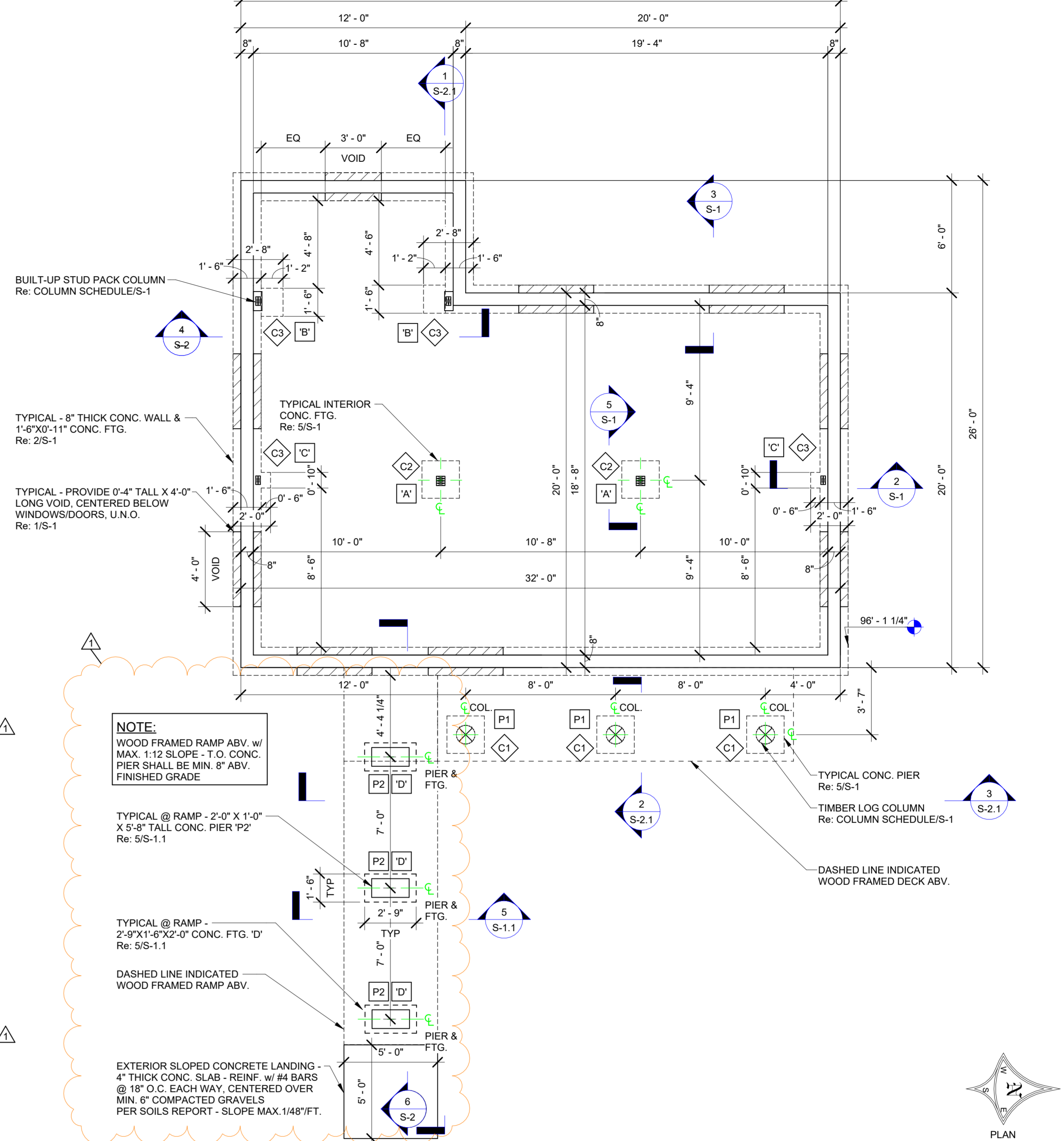
### FOOTING SCHEDULE

MARK	SIZE	REINFORCING	REMARKS
A'	2'-0" X 2'-0" X 0'-11" w/ COL. 'C2' ABOVE	(3) #4 BARS EA. WAY, CENTERED	Re: 5/S-1
B'	1'-6" X 1'-2" X 0'-11" w/ COL. 'C3' ABOVE	(2) #4 BARS LONG DIR. & (2) #4 BARS SHORT DIR.	DOWEL INTO WALL FTG. Re: 4/S-2
C'	0'-10" X 0'-6" X 0'-11" w/ COL. 'C3' ABOVE	(2) #4 BARS LONG DIR. & (2) #4 BARS SHORT DIR.	DOWEL INTO WALL FTG. Re: 2/S-1
D'	2'-9" X 1'-6" X 2'-0" w/ PIER 'P2' ABOVE	(4) #4 BARS, SHORT DIR. TOP/BOTT. & (2) #4 BARS, LONG DIR. TOP/BOTT.	Re: 5/S-1.1

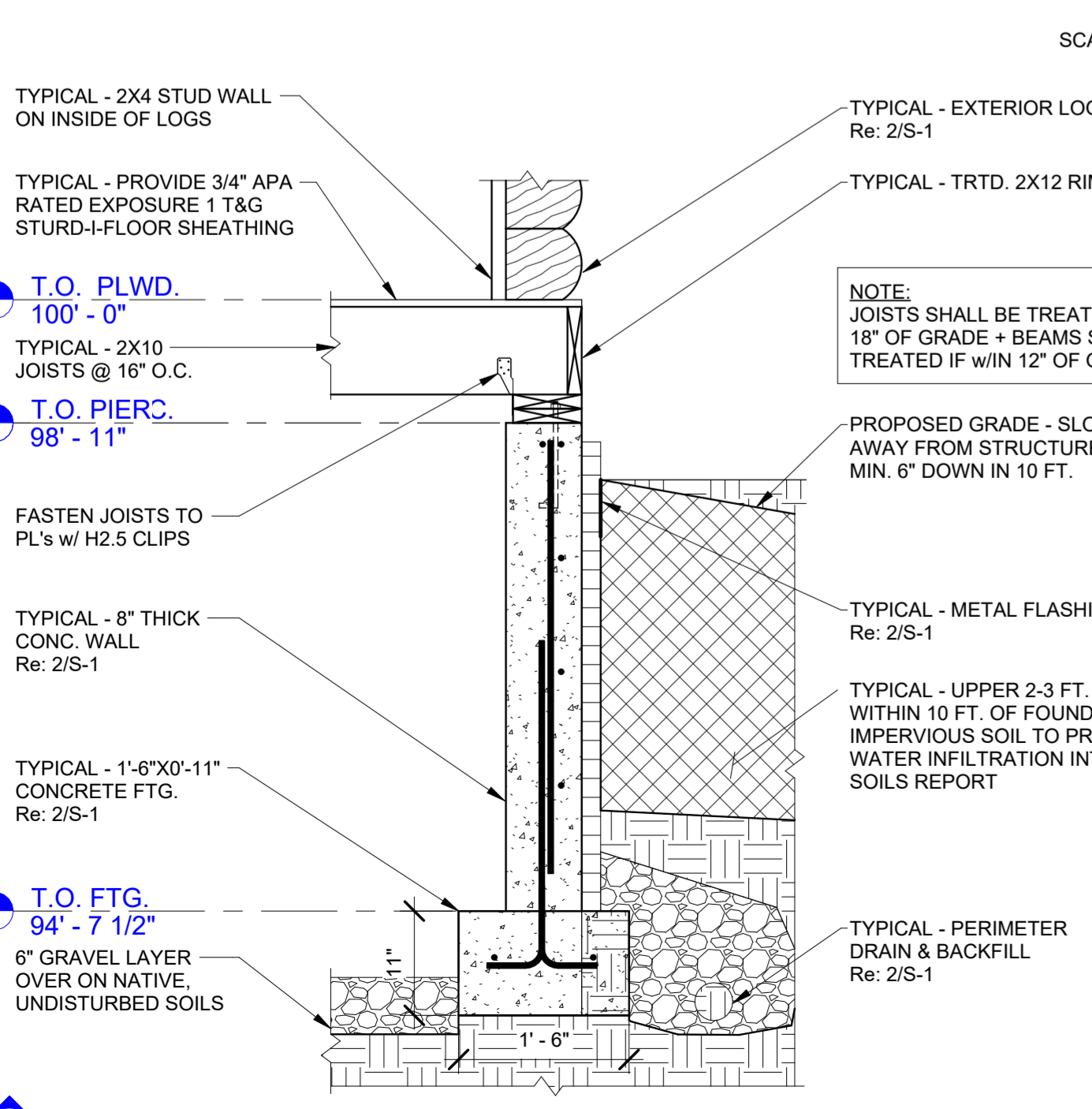


5 INTERIOR FOOTER SECTION 'A' 3/4" = 1'-0"

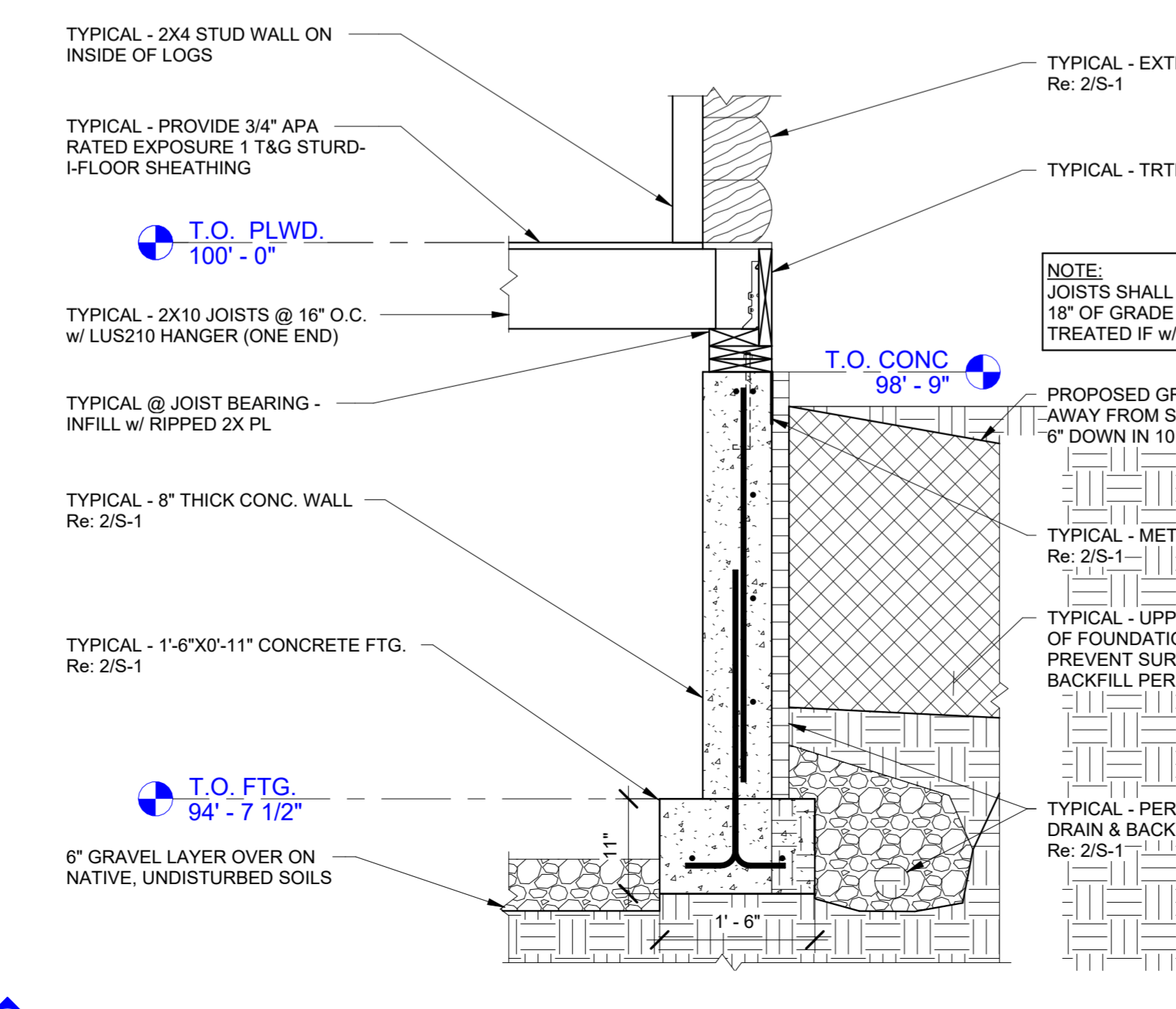
1 FOUNDATION PLAN 1/4" = 1'-0"



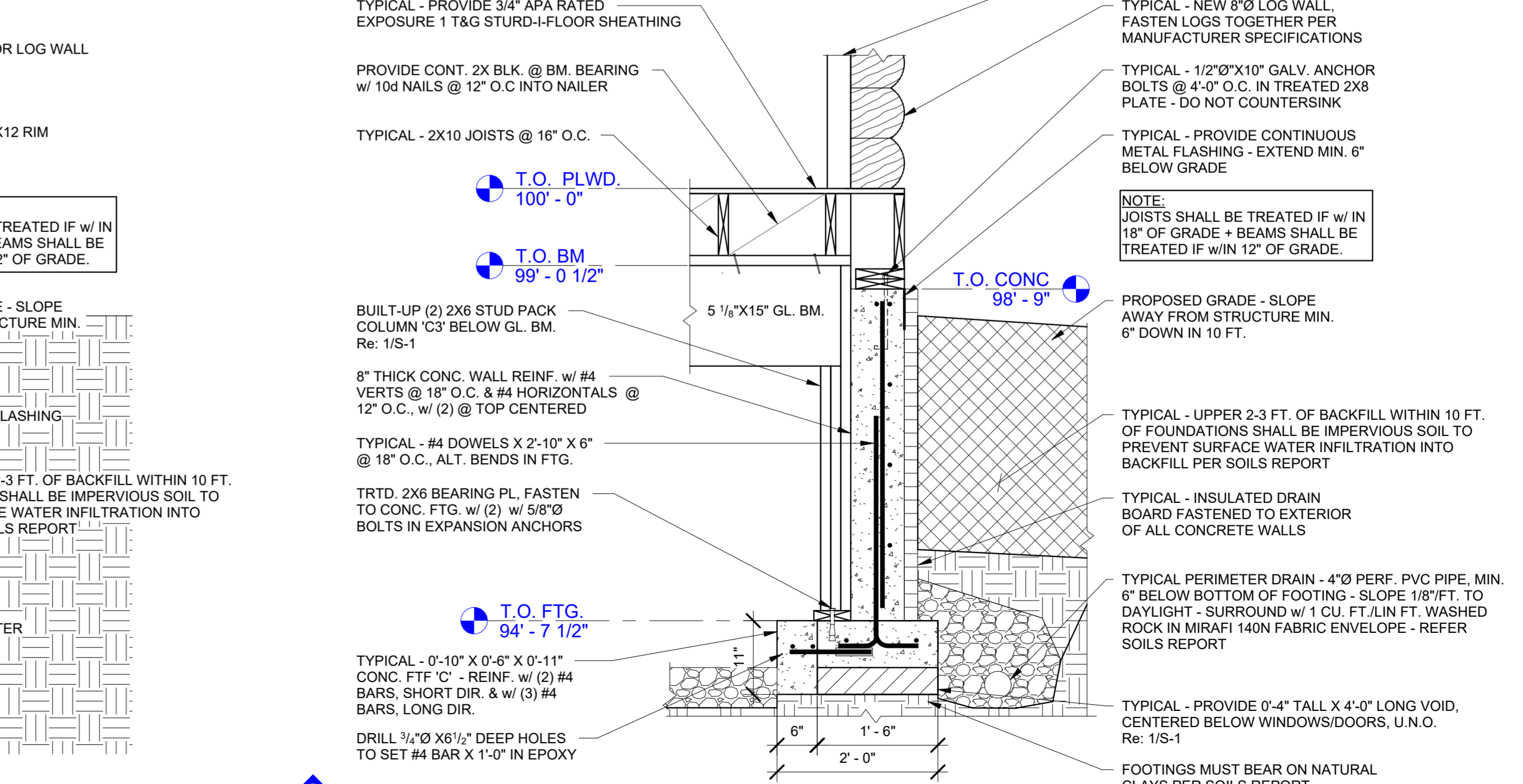
2 TYPICAL FOOTER SECTION PERPENDICULAR TO FLOOR JOIST 3/4" = 1'-0"



4 FOOTER SECTION @ NEW BATHROOM ADDITION 3/4" = 1'-0"



3 TYPICAL FOOTER SECTION PARALLEL TO FLOOR JOIST 3/4" = 1'-0"



2 TYPICAL FOOTER SECTION PERPENDICULAR TO FLOOR JOIST 3/4" = 1'-0"



HEADQUARTERS BUILDING

54880 Co Rd 129  
Clark, CO 80428

AN ADDITION TO:  
HOME RANCH

### ISSUE DATES

PERMIT SET	7. 11. 22
REVISED PERMIT SET	11. 7. 22

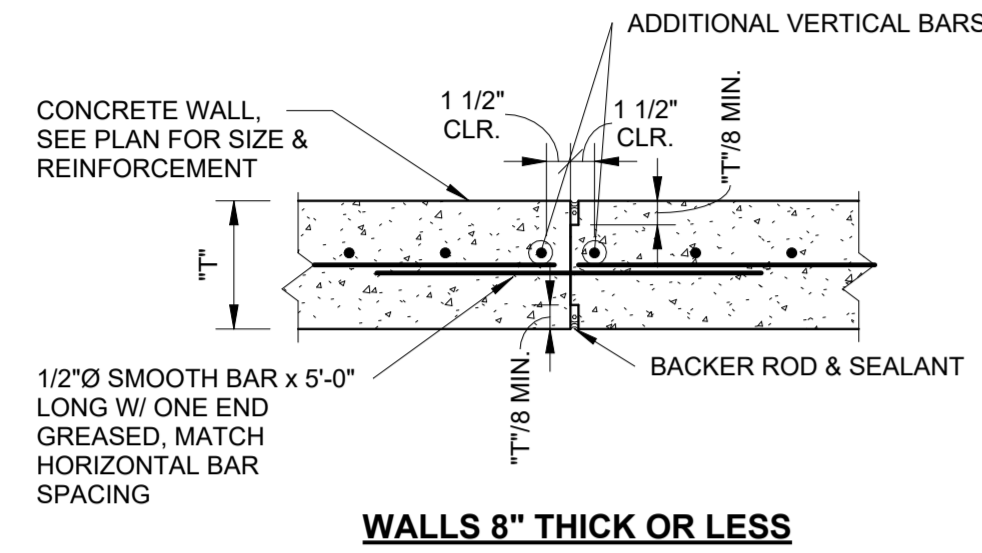
DESIGNED BY: MVS  
REVIEWED BY: CWM  
PROJECT #: 21125

FOUNDATION PLAN & CONCRETE SECTIONS

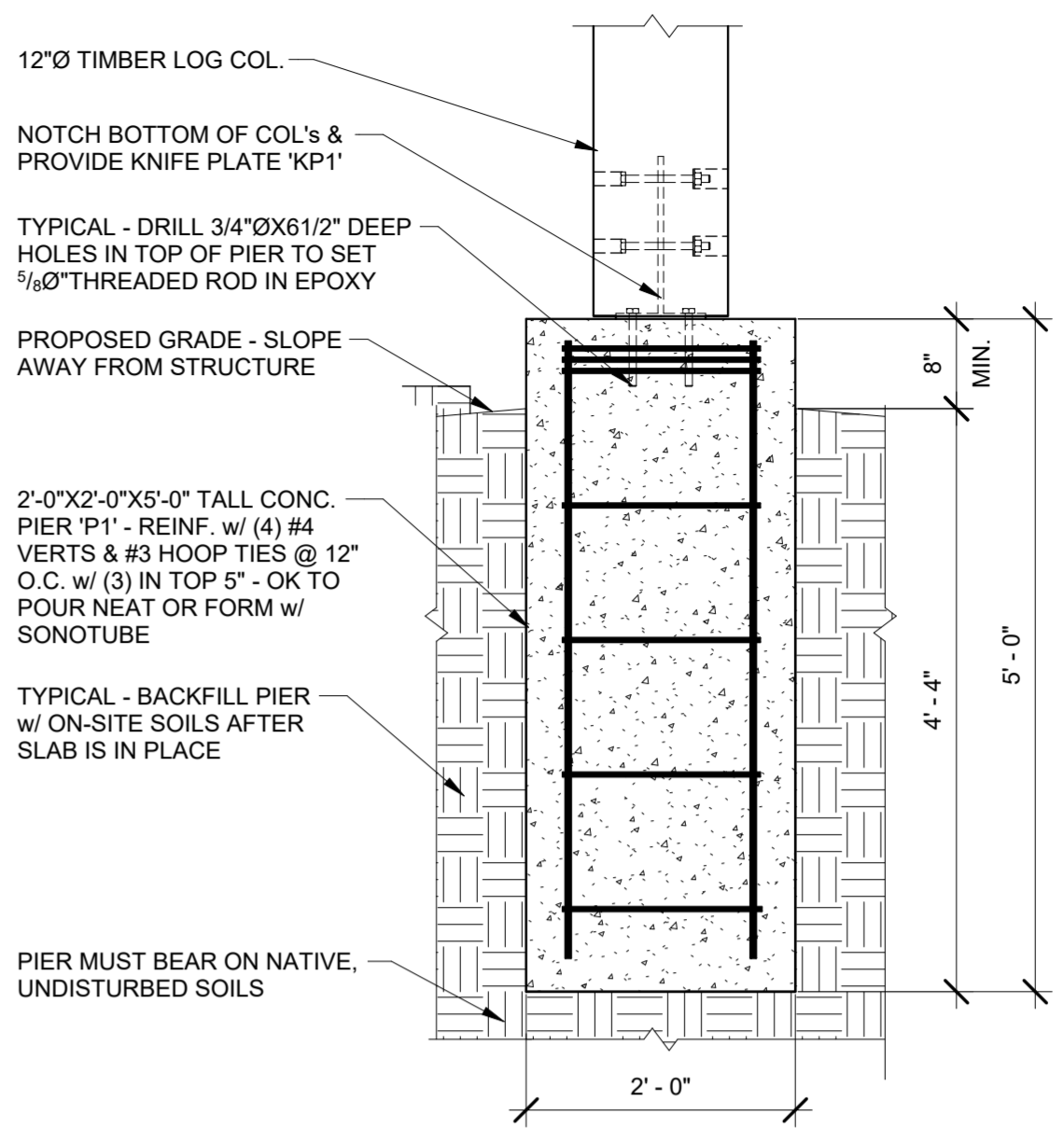
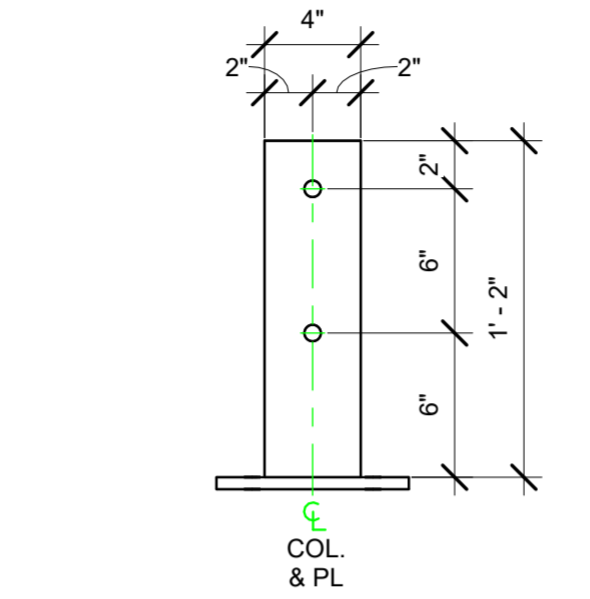
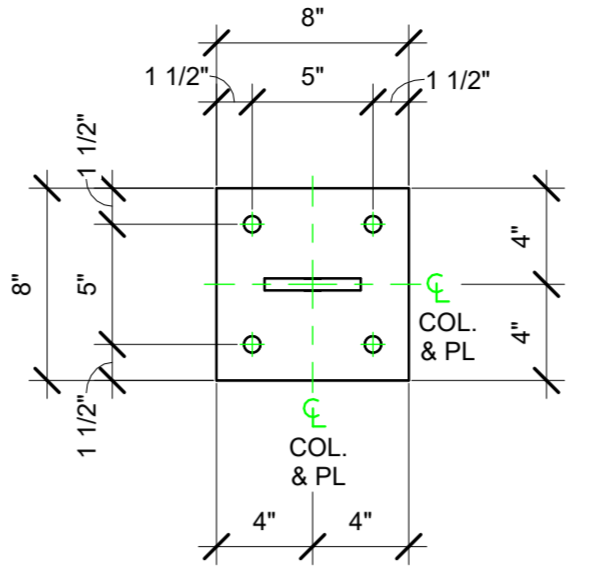
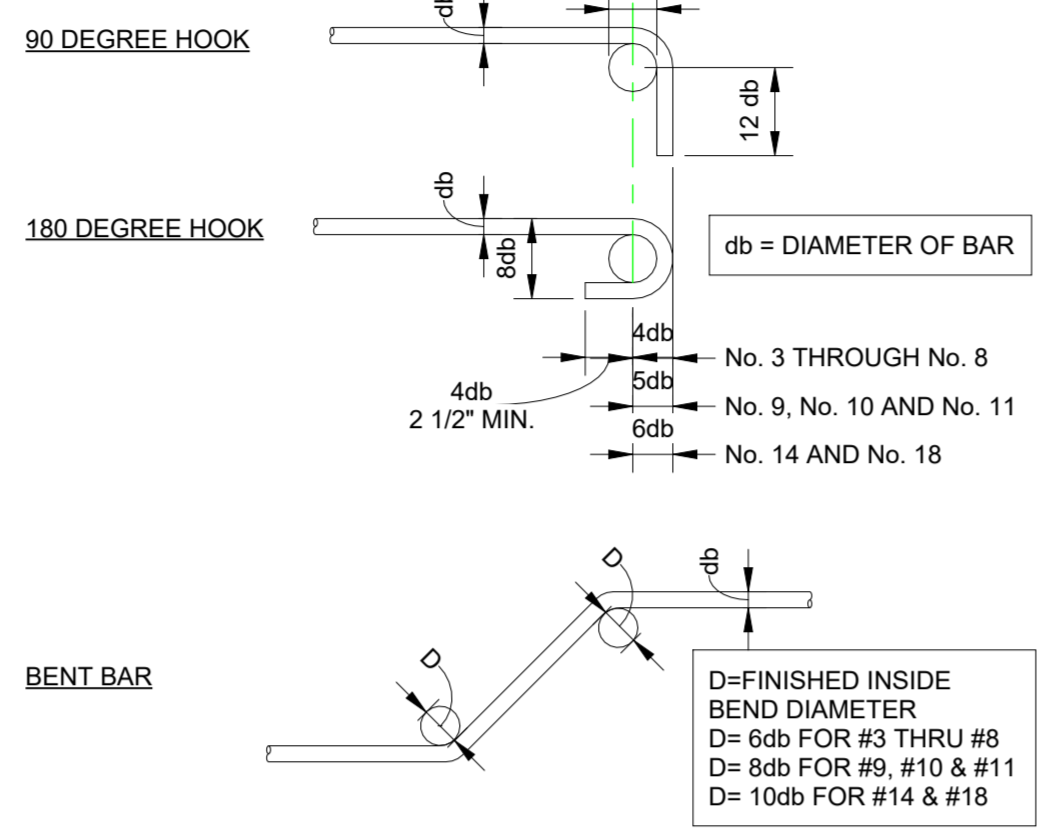
# S-1

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**NOTES:**  
 1. JOINT LOCATIONS BY CONTRACTOR AND APPROVED BY EOR. AT PIER FOUNDATIONS LOCATE WITHIN 1/3 SPAN OF A PIER  
 2. AT PIER FOUNDATIONS TOP AND BOT BARS TO CONT THRU JOINT DO NOT LAP BARS WITHIN 4'-0" OF JOINT



**BAR BEND NOTES:**  
 1) DO NOT FIELD BEND BARS GREATER THAN #4 WITHOUT ENGINEER'S APPROVAL  
 2) DO NOT COLD BEND BARS MORE THAN ONCE  
 3) USE A BENDING TOOL AND DO NOT COLD BEND A BAR MORE THAN 90 DEGREES  
 4) ANY BARS BENT MORE THAN ONCE OR GREATER THAN A #5 MUST BE HEAT TREATED

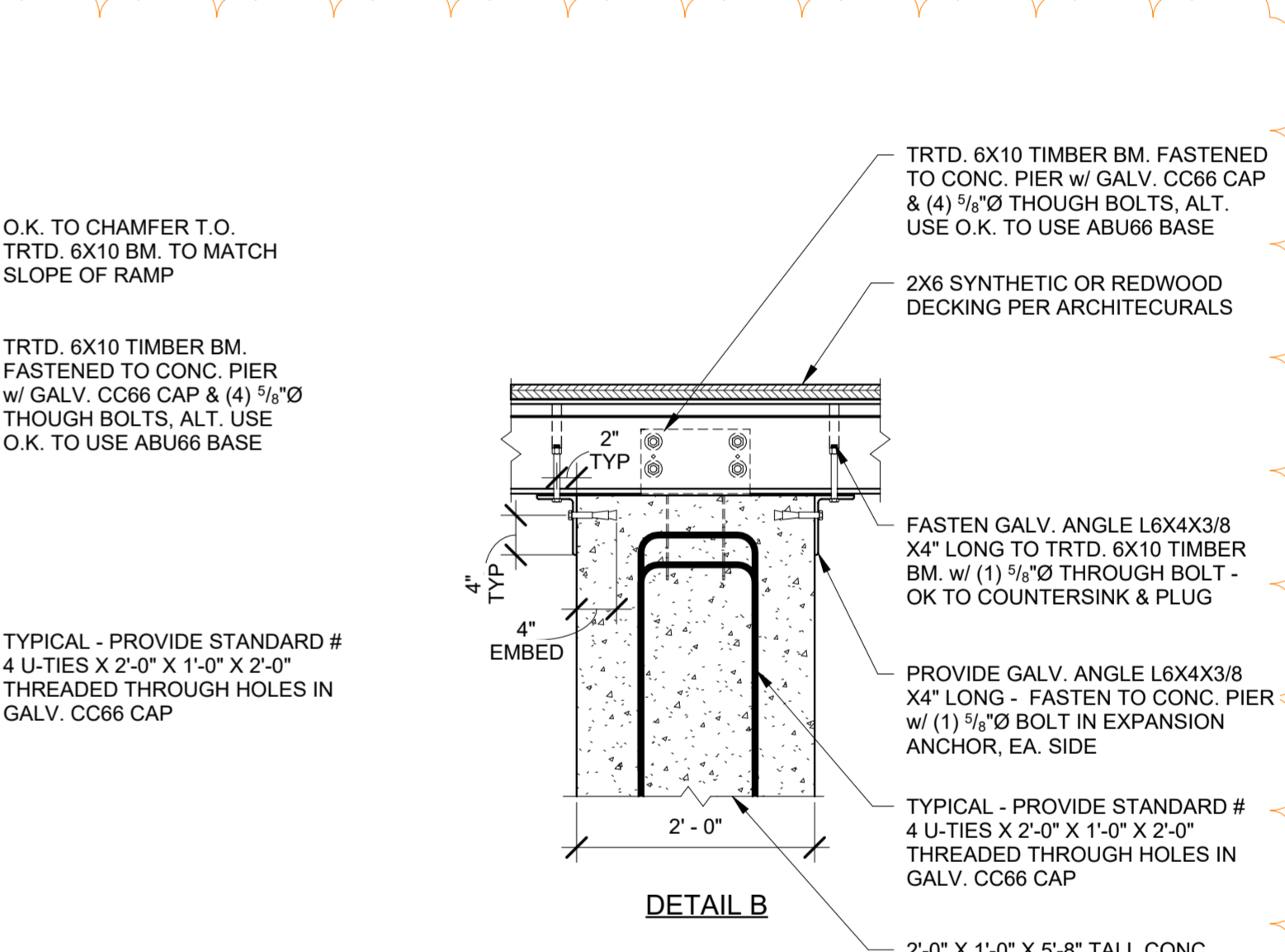
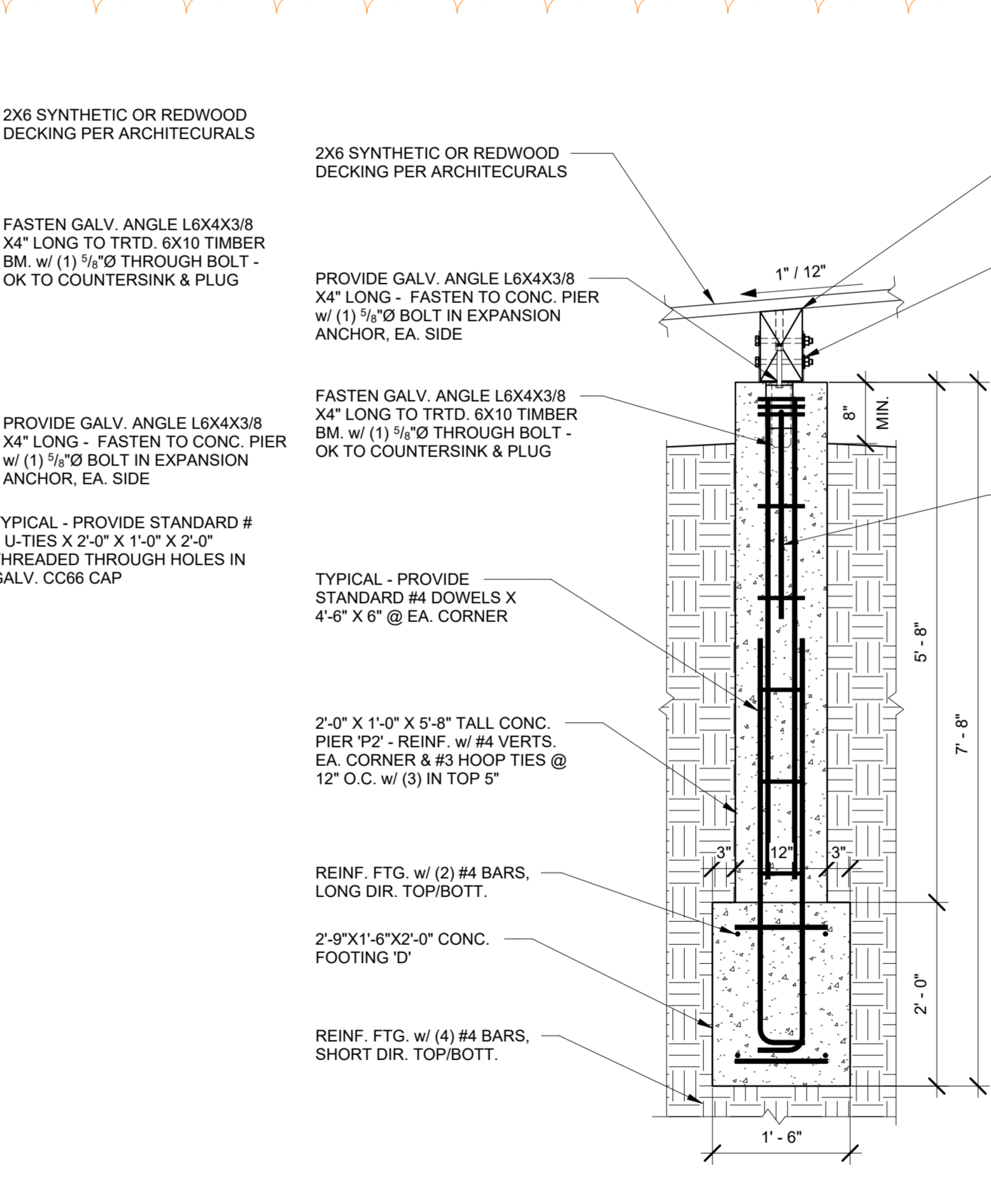
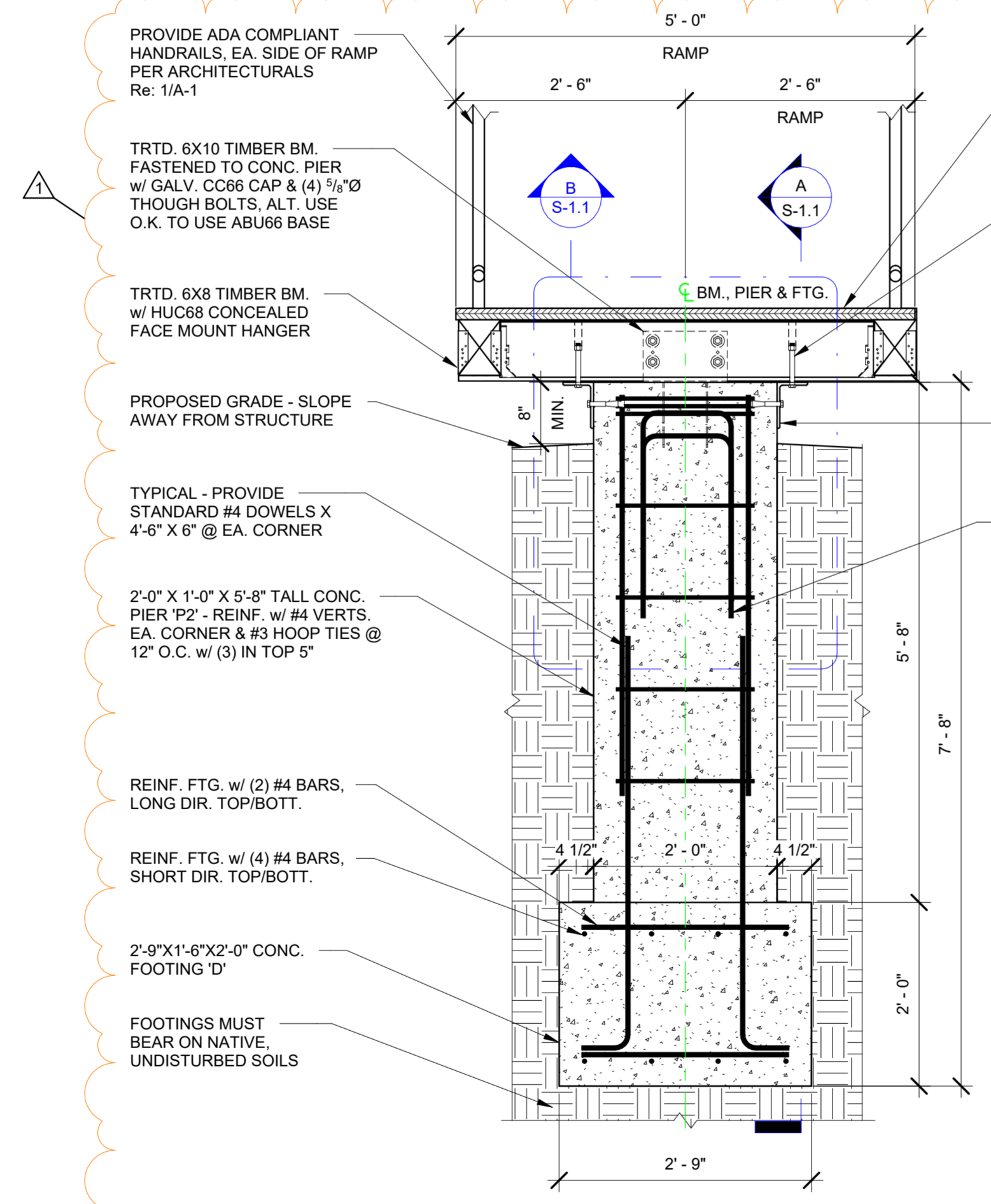


4 CONCRETE WALL CONSTRUCTION JOINT  
 1" = 1'-0"

3 DETAIL 6 - STANDARD HOOK AND BAR BENDING DETAIL  
 1" = 1'-0"

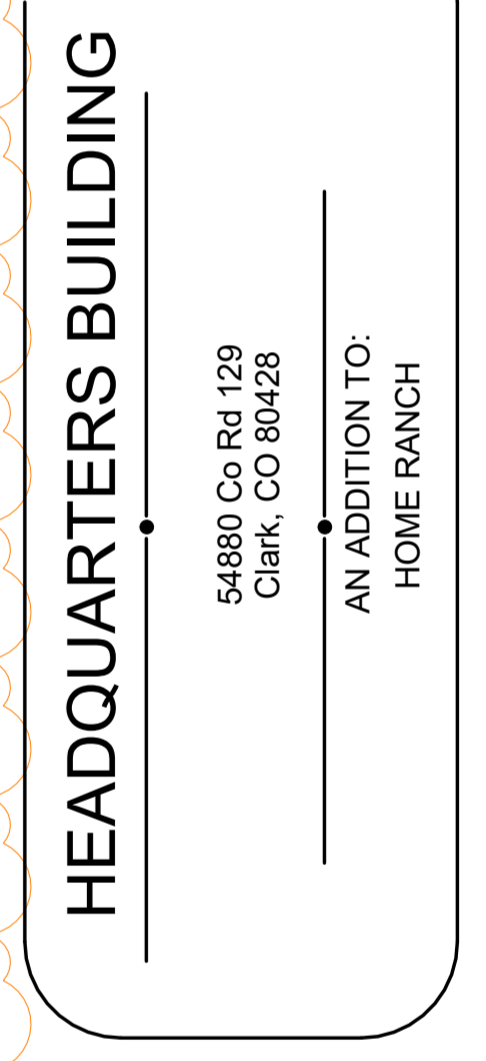
2 KNIFE PLATE 'KP1' SHOP DRAWINGS  
 1 1/2" = 1'-0"

1 SECTION @ ENTRY PIER  
 3/4" = 1'-0"



5 PILASTER 'P2' & FOOTER 'D' SECTION  
 3/4" = 1'-0"

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



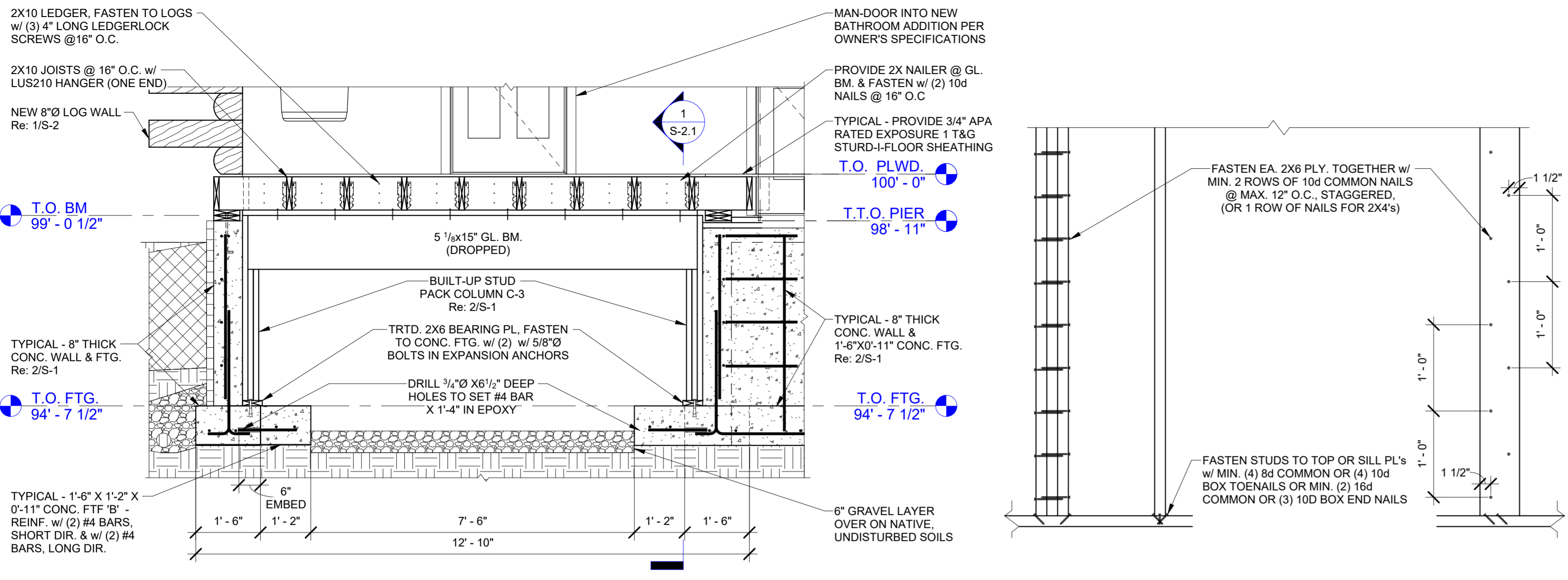
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DESIGNED BY: MVS  
 REVIEWED BY: CWM  
 PROJECT #: 21125

CONCRETE SECTIONS

S-1.1



- ### FRAMING NOTES
- PROVIDE 3/4" APA RATED EXPOSURE 1 T&G STURD-I-FLOOR SHEATHING.
  - ELEVATION @ TOP OF BEAM INDICATED THUS: (ELEV)
  - COLUMNS THAT BEGIN THIS LEVEL ARE INDICATED ON PLAN.
  - TYPICAL @ MULTI-PLY BEAMS & HEADERS - FASTEN EA. PLY W/ ADHESIVE & FASTENING PER 3/S-2.
  - TYPICAL @ BUILT-UP WOOD COLUMN - FASTEN EA. PLY PER 2/S-2.
  - JOISTS SHALL BE TREATED IF W/IN 18" OF GRADE & BEAMS SHALL BE TREATED IF W/IN 12" OF GRADE. FRAMING MEMBERS SHALL BE PRESERVATIVE TREATED MATERIAL IN ACCORDANCE W/ SECTION R317. ALL CUTS, NOTCHES, & DRILLED HOLES SHALL BE TREATED IN ACCORDANCE W/ SECTION R317.1.1.

- ### RAMP NOTES:
- RAMPS W/ A RISE GREATER THAN 6" SHALL HAVE A HANDRAIL, EA. SIDE PER IBC SEC. 1012.8. HANDRAILS SHALL COMPLY W/ IBC SEC. 1014.
  - THE MAX. VERTICAL RISE OF THE RAMP MUST BE NO GREATER THAN 30".
  - PROVIDE EDGE PROTECTION EA. SIDE OF RAMP & UPPER LANDING Re: 1012/A-5.
  - GUARDRAILS REQ. IF HIGHER THAN 30" ABOVE GRADE W/ IN 36" HORIZONTAL WIDTH. MAX. 1.48 CROSS SLOPE & MAX. 30" OVERALL RISE.

### WALL SCHEDULE

HATCH	DESCRIPTION	FASTENING	REMARKS
	EXISTING 8"Ø LOG WALL	PER MANUFACTURERES SPECIFICATIONS	-
	NEW 8"Ø LOG WALL - MATCH EXISTING	PER MANUFACTURERES SPECIFICATIONS	-

NOTES:  
1. WALL HATCHES ARE FOR WALLS BELOW.

- ### NOTES
- PROVIDE MAX 7" RISERS & MIN 11" TREADS AT ALL STAIRS. CONTRACTOR TO FIELD VERIFY ALL DIMENSIONS PRIOR TO ERECTION OF STAIRS. MAX TOLERANCE BETWEEN THE LARGEST AND SMALLEST FOR STAIR RISERS AND TREADS ON ALL FLIGHTS OF STAIRS SHALL BE 3/16" PER IBC SEC. 1011.5.4.
  - PROVIDE GRASPABLE HANDRAILS PER IBC SEC. 1014 AT ALL STAIRS AND DECKS HIGHER THAN 30" ABOVE GRADE OR FLOOR.
  - CRAWL SPACE ACCESS SHALL BE PROVIDED W/ MIN. 18"X24" THROUGH THE FLOOR & MIN. 16"X24" THROUGH THE WALL.
  - CONTRACTOR TO PROVIDE (1) SERVICE SINK PER IPC TABLE 403.1 SUITABLE FOR JANITORIAL AND BUILDING MAINTENANCE PROPOSES.

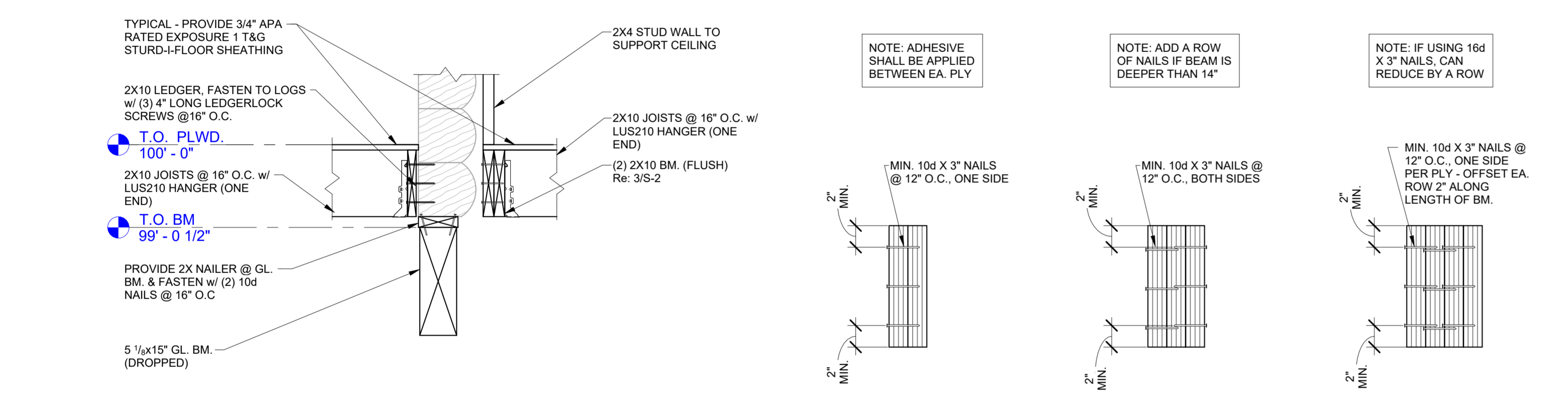
### COLUMN LEGEND & SCHEDULE

MARK	SIZE	REMARKS
C1	12"Ø TIMBER LOG	BELOW DECK BM.
C2	(4) - 2X6	BELOW GL. BM.
C3	(2) - 2X6	BELOW GL. BM.

NOTES:  
 INDICATES COLUMNS BELOW  
 INDICATES COLUMNS ABOVE  
 INDICATES CONTINUOUS COLUMNS

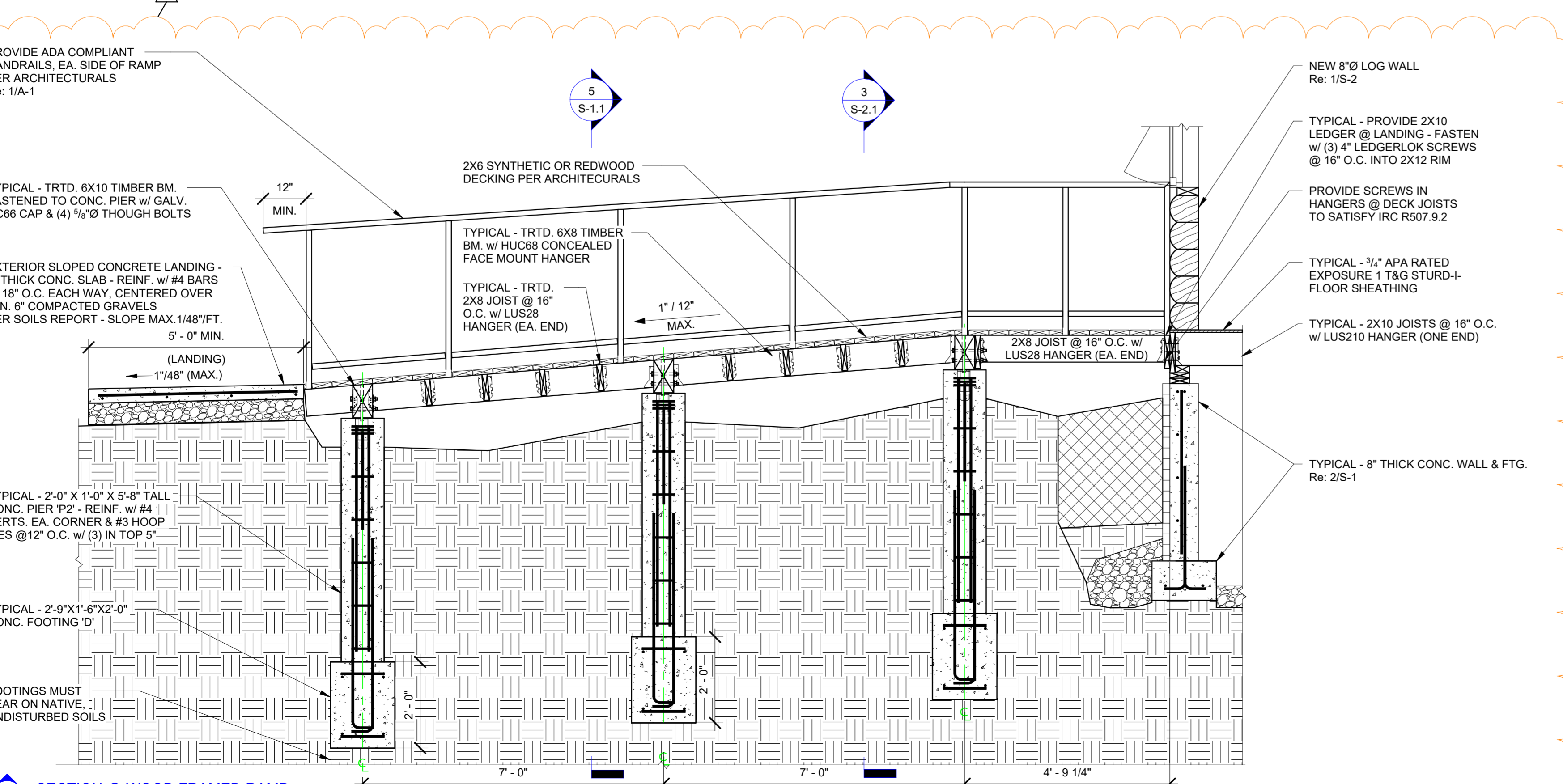
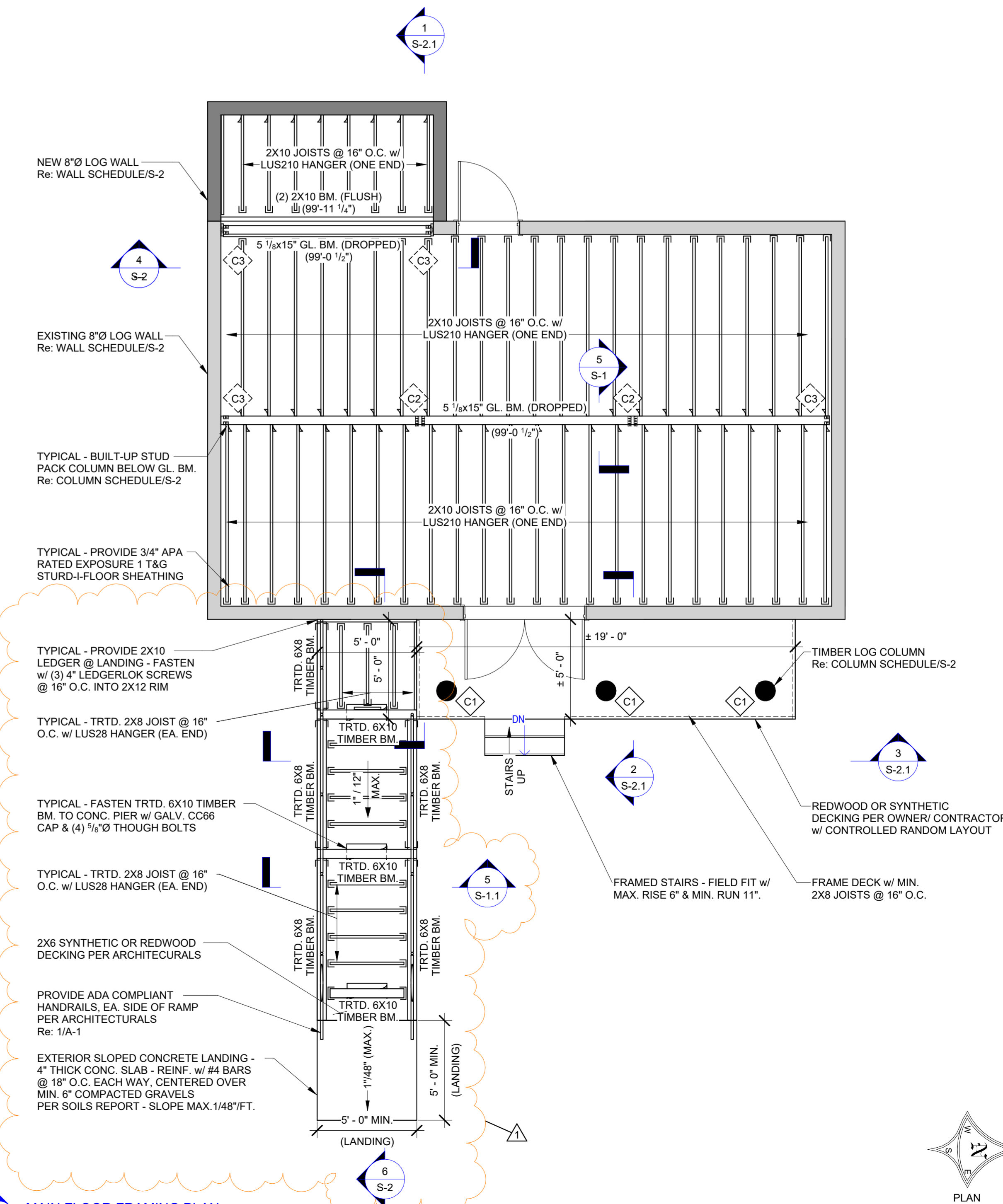
**SECTION @ NEW BATHROOM**  
1/2" = 1'-0"

**TYPICAL BUILT-UP WOOD COLUMN SECTION**  
1" = 1'-0" PER IBC, TBL. 2304.10.1, FASTENING SCHEDULE & NDS SECTION 15.3.3



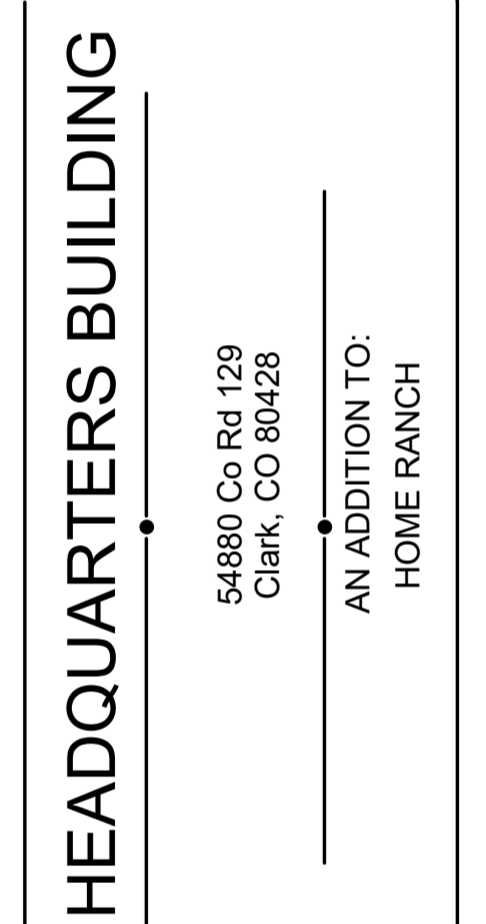
**FRAMING SECTION @ BM**  
1" = 1'-0"

**TYPICAL MULTI PLY BEAM FASTENING SECTION**  
PER WEYERHAEUSER MARCH 2021 SPECIFIER'S GUIDE #TJ-4500 ADHESIVE SHALL BE APPLIED BETWEEN EA. PLY



**SECTION @ WOOD FRAMED RAMP**  
1/2" = 1'-0"

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



### ISSUE DATES

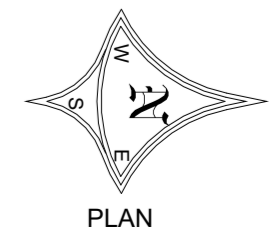
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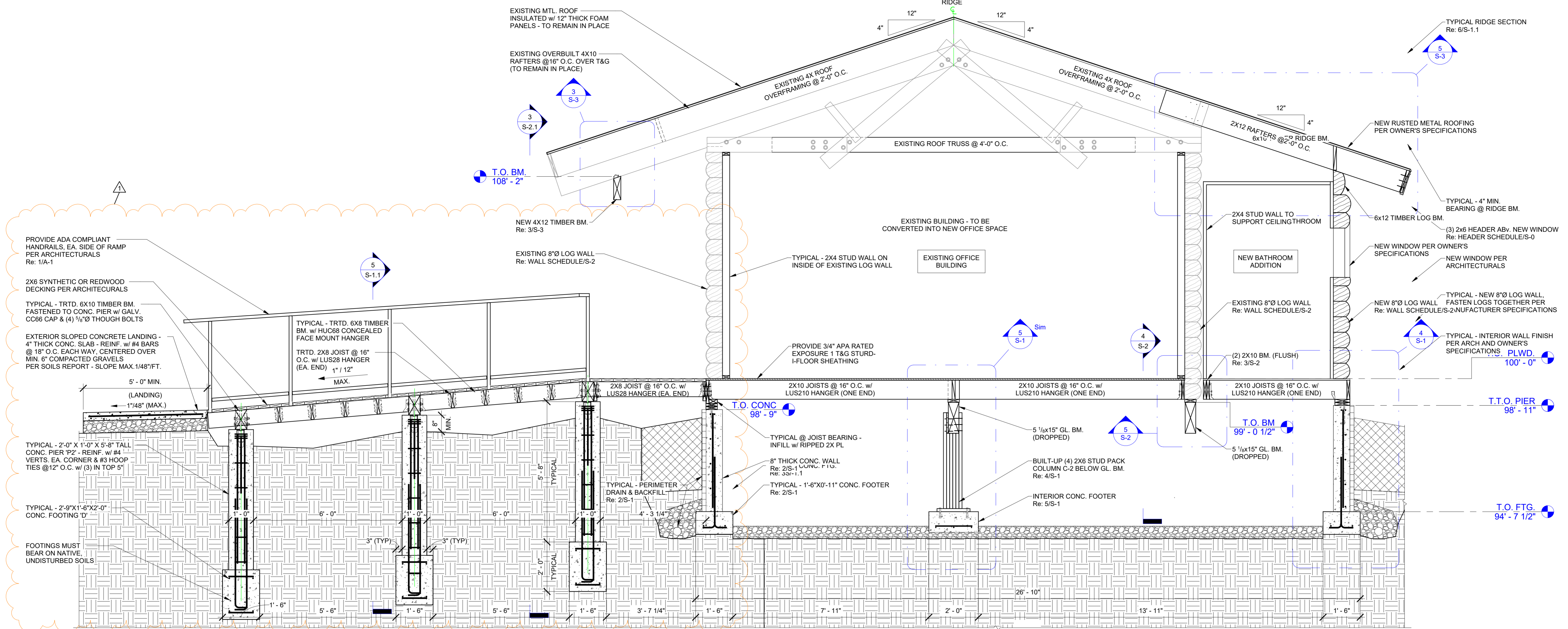
DESIGNED BY: MVS  
REVIEWED BY: CWM  
PROJECT #: 21125

FLOOR FRAMING  
PLAN & FRAMING  
DETAILS

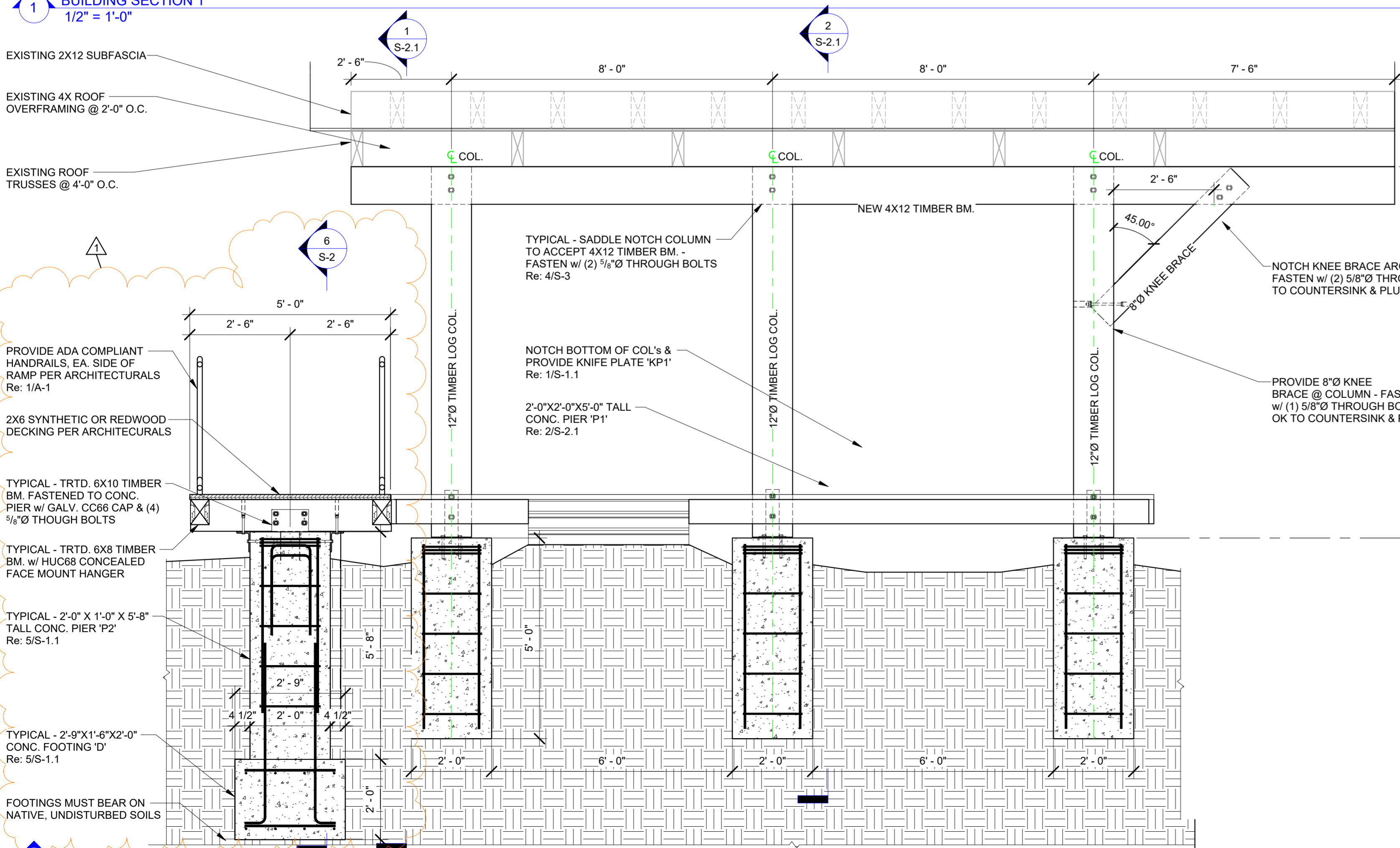
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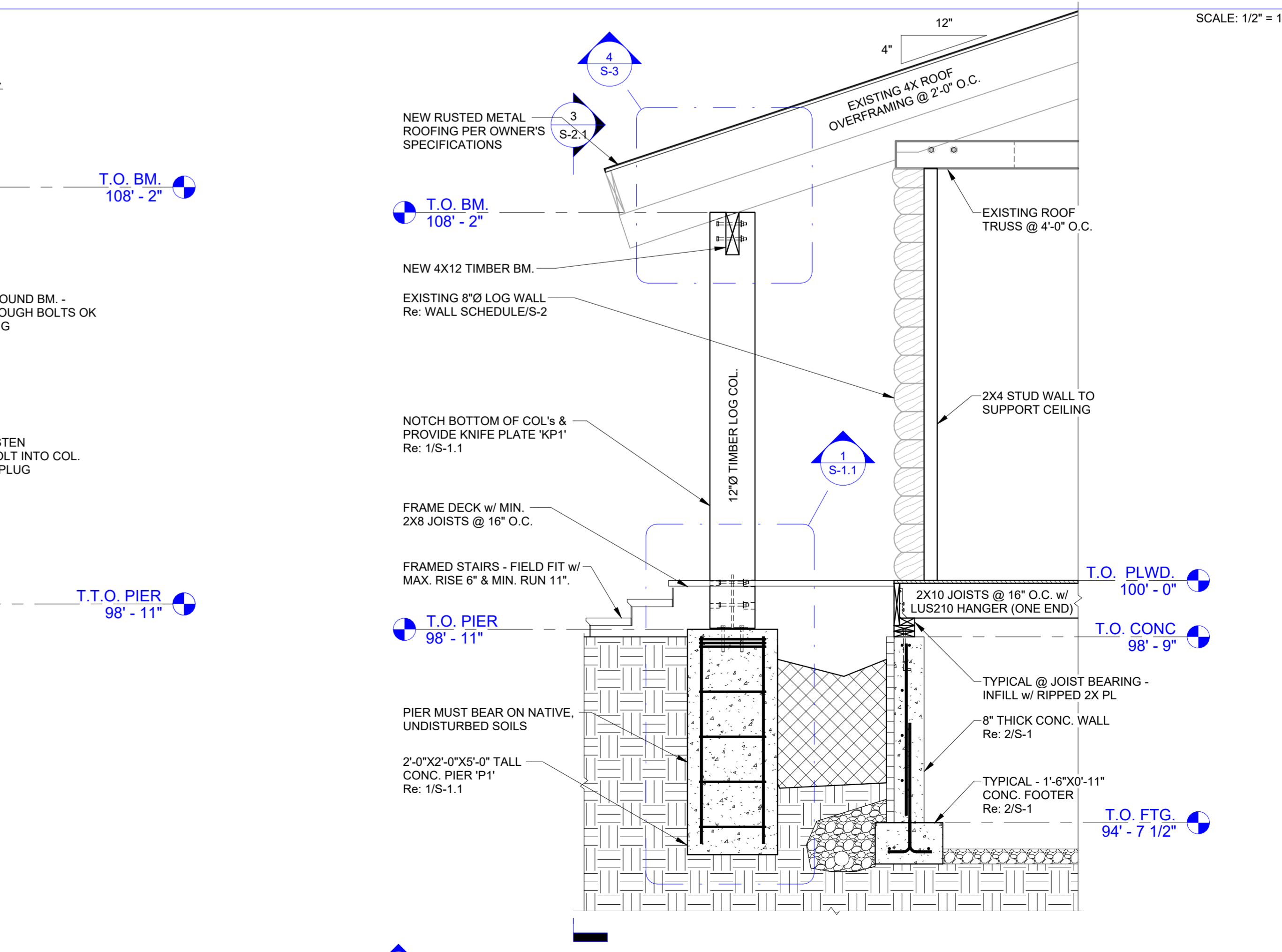




1 BUILDING SECTION 1  
1/2" = 1'-0"



3 SECTION @ FRONT DECK  
1/2" = 1'-0"



2 BUILDING SECTION 2  
1/2" = 1'-0"



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AN ADDITION TO:  
HOME RANCH

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REVIEWED BY: CWM  
PROJECT #: 21125

**BUILDING SECTIONS**

**S-2.1**

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### FRAMING NOTES

1. PROVIDE 5/8" APA RATED EXPOSURE 1 40/20 SHEATHING.
2. ELEVATION @ TOP OF BEAM INDICATED THUS: (ELEV).
3. TYPICAL @ MULTI-PLY BEAMS & HEADERS - FASTEN EA. PLY w/ ADHESIVE & FASTENING PER 3/S-2.
4. FULL HEIGHT BLOCKING & DIAPHRAGM NAILING INDICATED THUS: >< Re: X/S-X
5. ROOF OVERFRAMING SHALL CONFORM TO STRUCTURAL WOOD FRAMING NOTE 'F' Re: S-0.

### HEADER SCHEDULE

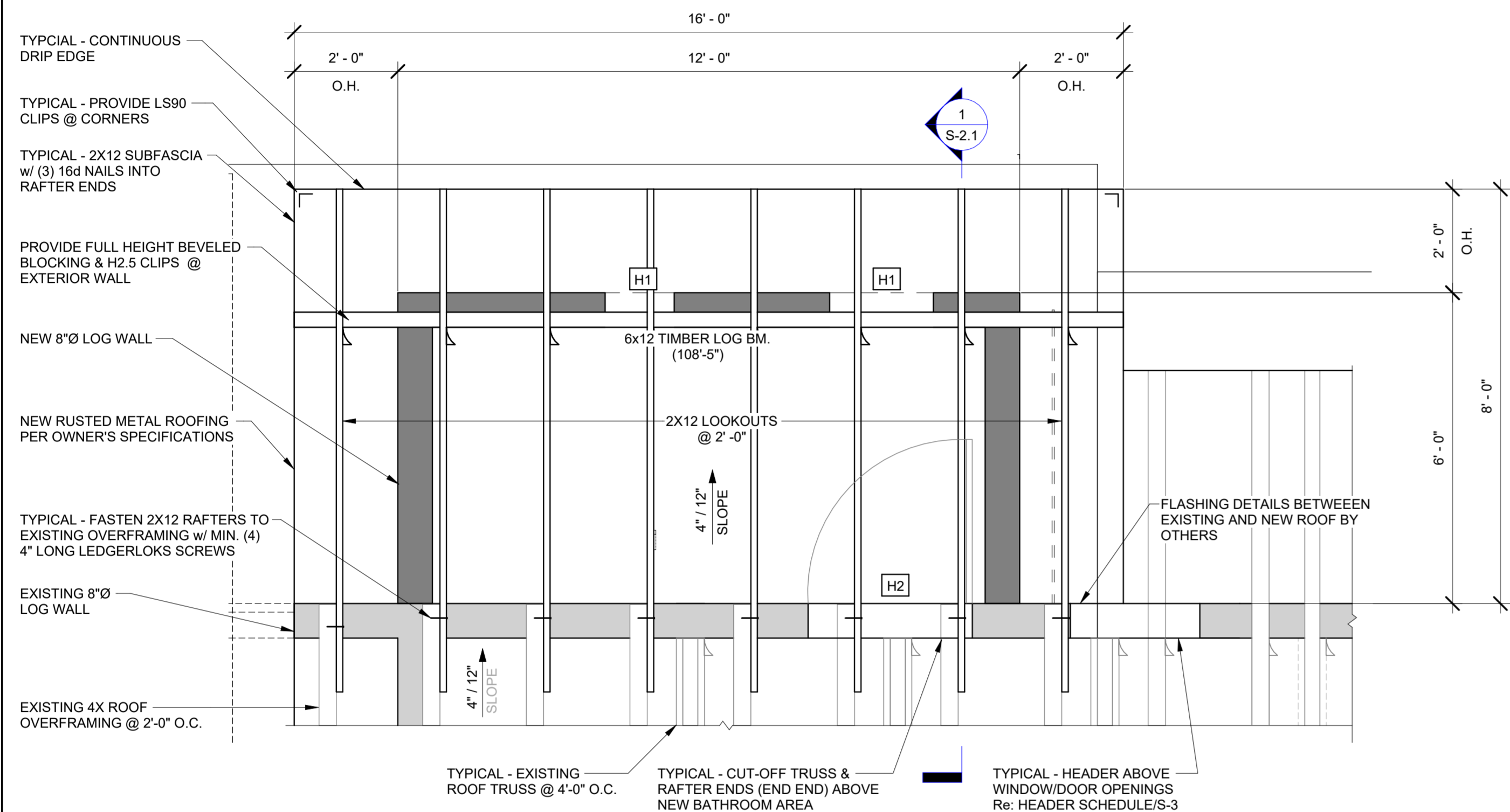
MARK	SIZE	REMARKS
H1	6X12 TIMBER LOG	HEADER BEARING ON EXTERIOR LOG WALL
H2	(2) - 7 1/2" D' LOGS	HEADER BEARING ON EXTERIOR LOG WALL

NOTES:  
1. HEADER TAGS ARE PER SHEET.

### COLUMN LEGEND & SCHEDULE

MARK	SIZE	REMARKS
C1	12"Ø TIMBER LOG	BELOW DECK BM.
C2	-	-
C3	-	-

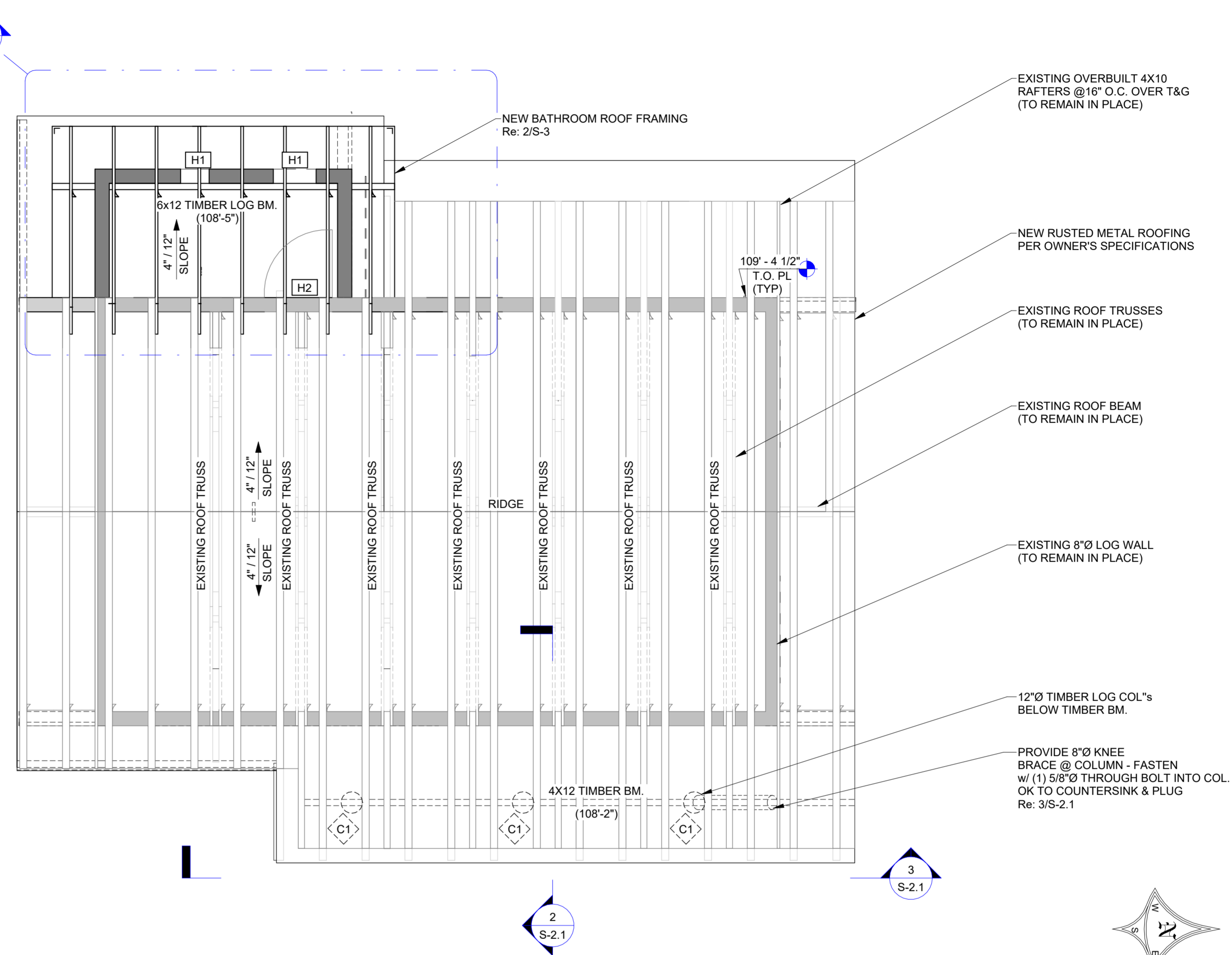
NOTES:  
 □ INDICATES COLUMNS BELOW  
 ◊ INDICATES COLUMNS ABOVE  
 ■ INDICATES CONTINUOUS COLUMNS



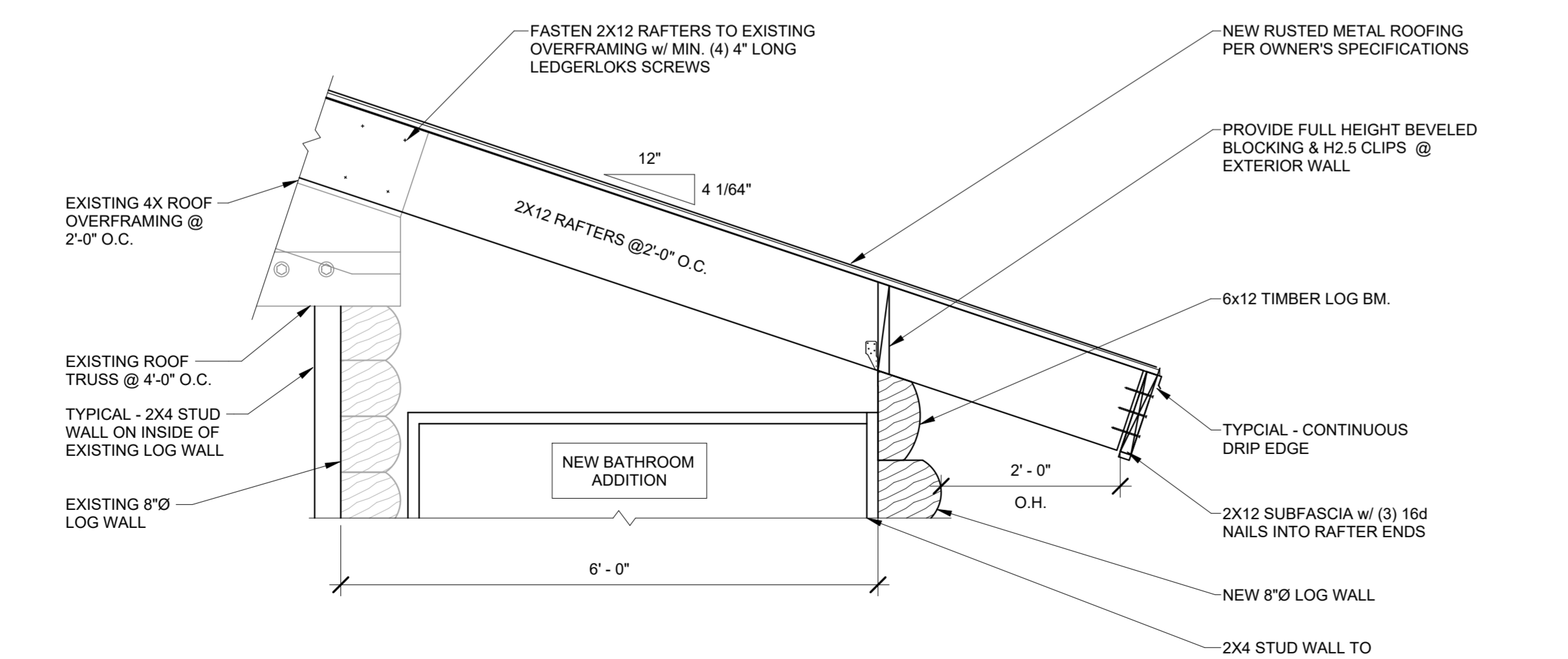
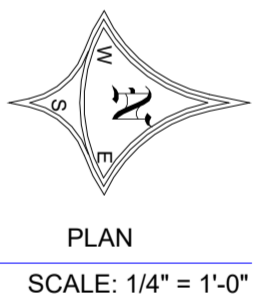
2 ENLARGED BATHROOM ADDITION ROOF FRAMING PLAN  
1/2" = 1'-0"

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

1 T.O. WALL  
1/4" = 1'-0"

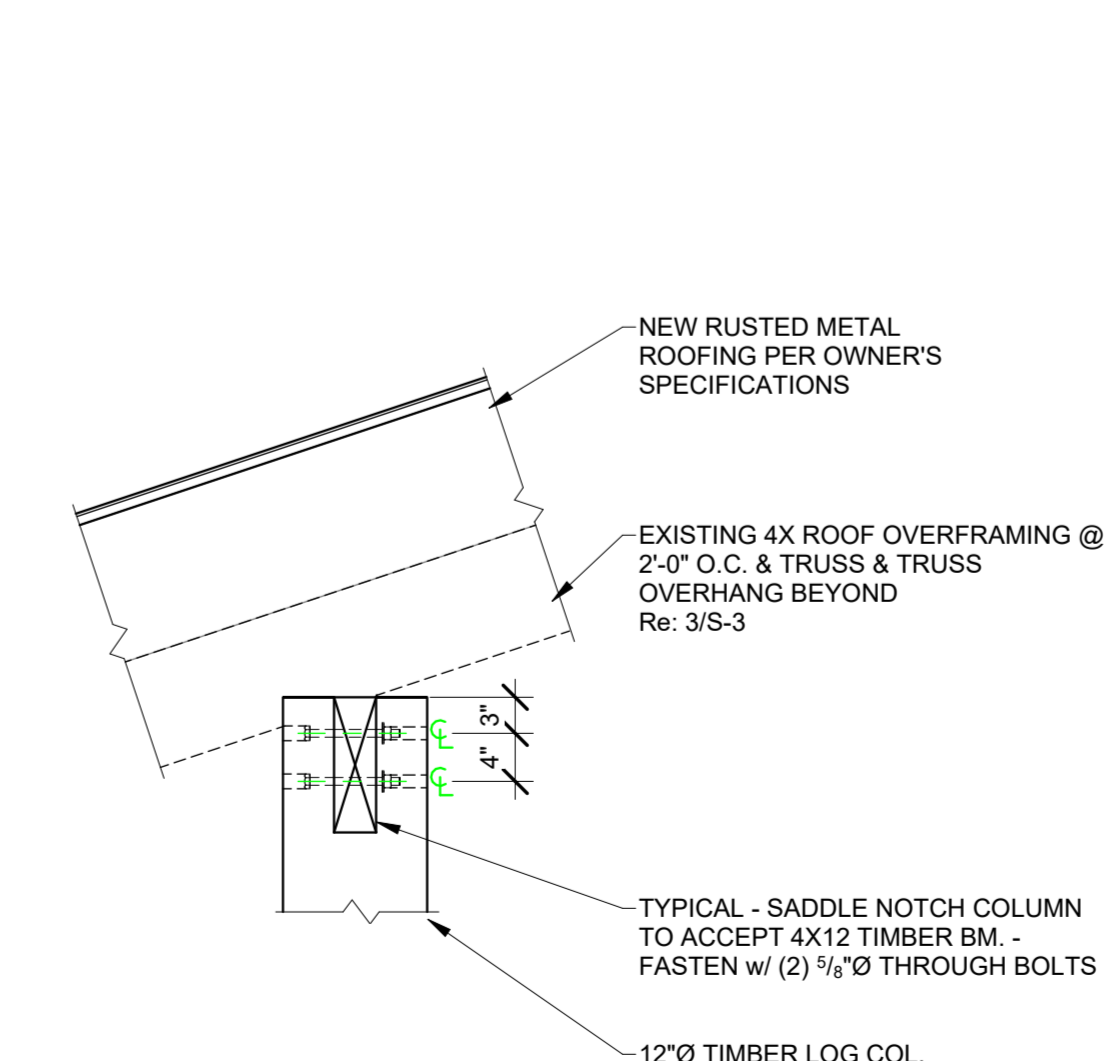


1 T.O. WALL  
1/4" = 1'-0"



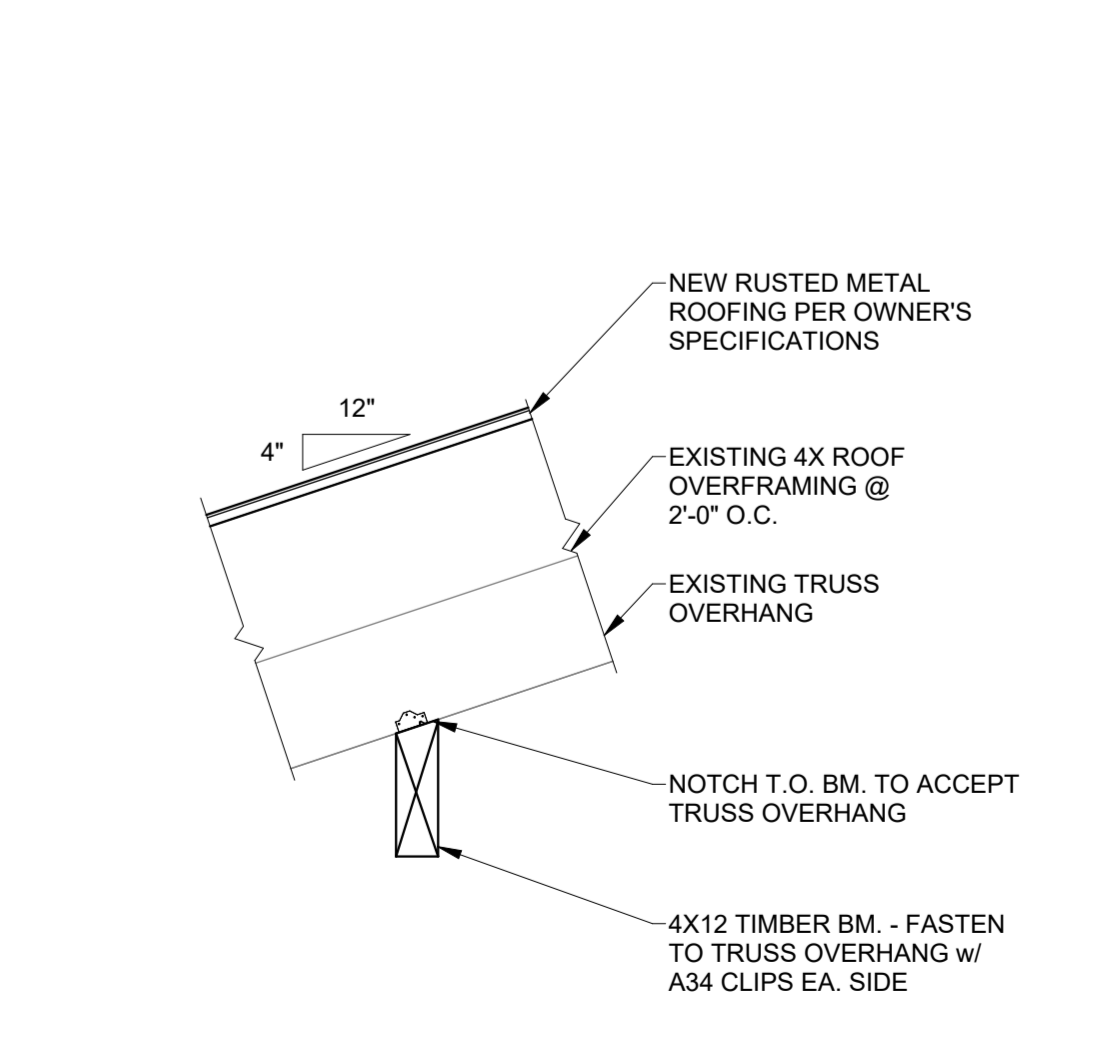
5 ROOF SECTION 3  
3/4" = 1'-0"

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



4 ROOF SECTION 2  
3/4" = 1'-0"

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



3 ROOF SECTION 1  
3/4" = 1'-0"

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



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AN ADDITION TO:  
HOME RANCH

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REVIEWED BY: CWM  
PROJECT #: 21125

**ROOF FRAMING PLAN & SECTIONS**

**S-3**

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