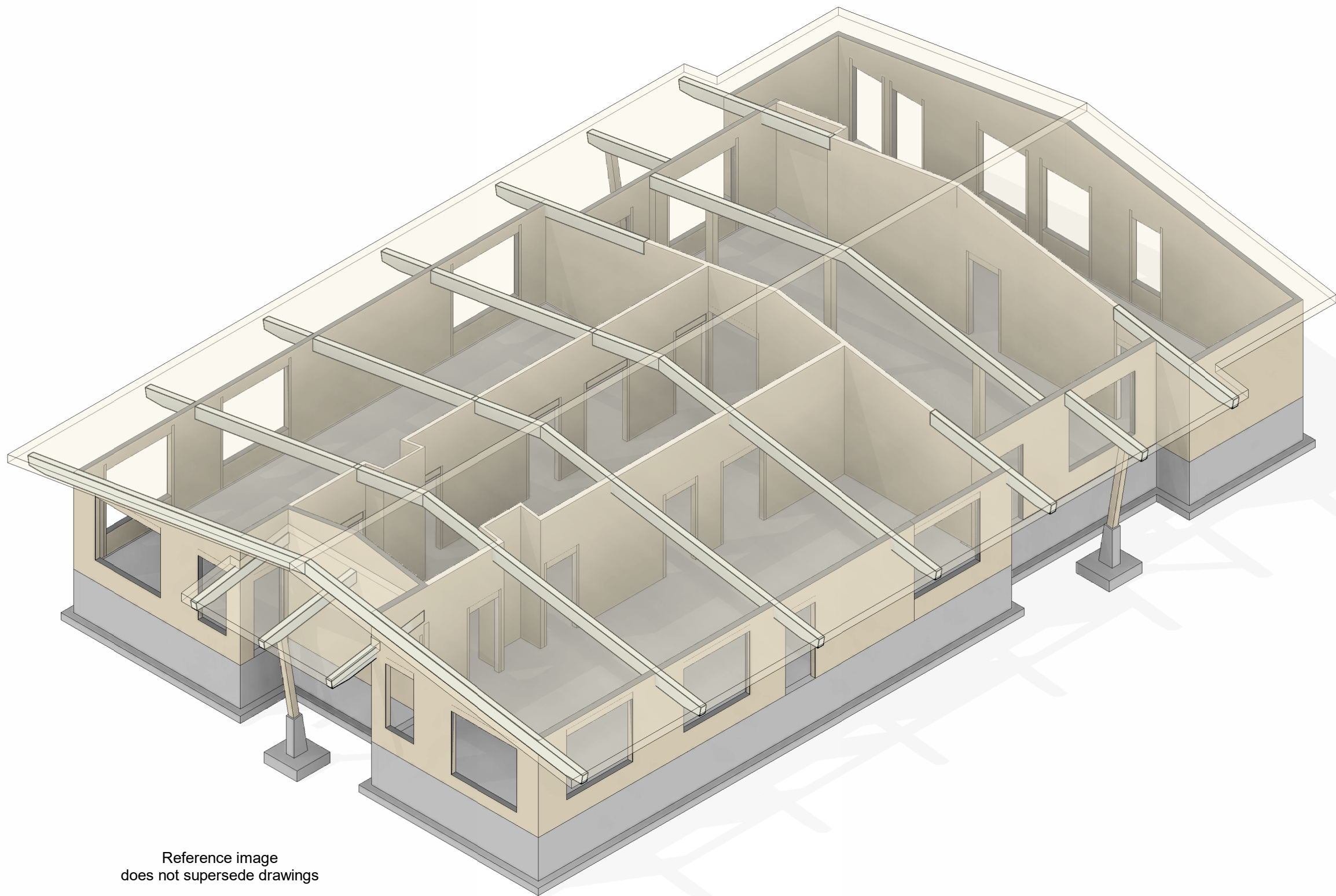


Unicorn Daycare - CLT & Heavy Timber Option

Trail, BC

DRAWING LIST

S0.00	Cover Page
S1.01	General Notes
S1.02	General Notes
S2.01	Foundation Plan
S2.02	Main Floor Showing Roof Framing
S3.01	Sections
S3.02	Sections
S4.01	Details



GENERAL STRUCTURAL NOTES

- The structural design is based on the 2024 British Columbia Building Code.
- All construction shall be in accordance with the 2024 British Columbia Building Code.
- The structural design is for a new daycare building in Trail, BC.
- The structural design is based on building geotriety and finished grades as detailed in architectural drawings for the project available at the time of this drawing issue. Any changes require structural review and approval. The structural drawings are intended to be read in conjunction with the Architectural drawings and other consultant drawings.
- Unless noted otherwise, the structural drawings represent the completed structure. All shoring, formwork, excavations, temporary supports etc. needed to safely complete the work are the responsibility of the Contractor. Where notes and specifications require submittals by a Professional Engineer, the Engineer must be licensed at the place where the Project is located.
- The Contractor shall make no deviation from the contract documents without written approval of Juniper Engineers or the applicable consultant.
- Install all fasteners, anchors, adhesives and proprietary components in strict compliance with the suppliers requirements.
- Dimensions are in imperial inches (") unless noted otherwise.

DESIGN LOADS

Location:	Trail, BC.
Wind (q 1/50)	= 0.35 kPa
Ground Snow (Ss)	= 4.41 kPa (Cb = 0.8)
Associated Rain Load (Sr)	= 0.1 kPa
Importance Category	= Normal

Seismic design values are taken from the 2020 National Building Code Seismic Hazard Tool.

Sa(0.2)	= 0.237	PGA	= 0.0967
Sa(0.5)	= 0.21	PGV	= 0.173
Sa(1.0)	= 0.154	Seismic Category	= SC2
Sa(2.0)	= 0.108	Importance Factor Ie	= 1.0
Sa(5.0)	= 0.052	Site Class	= D (assumed)
Sa(10.0)	= 0.026		

Wood Framed Shear Walls	Rd 3	Ro 1.7
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Roof	LL / SL 3.4 kPa	SDL 0.5 kPa
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(refer to plan for additional snow drift/sliding loads)
Net Factored Wind (uplift) = 0.5 kPa

- 'Superimposed dead load (SDL) includes all permanent construction and secondary components supported by the structure (e.g. floor finished, insulation, cladding, partitions, M&E services, fixed equipment, etc.) It doesn't include the self-weight of the primary structural framing members and foundations.
- Construction loads must not exceed the design loads above.
- The structural design herein includes the effects and loading of sliding snow from sloped roof surfaces with slippery roofing material. Although these effects and loads are accommodated in the structural design, snow stops are still recommended.

SHOP DRAWING SUBMITTALS

- Submit shop drawings for supplier designed components. Shop drawings may be submitted for initial review and comments prior to final submission. When available, send digital model in .ifc format for review against the structural model. Final shop drawings must be stamped by a Professional Engineer and paid for by the supplier.
- Required shop drawing submittals are as follows:
 - Structural Steel
 - Heavy Timber
 - Prefabricated Wall Panels, if applicable
- Shop drawings must indicate all design load dimensions, connections, bracing requirements, hardware etc. necessary for complete construction of the permanent system. Provide Contractor/Installer with all data necessary for proper installation (e.g. truss erection guidelines).

FIELD REVIEWS & MATERIAL TESTING

- The Contractor shall schedule and allow for field reviews by the Consultant.
- Notify the Consultant 48 hours in advance for field review of:
 - Concrete Reinforcing - Prior to each concrete pour
 - Structural Framing - Prior to covering over
 - Masonry Reinforcing
- Field Review is intended as a review of general conformance with the structural drawings and is not supervision of the implementation or construction work, nor is it a guarantee that all deficiencies will be identified by the Field Reviewer.
- Material testing shall be directed by the Structural Engineer at the expense of the Owner.
- Concrete testing shall be in accordance with CAN/CSA-A23.2, latest edition and carried out by an independent testing agency approved by the Structural Engineer. Unless permitted by the Engineer, a minimum of 3 test cylinders shall be cast for ea. 50 cu. meter/ 50 cu. yards or each day's pour, whichever is less. Test one at 7 days and two at 28 days and submit written reports for review by the Engineer. For concrete with high cement replacement (25% or more), cast a minimum of 4 test cylinders. Test one at 7 days, one at 28 days and two at 56 days. Test reports shall identify the locations where concrete is being tested with grid lines and elevations
- Submit concrete test results maximum 24hrs after test.
- Additional testing and field review resulting from rejection of more than 5% of work tested will be at the Contractor's expense.

SECONDARY COMPONENTS

- Secondary Components are not part of the structural design shown on this drawing set. Such elements are designed, detailed and reviewed in the field by others. They are shown on drawings other than this structural set by Juniper Structural Engineers. Where structural engineering responsibility is required for these elements, this shall be provided by a Speciality Structural Engineer, who shall also provide any letters required by building permit authorities.

"Secondary components" include, but are not limited to:

 - Architectural components such as guardrails, handrails, flag posts, canopies, ceilings, millwork, etc.
 - Landscape elements (benches/ light posts/ planters/ etc)
 - Cladding/ glazing/ window mullions/ interior and exterior stud walls
 - Skylights
 - Mechanical and electrical equipment, components, and their attachment details
 - Window washing equipment and their attachment
 - Escalators, elevators and conveying systems
 - Glass block and its attachment
 - Brick or block veneer and their attachment
 - Non-load bearing masonry
 - Non-structural concrete toppings
 - Hot tubs
 - Fall restraint systems (and supporting frame)
- Shop drawings for secondary components that may affect the primary structural system shall be submitted to Juniper Structural Engineers. These drawings are to only be reviewed for their effect on the primary structural system.

STRUCTURAL MOVEMENTS

- The structure will undergo normal types of movement and deflection and the following are estimates for concrete, masonry and steel structures. Refer to wood frame shrinkage notes for wood structures. Non-structural components must be detailed to accommodate movements. Design, detailing and field review of non structural elements is by others.
 - Differential vertical movements between adjacent columns and between adjacent columns and walls is approximately 3/4"
 - Vertical deflection of columns and walls due to shrinkage and creep is approximately 0.15" per 12'-0" of height.
 - Vertical deflections of edge beams and slab edges is approximately 1"
 - Differential deflection of edge beam and slab edges is +/- 5/8"
 - Vertical deflection at interior floors is approximately 1"
 - Differential deflection at interior floors +/- 5/8"
 - Horizontal drift during wind and earthquake between floors:
+/- 1/2" drift without damage to non-structural components
+/- 2" drift without collapse of non-structural components
- All structures are also subject to construction tolerances. This should be allowed for by detailing the non-structural components in addition to the above movements.
- Wood frame construction shall satisfy the following construction tolerances. Refer to architectural and warranty requirements for additional tolerance specifications.
 - Floors - Not more than 1/4" in 10'-0" out of level.
 - Walls - Not more than 1/4" in 8'-0" out of plumb.
- Not more than 1/4" in 10'-0" for any bowing.
 - Overall - Building walls and floors shall not be more than 3/8" different in measurement from dimensions shown on contract documents.

CONCRETE - GENERAL

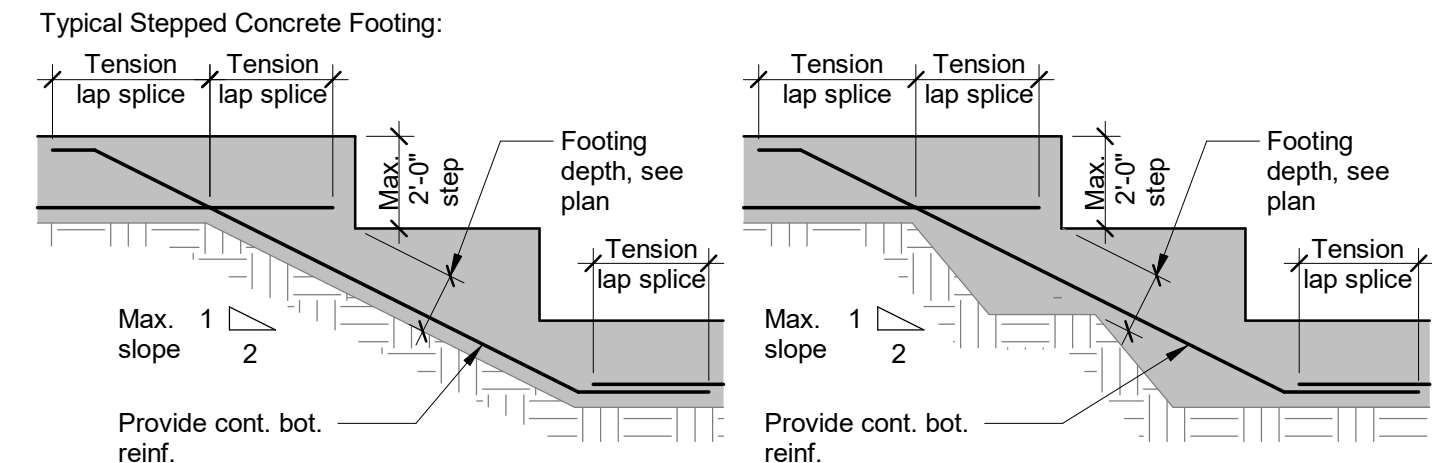
- Concrete shall be produced in accordance with CAN/CSA A23.1.
- Cold weather concreting is to comply with CAN/CSA A23.1.
- Concrete is to be tested in accordance with CAN/CSA A23.2 by an approved agency as requested by the Engineer and paid for by the Owner. (G30.18 W grade may be substituted for G30.18 R grade).
- DO NOT add water to concrete on site.
- Concrete shall adhere to the specification in the table below:

Concrete Application	Exposure Class	Min. 28 Day Strength (MPa)
Exterior Walls & Columns	F2	25
Exterior Slabs (on grade)	C2	32
Interior Walls, Columns, & Slabs	N	25
Footings	N	25
- Anchor bolts specified on the drawings may not be substituted for another type without prior approval by Juniper Engineers.
- Epoxy set anchor bolts shall use Hilti HY200 or Simpson SET-XP.
- Locate construction joists in concrete walls and footings as indicated on plan in order to reduce the potential for random cracking. Construction joints are breaks between successive concrete placements. For this project, allow footing and wall reinforcing to extend through construction joints by the specified lap splice lengths. Contractor shall submit alternate construction joint layout for review prior to construction.

CONCRETE - FOUNDATIONS & EXCAVATIONS

- Identify and locate any utilities, adjacent structures and landscaping and protect from damage.
- Soil bearing capacities used in design are:

SLS 100 kPa
ULS 150 kPa
- Soil bearing capacities, slope stability, foundation surcharges and site class must be verified in the field by a Professional Geotechnical Engineer. Refer to soils report for other specific design requirements for footings, soil slopes, frost protection, minimum cover, etc.
- Bearing surfaces must be approved by the Geotechnical Engineer immediately before footing concrete is placed. Juniper Engineers is not responsible for confirming bearing capacities of soils.
- Remove all organics from footing bearing surfaces, cast footings on undisturbed (native) soil or engineered fill. DO NOT cast concrete on frozen soil or allow footing bearing surfaces to freeze before or after footings have been cast.
- The owner shall obtain the services of a qualified testing agency to perform compaction testing as requested by the Engineer.
- Protect the footing and slab subgrade from rain, snow, excessive drying, and ingress of free water during and after construction.
- Footing dowels shall be placed before concrete is placed. Templates shall be used to ensure correct placement of dowels. Tie all reinforcing securely in location to prevent displacement during placement of concrete.
- Unless otherwise shown, center footings under columns and walls.
- DO NOT backfill foundation walls until the floor and / or roof slabs and / or diaphragms are complete. Backfill evenly, slowly and simultaneously from both sides where possible.
- Refer to additional recommendations from Geotechnical Engineer where available.
- Refer to architectural drawings for final grades and slopes.
- Footings may have to be lowered to accommodate mechanical or electrical services. See mechanical and electrical drawings for elevations. Footings are not to be undermined by excavation for services, pits, etc.
- Footing elevations, if shown, are for bidding purposes only, are not final and may vary according to site conditions or as required by services. All footings must be taken to a bearing layer approved by the Geotechnical Engineer.
- Vary footing elevations where required following details below.



CONCRETE - WALLS

- All wall reinforcing shall be continuous, with corner bars used at wall junctions. Corner bars to be located on outside face or at center (mid) of wall or as detailed in plans or details.
- Details of horizontal reinforcement at corners:

The diagram shows a corner of a concrete wall. It illustrates the placement of corner bars and tension splices. A note states 'Corner bars can be used instead of horizontal bars with tension splice length hook'.
- Ends of all walls and all wall intersections shall have 2-15M vertical minimum unless noted otherwise.
- Add 1-15M min. parallel to all edges and extending 24" beyond corners at openings in walls.
- Provide 24"x 24" corner bars in all wall corners to match horizontal wall reinforcement size and spacing min. unless noted otherwise, see foundation plan.

CONCRETE - HOT AND COLD WEATHER

- Carry out all hot and cold weather concrete work in accordance with CSA A23.1
- Where forecast air temperature at or below 5°C within 24 hours of placing:
 - The aggregate or mix water shall be heated to maintain a minimum concrete temperature of 10°C.
 - Concrete shall not be placed on or against any surface which is at a temperature less than 5°C.
 - Contractor shall be prepared to cover slab within insulation blankets if unexpected drop in air temperature should occur.
 - Concrete shall be maintained above 10°C for at least 7 days or until the concrete reaches 70% of specified strength.
 - Calcium chloride or other de-icing salts shall not be used as a de-icing agent in the forms.
 - Forms and steel shall be free from ice and snow.
- Where forecast air temperature below -4°C, the Contractor should submit a cold weather concrete plan to Juniper Structural Engineers.
- Where forecast air temperature rising above 27°C during the placing period:
 - Cool concrete to maintain a maximum temperature of 30°C.
 - Prevent concrete from drying.

CONCRETE - FORMWORK STRIPPING AND SHORING

- Design and field review of formwork, shoring and reshoring is the responsibility of the contractor and should be in accordance with WCB standards. Reshoring drawings shall be submitted to Juniper Engineers for the effect on base building structure only.
- No column or wall forms shall be removed before concrete has reached 10MPa for architectural concrete or 8 MPa for other columns or walls.
- No slab or beam forms shall be removed before concrete has reached 75% of the 28 day strength before stripping/reshoring.
- Strength of concrete for stripping to be determined using field cured cylinders.
- All slabs, beams and girders etc. to be shored until concrete reaches 28 day strength.
- No concrete may be removed with percussive methods such as chipping or jack-hammering without prior approval of Juniper Engineers.

CONCRETE - REINFORCEMENT COVER

- Unless noted otherwise in these drawings, reinforcing cover shall adhere to the requirements in the table below:

Footings	Bottom	3"
Footings	Top and Sides	2"
Walls, Piers, & Columns	Interior Sides	1"
Walls, Piers, & Columns	Exterior Sides	1 1/2"
Structural Slabs	Top and Bottom	Refer to drawings

CONCRETE - SLAB ON GRADE

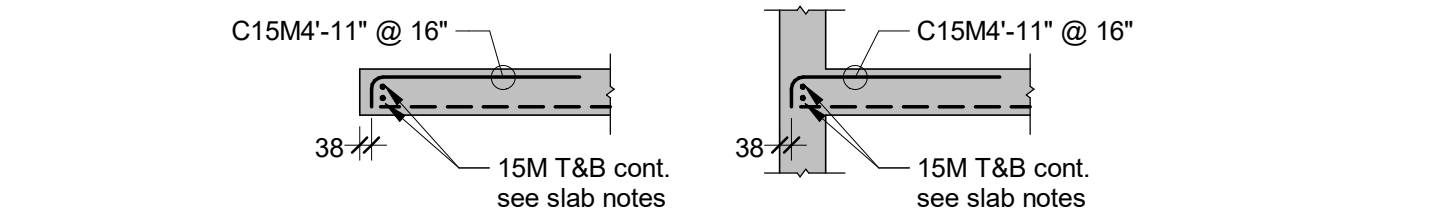
- See Geotechnical report for subbase design and compaction.
- Unless noted elsewhere on the structural / architectural drawings and specifications, space control joints @ 15'- 0" MAX.
- Sawcut joints 5/32" wide and 1 1/4" deep as soon as practical, but no later than 12 hrs after placement of slab. Use equipment that does not "ravel" the edges of the cut, seal as required. Exercise caution to avoid embedded mechanical and electrical services.
- Unless noted otherwise on the structural drawings, run any slab on grade reinforcement through the joints.
- Unless noted otherwise, sawcut diamond pattern around columns. 6" clear of columns.

The diagram shows a slab on grade reinforcement detail around a column. It indicates control joints, typical (TYP.) reinforcement, and a 6" clearance around the column. A note states 'Column above, shape and size to vary'.
- Alternate detail for use at concrete walls and at columns where diamond shaped joints not architecturally acceptable:

The diagram shows an alternate slab on grade reinforcement detail for use at concrete walls and columns. It indicates control joints, typical (TYP.) reinforcement, and a 1/2" joint filler all sides. A note states 'Form and provide 1/2" joint filler all sides'.
- Approval of the Architect is required to substitute "zip strips" for saw cuts.
- DO NOT saw cut structural concrete (suspended) slabs.
- Slabs-on-grade shall be cast on undisturbed (native) soil and engineered fill. Fill to the design subgrade with 3/4" crushed gravel compacted to 98% Standard Proctor Dry Density.

CONCRETE - SLAB EDGE

- Unless otherwise noted on the structural drawings, all slab edges to have 15M hooked bars as shown:



- For thin slabs, standard 90° hook to be angled to fit within slab thickness. Hook length not to be cut.

CONCRETE - CONSTRUCTION TOLERANCES

- Tolerances as per CSA A23.1, except as noted below. Closer tolerances shall be maintained where architectural details or others require.
- Where any deviation occurs and it is acceptable to the Engineer and Architect, the Contractor is responsible for adjustment of other building elements to accommodate such deviation. Costs for remedial work for deviations not accepted shall be taken on by the Contractor.
- Variation from plumb:
 - In the lines and surfaces of columns, piers, walls and in arises: 0.25% of height (1 in 400). Maximum 1 1/2" over the entire height of the structure.
Only one curvature allowed per 10'-0"
The tolerance given is the maximum variation from a plumb line
All measurements shall be to the same side of the plumb line
 - Unless specified elsewhere in the construction documents - The tolerances for exposed corner columns, control joint grooves, and other conspicuous lines shall be: (see also elevator shop drawings etc)
0.125% of height (1 in 800), maximum 3/4"
Only one curvature allowed per 20'-0"
Maximum variation in window bays 0.2% of opening
- Unless specified elsewhere, floor finishes shall be class A "institutional and commercial floor" +/- 5/16" per 10'-0". Only one curvature allowed in 10'-0". Closer tolerances may be required to give the quality of finish floor surfaces called for elsewhere in the contract documents.
- Variation of structural concrete elements related to each other and relative to a referenced grid system for plan dimensions to meet CSA A23.1
- Variation in cross-sectional dimensions of columns and beams and in the thickness of slabs and walls are as per CSA A23.1. Only one curvature allowed per 10'-0"
- Footings:
 - Variations in dimensions in plan = Minus 3/8", Plus 2".
 - Misplacement or eccentricity = 2% of the footing width in the direction of misplacement but no more than 2".
 - Reduction in thickness = Minus 5% of specified thickness.
- The above requirements do not relieve the Contractor of their responsibility of meeting more rigid requirements specified elsewhere in the construction documents or as required by equipment shop drawings or specifications such as those for elevators, etc.

STRUCTURAL STEEL

- Structural steel sections shall be new and conform to the following:
 - Wide flange beams and WWF sections
 - Miscellaneous rolled sections (except wide flanges)
 - Hollow structural sections (class C U.N.O.)
 - Rolled plates
 - Bolts (see plans and details)
 - Structural steel anchor rods (U.N.O.)
 - Reinforcing bar anchor bolts
- Design forces indicated on drawings for structural steel work are factored forces unless noted otherwise. Forces are vertical shear forces U.N.O.

Metric:

2.1 Forces	kN
2.2 Moments	kN-m
2.3 Line loads	kN/m
2.4 Distributed loads	kPa

See general notes "design loads" for definitions and values of live load, dead load, and superimposed dead load. See also plans for other load/force requirements.
- Submit shop drawings for review prior to start of steel fabrication.
- Fabrication, erection, structural design and detailing of all steel shall be in accordance with CAN/CSA-S16
- Fillet welds shall be 1/4" Minimum U.N.O.
- Bolted connections shall have a minimum of two bolts in each connected piece and be designed as bearing connections U.N.O.
- All welded headed studs and welded deformed bar anchors shall be installed as per the manufacturers specification and recommendations or shop fillet welded. Any field fillet welded deformed bars or studs will be rejected. See plans, sections, details, and schedules for locations etc. The Contractor shall co-ordinate the design, supply, and installation of all studs and anchors, including but not limited to studs and deformed bar anchors on composite beams, drag struts, embedded plates, etc.
- Unless noted otherwise, column cap plates shall be 5/8" thick and column base plates shall be 7/8" minimum thick.
- Provide 1/4" cap plates for all HSS members U.N.O.
- All externally exposed HSS to have a 1/2" Ø weep hole at the lowest end.
- Connection details shown on the structural drawings shall not be altered by the Contractor without written approval of Juniper Engineers.
- This symbol means that a beam is moment connected through supporting beam or column. provide full strength moment connection typ.
- Frame roof and floor openings greater than 18" in accordance with the details in the general notes unless noted otherwise on plan.
- Steel to be exposed in finished work shall be cleaned, prepared, primed and painted in accordance with CSA standard S16 and the architectural drawings and painting specifications.
- Unless noted otherwise, do not oversize holes in steel to fit any anchor locations. For column base plate holes, unless noted otherwise on drawings, follow standard practice which is to use slightly oversized holes. Use 1/4" oversized hole diameter for column anchor rods up to and including 1" diameter, and 1/2" oversized hole diameter for column anchor rods greater than 1" diameter.
- Steel coatings shall be provided as follows:
 - Non-visible structural steel that will be enclosed within the building envelope once complete shall be shop primed.
 - Visible interior structural steel shall be shop primed and painted. Refer to architectural drawings for finish paint specifications.
 - Structural steel that is permanently exposed to weather, shall be hot-dip galvanized according to CSA G164.

ABBREVIATIONS

Avail.	= Available	I.F.	= Interior Face
Add'l	= Additional	Lg.	= Long
Bk.	= Blocking	Max.	= Maximum
Brg.	= Bearing	MBGS	= Meters Below Grade Surface
Brc.	= Brace	Min.	= Minimum
Btwn.	= Between	NTS	= Not To Scale
Bot.	= Bottom	O.C.	= On Centers (spacing)
B.U.	= Built-Up	O.F.	= Outside Face
Cant.	= Cantilever	UNC	= Unless noted otherwise
C.J.	= Construction Joint	P.Th.	= Partially Threaded
Col.	= Column	Pl.	= Plate
Conc.	= Concrete	PLA	= Point Load Above
Cont.	= Continuous	Ply	= Plywood/ Sheathing
CSK	= Countersunk	P.T.	= Pressure Treated
Cyl.	= Cylinder	RFT	= Rafter
C/W	= Complete With	RDG	= Ridge
Dp.	= Deep	Reinf.	= Reinforced/ Reinforcing
E.S.	= Each Side	R/W	= Reinforced With
E.W.	= Each Way	SIM	= Similar
E.F.	= Each Face	SIMPSON	= Simpson Strong Tie
Ext.	= Exterior	SOG	= Slab On Grade
Ftg.	= Footing	STG	= Staggered
F.Th.	= Fully Threaded	SW	= Shearwall
GT	= Girder Truss	T.O.	= Top Of
GL	= Glulam	T.O.W.	= Top Of Wall
HDG	= Hot-Dip Galvanized	Typ.	= Typical
Hdr.	= Header	Wash.	= Washer
HDP	= High Density Polyethylene	W/	= With
Hex.	= Hexagonal	Vert.	= Vertical
H.E.F.	= Horizontal Each Face	V.E.F.	= Vertical Each Face
H.I.F.	= Horizontal Inside Face	V.I.F.	= Vertical Inside Face
H.O.F	= Horizontal Outside Face	V.O.F.	= Vertical Outside Face
Int.	= Interior		

NOT FOR CONSTRUCTION

JUNIPER
STRUCTURAL ENGINEERS

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EGBC Permit to Practice No. 1003736

DRAWINGS ISSUED:			
NO.	ISSUED FOR	YYYY.MM.DD	
1	50% Design Development	2025.12.19	
2	60% Design Development	2026.01.09	
3	Alternate for Pricing - CLT & Heavy Timber	2026.06.01	

PROJECT TITLE
Unicorn Daycare - CLT
& Heavy Timber
Option

DRAWING TITLE
General Notes

CHECKED MD	DRAWN AD
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DRAWING

S1.01

WOOD - GENERAL

- All design, details, materials and construction procedures shall conform to the current editions of the following:
 - BC Building Code 2024**
 - CSA O86 - Engineering design in wood
 - CSA O121 / CSA O325-07 3 - Plywood
 - CAN/CSA-O122 - Structural glue-laminated timber
 - CAN/CSA-O177 - Qualification code for manufacturers of structural glue laminated timber
 - CAN/CSA-O473 series - Standards for OSB and waferboard
 - CSA B111 - Wire nails, spikes and staples
 - ASTM D5456 - Standard specification for evaluation of structural composite lumber products
 - "Wood design manual" - Canadian Wood Council
 - "Wood building technology" - Canadian Wood Council
- Any changes to the framing shown on these drawings shall have prior written approval by Juniper Engineers. Framing changes which have not been approved will be rejected.
- Confirm all dimensions and outlines with the architectural drawings. See architectural drawings for additional dimensions, elevations and details.
- Finishes shall be detailed to accommodate shrinkage of timber over time.
- Notching and drilling of structural members shall follow building code part 9 guidelines, unless otherwise approved by Juniper Engineers.
- The Contractor is to take all reasonable measures to protect wood from moisture while it is stored on site. This includes keeping wood stored in dry or protected area with a moisture resistant cover. The Contractor should also take reasonable measures to close in the structure as quickly as possible to reduce the exposure of wood to moisture. If wood is exposed to moisture, it should be allowed to naturally dry to within the allowable moisture content before any membranes or products with low vapour permanence are installed.

WOOD - MATERIALS

- Studs and built up posts shall be SPF No.1/2
- Wall plates shall be SPF No. 1/2
- Joists and rafters shall be SPF or D.Fir-L No. 1/2
- Built up beams and headers shall be SPF No. 1/2
- Timber beam, columns, braces or other solid-sawn structural timber shall be D.Fir-L No.1 or better. Any timber not grade marked will be rejected.
- All plywood is Douglas Fir Plywood (DFP) exterior grade.
- Timber members are identified by nominal dimensions (e.g. 8x10). All structural design is based on the corresponding finished dimensions (e.g. 7.5x9.5).
- Wood connection hardware to be Simpson Strong-Tie or equivalent approved by Juniper Engineers.
- Nails shall be common round steel wire nails or pneumatic nails (p nails) with minimum diameters shown below:

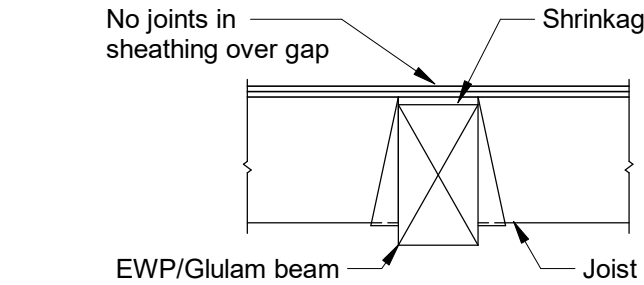
Length	Common Nail Ø	P Nail Ø
2"	0.112"	0.113"
2 1/2"	0.128"	0.131"
3"	0.144"	0.148"
3 1/4"	0.144"	0.148"
3 1/2"	0.160	0.162"
4"	0.192"	----
4 1/2"	0.212"	----
5"	0.232"	----

3" x 0.131" P nails may be substituted for 3" common nails. Tighten specified nails spacing shown on drawings by 20%
i.e: 3" common @ 300mm = 3"x 0.131" P nails @ 250mm
3" common @ 250mm = 3"x 0.131" P nails @ 200mm
- All pneumatically driven nails are to have full round heads.


- Fasteners and connection hardware through preservative treated material or outside applications to be hot dipped galvanized or stainless steel as specified.
- Moisture content of wood members shall not exceed 19% at the time of construction or fabrication.
- Moisture barrier to be provided between wood elements and all concrete or masonry. Sheet polyethylene is not permitted. All junctions and terminations shall be lapped (2" min.) and sealed. Butt joints in moisture barriers not permitted.

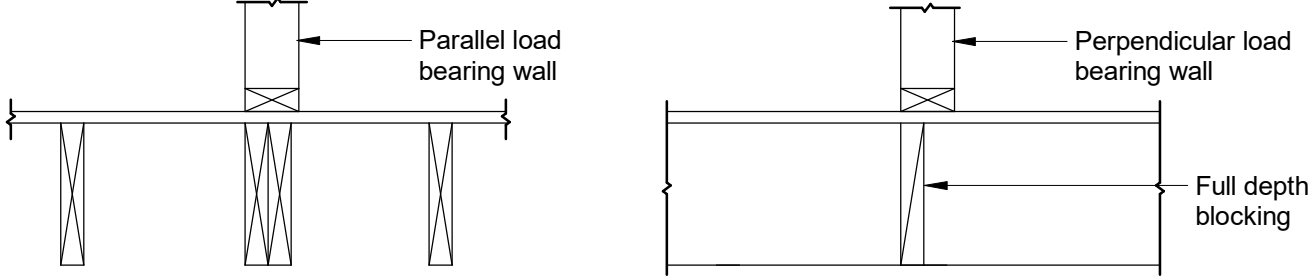
WOOD - SHRINKAGE

- The wood frame structure will undergo movement due to shrinkage. Shrinkage occurs as the moisture content in the wood decreases as it dries.
- Framing details shall ensure uniform vertical shrinkage. Adjacent portions of structure shall be supported on roughly equivalent amounts of horizontal wood members (joists and sill plates) Do not mix kiln dried and non-kiln dried joists or solid-sawn and EWP in any given floor.



WOOD - JOISTS

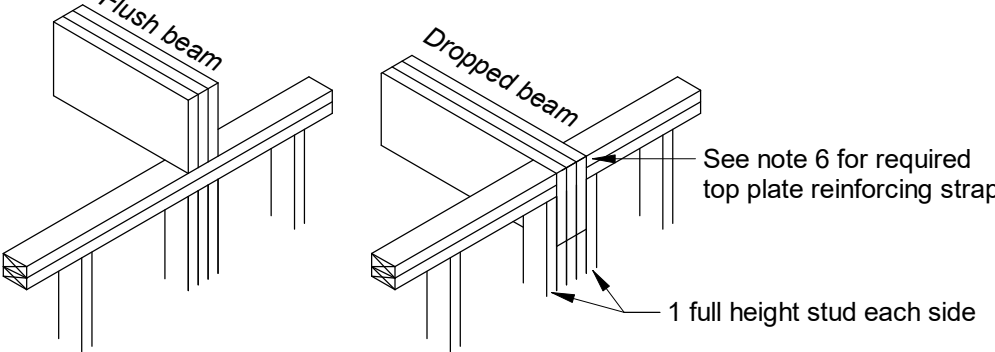
- Refer to plan and joist schedule for joist size, type and spacing.
- Dimensional Lumber joists shall have cross-bridging or full depth blocking @ 6'-0" O.C. along the span for all spans greater than 12'-0". Cross bridging shall consist of 2x2 lumber or approved steel bridging.
- All joists shall have full depth blocking over load bearing walls, dropped beams or headers. See typical load bearing wall and shear wall connections between floors for additional blocking requirements.
- Openings in floors and roofs (stairs/skylights/access/etc) to be framed around with double joists U.N.O.
- Provide double joists under parallel framed walls unless noted otherwise.
- Provide 2x full depth blocking between joists under perpendicular framed walls unless noted otherwise.



- Stairs and stringers to be framed in accordance with building code part 9, U.N.O.

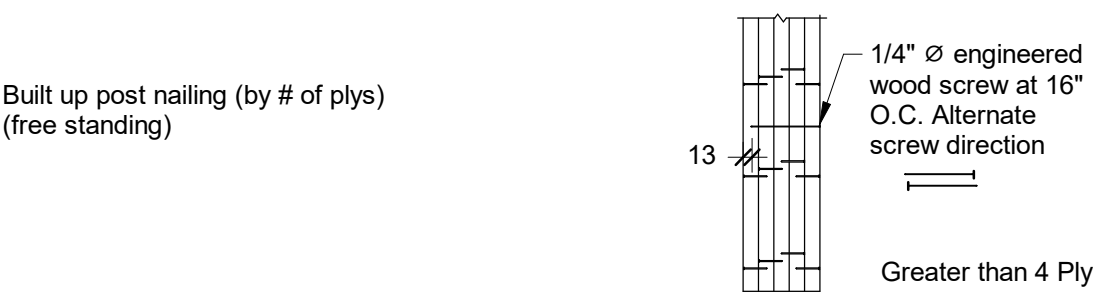
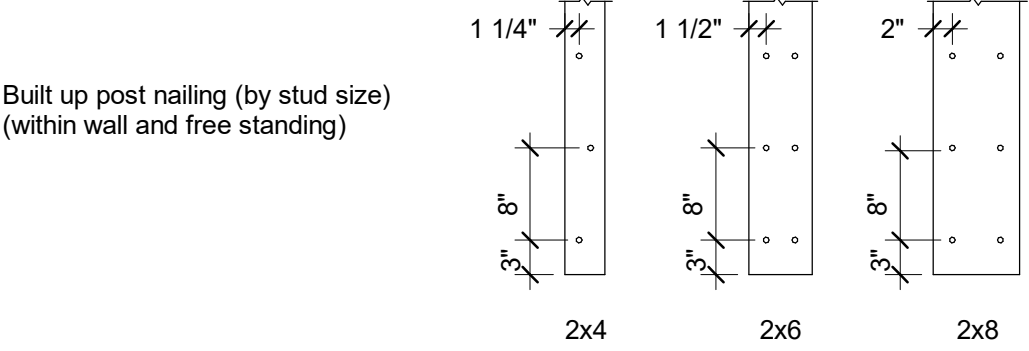
WOOD - WALLS

- All exterior walls are designed and considered loading bearing walls and act as part of the lateral load resisting system.
- Unless noted otherwise, provide a built up post at the ends of all beams and girders that frame into a wall. The built up post shall match the width of the beam, and the stud size shall match those in the wall unless noted otherwise.

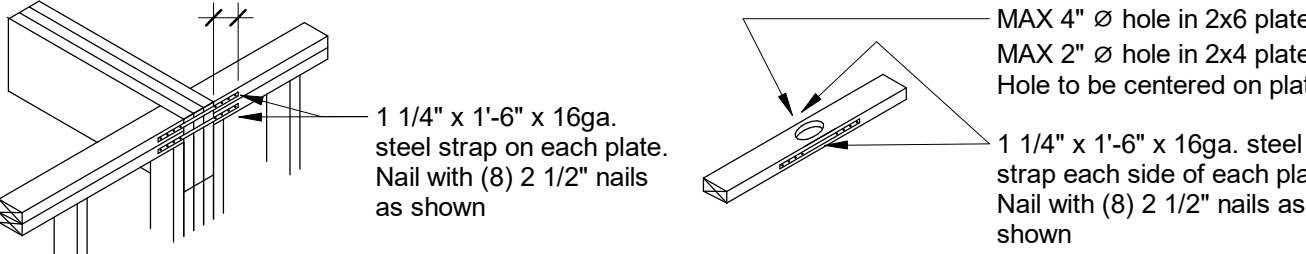


- Nailing of built up posts shall conform to the following schedule. Each stud of a built up post shall be nailed:

Stud	Nailing
2x4	3" nails @ 8" O.C. Staggered
2x6/2x8	2 rows of 3" nails @ 8" O.C.



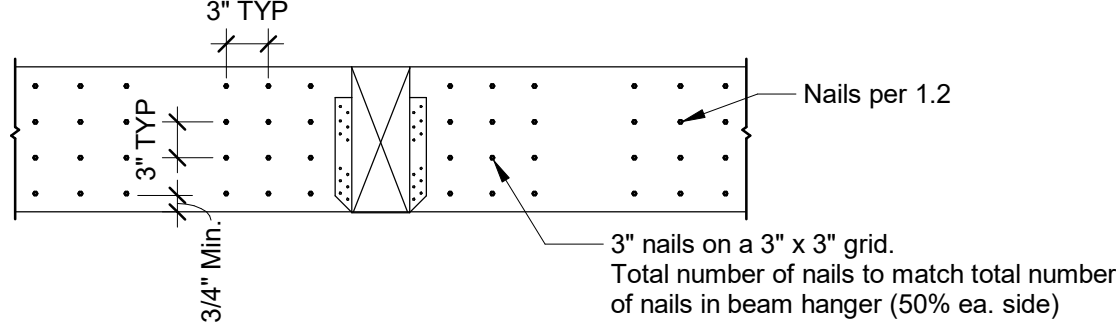
- All posts and built up posts shown on any level shall be carried down to the concrete U.N.O. Provide solid blocking between joists under all posts and built up posts.
- All load bearing walls shall have 2 continuous top plates and 1 continuous bottom plate. Beams or headers over openings in walls shall be dropped to allow the top plates to be continuous. Where 1 1/2" concrete topping is used on floors, provide 2 continuous bottom plates. Double plates shall be spliced with a minimum 2'-0" stagger and lapped at corners.
- Top and bottom plates that have been cored or which are discontinuous shall be reinforced as follows:


- All interior and exterior bearing walls must have at minimum 3/8" thk. plywood or 1/2" thk. gypsum wall board applied to one face with the standard fastener spacing for wall sheathing.
- Sill plates shall bear on a level surface. Provide a leveling bed of mortar if required. Provide sill gasket under sill plates when bearing on concrete.
- Interior load bearing wall studs are designed to be braced by the gypsum wall board (GWB). The Contractor shall review temporary support conditions for wood framed walls and provide necessary bracing to safely complete construction.

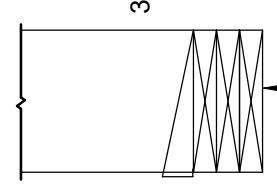
WOOD - BEAMS

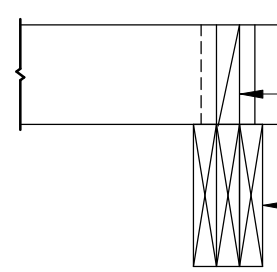
- Built up sawn lumber beams shall at minimum, have each ply nailed together with common nails as follows. Additional requirements for more severe location cases may be called up on plans or details.
 - Top loaded beams: 2 rows of 3" nails @ 12" O.C.
 - Side loaded beams with uniform joists:

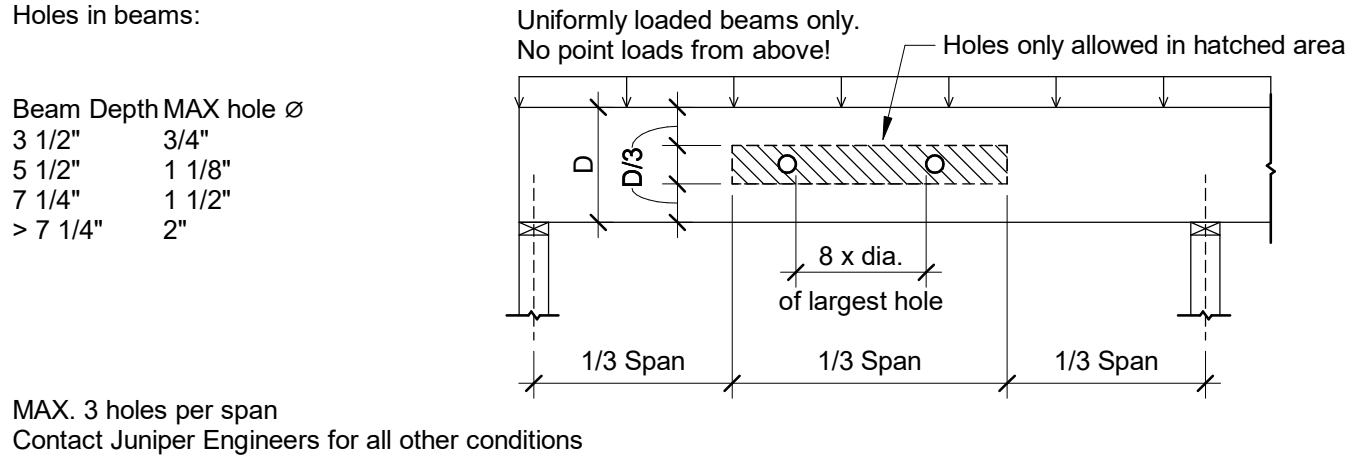
Beam depth	Nails
< 9 1/4"	2 rows of 3" nails @ 6" O.C.
≥ 9 1/4"	3 rows of 3" nails @ 6" O.C.
 - For beams side loaded with a beam (point load)



- Flush beams:


- Dropped beams:





MAX. 3 holes per span
Contact Juniper Engineers for all other conditions

WOOD - HEAVY TIMBER

- The heavy timber supplier shall provide complete and accurate shop drawings including specified bearing points, beam pockets, and other required conditions necessary for the installation of the timber frame to be completed by the Contractor.
- Temporary support and temporary bracing of the timber and other elements during construction is the responsibility of the Contractor.
- All timber assemblies are to be pre-fit, and/or in some cases, pre-assembled prior to delivery where possible.
- Contractor to ensure safe and secure storage of all timber, steel and associated components on the building site prior to and during installation. Protection of the timber frame from weather resultant tann staining from metal fasteners is the responsibility of the Contractor. The Contractor shall barricade and protect all timber work after installation as required to avoid damage during the construction process.
- All steel work exposed to weather shall be hot dipped galvanized unless noted otherwise on the Structural or Architectural drawings. Hot dip galvanize all steel connectors (including fasteners of wood members where exposure to rain during or after construction may cause rusting/staining of wood exposed to view, unless noted otherwise.

WOOD - FASTENERS & CONNECTORS

- Nailing to conform to building code part 9 minimum or as specified in these drawings.
- Do not overdrive nails. Nails overdriven by more than 10% of the panel thickness may be rejected.
- Bolts used in wood construction shall be ASTM A307 or approved equal, used with standard washers unless noted otherwise. Holes in timber not more than 5/64" greater than the bolt diameter.
- Tight-fit pins and tight-fit bolts:
 - For architecturally exposed applications, provide Type 304 stainless steel. For hidden applications, provide ASTM A307.
 - Provide holes in timber of the same diameter as pin/bolt. Provide holes in steel with diameter not more than 3/64" greater than diameter of pin/bolt. Hole pattern shall be square and aligned.
 - Use plywood template when installing pins/bolts to avoid splintering of wood opposite driving direction.
 - Contractor to submit sample to Consultant for approval prior to mass fabrication.
- Timber screws are called up as follows:

Screw diameter	Head type
5/16"Ø x 8" P.th	Wash
Screw length	Thread type

 - Head types:

Wash	= Washer
CSK	= Countersunk
Cyl.	= Cylinder
Hex.	= Hexagonal
- Acceptable Fully Threaded timber screws are:
 - ASSY VG
 - RothoBlaas VGZ / VGS
 - SFS HTP PT
- Acceptable Partially Threaded timber screws are:
 - ASSY SK / Kombi / Ecofast
 - RothoBlaas TBS / HBS
 - SFS HTP PT
- Traditional lag screws, Simpson SDS/SDW, GRK screws and other specialty screws are acceptable only where specified on the drawings.
- Submit alternate screw manufacturer and type for review prior to construction.
- Use metric timber screw diameter equivalents as follows: 1/4"Ø = 6mm Ø 5/16"Ø = 8mm Ø 3/8"Ø = 10mm Ø 1/2"Ø = 12mm Ø
- Round-up timber screw length to nearest available metric Length (1" = 25.4mm).
- Provide pre-drilled holes in steel with a diameter not more than 1mm greater than diameter of screw. Where pre-drilling of wood is recommended by the supplier, provide hole diameter per manufacturer's recommendation.
- See manufacturer's specification for all installation details unless noted otherwise. Use low rpm/high torque drills with torque clutch to specified allowable insertion torque. The use of impact drills is prohibited.

WOOD - ENGINEERED WOOD PRODUCTS (EWP) AND STUCTURAL COMPOSITE LUMBER (SCL)

- Engineered wood products, including but not limited to, prefabricated wood trusses, I-joists, structural composite lumber, CLT and other proprietary products shall be designed to CAN/CSA O86, to acceptable vibration requirements and to minimum criteria as shown in these drawings including design deflection limits. Apply snow drift loads to roof framing as indicated in these drawings.
- All EWP/SCL members shall have a moisture content of less than 12%. All wood shall be wrapped and protected from moisture until it's installed.
- Sizes of EWP/SCL member shall be exactly as specified on plan, unless otherwise approved by Juniper Engineers.
- SCL beams to have minimum properties as listed below:

Material	Modulus of Elasticity (E)	Shear (fv)	Bending (fb)	Bearing (fcp)
LSL	1.55E (10685 MPa)	6.7 MPa	29.6 MPa	11.2 MPa
LVL	2.0E (13790 MPa)	3.6 MPa	35.0 MPa	9.4 MPa
PSL	2.2E (15170 MPa)	3.7 MPa	36.9 MPa	7.8 MPa

 - Columns shall be PS/LVL 1.8E minimum or as noted on plan.
 - Glulam beams are Fir-L 24f-EX.
 - Glulam columns ar D.Fir-L 16c-E.
 - I-joists:
 - I-joists shall be block and nailed as per manufacturer's requirements in addition to the general notes.
 - I-joists shall be designed for the loads specified in the general notes, or as shown on (sliding,drifting,additional loads etc). Plus any additional requirements per local building by-law.
 - I-joist supplier must design and supply the entire floor system which includes:
 - Joists hangers and connecting hardware.
 - Bridging and blocking.
 - Rim/box joists.
 - Squash blocks and web stiffeners.
 - I-joist supplier shall submit shop drawings prior to fabrication of the system. Framing on these drawings must not be changed without the approval of Juniper Engineers.
 - I-joists shall meet a minimum deflection of span/480 LL and span/240 TL. Joists shall be designed in accordance with the appropriate building code for vibration control.
- Do not cut, notch, or damage I-joist flanges. Refer the manufacturers specifications for allowable holes through joist web.
- Product substitutions must be pre-approved.
- The wood truss manufacturer may not deviate from the framing plans unless prior approval from the Structural Engineer has been given. It is the truss manufacturer's responsibility to seek such approval prior to manufacture and installation of framing members.

WOOD - CROSS-LAMINATED TIMBER (CLT)

- Perform all work in accordance with CSA O86. CLT manufacturer shall be certified in accordance with APA PRG 320. If European CLT is used, manufacturer shall be certified with an ETA.
- Where connection forces are shown on the drawings, connections shall be designed by a Professional Engineer, retained by the timber fabricator and experienced in the design of this work.
 - Drawings and calculations of components designed by the timber fabricator shall be signed and sealed by the Professional Engineer.
 - The Professional Engineer sealing the fabricator's shop drawings is also responsible for all field review of their work. The Engineer shall provide signed and sealed letters of assurance (Schedules S-B and S-C) to the consultant confirming the work has been completed in accordance with the final reviewed shop drawings and all structural requirements.
- Provide 24"x 24" sample of each quality appearance grade panel with shop applied sealer for review and approval by Architect and Consultant.
- Submit shop drawings showing fabrication and erection of all CLT panels to the Consultant for review prior to fabrication. Show all connections and details, material specifications, and finishes; include an erection layout for all panels. Do not proceed with fabrication until shop drawings have been approved by the Consultant.
- All CLT panels shall be fabricated in accordance with APA PRG 320 and shall meet the following specification. Any substitution must have the written approval of the Architect and the Consultant.
 - Adhesives: CSA O112.10 & ANSI 405 as modified by APA PRG 320, clear or white.
 - Appearance classification: Industrial where panel is concealed, Architectural elsewhere as defined in APA PRG 320.
- Panels should be individually wrapped using plastic-coated paper covering with water-resistant seams. Slit underside to prevent accumulation of moisture inside the wrapping. Store panels off the ground with spacer blocks so air may circulate around all faces of panels. Take all necessary precautions to keep CLT dry and protected from UV light during and after installation.
- Supplier is responsible for resizing panels to achieve the same performance (ultimate limit states and serviceability limit states) and appearance classification as the panels specified on the drawings. Larger cross-sections require approval from the Architect and the Consultant. Supplier is responsible for all associated engineering required.
- Apply sealer to all sides of panels. Double coat all panel edges, cuts, holes, and other cross-cut surfaces. Submit proposed sealer for review and approval.
- Mark panels for identification during erection. Ensure that marks will be concealed from view in final assembly. Clearly mark top surface.
- Make adequate provision for possible erection stresses. Set panels level and plumb to correct positions. Securely brace panels and anchor in place to maintain plumb until permanently secured by finished structure.
- Fit panels closely and accurately, without trimming, cutting, or other modifications, unless approved in writing by the Consultant. Site cutting or boring of panels, other than shown on shop drawings, is not permitted without written consent of the Consultant. Coat all field-cut openings with minimum two coats of clear sealer.
- Provide moisture barrier at all locations where panels abut concrete or masonry construction.
- See architectural drawings for finish requirements.
- Provide gradual heating of enclosed building to minimize panel cupping and checking.
- The "Wood - Fasteners & Connectors" section of these General Notes also applies to this work.

NOT FOR CONSTRUCTION

JUNIPER
STRUCTURAL ENGINEERS

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EGBC Permit to Practice No. 1003736

DRAWINGS ISSUED:

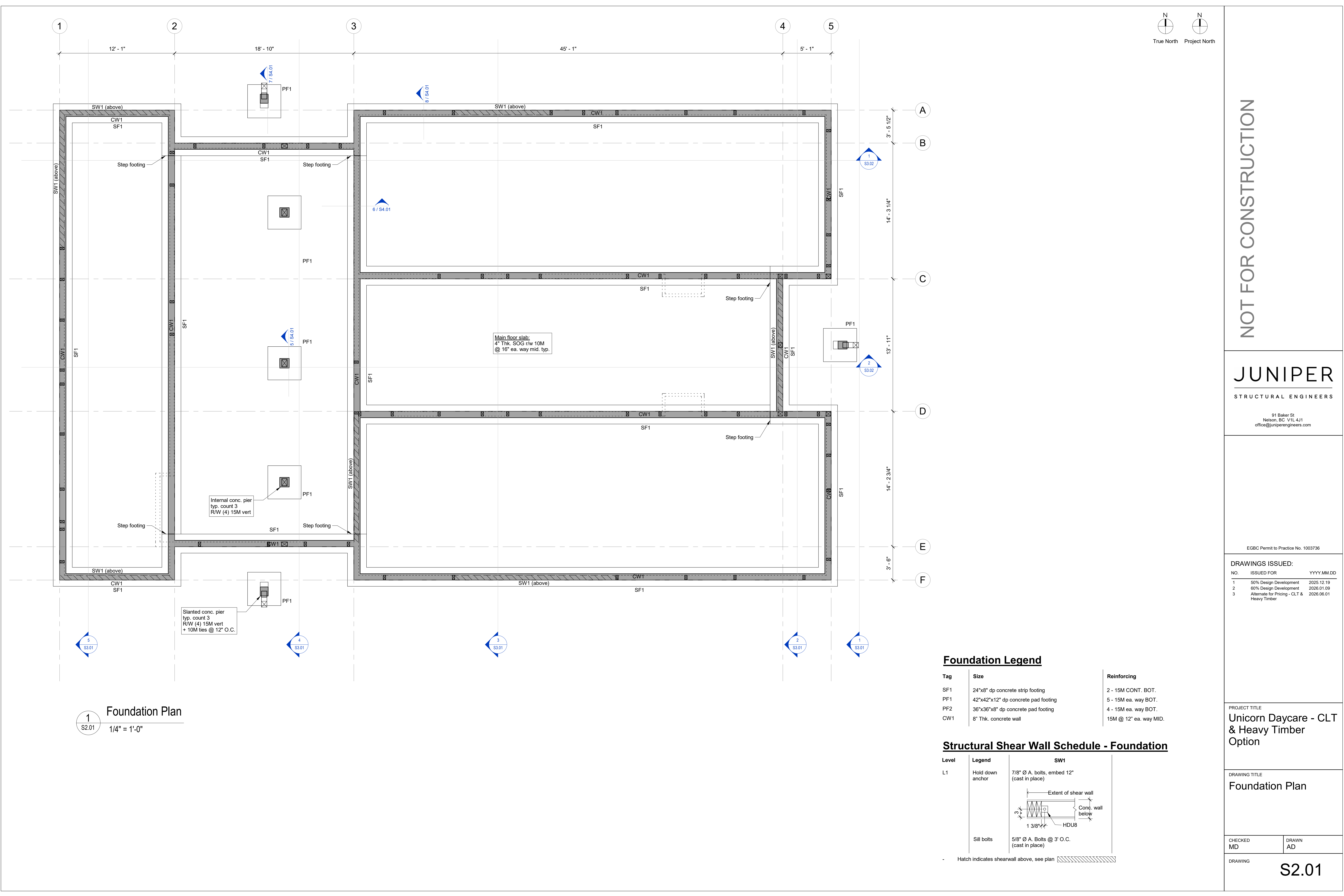
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2	60% Design Development	2026.01.09
3	Alternate for Pricing - CLT & Heavy Timber	2026.06.01

PROJECT TITLE
Unicorn Daycare - CLT
& Heavy Timber
Option

DRAWING TITLE
General Notes

CHECKED MD	DRAWN AD
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DRAWING
S1.02



1 Foundation Plan
1/4" = 1'-0"

Foundation Legend

Tag	Size	Reinforcing
SF1	24"x8" dp concrete strip footing	2 - 15M CONT. BOT.
PF1	42"x42"x12" dp concrete pad footing	5 - 15M ea. way BOT.
PF2	36"x36"x8" dp concrete pad footing	4 - 15M ea. way BOT.
CW1	8" Thk. concrete wall	15M @ 12" ea. way MID.

Structural Shear Wall Schedule - Foundation

Level	Legend	SW1
L1	Hold down anchor	7/8" Ø A. bolts, embed 12" (cast in place)
	Sill bolts	5/8" Ø A. Bolts @ 3' O.C. (cast in place)
- Hatch indicates shearwall above, see plan		

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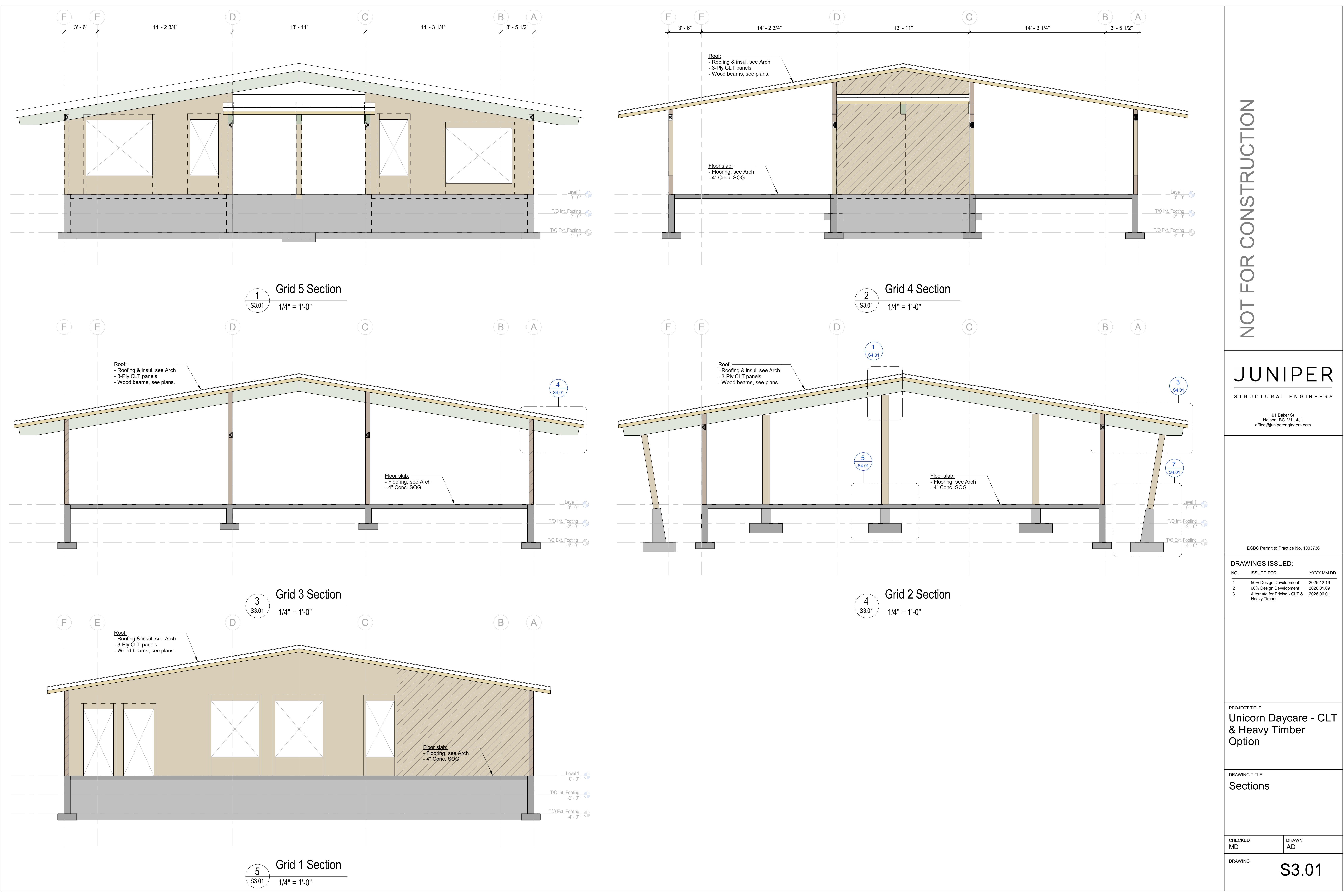
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Foundation Plan

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DRAWING
S2.01



S2.02



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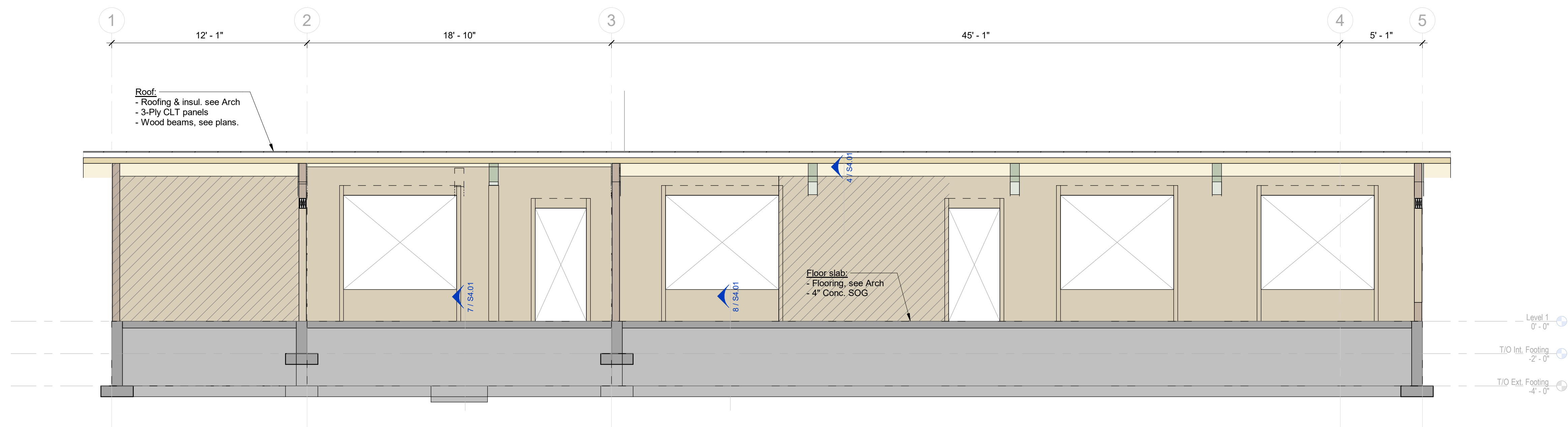
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2	60% Design Development	2026.01.09	
3	Alternate for Pricing - CLT & Heavy Timber	2026.06.01	

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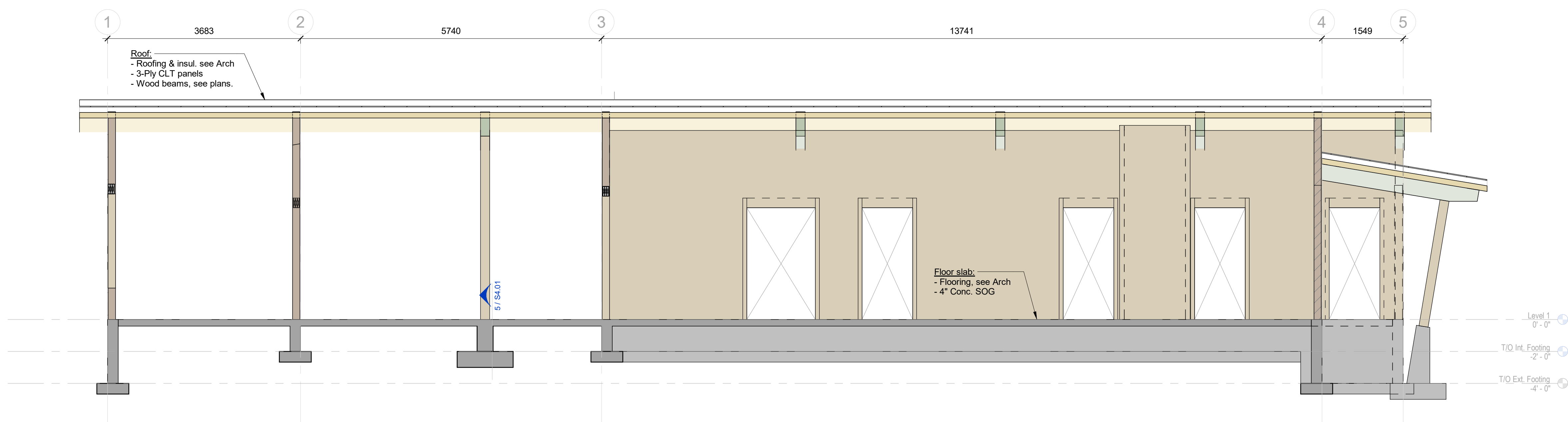
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Sections

CHECKED MD	DRAWN AD
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DRAWING
S3.01



1
S3.02
Grid B Section
1/4" = 1'-0"



2
S3.02
Section At Building CL
1/4" = 1'-0"

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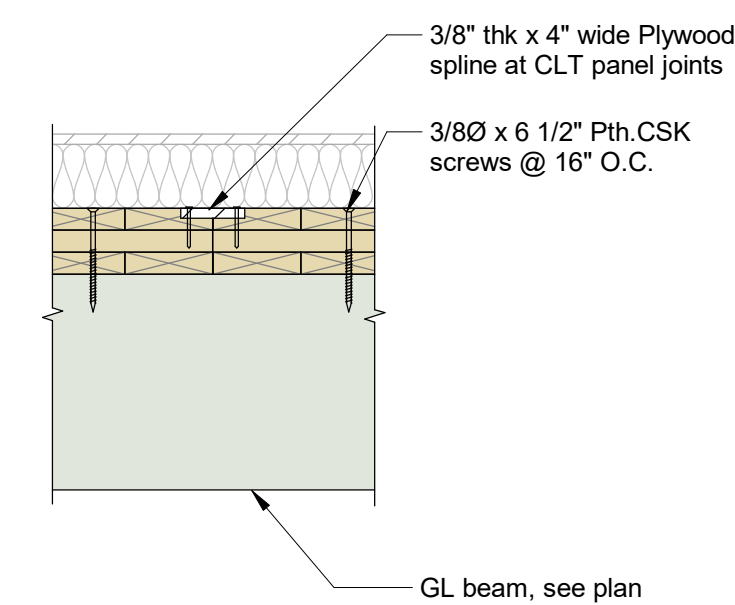
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3	Alternate for Pricing - CLT & Heavy Timber	2026.06.01

PROJECT TITLE
Unicorn Daycare - CLT
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Option

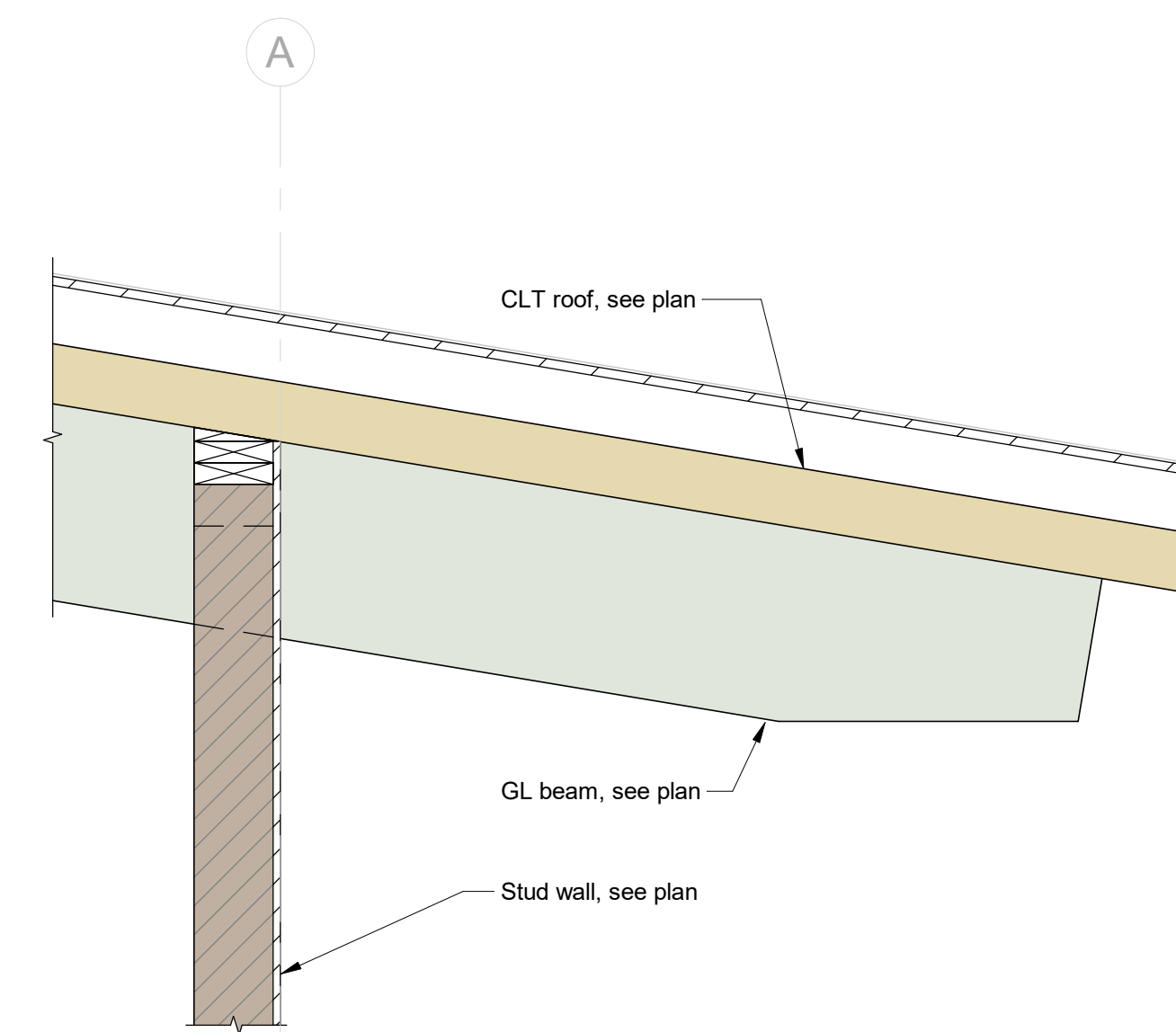
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Sections

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S3.02



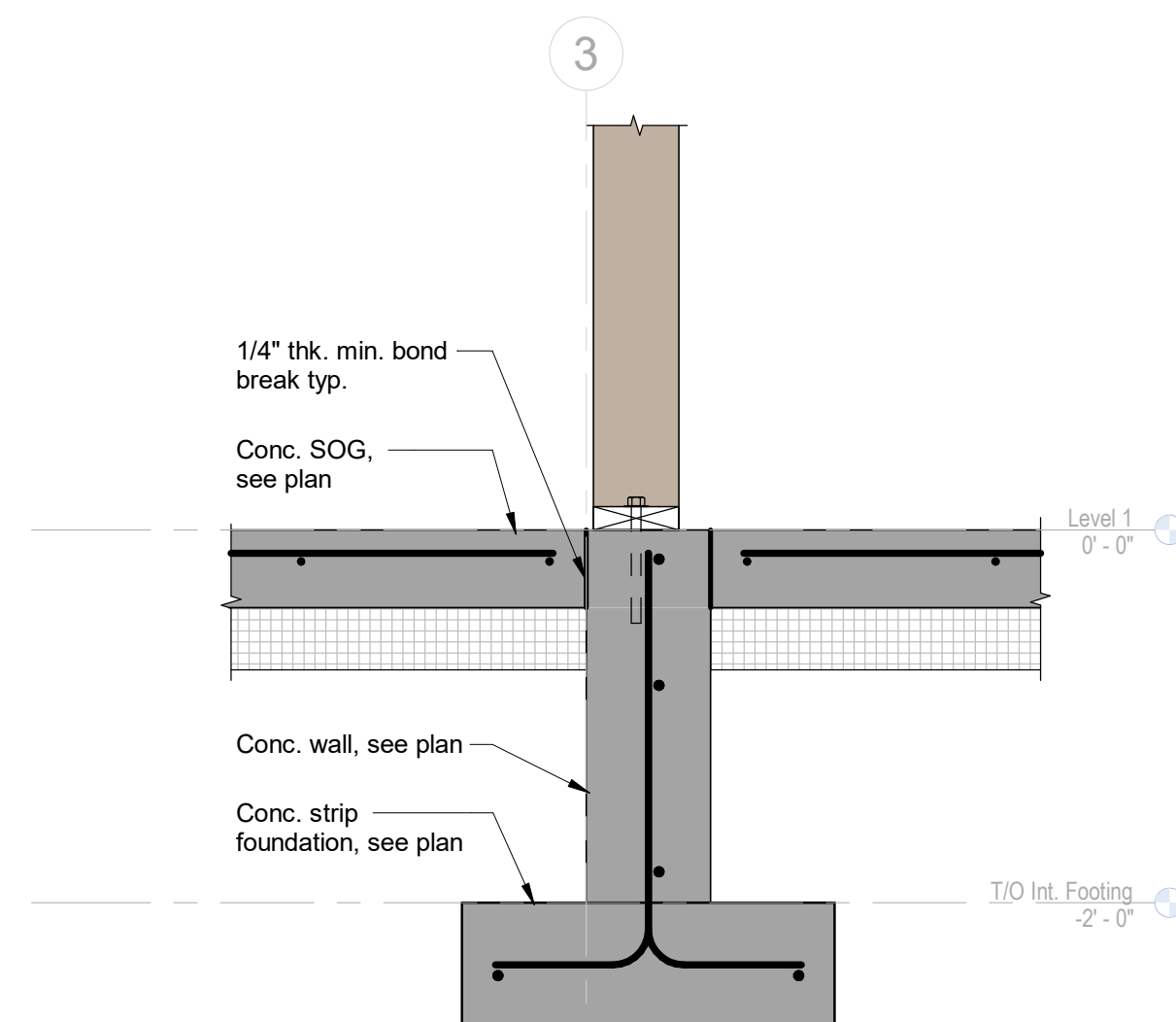
2 Typ. CLT Panel Joint
S4.01 1" = 1'-0"



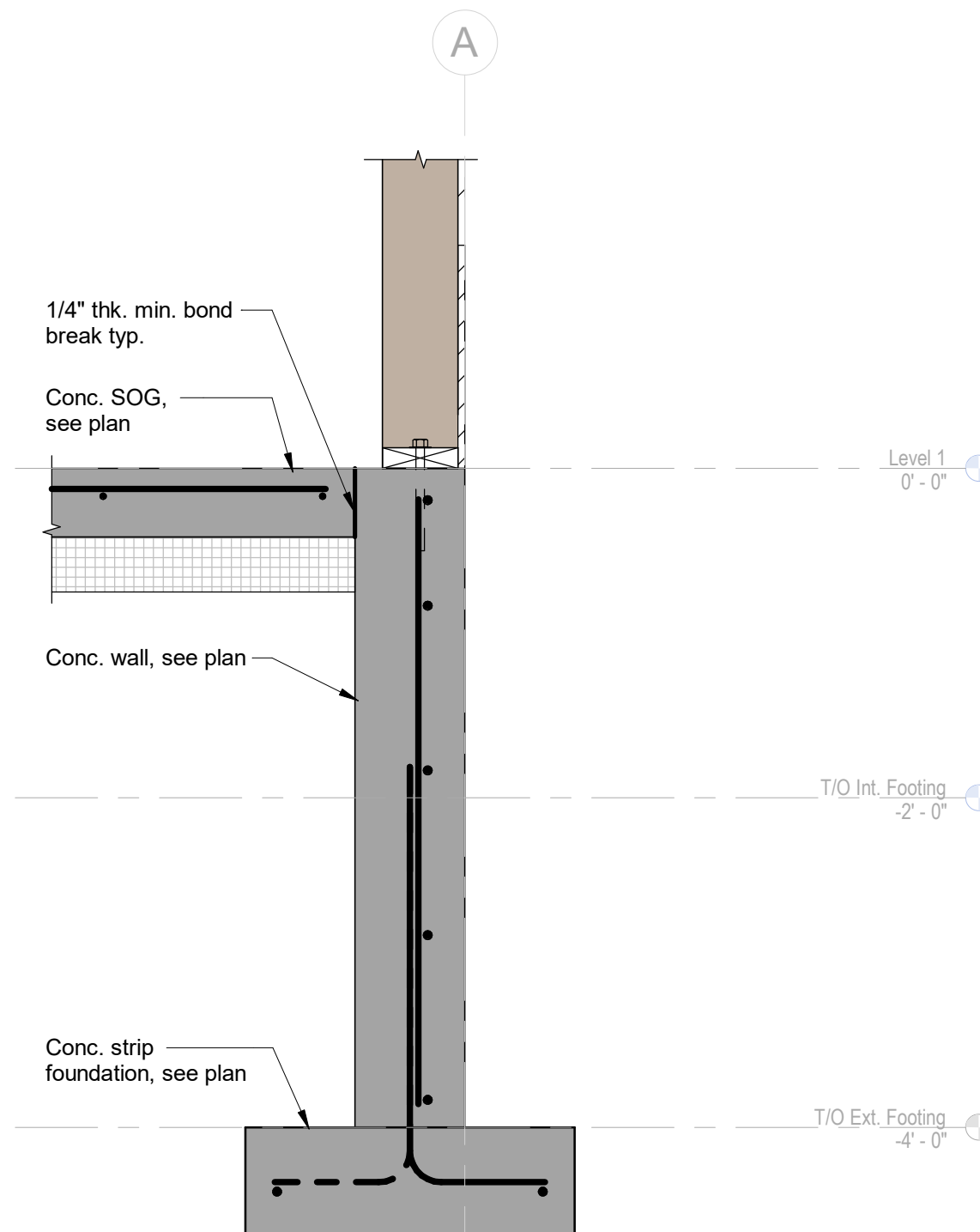
1
S4.01 Typ. Beam to Column
1" = 1'-0"

3 Typ. Roof Outrigger W/ Column
S4.01 1" = 1'-0"

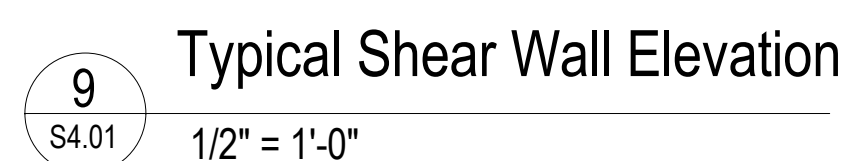
4	Typ. Roof Outrigger
S4.01	1" = 1'-0"



6 Typ. Internal Foundation Wall
S4.01 1" = 1'-0"



8 Typ. Exterior Foundation Wall
S4.01 1" = 1'-0"



9 Typical Shear Wall Elevation
S4.01 1/2" = 1'-0"

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3	Alternate for Pricing - CLT & Heavy Timber	2026.06.01

PROJECT TITLE

Unicorn Daycare - CLT
& Heavy Timber
Option

DRAWING TITLE

Details

CHECKED Checker	DRAWN Author
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DRAWING

S4.01