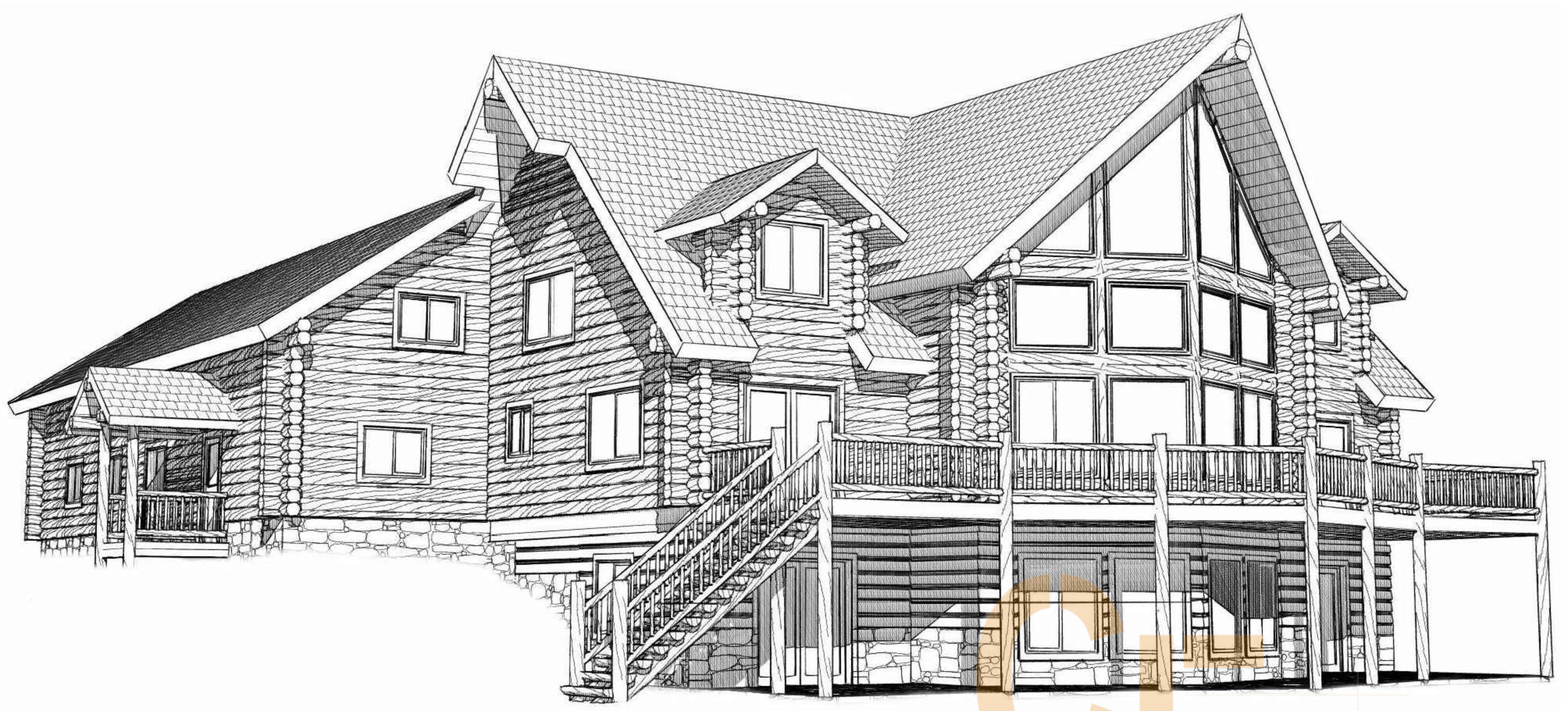

Fallon Log Home Residence

Basement area: 1,848 ft^2
Main Floor living area: 1,848 ft^2
Loft Floor living area: 1,384 ft^2
Total living area: 5,080 ft^2

Garage area: 1,300 ft^2
Garage Loft area: 1,300 ft^2

Covered Porches: 266 ft^2
Uncovered Porches: 530 ft^2
Portico Area: 280 ft^2

SHEET INDEX:	
CS	COVER SHEET
A1	FOUNDATION PLAN
A2	BASEMENT FLOOR PLAN
A3	MAIN FLOOR FRAMING PLAN
A4	MAIN FLOOR PLAN
A5	LOFT FLOOR FRAMING PLAN
A6	LOFT FLOOR PLAN
A7	ROOF FRAMING PLAN
A8	BUILDING SECTION & GARAGE SECTION
A9	FRONT AND LEFT ELEVATION
A10	REAR AND RIGHT ELEVATION
S1	GENERAL STRUCTURAL NOTES
S1.1	FOUNDATION DETAILS
S1.2	STRUCTURAL DETAILS
S2	STRUCTURAL DETAILS
S2.1	STRUCTURAL DETAILS

Revisions

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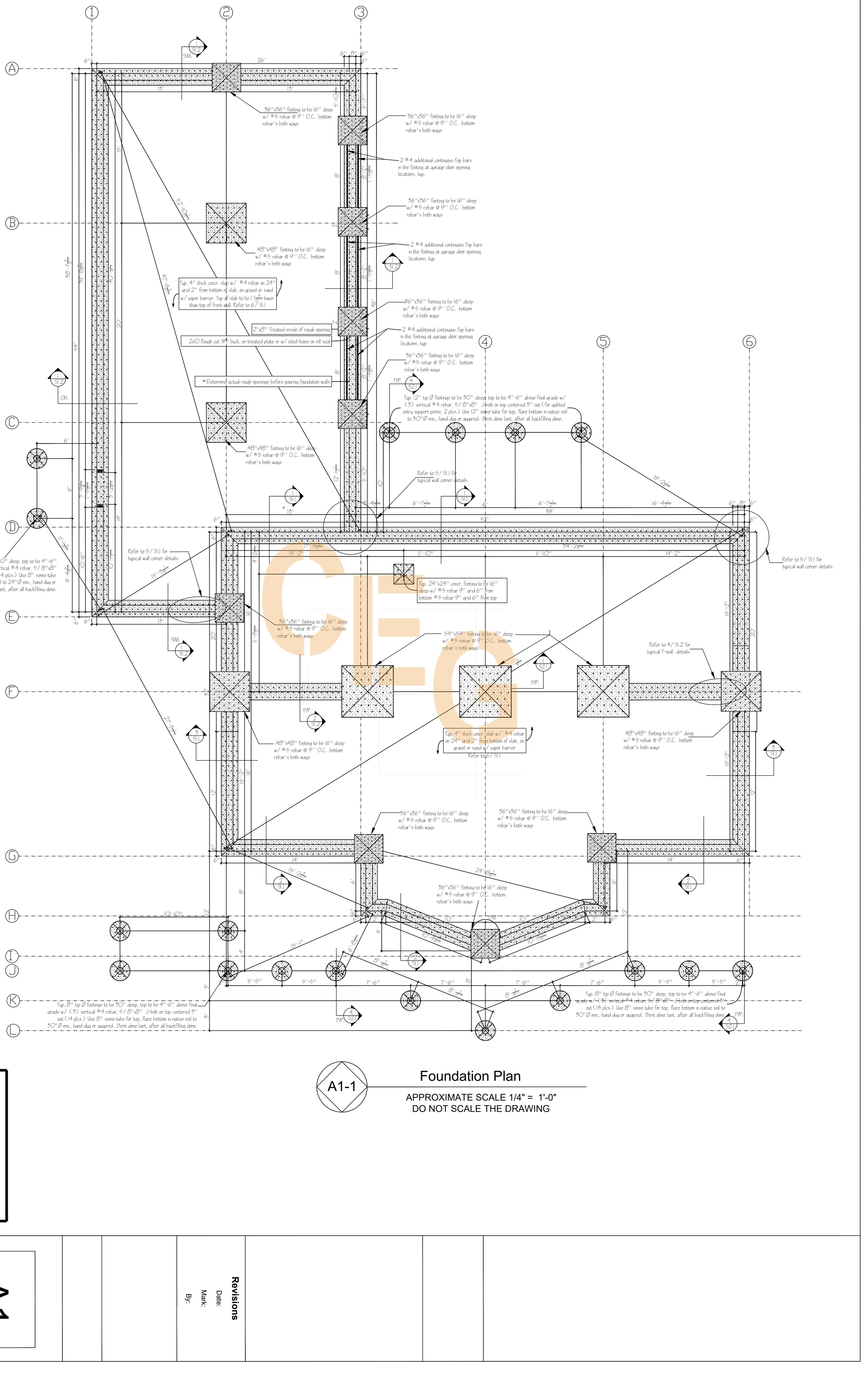

A1-1 Foundation Plan

APPROXIMATE SCALE 1/4" = 1'-0"
DO NOT SCALE THE DRAWING

General Sheet Note

"Where callouts or details shown on this sheet conflict with the structural drawings, the structural drawings shall supersede this/these details/sheets. Typical all sheets."

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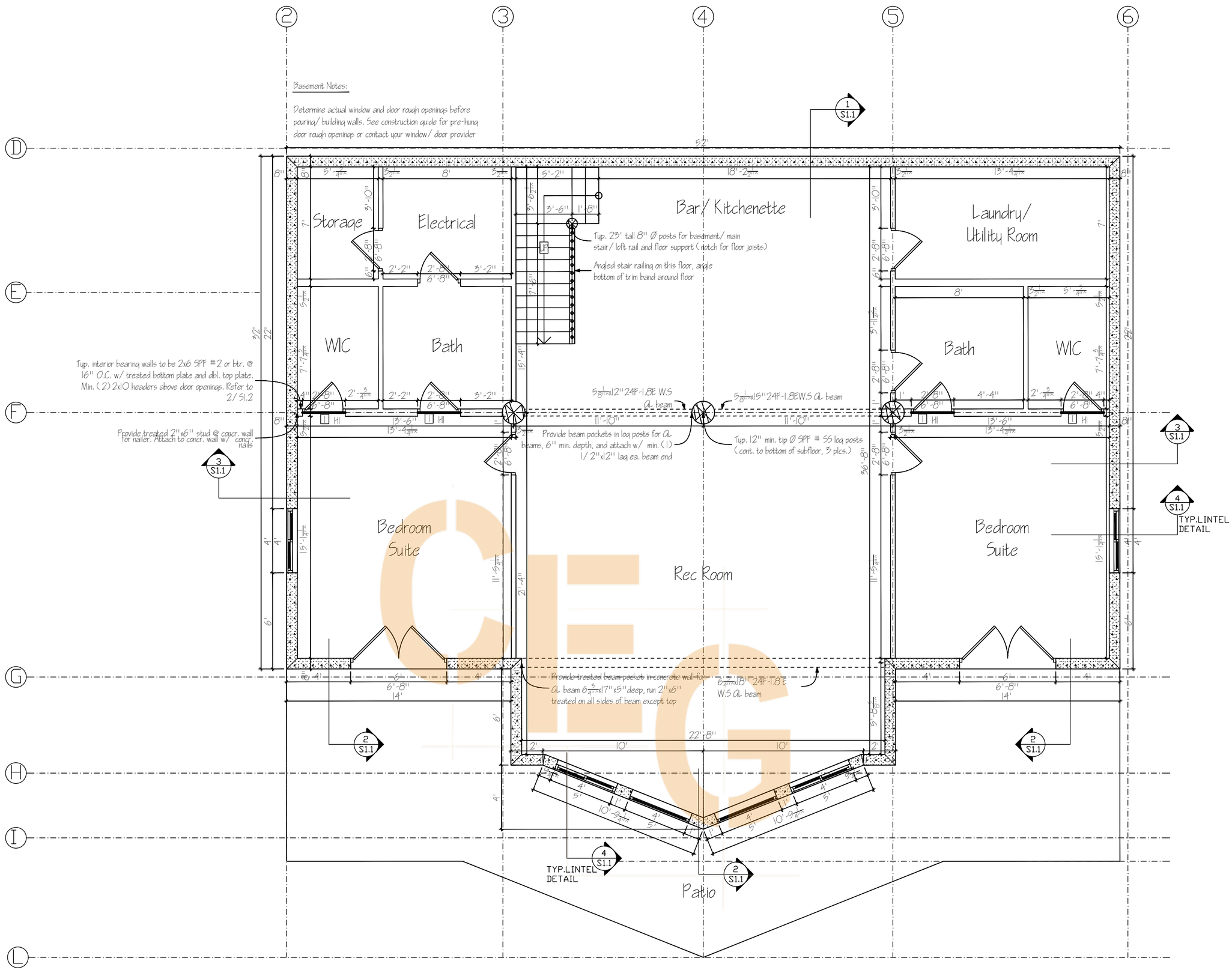
A1



Basement

APPROXIMATE SCALE 1/4" = 1'-0"
DO NOT SCALE THE DRAWING

A2-1

Sheet Note

1. REFER TO 3/S1.2 FOR HEADER SCHEDULE & DETAILS

General Sheet Note

"Where callouts or details shown on this sheet conflict with the structural drawings, the structural drawings shall supersede this/these details/sheets. Typical all sheets."

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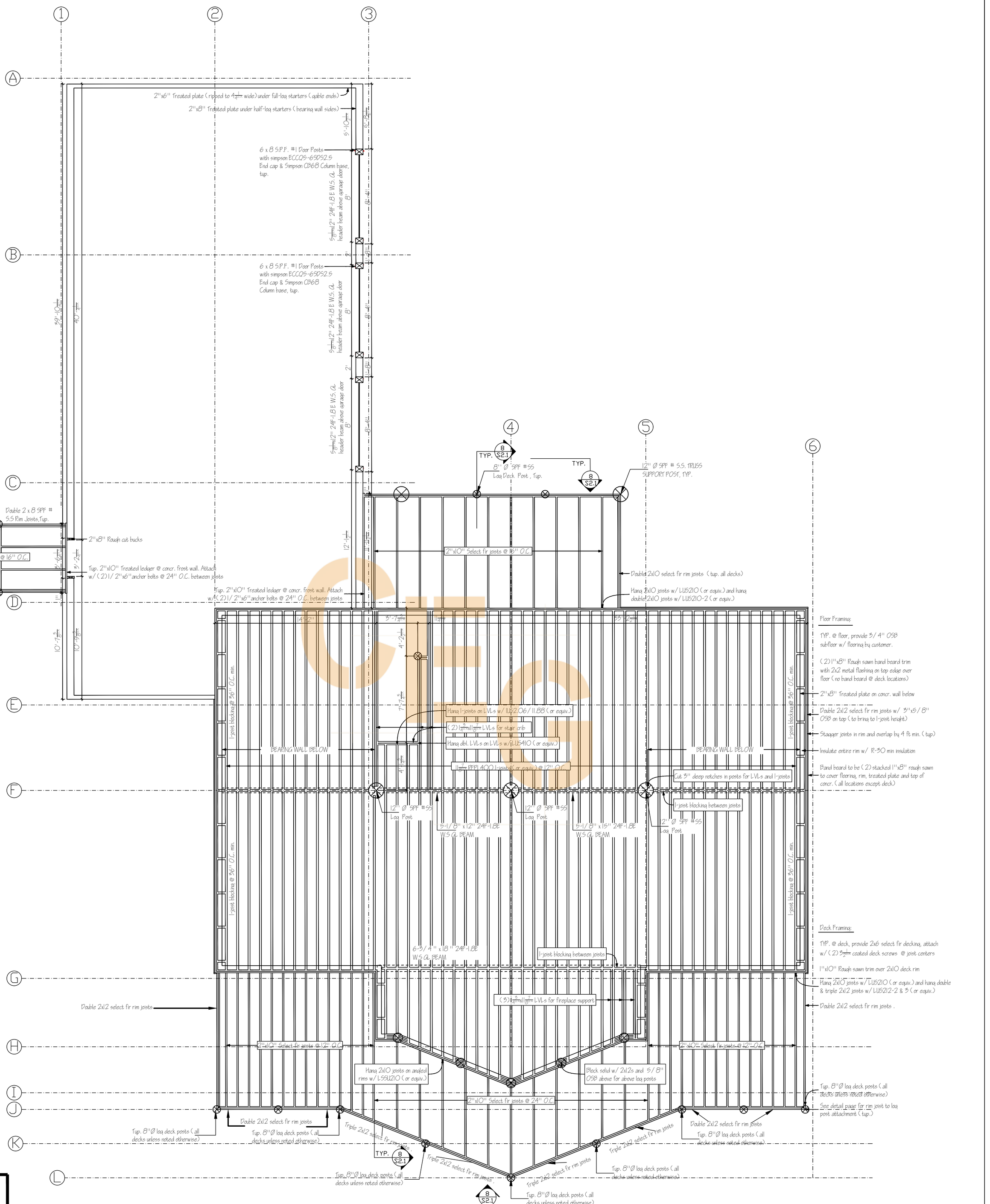
A2



"Where callouts or details shown on this sheet conflict with the structural drawings, the structural drawings shall supersede this/these details/sheets. Typical all sheets."

General Sheet Note

Main Floor Framing

A3-1

APPROXIMATE SCALE 1/4" = 1'-0"
DO NOT SCALE THE DRAWING

A3

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	LATERAL SCHEDULE: FIRST FLOOR on center spacing					
	Wall	Log to Log		Bottom Log to Rim	Rim to Sill	Sill to concrete wall
	Hardware	1/2" x 12" Lag Screw		Bottom log to rim 5/16" X 12" Trufast Screw	Simpson A35	5/8" dia. anchor bolt
		SOLID WALL	ABOVE & BELOW OF OPENINGS			
1-1	2(D-G)	24" on center	36" on center	24"	36"	24"
1-2	D(2-6)	24" on center	36" on center	12"	30"	24"
1-3	6(D-G)	18" on center	24" on center	12"	24"	24"
1-4	G(2-3)& (5-6)	18" on center	24" on center	8"	24"	24"
1-5	(3 & 5) (G-H)	8" on center	-	6"	12"	18"
1-6	H(3-3.4)& (4.10-5.1)	6 Lag srews @ 6" O.C.	-	6"	12"	12"
1-7	1(3.4-4.10)	Refer to 1/S2 - Prow Detail		12"	18"	24"
1-8	1(A-E)	24" on center	36" on center	24"	36"	24"
1-9	A(1-3)	24" on center	36" on center	12"	24"	24"
1-10	3(A-D)	24" on center	36" on center	18"	36"	24"
1-11	E(1-2)	12" on center	24" on center	6"	12"	24"

A4-2 Main Floor Log Wall Schedule

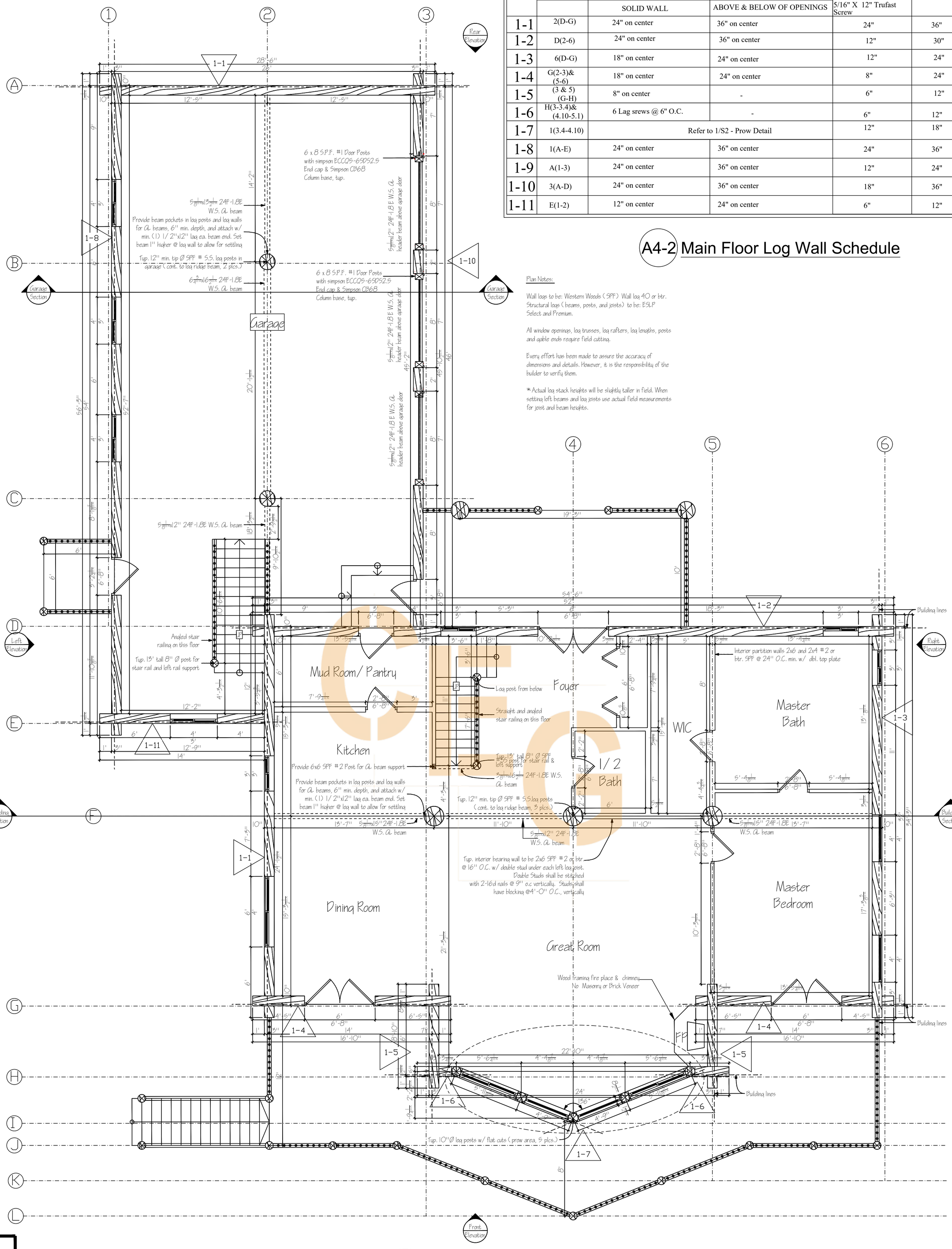
Plan Notes:

Wall logs to be: Western Woods (SPF) Wall log 40 or btr. Structural logs (beams, posts, and joists) to be: ESLP Select and Premium.

All window openings, log trusses, log rafters, log lengths, posts and gable ends require field cutting.

Every effort has been made to assure the accuracy of dimensions and details. However, it is the responsibility of the builder to verify them.

*Actual log stack heights will be slightly taller in field. When setting loft beams and log joists use actual field measurements for joist and beam heights.



A4-1 Main Floor

APPROXIMATE SCALE 1/4" = 1'-0"
DO NOT SCALE THE DRAWING

General Sheet Note

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A4

Garage Floor Framing:

TYP. @ floor, provide 3/ 4" OSB subfloor w/ 1"x6" fir T&G, V-groove down, nail w/ 2" brad, finish nail or staple and glue to subfloor w/ 1/ 4" V-notched trowel and wood flooring glue. Acclimate stickered T&G flooring in building, after roof is on, for min. 10 days.

1 3/4"x11 7/8" LVL ledger @ log wall. Attach w/ (2) 8" power lags @ 16" O.C. between joists

Hang I-joists on LVLs w/ IUS2.06/ 11.88 (or equiv.)

1 3/4"x11 7/8" LVL for lateral log wall support. Cut min. 5" deep notches in posts for LVLs. Screw through log wall into LVLs on opposite end

12" Ø SPF #SS Log Deck Posts, Typ.

5-1/ 8" x15 3/4" 24F-1.8E W.S GL BEAM

6-3/ 4" x16 7/8" 24F-1.8E W.S GL BEAM

RFPI 400 I-joists (or equiv.) @ 24" O.C.

1 3/4"x11 7/8" LVL for lateral log wall support. Cut min. 5" deep notches in posts for LVLs. Screw through log wall into LVLs on opposite end

12" Ø SPF #SS Log Deck Posts, Typ.

(2) 1 3/4"x11 7/8" LVLs for stair crib

7'-11" 4'-6" 14'

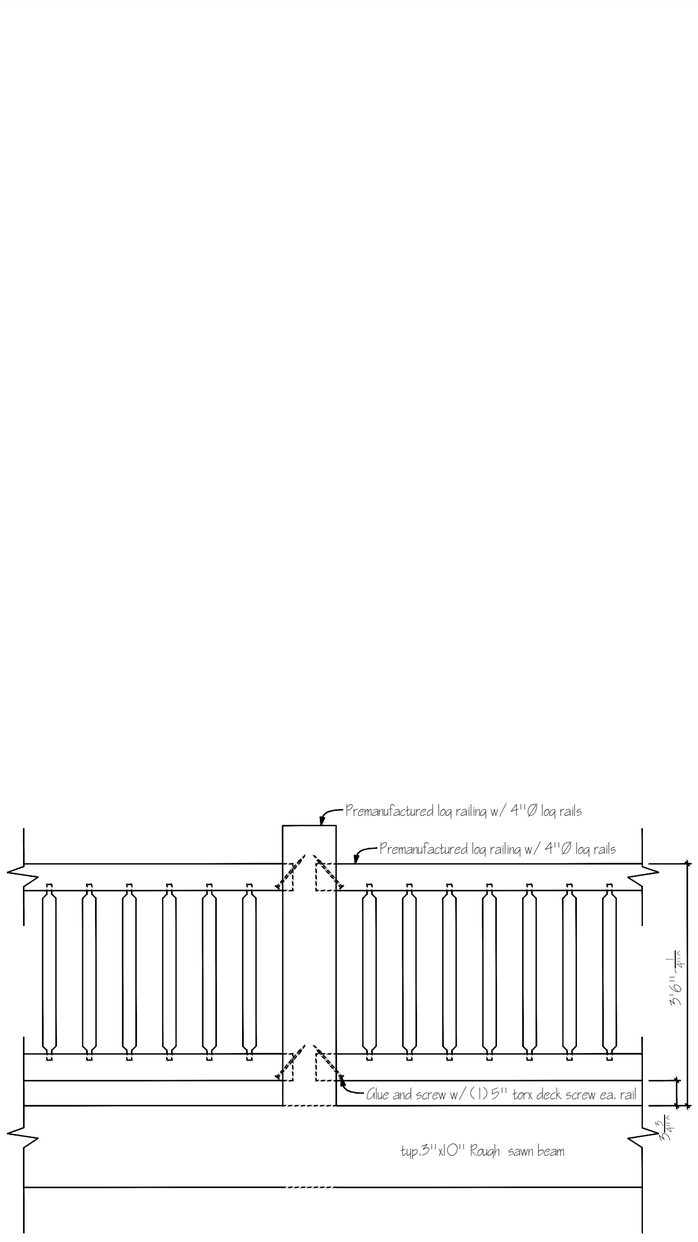
Hang dbl. LVLs on LVLs w/ LUS410 (or equiv.)

Hang I-joists on LVLs w/ IUS2.06/ 11.88 (or equiv.)

5-1/ 8" x12" 24F-1.8E W.S GL BEAM

(2) 1 3/4"x11 7/8" LVLs for stair crib

4'-3" 4'-2 1/2"



A5-2 Guard Rail Detail

NTS

2'-9 3/8" 2'-9 3/8" 2'-9 3/8" 2'-9 3/8" 2'-9 3/8" 3'-7 5/8" 1'-8" 2'-7 1/2" 2'-7 1/2" 2'-7 1/2" 2'-7 1/2" 2'-7 1/2" 2'-7 1/2" 2'-7 1/2" 2'-7 1/2" 2'-9 5/8" 2'-9 5/8" 2'-9 5/8" 2'-9 5/8" 2'-9 5/8"

4'-4 1/2"

Typ. 3"x10" Rough sawn beams. Attach w/ (2) 8" trufast screws @ ea. end

Cut 4" wide tenons on log joist ends and cut beam pockets into walls (min 5" deep). Attach log joists w/ (1) 1/ 2"x12s lag

Cut 1 1/2" notch 2" deep into gable log walls for T&G flooring

Refer to 5/ 52.1

Provide 6x6 SPF #2 Post for GL beam support

5 1/8"x16 1/2" 24F-1.8 E W.S GL beam

load bearing wall below

10"Ø select grade SPF log floor beams

Refer to 2/ 52.1, tup.

Refer to 2/ 52.1 , tupical

Grind bottom of log joists flat for bearing 1/ 2" to make joist 9" tall @ GL beam

Butt log joist to GL beam and attach w/ joist (3) 1/ 2"x12" lag bolts ea.

7'-6"

8 1/4"

4'

5-1/ 8" x15" 24F-1.8E W.S GL BEAM

Cantilever log joist on dropped GL beams and attach w/ (1) 1/ 2"x12" lag bolts ea. joist

11"x9" Rough sawn divider between log joists

5-1/ 8" x15" 24F-1.8E W.S GL BEAM

5-1/ 8" x12" 24F-1.8E W.S GL BEAM

Typ. 5 S2.1

Typ. 3"x10" Rough sawn beam. Attach w/ (2) 8" trufast screws @ ea. end

2 A5

Cut 4" wide tenons on log joist ends and cut beam pockets into log posts (min 5" deep). Attach log joists w/ (1) 1/ 2"x12 lag

Refer to 2/ 52.1, tupical

10"Ø select grade SPF log floor beams w/ 3" flat cut on top, spaced as shown. Top of joists to be level with top joint of 11th full log on bearing wall slope

Loft Flooring:

2"x6" SPF Select T&G, V-groove down, nail tongue w/ #8 ring shank and glue each joist

*Actual log stack heights will be slightly taller in field. When setting loft joists use actual field measurements for joist and beam heights.

A5-1 Loft Floor Framing

APPROXIMATE SCALE 1/4" = 1'-0"
DO NOT SCALE THE DRAWING

General Sheet Note

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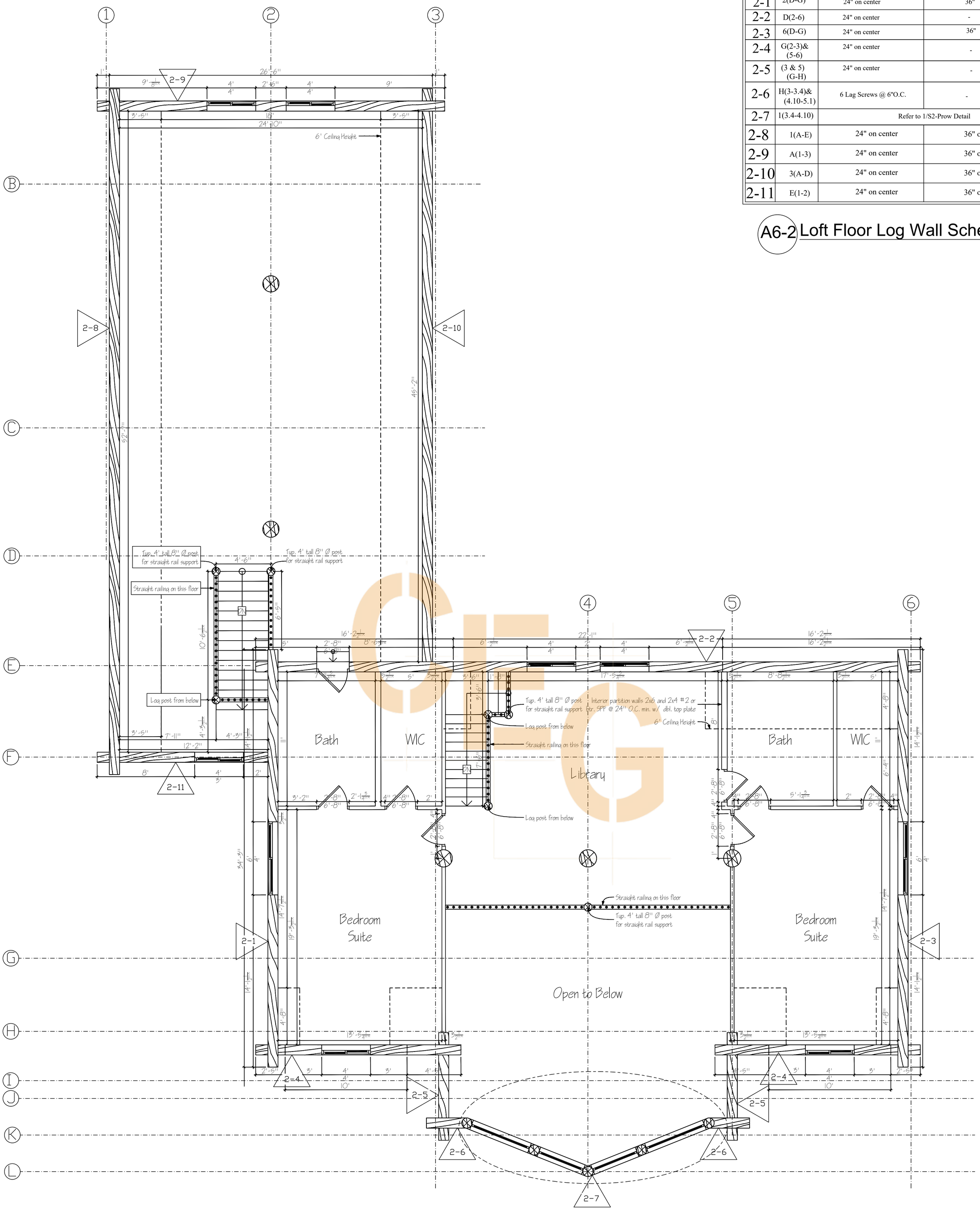
A5

	LATERAL SCHEDULE: SECOND FLOOR on center spacing		
	Wall	Log to Log	
	Hardware	1/2" x 12" Lag Screw	
		SOLID WALL	ABOVE & BELOW OF OPENINGS
2-1	2(D-G)	24" on center	36"
2-2	D(2-6)	24" on center	-
2-3	6(D-G)	24" on center	36"
2-4	G(2-3)& (5-6)	24" on center	-
2-5	(3 & 5) (G-H)	24" on center	-
2-6	H(3-3.4)& (4.10-5.1)	6 Lag Screws @ 6"O.C.	-
2-7	1(3.4-4.10)	Refer to 1/S2-Prow Detail	
2-8	1(A-E)	24" on center	36" on center
2-9	A(1-3)	24" on center	36" on center
2-10	3(A-D)	24" on center	36" on center
2-11	E(1-2)	24" on center	36" on center

A6-2 Loft Floor Log Wall Schedule



A6-1 Loft Floor

APPROXIMATE SCALE 1/4" = 1'-0"
DO NOT SCALE THE DRAWING

General Sheet Note

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Date:					
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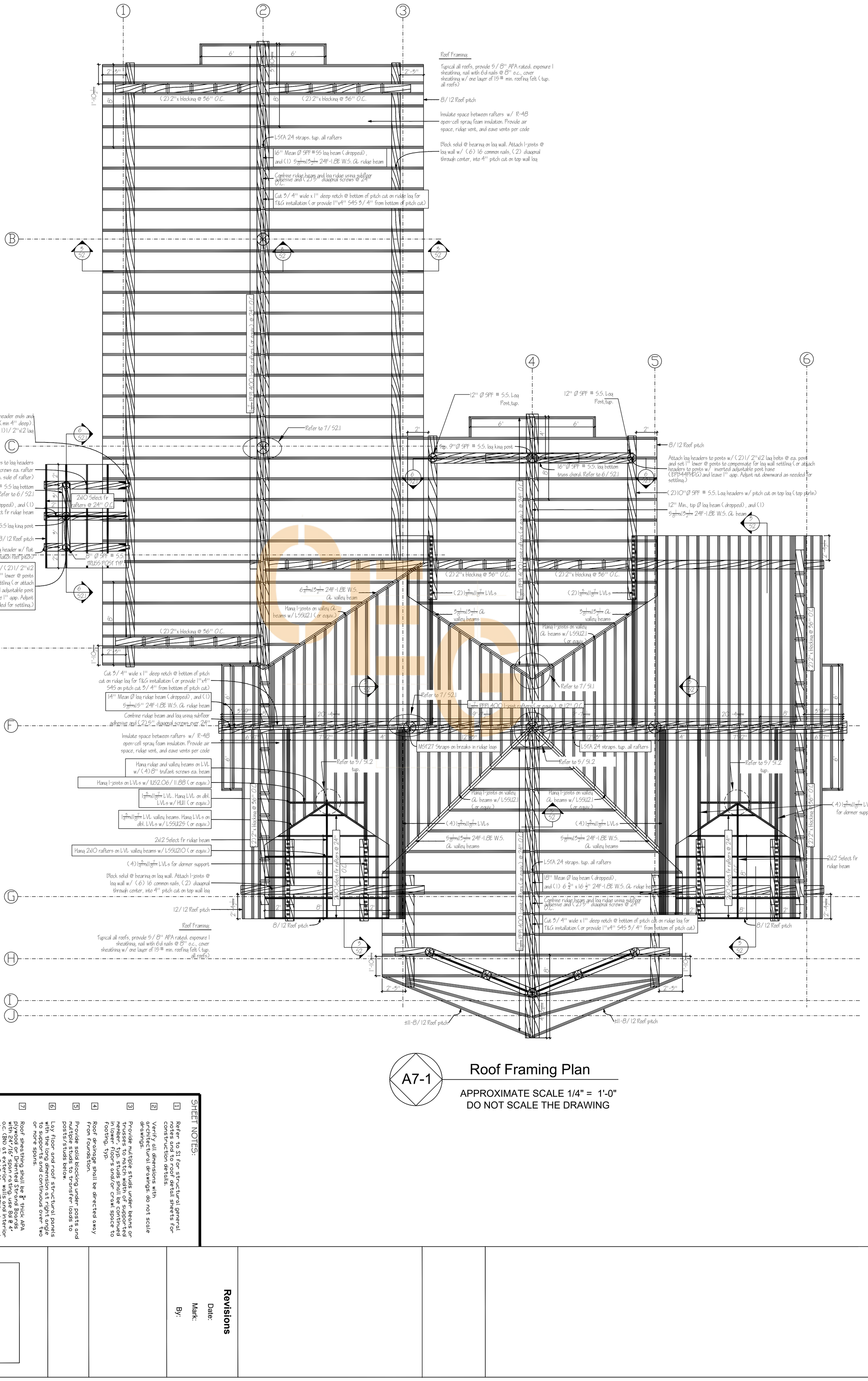
A6



General Sheet Note

"Where callouts or details shown on this sheet conflict with the structural drawings, the structural drawings shall supersede this/these details/sheets." Typical all sheets.

SHEET NOTES:

1. Refer to S1 for structural general notes and to roof detail sheets for construction details.
2. Verify all dimensions with architectural drawings. do not scale drawings.
3. Provide multiple studs under beams or trusses to match width of supported member, typ. studs shall be continued in lower floors and/or crawl space to footing, typ.
4. Roof drainage shall be directed away from foundation.
5. Provide solid blocking under posts and multiple studs to transfer loads to posts/studs below.
6. Lay floor and roof structural panels with the long dimension at right angle to supports and continuous over two or more spans.
7. Roof sheathing shall be ⅝" thick APA plywood or Oriented Strand Boards with 24"/16" span rating. use 8d @ 4" o.c. (BN) at exterior walls and interior shear walls, 8d @ 6" o.c. (REN) at panel edges and 8d @ 10" o.c. at intermediate supports, uon. minimum penetration is 1-5/8" into framing.
8. Limit live load deflection to span over 360 for rafters, joists, beams.
9. It is recommended that naturally durable or preservative-treated wood shall be used for wood members that are exposed to weather without protection from roof such as balconies, decks or porches etc.

A7-1

Roof Framing Plan

APPROXIMATE SCALE 1/4" = 1'-0"
DO NOT SCALE THE DRAWING

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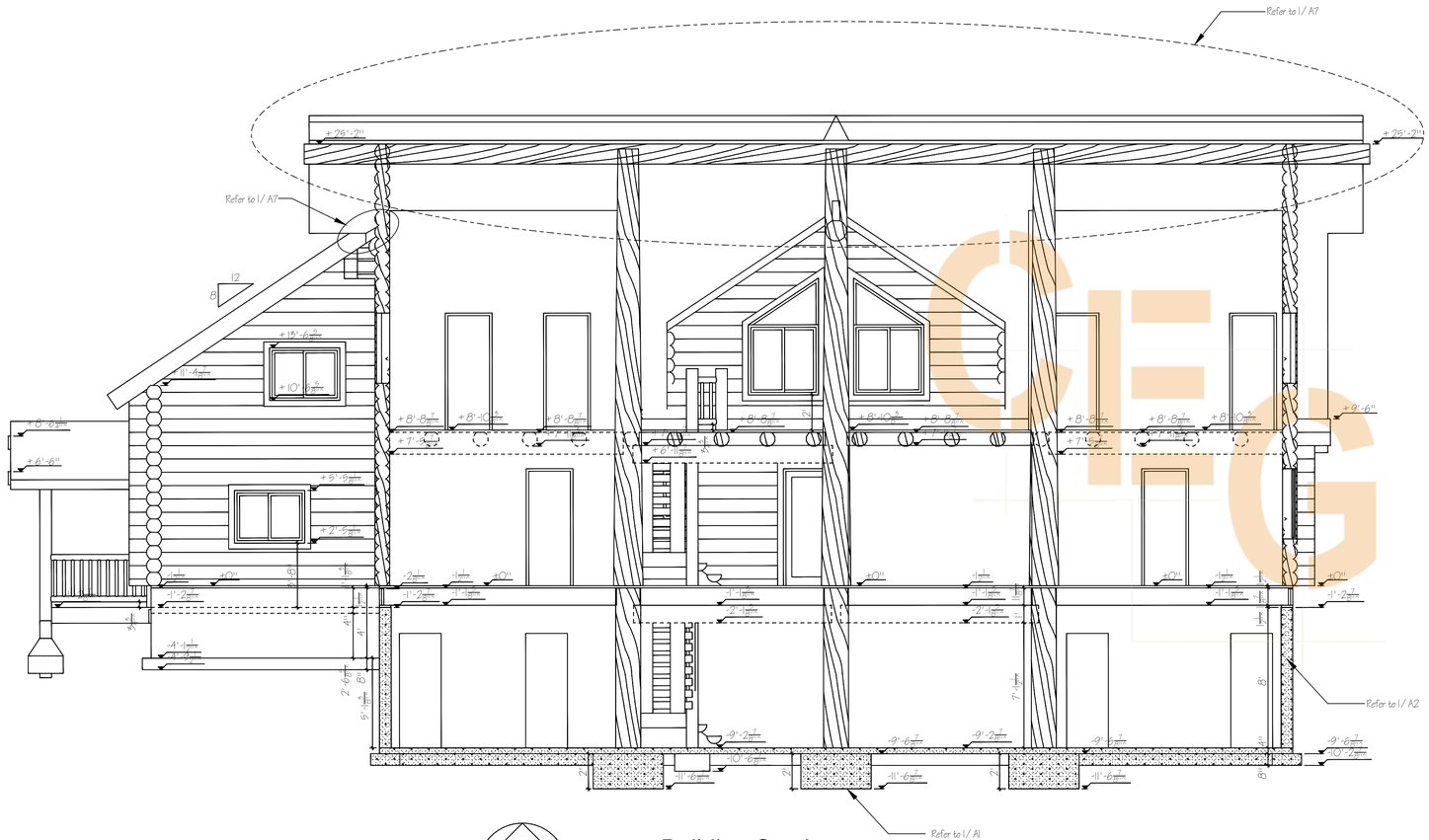
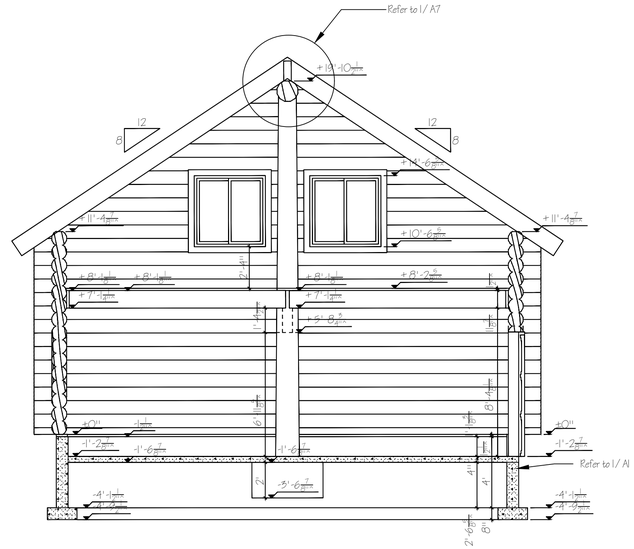
A7



A8-1

Building Section

APPROXIMATE SCALE 1/4" = 1'-0"
DO NOT SCALE THE DRAWING



A8-2

Garage Section

APPROXIMATE SCALE 1/4" = 1'-0"
DO NOT SCALE THE DRAWING

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Date:

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By:

General Sheet Note

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A8

A9-1

Front Elevation

APPROXIMATE SCALE 1/4" = 1'-0"
DO NOT SCALE THE DRAWING

A9-2

Left Elevation

APPROXIMATE SCALE 1/4" = 1'-0"
DO NOT SCALE THE DRAWING

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General Sheet Note

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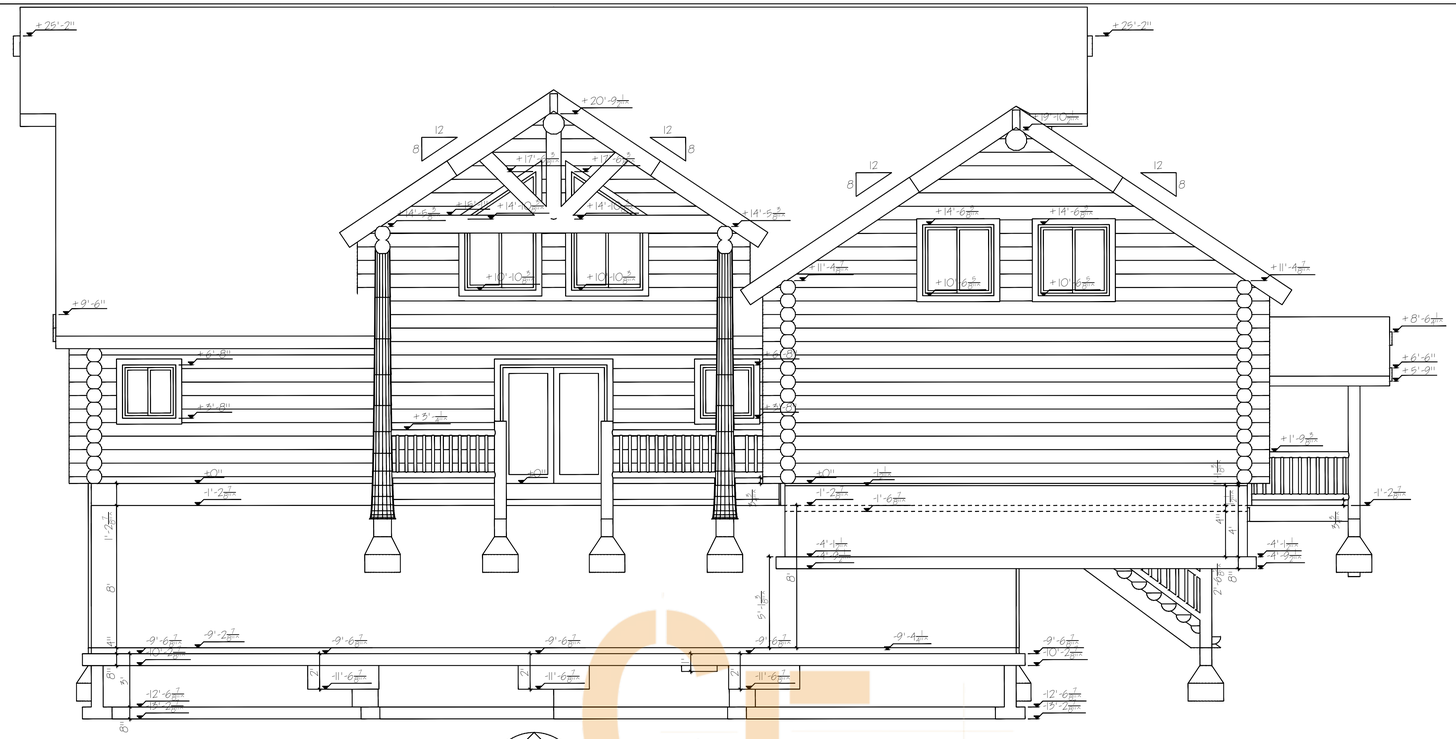
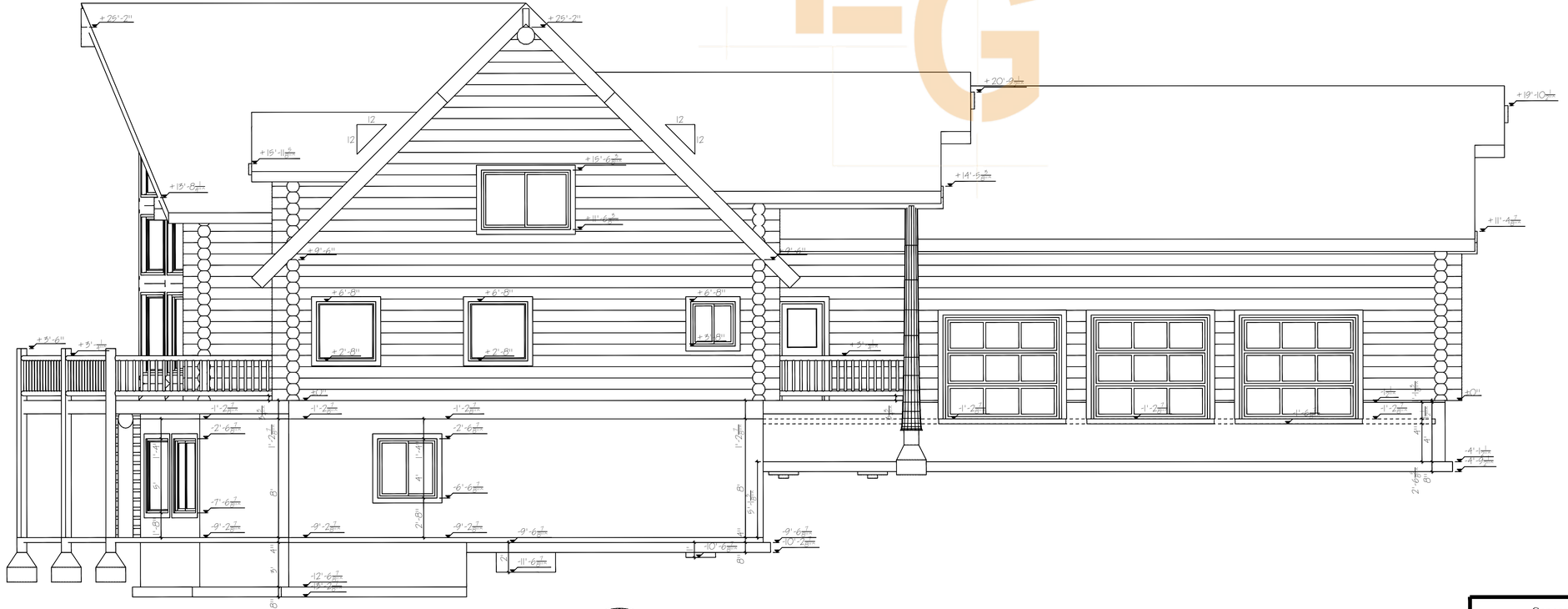
A9



A10-1

Rear Elevation

APPROXIMATE SCALE 1/4" = 1'-0"
DO NOT SCALE THE DRAWING



A10-2

Right Elevation

APPROXIMATE SCALE 1/4" = 1'-0"
DO NOT SCALE THE DRAWING

General Sheet Note

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A10

STRUCTURAL GENERAL NOTES – APPLICABLE TO ALL CONSTRUCTION UNLESS OTHERWISE NOTED ON THE PLANS

A. GENERAL REQUIREMENT:

1. Where construction details are not shown or noted for any part of the work, such details shall be the same as for similar work shown on the drawings.
2. The contractor shall take necessary precautions to maintain and insure the integrity of the new and any existing structures during construction. Contractor shall design, construct and maintain all safety devices, including shoring and bracing for the new and any existing structures and shall be solely responsible for conforming to all local, state and federal safety and health standards, laws and regulations. Observation visits to the site by the engineer shall not include inspection of the above items.
3. Obtain prior written approval for any changes to the drawings.
4. The contractor shall review and compare the structural drawings with all other Construction Documents, such as Architectural, Mechanical and Electrical drawings, specifications, etc. Do not scale drawings. The contractor shall verify dimensions, elevations and all information. Report, in writing, any inconsistencies, errors, or omissions to the Architect/ Engineer of record before proceeding with the work.
5. Any substitutions for structural members, hardware or details shall be reviewed by the Architect and Structural Engineer. Such review will be billed on a time and materials basis to the General Contractor with no guarantee that the substitution will be allowed.
6. General Contractor will submit shop drawings for trusses, frames, connections and any custom made item that requires fabrication to the engineer of record prior to fabrication and construction.

B. INSPECTION:

The owner shall employ one or more qualified Inspectors to provide inspections during construction in according with section 1701 of the above code. It is recommended that the owner or the contractor hire Precision Structural Engineering or other Qualified Licenced inspectors to provide inspection during construction.

The Inspector shall be certified by the building official to perform the type of inspection specified. Inspection shall be provided for:

1. Foundation excavation.
2. Reinforcement placement, prior to closing the forms and delivery of concrete.
3. Concrete placement.
4. Bolts installed in concrete and masonry, prior to and during the placement of concrete around bolts.
5. Not–Used
6. Diaphragms, nailing inspection for all roof and floor.
7. Shear wall, nailing inspection for all walls as noted in the shear wall schedule.
8. Epoxy filled anchor bolts.
9. Structural Steel.
10. Field welding.
11. High–strength bolting.
12. During preparation and taking of test specimens.
13. See other sections of these notes for more required inspections.

Note: All discrepancies shall be brought to the immediate attention of the contractor for correction; then if not corrected, to the building official and to the Engineer in writing. The inspector shall furnish an inspection report to the building official and to the Engineer/Architect of Record.

C. CONCRETE:

1. MINIMUM SPECIFIED COMPRESSIVE STRENGTH OF CONCRETE.

TYPE OR LOCATION OF CONCRETE	MINIMUM SPECIFIED COMPRESSIVE STRENGTH (F'c)
	SEVERE
BASEMENT WALLS, FOUNDATION AND OTHER CONCRETE NOT EXPOSED TO THE WEATHER.	2,500 PSI
BASEMENT SLAB AND INTERIOR SLABS ON GRADE, EXCEPT GARAGE FLOOR SLABS.	2,500 PSI
BASEMENT WALLS, FOUNDATION WALLS, EXTERIOR WALLS AND OTHER VERTICAL CONCRETE WORK EXPOSED TO WEATHER.	3,500 PSI
PORCHES CARPORT SLABS AND STEPS EXPOSED TO THE WEATHER, AND GARAGE FLOOR SLABS.	3,500 PSI

3. Basement wall, foundation wall, basement slab, slab on grade, all concrete work exposed to weather, and all exterior concrete shall contain the proper admixtures to obtain 5% to 7% Air Entrainment. All interior concrete work shall contain 2% to 4% Air Entrainment.
4. Reinforcing Steel:
   a) All reinforcing steel shall be ASTM A615 Grade 60.
   b) Vertical bars shall be doweled to supporting members with the same size and spacing of reinforcement shown in the drawing or general notes.
   c) Splices shall be 55 bar diameters or 36 inches with 2 ties, foundation rebar to be clear 3" above the bottom of the footing whichever is greater UON.
5. When air temperature is above 80 degrees Fahrenheit, Hot Weather Concreting, ACI 305R shall apply. When the average air temperature is below 40 degree Fahrenheit, Cold Weather Concreting, ACI 306R shall apply.

D. SLAB–ON–GRADE:

Refer to Foundation Drawing

E. WOOD:

1. All wood exposed to the weather or in contact with concrete or masonry shall be pressure treated or protected with a waterproof membrane. Newly exposed surfaces resulting from field cutting, boring or handling shall be field treated in accordance with AWPA M–4.
2. All wood Stick Framing shall be Douglas Fir/Larch #2 (DF #2) or better unless otherwise noted on the drawings.

JOISTS/ RAFTERS:
1. Wood joists shall be installed according to the manufacturer recommendations and as shown on drawings.
2. All joists, ceiling joists and rafters shall have a minimum of 1–1/2 inches bearing at each end on wood or metal.

TOP PLATES AND/OR CHORDS:
1. Top plates or chords shall be continuous over headers UON.
2. Top plates shall be two pieces, same size as studs. Stagger splices 4'–0" minimum. Center splices over studs UON.

F. WOOD CONNECTIONS:

1. It is required that the contractor keep the Simpson catalog and/or Simpson Installation Manual on site at all times. To be used during the installation of all typical Simpson connections.
2. All exposed steel timber hardware, fasteners and connectors shall be galvanized.
3. Connector Hardware model numbers are those for the Simpson–Strong Tie Company. Size and number of nails, screws or bolts to be the maximum specified by the manufacturer UON.
4. Nails shall be common wire unless otherwise noted.
5. Machine nailing: The use of machine nailing is subject to continued satisfactory performance. Panel nails shall be driven so that the heads are flush with the surface of the panel and the minimum panel edge distance is 1/2 inch.
6. Provide anchor or machine bolts per typical details, provide 0.229" thick x 3" x 3" washers for all bolts, anchor bolts and lag bolts, UON
7. Bolts: maintain a distance not less then 7 bolt diameters from the end and 4 diameters from the edge of the member. Bore holes $\frac{1}{32}$ to $\frac{1}{16}$ inch larger than the bolt diameter. All nuts shall be tightened when installed and re–tightened at completion of work or before closing in. Thread projection shall be ½ inch minimum beyond the nut. Use 0.229" thick X 3" X 3" washers, Minimum.
8. Lag screw clearance and lead, pilot, holes shall be bored in two stages as follows: The clearance hole for the shank shall have the same diameter as the shank, and the same depth of penetration as the length of unthreaded shank. The lead hole for the threaded portion shall have diameter equal to 70% of the shank diameter and a length equal to at least the length of the threaded portion.
9. Nailed/screwed or bolted hold–down anchors shall be installed per manufacturer's approved [ICC or ICBO] product evaluation report. Install hold–downs 3/4 inch minimum above the plate to allow for tightening anchor bolt. The hold–down shall be installed tight to the hold–down post without fillers or dapping. Do not bend hold–down anchors.
10. Connections shall be as detailed on the drawings. If not shown, minimum connections shall be as follows:
    a) Joist or rafter to sill or girder, toe nail.....3–16d
    b) Bridging to joist, toenail each end.....2–8d
    c) Sill plate to joist or blocking, typical, face nail [SN].....16d at 6" o.c.
    d) Double top plates:
       Lower plate to studs.....3–16d
       Top plate to lower plate, face nail.....16d @ 12" O.C.
       Top plate to lower plate at lap Splice [4'–0" minimum].....20–16d minimum UON on drawings.
       Top plate to lower plate at intersection.....3–16d
    e) Stud to sill plate.....6–16d toenails or 3–16d endnail.
    f) Double studs, face nail.....16d at 12" o.c.
    g) Blocking between joists or rafters to top plate, toenail.....4–16d
    h) Continuous header, two pieces.....16d @ 16" o.c. along each edge.
    i) Ceiling joists to plate, toenail.....4–16d
    j) Continuous header to stud, toenail.....4–8d
    k) Ceiling joists, laps over partitions, face nail.....3–16d
    l) Ceiling joists to parallel rafters, face nail.....3–16d
    m) Built–up corner studs.....16d @ 12" o.c.
    n) 5/8" gyp. Sheathing to studs, sill plates & top plates.....8d @ 4" O.C. @ 3/8" from all panel edges and 8" O.C. @ intermediate supports.
    o) For stick framing construction structural sheathing could be fastened to structural members using 16 gauge wire staples two inches long. Staples shall have a minimum of 7/16" diameter crown width. For roof and floor, staple spacing shall be per plan. For shear wall, spacing should be per shear wall schedule.
    p) Staples for structural insulated panels, sips shall be per sips notes.
    q) NOTES: REF: To the above Building Code.

G. ATTIC ACCESS AND VENTILATION:

1. Provide an accessible attic access with opening not less than 22" X 30".
2. Enclosed attics and enclosed rafter spaces formed where ceilings are applied directly to the underside of roof rafters shall have cross ventilation for each separate space by ventilating openings protected against the entrance of rain or snow. Ventilating openings shall be provided with corrosion–resistant wire mesh, with the least dimension being 1/8".
3. The total net free ventilating area shall not be less than 1/150 of the area of the space ventilated except that the total area is permitted to be reduced to 1/300, provided at least 50% and not more than 80% of the required ventilating area is provided by ventilators located in the upper portion of the space to be ventilated at least 3 ft. above eave or cornice vents with the balance of the required ventilation provided by eave or cornice vents.

H. Not–Used

I. FLOOR AND ROOF SHEATHING:

1. Minimum floor sheathing shall be 3/4" thick APA plywood or OSB with 48/24" span rating. Use 8d @ 4" O.C. at exterior walls, interior shear walls, and at panel edges. Use 8d @ 9" O.C. at intermediate supports. Minimum penetration is 1 5/8" into framing. Use glue.
2. Minimum roof sheathing shall be 5/8" thick APA plywood or OSB with 24"/16" span rating. Use 8d @ 4" O.C. at exterior walls, interior shear walls, and at panel edges. Use 8d @ 9" O.C. at intermediate supports. Minimum penetration is 1 5/8" into framing.

K. FOUNDATION

1. Due to the lack of specific geotechnical information for this site, foundation was designed on an assumed bearing capacity of 1500 PSF. PSE is not responsible for any future defects resulting from unreported condition mitigating the above assumption. PSE recommends that the owner/contractor order geotechnical/soil investigation & foundation recommendation report. Submit copy of this report to PSE.
2. Soft soil or fill material shall be removed and replaced with competent granular engineering fill or lean concrete. The new fill shall be compacted in 8" layers to gain 98% of its maximum dry density according to ASTM D–698 standard proctor, and be capable of supporting the above bearing capacity.
3. Footing shall be stepped as required to maintain minimum required frost depth, below finished grade.
4. Use light weight equipment to compact the soil within 2 feet around foundation/basement wall.
5. Excavation shall be properly back filled Back fill for walls shall be pervious material. Do not place back fill behind walls before they have attained their design strength. Shore and protect walls from lateral loads until the supporting members are in place and have developed specified strength.
6. When the finished crawl space elevation is lower than the outside finished grade, or when it is required by the Geotechnical investigative report or building department, provide 4 inch diam. perforated drain pipe below the top of the footing. Encase the pipe in 18x18 inches free–drain crushed stone and fabric at the perimeter of the crushed stone.
7. Roof and area drainage shall be directed away from the foundation.
8. Foundation drain shall be directed away from the House & connected to City/County storm Sewer or discharged to the daylight away from the building.
9. NDS Back water valve shall be installed & should be approved by " Civil Engineer"

L. FROST DEPTH

1. 30"

M. CODE AND LOADS:

1. All material and construction work for this project shall conform to the 2015 International Building Code (IBC).

2. Building Code design parameters.
   a. Floor Live Load = 40 psf
   b. Floor Dead Load = 15 psf.
   c. Ground Snow Load = 50 psf
   d. Roof dead load 15 psf.
   e. Ultimate Wind Speed (3 second gust) = 125 mph
   f. Wind Importance Factor, Iw = 1.00
   g. Wind Exposure = C
   h. Seismic Importance Factor, Ie = 1
   i. Ss = 0.196
   j. S1 = 0.06
   k. Site Class = D
   l. Sms = 0.314
   m. Sm1 = 0.145
   n. Sds = 0.209
   o. Sd1 = 0.096
   p. Seismic Design Category = B
   q. Basic Seismic Force Resisting System = Log shear walls
   r. Response Modification Factor, R = 4.0

N. DESIGN SCOPE BY PRECISION STRUCTURAL ENGINEERING (PSE)

1. Design shown on drawings by PSE include the following items.
   a. Vertical and lateral design for a new log home as shown.
2. Design shown on PSE drawings does not include:
   finishes, architectural items, windows, doors, moisture barriers, water proofing mechanical units, plumbing, or electrical items.
   For the design and/or details of any other items not mentioned in # 1 above, see additional drawings developed by others.
3. Structural details provided for this project are typical details intended to illustrate general conditions and not to specifically address every minor variation. They are not necessarily drawn to scale. The contractor/builder shall use details as a guide in construction and fabrication, while verifying specific dimensions/angles and other conditions that may exist (refer to S1/A item NO.4). If the owner/contractor/builder requires details to be drawn to scale, dimensioned and specific to a given situation, please contact PSEI and we can arrange to provide you with such details per the Additional Services fee schedule.

O. ABBREVIATIONS:

AB	ANCHOR BOLT	EN	EDGE NAIL	SCHD	SCHEDULE
APA	AMERICAN PLYWOOD ASSOCIATION	NTS	NOT TO SCALE	SGN	STRUCTURAL GENERAL NOTES
ARCH	ARCHITECTURAL	OH	OPPOSITE HAND	SIM	SIMILAR
BLKG	BLOCKING	OSB	ORIENTED STRAND BOARD	SN	SHEAR NAIL
BN	BOUNDARY NAIL			SPEC	SPECIFICATION
BOF	BOTTOM OF FOOTING	OSV	ON SITE VERIFY	TG	TONGUE & GROOVE
CL	CENTER LINE	PSE	PRECISION STRUCTURAL ENGINEERING	TN	TOENAIL
E	EXISTING			TYP	TYPICAL
EL	ELEVATION	PT	PRESSURE TREATED	UON	UNLESS OTHERWISE NOTED

3. NOTCHES:

A. Self-Draining and Weather-Restricting Notching:
All forms of interlocking notches and joinery shall be self-draining and shall restrict weather and insect infiltration. Saddle notches and full scribe notches are recognized as achieving these goals.

B. Notching Standards:
1. Notches shall fit the log below with a profile that matches the profile of the log it is intersecting within ¼" on the inside
2. Notches shall be clean in appearance and have no ragged edges.
3. The amount of log to remain uncut at a notch shall not be less than one-third (1/3) the original diameter of the log, or not less than one-third (1/3) of the original cross-sectional area.

4. JOISTS AND BEAMS:

A. Joists and beams, if dimensional material, shall conform to applicable building codes and applicable sections of these notes.
B. Joists and beams, if log or timber, shall conform to the following standards:
Shall be select or premium as recognized by the TPI log grading standards, and shall be of sound wood.
C. Where log or timber beams are notched at the end, on the bottom face, the depth of the notch shall not exceed one-fourth (1/4) of the beam depth at the location of the notch, or less, if calculations so indicate.
D. Where log or timber joists are supported by a log wall, the wall logs shall be notched to receive the joist in such a way to prevent failure in the supporting log wall.
E. The distance, after settling is complete, from the bottom of the ceiling joist and beams to the finished floor shall conform to applicable building codes.
F. Where a beam or joist passes through a wall to support additional floor areas or other loads, the beam or joist shall be notched in such a way that the structural integrity of both the beam and the supporting wall are maintained.
G. Where an interior beam extends through a wall to the exterior it shall be protected from the weather so that its structural integrity is maintained. The intersection of the beam and wall shall be constructed to restrict weather and insect infiltration.
H. Log joists and beams shall be flattened on top to a minimum of 1 inch where they support flooring or framing.

5. WINDOW AND DOOR OPENINGS:

A. Settling space shall be provided for all doors and windows placed in walls constructed of horizontal logs.
B. The settling space for windows and doors shall be covered by a cladding or a trim to restrict weather and insect infiltration. In order to not restrict settling and to avoid damage to window or doors this covering shall not be attached to both the log wall and to the window or door frame until after all settling is completed. A vapor barrier shall be installed within this space, on the heated side of the insulation.
C. Trim at jambs shall not restrict settling.
D. Both sides of each opening shall be keyed vertically with lag bolts within 6" of the opening on each row, to withstand lateral loads, and in such a way as to allow unrestricted settling.
E. All exterior sills shall be beveled to allow water to drain to the outside face of the log wall.
F. The position of openings in walls constructed of horizontal logs shall conform to the following:
1. The distance from the side of window and door openings to the centerline of an intersecting log wall shall be a minimum of 10 inches plus one-half the average wall log diameter.
2. Wall sections between openings shall be a minimum of 36 inches long, or shall be provided with support in addition to the required keyways (see section 5-D).

6. SETTLING:

A. Settling Allowance:
1. The minimum allowance for settling when using green logs is 6% (3/4 inch per foot of log wall height).
2. The settling allowance for dry logs may be up to 6%, but may be less than this, depending upon the moisture content of the logs. The manufacturer should aid in the estimation of this depending on humidity in your area, time of year, and set up time of your log package.

B. Adequate provisions shall be made for settling at all openings, load bearing posts, chimneys, fireplaces, interior frame partition walls, electrical entrance boxes and conduits, plumbing vents and drains, second story water and gas pipes, staircases, downspouts, heating and air conditioning ducts, kitchen cabinets and all other non-settling portions of the building.
C. The log contractor shall provide information to the general contractor to help guide sub-contractors in the use of techniques applicable to their trade to deal with the unique characteristics of log construction, and specifically how each trade should accommodate for settling.
D. For columns, Columns are cut shorter than the corresponding log wall height to compensate for log wall settlement based on the log type used and the moisture content of the logs at the time of construction.
E. In all cases, the general contractor or erector shall be the sole responsible party for any damage or complaints to the building due to the log wall settlement.
F. All caulking and weather-sealing must account for the change in logs diameter and shape as they dry.

7. ROOFS AND ROOF SUPPORT SYSTEMS:

A. If constructed of dimensional material, roofs shall conform to applicable building codes and applicable sections of these notes.
B. If constructed of log or timber, roof systems shall conform to the following standards:
1. Shall be constructed only of Select or Premium grade (straight grain, solid log structural members)
2. Where beams are notched at an end, on their bottom face, the depth of the notch shall not exceed one-fourth (1/4) the beam depth at the location of the notch, or less if calculation so indicate.
C. The distance from the bottom of roof beams to the finished floor must conform to applicable building codes after settling is complete.
D. Roof overhang shall help protect log walls from the weather associated with the site of the building.
E. The roof shall protect all roof structural members from the weather associated with the site of the building.
F. Log roof beams shall be flattened on top to a minimum width of 1-1/2 inches where they support lumber of finished materials.
G. Where log structural members pass through exterior frame walls they shall be notched slightly to receive interior and exterior wall coverings. Expandable gaskets shall be installed to restrict weather and insect infiltration. Roof members shall be designed to meet structural requirements even after such notching.
H. Flashing and an expandable gasket shall be used where conventionally framed gable end walls meet a plate log.
I. Where roof structures are supported on outriggers, which are in turn supported on log extensions, the extension log carrying the outrigger shall be supported by additional log extensions (a minimum of two extensions below the extension carrying the outrigger) in such a way as to support all loads from the outrigger in a manner other unless it is covered by at least one more log. In all cases, the header log shall be adequate for structural requirements.
2. Openings in header logs shall be cut with a downward angled kurf cut so as to restrict water infiltration. Metal flashing needs to be applied from the log wall into the kerf cut, then bent over the window frame to direct water to run down and around doors and windows.

H. Plate Logs:

1. Top wall plate logs shall be notched, glued and lag-bolted to the log below to prevent movement caused by drying stress roof thrust, and the uplift forces associated with wind and seismic forces.
2. Where conventional framing meets a plate log this intersection shall have insulation and a vapor barrier on the inside, and over the log wall, to restrict weather, aid in insulating and preventing insect infiltration.
3. The ceiling vapor retarder, where required by local code, shall be permanently sealed to the plate log with caulk or sealant and that seal aided by staples.
4. Plate logs shall have relatively straight grain (rustic, select or premium grade logs only).
5. Each Full log or half log starter run shall be attached to the foundation in the corners using collar nuts and all-thread from the anchor bolt in the concrete wall, and at the nearest anchor bolt to any door opening. The entire run shall be anchored to the rim joist through the subfloor using 5/16" hardened structural log screws, Timbermate or equivalent, at minimum of 2' spacing, or spacing described in the proper section of the plan outlining that, minimum of 3" penetration into the rim (do not use lag bolts, as they will blow the rim apart).

P. LOG CONSTRUCTION:

1. General contractor and log manufacturer shall follow:
   A. Local building code.
   B. The standard on the design and construction of log Structures ICC 400, latest edition.
   C. International Log Builders Association, ILBA, www.logassociation.org
   D. The manufacturer/supplier recommendations.
2. Log walls:
   A. Log Specifications:
      1. The minimum diameter of wall logs shall be 8 inches.
      2. Logs shall have all bark removed, and shall be of sound wood.
      3. Slope of grain, defect, knots and other standards for grading:
         a. Wall logs shall conform to TPI grading standards within the walls. Log walls shall meet Wall Log 40 specs (TPI standards).
         b. Structural logs shall meet Select or Premium grade (TPI standards)
      3. Shall not be in direct contact with masonry.
      4. Shall be set on a vapor, weather, treated, or air barrier.
      5. Shall have a drip or flashing that directs water away from the underside of the sill log.
      6. Shall be anchored to resist applicable wind and seismic loads per details 400 PLF.
      7. Shall be a minimum of 12 inches above grade.
   B. Log Walls:
      Shall be constructed of logs laid in horizontal courses, machine fit with Swedish cope (to stack on one another), with interlocking saddle notches at all corners. Lag bolt or use structural screws, and glue each row to the row below using construction adhesive. See structural notes on bolt spacing within the log wall rows.

C. Sill Logs:

1. Shall be not less than 8 inches in diameter.
2. Shall be flattened on their bottom side for their entire bearing length to a width of not less than 4 inches.

D. Log Extensions:

1. The maximum length of log extensions shall be based on weather protection criteria described in section 7-D.
2. The minimum length of log extensions shall be 9 inches measured from the edge of the notch to the end of the log overhang. This standard applies to both interior and exterior log extensions. Saddle notch corner notches are exempt from this requirement.
3. Exterior log extensions shall have a tight fit to the log extensions below.

F. Log walls with opening cut for doors, windows and passageways shall require additional bracing with rough sawn bucks, full width of the log wall.

E. Joining Logs Lengthwise:

1. Spliced logs shall be secured to each other with bolts or other fasteners, and to adjoining courses of logs above and below with lag-bolts or through-bolts in a manner that preserves the structural integrity of the wall. Butt joints should be glued on ends, above and below the joint as well, using construction adhesive, and lag bolts or structural screws used within 6" each side of the splice into the log below.
2. No more than half of the logs within a corner shall be spliced.
3. The notch shall at all times completely hide a splice and its fasteners, and help protect splices against weather and insect infiltration (if spliced at the notch).

G. Header Logs:

1. A header log shall have no more than half of its vertical height removed at the location of openings,

I. Log Wall-Frame Wall Intersections:

1. Log walls shall be cut as little as necessary when intersected with an interior bearing or partition wall.
2. Where wood is removed at the intersection of a log wall and frame wall, the log wall shall have 55% or more of its cross-sectional area remain intact and uncut.
3. Where frame partition walls are notched into opposite sides of a log wall there shall be a minimum of 4 feet between the end of one notch and the beginning of the next notch on the opposite side of the log wall, or, if closer than 4 feet, a minimum of one-third (1/3) of the wall cross-sectional area shall remain intact and uncut.
4. In no case shall cuts go past the centerline or midpoint of the log wall.
5. Log wall-frame wall intersections must allow for unrestricted settling of the log wall.

J. Height of Log Walls:

Log walls shall not be taller than two stories.

K. Bearing Walls:

Bearing walls shall be designed and constructed to structurally accommodate horizontal and vertical forces which are anticipated to act upon the building.

L. Preservation of Log Walls:

Where necessary, steps should be taken to restrict the growth of mildew and fungus on logs while the building is under construction. If mold or mildew is present before staining the logs, Deck cleaner with bleach or oxalic acid wash needs to be used, saturating the log surface, and rinsing off to neutralize the product and clean the logs. Let dry, then stain can be applied.

8. All log grades and species shall be as ICC 400-2012, Standard on the Design and Construction of Log Structures.

A. Log grades design values shall be developed in accordance with one of the following standards as per ICC 400-2012 section 302.2.1.1:

1. ASTM D 3957
2. ASTM D 3737
3. ASTM D 245.

B. Logs shall be of species that are listed with clear wood strength values as published in ASTM 2555 as per ICC 400-2012 section 302.2.1.2

Construction Types:
Light Gauge Steel, Straw Bales, Bamboo, Log, TimberWood, Structural Insulated Panels/SIPs, Masonry, Steel, Concrete, Modular Homes/Factory Built housing (FBH), Coffee Shop, ICF etc. Commercial or Residential.

TITLE:
GENERAL NOTES

PAGE NO:
S1

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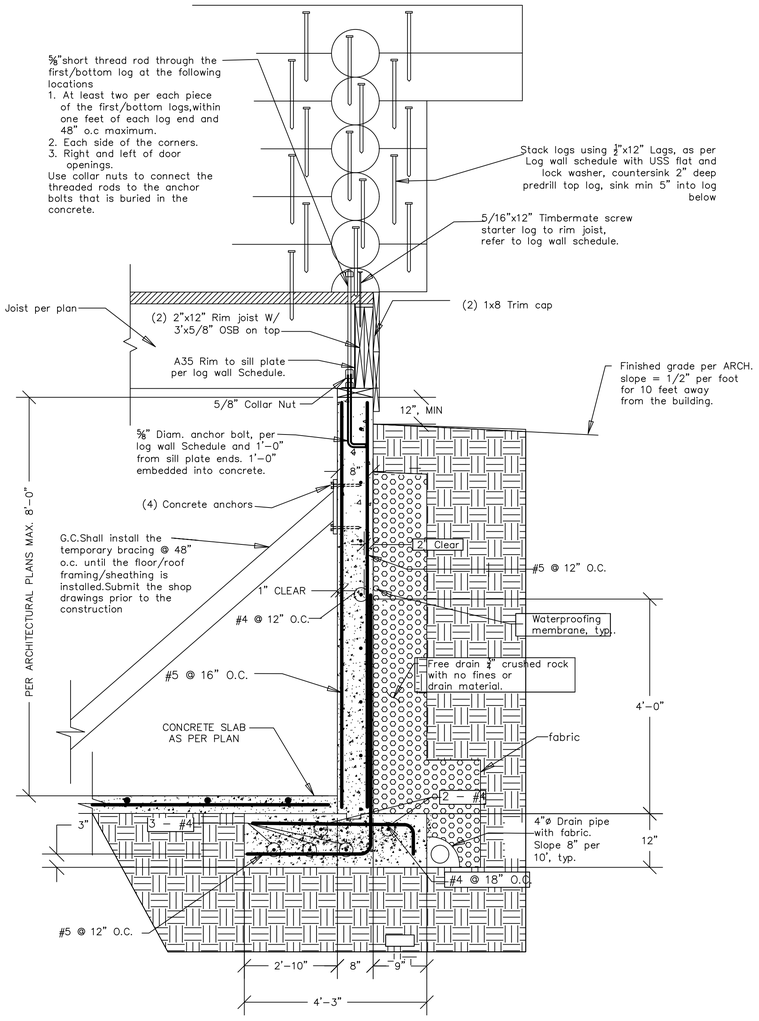
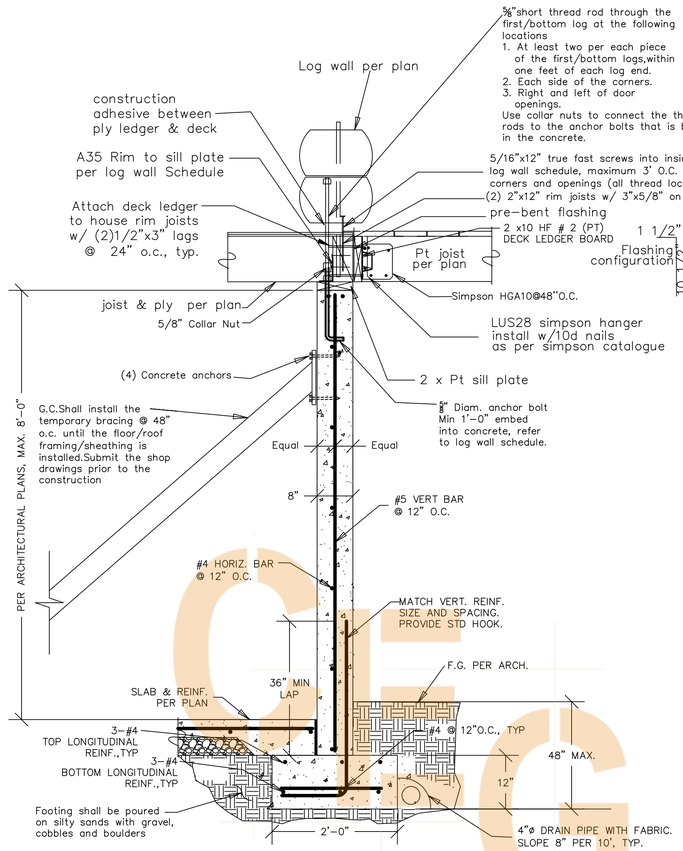
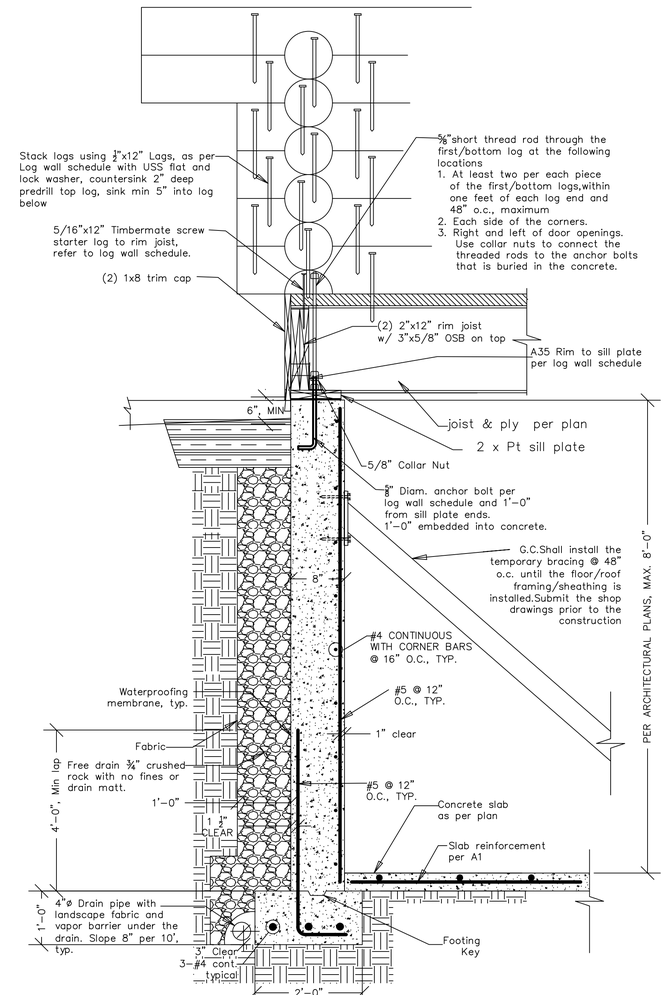
STRUCTURAL GENERAL NOTES – APPLICABLE TO ALL CONSTRUCTION UNLESS OTHERWISE NOTED ON THE PLANS



1 CANTILEVER WALL SECTION @ GRID LINE–D(2–6)
Scale: NTS



2 FREE STANDING WALL SECTION
Scale: NTS



3 RESTRAINED WALL SECTION @ GRID LINE (2&6) (D–G)
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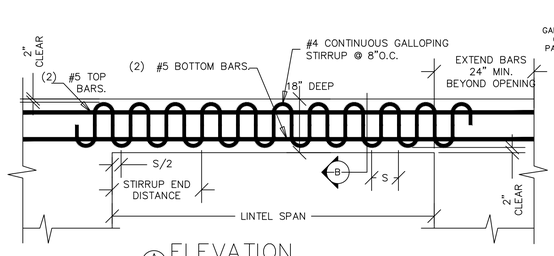
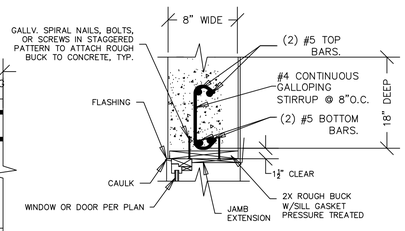


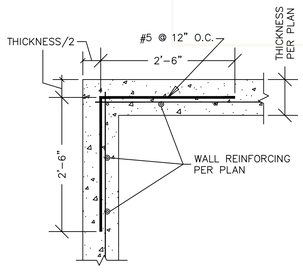
A ELEVATION



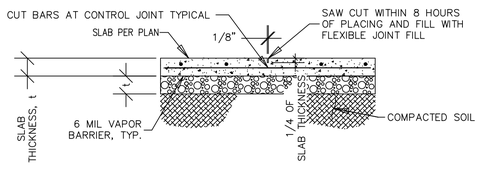
B HEADER DETAILS
NTS

4 LINTEL BEAM DETAIL
Scale: NTS

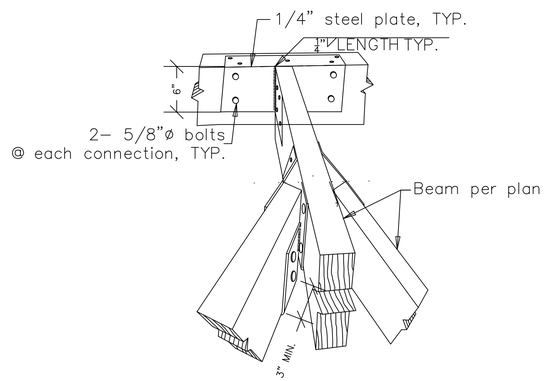
Note
LINTEL GALLOPING/SPIRAL STIRRUPS CAN BE REPLACED WITH SQUARE STIRRUPS WITH SIMILAR SIZE & SPACING



5 WALL CORNER REINFORCEMENT, TYPICAL
NTS



6 TYPICAL SLAB CONTROL JOINT
NTS



7 HIP RIDGE/VALLEY CONNECTOR
N.T.S.

Construction Types:
Light Gauge Steel, Straw Bales, Bamboo, Log, TimberWood, Structural Insulated Panels/SIPs, Masonry, Steel, Concrete, Modular Homes/Factory Built housing (FBH), Coffee Shop, ICF etc. Commercial or Residential.

TITLE:
FOUNDATION DETAILS

PAGE NO:
S1.1

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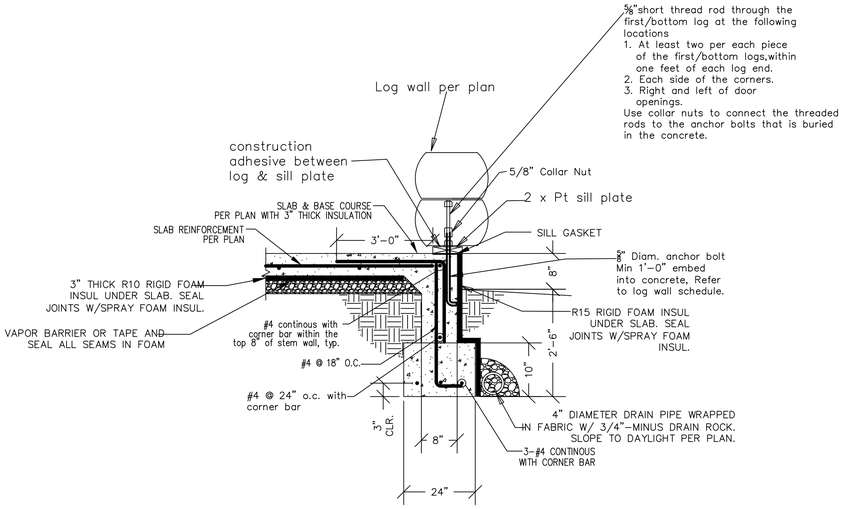
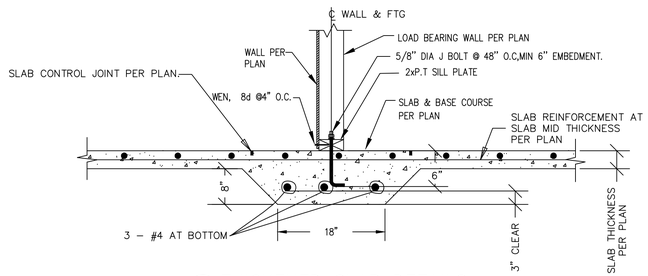
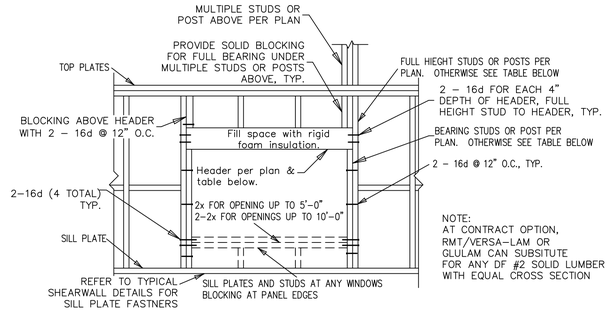
STRUCTURAL GENERAL NOTES – APPLICABLE TO ALL CONSTRUCTION UNLESS OTHERWISE NOTED ON THE PLANS



1 GARAGE FOUNDATION DETAILS
NTS



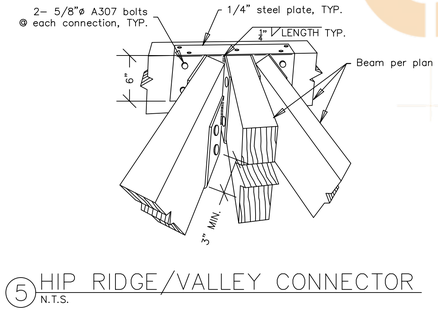
2 THICKENED SLAB DETAILS
NTS



MARK	OPENING (SPAN)	COMBINATION	HEADER SIZE	BEARING STUDS	FULL HEIGHT STUDS	CAPACITY (PLF)	REMARKS
HI	2'-8"	SPF #SS	(2) 2x10	TWO	ONE	–	–

3 HEADER SCHEDULE AND TYPICAL DETAILS
NTS

4 TYPICAL 'TEE' WALL DETAIL
Scale: NTS



5 HIP RIDGE/VALLEY CONNECTOR
N.T.S.

Construction Types:
Light Gauge Steel, Straw Bales, Bamboo, Log, TimberWood, Structural Insulated Panels/SIPs, Masonry, Steel, Concrete, Modular Homes/Factory Built housing (FBH), Coffee Shop, ICF etc. Commercial or Residential.

TITLE:
STRUCTURAL DETAILS

PAGE NO:
S1.2

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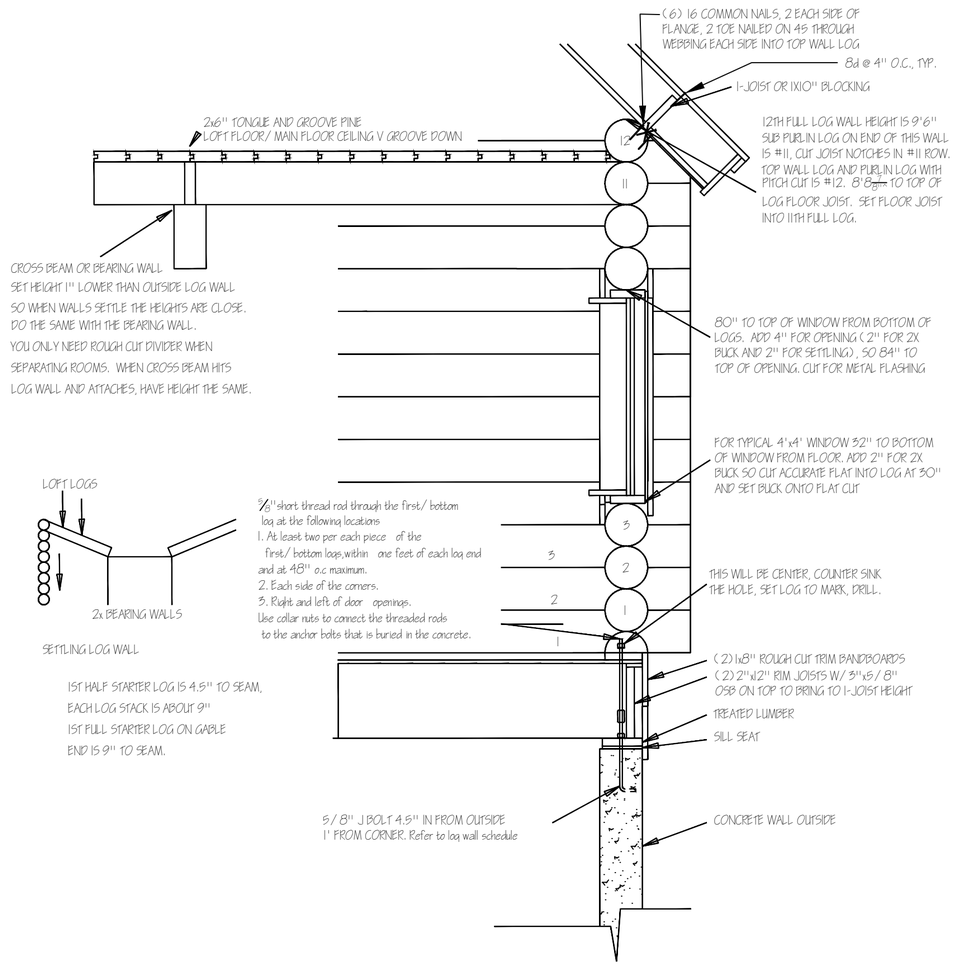
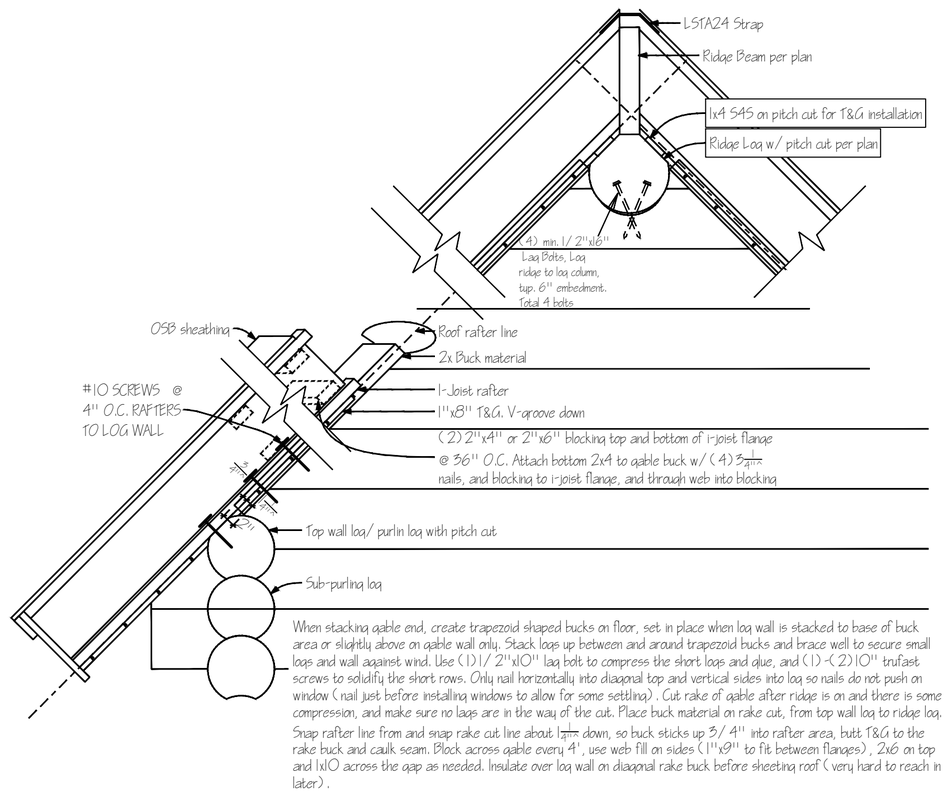


S2-1 10in Log Wall Detail

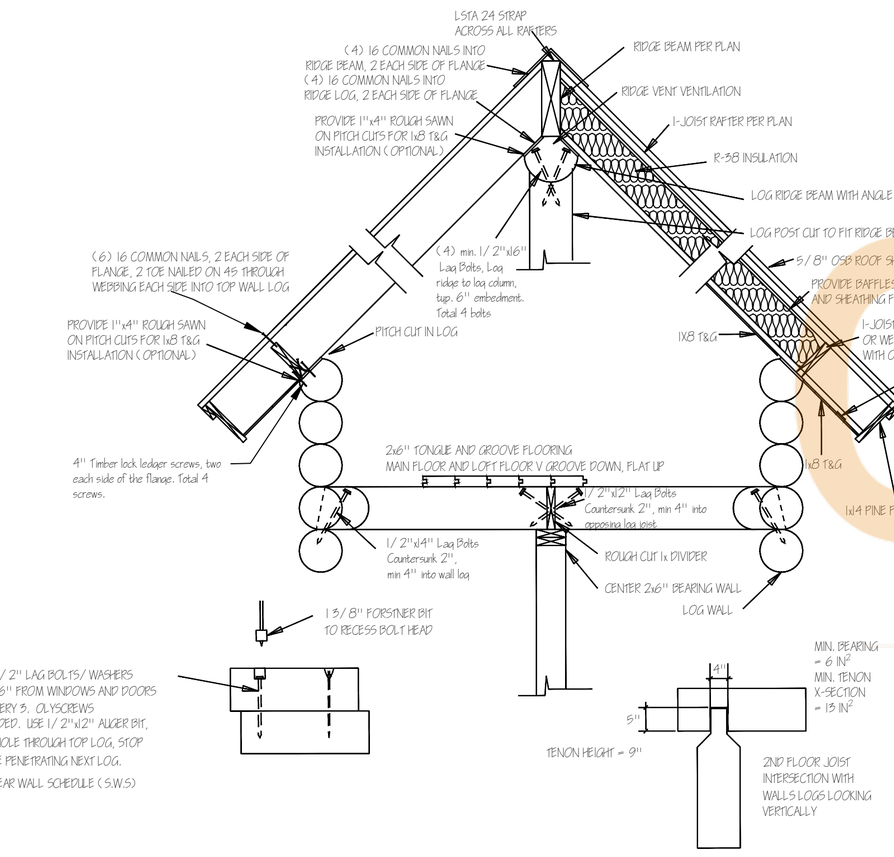
NTS



When stacking gable end, create trapezoid shaped bucks on floor, set in place when log wall is stacked to base of buck area or slightly above on gable wall only. Stack logs up between and around trapezoid bucks and brace well to secure small logs and wall against wind. Use (1) 1/ 2"x10" lag bolt to compress the short logs and glue, and (1) -(2) 10" trufast screws to solidify the short rows. Only nail horizontally into diagonal top and vertical sides into log so nails do not push on window (nail just before installing windows to allow for some settling). Cut rake of gable after ridge is on and there is some compression, and make sure no logs are in the way of the cut. Place buck material on rake cut, from top wall log to ridge log. Snap rafter line from and snap rake cut line about 1 1/4" down, so buck sticks up 3/ 4" into rafter area, butt T&G to the rake buck and caulk seam. Block across gable every 4', use web fill on sides (1"x8" to fit between flanges), 2x6 on top and 1x10 across the gap as needed. Insulate over log wall on diagonal rake buck before sheeting roof (very hard to reach in later).

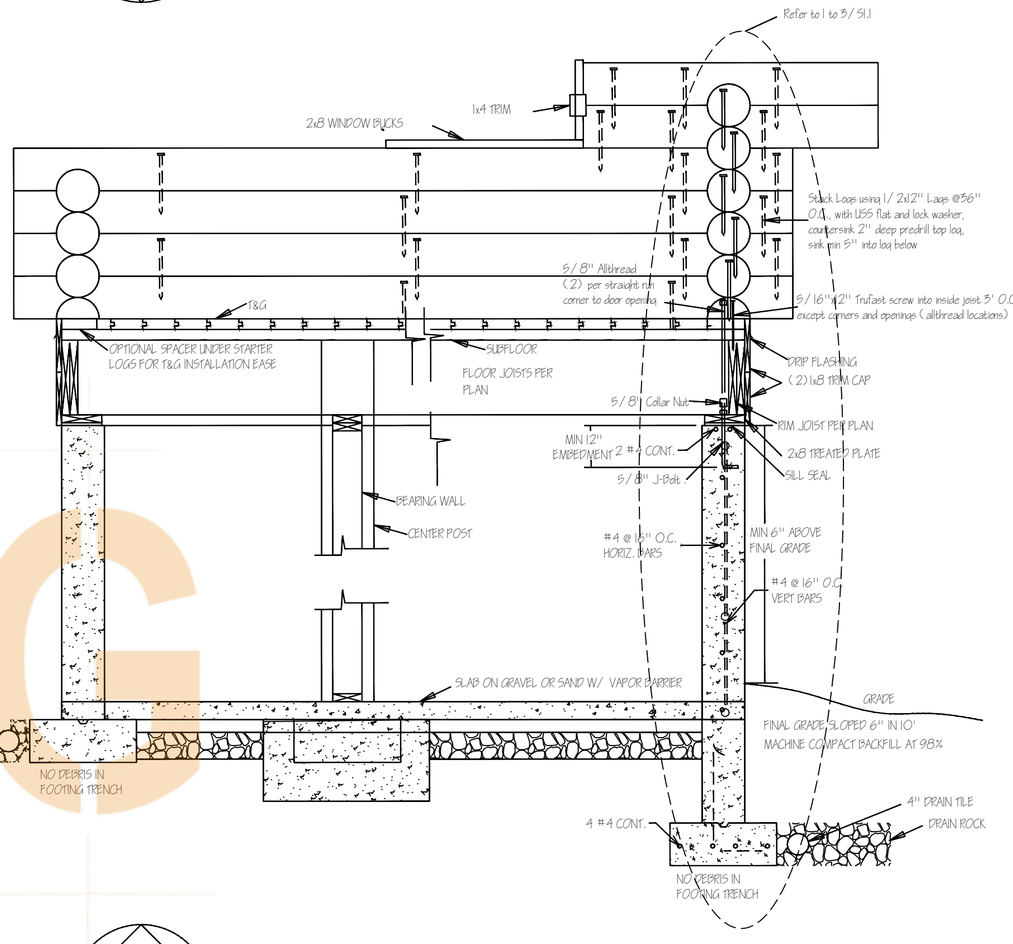
S2-2 Gable Rake Detail

3/4" = 1'-0"



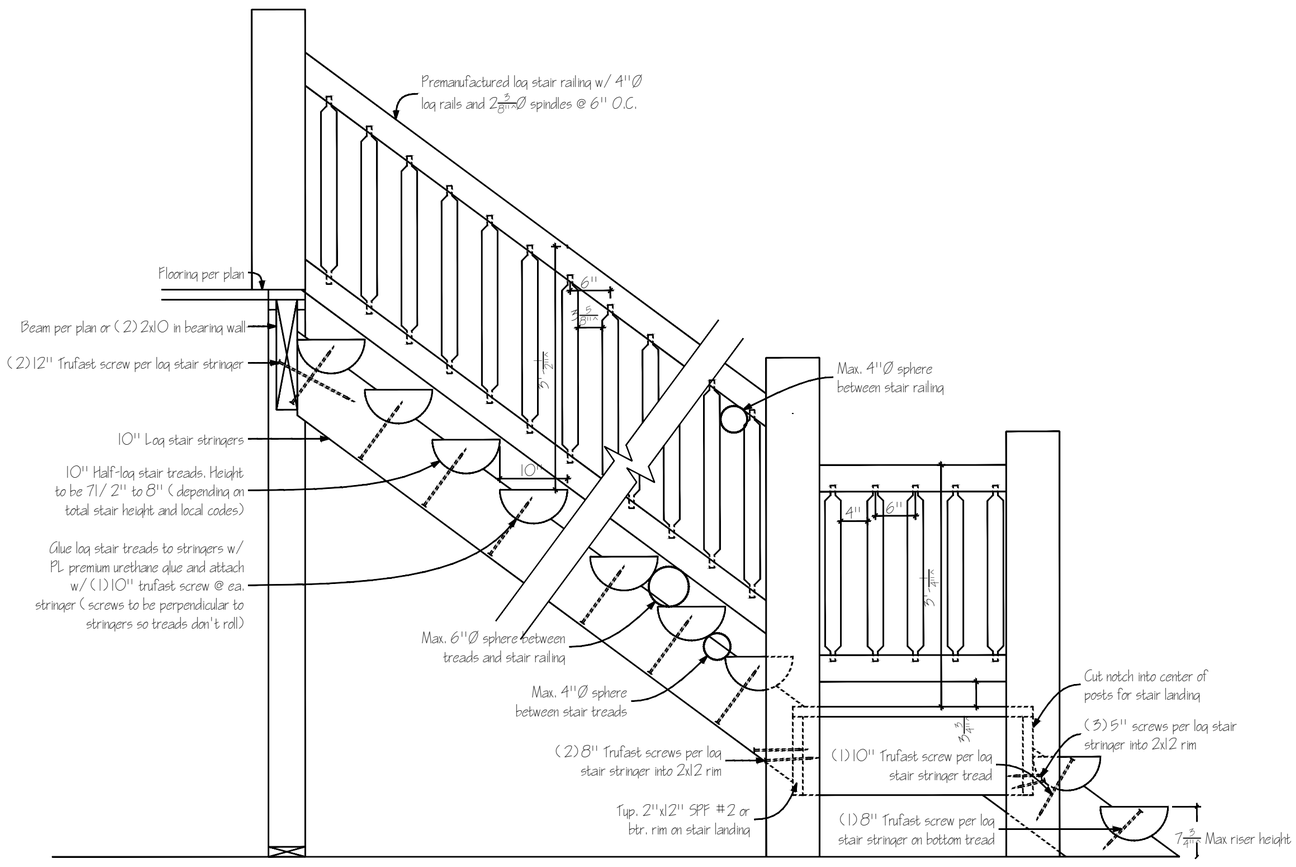
S2-3 Roof Detail

NTS



S2-4 Foundation Detail

NTS



S2-5 Log Stair Detail

3/4"=1'-0"

General Sheet Note

"Where callouts or details shown on this sheet conflict with the structural drawings, the structural drawings shall supersede this/these details/sheets. Typical all sheets."

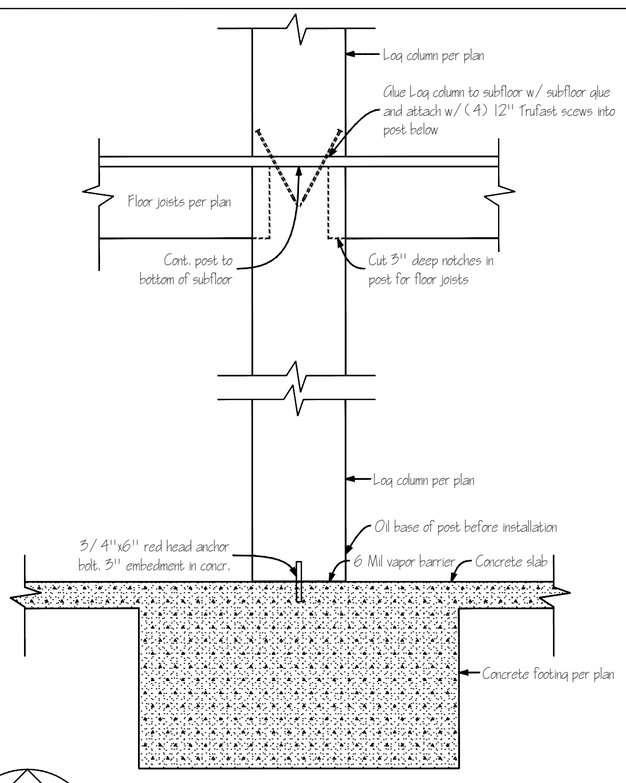
S2

Revisions

Date:

Mark:

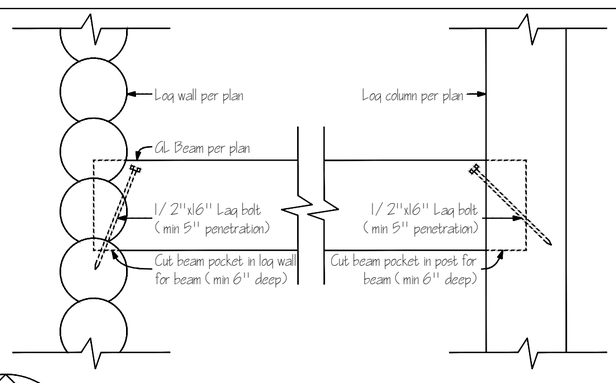
By:



S2.1-1

Center Post Detail

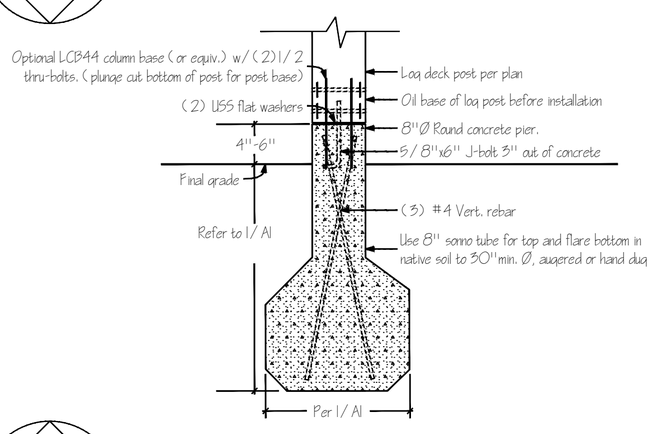
3/4" = 1'-0"



S2.1-2

Floor Support Beam Detail

3/4" = 1'-0"



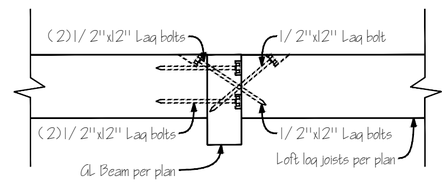
S2.1-4

Deck Post Footing Detail

3/4" = 1'-0"

S2.1-3

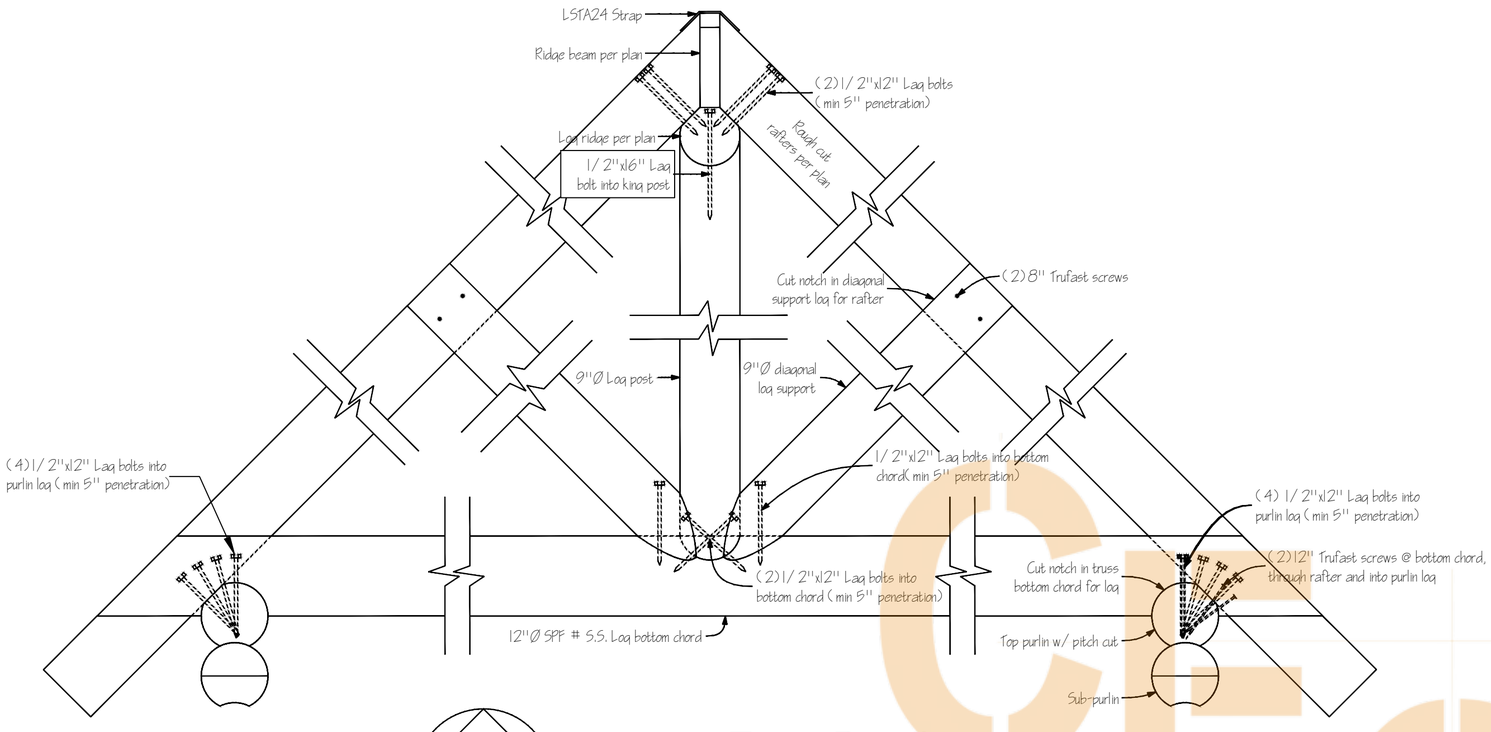
NOT-USED



S2.1-5

Log Joist to GL Beam Detail

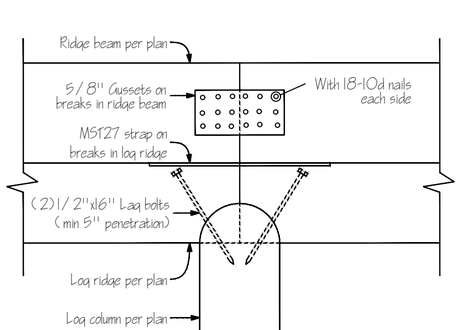
3/4"=1'-0"



S2.1-6

Truss Detail

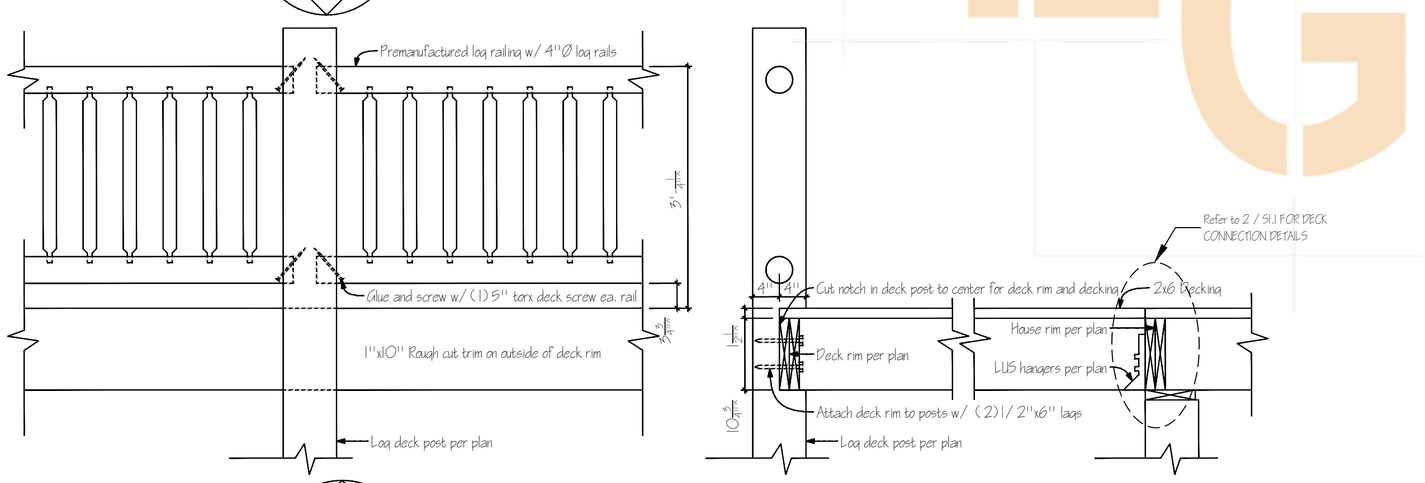
3/4" = 1'-0"



S2.1-7

Ridge Beam Detail

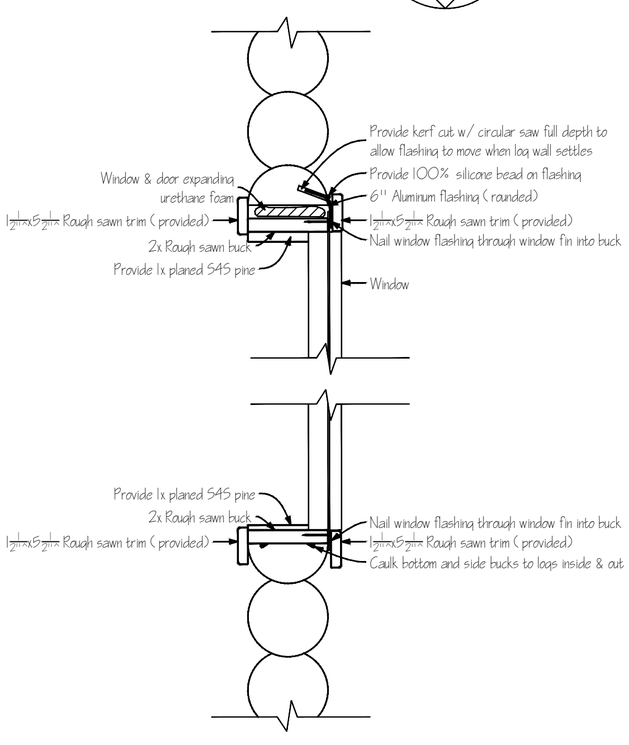
3/4" = 1'-0"

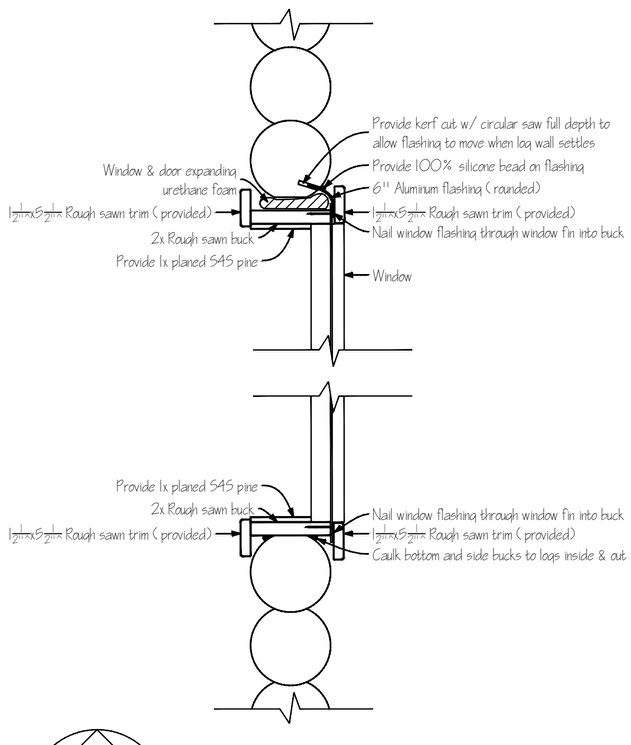


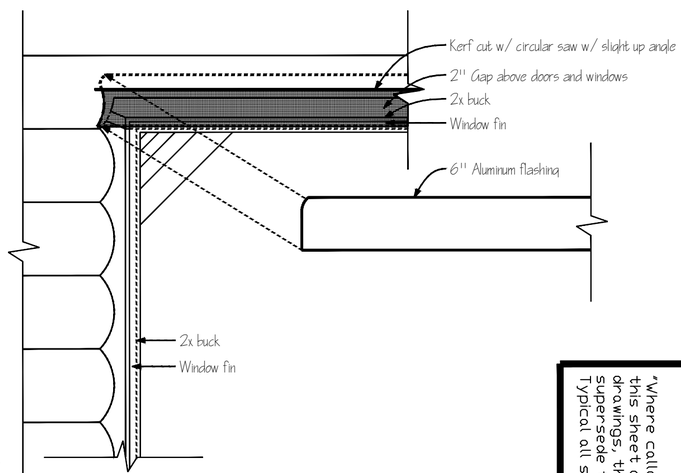
S2.1-8

Deck Post and Rail Detail

3/4" = 1'-0"







S2.1-10

Window Detail

3/4" = 1'-0"

General Sheet Note

"Where callouts or details shown on this sheet conflict with the structural drawings, the structural drawings shall supersede this/these details/sheets. Typical all sheets."

S2.1

Revisions

Date:

Mark:

By: