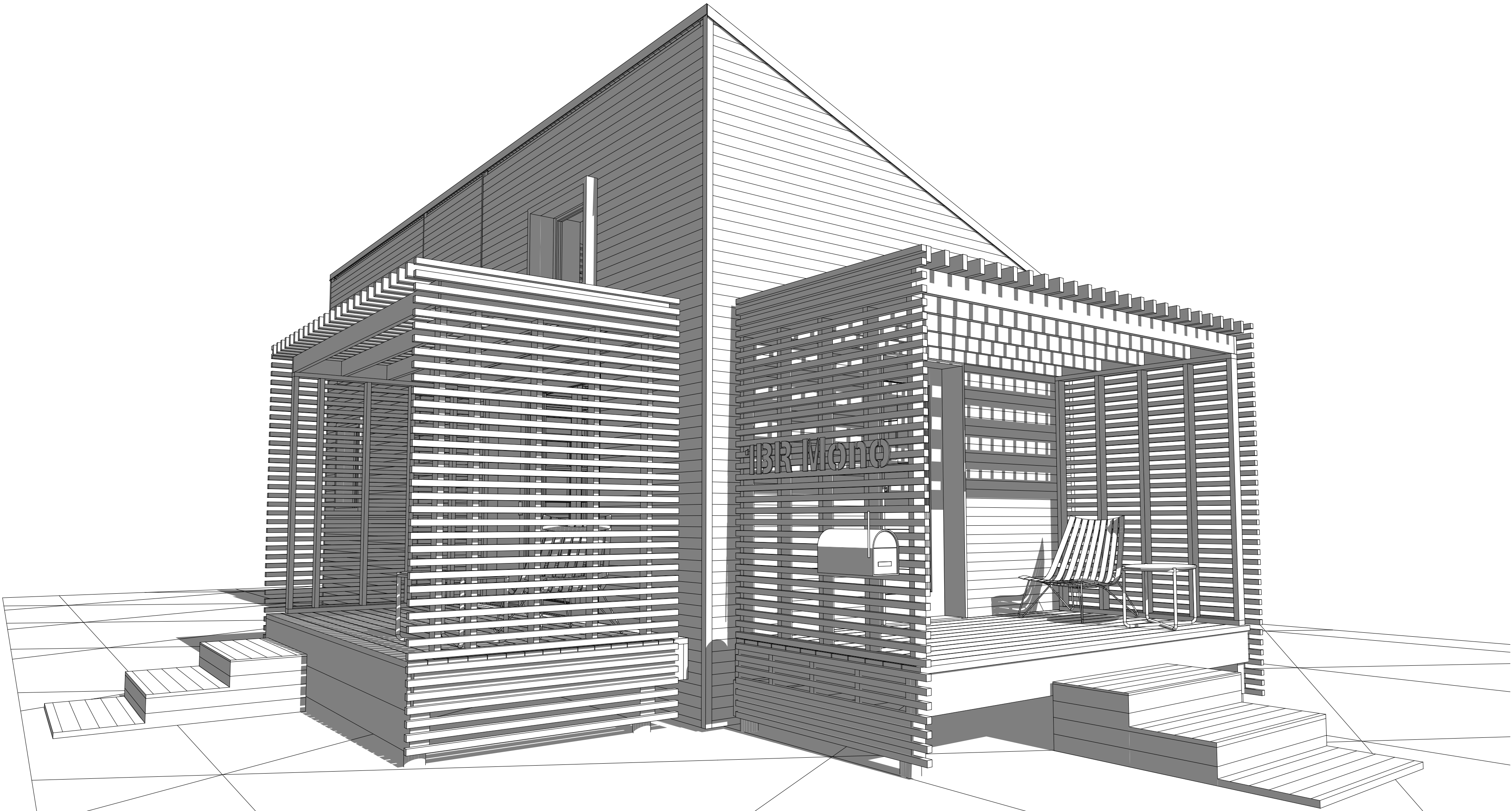


Construction Document Index

General Information		
A0.01	01 - WIP	Cover Sheet
A0.02	01 - WIP	Notes & Legends 1-6
A0.03	01 - WIP	Notes & Legends 7-12
A0.04	01 - WIP	Notes & Legends 13-18
A0.05	01 - WIP	Notes & Legends 19-24
A0.06	01 - WIP	Abbreviations
A0.07	01 - WIP	Legends
A0.08	01 - WIP	Construction Assemblies
A0.09	01 - WIP	Detailed Assemblies
A0.10	01 - WIP	Control Layers
A0.11	01 - WIP	Keynotes
A0.12	01 - WIP	OBC Matrix & Code Notes
A0.13	01 - WIP	SB12 & Energy
Site Plans		
A1.01	01 - WIP	Site Plan
Proposed Design Plans		
A2.41	01 - WIP	Design Floor Plan
A2.42	01 - WIP	Roof Plan
Proposed Construction Plans		
S2.43	01 - WIP	Foundation Framing Plans
S2.45	01 - WIP	Main Floor Framing Plans
S2.46	01 - WIP	Roof Framing Plans
A2.46	01 - WIP	Main Floor Plan
A2.47	01 - WIP	Main Floor Electrical Plans
A2.48	01 - WIP	Assembly Perspective
A2.49	01 - WIP	Assembly Perspective
A2.410	01 - WIP	Framing Perspective
Elevations		
A4.01	01 - WIP	North & South Elevations
A4.02	01 - WIP	East & West Elevations
S4.03	01 - WIP	Framing Elevations
S4.04	01 - WIP	Framing Elevations
Building Sections		
A5.01	01 - WIP	Building Sections
A5.02	01 - WIP	Building Sections
A5.03	01 - WIP	Building Sections
A5.04	01 - WIP	Building Sections
Wall Sections		
A5.05	01 - WIP	WALL SECTIONS
Details		
A6.01	01 - WIP	Details
A6.02	01 - WIP	Details
Interior Elevations		
A7.01	01 - WIP	Interior Elevations
Schedules		
A8.01	01 - WIP	Door & Window Schedule
A8.02	01 - WIP	Electrical Schedule
A8.04	01 - WIP	Room Finish Schedules
3D Documents		
A9.01	01 - WIP	3D Views
A9.02	01 - WIP	3D Views
A9.03	01 - WIP	3D Views
A9.04	01 - WIP	3D Views
A9.05	01 - WIP	3D Views
A9.06	01 - WIP	3D Views
3D Mechanical Documents		
M1.01	01 - WIP	G01 Sheet
M1.02	01 - WIP	M000 Sheet
M1.03	01 - WIP	M001 Sheet
M1.04	01 - WIP	M002 Sheet
M1.05	01 - WIP	M003 Sheet
M1.06	01 - WIP	M004 Sheet
M1.07	01 - WIP	M100 Sheet
M1.08	01 - WIP	M301 Sheet
M1.09	01 - WIP	M302 Sheet
M1.10	01 - WIP	F280
M1.11	01 - WIP	F280, F326



City of Barrie Review Notes

Additional Documentation

Zoning Data

Consultants

Review Stamp and Comments can be placed in this section below.

Appendix A

Assembly Reports: Construction-Assembly-based Building Science reports by UBAKUS.de have been appended to this set (not listed in drawings index). These include static dew-point and thermal resilience analysis as well as identify moisture risk avoidance strategies (adequate venting, vapour-open assemblies, etc).

Appendix B

Rough Openings Guide: One way to ensure compliance with CSA A440.4:19 (R2024) - required under OBC - for Door and Window installation is to plan for a fully-flashed rough-opening that window and doors can plug into. Our RO Guide shows the correct lapping sequence of a qualifying self-adhered WRB, to protect your investment, with a 'deep buck' approach using 3/4" plywood surrounds to best accommodate flashing and exterior insulation details.

Appendix C

Designer Information Sheet, Not Applicable for Architect/Engineer designed projects, where licensed professionals have directly sealed relevant sheets in this document set.

NOTE:

This DRAFT/WIP Document Set shall be sealed by both Architect/Engineer teams on permit application once a site and owner have been selected. All pages noted above and in the Construction Document Index shall form part of any/all related Contract Documentation.

Barrie Zone

Zoning Data will be added on customization once a site and contracting owner has been selected, and shall include all setbacks and noted restrictions for DADU units.

Structural Engineer

Bridgewood Engineering
4 McCloskey Rd, Peterborough, ON K9J 0G6
Contact: Nicolas Fond, P.Eng, Ing.
info@bridgewoodengineeringservices.com
416-838-7436

Civil Consultant

N/A

Geotechnical Engineer

N/A

Landscape

N/A

Ontario Land Surveyor

N/A

Mechanical Consultant

Delta-T Designs, Inc.
16 Winstar Rd - Unit 4
Oro-Medonte, On
L0L 2L0
Niss Feiner, CET, CHD, RASDT, RHDT, RVDT
niss@deltatdesigns.ca
705-791-9000

Planning Consultant

N/A

NOTE: These 'Issued for Review' plans are intended demonstrate to prospective **Builder/Owners** what the intended, pre-approved 'Permit-Ready' drawings will look like for applications with the City of Barrie.

Owners must enter into an Agreement/Contract with the Architect (**Thomson Architecture, Inc.**), and Engineers of Record (Structural/Mechanical) and to complete zoning review and **Issued for Construction and Permit** plans for this model, which will be offered at a reasonable market rate for a site-specific, **One Time Use** set of plans for a designated address.

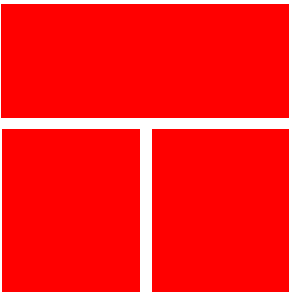
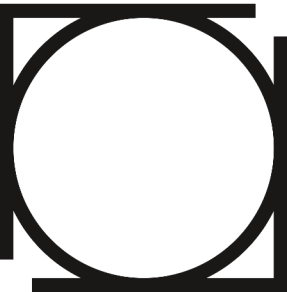
The owner may alternatively retain a planning consultant to review all matters of zoning review/rezoning and planning-related Site Plan specific requirements. Civil Consultant submissions shall relate to all matters concerning site grading and drainage, building servicing, etc.

Additional details for interior design & finishes, fixture selections, etc. shall be provided on an as-needed basis per contract, but any departure from the plans as they are shall be charged at the Architects Standard Hourly rates.

BeHome 1BR Shed

Issued for Certification Review 01 - WIP

Project Address: TBD



Ontario Association
of Architects

Ordre des architectes
de l'Ontario

thomson architecture inc

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BeHome 1BR Shed
project no. 2023.011

Client:
City of Barrie
70 Collier St.
BarrieON L4M 4T5

Revision
01 - WIP
Cover Sheet

A0.01

GENERAL CONSTRUCTION NOTES & OUTLINE SPECIFICATIONS: 2025-06-18

All generic specifications noted below are typical and relevant to this project unless struck through. Notes on these pages apply to all other Architectural pages and sheets A0.00 through A0.13 containing these notes must be included in any subcontractor tender package together with all other relevant pages pertaining the subject scope of work. General and construction notes are intended to apply at all locations affected by the work. © Thomson Architecture, Inc. 2025

00 00 00 **General Construction Notes**

1. **Copyright:** Copyright of these drawings and text is reserved by the Architect. The drawings and all associated documents are an *Instrument of Service* and are property of the Architect. The drawings and the information contained therein may not be modified or reproduced in whole or in part without prior written permission of the Architect.
2. **Interpretation:** The Architect bears no responsibility for the interpretation of these documents by the Contractor. Upon written application, the Architect will provide written/graphic clarification or supplementary information regarding the intent of the Contract Documents. If Construction Administration services are included in the Architect's scope of work, The Architect will review Shop Drawings submitted by the Contractor for design conformance only.
3. **Dimensions:** Drawings are *not* to be scaled for construction. The Contractor is to verify all existing conditions and dimensions required to perform the work and report any discrepancies with the Contract Documents to the Architect before commencing or continuing with any work. Grid Dimensions are to centre of structural element unless noted otherwise. Dimensions shown in room labels and Finish Schedules are Net - to face of finished walls UNO. Dimensions of Doors and Windows in Schedule Sheets govern over Plans and Elevations, where centring dimensions are provided. Construction Tolerances are set at +/- 1mm (prefabrication tolerances) UNO. Framing dimensions may be to face or centre of structural elements, Contractor is expected to verify.
4. **Level of Detail:** Drawings shall be provided at the LOD as set out in the Standard OAA 800 or 600 Contract. For Schematic or Bronze Level Design, LOD shall be capped at a scale of 1:50. For Design Development or a Silver Level Design LOD shall be capped at a scale of 1:10 and for Gold and Platinum Level Design or Construction Documents, LOD shall be capped at a scale of 1:10 with number of drawings and type as indicated in the contract.
5. **Architectural Geometry:** Positions of exposed finished mechanical or electrical devices, fittings, and fixtures may be indicated on architectural drawings. The *positions* shown on the architectural drawings govern over the Mechanical and Electrical drawings but do not supersede sizes required by engineering. Those items not clearly located may be located as directed by the Architect.
6. **Issuance:** These drawings are not to be used for construction unless noted below as "**Issued: For Construction**" and sealed with signature by the Architect.
7. **OBC:** All work is to be carried out in conformance with the most current Building Code and Bylaws of the authorities having jurisdiction. All plumbing and drainage work to conform to current Ontario regulations. All electrical work to conform to Ontario Hydro Electrical Safety Code as amended.
8. **No Warranty:** The Architect of these plans and specifications gives no warranty or representation to any party about the constructibility of the building(s) represented by them. Any Contractor or Subcontractor must satisfy themselves when bidding (through the process of *Requests for Information* or RFIs) and at all times, to ensure that they can properly and completely construct the work represented by these plans for their bid price as they *otherwise are*, without significant or unreasonable extras or change orders/CCOs (Contemplated Change Orders) agreed to by all

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Thomson Architecture Inc.

2025 Outline Specifications | Version 2.1 | Page 1 of 3

parties to the Contract. A *Builder* must be a licensed and bonded contractor with registrations with HCRA/Tarion as required by the ONHWP where applicable and/or other providers of warranties, with WSIB and all safety clearances, and notices of insurance in place as required by law.

9. **Duty of Care:** The Architect has exercised the skill of a reasonable practitioner and has drafted these 2-Dimensional and in some instances 3-Dimensional representations of an Architectural work to a level of sufficiency and *Level of Detail (LOD)* representing the Architect's *Duty of Care* to both the owner and to the public.

An Architect's *Duty of Care* should not be confused with a *Standard of Perfection*, such as is rendered in automotive or aviation design. The *LOD* provided to the Owner is commensurate with the list of services provisioned for in the contract for Architectural Services (OA0800 or OA6000) related to any/all of the following: Issuance for a) Permit to Construct, b) Construction Documentation, c) Tendering, all representing an escalating *LOD* which requires an ever higher level of effort, scale, number of, and detail of drawings and specifications and a corresponding corresponding increase in fees to execute.

The Architect has provided the owner with the services negotiated and mutually agreed upon to be necessary for construction of the project as per the noted form of *Project Delivery* in the Architect's Contract. Unless provisioned in the contract, any expectation of or demand for;

- a) additional services such as the provision of a *LOD* between those enumerated in the Architect's Contract, or
- b) a 'Holographic' level of completeness of either the BIM model (ie. LOD 500) or,
- c) design to a *Standard of Perfection*, requiring exhaustive documentation, prototypes and/or mockups of assemblies are considered unreasonable for construction in the Ontario market and such demands are likewise untenable.

10. **Coordination:** All Architectural drawings are to be read in conjunction with that of other consultant drawings for coordination of trades. For locations of work refer to structural, mechanical and electrical documents, in addition to architectural.

11. **Making Good:** Any disturbed areas subject to renovations or for testing are to be patched and made good with compatible and matching materials UNO.

12. **Site Safety:** The Contractor/Constructor is solely responsible for maintaining site safety in and around the construction site, and must comply with Occupational Health and Safety Act and Regulations for Construction Projects. The Contractor shall construct hoarding or fencing in compliance with the rules, regulations and practices required by the applicable construction safety legislation as required to protect the project, occupants and the general public. *Contractor to apply for Notice of Project with Ministry of Labour and provide Architect with notices of WSIB compliance and all insurance policies covering site safety.*

13. **Quality of Work:** All work is to be done in good workmanlike fashion and accord with best practices and manufacturer's instructions, Referring To Manufacturer Specifications (RTMS) for every material and product used on the project.

14. **Garbage Removal:** Contractor is to maintain the work site in a tidy condition and safely store and remove waste on a frequent basis.

15. **Substitutions:** Any substitutions to materials, assemblies or finishes at any time in the contract delivery process that deviates from contract documents must be approved by the Architect in writing (**per Architect's Act 49 (B)**). Changes made by contractors with owner approval, but without Architect review or approval may result in a derogation from OBC compliance and may have significant implications on the structural, fire, life safety, accessibility,

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quality, durability, performance, or intended design-function and maintenance aspects of the building, resulting in significant additional fees to re-design and coordinate with consultants to bring back into compliance with the OBC or the original design intent and may additionally result in delays, stop-work orders and orders to remedy, which must be undertaken at the owner's expense.

6. **Zoning Compliance:** Thomson Architecture (TAI) designs for compliance wherever possible, but full compliance can never be fully assured due to changing requirements and legislation that is constantly in flux and/or pending updates from the Planning Act at the Provincial level down to Official Plans and zoning by-laws at the local level which may or may not be under appeal or revision at any given time. We have also experienced differences in interpretation which may or may not be subjective or inadequately defined in nature, such as graphic or geometric descriptions of structures or setbacks that are described in by-laws with text but that may not be supported by illustrations. We have also encountered pre-existing conditions of adverse possession that have not been noted on existing surveys and need formal resolution with updated surveys and formal descriptions with updated legal definitions and even CoTA hearings to bring legal non-conforming conditions and uses up to date. This is why TAI requires updated surveys (newer than 1997) prepared by a licensed and insured LUS to be provided by owners for all jobs without exception.
17. **Energy Performance & Sustainability:** Thomson Architecture, Inc. (TAI) undertakes Building Energy Modelling (BEM) on every project in order to benchmark expected performance with the Mechanical Consultant's own analysis, but this BEM does not guarantee that a finished building will meet the proposed targeted performance due to widely divergent user behaviours, assumptions in 'Ideal Weather Year' files and/or availability of localized weather files for the site in question, construction methods, contractor experience and other site, weather and climate factors that are beyond the control or predictive power of any software standard. Compliance packages and performance simulations are not intended to predict actual performance, but rather to set *targets* over a baseline or reference case or benchmark target (EUI) using the same methods: *'actual experience will differ from these calculations due to variations such as occupancy, building operation and maintenance, weather, energy use not covered by this standard, changes in energy rates between design of the building and occupancy, and precision of the calculation tool'* (**ASHRAE Standard 90.1-2013, 11.2 Informative Note**). The Architect is not liable to compensate the owner, occupant or any other person by reason of anything done by or on behalf of the owner in the reasonable exercise of its efforts to develop or reach BEM Energy Targets.

The Contractor may be asked (based on form of Construction Contract) to provide required documentation (incl. EPD sheets) for all sustainable products as identified in Product Specifications aka. Provide Manufacturer's Certificate: Certify that specified [products] meet or exceed [specified requirements] to the owner to form part of the Owner's Manual at project closeout.

18. *Optional* Resilience Measures (Draft 2025.06.18)

Resilience measures are broken into six categories, 1. Thermal, 2. Fire, 3. Wind and 4. Water 5. Electrical and 6. Biological. Resilience measures are taken to resist loads and forces in excess of the minimums set out in the OBC with an eye towards future weather scenarios as described at the website <http://climateatlas.ca>. In our professional opinion, the loads and requirements in the OBC have become obsolete as minimums.

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- 3) **Thermal Resilience:** Buildings shall be designed to remain habitable for a period of 7-5 days in the event of a complete power failure by means of adequate insulation of thermal mass (Total Bldg. Avg. U-Value of <0.35WK/m2), airtightness measures (<0.6ACH @50PA), as well as some form of portable or permanent backup heating system. Care shall be taken to ensure adequate combustion air to supply combustion appliances is completely airtight and decoupled from household ventilation air systems. Passive thermal design such as physical shading, low-albedo surfaces and appropriate building orientations shall *strive* to keep interior temperatures above 0°C and below 30°C even without mechanical heating and air-conditioning systems, as demonstrated by 'Unmet Loads Analysis' in the BEM. No construction assembly shall indicate a thermal *Phase Lag* (a measure of thermal transmission equilibrium exterior:interior) of less than 6hrs (measured by UBAKUS.de software or OBJECTIVE 3.041+)
- 2) **Fire Resilience** measures shall provide non-combustible exterior cladding wherever possible and noncombustible shutters at openings where practical as an extra measure, which is of escalating importance as housing is sited every in urban:wilderness boundaries. Non-combustible construction shall be considered where feasible. One area of safe refuge shall be considered (typically in a basement) with a minimum FRR of 2hrs enclosing every surface, including the door, complete with a dedicated fresh-air supply duct. Reinforced flooring shall protect occupants from potential collapse of building elements from above. Wherever possible 'Firesmart' strategies shall be deployed for site and building design.
- 3) **Wind Resilience:** Steel tie-down straps or other connections shall be used at every roof member to fasten to wall systems and at every floor/wall junction with hold-down anchors embedded to foundation walls. All concrete foundation walls shall use *reinforced* concrete without exception. Exterior shutters at all openings can limit damage from airborne debris. Steel roofing is considered to have superior resistance to wind uplift than built-up, ballasted, membrane, asphalt shingles or other roofing approaches.
- 4) **Water Resilience:** Anticipation of flash flood events shall require inclusion of backflow preventer devices, foundation upstand walls (to min. 6" AFG), door-sill extensions/dams, a sump in all below-grade spaces with discharges located down-slope from the lowest portion of finished grade, increase of all gutter, scupper and RWL sizes (fe from 4" to 6") and/or trench drains and french drains, and appropriate landscaping i.e. swales to divert bulk site water away from building foundations and walls and/or temporary bulk water storage/swales or other protective means.
- 5) **Electrical Resilience:** Backup power systems shall be designed to provide (ie. Tesla Wall, Delta EcoFlow, Generator, Vehicle-to-Grid/Home or other) sufficient power to run small appliances, radios, lights, computers, etc. for a period of at least 7 hours. Separate behind-the-meter, isolated circuits to power critical appliances like a stove/stop or refrigerator can be provided to direct-wire to a battery backup system (aka. 'Emergency Outlets') in lieu of full generator backup systems, ensure compliance with electrical codes.
- 6) **Biological and Insect Resistance:** Below grade foam insulation products and wall assemblies to be detailed to resist insect intrusion per OBC 9.3.2.9. Preference to be given to cellular glass insulation over EPS/EXP/SIPPU insulation products that have better insect resistance. Inorganic materials shall be used in any instance of contact with soil are water. Interior Relative Humidity shall be maintained at between 40% to 60% without exception to limit mould and mildew and interior surface temperatures to min. 15°C. All construction materials shall be within moisture content guidelines for new materials.

03 31 00 Cast In Place Concrete & Foundations

Concrete - General

- a) Cast in place concrete construction shall conform to the requirements of CAS standard CAN3-A23.1-M84.
- b) All concrete shall have a min. compressive strength of 25 MPa at 28 days unless noted otherwise on plans.
- c) Provide 7% air entrainment for all concrete exposed to weather.
- d) Provide tooled joints or saw cuts to control cracking/expansion and broom finishes for all concrete slabs exposed to weather.
- e) All reinforcing steel to be deformed bars conforming to CSA G30.12-M Grade 400 unless noted otherwise.
- f) Cold weather concreting shall conform to CSA standard CAN3-A23.1-M84 and provide temporary enclosure and heating when required (allowance for all Winter conditions to be carried by contractor in price as req'd).
- g) Provide saw cuts as req'd by Structural or provide fibreglass reinforcement in slab admixture as alternate
- h) Any exterior concrete walkways, patios or balconies shall be sloped min. 2% away from the building to facilitate drainage and integrate drip edges where slab edges are exposed UNO
- i) Provide [analysis] [testing] of concrete.
- j) Test samples in accordance with CAN3-A23.2.
- a) Three (3) concrete test cylinders will be taken for every [<57 or less cu m> <<65 cu yd>>] [<76 or less cu m> <<85 cu yd>>], [of each class] of concrete placed otherwise: ***Core drilled samples as requested by Architect/Structural***
- b) One (1) additional test cylinder will be taken during cold weather concreting, and be cured on job site under same conditions as concrete it represents.
- c) One (1) slump test will be taken for each set of test cylinders taken.
- a) Indicate on Shop Drawings, bar sizes, spacings, locations, and quantities of reinforcing steel and wire fabric, bending and cutting schedules, and supporting and spacing devices
- b) Prepare Shop Drawings under seal of Professional Structural Engineer registered in the place where the Project is located.
- c) Provide formed openings where required for pipes, conduits, sleeves, and other work to be embedded in and passing through concrete members.
- d) Coordinate work of other sections involved in forming and setting openings, slots, chases, sleeves, bolts, anchors, and other inserts.

Foundations

- Footings shall be founded on native, inorganic, undisturbed soil capable of sustaining min 3,000 psf of allowable bearing pressure UNO (refer to structural engineering).
- Slope between stepped or adjacent footings shall be a max. of 7 vertical and 10 horizontal unless approved by soil engineer to be greater. Steps shall not exceed 2'-0" vertically.
- Exterior footings shall be founded at a level at least 5'-0" below fin. grade.
- Contractor to carry allowances for all geotechnical and concrete inspections and testing
- Contractor is responsible for all backfill and interim site grading ensuring that there is a positive slope away from the building and that access to the rear of the site is possible. Refer to civil consultant drawings for site grading.
- Install weep tile c/w with filter cloth at foundations over min. 6" compacted gravel base to limit soil fines and connect to CB or downslope of building or as directed by civil consultant UNO.

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- g) Optional geotextile/filter-cloth over backfill gravel to limit soil fines from filling gravel matrix is considered best practice.
- s) Contractor to provide damp-proofing, dimple board and/or 100% clear draining granular backfill material to allow for free draining of meltwater, precipitation, groundwater and all other sources away from foundations and building interiors.
- t) Liquid-applied Sill sealer shall be applied to TOW of all foundations UNO, c/w closed cell foam capillary break over full width and length of sill plate, to be additionally caulked with moisture impervious caulking.

Slab on Grade (SOG)

- a) Bedding for slab on grade to be a min. 8" thick layer of granular 'A' or 3/4" crusher run limestone, compacted to 98% standard proctor density.
- b) Provide min. 10 mil polyethylene vapour barrier between slab and granular bedding, or
- c) "Taped Ship-lapped XPS sub-slab insulation and/or 2lb closed-cell Spray in Place Polyurethane insulation is considered an acceptable adequate vapour barrier. Note Radon mitigation systems and provisions in updated NBC and OBC codes and install as required.
- d) All slabs on grade shall be reinforced with WWM 6x6x6/6 placed 1" clear from bottom of slab UNO
- e) Refer to OBC SB10 or SB12 for required R-values for insulation (ie. heated slabs w. radiant PEX floor require min. 2" SM/XPS or alternative min. R10 continuous insulation).
- f) Power floated floors to be reinforced with fibreglass fibre admixture and treated with surface hardening agent and be sealed w. Mapei WR40 Sealer.
- g) Note: Passive Solar Designs require hydronic 'radiant PEX' lines to be continuous from South to North areas of slab to allow for passive solar gains to be distributed to North area of slab during daytime peak solar gains. MEP Consultant to provide second circuit for distribution pump so calls can come from thermostat (ie. as with fan-only control on conventional furnace) or from boiler calls. DO NOT zone North and South as separate, isolated zones.
- u) SOG with full frost-wall foundations with NO basement: Damp-proofing can be omitted provided that a rigid form of mineral wool or cellular glass insulation that acts as a capillary break and permits the free draining of groundwater may be used in lieu of damp-proofing. Interior and exterior weepers with filter cloth embedded in clear stone backfill shall be provided UNO.
- h) SOG as Thermal Battery: Where structural may show min. 4", Architectural best practice has shown that min. 5" slabs have superior performance characteristics wrt the 'thermal battery' effect, and risk reduction wrt puncture of radiant pex from fasteners overhead partition sills. Contractor to form to 5" thickness slabs even where 4" thickness is cited by Structural wherever in-floor hydronic systems are specified.

04 20 00 Concrete Unit Masonry Foundations

- Build masonry plumb, level, and true to line, with vertical joints in alignment.
- Lay out coursing and bond to achieve correct coursing heights and continuity of bond above and below openings, with minimum of cutting.
- Provide continuous control joints [as indicated].
- Break vertical mortar bond with extruded neoprene gasket.
- Control joint shall be primed to prevent drying out of caulking material.

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[illegible]

Rev. ID	Transmittal Set Name	Change ID	Change Name	Date
01 - WIP	Issues for Certification Review			Work in Progress

Work in Progress

thomson architecture inc

1017 Dominion Rd. Stanhope, ON K0M 1S0

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BeHome 1BR Shed

project no. 2024.12

Site Address: TBD

Revision
01 - WIP
Notes & Legends 1-6

A0.02

- v) Provide moisture-resistant GWB at all partitions in wet areas not receiving tile, such as kitchens, bathrooms, janitor closets except where GWB forms part of a fire separation or UNO.
- w) Where varying thicknesses of GWB or other partitions abut, faces shall be flush and plumb UNO.
- x) Tile Edging, Thresholds, Transition/ Reducer Strips, Stair Treads
- y) Mortar
- z) Adhesive
 - aa) Grout
 - bb) Sealer
- cc) Install ceramic tile [and thresholds] to TTMAC Details.

09 60 00	Hardwood Flooring
----------	-------------------

- Provide samples: Submit two (2) samples 12x12 inches in size illustrating wood grain, colour, and sheen.
- Provide Moisture Barrier: Black high density foam with 6 mil polyethylene moisture barrier film.
- Provide adhesive: Water resistant type as recommended by flooring manufacturer.
- Apply Subfloor Filler: Premix latex cementitious trowel where required.
- Provide Expansion Space: Provide minimum <6 mm> <1/4 inch> expansion space at walls and other terminations of flooring, unless otherwise indicated on Drawings.
- Install transition/reducer strips [at centreline of door openings and where flooring terminates with other floor areas.
- Seal all flooring penetrations and perimeters at wet areas with silicone sealant.

10 30 00 Fireplaces And Stoves

- Fireplaces shall conform to OBC 9.22 [as per OBC 9.21.1.3]
- Direct vent gas fireplace vent to be a min 300mm [12"] from any opening and AFG.
- Direct venting gas furnace vent direct vent furnace terminal min.900mm [36"] from gas regulator min. 300mm[12"] AFG, from all openings, exhaust and intake vents.

22 10 00 Plumbing & Piping: Weeping Tile, Sumps, Drainage & Gutters, Rwl

- a) Use Polyvinyl Chloride Pipe: Perforated, plain end, 100mm/4 inches inside diameter; with required fittings.
- b) OR
- c) Corrugated Plastic Tubing: Flexible type, perforated; 100mm/4 inches diameter, with required fittings.
- d) Loosely butt pipe ends. Place 300mm/12 inch wide joint cover strip, around pipe diameter centred over joint.
- e) Place pipe with perforations facing down. Mechanically join pipe ends.
- f) Lay pipe to slope gradients with maximum variation from true slope of 3 mm in 3 m, 1/8 inch in 10 ft.
- g) Insulate any exposed pipes and ducts as required to limit condensate and heat trace any pipes subject to freezing.

22 40 00 Plumbing Fixtures (22) and Accessories (10)

- a) Install water closets in accordance with OBC section 3.8.3.9.
- b) Supply and install all fixtures, accessories and washroom components per Manufacturer's specifications.

- c) Where applicable; Supply and install all washroom accessories and fixtures noted. All barrier-free fixtures and accessories to be installed in accordance with OBC section 3.8.3.8. Securely anchor grab bars and other accessories to wall to resist all required loads (typ 1.3kN) and to meet OBC Section 3.8 "Barrier-Free Design" requirements.
- d) Provide 3/4" let-in (recessed) plywood support blocking in walls for wall mounted fixtures, accessories and grab bars (to withstand transferred weight required) between min. & max. mounting heights per OBC. Align wall mounted fixtures and accessories with wall tile joints, keeping within max and min dimensions per OBC.
- e) Insulate any exposed pipes or as required to limit condensate and heat trace any pipes subject to freezing.
- f) Supply and install all washroom components per Manufacturer's specifications.
- g) Where applicable; Supply and install all washroom accessories and fixtures noted.
- h) All barrier-free fixtures and accessories to be installed in accordance with OBC section 3.8.3.8.
- i) Securely anchor grab bars and other accessories to wall to resist all required loads (typ 1.3kN) and to meet OBC Section 3.8 "Barrier-Free Design" requirements.
- j) Provide 3/4" let-in (recessed) plywood support blocking in walls for wall mounted fixtures, accessories and grab bars (to withstand transferred weight required) between min. & max. mounting heights per OBC.
- k) Align wall mounted fixtures and accessories with wall tile joints, keeping within max and min dimensions per OBC.
- l) Blocking to be provided for future grab bars as noted.

Plumbing Penetrations & Access

- Flash and counter flash where plumbing piping passes through weather or waterproofed walls, floors and roofs.
- Flash vent and soil pipes projecting above finished roof surface. For pipes through outside walls turn flange back into wall and seal.
- Set sleeves in position in advance of concrete work. Arrange reinforcing around sleeves.
- Extend sleeves through floors 100 mm/4 inches above finished floor level. Seal opening perimeter with sealant and provide floor cover plate.
- Install chrome plated escutcheons where piping passes through finished surfaces.
- Provide and install access doors to concealed plumbing piping, flush with surrounding surface. Provide access doors for maintenance or adjustments purposes for valves, clean outs, traps, controls.

23 70 00 Centralized Ventilation Equipment

- a) HRV intake to be min. 1830mm[6'-0"] from all exhaust terminals. [refer to gas utilization code] [as per OBC 9.32.3.5 and 9.32.3.10]
- b) Washroom and kitchen mechanical exhaust to be connected to HRV, noting all req'd clearances (ie. min 6" from range)
- c) HRV to be installed, insulated and balanced by HRAI licensed professional and per HRAI and manufacturer specifications
- d) Adequate attic, crawlspace and/or cavity venting (per OBC) to be installed by contractor.
- e) HRV intake to be min. 1830mm [6'-0"] from all exhaust terminals. [refer to gas utilization code] [as per OBC 9.32.3.5 and 9.32.3.10]
- f) Washroom and kitchen mechanical exhaust to be connected to HRV, noting all req'd clearances (ie. min 6" from range)
- g) HRV/ERV to be installed, insulated and balanced by HRAI licensed professional and per HRAI and manufacturer specifications, CSA-F326-M91 and as per OBC 9.32.3.11&12 and OBC 6.2.1.6 (efficiency)

- h) Controls: Airthings Wave+ c/w Radon & CO2 monitoring, programmed with IFTTT trigger to call HRV operation via Ecobee4 Thermostats at levels over 600ppm to 450ppm or RH of 60% or greater, OAA
- i) Design for Relative Humidity targeting between 40-60% UNO.
- j) Drain Water Heat Recovery (DWHR) units (42% Efficiency) shall be installed as required by OBC SB12 3.1.1.12 at any/all showers except where there is no vertical storey/crawlspace to accommodate the DWHR

28 40 00 Safety Detectors Install Safety Detectors In The Following Locations:

- a) Fire/Heat Detector: [Fixed temperature.] [Combination rate of rise and fixed temperature,] rated, self contained audible alarm, [120 VAC.] [Battery DC powered.] Locations:
 - b) Kitchen.
 - c) Sleeping area.
 - d) Smoke Detector: [Ultraviolet] [Infrared] radiation type, self contained audible alarm, [120 VAC.] [Battery DC powered.] Locations:
 - e) Near furnace.
 - f) Main floor hallway.
 - g) Upstairs hallway.
 - h) Sleeping area.
 - i) Carbon Dioxide Detector: Sensor activated, self contained audible alarm, [120 VAC.] [Battery DC powered.] Locations:
 - Near furnace.
 - j) Install at ceiling locations appropriate to optimum sensing.

26 10 00 Electrical

- a) All switches and outlets to be Lutron Decora OAA.
- b) All Electrical outlets shown on Drawings are approximate locations unless dimensioned.
- n) Outlet and switch heights per OBC.
- c) Do not install boxes back-to-back in walls, provide separation, except provide minimum 600 mm/24 inch separation in acoustic walls.
- d) Use multiple-gang boxes where more than one device are mounted together; [do not use sectional boxes].
- e) Install boxes in walls without damaging wall insulation.
- f) Install plastic air seal covers and apply acoustic sealant at all boxes at exterior walls and all ceilings with attic space above.
- g) Vertically align adjacent wall-mounted outlet boxes for switches, thermostats, and similar devices.
- h) Set floor boxes level and flush with finish flooring material.
- i) Install wall switches 1.2m/48 inches above floor, OFF position down.
- j) Install convenience receptacles 450mm/18 inches above floor, 150mm/6 inches above counter backsplash; grounding pole on bottom.
- k) Install galvanized steel plates on outlet boxes and junction boxes in unfinished areas, above accessible ceilings, and on surface mounted outlets.
- o) **Renovated Basement Suites Only:** Potlights to be removed and replaced with surface mounted fixtures (for fire protection) that shall accommodate Philips LED Edison base fixtures on dimmers. Switch and fixture locations to be coordinated on site with Finish Contractor and reviewed by architect

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[illegible]

ABBREVIATIONS

a:	1017 Dominion Rd., Algonquin Highlands, ON K0M 1J1	Thomson Architecture Inc.
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www:	thomsonarchitecture.ca	p: 705.935.0355
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a: 104 Shirley Avenue, Barrie, ON L4N-1N4
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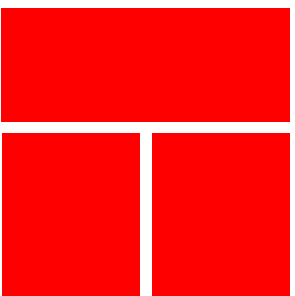
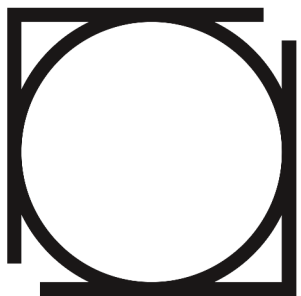
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BeHome 1BR Shed

project no. 2024.12

Site Address: TBD

Revision

01 - WIP

Abbreviations

A0.06

SATC	SUSPENDED ACOUSTICAL TILE	U/S J	UNDERSIDE OF JOIST
CEILING		U/S SD	UNDERSIDE OF STRUCTURAL DECK
TBV	TO BE VERIFIED BY CONTRACTOR	VERT	VERTICAL
TMPD GL	TEMPERED GLASS	VEST	VESTIBULE
THK	THICKNESS	VOC	VOLATILE ORGANIC COMPOUND
THERM	THERMAL GLAZING AS REQ'D BY OBC	W/	WITH
THRES	THRESHOLD	WC	WATER CLOSET
THRU	THROUGH	WD	WOOD WOOD DOOR
TFA	TO FLOOR ABOVE	WDMA	WINDOW & DOOR MANUFACTURERS ASSOCIATION
TFB	TO FLOOR BELOW	WGL	WIRED GLASS
TJI	TRUSS JOIST/WOOD-I BEAM	WH	WEEP HOLE - or - WALL HUNG
TO	TOP OF ____	W/O	WITHOUT
TOB	TOP OF BEAM	WPM	WATERPROOF MEMBRANE
TOC	TOP OF CONCRETE	WP	WATERPROOFING
TOC FTG	TOP OF CONCRETE FOOTING	WP	WORKING POINT
TOC WALL	TOP OF CONCRETE WALL	WRB	WEATHER RESISTIVE BARRIER (Vapour-Open)
TOW	TOP OF WALL	WRC	WESTERN RED CEDAR
TFF	TOP OF FINISH FLOOR	WT	WEeping TILE C/W FILTER CLOTH
TOF	TOP OF FLOOR TOP OF FOOTING TOP OF FRAMING		
TOFW	TOP OF FOUNDATION WALL		
TOJ	TOP OF JOIST		
TOM	TOP OF MASONRY		
TOP	TOP OF PARAPET		
TOS	TOP OF SLAB TOP OF STEEL		
TYP	TYPICAL		
U/S	UNDERSIDE		
UNO	UNLESS NOTED OTHERWISE		
UR	URINAL		
U/S B	UNDERSIDE OF BEAM		

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SYMBOLS LEGEND

C4

Drawing Title

1 : SCALE

0

20 mm

50mm

A#

D#

PAGE #

DWG #

D#

A#

BUILDING SECTION/ELEVATION REFERENCE

X

AY

WALL/PARTIAL SECTION

2

1

A#

D#

3

4

INTERIOR ELEVATION

#

DRAWING KEYNOTES

E01

EXISTING WALL AND DOOR TO REMAIN

E01

DEMOLISH WALL AND/OR DOOR

D01

NEW WALL AND DOOR

W1

NEW WALL TYPE

EW

EXISTING WALL TYPE

3000

ELEVATION OF NOTED ELEMENT

Room Name

001

A

2

C

3

ROOM IDENTIFICATION
A = FLOOR FINISH TYPE
2 = BASE FINISH TYPE
C = WALL FINISH TYPE
3 = CEILING FINISH TYPE

9F AFF

SCO

Indicates Smoke & CO **alarms** - to be hard-wired and interconnected with battery backup (for Part 9 Buildings per **OBC 9.10.19**)

V

VENT STACK

FD

FLOOR DRAIN

SD

SINK/SHOWER DRAIN

LD

LAUNDRY DRAIN

TD

TOILET DRAIN

HB

HOSE BIB (FROST PROTECTED)

WT

WEEPING TILE C/W FILTER CLOTH

Commonly Referenced CSA Standards

(See OAA CSA page)

Commonly Referenced ULc Standards

TABLE OF CONTENTS: STANDARDS

- 03 CONCRETE**
- a) CONCRETE MATERIALS CSA-A3001
 - b) CONCRETE PAVING MATERIALS CAN/CSA-A438,
 - c) CONCRETE FORMWORK, REINFORCING, CAST-IN-PLACE CONCRETE CSA-A23.1, CAN/CSA-S269.3, CAN/CSA-A23.1M
 - d) CONCRETE SOFT PLYWOOD FORMS CSA-O151
 - e) CONCRETE AIR ENTRAINMENT ASTM C260
 - f) CONCRETE AGGREGATES CAN/CSA-A23.1M
 - g) CONCRETE CEMENT CAN/CSA-ASM
 - h) CONCRETE CHEMICAL ADMIXTURES Chemical Admixtures: ASTM C494/C494M
 - i) CONCRETE REINFORCING FABRICATION CSA-A23.1,CAN/CSA-A23.1M
 - j) CONCRETE MIXTURES, PLACEMENT, AND REINFORCING CSA-A23.1
 - k) CONCRETE FIELD QUALITY CONTROL CSA-A23.2
 - l) CAST-IN-PLACE CONCRETE CAN/CSA-A23.1M and CAN/CSA-A23.3M
- 04 MASONRY**
- a) BRICK VENEER MASONRY CSA-A371, CSA-A82, CSA-A165 Series, and CSA-A179.
 - b) MORTAR, GROUT, PARGING AND POINTING MORTAR CSA-A179
 - c) MORTAR AGGREGATE CSA A82.56M
 - d) CONCRETE MASONRY CSA-A371-04, CSA-A165 Series-04, and CSA-A179-04.
 - e) HOLLOW AND SOLID LOAD BEARING CONCRETE UNITS CSA-A165.1
 - f) CONCRETE MORTAR AND GROUT CSA-A179
- 05 METALS**
- a) STEEL FRAMING CSSBI 51 Lightweight Steel Framing Design Manual
 - b) STEEL WELDING CSA-W47.1, CSA-W59 and AWS D1.3
 - c) LIGHT STEELFRAMING ASTM A653/A653M
 - d) LIGHT STEEL FRAMING FASTENERS ASTM A307
- 06 WOOD, PLASTICS AND COMPOSITES**
- a) PLYWOOD FLOOR, WALL, ROOF, UNDERLAYMENT/SHEATHING CSA-O151
 - b) WOOD FRAMING CSA-O86
 - c) PRESSURE TREATED WOOD CAN/CSA-S406 and CSA-Q322

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6. All work is to be carried out in conformance with the most current Building Code and Rules of the authority having jurisdiction. All planning and change work to conform to current Ontario regulations. All electrical work to conform to Ontario Hydro Electrical Safety Code as amended.

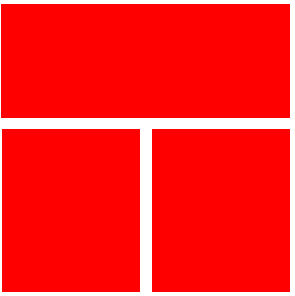
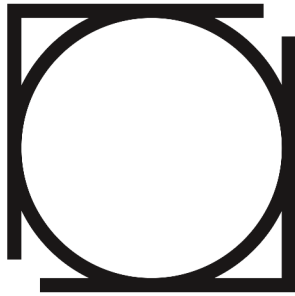
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BeHome 1BR Shed

project no. 2024.12

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Legends

A0.07

Rx39



Wx38

Sx34.4

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A0.09

INTERIORS



JUST SAY NO TO TUCK TAPE

Use only premium tapes
specified at appropriate
locations, RTMS



JUST SAY NO TO POLY

Use only premium
membranes specified at
appropriate locations,
RTMS



SIGA RISSAN

Use Rissan at all Interior
AVB Penetrations and
seams, RTMS



SIGA MAJREX

Use Majrex (Smart AVB)
for all Interior AVB
Applications, RTMS

EXTERIORS



JUST SAY NO TO TUCK TAPE

Use only premium tapes
specified at appropriate
locations, RTMS



JUST SAY NO TO TYVEK

Use only premium
membranes specified at
appropriate locations,
RTMS



SIGA WIGLUV

Use Rissan at all
Exterior WRB
Penetrations and
seams, RTMS



SIGA MAJVEST

Use Majrex (Smart AVB)
for all Exterior WRB
Applications, RTMS

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Control Layers

AO.10

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* April 2017

This site plan has been provided by the **Owner/Applicant** for reference only and has no legal value.

For Zoning Compliance and Site Plan Design, Refer to Planning Consultant submissions.

Property Line Dimensions are as noted in Documents provided by owner. The Architect bears no responsibility for the accuracy of dimensions provided. If a current legal survey is required for the purpose of submitting for a Permit to Construct, the owner must contract an OLS Surveyor to furnish these dimensions to the AHJ's satisfaction. The Architect can subsequently provide or update site dimensions for submission as required.

NOT TO SCALE



1BR Shed
40.06 m² GCA
34.32 m² TCA
112.82 m³ TCV

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6. All work is to be carried out in conformance with the most current Building Code and Orders of the authority having jurisdiction. All plumbing and drainage work to conform to current Ontario regulations. All electrical work to conform to Ontario Hydro Electrical Safety Code as amended.

7. The Architect of these plans and specifications gives no warranty or representation to any party about the constructability of the building represented by them. All contractors or subcontractors must satisfy themselves when bidding and at all times ensure that they can properly construct the work represented by these plans.

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Design Floor Plan

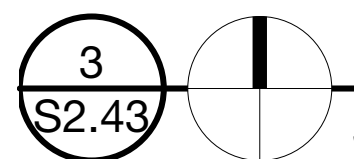
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1. DESIGN LOADS ARE UNFACTORED UNLESS NOTED OTHERWISE.

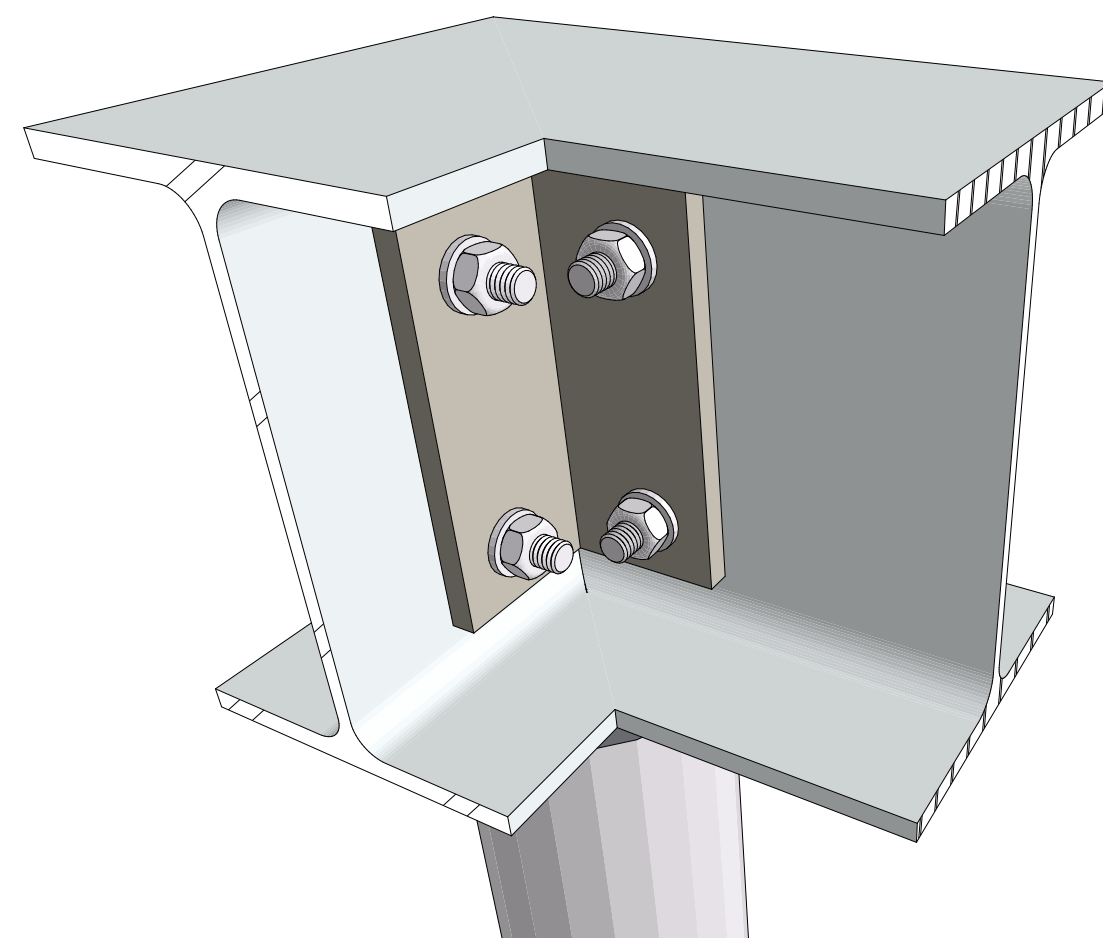
-
- 1 2 3 4 5
- CL
- 12'-1¹/₂"
- 5'-6¹/₂"
- 17'-8"
- 12'-1¹/₂"
- 6'-1³/₄"
- 3³/₈"
- WBx18 (typ)
- steel span 1-2
- steel span 2-4
- wood span 4-5
- OPTIONAL: Add 1 Helical Piers at GRID-3 if BU PT Wood Beam (5/2x12) to be used
- 5-ply PT SPF 2x12 Deck Beams (Typ)
- 2x10 Blocking below washroom wall
- 2x10 Joist
- 3x10 SPF Gravity Bearing, Blocking at ends @ 16" OC (Void Cavity, Insulate Under Slabs)
- 3x10 PT SPF Gravity Bearing, Blocking at ends @ 16" OC e/w PT 2x4 or 2x6 Decking
- RESISTO Joist-guard SA-M recommended over all joist tops for durability (typ)
- 5'-10¹/₂"
- 5'-10¹/₂"
- 2'-0"
- 5'-0"
- BB
- CL
- AA
- BB
- AA
- 35'-11¹/₄"
- 6³/₈"
- 5-ply PT SPF 2x12 Deck Beams (Typ)
- 5-ply PT SPF 2x12 Deck Beams (Typ)
- 3x10 PT SPF Gravity Bearing, Blocking at ends @ 16" OC e/w PT 2x4 or 2x6 Decking
- NOTE: Deck Piers offset ~7" from Grid3 to permit 12' wide deck

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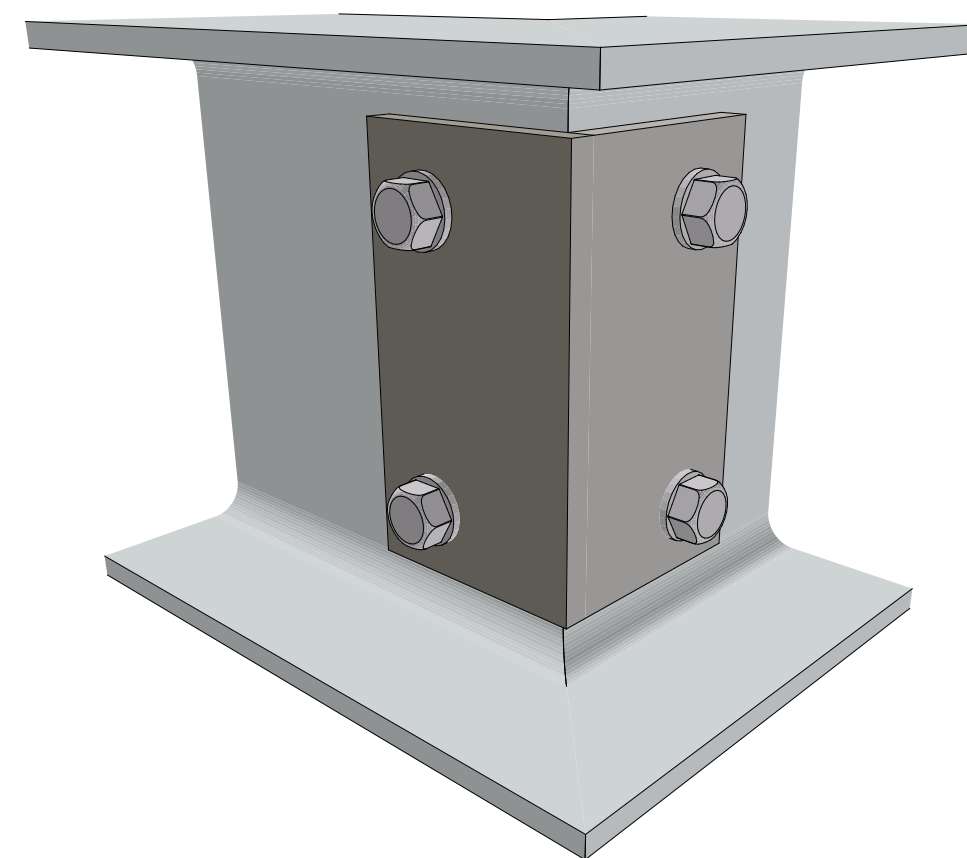
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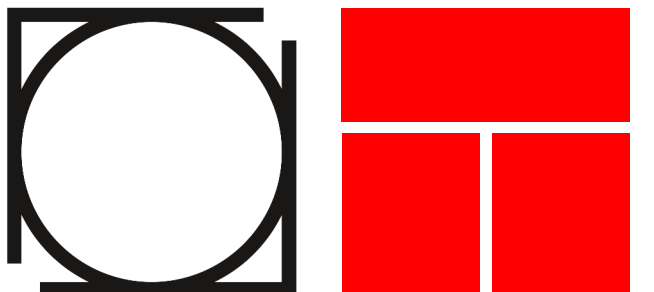


NOT TO SCALE



NOT TO SCALE

Wood Alternate also possible (5-ply PT 2x12 in GV Steel saddles in Helical Pier Caps). However this Detailing will push decks above 24" AFG, which will then required they have full guards and railings. In this sense the steel may be more economical.



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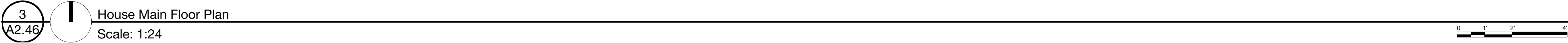
Revision
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Foundation Framing Plans

S.2.43

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Revision
01 - WIP
Main Floor Plan

A2.46

$$1 - \frac{1}{2} = \frac{1}{2} \quad (1 - \frac{1}{2}) = \frac{1}{2} \quad (1 - \frac{1}{2}) = \frac{1}{2} \quad (1 - \frac{1}{2}) = \frac{1}{2}$$


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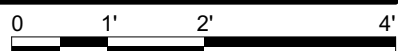
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Revision
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Main Floor Framing Plans

\$2.45

1
S2.45

House Main Floor Plan
Scale: 1:24



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DESIGN LOADS:

1. DESIGN LOADS ARE UNFACTORED UNLESS NOTED OTHERWISE.

A. CLIMATIC DESIGN DATA (Barrie, ON):

Ss= 2.5 kPa

Sr= 0.4 kPa

Wind 1/50 = 0.36 kPa (7.5 psf)

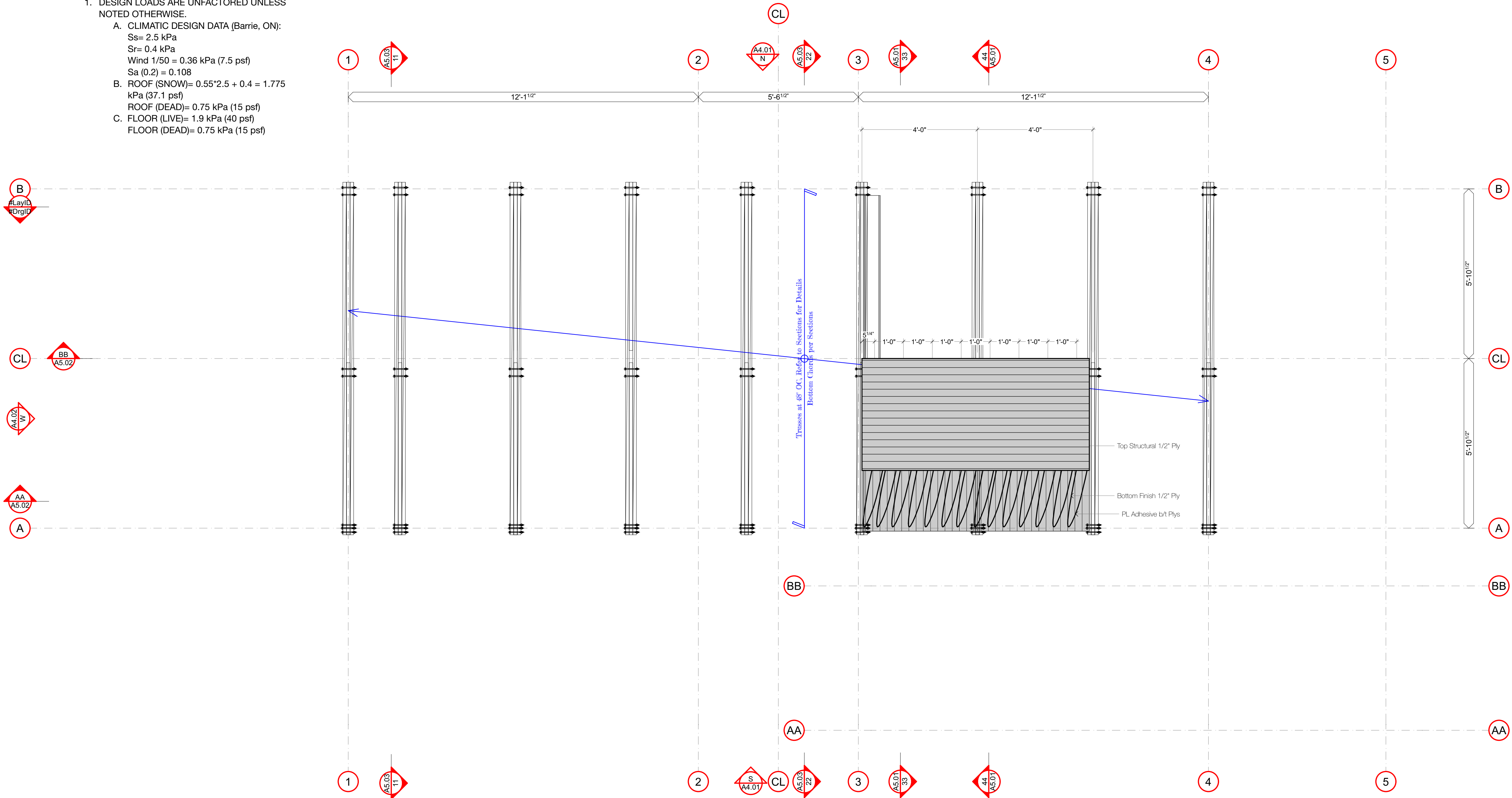
Sa (0.2) = 0.108

B. ROOF (SNOW)= 0.55*2.5 + 0.4 = 1.775 kPa (37.1 psf)

ROOF (DEAD)= 0.75 kPa (15 psf)

C. FLOOR (LIVE)= 1.9 kPa (40 psf)

FLOOR (DEAD)= 0.75 kPa (15 psf)



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BeHome 1BR Shed

project no. 2024.12

Site Address: TBD

Revision
01 - WIP
Roof Framing Plans

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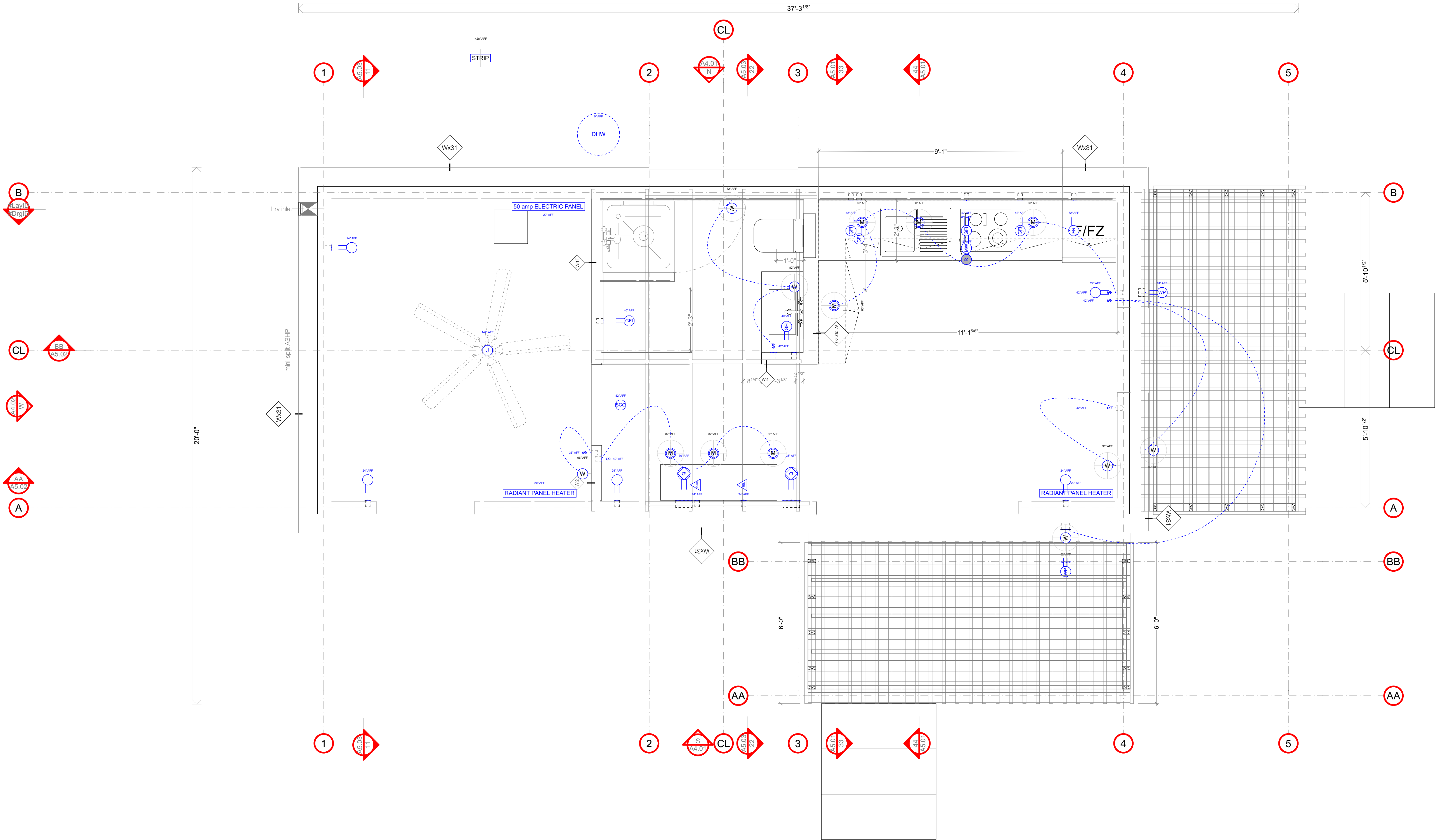
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9. Notes for Contractors available at the link:
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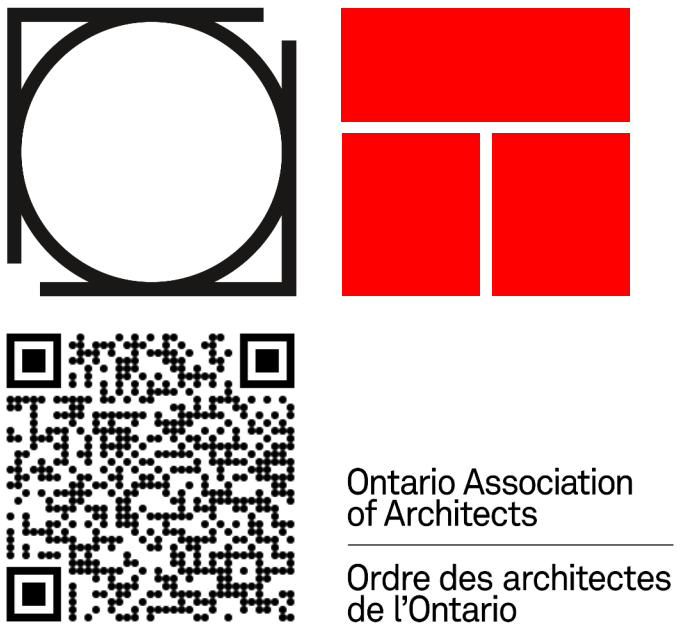


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project no. 2024.12

Site Address: TBD

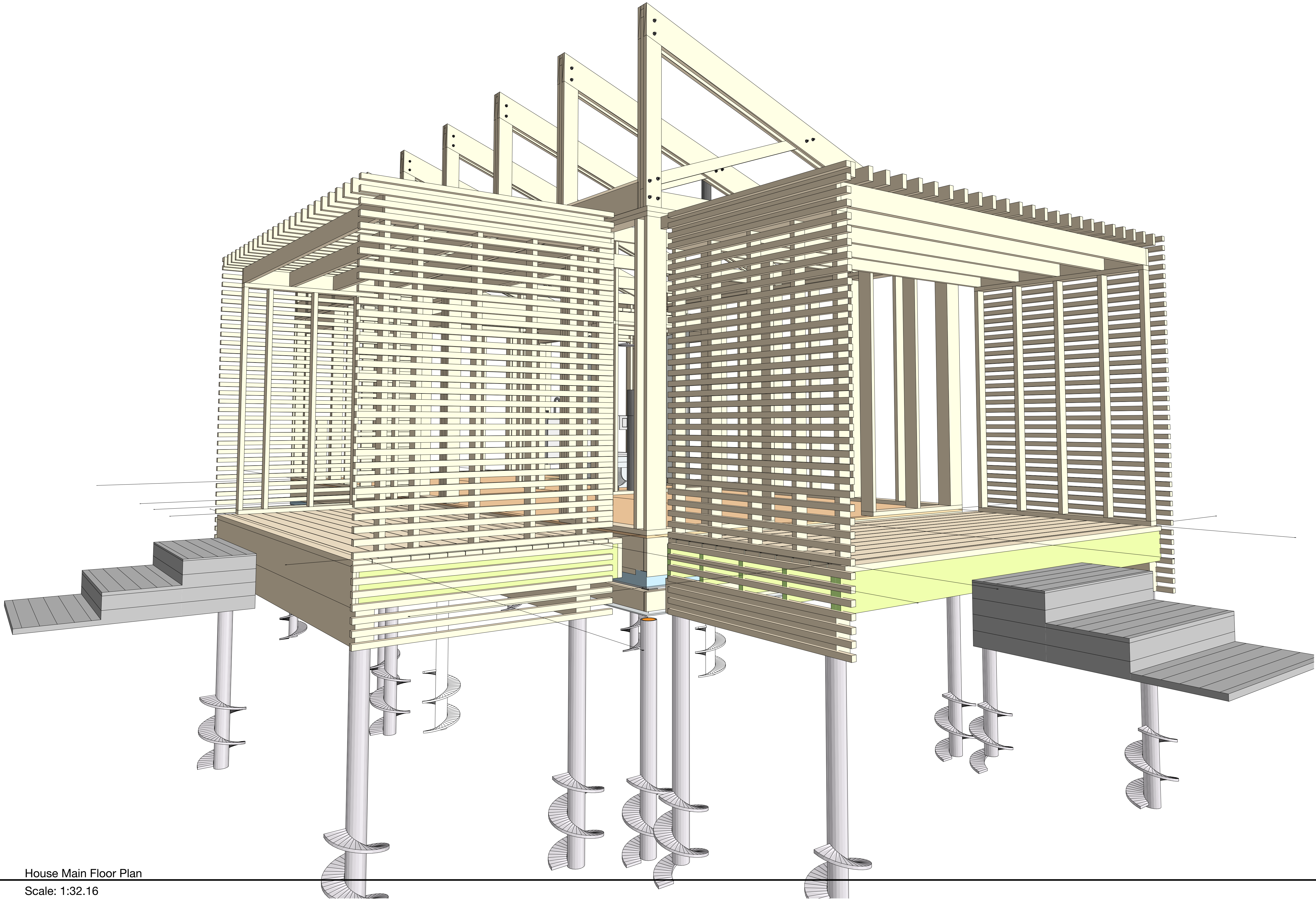
Revision
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Main Floor Electrical Plans



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A2.47



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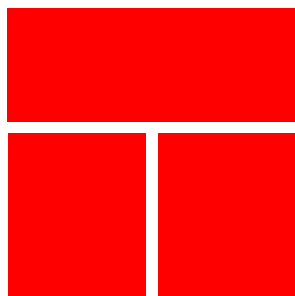
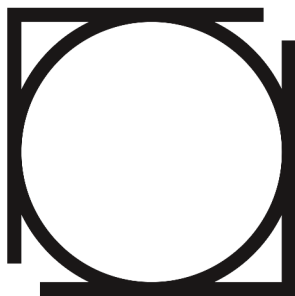
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BeHome 1BR Shed

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Revision
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Assembly Perspective

A2.48

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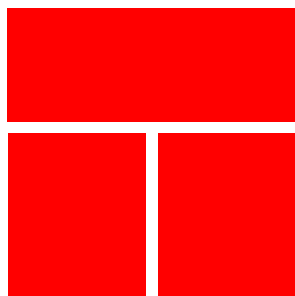
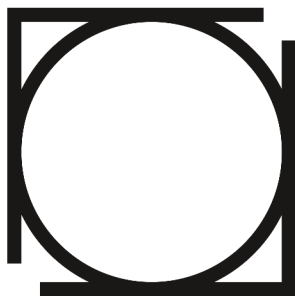
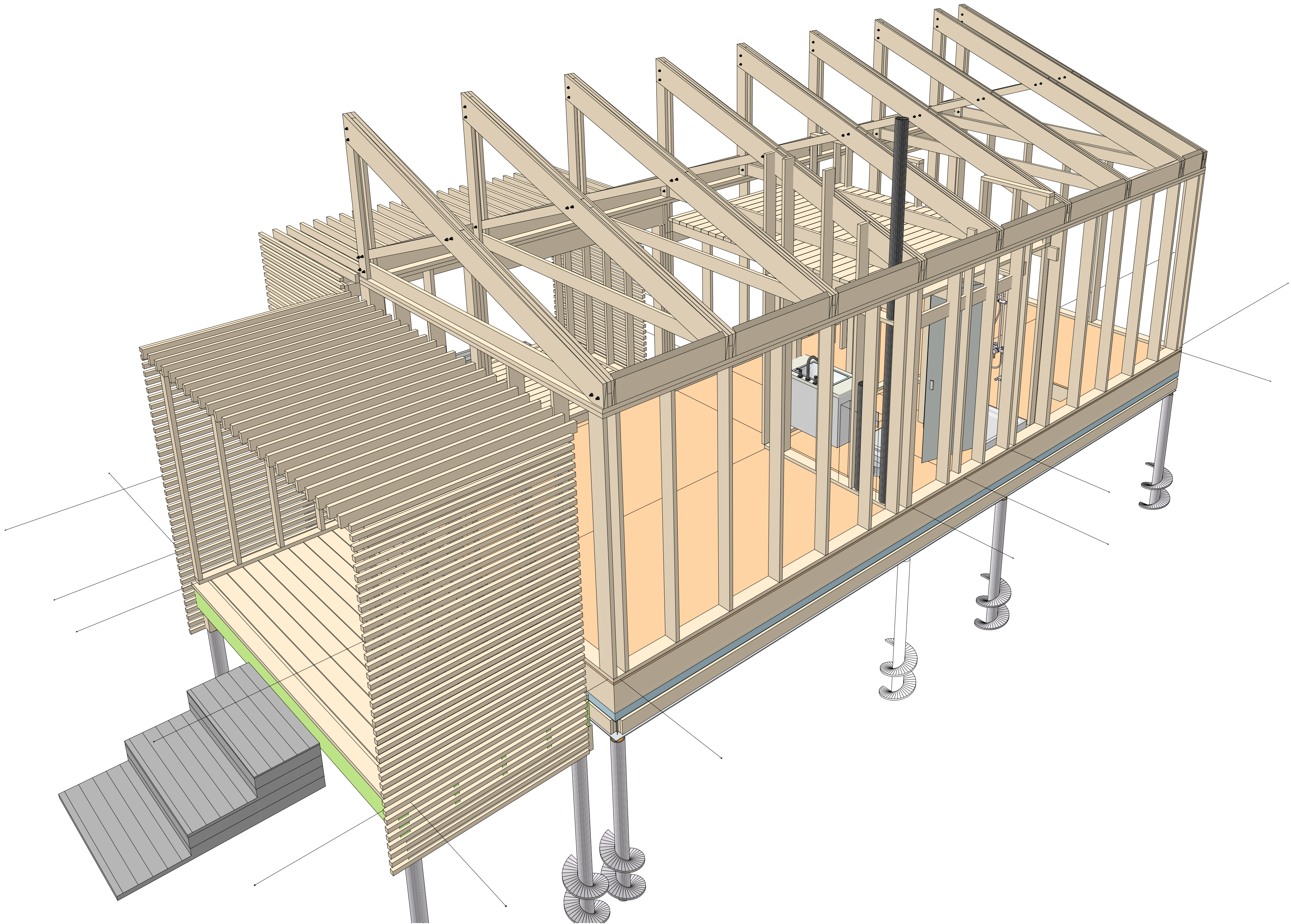
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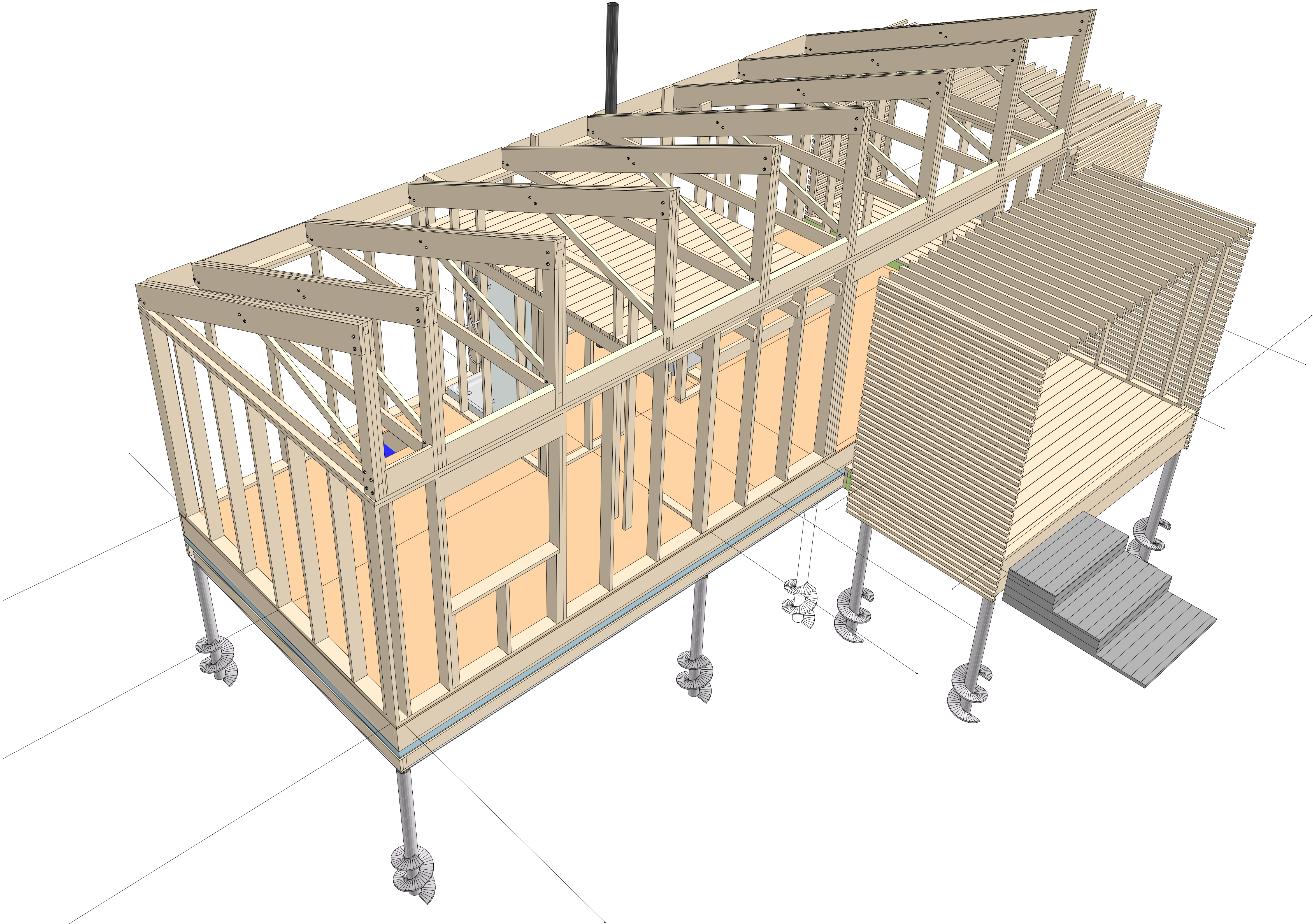
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Assembly Perspective



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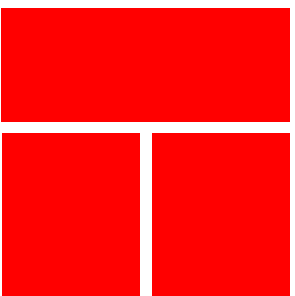
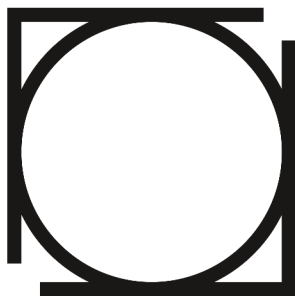
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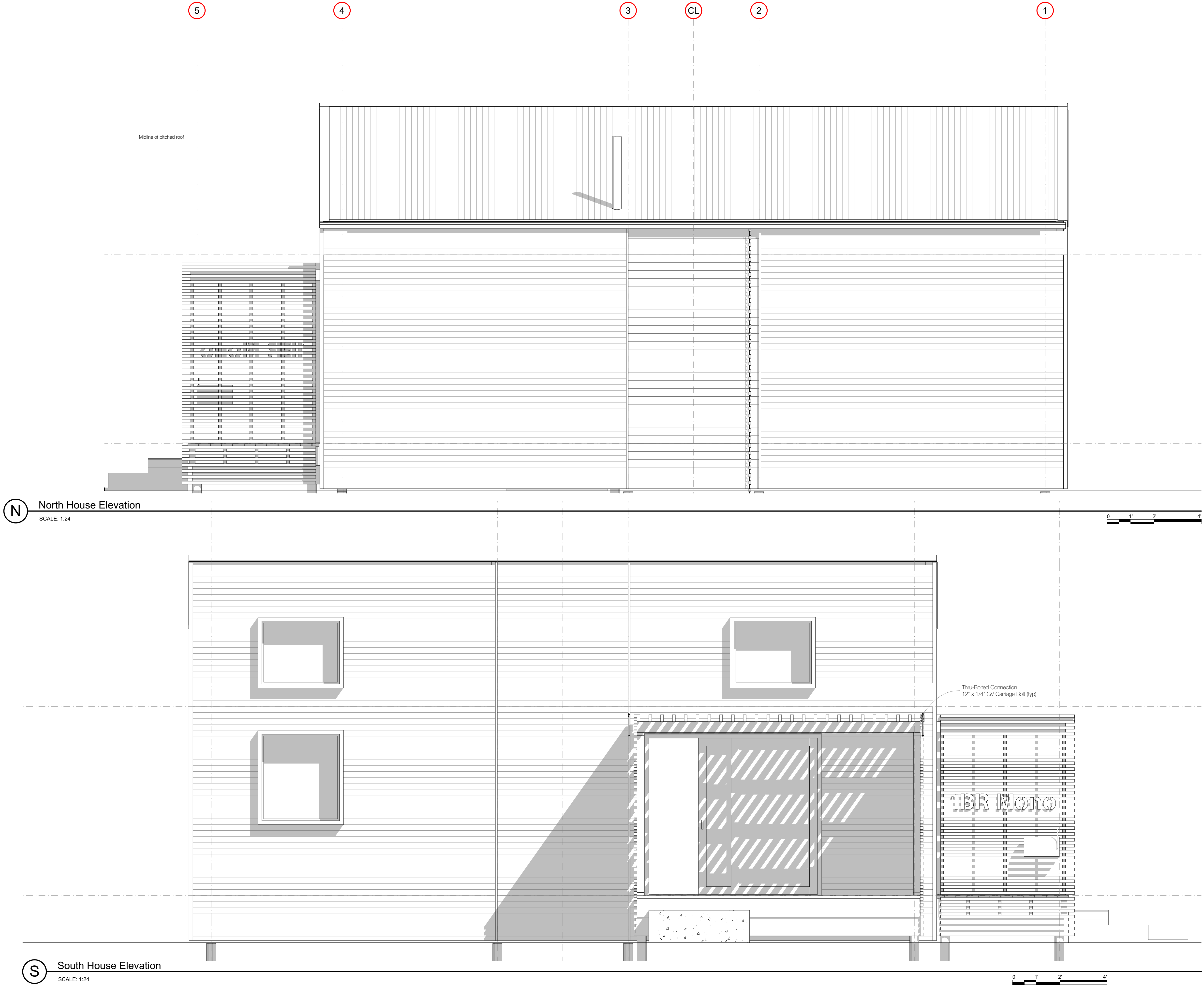
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Revision
01 - WIP
Framing Perspective

A2.410



N North House Elevation
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S South House Elevation
SCALE: 1:24

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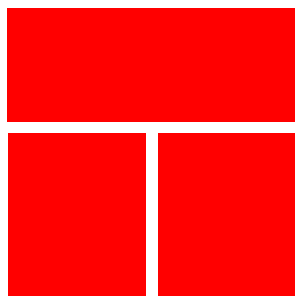
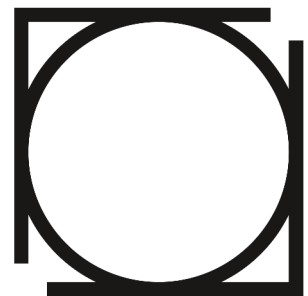
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BeHome 1BR Shed

project no. 2024.12

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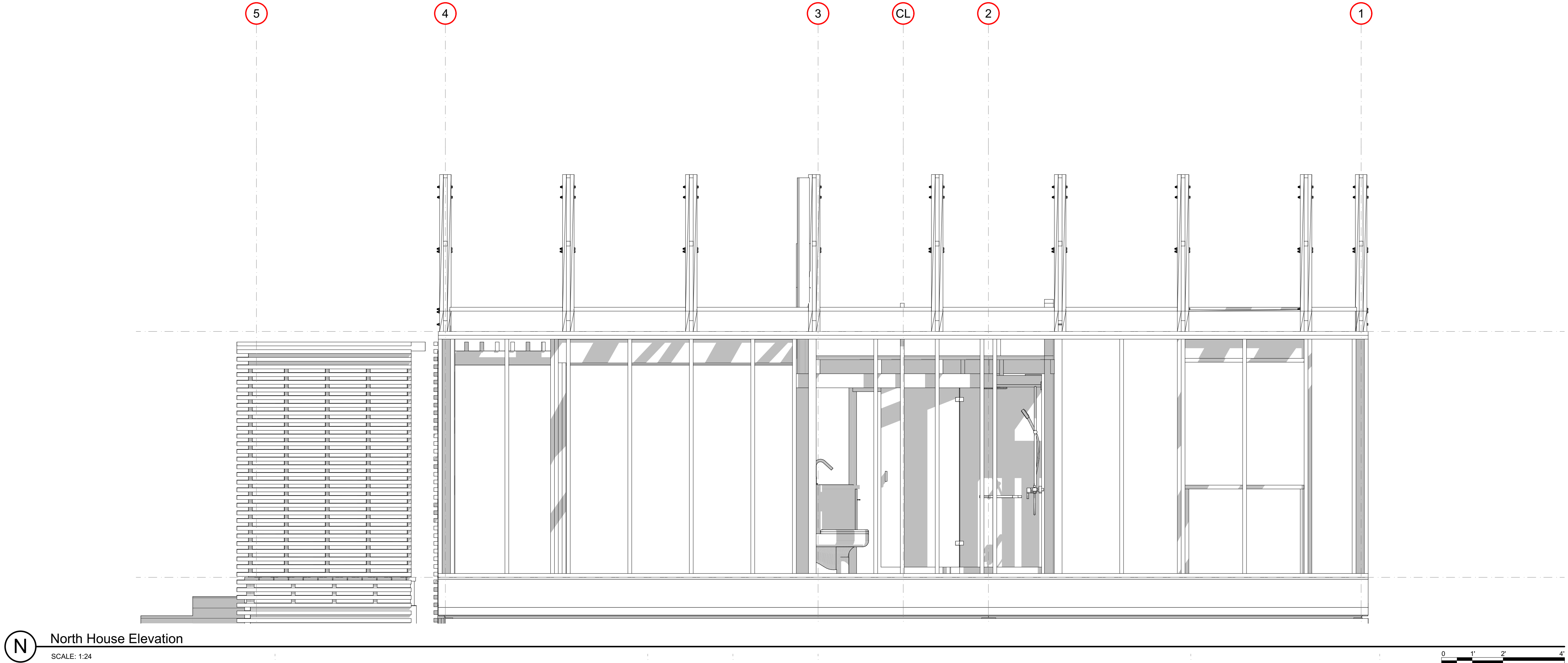
Revision
01 - WIP
North & South Elevations

A4.01

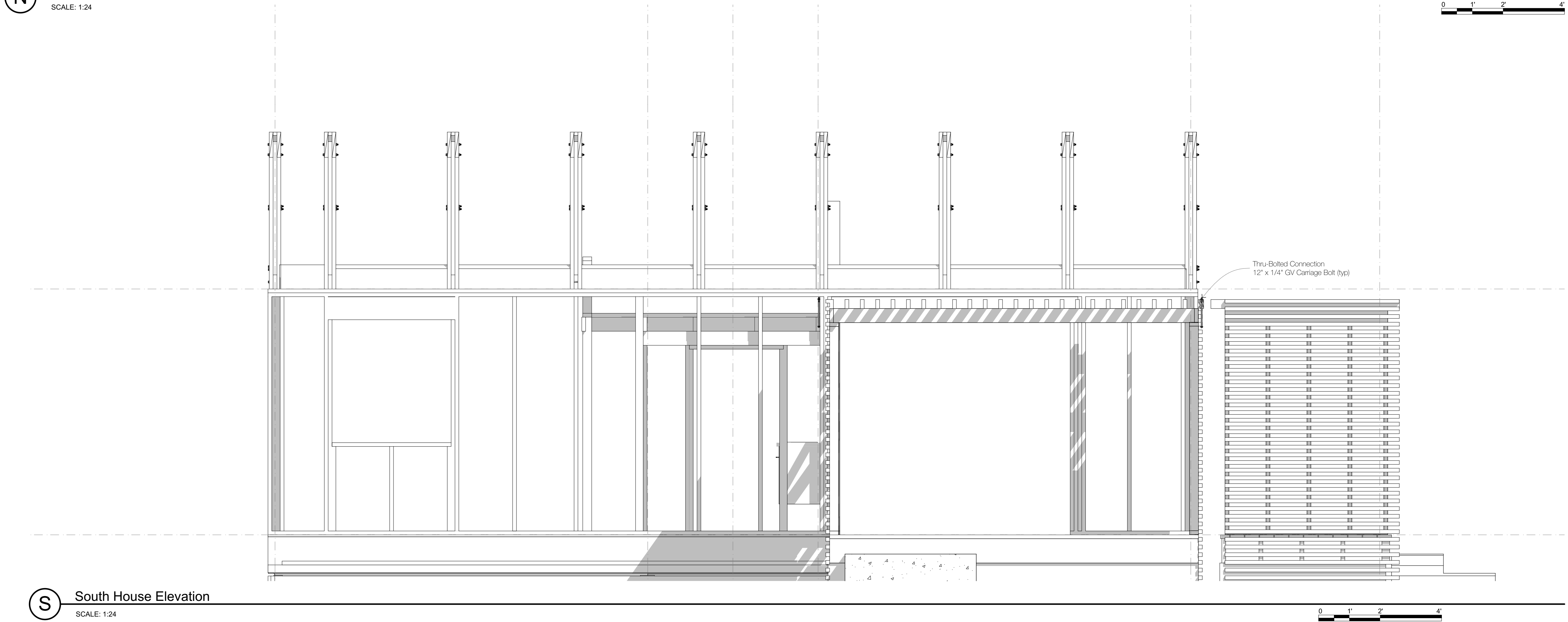
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Revision
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East & West Elevations

A4.02



N North House Elevation
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S South House Elevation
SCALE: 1:24

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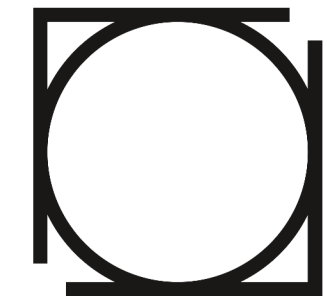
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BeHome 1BR Shed

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Revision
01 - WIP
Framing Elevations

\$4.03

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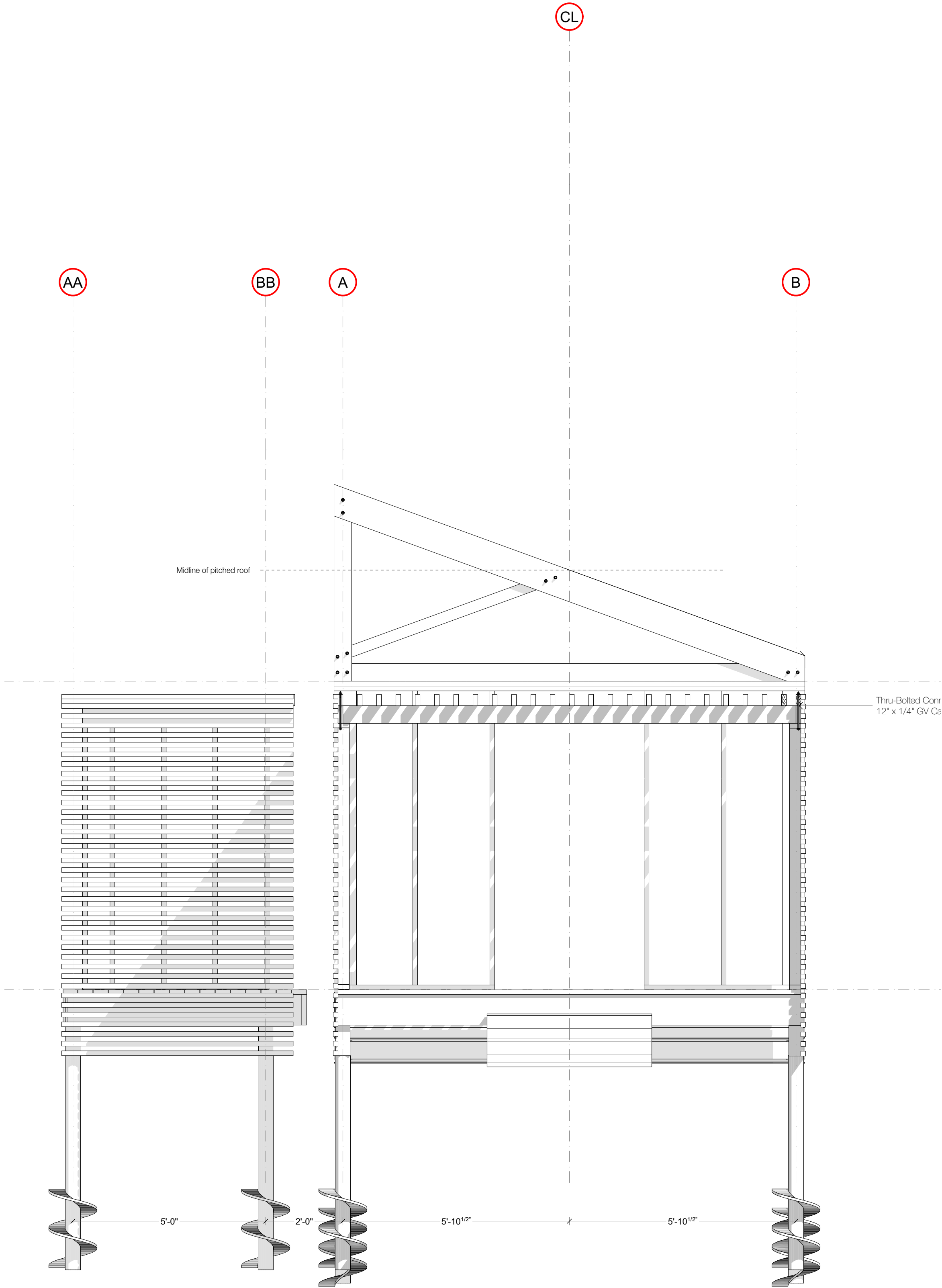
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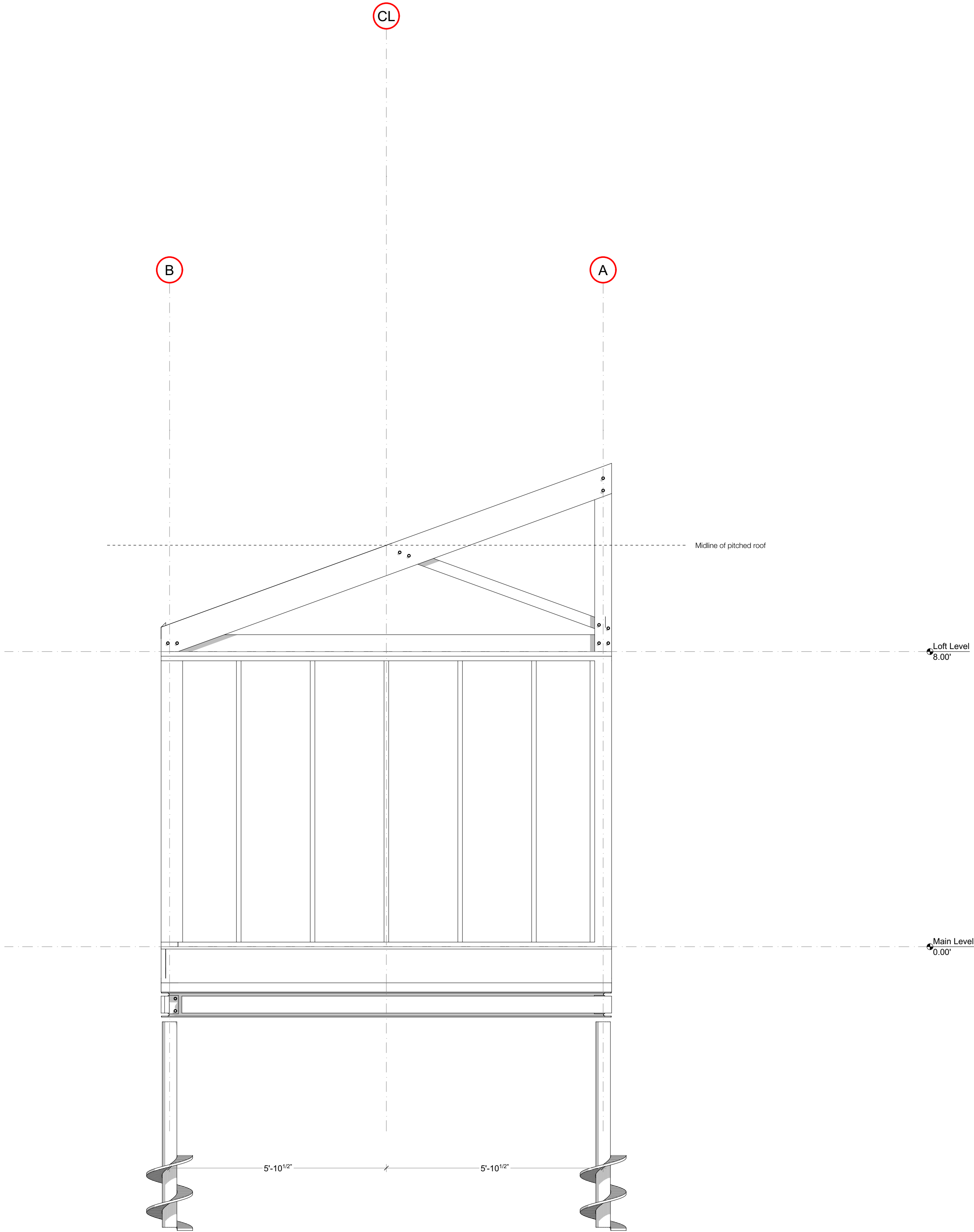
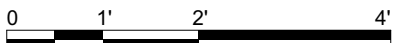
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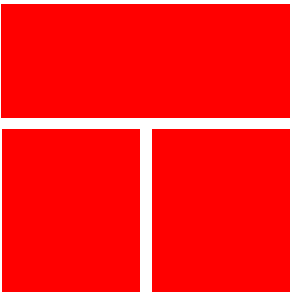
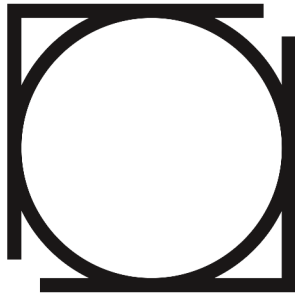
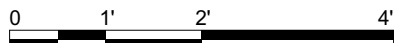
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E East House Elevation
SCALE: 1:24



W West House Elevation
SCALE: 1:24



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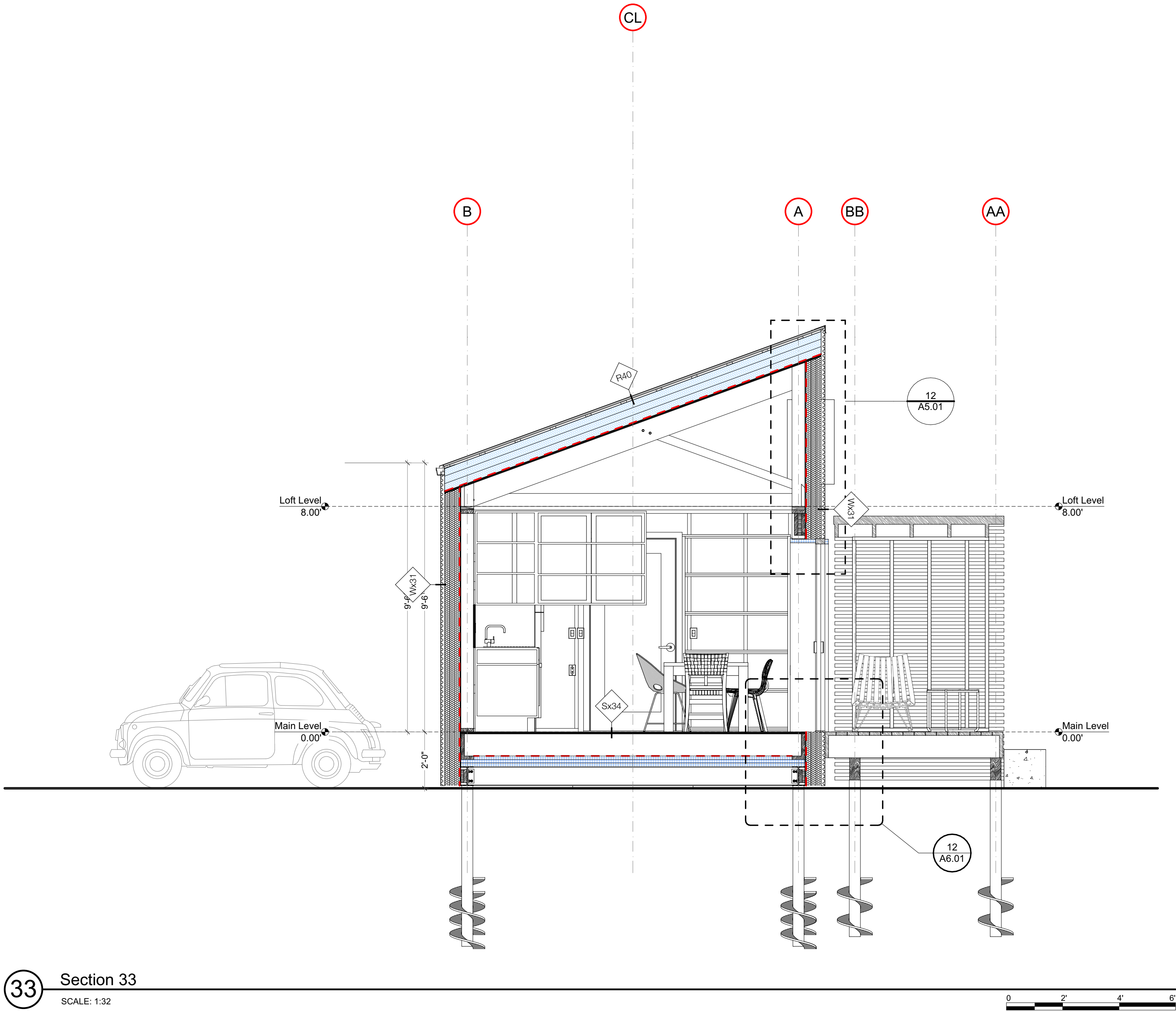
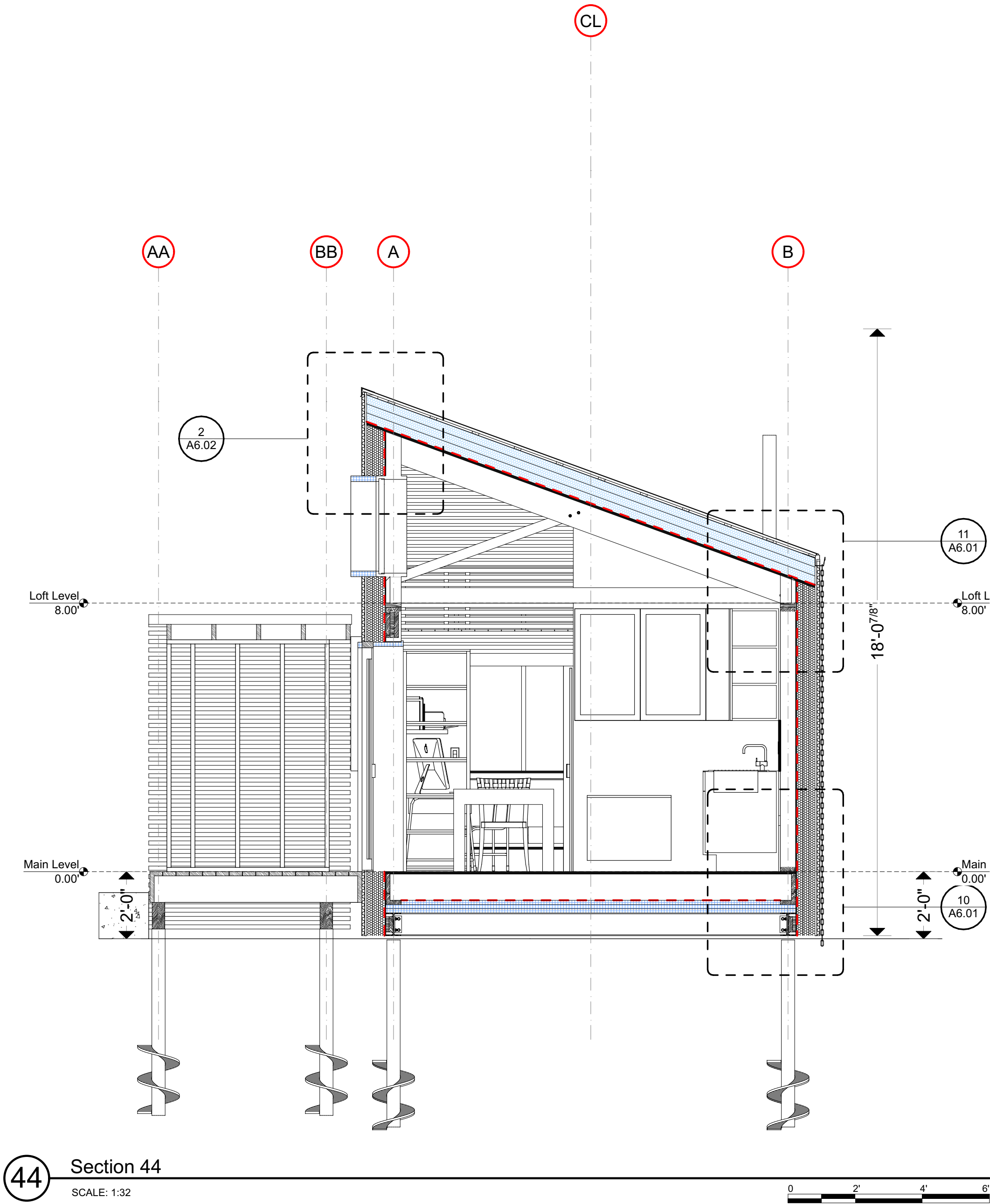
8. Original Drawings and designs generously provided by CMHC's "Pattern Book" from 1947-1960.

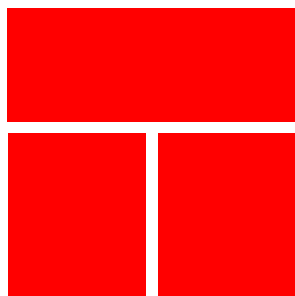
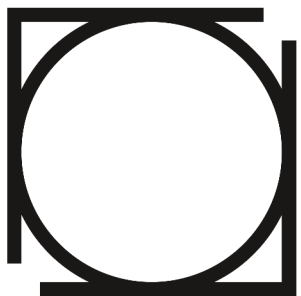
67. Notes for Contractors available at the link:
https://openhouse2017.sbbp.com/employees/ctrlmcp/containerset/project/archivhouse_plans/catalogue/evsca1-mh-41386-36-000

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email: thomsonarch@icloud.com

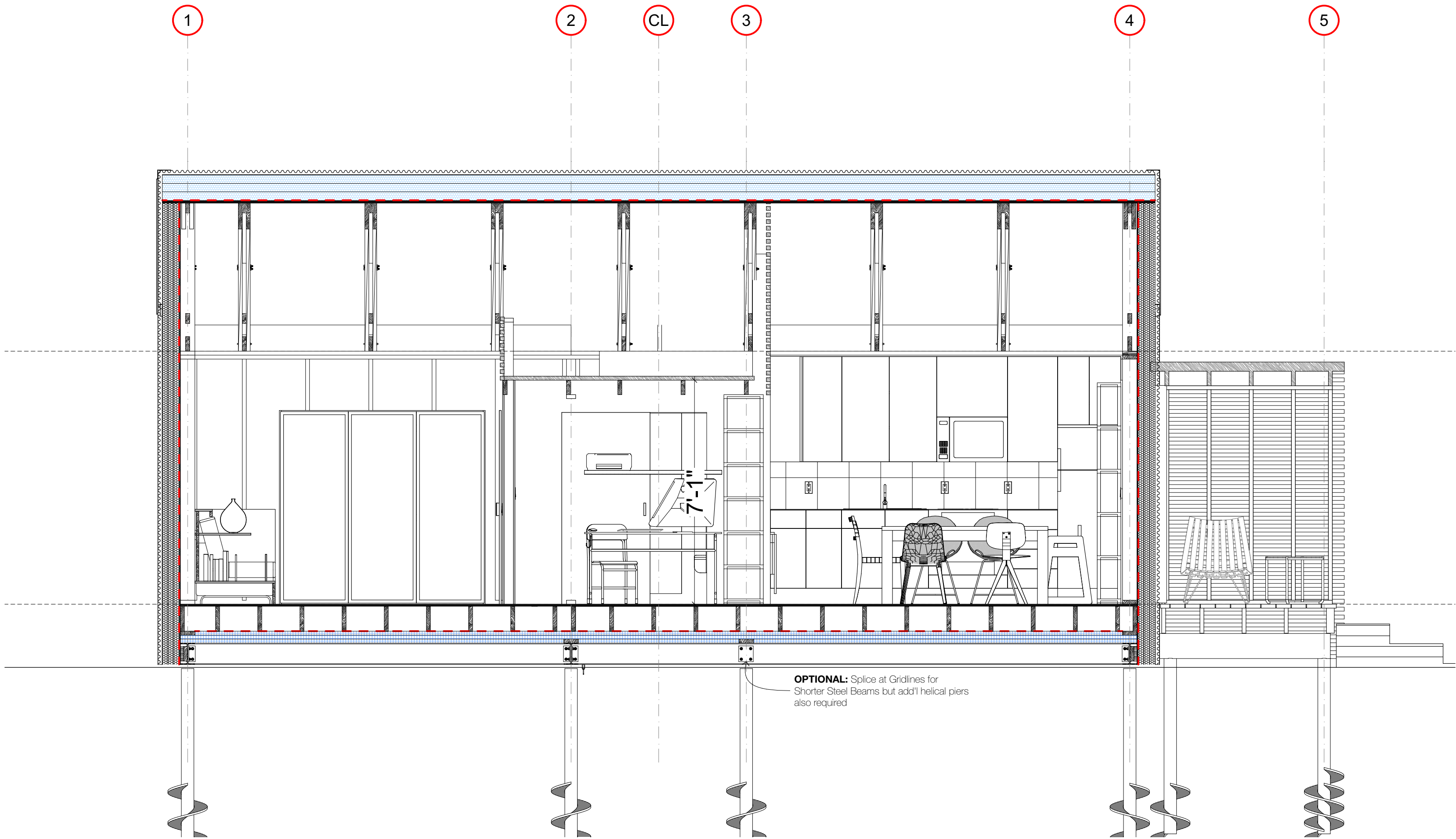
BeHome 1BR Shed

project no. 2024.12

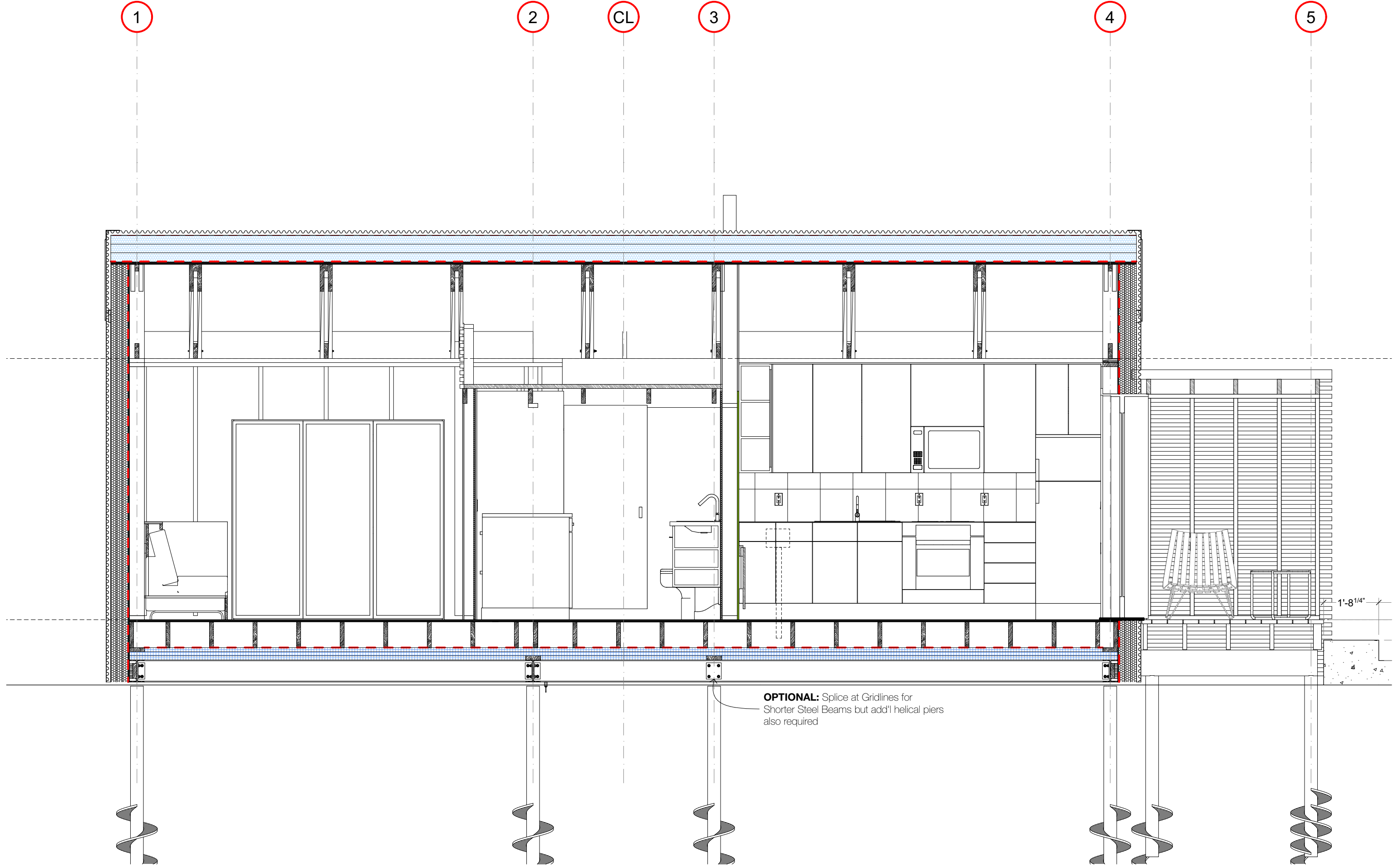
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Revision
01 - WIP
Building Sections

A5.01



AA Section AA
SCALE: 1:32



CC Section CC

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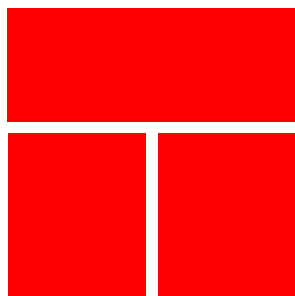
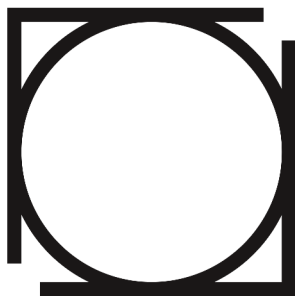
8. Original Drawings and designs generally provided by CMR's "Pattern Book" from 1947 dated:

67. Notes for Contractors available at the link:
https://openhouse2017.blob.core.windows.net/openhousedocuments/project/archhouse_plans/catalogue/evsca1-mh-41385-24-000

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BeHome 1BR Shed

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Revision
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Building Sections

A5.02

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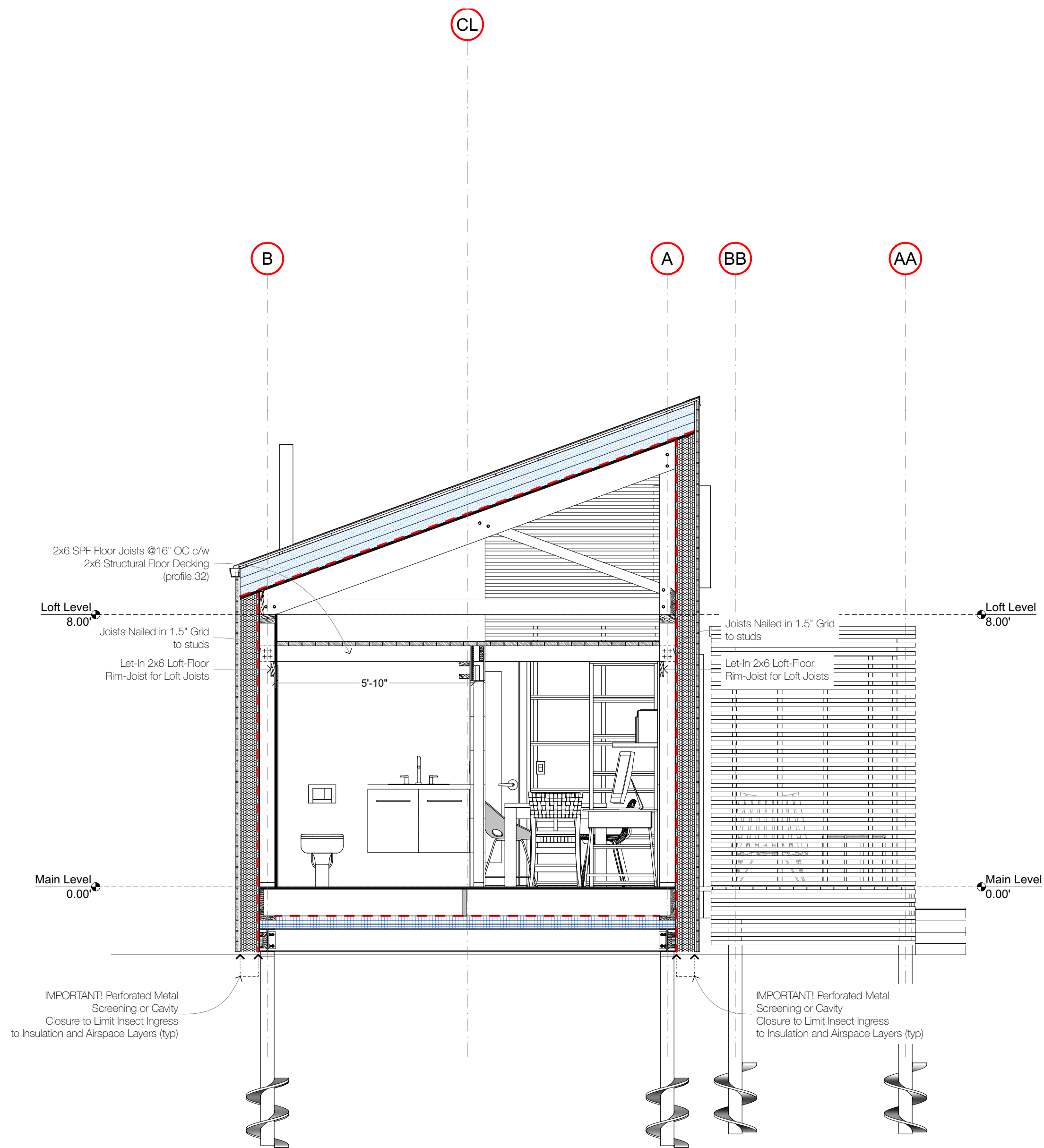
8. Original Drawings and designs generously provided by CMHC's "Pattern Book" from 1947-1960.

87. Notes for Contractors available at the link:
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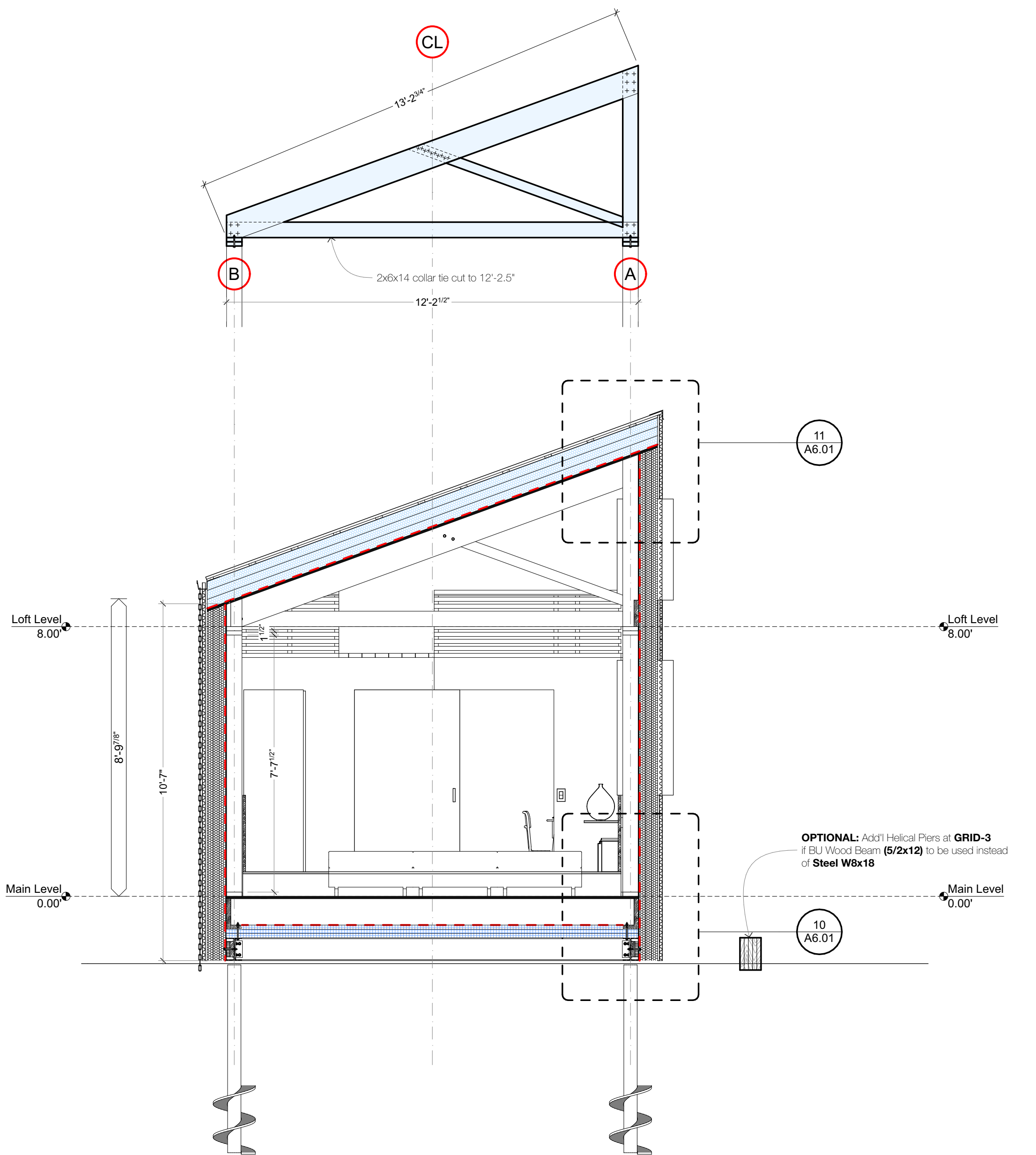
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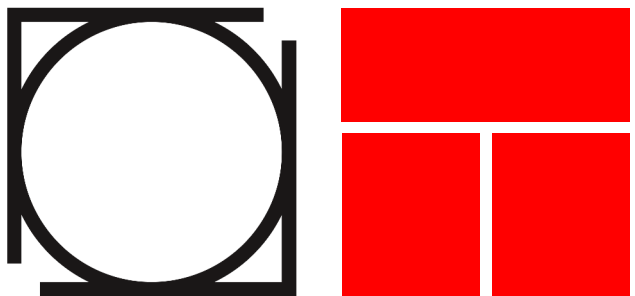
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22 Section 22
SCALE: 1:32



11 Section 11
SCALE: 1:32



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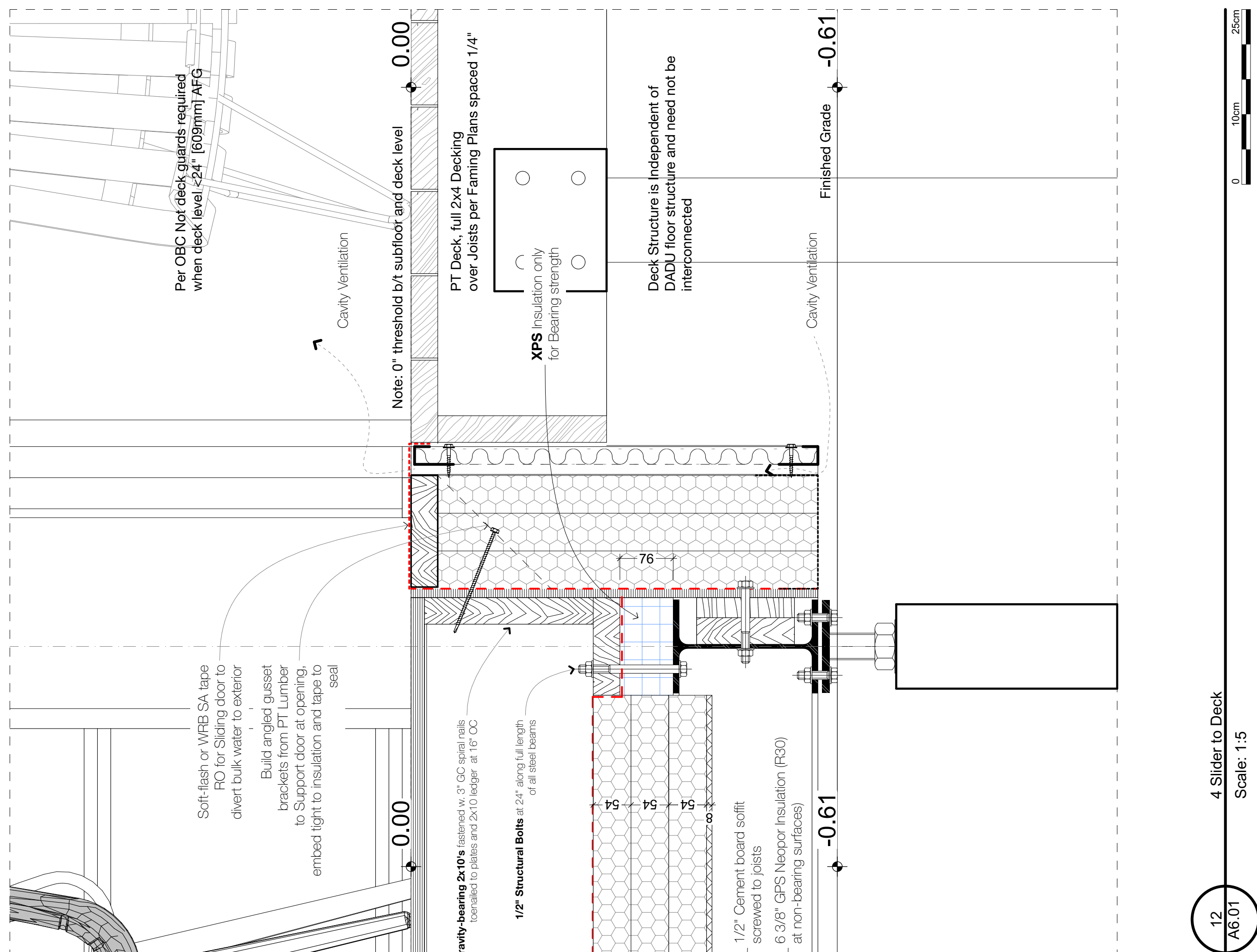
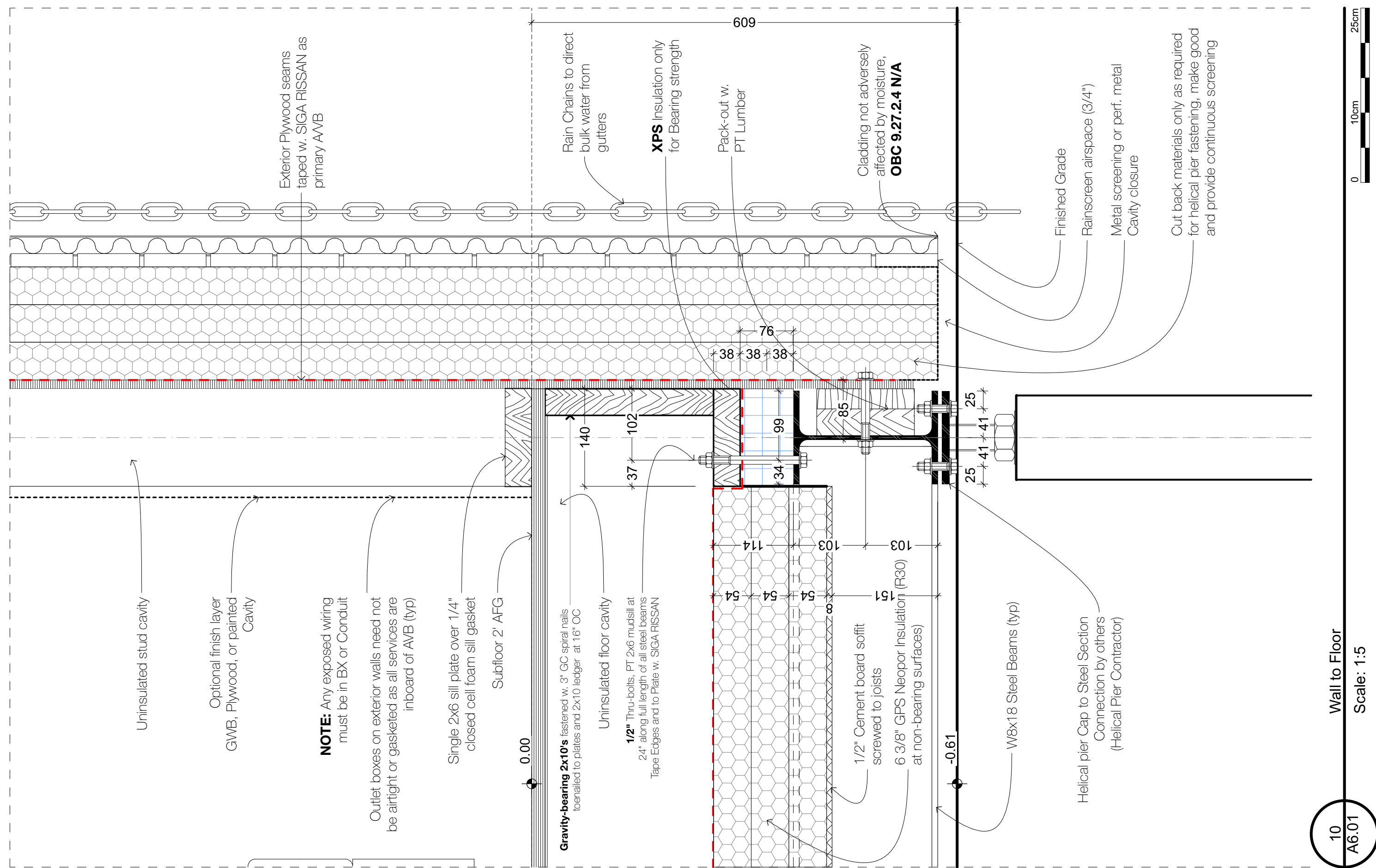
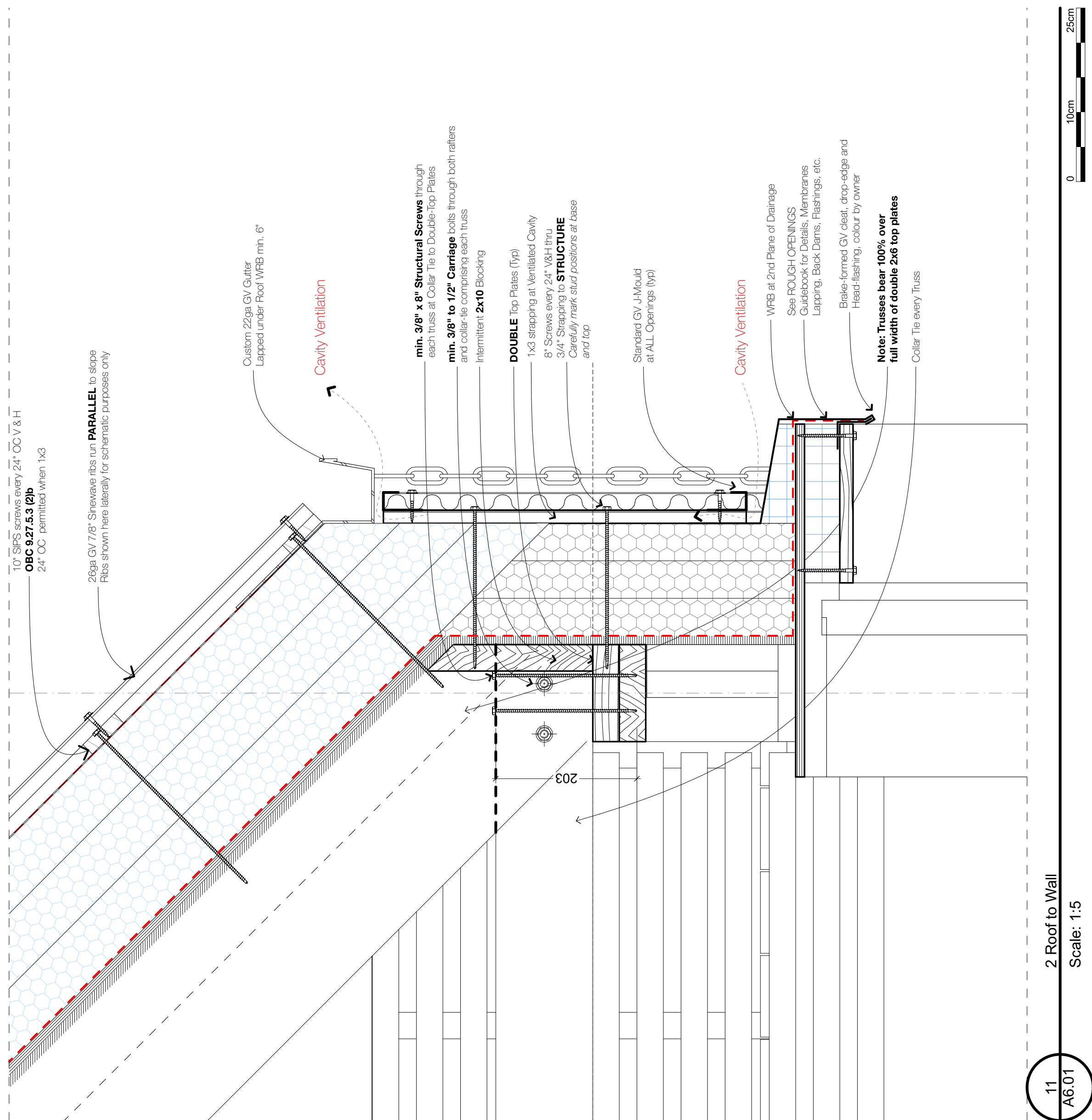
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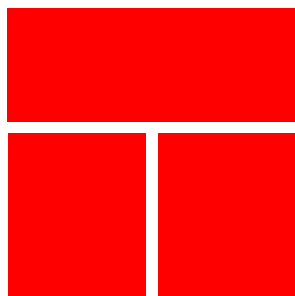
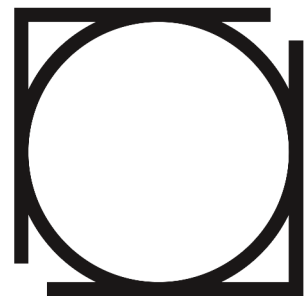
Revision
01 - WIP
Building Sections

A5.03

[illegible]

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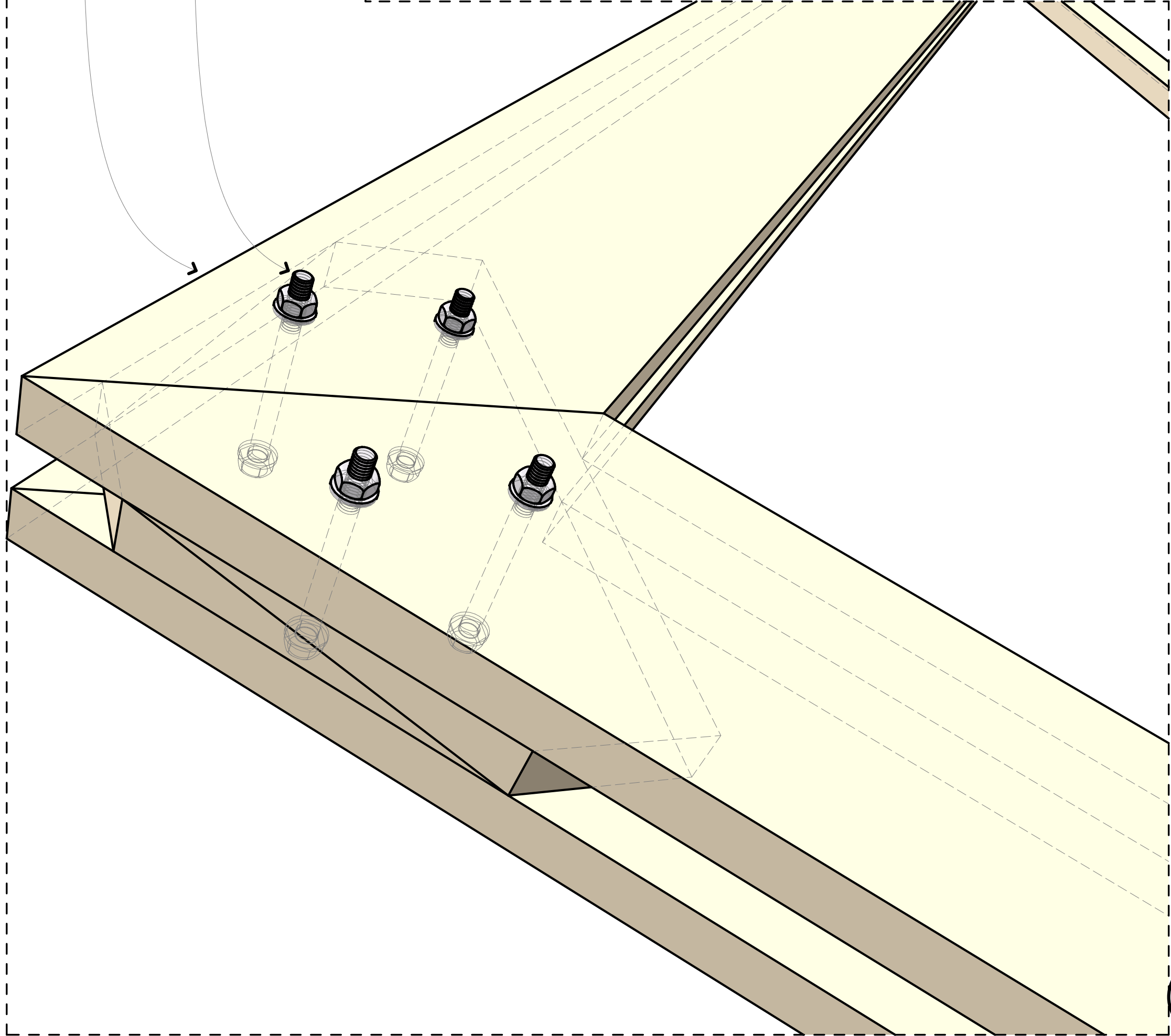
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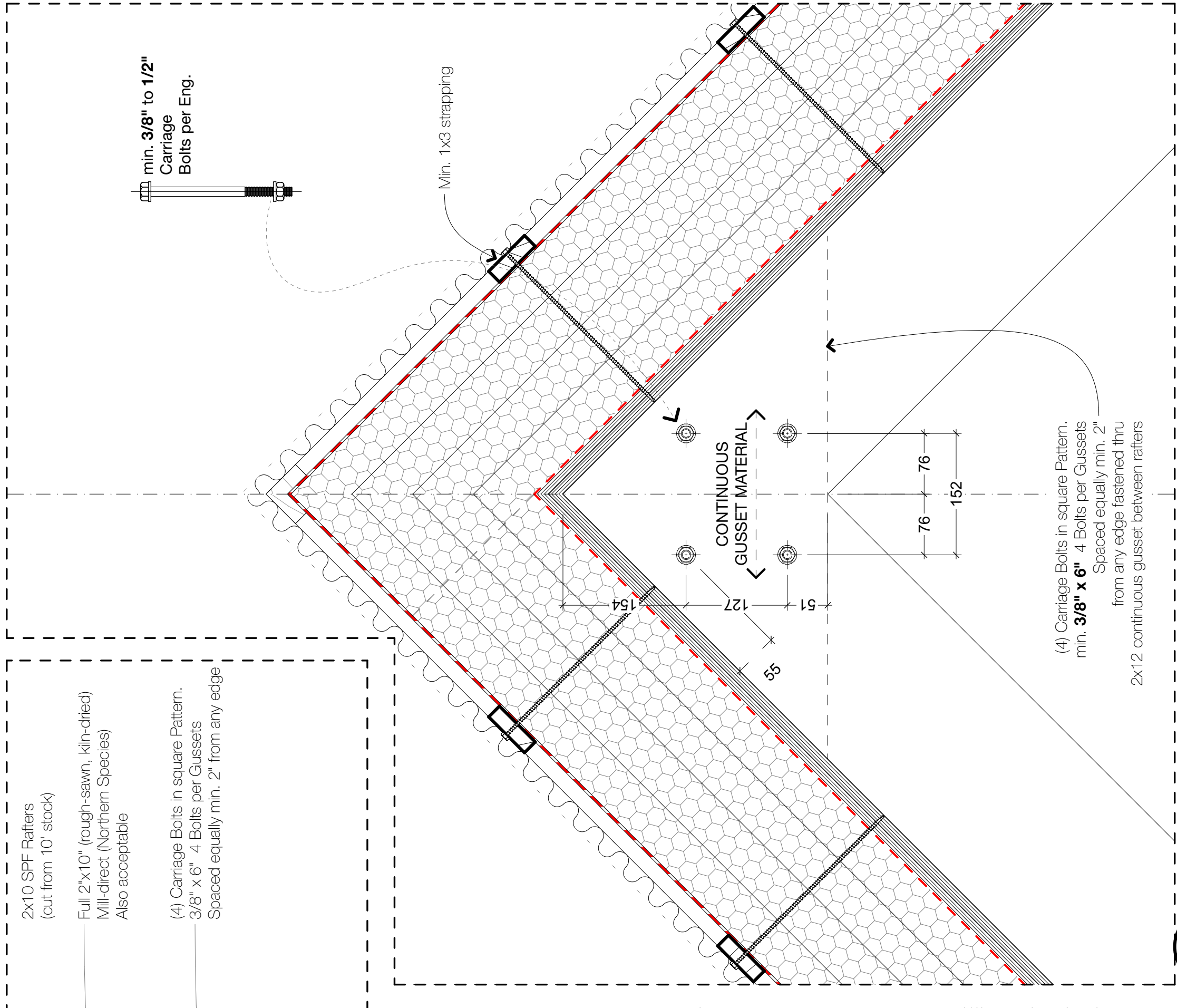
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01 - WIP
Details

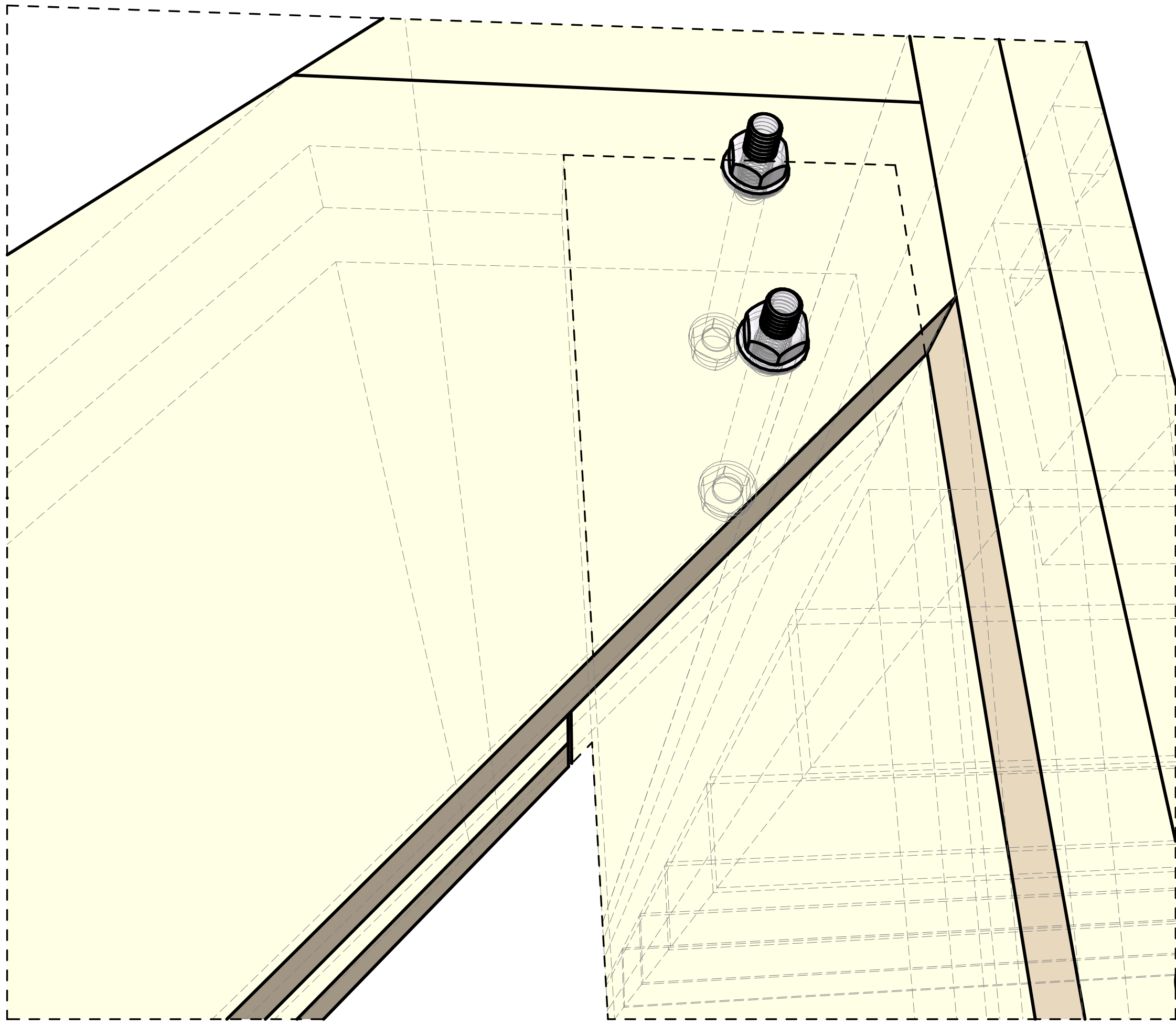
A6.01



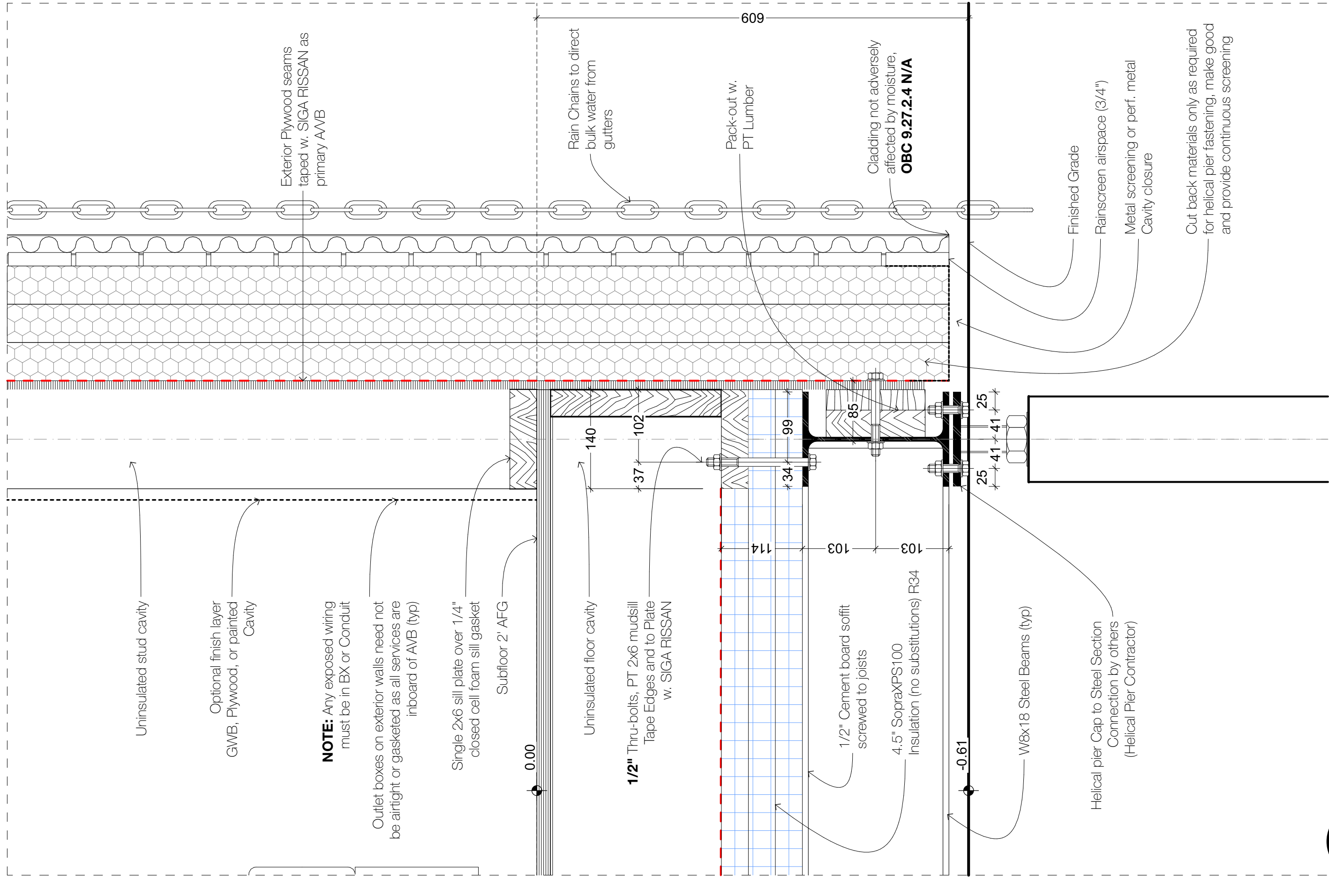
3
A6.02
13 Roof Truss Gusset
Scale: 1:50



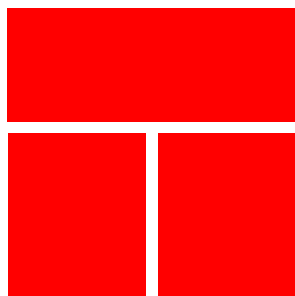
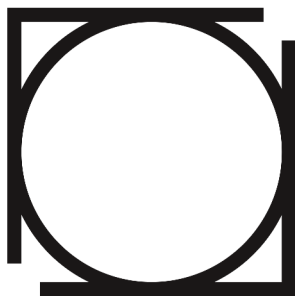
2
A6.02
3 Ridge of Truss
Scale: 1:50



4
A6.02
14 Roof Truss Bottom Chord
Scale: 1:50



1
A6.02
Wall to Floor
Scale: 1:5



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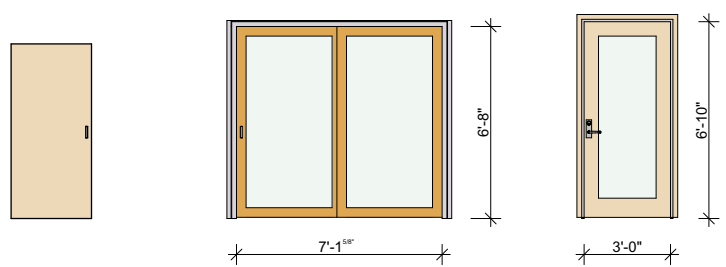
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01 - WIP Issuance for Certification Review Work in Progress

Work in Progress

DOOR SCHEDULE																									
ID	ZONE	QTY	FROM	TO	DOOR PANEL								DOOR FRAME				HARDWARE						CASING IN	CASING OUT	NOTES/REMARKS
					WDTH	HT	THCK	FRR	STC	PANEL TYPE	PANEL MAT'L	FINISH	GLAZING	FRAME	FRAME FINISH	THRESHOLD	THRESHOLD TYPE	Hardware Key Side Room #	HARDWARE	OPERATION	HANDLE INSIDE	HANDLE OUTSIDE			
DS	101	1	3PC	<Undefined>	2'-8"	6'-0"	0¾"			---	06 Pine V			06 Pine V		☐				Off	Knob 12		☐	☐	custom 3/4" birch ply rail surface slider
DS	103	1	<Undefined>	B/R	3'-0"	6'-0¾"	0¾"			---	06 Pine V			06 Pine V		☐				Off	Knob 12		☐	☐	custom 3/4" birch ply rail surface slider
DX 02	100	1	SRO	<Undefined>	7'-1"	6'-8"	1¾"			---	06 Oak Veneer			06 Oak Veneer		☒				Knob 12	Knob 12		☒	☒	Triple-glazed thermally broken Full-Glass L&S ...
DX-01	100	1	SRO	<Undefined>	3'-0"	6'-10"	1¾"	-	-	---	06 Pine H	PT	-	06 Pine H		☒		HD.8		Handle 8	Handle 5		☒	☒	Triple-glazed thermally broken Full-Glass Swin...

DOOR LEGEND



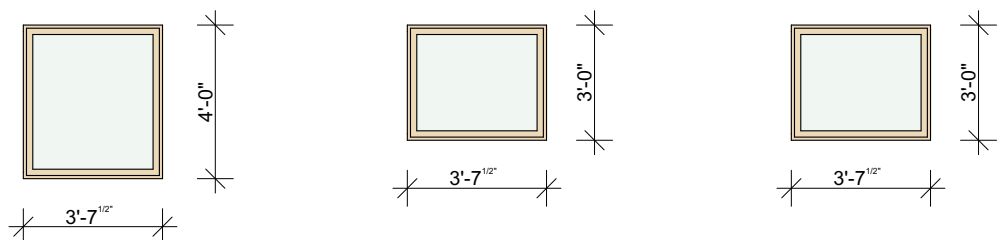
DS

DX 02

DX-01

WINDOW & SCREEN SCHEDULE																		
ID	ZONE	QTY	OPENS FROM	WIDTH	HEIGHT	SILL HT.	STC	FRR	MANUFACTURER	OPERATION	NOTES/REMARKS	Finish	Frame Type	Glazing	MAX. U-value (SI)	Hinges	Hardware Set	Jamb Detail
W01	103	1	<Undefined>	3'-7 ¹² "	4'-0"	0.91		N/R				Ano Aluminum Exterior/Wood Interior	---	TRIPLE LOW-E, ARGON c/w NC Edge Spacers				
W02	100	1	<Undefined>	3'-7 ¹² "	3'-0"	3.26		N/R				Ano Aluminum Exterior/Wood Interior	---	TRIPLE LOW-E, ARGON c/w NC Edge Spacers				
W02	103	1	<Undefined>	3'-7 ¹² "	3'-0"	3.26		N/R				Ano Aluminum Exterior/Wood Interior	---	TRIPLE LOW-E, ARGON c/w NC Edge Spacers				
3																		

WINDOW LEGEND



W01

W02

W02

DOOR KEY

D	SINGLE LEAF
D2	DOUBLE DOOR
D-PCKT	POCKET DOOR
D-X..	SINGLE LEAF EXTERIOR DOOR
D-XSL	EXTERIOR SLIDER

HMF	HOLLOW METAL FRAME (NON-THERMAL)
IMF	INSULATED METAL FRAME (THERMALLY-BROKEN)

SCW	SOLID CORE WOOD LEAF
SCWG	SOLID CORE WOOD LEAF W.
GLAZED INSERT	
SCWGT	SOLID CORE WOOD LEAF
W. GLAZED	INSERT & TRANSOM
SCWGL	SOLID CORE WOOD LEAF
W. GLAZED	INSERT &
SIDELIGHT & TRANSOM	

HMC HOLLOW METAL CORE LEAF
IMC INSULATED METAL CORE LEAF
(THERMALLY-BROKEN)

*D2X-IMCG EXISTING DOOR W. NEW
HARDWARE
THERM GLAZING ELEMENTS PER
OBC, REFER TO NOTE
BELOW

NOTE: All Exterior-Facing Doors and Windows shall conform with Energy Performance Requirements as noted in the Ontario Building Code Matrix for this project (refer to page A0.03 of this set)

Contractor to supply & install Screen Doors at
Exterior Swing and Sliding doors UNO

WINDOW KEY

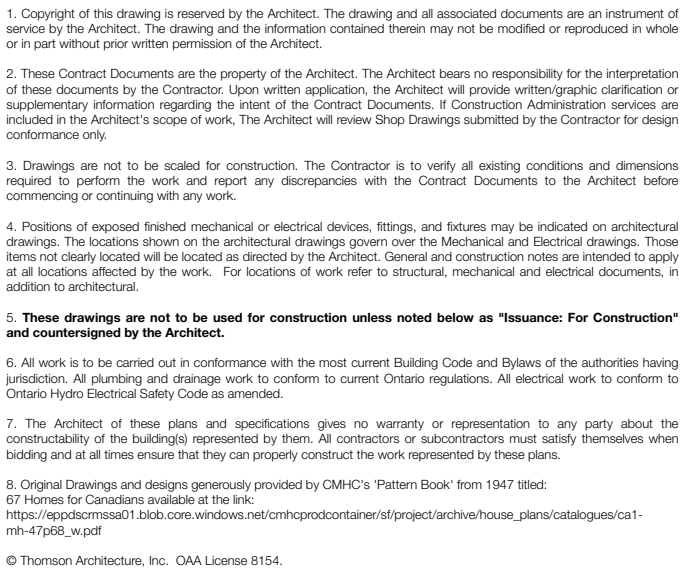
W1 FIXED STOREFRONT UNIT
WI INTERIOR WINDOW WALL
R ROLLING SCREEN
ANO ANODIZED ALUMINUM EXTERIOR
c/w WOOD INTERIOR

HARDWARE KEY

DB DEADBOLT (SEE HW MASTER LIST)

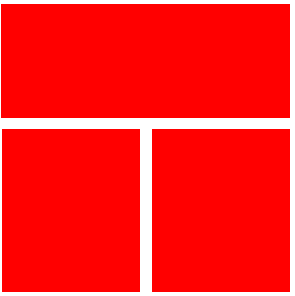
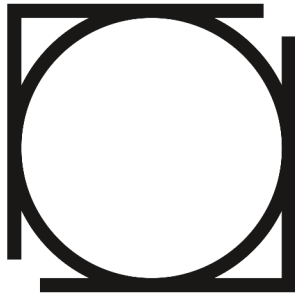
Knob 12	Lever-style multipoint Ext. Lockable
Handle 5	Lever Style Ext. Lockable
Handle 8	Lever Style Thumb-Turn Lock

NOTE: All Exterior-Facing Doors and Windows shall conform with Energy Performance Requirements as noted in the Ontario Building Code Matrix for this project (refer to page A0.03 of this set) UNO



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BeHome 1BR Shed

project no. 2024.12

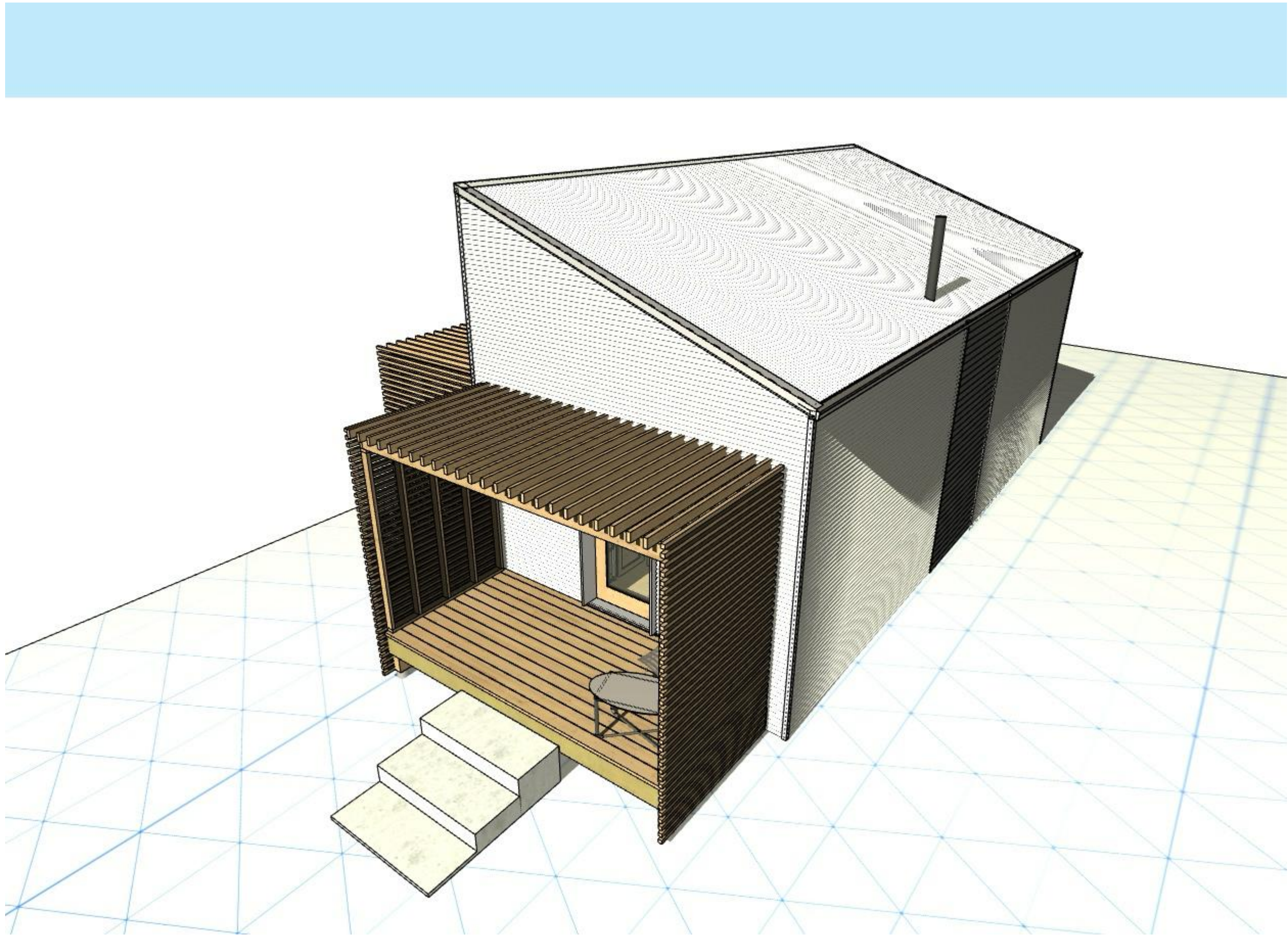
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Revision
01 - WIP
Door & Window Schedule

A8.01



1 Camera
NOT TO SCALE



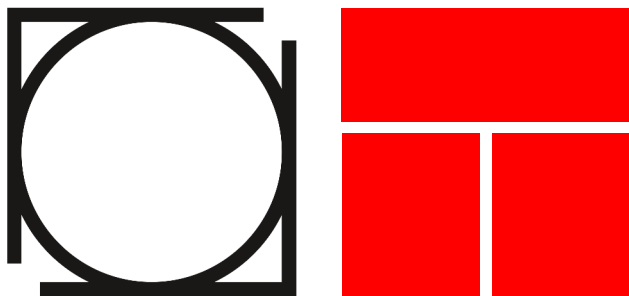
5 Camera
NOT TO SCALE



2 Camera
NOT TO SCALE



3 Camera
NOT TO SCALE



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BeHome 1BR Shed
project no. 2023.011

Client:
City of Barrie
70 Collier St.
BarrieON L4M 4T5

Revision
01 - WIP
3D Views

A9.01



12 Camera
NOT TO SCALE



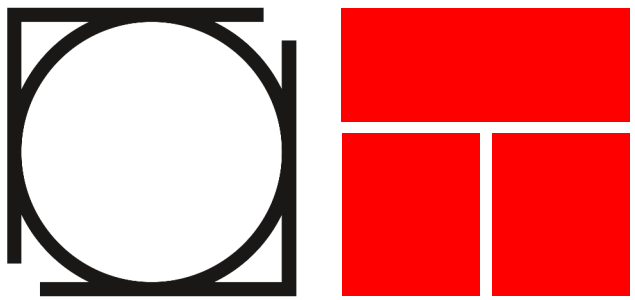
11 Camera
NOT TO SCALE



7 Camera
NOT TO SCALE



6 Camera
NOT TO SCALE



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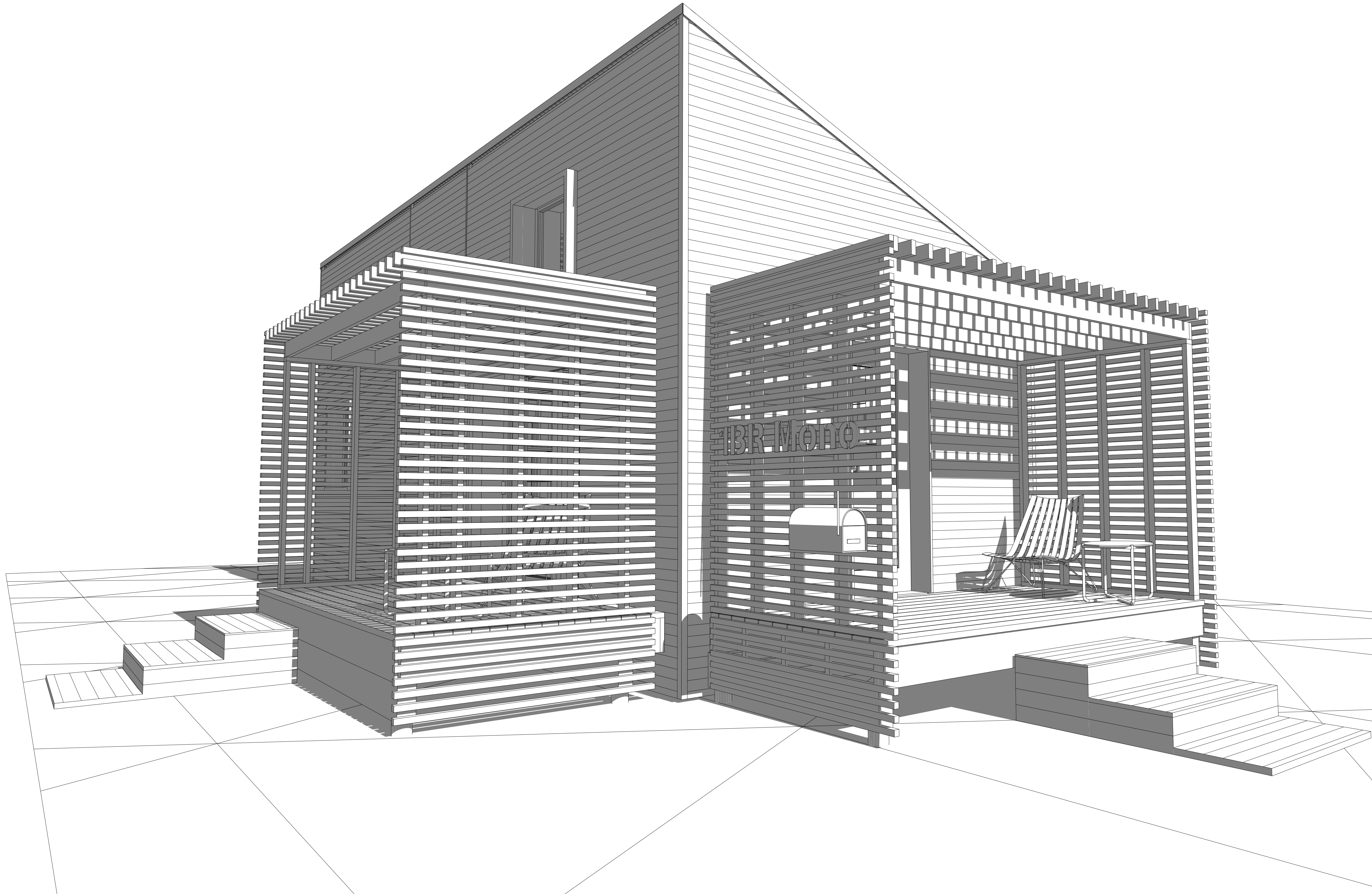
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Client:
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3D Views

A9.02



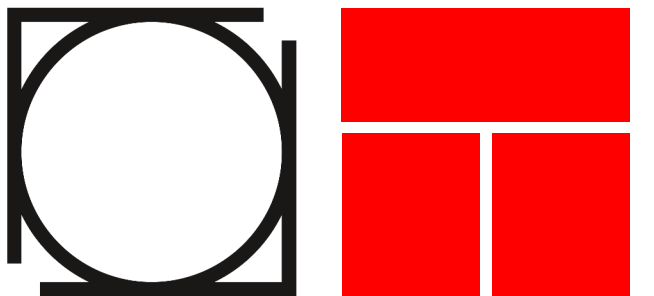
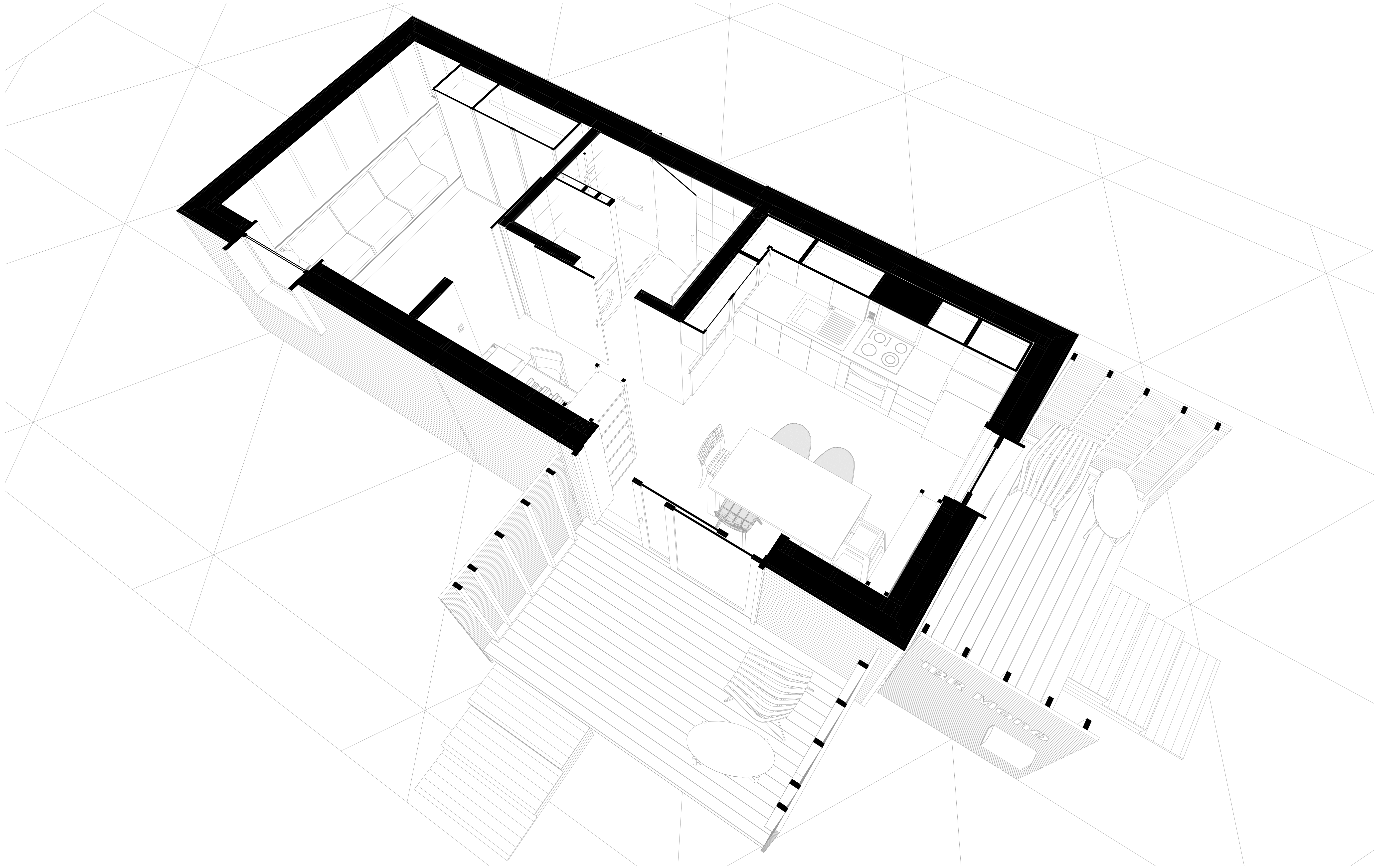
homson architecture inc

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homsonarch@icloud.com

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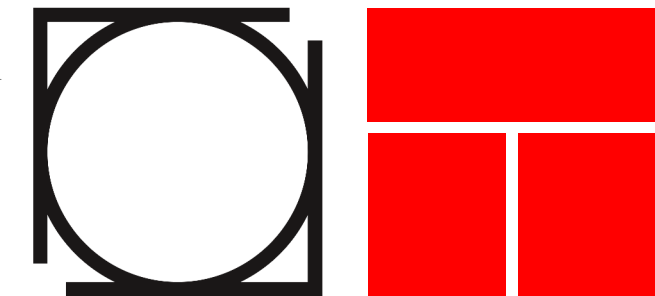
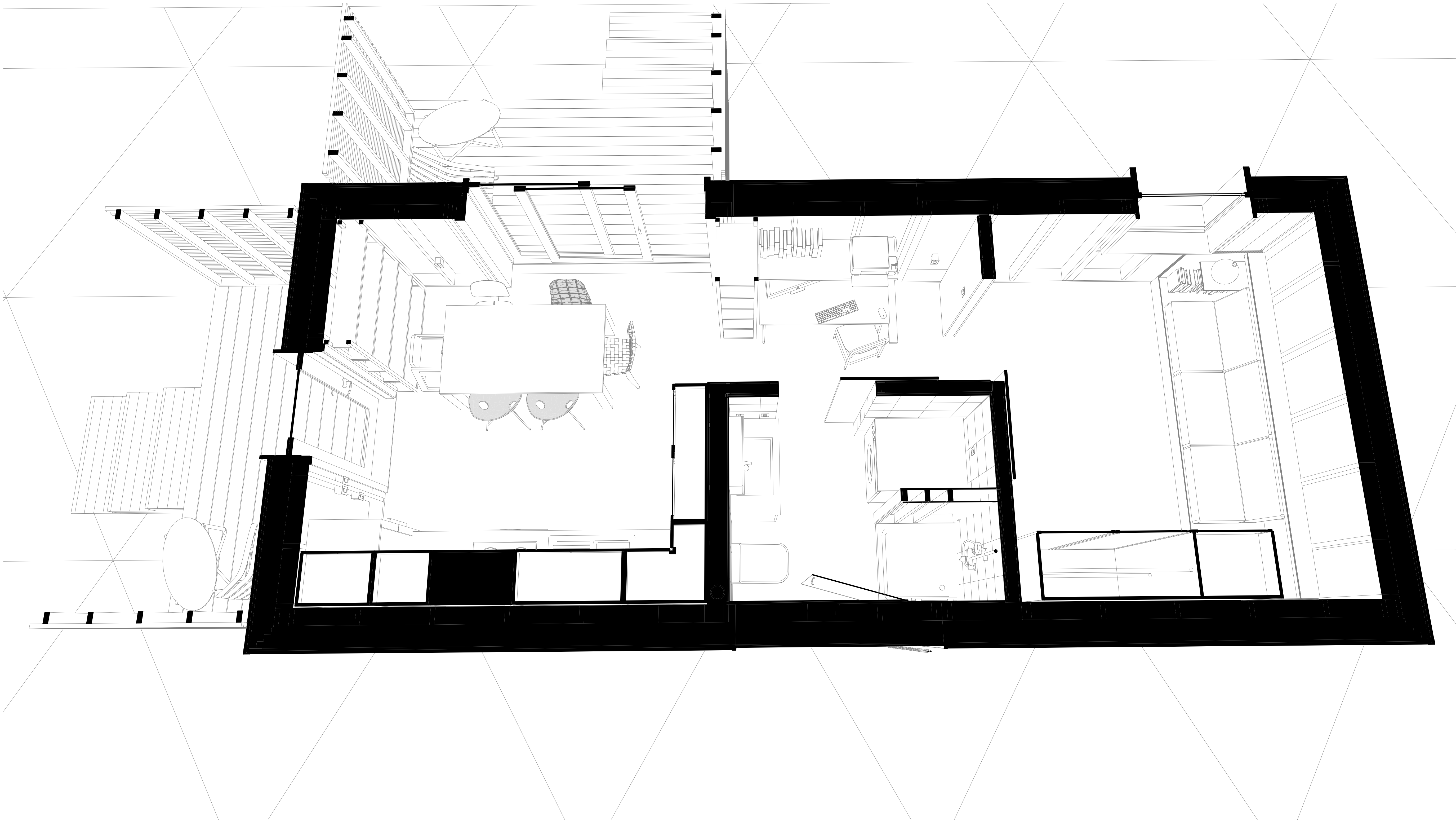
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3D Views



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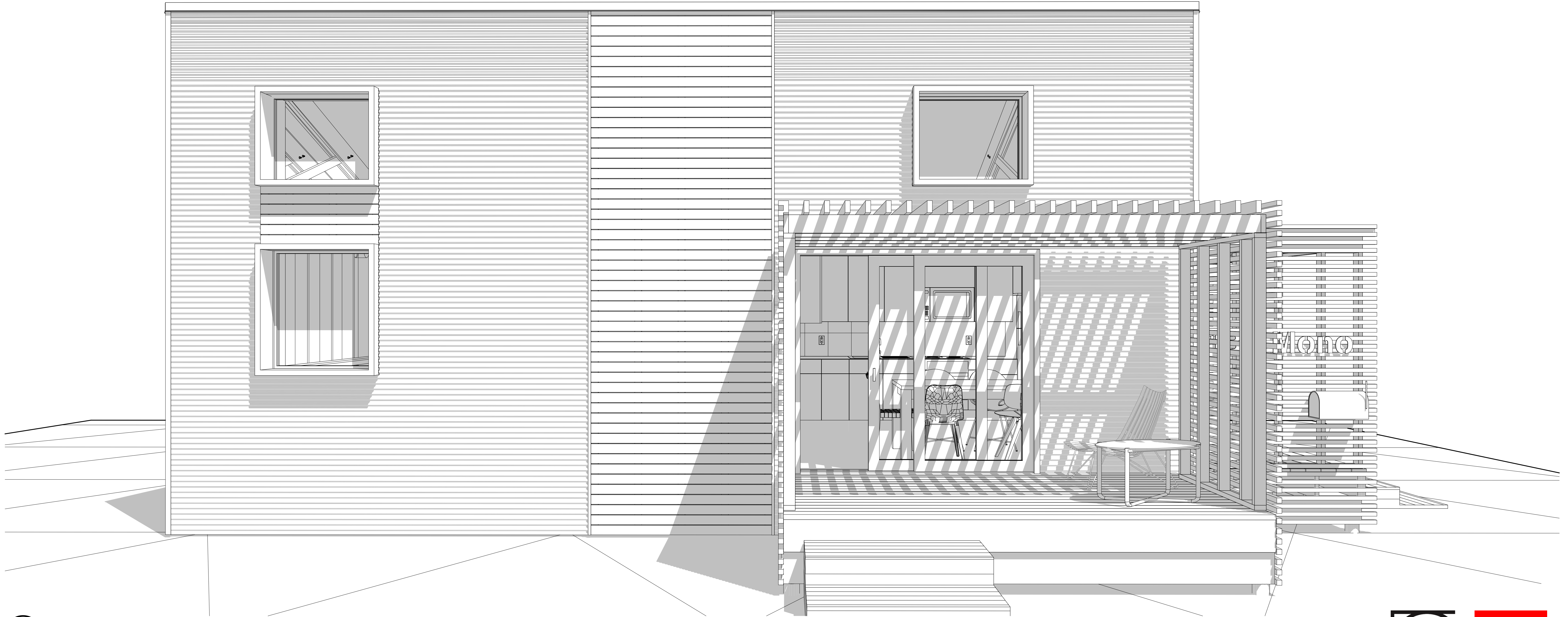
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Revision
01 - WIP
3D Views



1
A9.06

House Main Floor Plan
Scale: 1:29.91



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BarrieON L4M 4T5

Revision
01 - WIP
3D Views

A9.06

Barrie Single DADU

Barrie, Ontario

PROJECT NO. 2025-12

Designed & Drafted by:



Mechanical Sheet List	
M000	Specifications
M001	Specifications
M002	Specifications
M003	Specifications
M004	Specifications
M100	Plumbing Drawings
M301	HVAC Drawings
M302	HVAC Drawings

General Notes

This drawing is the property of Delta-T Designs Inc. and is to be reproduced without permission.

The contractor shall verify all dimensions on site and repo discrepancies to Delta-T Designs Inc. once discovered an prior to proceeding with the work.

All changes shall be approved by Delta-T Designs Inc. pri executions.

Under no circumstances shall the contractor proceed in uncertainty.

This drawing expresses the intent of the designer only, ar the responsibility of the contractor to verify all site conditic prior to providing aquote, and/or commencing work.

If there is an inconsistency between what is drawn, and w site conditions allow, it is the responsibility of the installing contractor to notify the designer prior to proceeding. Delta- Designs Inc shall not be held liable for any issues that ma arise due to the contractor not requesting clarification beforehand.

Drawings are scaled for Arch D - 24x36

Designer Seal

P.Eng Seal (If Required)

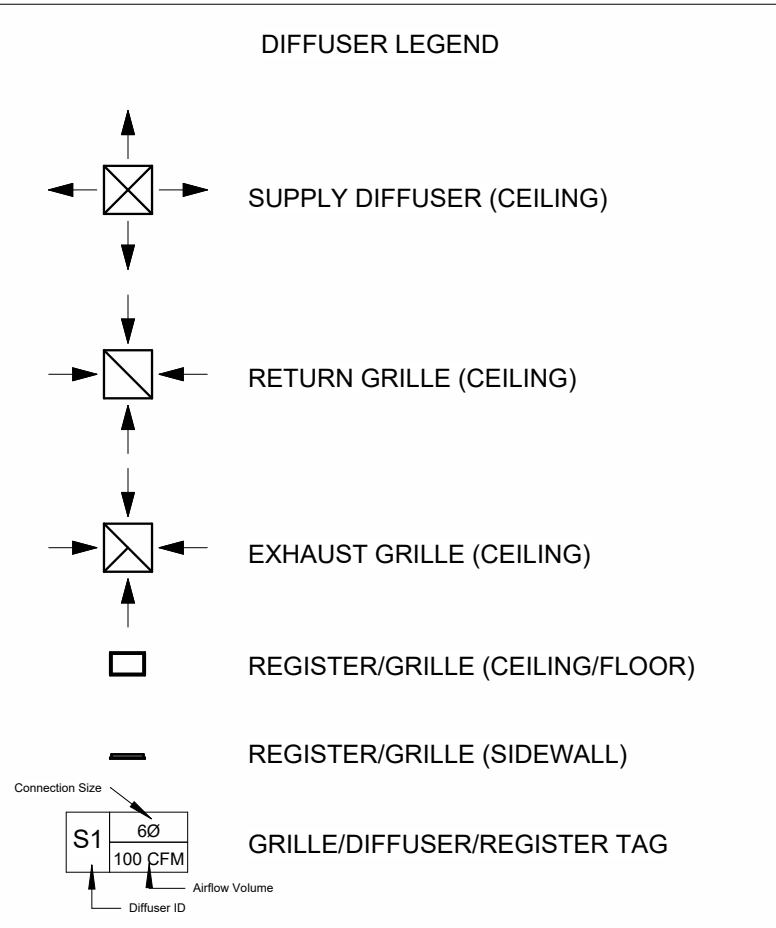
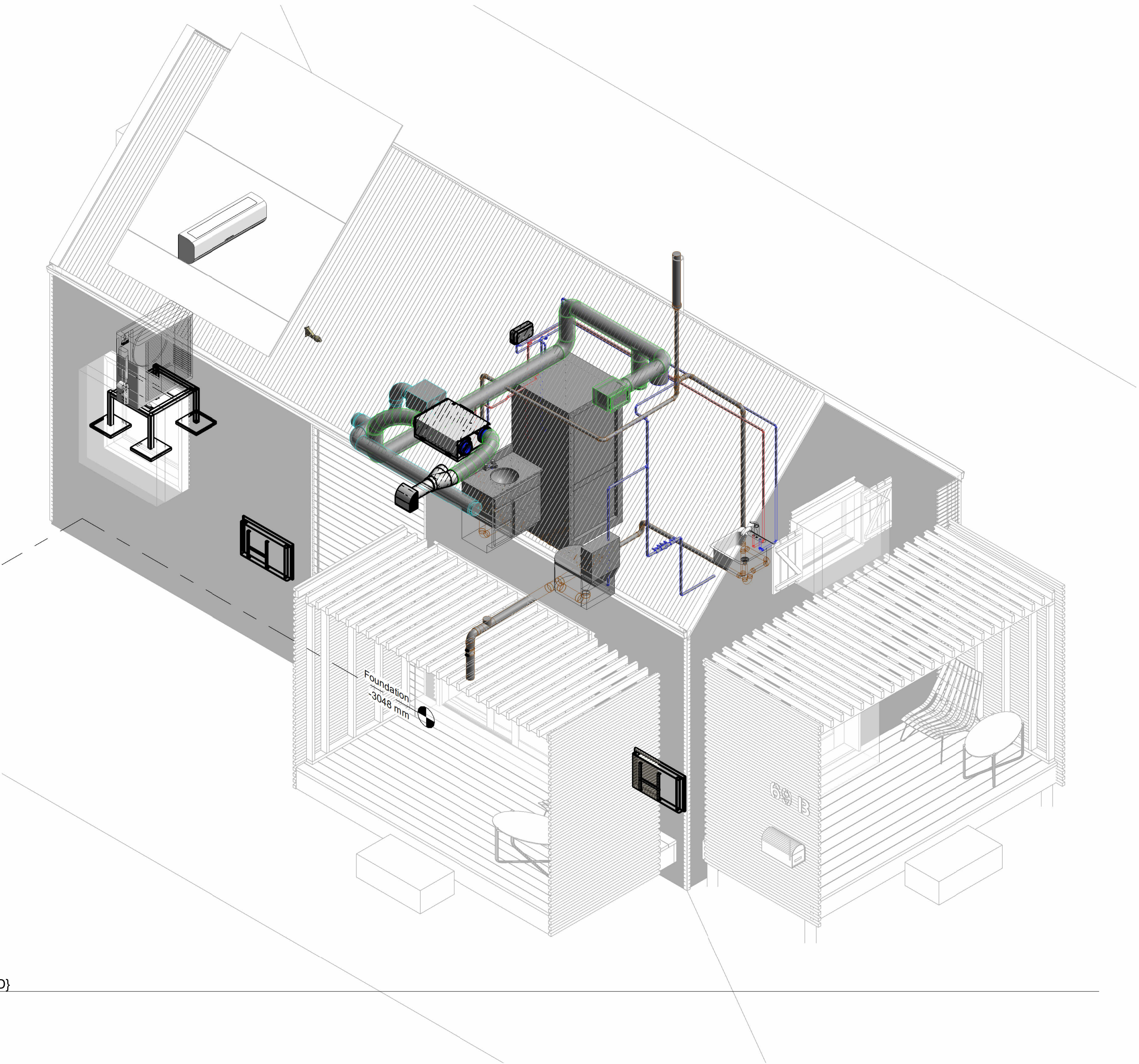
P.Eng Contact Info (If Required)

Revision Schedule

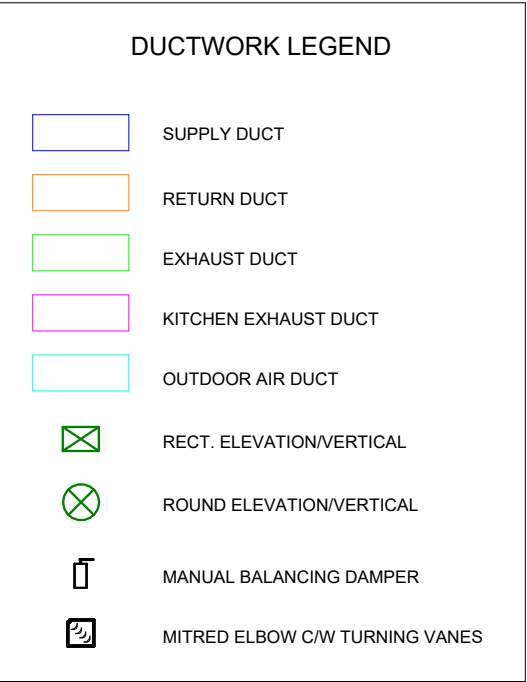
Revision Number	Revision Description	Revis Dat
1	Issued for Coordination	May 15 2025
2	Updated for Coordination	June 1 2025
3	WIP	June 1 2025

PROJECT ABBREVIATIONS

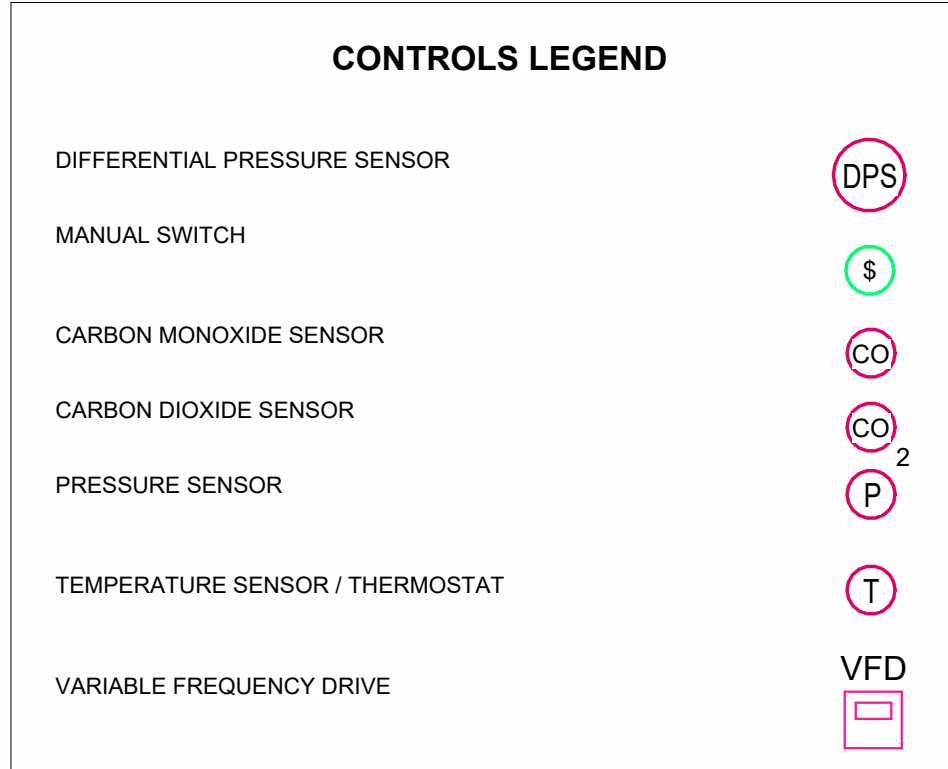
AFF	ABOVE FINISHED FLOOR	MAX	MAXIMUM
AGT	AVERAGE GLYCOL TEMPERATURE	MBH	THOUSAND BTU's PER HOUR
AHAP	AS HIGH AS POSSIBLE	MIN	MINIMUM
AHU	AIR HANDLING UNIT	MISC	MISCELLANEOUS
APPROX	APPROXIMATE	NC	NORMALLY CLOSED
AS	AIR SEPARATOR	NO	NORMALLY OPEN
BFP	BACKFLOW PREVENTOR	NO.	NUMBER
CA	COMPRESSED AIR	NPCW	NON POTABLE COLD WATER
CFM	CUBIC FEET PER MINUTE	O2	OXYGEN
CGR	CHILLED GLYCOL RETURN	OA	OUTSIDE AIR
CGS	CHILLED GLYCOL SUPPLY	OC	ON CENTER
CIRC	CIRCULATION	OED	OPEN ENDED DUCT
CH	CHILLER	ORD	OVERFLOW ROOF DRAIN
CO	CARBON MONOXIDE	ORL	OVERFLOW RAIN LEADER
CO2	CARBON DIOXIDE	OSA	OUTSIDE AIR SUPPLY
CONT	CONTINUATION, CONTINUED	P	PUMP
CP	CIRCULATING PUMP	PCR	PUMPED CONDENSATE RETURN
CTE	CONNECT TO EXISTING	PD	PRESSURE DROP
CU	COPPER	PDI	PLUMBING & DRAINAGE INSTITUTE
CW	COLD WATER	PG	PROPYLENE GLYCOL
C/W	COMPLETE WITH	PHC	PRE HEAT COIL
CWR	CHILLED WATER RETURN	POC	POINT OF CONNECTION
CWS	CHILLED WATER SUPPLY	PSIG	POUNDS PER SQUARE INCH GAUGE
(D)	DEMOLISH	PSI	POUNDS PER SQUARE INCH
DCVA	DUAL CHECK VALVE ASSEMBLY	PW	PUMPED WASTE
DDC	DIRECT DIGITAL CONTROLS	RA	RETURN AIR
DEMO	DEMOLISH	RCP	RADIANT CEILING PANEL
Ø / DIA	DIAMETER	RD	ROOF DRAIN
DN	DOWN	RECIRC	RECIRCULATION
DX	DIRECT EXPANSION	RFL	REFRIGERANT LIQUID
(E)	EXISTING	RFM	RADIANT FLOOR MANIFOLD
EA	EXHAUST AIR	RFS	REFRIGERANT SUCTION
EBB	ELECTRIC BASEBOARD	RHC	REHEAT HEATING COIL
EF	EXHAUST FAN	RL	RAINLEADER
EGT	ENTERING GLYCOL TEMPERATURE	RPBP	REDUCED PRESSURE ZONE BACKFLOW PREVENTER
ENT	ENTERING	RTU	ROOF TOP UNIT
ET	EXPANSION TANK	RV	REFRIGERANT VAPOR
EUH	ELECTRIC UNIT HEATER	RWL	RAIN WATER LEADER
EWT	ENTERING WATER TEMPERATURE	RZ	RADIANT ZONE
ERV	ENERGY RECOVERY VENTILATOR	SA	SUPPLY AIR
FCO	FLOOR CLEANOUT	SANI	SANITARY PIPING
FCU	FAN COIL UNIT	STORM	STORM PIPING
FD	FIRE DAMPER	SCH	SCHEDULE
FD	FLOOR DRAIN	SD	STORM DRAIN
FE	IRON	SF	SQUARE FEET
FM	FORCED MAIN	SF	SUPPLY FAN
FT	FEET	SGR	SNOWMELT GLYCOL RETURN
FT	FINNED TUBE	SGS	SNOWMELT GLYCOL SUPPLY
FSD	FIRE SMOKE DAMPER	SH	STEAM HUMIDIFIER
GAL	GALLONS	SMZ	SNOWMELT ZONE
GALV	GALVANIZED	SP	STATIC PRESSURE
GI	GREASE INTERCEPTOR	SS	STAINLESS STEEL
GMT	GLYCOL MAKE-UP TANK	TA	TRANSFER AIR
GPM	GALLONS PER MINUTE	TEMP	TEMPERATURE
HB	HOSE BIBB	TDH	TOTAL DEVELOPED HEAD
HC	HEATING COIL	TSP	TRAP SEAL PRIMER
HGR	HEATING GLYCOL RETURN	TYP	TYPICAL
HGS	HEATING GLYCOL SUPPLY	UH	UNIT HEATER
HRV	HEAT RECOVERY VENTILATOR	UL	UNDERWRITER'S LABORATORY
HW	HOT WATER	UON	UNLESS OTHERWISE NOTED
HWC	HOT WATER CIRCULATION	UPC	UNIFORM PLUMBING CODE
HWR	HEATING WATER RETURN	VAV	VARIABLE AIR VOLUME
HWS	HEATING WATER SUPPLY	VFD	VARIABLE FREQUENCY DRIVE
HX	HEAT EXCHANGER	VTR	VENT THROUGH ROOF
IBC	INTERNATIONAL BUILDING CODE	V	VENT
ID	INSIDE DIAMETER	W	WASTE
IFC	INTERNATIONAL FIRE CODE	W/	WITH
IFGC	INTERNATIONAL FUEL GAS CODE	WC	WATER CLOSET
IMC	INTERNATIONAL MECHANICAL CODE	W.C.	WATER COLUMN
IN	INCHES	WCO	WALL CLEANOUT
LAV	LAVATORY	WH	WATER HEATER
LF	LINEAR FEET	WHA	WATER HAMMER ARRESTOR
LGT	LEAVING GLYCOL TEMP	WPD	WATER PRESSURE DROP
LHGR	LOW TEMP HEATING GLYCOL RETURN	WRT	WITH RESPECT TO
LHGS	LOW TEMP HEATING GLYCOL SUPPLY	YCO	YARD CLEANOUT
LHWR	LOW TEMP HEATING WATER RETURN		
LHWS	LOW TEMP HEATING WATER SUPPLY		
LVG	LEAVING		
LWT	LEAVING WATER TEMPERATURE		



Diffuser Legend
NTS



Ductwork Legend
NTS



Controls Legend
NTS



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Client Name

TBD

Project Number

2025-12

Project Name & Address

Barrie Single Dedicated Accessory
Dwelling Unit

Barrie, Ontario

Sheet Name

Cover Sheet

Drawn By

Al

Reviewed By

Che

Sheet Number

G01

pec 1
1/16" = 1'-0"

DIVISION 01 – GENERAL REQUIREMENTS	
SECTION 013000	
ADMINISTRATIVE REQUIREMENTS	
PART 1 GENERAL	
1.1	SECTION INCLUDES
1	General administrative requirements.
2	Coordination Drawings.
3	Submittals for review, information, and project closeout.
4	Number of copies of submittals.
5	Requests for Information (RFI) procedures.
6	Submittal procedures.
1.2	GENERAL ADMINISTRATIVE REQUIREMENTS
1	Comply with requirements of Section 017000 - Execution and Closeout Requirements for coordination of execution of administrative tasks with timing of construction activities.
2	Make the following types of submittals to Consultant:
1	Requests for Information (RFI).
2	Requests for substitution.
3	Shop Drawings, product data, and samples.
4	Test and inspection reports.
5	Design data.
6	Coordination Drawings.
7	Correction Punch List and Final Correction Punch List for Substantial Performance.
8	Closeout submittals.
PART 2 PRODUCTS - Not Used	
PART 3 EXECUTION	
3.1	COORDINATION DRAWINGS
1	Provide information required by Project Coordinator for preparation of coordination Drawings.
2	Review Drawings prior to submission to Consultant.
3.2	REQUESTS FOR INFORMATION (RFI)
1	Definition: A request seeking one of the following:
1	An interpretation, amplification, or clarification of some requirement of Contract Documents arising from inability to determine from them the exact material, process, or system to be installed, or when the elements of construction are required to occupy the same space (interference); or when an item of work is described differently at more than one place in the Contract Documents.
2	A resolution to an issue which has arisen due to site conditions and affects design intent.
2	Whenever possible, request clarifications at the next appropriate project progress meeting, with response entered into meeting minutes, rendering unnecessary the issuance of a formal RFI.
3	Preparation: Prepare an RFI immediately upon discovery of a need for interpretation of the Contract Documents. Failure to submit a RFI in a timely manner is not a legitimate cause for claiming additional costs or delays in execution of the work.
1	Prepare a separate RFI for each specific item.
1	Review, coordinate, and comment on requests originating with subcontractors and/or materials suppliers.
2	Do not forward requests which solely require internal coordination between subcontractors.
4	Reason for the RFI: Prior to initiation of an RFI, carefully study all Contract Documents to confirm that information sufficient for their interpretation is definitely not included.
1	Unacceptable Uses for RFIs: Do not use RFIs to request the following:
1	Approval of submittals (use procedures specified elsewhere in this section).
2	Improper RFIs: Requests not prepared in compliance with requirements of this section, and/or missing key information required to render an actionable response. They will be returned without a response, with an explanatory notation.
3.3	SUBMITTALS FOR REVIEW
1	When the following are specified in individual sections, submit them for review:
1	Product data.
2	Shop Drawings.
2	Submit to Consultant for review for the limited purpose of checking for compliance with information given and the design concept expressed in the Contract Documents.
3	After review, provide copies and distribute in accordance with SUBMITTAL PROCEDURES article below 017800 - Closeout Submittals.
3.4	SUBMITTALS FOR INFORMATION
1	When the following are specified in individual sections, submit them for information:
1	Design data.
2	Certificates.
3	Test reports.
4	Inspection reports.
5	Manufacturer's instructions.
6	Manufacturer's site reports.
7	Other types indicated.
2	Submit for Consultant's knowledge as contract administrator or for Owner.
3.5	SUBMITTALS FOR PROJECT CLOSEOUT
1	Submit Correction Punch List for Substantial Performance.
2	Submit Final Correction Punch List for Substantial Performance.
3	When the following are specified in individual sections, submit them at project closeout in compliance with requirements of Section 017800 - Closeout Submittals:
1	Project record documents.
2	Operation and maintenance data.
3	Warranties.
4	Bonds.
5	Other types as indicated.
4	Submit for Owner's benefit during and after project completion.
3.6	NUMBER OF COPIES OF SUBMITTALS
1	Digital Documents: Submit one digital copy in PDF format; a digitally-marked up file will be returned. Create PDFs at native size and right-side up; illegible files will be rejected.
3.7	SUBMITTAL PROCEDURES
1	General Requirements:
1	Use a single transmittal for related items.
2	Submit separate packages of submittals for review and submittals for information, when included in the same specification section.
3	Sequentially identify each item. For revised submittals use original number and a sequential numerical suffix.
4	Identify variations from Contract Documents and product or system limitations that may be detrimental to successful performance of the completed work.
5	Distribute revised submittals. Instruct parties to promptly report inability to comply with requirements.
2	Product Data Procedures:
1	Submit only information required by individual specification sections.
2	Collect required information into a single submittal.
3	Submit concurrently with related shop drawing submittal.
4	Do not submit (Material) Safety Data Sheets for materials or products.
3	Shop Drawing Procedures:
1	Prepare accurate, drawn-to-scale, original shop drawing documentation by interpreting the Contract Documents and coordinating related work.
2	Generic, non-project-specific information submitted as Shop Drawings do not meet the requirements for Shop Drawings.
4	Samples Procedures:
1	Transmit related items together as single package.
2	Identify each item to allow review for applicability in relation to Shop Drawings showing installation locations.
3.8	SUBMITTAL REVIEW
1	Submittals for Review: Consultant will review each submittal, and approve, or take other appropriate action.
2	Submittals for Information: Consultant
3	Consultant's actions will be reflected by marking each returned submittal using virtual stamp on digital submittals.
4	Consultant's and consultant's actions on items submitted for review:
1	Authorizing purchasing, fabrication, delivery, and installation:
1	In General Conformance with Design: Indicates that submittal has no notes, marks or changes; work affected by submittal can proceed.
2	In General Conformance with Design as Noted: Indicates that submittal has notes, marks or changes that do not affect the submittal review process; work affected by submittal can proceed without resubmission.
2	Not Authorizing fabrication, delivery, and installation:
1	Revise and Resubmit: Indicates that there is an error or concern within the submittal of a significant nature; work affected by the submittal cannot proceed and requires resubmission except as follows:
1	Resubmit revised item, with review notations acknowledged and incorporated.
END OF SECTION 013000	
SECTION 014100	
REGULATORY REQUIREMENTS	
PART 1 GENERAL	
1.1	SUMMARY
1	This Section references to laws, by laws, ordinances, rules, regulations, codes, orders of Authority Having Jurisdiction, and other legally enforceable requirements applicable to Work and that are, or become, in force during performance of Work.
1.2	SUMMARY OF GOVERNING BUILDING CODES AND STANDARDS
1	OBC - Ontario Building Code (Regulation 163/24); 2024.
1.3	REFERENCES TO REGULATORY REQUIREMENTS
1	Perform Work in accordance with (the referenced Building Code) including amendments up to closing date; and other codes of provincial or local application provided that in case of conflict or discrepancy, the more stringent requirements will prevail.
2	Specific design and performance requirements listed in Specifications or indicated on Drawings may exceed minimum requirements established by referenced Building Code; these requirements will govern over the minimum requirements listed in Building Code and will meet or exceed the requirements of the:
1	Contract Documents;

2. Specified standards and referenced documents.	
PART 2 PRODUCTS - NOT USED	
PART 3 EXECUTION - NOT USED	
END OF SECTION 014100	
SECTION 014216	
DEFINITIONS	
PART 1 GENERAL	
1.1	SUMMARY
1	This section supplements the definitions contained in the General Conditions.
2	Other definitions are included in individual specification sections.
1.2	DEFINITIONS
1	Supply: To procure, deliver, unload, and inspect for damage.
2	Install: To inspect, assemble, erect, apply, place, finish, cure, protect, clean, start up, and make ready for use.
3	Product: Material, machinery, components, equipment, fixtures, and systems forming the work result. Not materials or equipment used for preparation, fabrication, conveying, or erection and not incorporated into the work result. Products may be new, never before used, or re-used materials or equipment.
4	Provide: To supply and install.
PART 2 PRODUCTS - NOT USED	
PART 3 EXECUTION - NOT USED	
END OF SECTION 014216	
SECTION 017800	
CLOSEOUT SUBMITTALS	
PART 1 GENERAL	
1.1	SECTION INCLUDES
1	Project Record Documents.
2	Operation and Maintenance Data.
3	Warranties and Bonds.
1.2	RELATED REQUIREMENTS
1	See Section 013000 - Administrative Requirements, for submittal procedures.
2	Individual Product Sections: Specific requirements for operation and maintenance data.
3	Individual Product Sections: Warranties required for specific products or Work.
1.3	SUBMITTALS
1	See Section 013000 - Administrative Requirements, for submittal procedures.
2	Project Record Documents: Submit documents to Owner & Consultant.
3	Operation and Maintenance Data:
1	Submit two copies of preliminary draft or proposed formats and outlines of contents before start of Work. Consultant will review draft and return one copy with comments.
2	For equipment or component parts of equipment put into service during construction and operated by Owner, submit completed documents within ten days after acceptance.
3	Submit one copy of completed documents 15 days prior to final inspection. This copy will be reviewed and returned after final inspection, with Consultant comments. Revise content of all document sets as required prior to final submission.
4	Submit two sets of revised final documents in final form within 10 days after final inspection.
4	Warranties and Bonds:
1	For equipment or component parts of equipment put into service during construction with Owner's permission, submit documents within 10 days after acceptance.
2	Make other submittals within 10 days after Date of Substantial Performance, prior to final Application for Payment.
3	For items of Work for which acceptance is delayed beyond Date of Substantial Performance, submit within 10 days after acceptance, listing the date of acceptance as the beginning of the warranty period.
PART 2 PRODUCTS - Not Used	
PART 3 EXECUTION	
3.1	PROJECT RECORD DOCUMENTS
1	Maintain on site one set of the following record documents; record actual revisions to the Work:
1	Drawings.
2	Specifications.
3	Addenda.
4	Change Orders and other modifications to the Contract.
5	Reviewed Shop Drawings, product data, and samples.
6	Manufacturer's instruction for assembly, installation, and adjusting.
2	Ensure entries are complete and accurate, enabling future reference by Owner.
3	Store record documents separate from documents used for construction.
4	Record information concurrent with construction progress.
5	Specifications: Legibly mark and record at each product section description of actual products installed, including the following:
1	Manufacturer's name and product model and number.
2	Product substitutions or alternates utilized.
3	Changes made by Addenda and modifications.
6	As-Built Drawings: Drawings prepared and updated by the contractor throughout the Work, indicating a compilation of construction changes indicated in the original Contract Documents. Legibly mark each item to record actual construction including:
1	Site changes of dimension and detail.
2	Details not on original Contract Drawings.
3.2	OPERATION AND MAINTENANCE DATA
1	Product Data: Mark each sheet to clearly identify specific products and component parts, and data applicable to installation. Delete inapplicable information.
2	Drawings: Supplement product data to illustrate relations of component parts of equipment and systems, to show control and flow diagrams. Do not use Project Record Documents as maintenance Drawings.
3	Typed Text: As required to supplement product data. Provide logical sequence of instructions for each procedure, incorporating manufacturer's instructions.
3.3	OPERATION AND MAINTENANCE DATA FOR EQUIPMENT AND SYSTEMS
1	For Each Item of Equipment and Each System:
1	Description of unit or system, and component parts.
2	Identify function, normal operating characteristics, and limiting conditions.
3	Include performance curves, with engineering data and tests.
4	Complete nomenclature and model number of replaceable parts.
2	Where additional instructions are required, beyond the manufacturer's standard printed instructions, have instructions prepared by personnel experienced in the operation and maintenance of the specific products.
3	Operating Procedures: Include start-up, break-in, and routine normal operating instructions and sequences. Include regulation, control, stopping, shut-down, and emergency instructions. Include summer, winter, and any special operating instructions.
4	Maintenance Requirements: Include routine procedures and guide for preventative maintenance and trouble shooting; disassembly, repair, and reassembly instructions; and alignment, adjusting, balancing, and checking instructions.
5	Provide servicing and lubrication schedule, and list of lubricants required.
6	Include manufacturer's printed operation and maintenance instructions.
7	Include sequence of operation by controls manufacturer.
8	Provide original manufacturer's parts list, illustrations, assembly Drawings, and diagrams required for maintenance.
9	Provide control diagrams by controls manufacturer as installed.
10	Provide charts of valve tag numbers, with location and function of each valve, keyed to flow and control diagrams.
11	Include test and balancing reports.
12	Additional Requirements: As specified in individual product specification sections.
3.4	ASSEMBLY OF OPERATION AND MAINTENANCE MANUALS
1	Assemble operation and maintenance data into durable manuals for Owner's personnel use, with data arranged in the same sequence as, and identified by, the specification sections.
2	Where systems involve more than one specification section, provide separate tabbed divider for each system.
3	Binders: Commercial quality, 216 by 280 mm (8-1/2 by 11 inch) three D side ring binders with durable plastic covers; 50 mm (2 inch) maximum ring size. When multiple binders are used, correlate data into related consistent groupings.
4	Cover: Identify each binder with typed or printed title OPERATION AND MAINTENANCE INSTRUCTIONS; identify title of Project; identify subject matter of contents.
5	Tables of Contents: List every item separated by a divider, using the same identification as on the divider tab; where multiple volumes are required, include all volumes Tables of Contents in each volume, with the current volume clearly identified.
6	Dividers: Provide tabbed dividers for each separate product and system; identify the contents on the divider tab; immediately following the divider tab include a description of product and major component parts of equipment.
7	Text: Manufacturer's printed data, or typewritten data on 20 pound paper.
8	Drawings: Provide with reinforced punched binder tab. Bind in with text; fold larger Drawings to size of text pages.
3.5	WARRANTIES AND BONDS
1	Obtain warranties and bonds, executed in duplicate by responsible Subcontractors, suppliers, and manufacturers, within 10 days after completion of the applicable item of work. Except for items put into use with Owner's permission, leave date of beginning of time of warranty until Date of Substantial Performance is determined.
2	Verify that documents are in proper form, contain full information, and are notarized.
3	Co-execute submittals when required.
4	Retain warranties and bonds until time specified for submittal.
END OF SECTION 017800	
SECTION 017900	
DEMONSTRATION AND TRAINING	
PART 1 GENERAL	
1.1	SUMMARY
1	Demonstration of products and systems where indicated in specific specification sections.

2	Training of Owner personnel in operation and maintenance is required for:
1	HVAC systems and equipment.
2	Plumbing equipment.
1.2	RELATED REQUIREMENTS
1	Section 019113 - General Commissioning Requirements: Additional requirements applicable to demonstration and training.
1.3	SUBMITTALS
1	See Section 013000 - Administrative Requirements, for submittal procedures.
1.4	QUALITY ASSURANCE
1	Instructor Qualifications: Familiar with design, operation, maintenance and troubleshooting of the relevant products and systems.
2	Provide as instructors the most qualified trainer of those contractors and/or installers who actually supplied and installed the systems and equipment.
2	Where a single person is not familiar with all aspects, provide specialists with necessary qualifications.
PART 2 PRODUCTS - NOT USED	
PART 3 EXECUTION	
3.1	DEMONSTRATION - GENERAL
1	Demonstration conducted during system start-up do not qualify as demonstrations for the purposes of this section, unless approved in advance by Owner.
2	Operating Equipment and Systems: Demonstrate operation in all modes, including start-up, shut-down, seasonal changeover, emergency conditions, and troubleshooting, and maintenance procedures, including scheduled and preventive maintenance.
1	Perform demonstrations not less than two weeks prior to Substantial Performance.
2	For equipment or systems requiring seasonal operation, perform demonstration for other season within six months.
3	Non-Operating Products: Demonstrate cleaning, scheduled and preventive maintenance, and repair procedures.
1	Perform demonstrations not less than two weeks prior to Substantial Performance.
END OF SECTION 017900	
DIVISION 22 - PLUMBING	
SECTION 220529	
HANGERS AND SUPPORTS FOR PLUMBING PIPING AND EQUIPMENT	
PART 1 GENERAL	
1.1	SECTION INCLUDES
1.2	REFERENCE STANDARDS
1	ASTM A123/A123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products; 2024.
2	ASTM A153/A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware; 2016a.
3	ASTM B633 - Standard Specification for Electroplated Coatings of Zinc on Iron and Steel; 2019.
4	MFMA-4 - Metal Framing Standards Publication; 2004.
PART 2 PRODUCTS	
2.1	SUPPORT AND ATTACHMENT COMPONENTS
1	General Requirements:
1	Provide all required hangers, supports, anchors, fasteners, fittings, accessories, and hardware as necessary for the complete installation of plumbing work.
2	Provide products listed, classified, and labeled as suitable for the purpose intended, where applicable.
3	Where support and attachment component types and sizes are not indicated, select in accordance with manufacturer's application criteria as required for the load to be supported. Include consideration for vibration, equipment operation, and shock loads where applicable.
4	Do not use wire, chain, perforated pipe strap, or wood for permanent supports unless specifically indicated or permitted.
5	Steel Components: Use corrosion resistant materials suitable for the environment where installed.
1	Zinc-Plated Steel: Electroplated in accordance with ASTM B633.
2	Galvanized Steel: Hot-dip galvanized after fabrication in accordance with ASTM A123/A123M or ASTM A153/A153M.
2.2	Metal Channel (Strut) Framing Systems:
1	Provide factory-fabricated continuous-slot metal channel (strut) and associated fittings, accessories, and hardware required for site-assembly of supports.
2	Comply with MFMA-4.
3	Hanger Rods: Threaded zinc-plated steel unless otherwise indicated.
1	Minimum Size, Unless Otherwise Indicated or Required:
1	Equipment Supports: 15 mm (1/2 inch) diameter.
2	Piping up to 1 inch (25 mm) nominal: 8 mm (5/16 inch) diameter.
3	Piping larger than 1 inch (25 mm) nominal: 10 mm (3/8 inch) diameter.
4	Anchors and Fasteners:
1	Unless otherwise indicated and where not otherwise restricted, use the anchor and fastener types indicated for the specified applications.
PART 3 EXECUTION	
3.1	INSTALLATION
1	Install products in accordance with manufacturer's instructions.
2	Provide independent support from building structure. Do not provide support from piping, ductwork, conduit, or other systems.
3	Unless specifically indicated or approved by Consultant, do not provide support from suspended ceiling support system or ceiling grid.
4	Unless specifically indicated or approved by Consultant, do not provide support from roof deck.
5	Do not penetrate or otherwise notch or cut structural members without approval of Consultant.
6	Equipment Support and Attachment:
1	Use metal fabricated supports or supports assembled from metal channel (strut) to support equipment as required.
2	Use metal channel (strut) secured to studs to support equipment surface-mounted on hollow and walls when wall strength is not sufficient to resist pull-out.
3	Use metal channel (strut) to support surface-mounted equipment in wet or damp locations to provide space between equipment and mounting surface.
4	Securely fasten floor-mounted equipment. Do not install equipment such that it relies on its own weight for support.
7	Secure fasteners according to manufacturer's recommended torque settings.
8	Remove temporary supports.
END OF SECTION 220529	
SECTION 220553	
IDENTIFICATION FOR PLUMBING PIPING AND EQUIPMENT	
PART 1 GENERAL	
1.1	SECTION INCLUDES
1	Namesplates.
2	Tags.
3	Pipe markers.
PART 2 PRODUCTS	
2.1	IDENTIFICATION APPLICATIONS
1	Piping: Pipe markers.
2	Pumps: Namesplates.
2.2	NAMESPLATES
1	Description: Laminated three-layer plastic with engraved letters.
1	Letter Colour: White.
2	Background Colour: Black.
3	Plastic: Conform to ASTM D709.
2.3	PIPE MARKERS
1	Plastic Pipe Markers: Factory fabricated, flexible, semi-rigid plastic, preformed to fit around pipe or pipe covering; minimum information indicating flow direction arrow and identification of fluid being conveyed.
2	Plastic Tape Pipe Markers: Flexible, vinyl film tape with pressure sensitive adhesive backing and printed markings.
PART 3 EXECUTION	
3.1	PREPARATION
1	Degrease and clean surfaces to receive adhesive for identification materials.
3.2	INSTALLATION
1	Install plastic namesplates with corrosion-resistant mechanical fasteners, or adhesive. Apply with sufficient adhesive to ensure permanent adhesion and seal with clear lacquer.
2	Install plastic tape pipe markers complete around pipe in accordance with manufacturer's instructions.
END OF SECTION 220553	
SECTION 220719	
PLUMBING PIPING INSULATION	
PART 1 GENERAL	
1.1	SECTION INCLUDES
1.2	REFERENCE STANDARDS
1	ASTM C177 - Standard Test Method for Steady-State Heat Flux Measurements and Thermal Transmission Properties by Means of the Guarded-Hot-Plate Apparatus; 2019.
2	ASTM C795 - Standard Specification for Thermal Insulation for Use in Contact with Austenitic Stainless Steel; 2008 (Reapproved 2018).
3	ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2022.
4	ASTM E86/E86M - Standard Test Methods for Gravimetric Determination of Water Vapor Transmission of Materials; 2022.
5	CAN/ULC S102.2 - Method of Test for Surface Burning Characteristics of Flooring, Floor Coverings, and Miscellaneous Materials and Assemblies; 2018.
6	CAN/ULC S702.1 - Standard for Mineral Fibre Thermal Insulation for Buildings, Part 1: Material Specification; 2021.
7	TIAC - Best Practices Guide; Current.
PART 2 PRODUCTS	
2.1	REGULATORY REQUIREMENTS
1	Surface Burning Characteristics: Comply with CAN/ULC S102.2 or ASTM E84 where permitted by Authority Having Jurisdiction for flame-spread rating and smoke developed classification.
2.2	GLASS FIBRE
1	Insulation: CAN/ULC S702.1 and ASTM C795; rigid molded, noncombustible.
1	K _{si} (K _{SI} Value: ASTM C177, 0.035 at 24 degrees C (0.24 at 75 degrees F).
2	Maximum Service Temperature: 454 degrees C (850 degrees F).

General Notes		
This drawing is the property of Delta-T Designs Inc. and is to be reproduced without permission.		
The contractor shall verify all dimensions on site and report discrepancies to Delta-T Designs Inc. once discovered and prior to proceeding with the work.		
All changes shall be approved by Delta-T Designs Inc. prior to executions.		
Under no circumstances shall the contractor proceed in uncertainty.		
This drawing expresses the intent of the designer only, and the responsibility of the contractor to verify all site conditions prior to providing a quote, and/or commencing work.		
If there is an inconsistency between what is drawn, and what site conditions allow, it is the responsibility of the installing contractor to notify the designer prior to proceeding. Delta-T Designs Inc shall not be held liable for any issues that may arise due to the contractor not requesting clarification beforehand.		
Drawings are scaled for Arch D - 24x36		
Designer Seal		P.Eng Seal (If Required)
P.Eng Contact Info (If Required)		
Revision Schedule		
Revision Number	Revision Description	Revision Date
1	Issued for Coordination	May 15 2025
2	Updated for Coordination	June 1 2025
3	WIP	June 1 2025
		
Delta-T Designs Inc. 16 Winstar Rd Unit 4 Oro-Medonte, Ontario L0L 2L0 705.791.9000 niss@deltatdesigns.ca		
Client Name	TBD	
Project Number	2025-12	
Project Name & Address	Barrie Single Dedicated Accessory Dwelling Unit Barrie, Ontario	
Sheet Name	Specifications	
Drawn By	A.T.	
Reviewed By	Che	
Sheet Number	M000	

Spec 2
3/16" = 1'-0"

- 3 Maximum Moisture Absorption: 0.2 percent by volume.
- 2 Vapour Barrier Jacket: White Kraft paper with glass fiber yarn, bonded to aluminized film; moisture vapour transmission when tested in accordance with ASTM E96/E96M at 0.029 ng/Pa s (0.02 perm-inches).
- PART 3 EXECUTION**
- 3.1 EXAMINATION**
- 1 Verify that piping has been tested before applying insulation materials.
- 2 Verify that surfaces are clean and dry, with foreign material removed.
- 3.2 INSTALLATION**
- 1 Install in accordance with manufacturer's instructions.
- 2 Install in accordance with TIAC Best Practices Guide.
- 3 Exposed Piping: Locate insulation and cover seams in least visible locations.
- 4 Insulated pipes conveying fluids below ambient temperature: Insulate entire system including fittings, valves, unions, flanges, strainers, flexible connections, pump bodies, and expansion joints.
- 5 Glass fiber insulated pipes conveying fluids below ambient temperature:
- 1 Provide vapour barrier jackets, factory-applied or site-applied. Secure with self-sealing longitudinal laps and butt strips with pressure sensitive adhesive. Secure with outward clench expanding staples and vapour barrier mastic.
- 2 Insulate fittings, joints, and valves with insulated insulation of like material and thickness as adjacent pipe. Finish with glass cloth and vapour barrier adhesive or PVC fitting covers.
- 6 Exterior Applications: Provide vapour barrier jacket. Insulate fittings, joints, and valves with insulation of like material and thickness as adjoining pipe, and finish with glass mesh reinforced vapour barrier cement. Cover with aluminum jacket in accordance with TIAC CPP/5 with seams located on bottom side of horizontal piping.
- 7 Buried Piping: Provide factory fabricated assembly with inner all-purpose service jacket with self-sealing lap, and asphalt impregnated open mesh glass fabric, with 0.025 mm (one mil) thick aluminum foil sandwiched between three layers of bituminous compound, outer surface faced with a polyester film.
- 8 Heat Traced Piping: Insulate fittings, joints, and valves with insulation of like material, thickness, and finish as adjoining pipe. Size large enough to enclose pipe and heat tracer. Cover with aluminum jacket with seams located on bottom side of horizontal piping.
- END OF SECTION 220719**

- SECTION 221005
PLUMBING PIPING**
- PART 1 GENERAL**
- 1.1 SECTION INCLUDES**
- 1 System pipe and pipe fittings.
- 1 Sanitary sewer.
- 2 Domestic water.
- 3 Valves.
- 2 Specialties:
- 1 Flow controls.
- 2 Water pressure reducing valves.
- 3 Relief valves.
- 3 Connections for piping systems.
- 1.2 RELATED REQUIREMENTS**
- 1 Section 083100 - Access Doors and Panels.
- REFERENCE STANDARDS**
- 1 ANSI Z21.22 - American National Standard for Relief Valves and Automatic Gas Shutoff Devices for Hot Water Supply Systems; 2015.
- 2 ASME B16.26 - Cast Copper Alloy Fittings for Flared Copper Tubes; 2024.
- 3 ASME B31.9 - Building Services Piping; 2014.
- 4 ASME BPVC-IV - Boiler and Pressure Vessel Code, Section IV - Rules for Construction of Heating Boilers; 2023, with Errata (2024).
- 5 ASTM B42 - Standard Specification for Seamless Copper Pipe, Standard Sizes; 2020.
- 6 ASTM D88 - Standard Specification for Seamless Copper Water Tube; 2020.
- 7 ASTM B88M - Standard Specification for Seamless Copper Water Tube (Metric); 2020.
- 8 ASTM B818 - Standard Specification for Liquid and Paste Fluxes for Soldering of Copper and Copper Alloy Tube; 2016.
- 9 ASTM B828 - Standard Practice for Making Capillary Joints by Soldering of Copper and Copper Alloy Tube and Fittings; 2016.
- 10 ASTM D2235 - Standard Specification for Solvent Cement for Acrylonitrile-Butadiene-Styrene (ABS) Plastic Pipe and Fittings; 2022.
- 11 ASTM D2564 - Standard Specification for Solvent Cements for Poly(Vinyl Chloride) (PVC) Plastic Piping Systems; 2020.
- 12 ASTM D2665 - Standard Specification for Poly(Vinyl Chloride) (PVC) Plastic Drain, Waste, and Vent Pipe and Fittings; 2020.
- 13 ASTM D2729 - Standard Specification for Poly(Vinyl Chloride) (PVC) Sewer Pipe and Fittings; 2021.
- 14 ASTM D2855 - Standard Practice for the Two-Step (Primer & Solvent Cement) Method of Joining Poly (Vinyl Chloride) (PVC) or Chlorinated Poly (Vinyl Chloride) (CPVC) Pipe and Piping Components with Tapered Sockets; 2020.
- 15 ASTM D3054 - Standard Specification for Type PSM Poly(Vinyl Chloride) (PVC) Sewer Pipe and Fittings; 2021.
- 16 ASTM F477 - Standard Specification for Elastomeric Seals (Gaskets) for Joining Plastic Pipe; 2014 (Reapproved 2021).
- 17 ASTM F628 - Standard Specification for Acrylonitrile-Butadiene-Styrene (ABS) Schedule 40 Plastic Drain, Waste, and Vent Pipe with a Cellular Core; 2022.
- 18 ASTM F876 - Standard Specification for Crosslinked Polyethylene (PEX) Tubing; 2022, with Editorial Revision.
- 19 ASTM F877 - Standard Specification for Crosslinked Polyethylene (PEX) Plastic Hot- and Cold-Water Distribution Systems; 2022.
- 20 ASTM F1960 - Standard Specification for Cold Expansion Fittings with PEX Reinforcing Rings for Use with Cross-Linked Polyethylene (PEX) and Polyethylene of Raised Temperature (PE-RT) Tubing; 2021.
- 21 AWWA C651 - Disinfecting Water Mains; 2014.
- 22 AWWA C900 - Polyvinyl Chloride (PVC) Pressure Pipe, 4 in. Through 12 in. (100 mm Through 300 mm), for Water Transmission and Distribution; 2016.
- 23 CAN/CSA B136 - Water Pressure Reducing Valves for Domestic Water Supply Systems; 2010 (Reaffirmed 2020).
- 24 CAN/CSA B1800 - Thermoplastic Nonpressure Piping Compendium; 2021.
- 25 CSA B137 Series - Thermoplastic Pressure Piping Compendium; 2017.
- 26 NSF 61 - Drinking Water System Components - Health Effects; 2017.
- 27 NSF 372 - Drinking Water System Components - Lead Content; 2020.
- 28 PPI TR-4 - PPI Listing of Hydraulic Design Basis (HDS), Hydrostatic Design Stress (HDS), Strength Design Basis (SDB), Pressure Design Basis (PDB), and Minimum Required Strength (MRS) Ratings For Thermoplastic Piping Materials or Pipe; 2017.
- 1.4 QUALITY ASSURANCE**
- 1 Perform work in accordance with applicable codes.
- 2 Comply with ASME B31.9.
- 3 Valves: Manufacturer's name and pressure rating marked on valve body.
- 4 Identify pipe with marking including size, ASTM material classification, ASTM specification, potable water certification, water pressure rating.
- PART 2 PRODUCTS**
- 2.1 GENERAL REQUIREMENTS**
- 1 Potable Water Supply Systems: Provide piping, pipe fittings, and solder and flux (if used), that comply with NSF 61 and NSF 372 for maximum lead content; label pipe and fittings.
- 2.2 SANITARY SEWER PIPING, BURIED BEYOND 1500 MM (5 FEET) OF BUILDING**
- 1 ABS Pipe: ASTM F628.
- 1 Fittings: ABS.
- 2 Joints: Solvent welded with ASTM D2235 cement.
- 2 PVC Pipe: ASTM D3034, DR-35.
- 1 Fittings: PVC.
- 2 Joints: Push-on, using ASTM F477 elastomeric gaskets.
- 2.3 SANITARY SEWER PIPING, BURIED WITHIN 1500 MM (5 FEET) OF BUILDING**
- 1 ABS Pipe: ASTM F628.
- 1 Fittings: ABS.
- 2 Joints: Solvent welded with ASTM D2235 cement.
- 2 PVC Pipe: ASTM D2665 or ASTM D3034.
- 1 Fittings: PVC.
- 2 Joints: Solvent welded, with ASTM D2564 solvent cement.
- 2.4 SANITARY SEWER PIPING, ABOVE GRADE**
- 1 ABS Pipe: ASTM F628.
- 1 Fittings: ABS.
- 2 Joints: Solvent welded with ASTM D2235 cement.
- 2 PVC Pipe: CAN/CSA B1800 or ASTM D2729.
- 1 Fittings: PVC.
- 2 Joints: Solvent welded, with ASTM D2564 solvent cement.
- 2.5 DOMESTIC WATER PIPING, BURIED BEYOND 1500 MM (5 FEET) OF BUILDING**
- 1 Copper Pipe: ASTM B42, annealed.
- 1 Fittings: ASME B16.26, cast bronze.
- 2 Joints: Flared.
- 2 PVC Pipe: AWWA C900 and CSA B137 Series.
- 2.6 DOMESTIC WATER PIPING, BURIED WITHIN 1500 MM (5 FEET) OF BUILDING**
- 1 Copper Pipe: ASTM B42, annealed.
- 1 Fittings: ASME B16.26, cast bronze.
- 2 Joints: Flared.
- 2 Cross-Linked Polyethylene (PEX) Pipe: ASTM F876 or ASTM F877.
- 1 PPI TR-4 Pressure Design Basis:
- 2 Fittings: Brass and engineered polymer (EP) ASTM F1960.
- 3 Fittings: Brass and engineered polymer (EP) ASTM F1960.
- 4 Joints: Mechanical compression fittings.
- 5 Joints: ASME F1960 cold-expansion fittings.
- 2.7 DOMESTIC WATER PIPING, ABOVE GRADE**
- 1 Copper Tube: ASTM B88 (ASTM B88M), Type K (A), Drawn (H).
- 1 Mechanical Press Sealed Fittings: Double pressed type, NSF 61 and NSF 372 approved or certified, utilizing EPDM, non toxic synthetic rubber sealing elements.
- 2 Cross-Linked Polyethylene (PEX) Pipe: ASTM F876 or ASTM F877.

- 1 PPI TR-4 Pressure Design Basis:
- 2 Fittings: Brass and engineered polymer (EP) ASTM F1960.
- 3 Joints: Mechanical compression fittings.
- 4 Joints: ASME F1960 cold-expansion fittings.
- 2.8 BALL VALVES**
- 2.9 PIPING SPECIALTIES**
- 1 Flow Controls:
- 1 Construction: Class 125, Brass or bronze body with union on inlet and outlet, temperature and pressure test plug on inlet and outlet, blowdown/backflush drain.
- 2 Calibration: Control flow within 5 percent of selected rating, over operating pressure range of 10 times minimum pressure required for control, maximum minimum pressure 24 kPa (3.5 psi).
- 2 Water Pressure Reducing Valves:
- 1 Up to 50 mm (2 inches): CAN/CSA B136, bronze body, stainless steel, and thermoplastic internal parts, fabric reinforced diaphragm, strainer, threaded single union ends.
- 3 Relief Valves:
- 1 Pressure: ANSI Z21.22, AGA certified, bronze body, teflon seat, steel stem and springs, automatic, direct pressure actuated.
- 2 Temperature and Pressure:
- 1 ANSI Z21.22, AGA certified, bronze body, teflon seat, stainless steel stem and springs, automatic, direct pressure actuated, temperature relief maximum 98.9 degrees C (210 degrees F), capacity ASME BPVC-IV certified and labelled.
- PART 3 EXECUTION**
- 3.1 EXAMINATION**
- 1 Verify that excavations are to required grade, dry, and not over-excavated.
- 3.2 PREPARATION**
- 1 Ream pipe and tube ends. Remove burrs.
- 2 Remove scale and dirt, on inside and outside, before assembly.
- 3 Prepare piping connections to equipment with flanges or unions.
- 3.3 INSTALLATION**
- 1 Install in accordance with manufacturer's instructions.
- 2 Provide non-conducting dielectric connections wherever joining dissimilar metals.
- 3 Route piping in orderly manner and maintain gradient. Route parallel and perpendicular to walls.
- 4 Install piping to maintain headroom, conserve space, and not interfere with use of space.
- 5 Group piping whenever practical at common elevations.
- 6 Provide clearance in hangers and from structure and other equipment for installation of insulation and access to valves and fittings.
- 7 Provide access where valves and fittings are not exposed.
- 1 Coordinate size and location of access doors with General Contractor.
- 2 Where pipe support members are welded to structural building framing, scrape, brush clean, and apply one coat of zinc rich primer to welding.
- 9 Provide support for utility meters in accordance with requirements of utility companies.
- 10 Copper Pipe and Tube: Make soldered joints in accordance with ASTM B828, using specified solder, and flux meeting ASTM B813; in potable water systems use flux also complying with NSF 61 and NSF 372.
- 11 PVC Pipe: Make solvent-welded joints in accordance with ASTM D2855.
- 12 Sleeve pipes passing through partitions, walls and floors.
- 3.4 APPLICATION**
- 1 Install unions downstream of valves and at equipment or apparatus connections.
- 2 Install gate valves for shut-off and to isolate equipment, part of systems, or vertical risers.
- 3 Provide spring loaded check valves on discharge of water pumps.
- 4 Provide flow controls in water recirculating systems where indicated.
- 3.5 DISINFECTION OF DOMESTIC WATER PIPING SYSTEM**
- 1 Prior to starting work, verify system is complete, flushed and clean.
- 2 Ensure acidity (pH) of water to be treated is between 7.4 and 7.6 by adding alkali (caustic soda or soda ash) or acid (hydrochloric).
- 3 Inject disinfectant, free chlorine in liquid, powder, tablet or gas form, throughout system to obtain 50 to 80 mg/L residual.
- 4 Bleed water from outlets to ensure distribution and test for disinfectant residual at minimum 15 percent of outlets.
- 5 Maintain disinfectant in system for 24 hours.
- 6 If final disinfectant residual tests less than 25 mg/L, repeat treatment.
- 7 Flush disinfectant from system until residual equal to that of incoming water or 1.0 mg/L.
- 8 Take samples no sooner than 24 hours after flushing, from 10 percent of outlets and from water entry, and analyze in accordance with AWWA C651.
- 3.6 SERVICE CONNECTIONS**
- 1 Provide new sanitary sewer services. Before commencing work check invert elevations required for sewer connections, confirm inverts and ensure that these can be properly connected with slope for drainage and cover to avoid freezing.
- 2 Provide new water service complete with approved reduced pressure backflow preventer and water meter with by-pass valves, pressure reducing valve, and sand strainer.
- END OF SECTION 221005**

- SECTION 224000
PLUMBING FIXTURES**
- PART 1 GENERAL**
- 1.1 SECTION INCLUDES**
- 1 Tank type water closets.
- 2 Dual flush water closets.
- 3 Lavatories.
- 4 Sinks.
- 5 Bathtubs and showers.
- 6 Showers.
- 7 Hose bib boxes.
- 1.2 REFERENCE STANDARDS**
- 1 ASME A112.6.1M - Supports for Off-the-Floor Plumbing Fixtures for Public Use; 1997 (Reaffirmed 2017).
- 2 ASME A112.18.1 / CSA B125.1 - Plumbing Supply Fittings; 2018, with Errata.
- 3 ASME A112.19.1 / CSA B45.2 - Enamelled Cast Iron and Enamelled Steel Plumbing Fixtures; 2018.
- 4 ASME A112.19.2 / CSA B45.1 - Ceramic Plumbing Fixtures; 2018, with Errata.
- 5 ASME A112.19.3 / CSA B45.4 - Stainless Steel Plumbing Fixtures; 2017, with Errata.
- 6 ASME A112.19.14 - Six Liter Water Closets Equipped with Dual Flushing Device; 2013 (Reaffirmed 2018).
- 7 ASME A112.1070 / ASSE 1070 / CSA B125.70 - Performance Requirements for Water Temperature Limiting Devices; 2020.
- 8 NSF/ANSI/CAN 61 - Drinking Water System Components - Health Effects; 2021.
- 9 NSF 372 - Drinking Water System Components - Lead Content; 2020.
- 10 ULG (DIR) - Online Certifications Directory (Canada), Current Edition.
- 1.3 SUBMITTALS**
- 1 See Section 013000 - Administrative Requirements for submittal procedures.
- 2 Product Data: Provide catalog illustrations of fixtures, sizes, rough-in dimensions, utility sizes, trim, and finishes.
- PART 2 PRODUCTS**
- 2.1 GENERAL REQUIREMENTS**
- 1 Potable Water Systems: Provide plumbing fittings and faucets that comply with NSF/ANSI/CAN 61 and NSF 372 for maximum lead content; label pipe and fittings.
- 2 Water Efficiency: Provide water closets, urinals, lavatory faucets, and showerheads that comply with local water efficiency legislation.
- 2.2 REGULATORY REQUIREMENTS**
- 1 Comply with applicable codes for installation of plumbing systems.
- 2 Comply with ULG (DIR) requirements, where permitted by Authority Having Jurisdiction.
- 2.3 TANK-TYPE WATER CLOSETS**
- 1 Floor-Mounted Bowl:
- 1 ASME A112.19.2 / CSA B45.1: siphon jet, vitreous china, 420 mm (16.5 inches) high, close-coupled closet combination with elongated rim, insulated vitreous china closet tank with fittings and lever flushing valve, bolt caps, vandalproof cover locking device.
- 2 Water Consumption: 6.1 (1.6 gal) per flush, maximum.
- 2 Toilet Seats:
- 1 Plastic: Solid, white, elongated, open front, slow-closing hinged seat cover, and brass bolts with covers.
- 2.4 DUAL FLUSH WATER CLOSETS**
- 1 ASME A112.19.14: high efficiency and low consumption, vitreous china, dual flush, tank type.
- 1 Flush System: Pressure-assisted, wash down with a half-flush consumption of 4 L (1.1 gal) per flush.
- 2 Bowl: Elongated.
- 3 Rough in: 305 mm (12 inch).
- 4 Seat: Manufacturer's standard or recommended elongated closed front seat with lid.
- 5 Color: White.
- 2.5 LAVATORIES**
- 1 Wall-Hung Basin:
- 1 Vitreous China: ASME A112.19.2 / CSA B45.1; white, round basin with splash lip, front overflow, soap depression, and hanger. Size as indicated on Drawings with 100 mm (4 inch) centreset spacing.
- 2 Carrier:
- 1 ASME A112.6.1M; cast iron and steel frame with tubular legs, hugs for floor and wall attachment, threaded studs for fixture hanger, bearing plate and studs.
- 2 Drop-In Basin:
- 1 Vitreous China: ASME A112.19.2 / CSA B45.1; self-rimming, white, round shape, front overflow, soap depression, seal of putty, calking, or concealed vinyl gasket, and white finish. Size as indicated on Drawings with 100 mm (4 inch) centreset spacing.
- Under-Mount Basin:
- 1 Vitreous China: ASME A112.19.2 / CSA B45.1; white, round shape, front overflow, soap depression, seal of putty, calking, or concealed vinyl gasket, and white finish. Size as indicated on Drawings.
- 2 Pedestal Basin:

- 1 Vitreous China: ASME A112.19.2 / CSA B45.1; white, round shape, integral rear splash rim, front overflow, and steel hanger. Size as indicated on Drawings with 200 mm (8 inch) centreset spacing.
- 5 Supply Faucet:
- 1 ASME A112.18.1 / CSA B125.1; chrome plated combination supply fitting with pop-up waste, water economy aerator with maximum flow of 8.3 Lpm (2.2 gpm), indexed handles.
- 6 Thermostatic Mixing Valve:
- 1 ASME A112.1070 / ASSE 1070 / CSA B125.70 listed with combination stop, strainer, and check valves, and flexible stainless steel connectors.
- 2.6 SINKS**
- 1 Single Compartment Bowl: ASME A112.19.3 / CSA B45.4; Type 302 stainless steel, self-rimming and undercoated, with ledge back drilled for trim.
- 1 Drain: 38 mm (1-1/2 inch) chrome drain.
- 2 Double Compartment Bowl: ASME A112.19.3 / CSA B45.4; Type 302 stainless steel, self-rimming and undercoated, with ledge back drilled for trim.
- 1 Drain: 38 mm (1-1/2 inch) chrome drain.
- 2.7 BATHTUBS AND SHOWERS**
- 1 Bathtub: ASME A112.19.1 / CSA B45.2 enamelled cast iron bathtub with slip resistant surface, contoured front apron, 1500 mm (60 inches) long, colour.
- 2 Bath Trim: ASME A112.18.1 / CSA B125.1; concealed over rim supply with spot and indexed handles, lever operated pop-up waste and overflow.
- 3 Bath and Shower Trim: ASME A112.18.1 / CSA B125.1; concealed shower and over rim supply with diverter spout, indexed handles, bent shower arm with adjustable spray ball joint showerhead with maximum 9.5 liters per minute (2.5 gallons per minute) flow and escutcheon, lever operated pop-up waste and overflow.
- 4 Bath and Shower Trim: ASME A112.18.1 / CSA B125.1; concealed shower and over rim supply with diverter spout, pressure balanced mixing valve, bent shower arm with adjustable spray ball joint showerhead with maximum 9.5 liters per minute (2.5 gallons per minute) flow and escutcheon, lever operated pop-up waste and overflow.
- 2.8 HOSE BIB BOXES**
- 1 Material: 316 stainless steel.
- 2 Finish: Satin.
- 3 Mount in wall fully recessed.
- 4 Provide with one-valve supply.
- 5 Provide with NPT PVC ball valves and fittings.
- 6 Provide with internal hose drain bracket and waste outlet.
- PART 3 EXECUTION**
- 3.1 EXAMINATION**
- 1 Verify that walls and floor finishes are prepared and ready for installation of fixtures.
- 2 Verify that electric power is available and of the correct characteristics.
- 3 Confirm that millwork is constructed with adequate provision for the installation of countertop lavatories and sinks.
- 3.2 PREPARATION**
- 1 Rough-in fixture piping connections in accordance with minimum sizes indicated in fixture rough-in schedule for particular fixtures.
- 3.3 INSTALLATION**
- 1 Install each fixture with trap, easily removable for servicing and cleaning.
- 2 Provide chrome-plated rigid or flexible supplies to fixtures with loose key stops, reducers, and escutcheons.
- 3 Install components level and plumb.
- 4 Install and secure fixtures in place with wall supports and bolts.
- 3.4 INTERFACE WITH WORK OF OTHER SECTIONS**
- 1 Review millwork Shop Drawings. Confirm location and size of fixtures and openings before rough-in and installation.
- 3.5 PROTECTION**
- 1 Protect installed products from damage due to subsequent construction operations.
- 2 Do not permit use of fixtures by construction personnel.
- 3 Repair or replace damaged products before Date of Substantial Performance.
- END OF SECTION 224000**

DIVISION 23 HEATING, VENTILATING, AND AIR CONDITIONING (HVAC)
SECTION 230517 SLEEVES AND SLEEVE SEALS FOR HVAC PIPING

- PART 1 GENERAL**
- 1.1 SECTION INCLUDES**
- 1 Pipe sleeves.
- 2 Manufactured sleeve-seal systems.
- 1.2 REFERENCE STANDARDS**
- 1 ASTM E814 - Standard Test Method for Fire Tests of Penetration Firestop Systems; 2013a (Reapproved 2017).
- 1.3 QUALITY ASSURANCE**
- 1 Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section with minimum three years documented experience.
- 2 Clean equipment, pipes, valves, and fittings of grease, metal cuttings, and sludge that may have accumulated from the installation and testing of the system.
- PART 2 PRODUCTS**
- 2.1 PIPE SLEEVES**
- 1 Vertical Piping:
- 1 Sleeve Length: 25 mm (1 inch) above finished floor.
- 2 Provide sealant for watertight joint.
- 2 Pipe Passing Through Below Grade Exterior Walls:
- 1 Zinc coated or cast iron pipe.
- 2 Provide watertight space with link rubber or modular seal between sleeve and pipe on both pipe ends.
- 3 Pipe Passing Through Mechanical, Laundry, and Animal Room Floors above Basement:
- 1 Galvanized steel pipe or black iron pipe with asphalt coating.
- 2 Connect sleeve with floor plate except in mechanical rooms.
- 4 Clearances:
- 1 Provide allowance for insulated piping.
- 2 Wall, Floor, Partition, and Beam Flanges: 25 mm (1 inch) greater than external pipe diameter.
- 3 All Rafter Openings: Caulked tight with fire stopping material in compliance with ASTM E814 in accordance with Section 078400 to prevent the spread of fire, smoke, and gases.
- PART 3 EXECUTION**
- 3.1 INSTALLATION**
- 1 Route piping in orderly manner, plumb and parallel to building structure. Maintain gradient.
- 2 Install piping to conserve building space, to not interfere with use of space and other work.
- 3 Install piping and pipe sleeves to allow for expansion and contraction without stressing pipe, joints, or connected equipment.
- 4 Provide sleeves when penetrating footings, floors, walls, and partitions. Seal pipe including sleeve penetrations to achieve fire resistance equivalent to fire separation required.
- 5 When installing more than one piping system material, ensure system components are compatible and joined to ensure the integrity of the system. Provide necessary joining fittings. Ensure flanges, union, and couplings for servicing are consistently provided.
- END OF SECTION 230517**

- SECTION 230529 HANGERS AND SUPPORTS FOR HVAC PIPING AND EQUIPMENT**
- PART 1 GENERAL**
- 1.1 SECTION INCLUDES**
- 1 Support and attachment components for equipment, piping, and other HVAC/hydraulic work.
- 1.2 REFERENCE STANDARDS**
- 1 ASTM A123/A123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products; 2024.
- 2 ASTM A153/A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware; 2016a.
- 3 ASTM A181/A181M - Standard Specification for Carbon Steel Forgings, for General - Purpose Piping; 2022.
- 4 ASTM A36/A36M - Standard Specification for Carbon Structural Steel; 2019.
- 5 ASTM B633 - Standard Specification for Electrodeposited Coatings of Zinc on Iron and Steel; 2019.
- 6 MFMA-4 - Metal Framing Standards Publication; 2004.
- 7 MSS SP-98 - Pipe Hangers and Supports - Materials, Design, Manufacture, Selection, Application, and Installation; 2009.
- 1.3 QUALITY ASSURANCE**
- 1 Comply with applicable building code.
- 2 Maintain at the project site a copy of each referenced document that prescribes execution requirements.
- PART 2 PRODUCTS**
- 2.1 SUPPORT AND ATTACHMENT COMPONENTS**
- 1 General Requirements:
- 1 Provide all required hangers, supports, anchors, fasteners, fittings, accessories, and hardware as necessary for the complete installation of plumbing work.
- 2 Provide products listed, classified, and labeled as suitable for the purpose intended, where applicable.
- 3 Where support and attachment component types and sizes are not indicated, select in accordance with manufacturer's application criteria as required for the load to be supported. Include consideration for vibration, equipment operation, and shock loads where applicable.
- 4 Do not use wire, chain, perforated pipe strap, or wood for permanent supports unless specifically indicated or permitted.
- 5 Steel Components: Use corrosion resistant materials suitable for the environment where installed.
- 1 Zinc-Plated Steel: Electroplated in accordance with ASTM B633.
- 2 Galvanized Steel: Hot-dip galvanized after fabrication in accordance with ASTM A123/A123M or ASTM A153/A153M.
- 2 Metal Channel (Strut) Framing Systems: Factory-fabricated continuous-slot metal channel (strut) and associated fittings, accessories, and hardware required for site-assembly of supports.
- 1 Comply with MFMA-4.
- 2 Channel Material:
- 1 Outdoor and Damp or Wet Interior Locations: Use galvanized steel.
- 3 Minimum Channel Thickness: Steel sheet, 12 gauge; 2.66 mm (12 gauge, 0.1046 inch).
- 3 Hanger Rods: Threaded zinc-plated steel unless otherwise indicated.
- 1 Minimum Size, Unless Otherwise Indicated or Required:

General Notes

This drawing is the property of Delta-T Designs Inc. and is to be reproduced without permission.

The contractor shall verify all dimensions on site and repo discrepancies to Delta-T Designs Inc. once discovered an prior to proceeding with the work.

All changes shall be approved by Delta-T Designs Inc. pri executions.

Under no circumstances shall the contractor proceed in uncertainty.

This drawing expresses the intent of the designer only, ar the responsibility of the contractor to verify all site conditic prior to providing aquote, and/or commencing work.

If there is an inconsistency between what is drawn, and w site conditions allow, it is the responsibility of the installing contractor to notify the designer prior to proceeding. Delta- Designs Inc shall not be held liable for any issues that ma arise due to the contractor not requesting clarification beforehand.

Drawings are scaled for Arch D - 24x36	
Designer Seal	P.Eng Seal (If Required)
P.Eng Contact Info (If Required)	

Revision Schedule		
Revision Number	Revision Description	Revis Dat
1	Issued for Coordination	May 15 2025
2	Updated for Coordination	June 1' 2025
3	WIP	June 1' 2025



Delta-T Designs Inc. 16 Winstar Rd Unit 4 Oro-Medonte, Ontario L0L 2L0 705.791.9000 niss@deltatdesigns.ca	
Client Name	TBD
Project Number	2025-12
Project Name & Address	Barrie Single Dedicated Accessory Dwelling Unit Barrie, Ontario
Sheet Name	Specifications
Drawn By	Al
Reviewed By	Che
Sheet Number	M001

Spec 3
3/16" = 1'-0"

SECTION 230593 TESTING, ADJUSTING, AND BALANCING FOR HVAC	
PART 1 GENERAL	
1.1 SECTION INCLUDES	
1 TAB procedure for air distribution systems.	
2 Testing, adjustment, and balancing of hydronic and refrigerating systems.	
1.2 REFERENCE STANDARDS	
1 AABC (NSTSB) - AABC National Standards for Total System Balance, 7th Edition; 2016.	
2 ASHRAE Std 111 - Measurement, Testing, Adjusting, and Balancing of Building HVAC Systems; 2024.	
3 SMACNA (TAB) - HVAC Systems Testing, Adjusting, and Balancing; 2002.	
PART 2 PRODUCTS - Not Used	
PART 3 EXECUTION	
3.1 GENERAL REQUIREMENTS	
1 Perform total system balance in accordance with one of the following:	
2 AABC (NSTSB), AABC National Standards for Total System Balance.	
3 ASHRAE Std 111, Practices for Measurement, Testing, Adjusting and Balancing of Building Heating, Ventilation, Air-Conditioning, and Refrigeration Systems.	
4 SMACNA (TAB).	
2 Begin work after completion of systems to be tested, adjusted, or balanced and complete work prior to Substantial Performance of the project.	
3 Where HVAC systems and/or components interface with life safety systems, including fire and smoke detection, alarm, and control, coordinate scheduling and testing and inspection procedures with the authorities having jurisdiction.	
4 TAB Agency Qualifications:	
1 Company specializing in the testing, adjusting, and balancing of systems specified in this section.	
2 Having minimum of three years documented experience.	
3 Certified by one of the following:	
1 AABC, Associated Air Balance Council: www.aabc.com/aafe, upon completion submit AABC National Performance Guaranty.	
2 NEBB, National Environmental Balancing Bureau: www.nebb.org/ide.	
3 TABB, The Testing, Adjusting, and Balancing Board of National Energy Management Institute: www.tabbcertified.org/aafe.	
5 TAB Supervisor and Technician Qualifications: Certified by same organization as TAB agency.	
EXAMINATION	
1 Verify that systems are complete and operable before commencing work. Ensure the following conditions:	
2 Systems are started and operating in a safe and normal condition.	
3 Temperature control systems are installed complete and operable.	
4 Proper thermal overload protection is in place for electrical equipment.	
5 Final filters are clean and in place. If required, install temporary media in addition to final filters.	
6 Duct systems are clean of debris.	
7 Fans are rotating correctly.	
8 Fire and volume dampers are in place and open.	
9 Air coil fins are cleaned and combed.	
Access doors are closed and duct end caps are in place.	

1 Equipment Supports: 13 mm (1/2 inch) diameter.	
2 Piping up to 25 mm nominal: 6 mm (1/4 inch) diameter.	
4 Pipe Supports:	
1 Liquid Temperatures Up To 50 degrees C (122 degrees F).	
2 Overhead Support: MSS SP-58 Types 1, 3, 4 through 12.	
3 Support From Below: MSS SP-58 Types 35 through 38.	
5 Beam Clamps: MSS SP-58 Types 19 through 23, 25 or 27 through 30 based on required load.	
1 Material: ASTM A36/A36M carbon steel or ASTM A181/A181M forged steel.	
2 Provide clamps with hardened steel cap-point set screws and lock-wnuts for anchoring in place.	
6 Riser Clamps:	
1 Provide copper plated clamps for copper tubing support.	
2 For insulated pipe runs, provide two bolt-type clamps designed for installation under insulation.	
7 Anchors and Fasteners:	
1 Unless otherwise indicated and where not otherwise restricted, use the anchor and fastener types indicated for the specified applications.	
PART 3 EXAMINATION	
3.1 INSTALLATION	
1 Install products in accordance with manufacturer's instructions.	
2 Provide independent support from building structure. Do not provide support from piping, ductwork, conduit, or other systems.	
3 Unless specifically indicated or approved by Consultant, do not provide support from suspended ceiling support system or ceiling grid.	
4 Unless specifically indicated or approved by Consultant, do not provide support from roof deck.	
5 Do not penetrate or otherwise notch or cut structural members without approval of Structural Engineer.	
6 Equipment Support and Attachment:	
1 Use metal fabricated supports or supports assembled from metal channel (strut) to support equipment as required.	
2 Use metal channel (strut) secured to studs to support equipment surface-mounted on hollow stud walls when wall strength is not sufficient to resist pull-out.	
3 Use metal channel (strut) to support surface-mounted equipment in wet or damp locations to provide space between equipment and mounting surface.	
4 Securely fasten floor-mounted equipment. Do not install equipment such that it relies on its own weight for support.	
7 Secure fasteners according to manufacturer's recommended torque settings.	
8 Remove temporary supports.	

SECTION 230553 IDENTIFICATION FOR HVAC PIPING AND EQUIPMENT	
PART 1 GENERAL	
1.1 SECTION INCLUDES	
1 Nameplates.	
2 Tags.	
3 Stencils.	
4 Pipe markers.	
1.2 RELATED REQUIREMENTS	
1 Section 09113 - Interior Painting: Identification painting.	
1.3 REFERENCE STANDARDS	
1 ASTM D709 - Standard Specification for Laminated Thermosetting Materials; 2017.	
PART 2 PRODUCTS	
2.1 IDENTIFICATION APPLICATIONS	
1 Air Handling Units: Nameplates.	
2 Control Panels: Nameplates.	
3 Ductwork: Stencilled painting.	
4 Piping: Pipe markers.	
5 Pumps: Nameplates.	
6 Relays: Tags.	
7 Thermostats: Nameplates.	
8 Valves: Tags and ceiling racks where located above lay-in ceiling.	
9 Water Treatment Devices: Nameplates.	
2.2 NAMEPLATES	
1 Letter Colour: White.	
2 Background Colour: Black.	
3 Plastic: Conform to ASTM D709.	
2.3 TAGS	
1 Plastic Tags: Laminated three-layer plastic with engraved black letters on light contrasting background colour. Tag size minimum 40 mm (1-1/2 inch) diameter.	
2 Metal Tags: Brass with stamped letters; tag size minimum 40 mm (1-1/2 inch) diameter with smooth edges.	
3 Valve Tag Chart: Typewritten letter size list in anodized aluminum frame.	
2.4 STENCILS	
1 Stencils: With clean cut symbols and letters of following size:	
2 20-30 mm (3/4 to 1-1/4 inch) Outside Diameter of Insulation or Pipe: 200 mm (8 inch) long colour field, 13 mm (1/2 inch) high letters.	
3 40-50 mm (1-1/2 to 2 inch) Outside Diameter of Insulation or Pipe: 200 mm (8 inch) long colour field, 20 mm (3/4 inch) high letters.	
4 65-150 mm (2-1/2 to 6 inch) Outside Diameter of Insulation or Pipe: 300 mm (12 inch) long colour field, 30 mm (1-1/4 inch) high letters.	
2.5 PIPE MARKERS	
1 Plastic Pipe Markers: Factory fabricated, flexible, semi-rigid plastic, preformed to fit around pipe or pipe covering; minimum information indicating flow direction arrow and identification of fluid being conveyed.	

SECTION 230553 IDENTIFICATION FOR HVAC PIPING AND EQUIPMENT	
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1 Plastic Pipe Markers: Factory fabricated, flexible, semi-rigid plastic, preformed to fit around pipe or pipe covering; minimum information indicating flow direction arrow and identification of fluid being conveyed.	

END OF SECTION 230553

SECTION 230593 TESTING, ADJUSTING, AND BALANCING FOR HVAC	
PART 1 GENERAL	
1.1 SECTION INCLUDES	
1 TAB procedure for air distribution systems.	
2 Testing, adjustment, and balancing of hydronic and refrigerating systems.	
1.2 REFERENCE STANDARDS	
1 AABC (NSTSB) - AABC National Standards for Total System Balance, 7th Edition; 2016.	
2 ASHRAE Std 111 - Measurement, Testing, Adjusting, and Balancing of Building HVAC Systems; 2024.	
3 SMACNA (TAB) - HVAC Systems Testing, Adjusting, and Balancing; 2002.	
PART 2 PRODUCTS - Not Used	
PART 3 EXECUTION	
3.1 GENERAL REQUIREMENTS	
1 Perform total system balance in accordance with one of the following:	
2 AABC (NSTSB), AABC National Standards for Total System Balance.	
3 ASHRAE Std 111, Practices for Measurement, Testing, Adjusting and Balancing of Building Heating, Ventilation, Air-Conditioning, and Refrigeration Systems.	
4 SMACNA (TAB).	
2 Begin work after completion of systems to be tested, adjusted, or balanced and complete work prior to Substantial Performance of the project.	
3 Where HVAC systems and/or components interface with life safety systems, including fire and smoke detection, alarm, and control, coordinate scheduling and testing and inspection procedures with the authorities having jurisdiction.	
4 TAB Agency Qualifications:	
1 Company specializing in the testing, adjusting, and balancing of systems specified in this section.	
2 Having minimum of three years documented experience.	
3 Certified by one of the following:	
1 AABC, Associated Air Balance Council: www.aabc.com/aafe, upon completion submit AABC National Performance Guaranty.	
2 NEBB, National Environmental Balancing Bureau: www.nebb.org/ide.	
3 TABB, The Testing, Adjusting, and Balancing Board of National Energy Management Institute: www.tabbcertified.org/aafe.	
5 TAB Supervisor and Technician Qualifications: Certified by same organization as TAB agency.	
EXAMINATION	
1 Verify that systems are complete and operable before commencing work. Ensure the following conditions:	
2 Systems are started and operating in a safe and normal condition.	
3 Temperature control systems are installed complete and operable.	
4 Proper thermal overload protection is in place for electrical equipment.	
5 Final filters are clean and in place. If required, install temporary media in addition to final filters.	
6 Duct systems are clean of debris.	
7 Fans are rotating correctly.	
8 Fire and volume dampers are in place and open.	
9 Air coil fins are cleaned and combed.	
Access doors are closed and duct end caps are in place.	

Spec 3
3/16" = 1'-0"

10 Air outlets are installed and connected.	
11 Duct system leakage is minimized.	
12 Hydronic systems are flushed, filled, and vented.	
13 Pumps are rotating correctly.	
14 Proper strainer baskets are clean and in place.	
15 Service and balance valves are open.	
2 Submit site reports. Report defects and deficiencies that will or could prevent proper system balance.	
3 Beginning of work means acceptance of existing conditions.	
ADJUSTMENT TOLERANCES	
1 Air Handling Systems: Adjust to within plus or minus 5 percent of design for supply systems and plus or minus 10 percent of design for return and exhaust systems.	
2 Air Outlets and Inlets: Adjust total to within plus 10 percent and minus 5 percent of design to space. Adjust outlets and inlets in space to within plus or minus 10 percent of design.	
3 Hydronic Systems: Adjust to within plus or minus 10 percent of design.	
TAB PROCEDURE FOR AIR DISTRIBUTION SYSTEMS	
1 Adjust air handling and distribution systems to provide required or design supply, return, and exhaust air quantities at site altitude.	
2 Make air quantity measurements in ducts by Pitot tube traverse of entire cross sectional area of duct.	
3 Measure air quantities at air inlets and outlets.	
4 Adjust distribution system to obtain uniform space temperatures free from objectionable drafts and noise.	
5 Use volume control devices to regulate air quantities only to extend that adjustments do not create objectionable air motion or sound levels. Effect volume control by duct internal devices such as dampers and splitters.	
6 Vary total system air quantities by adjustment of fan speeds. Provide drive changes required. Vary branch air quantities by damper regulation.	
7 Provide system schematic with required and actual air quantities recorded at each outlet or inlet.	
8 Measure static air pressure conditions on air supply units, including filter and coil pressure drops, and total pressure across the fan. Make allowances for 50 percent loading of filters.	
9 Adjust outside air automatic dampers, outside air, return air, and exhaust dampers for design conditions.	
10 Measure temperature conditions across outside air, return air, and exhaust dampers to check leakage.	
TAB PROCEDURE FOR WATER DISTRIBUTION SYSTEMS	
1 Adjust water systems to provide required or design quantities.	
2 Use calibrated Venturi tubes, orifices, or other metered fittings and pressure gauges to determine flow rates for system balance. Where flow metering devices are not installed, base flow balance on temperature difference across various heat transfer elements in the system.	
3 Adjust systems to provide specified pressure drops and flows through heat transfer elements prior to thermal testing. Perform balancing by measurement of temperature differential in conjunction with air balancing.	
4 Effect system balance with automatic control valves fully open to heat transfer elements.	
5 Effect adjustment of water distribution systems by means of balancing coils, valves, and fittings. Do not use service or shut-off valves for balancing unless indexed for balance point.	
6 Where available pump capacity is less than total flow requirements or individual system parts, full flow in one part may be simulated by temporary restriction of flow to other parts.	
END OF SECTION 230593	

SECTION 230713 DUCT INSULATION	
PART 1 GENERAL	
1.1 SECTION INCLUDES	
1 Duct insulation.	
2 Duct liner.	
3 Insulation jackets.	
1.2 REFERENCE STANDARDS	
1 ASTM C518 - Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus; 2021.	
2 ASTM C553 - Standard Specification for Mineral Fiber Blanket Thermal Insulation for Commercial and Industrial Applications; 2013 (Reapproved 2019).	
3 ASTM C612 - Standard Specification for Mineral Fiber Insulation and Board Thermal Insulation; 2014 (Reapproved 2019).	
4 ASTM C916 - Standard Specification for Adhesives for Duct Thermal Insulation; 2020.	
5 ASTM C1071 - Standard Specification for Fibrous Glass Duct Lining Insulation (Thermal and Sound Absorbing Material); 2019.	
6 ASTM E96/E96M - Standard Practice for Gravimetric Determination of Water Vapor Transmission of Materials; 2022.	
7 ASTM G21 - Standard Practice for Determining Resistance of Synthetic Polymeric Materials to Fungi; 2015, with Editorial Revision (2021).	
8 CAN/ULC S102 - Method of Testing for Surface Burning Characteristics of Building Materials and Assemblies; 2018.	
9 CAN/ULC S702.1 - Standard for Mineral Fiber Thermal Insulation for Buildings, Part 1: Material Specification; 2021.	
10 SMACNA (DCS) - HVAC Duct Construction Standards Metal and Flexible; 2005 (Revised 2009).	
11 TLAC - Best Practices Guide; Current.	
12 UL 723 - Standard for Test for Surface Burning Characteristics of Building Materials; Current Edition, Including All Revisions.	
1.3 QUALITY ASSURANCE	
1 Applicator Qualifications: Company specializing in performing the type of work specified in this section, documented experience.	
PART 2 PRODUCTS	
2.1 REGULATORY REQUIREMENTS	
1 Surface Burning Characteristics: Flame spread index/Smoke developed index of 25/50, maximum, when tested in accordance with CAN/ULC S102 or UL 723.	
2 Comply with TLAC Mechanical Insulation Best Practices Guide and CAN/ULC S702.1.	
2.2 GLASS FIBRE, FLEXIBLE	
1 Insulation: ASTM C553, flexible, noncombustible blanket.	
2 Ksi (K) Value: 0.052 at 24 degrees C (0.36 at 75 degrees F), when tested in accordance with ASTM C518.	
3 Maximum Service Temperature: 649 degrees C (1200 degrees F).	
4 Maximum Water Vapor Absorption: 5.0 percent by weight.	
2 Vapor Barrier Jacket:	
1 Kraft paper with glass fibre yarn and bonded to aluminized film.	
2 Moisture Vapor Permeability: 0.029 ng/Pa s m (0.02 perm inch), when tested in accordance with ASTM E96/E96M.	
3 Secure with pressure sensitive tape.	
4 Vapor Barrier Tape:	
1 Kraft paper reinforced with glass fibre yarn and bonded to aluminized film, with pressure sensitive rubber based adhesive.	
2.3 GLASS FIBRE, RIGID	
1 Insulation: ASTM C612, rigid, noncombustible blanket.	
2 Ksi (K) Value: 0.035 at 24 degrees C (0.24 at 75 degrees F), when tested in accordance with ASTM C518.	
3 Maximum Service Temperature: 232 degrees C (450 degrees F).	
4 Maximum Water Vapor Absorption: 5.0 percent.	
5 Maximum Density: 128 kg/cu m (8.0 lb/cu ft).	
2 Vapor Barrier Jacket:	
1 Kraft paper with glass fibre yarn and bonded to aluminized film.	
2 Moisture Vapor Permeability: 0.029 ng/Pa s m (0.02 perm inch), when tested in accordance with ASTM E96/E96M.	
3 Secure with pressure sensitive tape.	
4 Vapor Barrier Tape:	
1 Kraft paper reinforced with glass fibre yarn and bonded to aluminized film, with pressure sensitive rubber based adhesive.	
2.4 DUCT LINER	
1 Glass Fibre Insulation: Non-corrosive, incombustible glass fibre complying with ASTM C1071; flexible blanket, rigid board, and preformed round liner board; impregnated surface and edges coated with poly vinyl acetate polymer, acrylic polymer, or black composite.	
2 Fungal Resistance: No growth when tested according to ASTM G21.	
3 Apparent Thermal Conductivity: Maximum of 0.045 at 24 degrees C (0.31 at 75 degrees F).	
4 Service Temperature: Up to 121 degrees C (250 degrees F).	
5 Rated Velocity on Coated Air Side for Air Erosion: 25.4 m/s (5,000 fpm), minimum.	
6 Minimum Noise Reduction Coefficient:	
1 13 mm (1/2 inch) Thickness: 0.30.	
2 25 mm (1 inch) Thickness: 0.45.	
2 Adhesive: Waterproof, fire-retardant type, ASTM C916.	
PART 3 EXECUTION	
3.1 EXAMINATION	
1 Verify that ducts have been tested before applying insulation materials.	
2 Verify that surfaces are clean, foreign material removed, and dry.	
3.2 INSTALLATION	
1 Install in accordance with manufacturer's instructions.	
2 Install in accordance with TLAC guidelines.	
3 Insulated ducts conveying air below ambient temperature:	
1 Provide insulation with vapour barrier jackets.	
2 Finish with tape and vapour barrier jacket.	
3 Continue insulation through walls, sleeves, hangers, and other duct penetrations.	
4 Insulate entire system including fittings, joints, flanges, fire dampers, flexible connections, and expansion joints.	
5 Insulated ducts conveying air above ambient temperature:	
1 Provide with or without standard vapour barrier jacket.	
2 Insulate fittings and joints. Where service access is required, bevel and seal ends of insulation.	
3 Ducts Exposed in Mechanical Equipment Rooms or Finished Spaces (below 3 meters above finished floor) (below 10 feet above finished floor): Finish with canvas jacket sized for finish painting.	
4 External Duct Insulation Application:	
1 Secure insulation with vapour barrier with wires and seal jacket joints with vapour barrier adhesive or tape to match jacket.	
2 Secure insulation without vapour barrier with staples, tape, or wires.	
3 Install without sag on underside of duct. Use adhesive or mechanical fasteners where necessary to prevent sagging. Lift duct off trapeze hangers and insert spacers.	
4 Seal vapour barrier penetrations by mechanical fasteners with vapour barrier adhesive.	
5 Stop and point insulation around access doors and damper operators to allow operation without disturbing wrapping.	

SECTION 230713 DUCT INSULATION	
PART 1 GENERAL	
1.1 SECTION INCLUDES	
1 Duct insulation.	
2 Duct liner.	
3 Insulation jackets.	
1.2 REFERENCE STANDARDS	
1 ASTM C518 - Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus; 2021.	
2 ASTM C553 - Standard Specification for Mineral Fiber Blanket Thermal Insulation for Commercial and Industrial Applications; 2013 (Reapproved 2019).	
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7 ASTM G21 - Standard Practice for Determining Resistance of Synthetic Polymeric Materials to Fungi; 2015, with Editorial Revision (2021).	
8 CAN/ULC S102 - Method of Testing for Surface Burning Characteristics of Building Materials and Assemblies; 2018.	
9 CAN/ULC S702.1 - Standard for Mineral Fiber Thermal Insulation for Buildings, Part 1: Material Specification; 2021.	
10 SMACNA (DCS) - HVAC Duct Construction Standards Metal and Flexible; 2005 (Revised 2009).	
11 TLAC - Best Practices Guide; Current.	
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1.3 QUALITY ASSURANCE	
1 Applicator Qualifications: Company specializing in performing the type of work specified in this section, documented experience.	
PART 2 PRODUCTS	
2.1 REGULATORY REQUIREMENTS	
1 Surface Burning Characteristics: Flame spread index/Smoke developed index of 25/50, maximum, when tested in accordance with CAN/ULC S102 or UL 723.	
2 Comply with TLAC Mechanical Insulation Best Practices Guide and CAN/ULC S702.1.	
2.2 GLASS FIBRE, FLEXIBLE	
1 Insulation: ASTM C553, flexible, noncombustible blanket.	
2 Ksi (K) Value: 0.052 at 24 degrees C (0.36 at 75 degrees F), when tested in accordance with ASTM C518.	
3 Maximum Service Temperature: 649 degrees C (1200 degrees F).	
4 Maximum Water Vapor Absorption: 5.0 percent by weight.	
2 Vapor Barrier Jacket:	
1 Kraft paper with glass fibre yarn and bonded to aluminized film.	
2 Moisture Vapor Permeability: 0.029 ng/Pa s m (0.02 perm inch), when tested in accordance with ASTM E96/E96M.	
3 Secure with pressure sensitive tape.	
4 Vapor Barrier Tape:	
1 Kraft paper reinforced with glass fibre yarn and bonded to aluminized film, with pressure sensitive rubber based adhesive.	
2.3 GLASS FIBRE, RIGID	
1 Insulation: ASTM C612, rigid, noncombustible blanket.	
2 Ksi (K) Value: 0.052 at 24 degrees C (0.36 at 75 degrees F), when tested in accordance with ASTM C518.	
3 Maximum Service Temperature: 649 degrees C (1200 degrees F).	
4 Maximum Water Vapor Absorption: 5.0 percent by weight.	
2 Vapor Barrier Jacket:	
1 Kraft paper with glass fibre yarn and bonded to aluminized film.	
2 Moisture Vapor Permeability: 0.029 ng/Pa s m (0.02 perm inch), when tested in accordance with ASTM E96/E96M.	
3 Secure with pressure sensitive tape.	
4 Vapor Barrier Tape:	
1 Kraft paper reinforced with glass fibre yarn and bonded to aluminized film, with pressure sensitive rubber based adhesive.	

[illegible]

Spec 4
1/8" = 1'-0"

General Notes

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Drawings are scaled for Arch D - 24x36

Designer Seal

P. Eng Seal (If Required)

P. Eng Contact Info (If Required)

Revision Schedule

Revision Number	Revision Description	Revision Date
1	Issued for Coordination	May 15, 2025
2	Updated for Coordination	June 1, 2025
3	WIP	June 1, 2025



Delta-T Design Inc.

16 Winstar Rd Unit 4

Oro-Medonte, Ontario

L0L 2L0

705.791.9000

niss@deltatdesigns.ca

Client Name

TBD

Project Number

2025-12

Project Name & Address

Barrie Single Dedicated Accessory Dwelling Unit

Barrie, Ontario

Sheet Name

Specifications

Drawn By

Aut

Reviewed By

Chen

Sheet Number

M003

4	Louvers:	2	Provide refrigerant lines internal to units and between indoor and outdoor units, factory cleaned, dried, pressurized and sealed, with insulated suction line.
5	1 Combination louvers.	2	Performance Requirements: See Drawings for additional requirements.
1.2	Goose necks.	3	Electrical Characteristics:
1	RELATED REQUIREMENTS	1	Disconnect Switch: Field installed weatherproof disconnect.
1	Section 099123 - Interior Painting: Painting of ducts visible behind outlets and inlets.	INDOOR AIR HANDLING UNITS FOR DUCTLESS SYSTEMS	
1.3	REFERENCE STANDARDS	1	Indoor Units: Self-contained, packaged, factory assembled, pre-wired unit consisting of cabinet, supply fan, evaporator coil, and controls; wired for single power connection with control transformer.
1	SMACNA (ASMM) - Architectural Sheet Metal Manual; 2012.	1	1 Location: High-wall.
2	SMACNA (DCS) - HVAC Duct Construction Standards Metal and Flexible; 2005 (Revised 2009).	2	2 Filter return air with washable, antioxidant pre-filter and a pleated anti-allergy enzyme filter.
1.4	SUBMITTALS	2	Evaporator Coils: Copper tube aluminum fin assembly, galvanized or polymer drain pan sloped in all directions to drain, drain connection, refrigerant piping connections, restricted distributor or thermostatic expansion valve.
1	See Section 013000 - Administrative Requirements for submittal procedures.	1	1 Construction and Ratings: In accordance with AHRI 210/240 and UL 207.
2	Product Data: Provide data for equipment required for this project. Review outlets and inlets as to size, finish, and type of mounting prior to submission. Submit schedule of outlets and inlets showing type, size, location, application, and noise level.	2	2 Manufacturer: System manufacturer.
PART 2 PRODUCTS		3	Remote Actuators:
2.1	CEILING SUPPLY REGISTERS/GRILLES	2.3	OUTDOOR UNITS
1	Type: Streamlined and individually adjustable curved blades to discharge air along face of grille, two-way deflection.	1	Outdoor Units: Self-contained, packaged, pre-wired unit consisting of cabinet, with compressor and condenser.
2	Frame: 32 mm (1-1/4 inch) margin with countersunk screw mounting and gasket.	1	1 Comply with AHRI 210/240.
3	Construction: Made of aluminum extrusions with factory enamel finish.	2	2 Cabinet: Galvanized steel with baked enamel finish, easily removed and secured access doors with safety interlock switches, glass fiber insulation with reflective liner.
4	Color: As indicated.	3	3 Construction and Ratings: In accordance with AHRI 210/240 with testing in accordance with ASHRAE Std 23.1 and UL 207.
5	Damper: Integral, gang-operated, opposed blade type with removable key operator, operable from face.	2	2 Air Cooled Condenser: Aluminum fin and copper tube coil, AHRI 520 with direct drive axial propeller fan resiliently mounted, galvanized fan guard.
2.2	CEILING EXHAUST AND RETURN REGISTERS/GRILLES	3	3 Accessories: Filter drier, high pressure switch (manual reset), low pressure switch (automatic reset), service valves and gauge ports, thermometer well (in liquid line).
1	Type: Streamlined blades, 19 mm (3/4 inch) minimum depth, 19 mm (3/4 inch) maximum spacing, with blades set at 45 degrees, vertical face.	1	1 Provide thermostatic expansion valves.
2	Frame: 32 mm (1-1/4 inch) margin with countersunk screw mounting.	WALL SUPPLY REGISTERS/GRILLES	
3	Fabrication: Steel with 20 gauge, 0.91 mm (20 gauge, 0.0359 inch) minimum frames and 22 gauge, 0.76 mm (22 gauge, 0.0299 inch) minimum blades, steel and aluminum with 20 gauge, 0.91 mm (20 gauge, 0.0359 inch) minimum frame, or aluminum extrusions, with factory baked enamel finish.	1	1 Control by room thermostat to maintain room temperature setting.
4	Color: As indicated.	2	2 Low Ambient Kit: Provide refrigerant pressure switch to cycle condenser fan on when condenser refrigerant pressure is above 1965 kPa (285 psig) and off when pressure drops below 965 kPa (140 psig) for operation to minus 18 degrees C (0 degrees F).
5	Damper: Integral, gang-operated opposed blade type with removable key operator, operable from face.	2.4	ACCESSORY EQUIPMENT
2.4	WALL EXHAUST AND RETURN REGISTERS/GRILLES	1	1 Room Thermostat: Wall-mounted, electric solid state microcomputer based room thermostat with remote sensor to maintain temperature setting; low-voltage, with following features:
1	Type: Streamlined blades, 19 mm (3/4 inch) minimum depth, 19 mm (3/4 inch) maximum spacing, with spring or other device to set blades, vertical face.	1	1 System selector switch (heat-off-cool) and fan control switch (auto-on).
2	Fabrication: Steel frames and blades, with factory baked enamel finish.	2	2 Automatic switching from heating to cooling.
3	Color: As indicated on the Drawings.	3	3 Preferential rate control to minimize overshoot and deviation from setpoint.
2.5	FLOOR SUPPLY REGISTERS/GRILLES	4	4 Short cycle protection.
1	Individually adjustable blades, wide stamped border, single or double blade damper with set screw adjustment.	5	5 Programming based on weekdays, Saturday and Sunday.
2.6	DOOR GRILLES	6	6 Selection features including degree F or degree C display, 12 or 24 hour clock, keyboard disable, remote sensor, fan on-auto.
1	Type: V-shaped louvers of 20 gauge, 0.91 mm (20 gauge, 0.0359 inch) thick steel, 25 mm (1 inch) deep on 13 mm (1/2 inch) centers.	7	7 Battery replacement without program loss.
2	Frame: 20 gauge, 0.91 mm (20 gauge, 0.0359 inch) steel with auxiliary frame to give finished appearance on both sides of door, with factory prime coat finish.	8	8 Thermostat Display:
3	Fabrication: 16 gauge, 0.0598 inch (1.52 mm) thick galvanized steel thick galvanized steel welded assembly, with factory prime coat finish.	1	1 Time of day.
2.7	GOOSENECKS	2	2 Actual room temperature.
1	Type: 100 mm (4 inch) deep frame with adjustable, corrosive resistant blades blades on 45-degree slope with center baffle and return bend, heavy channel frame, 13 mm (1/2 inch) square mesh screen over intake or exhaust end.	3	3 Programmed temperature.
2	Fabrication: 16 gauge, 0.0598 inch (1.52 mm) thick galvanized steel thick galvanized steel welded assembly, with factory prime coat finish.	4	4 Programmed time.
2.8	GOOSENECKS	5	5 Day of week.
1	Fabricate in accordance with SMACNA (DCS) of minimum 18 gauge, 1.21 mm (18 gauge, 0.0598 inch) galvanized steel.	6	6 System Mode Indication: Heating, Cooling, Fan Auto, Off, and On, Auto or On, Off.
2	Mount on minimum 300 mm (12 inch) high curb base where size exceeds 230 mm by 230 mm (9 inch by 9 inch).	PART 3 EXECUTION	
PART 3 EXECUTION		3.1	EXAMINATION
3.1	INSTALLATION	1	1 Verify that substrates are ready for installation of units and openings are as indicated on Shop Drawings.
1	Install in accordance with manufacturer's instructions.	2	2 Verify that proper power supply is available and in correct location.
2	Comply with SMACNA (ASMM) for flashing/counter-flashing of roof penetrations and supports for roof curbs and roof mounted equipment.	3	3 Verify that proper fuel supply is available for connection.
3	Check location of outlets and inlets and make necessary adjustments in position to comply with architectural features, symmetry, and lighting arrangement.	3.2	INSTALLATION
4	Install diffusers to ductwork with air tight connection.	1	1 Install in accordance with manufacturer's instructions and requirements of local authorities having jurisdiction.
5	Provide balancing dampers on duct take-off to diffusers, and grilles and registers, despite whether dampers are specified as part of the diffuser, or grille and register assembly.	2	2 Install in accordance with NFPA 90A and NFPA 90B.
6	Paint ductwork visible behind air outlets and inlets matte black. Refer to Section 099123.	3	3 Install refrigeration systems in accordance with CSA B52 and ASHRAE Std 15.
END OF SECTION 233700		END OF SECTION 238126.13	

SECTION 237223	
PACKAGED AIR TO-AIR ENERGY RECOVERY UNITS	
PART 1 GENERAL	
SECTION INCLUDES	
1.1	1 Energy recovery units.
2	2 Filters.
3	3 Vibration isolation.
4	4 Accessories.
1.2	WARRANTY
1	1 See Section 017800 - Closeout Submittals for additional warranty requirements.
PART 2 PRODUCTS	
ENERGY RECOVERY UNITS	
2.1	1 Energy Recovery Units for Spot Ventilation or Whole House Ventilation: Prefabricated packaged system designed by manufacturer with exchange capillary core.
1	1 Access: Hinged and/or screwed access panels on front.
2	2 Suspension brackets at the unit base.
3	3 Framing: Galvanized steel body.
4	4 Provide a ceiling grille or access panel.
5	5 Provide with MERV 15 filters on supply and exhaust air ducts.
6	6 Provide exterior wall cap.
7	7 Permanent name plate listing manufacturer mounted inside door near electrical panel.
2.2	ACCESSORIES
1	1 Remote Indicating Panel: Provide remote indication of status of unit power on, wheel rotation alarm, outside air dirty filter and return air dirty filter.
PART 3 EXECUTION	
EXAMINATION	
3.1	1 Verify that structure is ready for installation of unit, that openings in deck for ductwork, if required, are correctly sized and located, and that mechanical and electrical utilities supplying unit are of correct capacities and are accessible.
INSTALLATION	
3.2	1 Provide openings for suitable ductwork connection.
SYSTEM STARTUP	
3.3	1 Provide services of manufacturer's authorized representative to provide start up of unit.
CLEANING	
3.4	1 Clean filters, air plenums, interior and exposed-to-view surfaces prior to Substantial Performance.
END OF SECTION 237223	

SECTION 238126.13	
SMALL-CAPACITY SPLIT-SYSTEM AIR CONDITIONERS	
PART 1 GENERAL	
SECTION INCLUDES	
1.1	1 Air-source heat pumps.
2	2 Air-cooled condensing units.
3	3 Indoor air handling (fan and coil) unit for ductless systems.
4	4 Controls.
1.2	RELATED REQUIREMENTS
1	1 Section 260583 - Wiring Connections: Electrical characteristics and wiring connections and installation and wiring of thermostats and other controls components.
1.3	REFERENCE STANDARDS
1	1 AHRI 210/240 - Standard for Performance Rating of Unitary Air-Conditioning and Air-Source Heat Pump Equipment; 2008, Including All Addenda.
2	2 AHRI 520 - Performance Rating of Positive Displacement Condensing Units; 2004.
3	3 ASHRAE Std 15 - Safety Standard for Refrigeration Systems; 2013.
4	4 ASHRAE Std 23.1 - Methods of Testing for Rating the Performance of Positive Displacement Refrigerant Compressors and Condensing Units that Operate at Subcritical Temperatures of the Refrigerant; 2010.
5	5 CSA B52 - Mechanical Refrigeration Code; 2018.
6	6 NFPA 90A - Standard for the Installation of Air-Conditioning and Ventilating Systems; 2018.
7	7 NFPA 90B - Standard for the Installation of Warm Air Heating and Air-Conditioning Systems; 2018.
8	8 UL 207 - Standard for Refrigerant-Containing Components and Accessories, Nonelectrical; Current Edition, Including All Revisions.
1.4	SUBMITTALS
1	1 See Section 013000 - Administrative Requirements for submittal procedures.
2	2 Product Data: Provide rated capacities, weights, accessories, electrical nameplate data, and wiring diagrams.
3	3 Shop Drawings: Indicate assembly, required clearances, and location and size of field connections.
4	4 Design Data: Indicate refrigerant pipe sizing.
PART 2 PRODUCTS	
SYSTEM DESIGN	
2.1	1 Split-System Heating and Cooling Units: Self-contained, packaged, matched factory-engineered and assembled, pre-wired indoor and outdoor units; UL listed.
1	1 Heating and Cooling: Air-source electric heat pump located in outdoor unit with evaporator; auxiliary electric heat.

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Drawings are scaled for Arch D - 24x36	
1	
Designer Seal	P.Eng Seal (If Required)
P.Eng Contact Info (If Required)	

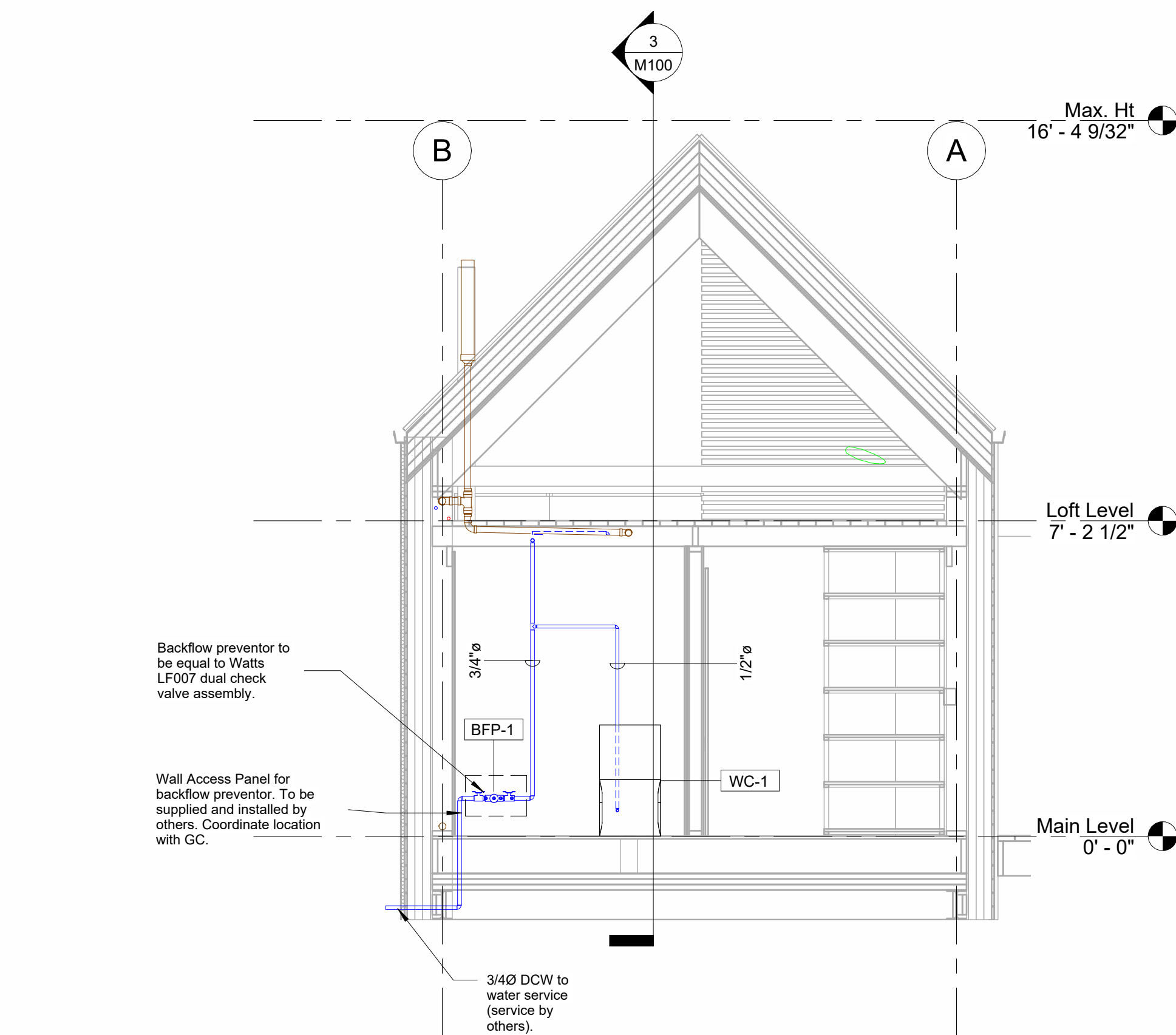
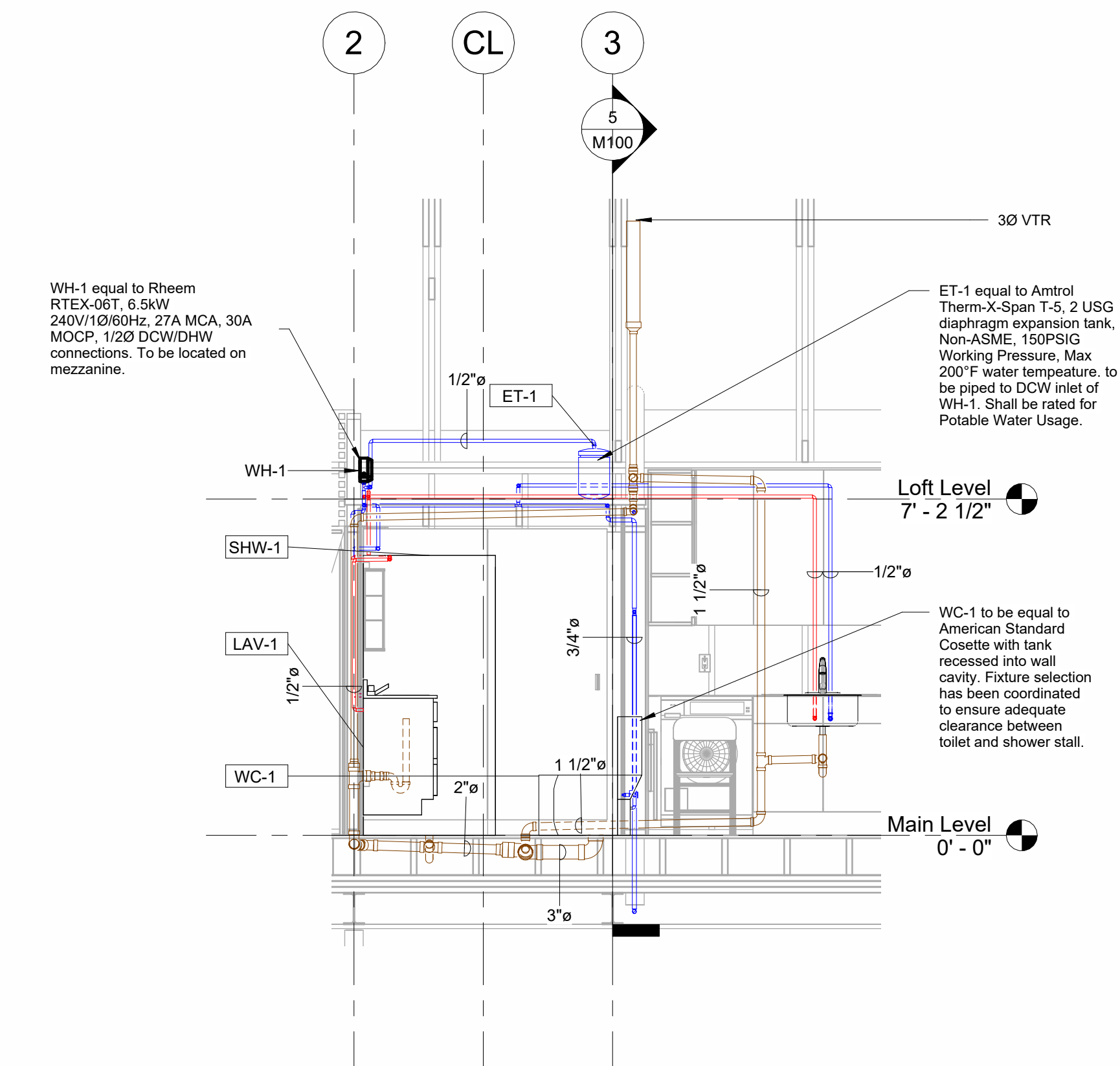
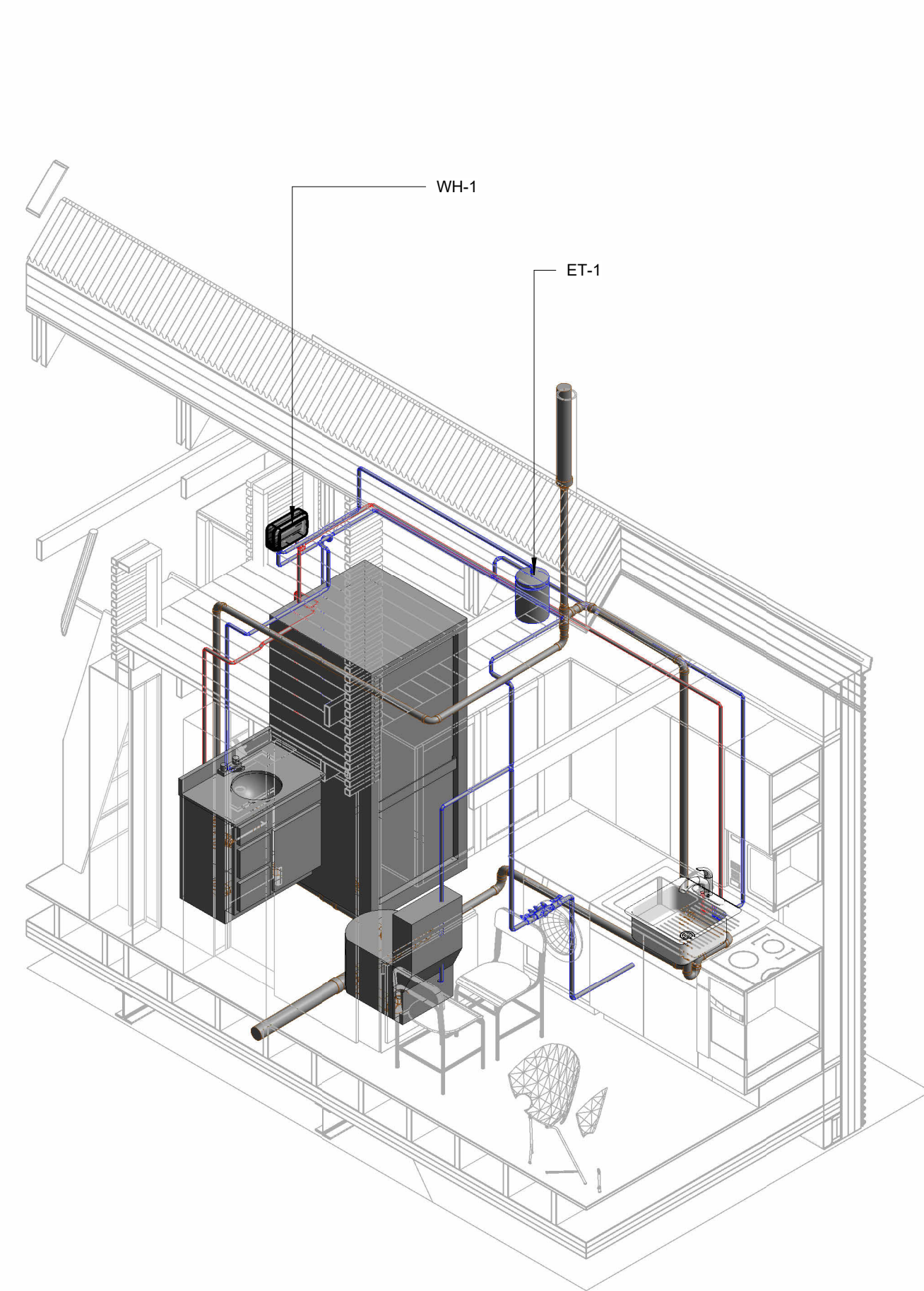
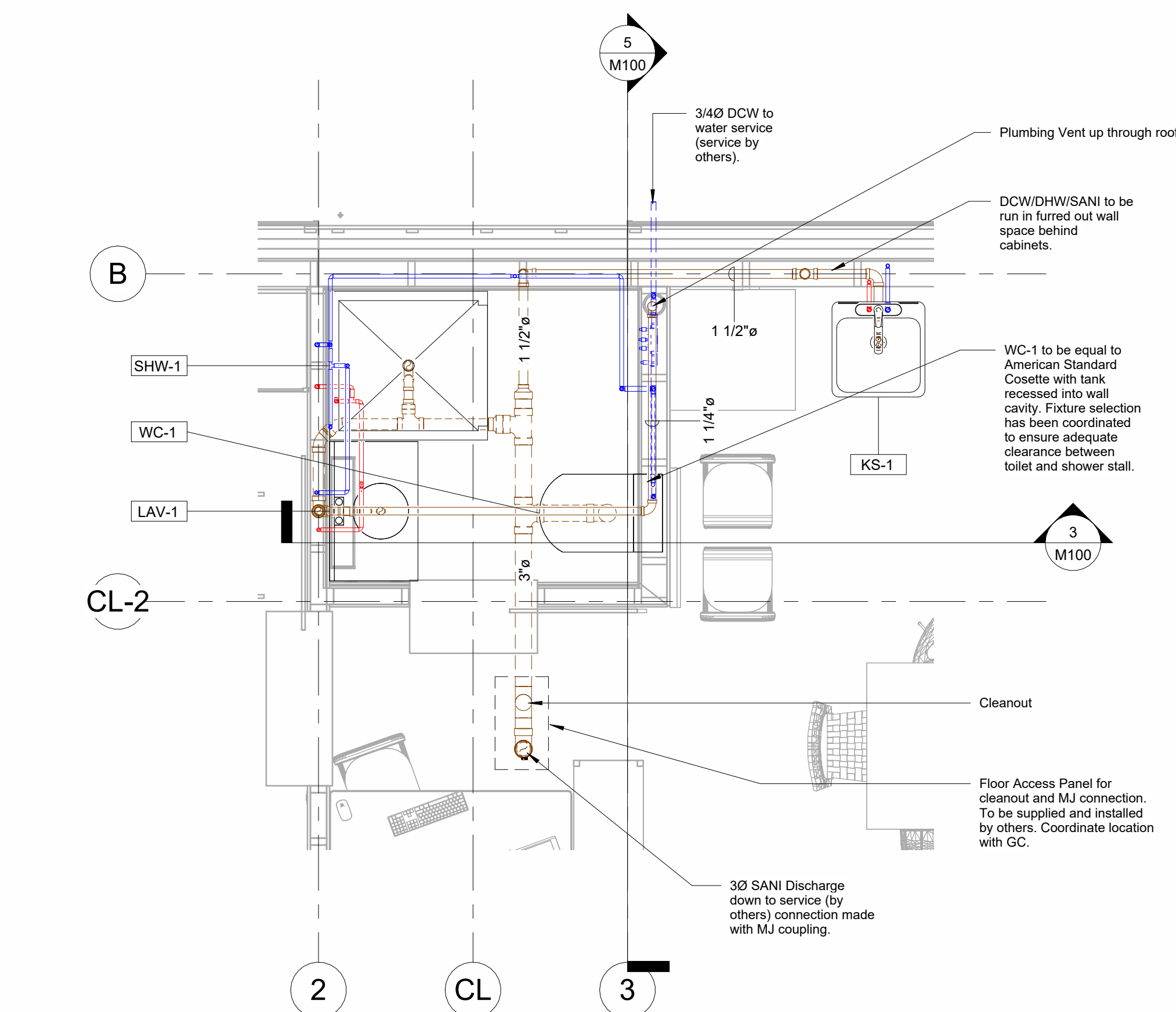
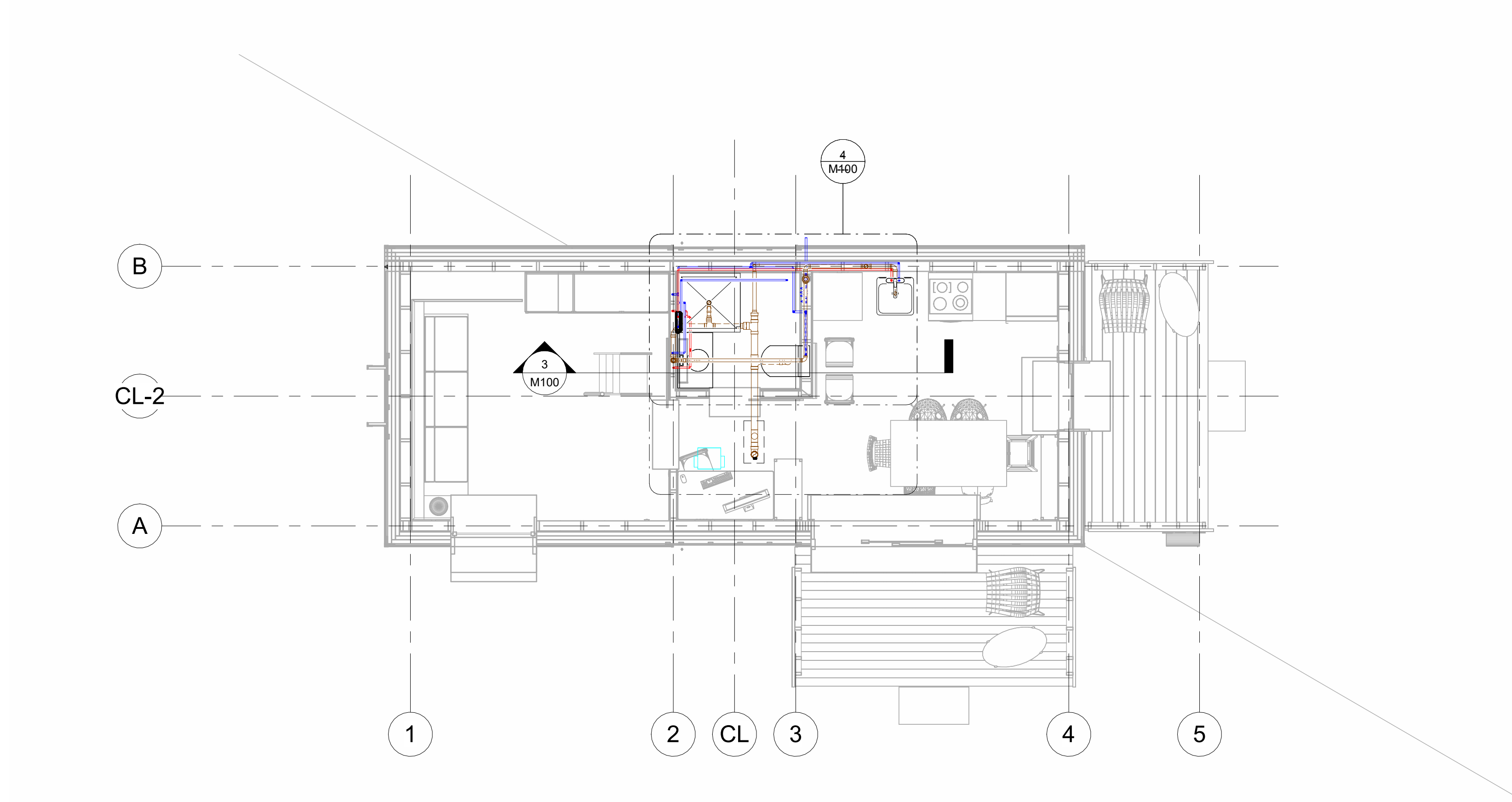
Revision Schedule		
Revision Number	Revision Description	Revis Dat
1	Issued for Coordination	May 15 2025
2	Updated for Coordination	June 1 2025
3	WIP	June 1 2025



Delta-T Designs Inc.
16 Winstar Rd Unit 4
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705.791.9000
niss@deltatdesigns.ca

Client Name	TBD
Project Number	2025-12
Project Name & Address	Barrie Single Dedicated Accessory Dwelling Unit Barrie, Ontario
Sheet Name	Specifications
Drawn By	Al
Reviewed By	Che
Sheet Number	M004



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miss@deltatdesigns.ca

Client Name _____

TBD

Project Number

2025-12

Project Name & Address

Barrie Single Dedicated Accessory Dwelling Unit

Barrie, Ontario

Sheet Name

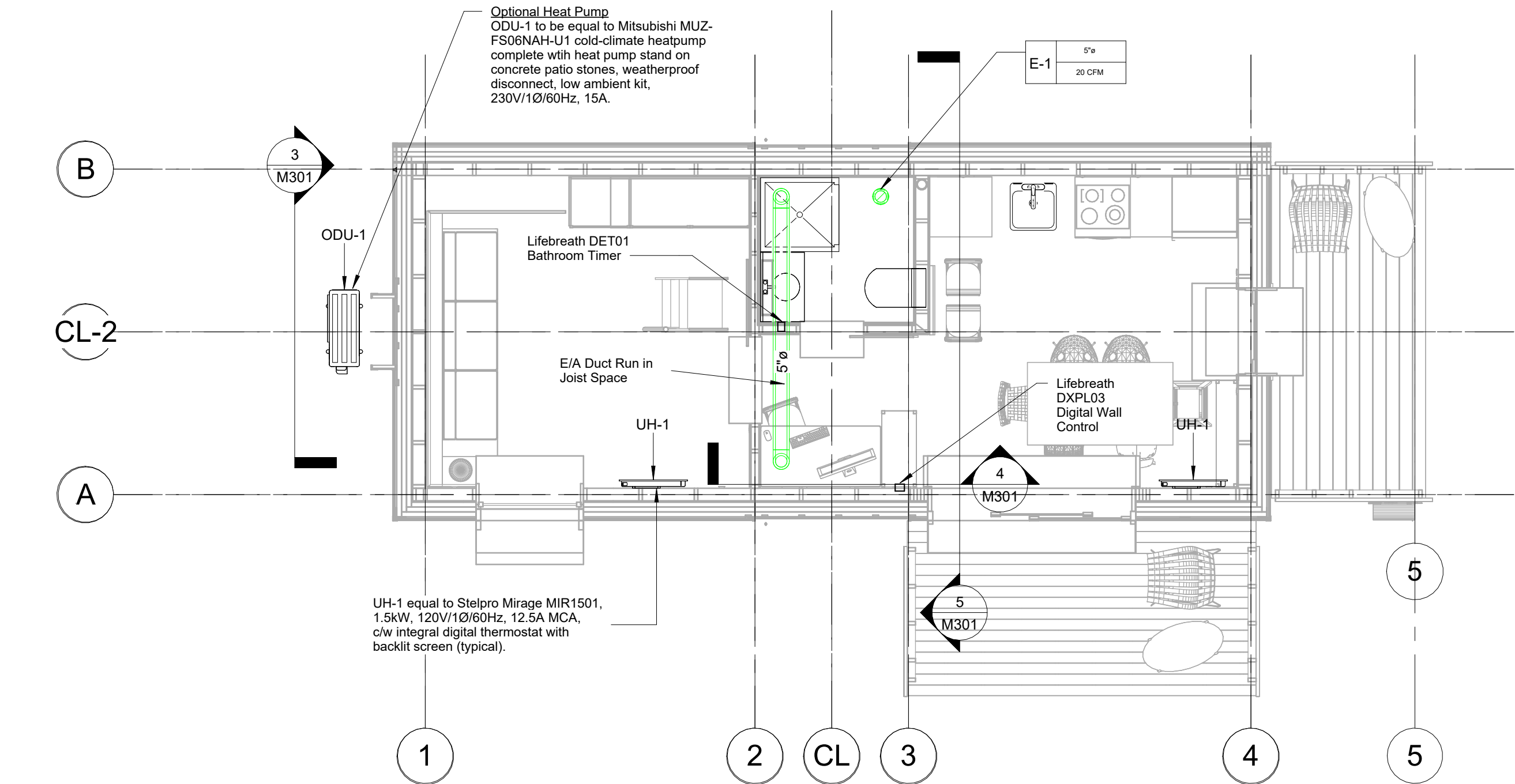
Plumbing Drawings

Drawn By _____

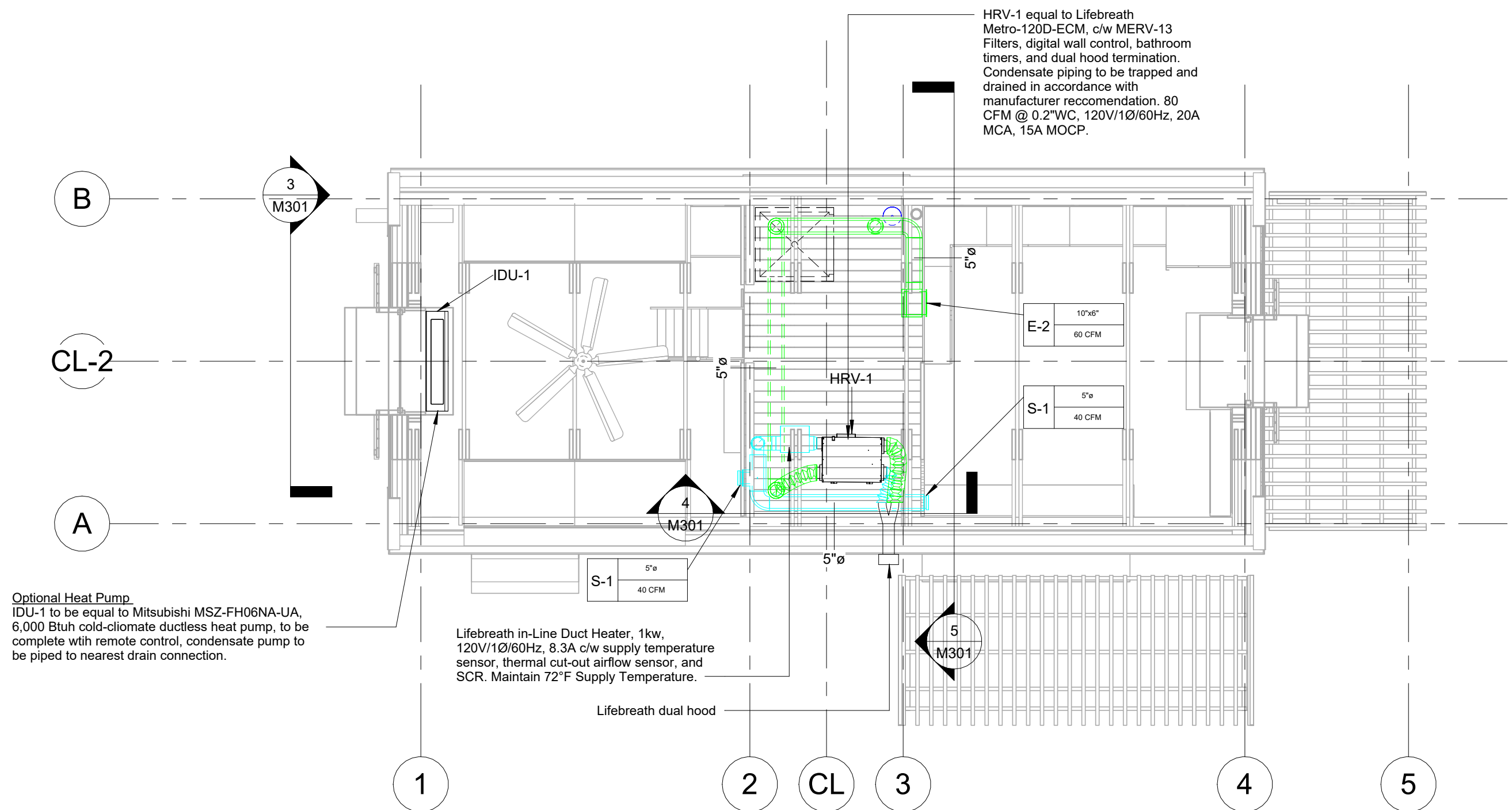
Reviewed By

Sheet Number

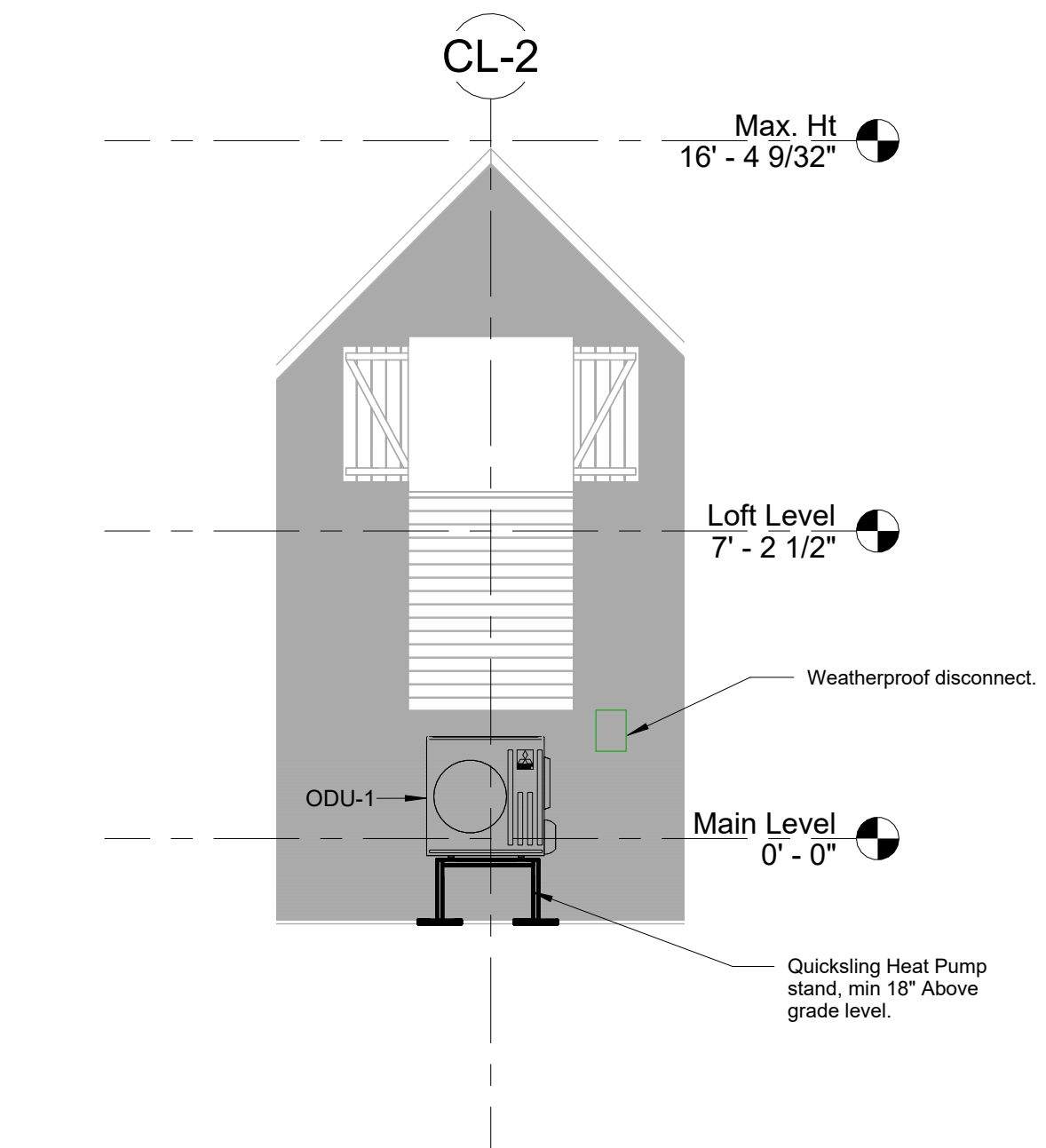
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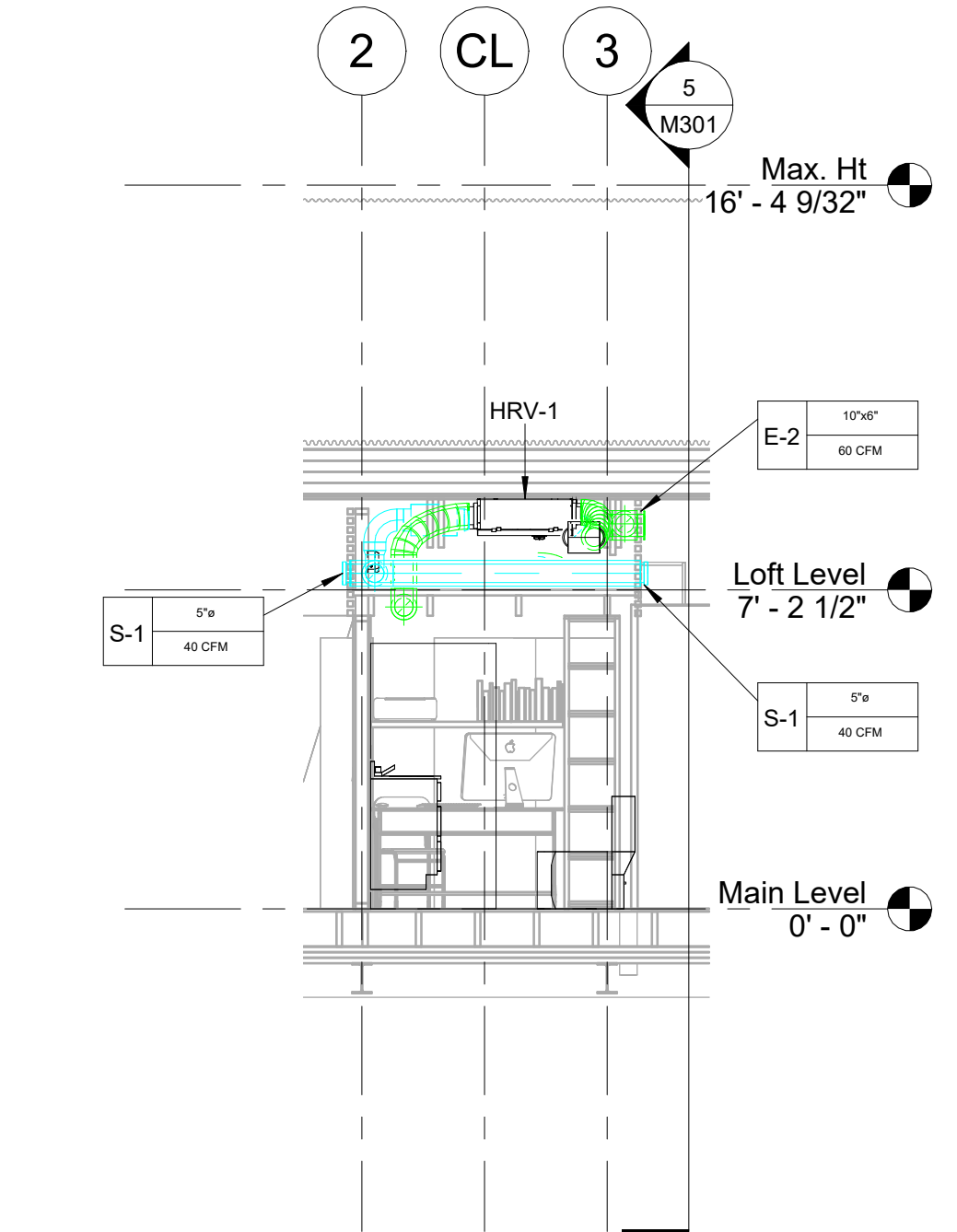
① HVAC Main Level
1/4" = 1'-0"



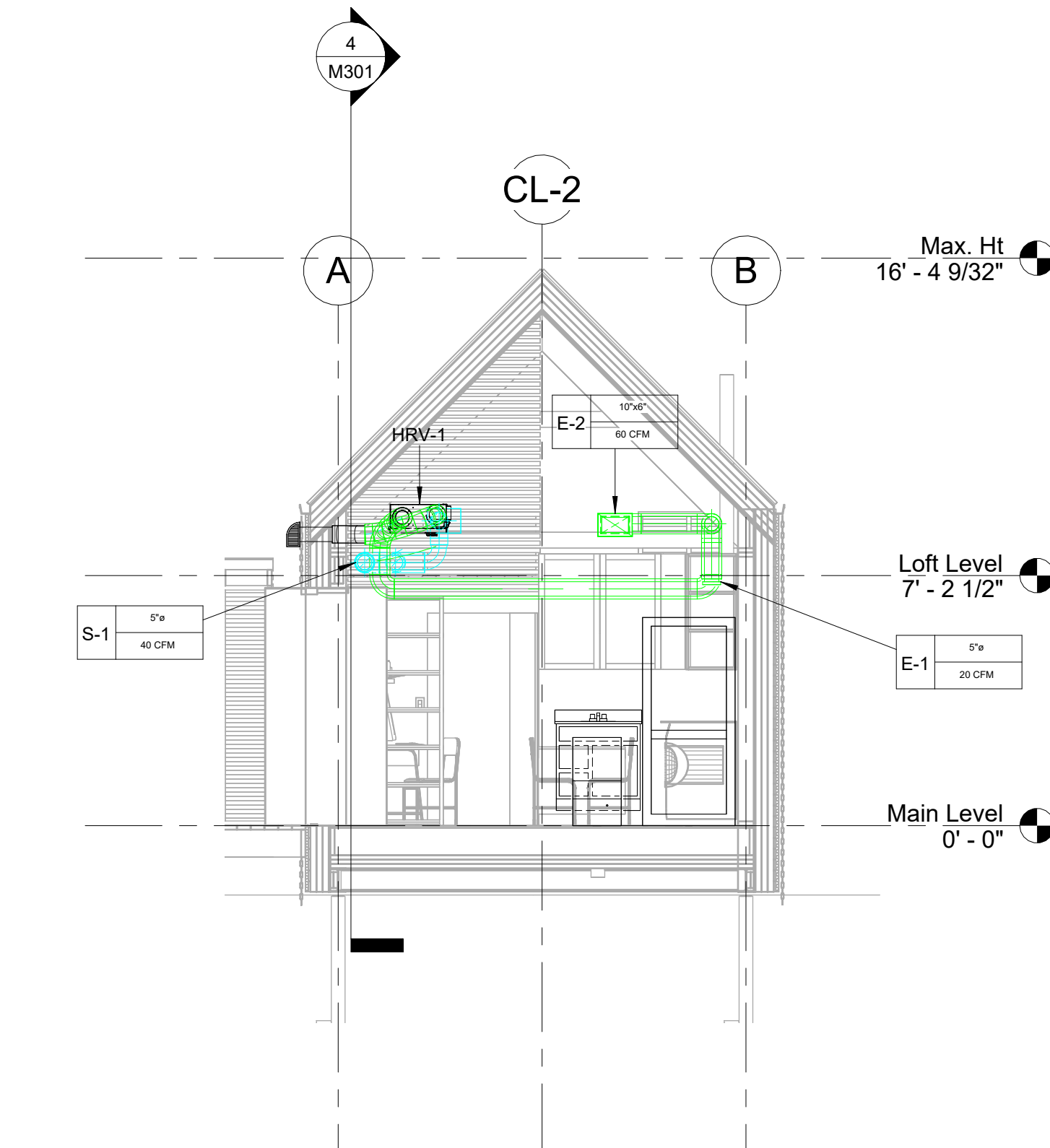
② Loft Level
1/4" = 1'-0"



③ Section 1
1/4" = 1'-0"



④ Section 2
1/4" = 1'-0"



⑤ Section 3
1/4" = 1'-0"

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P.Eng Seal (If Required)

P.Eng Contact Info (If Required)

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Delta-T Designs Inc.

16 Winstar Rd Unit 4

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niss@deltatdesigns.ca

Client Name

TBD

Project Number

2025-12

Project Name & Address

Barrie Single Dedicated Accessory Dwelling Unit

Barrie, Ontario

Sheet Name

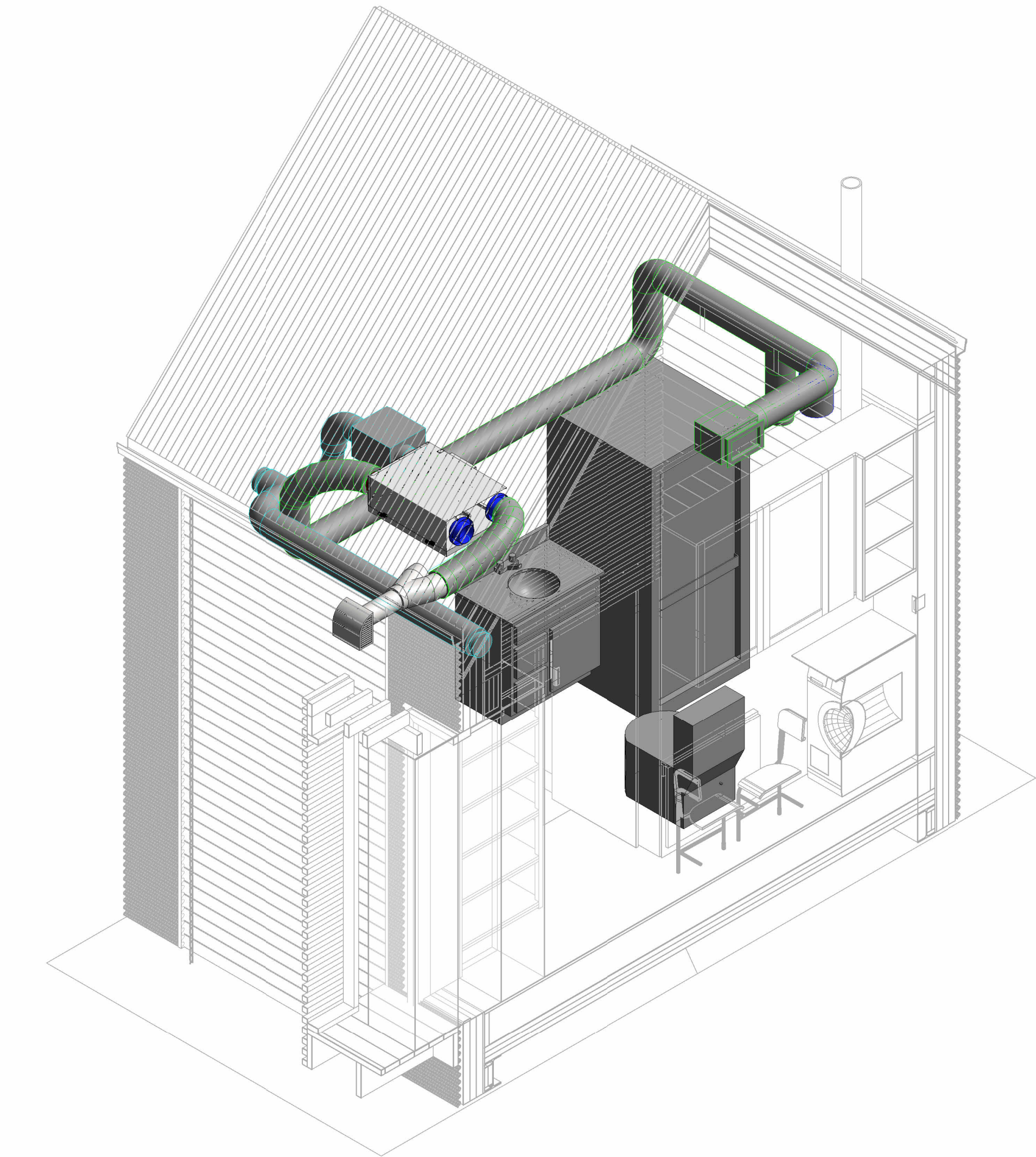
HVAC Drawings

Drawn By

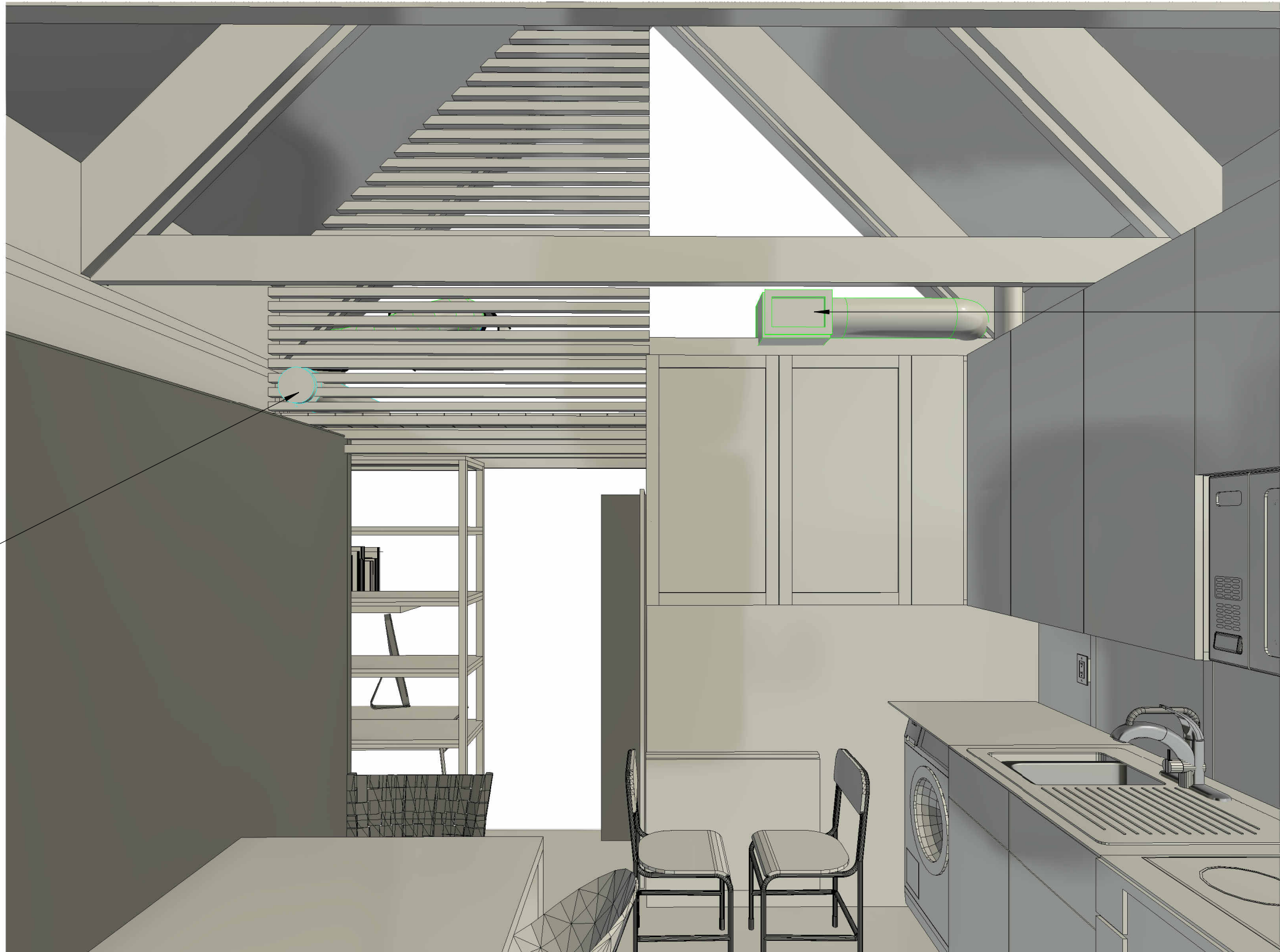
Reviewed By

Sheet Number

M301



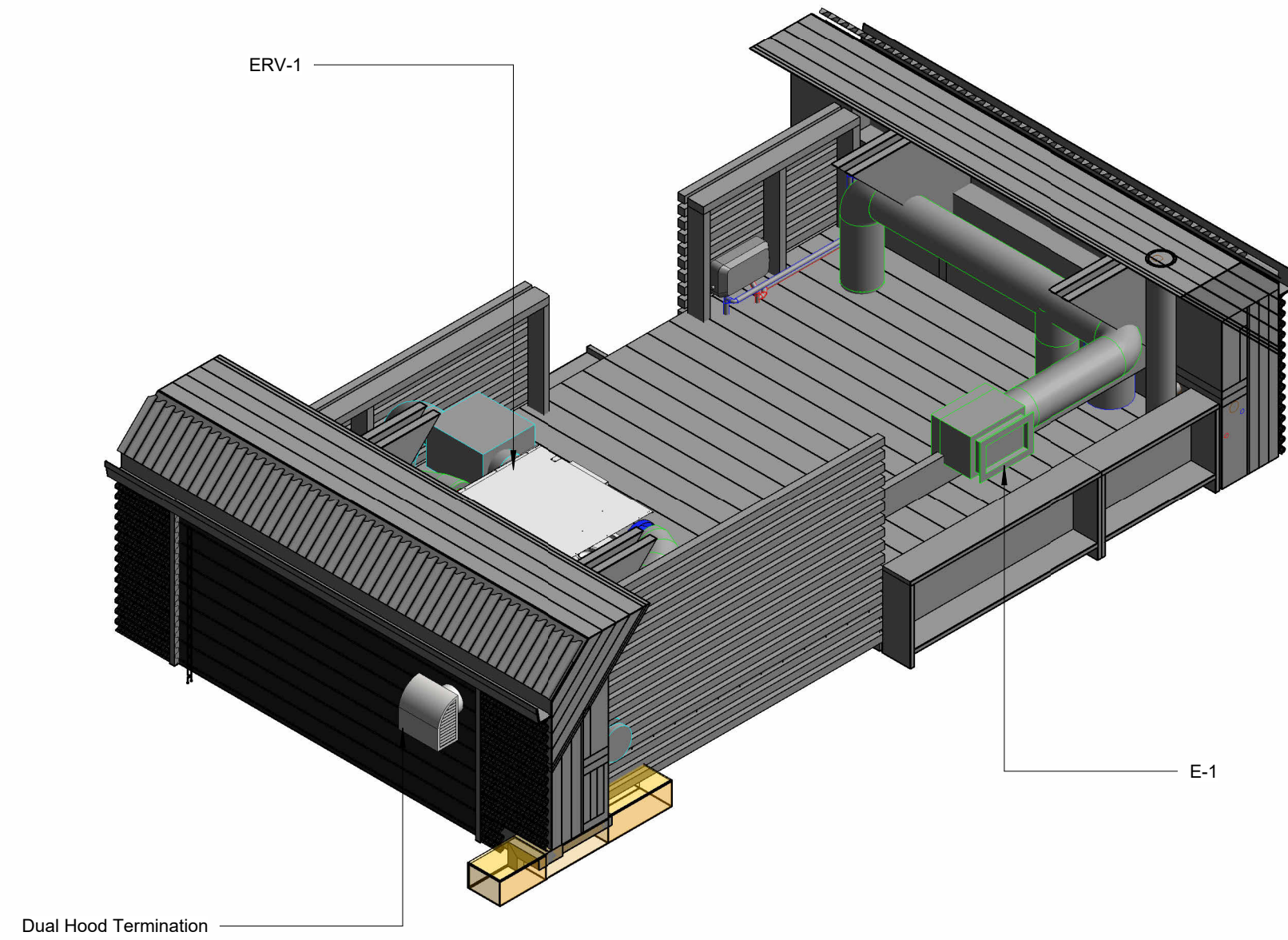
1 HVAC 3D Section



2 3D View 1



3 3D View 2



4 Mechanical Loft 3D

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P.Eng Contact Info (If Required)	

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Delta-T Design

Delta-T Designs Inc.
16 Winstar Rd Unit 4
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niss@deltatdesigns.ca

Client Name

TBD

Project Number

2025-12

Project Name & Address

Barrie Single Dedicated Accessory Dwelling Unit
Barrie, Ontario

Sheet Name

HVAC Drawings

Drawn By

Reviewed By

Sheet Number

M302

Heat loss and gain calculation summary sheet

These documents issued for the use of **Delta-T Designs Inc.** and may not be used by any other persons without authorization. Documents for permit and/or construction are signed in red.

CSA/F2001/Metric
Standard Form No. 1
Project no:
2025-12 Rev-2

Building location					
Model		Site			
Address		Lot			
City and Province		Barrie		Postal code	
		On			

Calculations based on					
Dimensional information based on:					
Attachment		Detached		Floor facing North	
Number of stories		1		Air tightness: Present (1961-1) (ACH=3.57)	
Weather location		Barrie, ON, CA		Vented	
HVAC		Included		Wind exposure: Light local shielding (none)	
Recovery %:		75 %		Internal shading	
				Occupants: 2	
				Units: Imperial (I-P)	

Heating design conditions			Cooling design conditions		
Outdoor temp:	-11 °F	Indoor temp:	72 °F	Mean soil temp:	0 °F
Above grade walls			Below grade walls		
Style A:	p.u.s.s.w. - firm wall, mtl ext, +1/32 cav ins, 1/2" wood inf fresh, +20 ext bd ins, 2x4" wood fin, 1/2" c.o. stud			Style A	
Style B:				Style B	
Style C:				Style C	
Style D:				Style D	

Floors on soil		Ceilings	
Style A:		Style A:	12x0 p.f.c.d. ceiling, asphalt shingles roof mat, wd corr, +6 deck ins, 1" finish
Style B:		Style B:	
Style C:		Style C:	

Exposed floors		Doors	
Style A:	15x17 (2 ft floor, firm ft, 1/2" finish, vinyl ft fresh, +30 cav ins, amb ext)	Style A:	
Style B:		Style B:	

Windows		Skylights	
Style A:	+ - 3 glazing, cl bare out, 1/2" gap, insulated vinyl firm mat, cl bare mat, argon gas, 1x4" fsk, cl inv, 5 ft overhang (2 ft window ft, 0.5 ft exp.), 11 ft head ht	Style C:	
Style B:	+ - 3 glazing, cl bare out, 1/2" gap, insulated vinyl firm mat, cl bare mat, argon gas, 1x4" fsk, cl inv, 5 ft overhang (2 ft window ft, 0.5 ft exp.), 11 ft head ht	Style B:	
Style C:	+ - 3 glazing, cl bare out, 1/2" gap, insulated vinyl firm mat, cl bare mat, argon gas, 1x4" fsk, cl inv, 6:07 ft head ht	Style A:	
Style D:	+ - 3 glazing, cl bare out, 1/2" gap, insulated vinyl firm mat, cl bare mat, argon gas, 1x4" fsk, cl inv, 5 ft overhang (2 ft window ft, 0.5 ft exp.), 6:07 ft head ht	Style B:	

Attached documents:	
Notes:	
Orientation is unknown. Will be placed anywhere in Barrie.	

Calculations performed by	
Name:	
Company: Delta-T Designs Inc.	
Address: 16 Winstar Rd, Unit 4	
City and Province:	On
Postal code:	L0L 2L0
Telephone:	705-791-9000
E-mail: niss@deltatdesigns.ca	

MFPA cert.#: 9049



Load Short Form
Entire Building
Delta-T Designs Inc.

Job: 2025-12 Rev-2
 Date: May 14, 2025
 By:

Cert.#: 9049
 16 Winstar Rd, Unit 4, Oro-Medonte, On L0L 2L0 Phone: 705-791-9000 Email: rtss@deltadesigns.ca License: BCIN#38852, OACETT #893546



Loads for Multiple Orientations
Entire Building
Delta-T Designs Inc.

Job: 2025-12 Rev-2
 Date: May 14, 2025
 By:

Cert.#: 9049
 16 Windsor Rd, Unit 4, Oro-Medonte, On L0L 2L0 Phone: 705-791-9000 Email: rtss@delatdesigns.ca License: BCN#338852, OACETT#893456


Building Analysis
Entire Building
Delta-T Designs Inc.

Job: 2025-12 Rev-2
 Date: May 14, 2025
 By:

Cert #: 9049
 16 Winger Rd, Unit 4, Oro-Medonte, ON L0L 2L0 Phone: 705-791-0000 Email: niss@delatadesigns.ca License: BCN #38852, OACETT #930546

Project Information				
For:	Barrie DADU Singles Barrie, On			
Design Information				
	Htg	Ctg	Infiltration	
Outside db (°F)	-11	82	Method	F280-12
Inside db (°F)	72	75	Expos. categ	Light local shielding
Design TD (°F)	83	7	Const. categ	Present (1961+) (ACH=3-57)
Daily range		M	Number of stories	1.0.
Inside humidity (%)	30	50		
Moisture difference (gr/lb)	33	24		

HEATING EQUIPMENT			COOLING EQUIPMENT		
Make			Make		
Trade			Trade		
Model			Cond		
AHRI ref			Coil		
			AHRI ref		
Efficiency	80 AFUE		Efficiency	0 SEER	
Heating input	0	Btuh	Sensible cooling	0	Btuh
Heating output	0	Btuh	Latent cooling	0	Btuh
Temperature rise	0	°F	Total cooling	0	Btuh
Actual air flow	347	cfm	Actual air flow	347	cfm
Air flow factor	0.032	cfm/Btuh	Air flow factor	0.044	cfm/Btuh
Static pressure	0	in H ₂ O	Static pressure	0	in H ₂ O
Space thermostat			Load sensible heat ratio	0.77	

ROOM NAME	Area (ft ²)	Htg load (Btu/h)	Ctg load (Btu/h)	Htg AV/F (cfm)	Ctg AV/F (cfm)
Bedroom	127	4084	3644	131	161
Bath	53	697	162	22	7
Kitch/Din	160	6049	4066	194	179
Entire Building	d	319	10830	7872	347
Other equip loads		0	0		
Equip. @ 0.87 RSM			6856		
Latent cooling			2362		
TOTALS	319	10830	9218	347	347

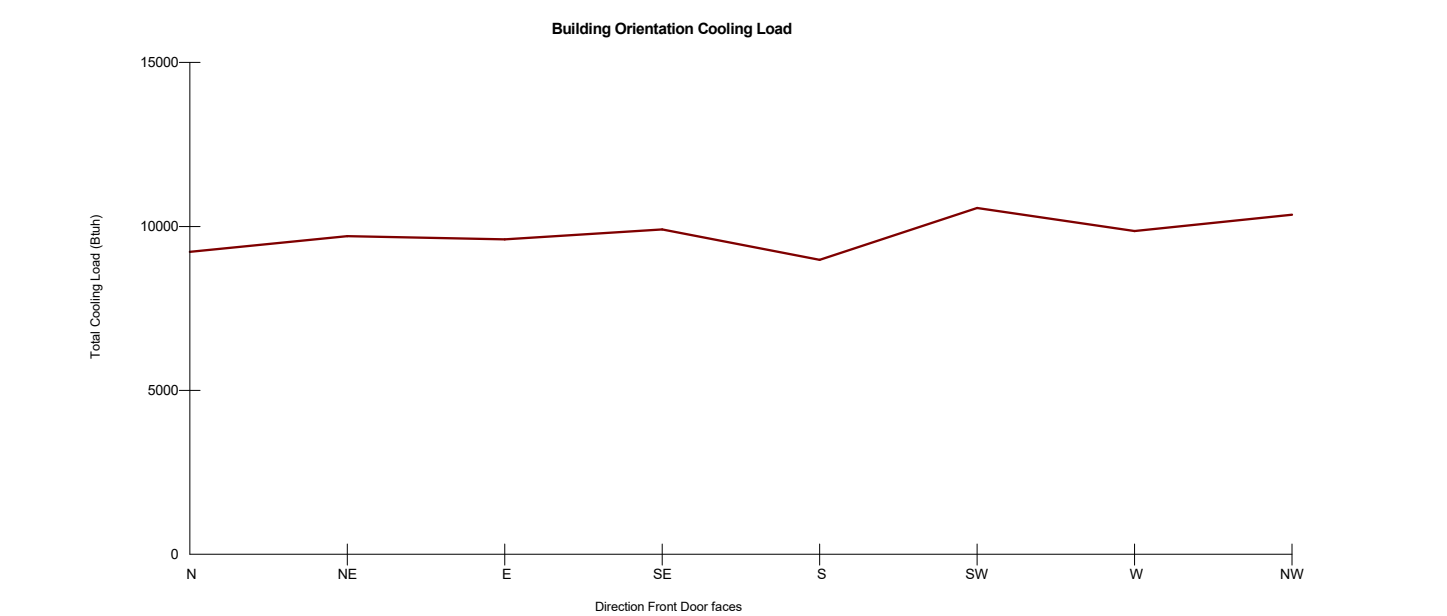
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...gle DADU2025-12 DADU F280 Load Cells Rev-2.nip Calc = F280-12 Front Door faces: N Page 1

Project Information				
For:	Barrie DADU Singles Barrie, On			
Design Conditions				
Location:		Indoor:	Heating	Cooling
Barrie, ON, CA		Indoor temperature (°F)	72	75
Elevation:	968 ft	Design TD (°F)	83	7
Latitude:	44°N	Relative humidity (%)	30	50
Outdoor:	Heating	Cooling	Moisture difference (grlb)	24.0
Dry bulb (°F)	-11	62		
Daily range (°F)	-	19 (M)		
Wet bulb (°F)	-	70		
		Infiltration:		

Front Door	North	Northeast	East	Southeast	South	Southwest	West	Northwest
Sensible Load (Btu/h)	6856	7219	7148	7369	6681	7856	7330	7706
Latent Load (Btu/h)	2362	2486	2462	2538	2301	2706	2525	2654
Total Load (Btu/h)	9218	9705	9611	9907	8983	10562	9855	10361
Heating A/W (cfm)	347	365	362	373	338	398	371	390
Cooling A/W (cfm)	347	365	362	373	338	398	371	390



Current Orientation: Front Door faces North
Highest Cooling Load: Front Door faces Southwest

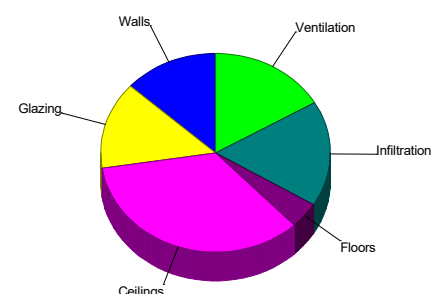

 Right-Suite® Universal 2023 23.0.04 RSU22459
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 Page 1
 ..gle DADU\2025-12 DADU F280 Load Calcs Rev-2.rup Calc = F280-12 Front Door faces: N

Project Information					
For:	Barrie DADU Singles Barrie, On				
Design Conditions					
Location:		Indoor:		Heating	Cooling
Barrie, On, CA		Indoor temperature (°F)		72	75
Elevation: 968 ft		Design TD (°F)		63	63
Latitude: 44°N		Relative humidity (%)		30	50
Outdoor:	Heating	Cooling	Infiltration:		
			Moisture difference (grlb)		
	Dry bulb (°F)	-11	82	F280-12	
	Daily range (°F)	-	82	Method	Light load shielding
	Wet bulb (°F)	-	70	Expos. catag	Preset (196-1) (ACH=3.57)
Wind speed (mph)		15.0	7.5	Const. catag	1.0
				Number of stories	

Heating

Component	Btu/h ^{ft}	Btu/h	% of load
Walls	2.5	1439	13.3
Glazing	13.1	1538	14.2
Doors	0	0	0
Ceilings	8.7	3740	34.5
Floors	1.4	458	4.2
Infiltration	15.9	1858	17.2
Ducts	0	0	0
Hydronic	0	0	0
Humidification	0	0	0
Ventilation	0	1797	16.6
Adjustments	0	0	0
Total		10830	100.0

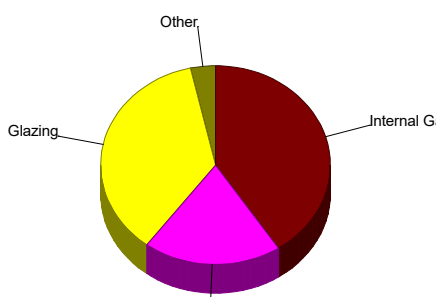
A pie chart illustrating the distribution of heat load components. The chart is divided into seven segments: Ceilings (34.5%, magenta), Glazing (14.2%, yellow), Walls (13.3%, blue), Infiltration (17.2%, teal), Ventilation (16.6%, green), Floors (4.2%, purple), and Doors (0%, grey). The segments for Ducts, Hydronic, Humidification, and Adjustments are not visible as they represent 0% of the load.



Cooling

Component	Btu/h ^{ft}	Btu/h	% of load
Walls	0.1	73	0.9
Glazing	24.4	2854	36.3
Doors	0	0	0
Ceilings	3.6	1533	19.5
Floors	0.0	13	0.2
Infiltration	0.3	38	0.5
Ducts		0	0
Ventilation		153	1.9
Internal gains		3208	40.7
Blower		0	0
Adjustments		0	0
Total		7872	100.0

A 3D pie chart illustrating the distribution of cooling load components. The chart is divided into eight segments, each labeled with a component name. The segments are: Internal Gains (dark red, 40.7%), Glazing (yellow, 36.3%), Ceilings (magenta, 19.5%), Ventilation (light blue, 1.9%), Infiltration (light green, 0.5%), Walls (light yellow, 0.9%), Floors (light blue, 0.2%), and a small segment for Doors (dark blue, 0%). The segments for Ducts, Blower, and Adjustments are not visible, indicating 0% load.



Latent Cooling Load = 2362 Btuh
Overall U-value = 0.063 Btuh/ft²·°F, Window / Floor Area = 36.7 %

WARNING: window to floor area ratio = 36.7% - more than 25%.


 Right-Suite® Universal 2023 23.0.0.4 RSU22459
 2025-May-15 22:13:03

..gle DADU\2025-12 DADU F280 Load Calcs Rev-2.rup Calc = F280-12 Front Door faces: N
 Page 1


 2025-May-15 22:13:03
 Right-Soft® Universal 2023 23.0.0.4 RSU22459
 Page 1
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 Right-Suite® Universal 2023 23.0.04 RSU22459
 2025-May-15 22:13:03
 Page 1
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 Page 1


Component Constructions
Entire Building
Delta-T Designs Inc.

Job: 2025-12 Rev-2
 Date: May 14, 2025
 By:

Cert. #: 9049
 16 Wistar Rd, Unit 4, Oro-Medonte, ON L0L 2L0 Phone: 705-791-9000 Email: rtss@delatdesigns.ca License: BCIN #38852, OACETT #893546

Project Information	
For:	Barrie DADU Singles Barrie, On

Design Conditions					
Location: Barrie, ON, CA		Indoor: Indoor temperature (°F)		Heating	Cooling
Elevation: 968 ft		Design TD (°F)		73	75
Latitude: 44°N		Relative humidity (%)		30	50
		Moisture difference (gr/lb)		32.5	24.0
Outdoor: Dry bulb (°F) Wet bulb (°F) Wind speed (mph)	Heating	Cooling			
	-11	82			
	-	19	(M)		
	-	70			
	15.0	7.5			
			Infiltration:		
			Expos. catg	F280-12	
			Cons. catg	Light local shielding	
			Number of stories	Present (1961-) (ACH=3.57)	
				1.0	

Construction descriptions		Or	Area ft ²	R-value ft ² /hBtu	Insul R ft ² /hBtu	AFR Btu/ft ²	Htg TD/R	Loss Btu/h	Cld TD/R	Gain Btu/h
Walls										
5 in wall, mid ext, r-13 cav ins, 1/2" wood int fnsh, r-20 ext bd ins, 2x4"										
wood fmn, 16" o.c. stud	n	232	33.4	33.0	6.9	2.49	578	0.01		2
	e	83	33.4	33.0	2.5	2.49	205	0.30		25
	s	102	33.4	33.0	4.8	2.49	403	0.09		19
	w	102	33.4	33.0	3.0	2.49	253	0.30		31
	all	578	33.4	33.0	17.3	2.49	1439	0.13		73
Partitions (none)										
Windows										
3 glazing, dr lowe out; 1/2" gap, insulated vinyl fmn mat, dr lowe mid, argon gas, 1/4" thk, dr innr: 3 glazing, dr lowe out; 1/2" gap, insulated vinyl fmn mat, dr lowe mid, argon gas, 1/4" thk, dr innr; 5 ft overhead (4 ft window ht, 0.5 ft sep.); 11 ft head ht										
	e	12	6.3		0	1.9	13.1	158	19.7	236
3 glazing, dr lowe out; 1/2" gap, insulated vinyl fmn mat, dr lowe mid, argon gas, 1/4" thk, dr innr: 3 glazing, dr lowe out; 1/2" gap, insulated vinyl fmn mat, dr lowe mid, argon gas, 1/4" thk, dr innr; 5 ft overhead (7 ft window ht, 0.5 ft sep.); 11 ft head ht										
	e	21	6.3		0	3.3	13.1	276	31.1	653
3 glazing, dr lowe out; 1/2" gap, insulated vinyl fmn mat, dr lowe mid, argon gas, 1/4" thk, dr innr: 3 glazing, dr lowe out; 1/2" gap, insulated vinyl fmn mat, dr lowe mid, argon gas, 1/4" thk, dr innr; 6.67 ft head ht										
	s	14	6.3		0	2.2	13.1	184	30.6	429
	w	14	6.3		0	2.2	13.1	184	46.3	647
	all	28	6.3		0	4.4	13.1	368	38.5	1077
3 glazing, dr lowe out; 1/2" gap, insulated vinyl fmn mat, dr lowe mid, argon gas, 1/4" thk, dr innr: 3 glazing, dr lowe out; 1/2" gap, insulated vinyl fmn mat, dr lowe mid, argon gas, 1/4" thk, dr innr; 5 ft overhead (7 ft window ht, 0.5 ft sep.); 6.67 ft head ht										
	s	56	6.3		0	8.8	13.1	736	15.9	886
Doors (none)										

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Floors								
15617: Fir floor frm fir 10" thick, vinyl flshr, c30 cov ins, amb cov	319	29.0	30.0	11.0	1.44	458	0.04	15


Project Summary
Entire Building
Delta-T Designs Inc.

Job: 2025-12 Rev-2
 Date: May 14, 2025
 By:

Cont. #R: 9049
 16 Windsor St. Unit 4, Oro-Medonte, On L0L 2L0 Phone: 705-791-9000 Email: rss@delatadesigns.ca License: BCN#308552, OACETT#993546

For: Barrie DADU Singles
Barrie, On

Notes: Orientation is unknown. Will be sited anywhere in Barrie.

Design Information

Weather: Barrie, ON, CA			
Winter Design Conditions		Summer Design Conditions	
Outside db	-11 °F	Outside db	82 °F
Inside db	72 °F	Inside db	75 °F
Design TD	83 °F	Design TD	7 °F
		Daily range	M
		Relative humidity	50 %
		Moisture difference	24 gr/lb
Heating Summary		Sensible Cooling Equipment Load Sizing	
Structure	10830 Btuh	Structure	7872 Btuh
Ducts	0 Btuh	Ducts	0 Btuh
Central vent (0 cfm)	0 Btuh	Central vent (0 cfm)	0 Btuh
(none)		(none)	
Humidification	0 Btuh	Blower	0 Btuh
Piping	0 Btuh	Use manufacturer's data	n
Equipment load	10830 Btuh	Rate/swing multiplier	0.87
		Equipment sensible load	6856 Btuh
Infiltration		Latent Cooling Equipment Load Sizing	
Method	F280-12	Structure	2362 Btuh
Expos. categ	Light local shielding	Ducts	0 Btuh
Corr. categ	Present (1961-1) (ACH=3.57)	Central vent (0 cfm)	0 Btuh
Number of stories	1.0		
Heating	Cooling		
Area (ft²)	319	Equipment latent load	2362 Btuh
Volume (ft³)	3350		
Air changes/hour	0.37	Equipment Total Load (Sen+Lat)	9218 Btuh
Equip. AVF (cfm)	21	Req. total capacity at 0.70 SHR	0.8 ton

Heating Equipment Summary			Cooling Equipment Summary		
Make			Make		
Trade			Trade		
Model			Cond		
AHRI ref			Coil		
Efficiency	80	AHRI ref	AHRI ref	0	SEER
Heating input	0	Btu/h	Sensible cooling	0	Btu/h
Heating output	0	Btu/h	Latent cooling	0	Btu/h
Temperature rise	0	°F coil	Total cooling	0	Btu/h
Actual air flow	347	cfm	Actual air flow	347	cfm
Air flow factor	0.032	cfm/Btu/h	Air flow factor	0.044	cfm/Btu/h
Static pressure	0	in H2O	Static pressure	0.77	in H2O
Space thermostat			Load sensible heat ratio		

Bolditalic values have been manually overridden

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Right-Suite® Universal 2023 23.0.04 RSU22459 2025-May-15



Right-F280™ Worksheet
Entire Building
Delta-T Designs Inc.

Job: 2025-12 Rev-2
Date: May 14, 2025
By:

Cert.#: 9049
16 Windsor Rd, Unit 4, Oro-Medonte, On L0L 2L0 Phone: 705-791-9000 Email: niss@delatdesigns.ca License: BCIN#38852, OACETT#893546

Room name					Entire Building						Bedroom						Bath							
Exposed wall					80.0 ft						34.0 ft						6.0 ft							
Room dimensions					10.5 ft						11.5 ft x 11.0 ft						6.0 x 5.5 ft							
Room height					10.5 ft						10.5 ft						10.5 ft							
Ty	CST	R-value	Qr	TDR (Btu/h°F)	Area or perm (ft²)		Load (Btu/h)		Area or perm (ft²)		Load (Btu/h)		Area or perm (ft²)		Load (Btu/h)									
					Heat	Cool	Gross	NPS	Heat	Cool	Gross	NPS	Heat	Cool	Gross	NPS								
5	W	G	Frm wall	33.42	n	2.5	0.0	232	232	578	2	92	92	229	1	48	48	119	0	0	0	0		
				33.42	e	2.5	0.3	116	63	205	25	0	0	0	0	0	0	0	0	0	0	0		
				6.33	s	13.1	19.7	12	11	156	236	0	0	0	0	0	0	0	0	0	0	0		
				6.33	s	13.1	31.1	21	11	276	663	0	0	0	0	0	0	0	0	0	0	0		
				33.42	s	2.5	0.1	232	162	403	15	92	76	194	7	48	48	119	0	0	0	0		
				6.33	s	13.1	30.6	14	0	194	429	14	0	194	429	0	0	0	0	0	0	0		
				6.33	s	13.1	15.9	56	56	736	888	0	0	0	0	0	0	0	0	0	0	0		
				33.42	w	2.5	0.3	116	102	253	31	116	102	253	31	0	0	0	0	0	0	0		
				6.33	w	13.1	15.9	56	56	736	888	0	0	0	0	0	0	0	0	0	0	0		
				1290	8.59	8.71	3.8	431	431	3740	1533	171	171	1483	608	45	45	387	159	1	1	1		
				15A17	28.96	-	1.4	0.0	319	319	458	13	127	127	182	5	33	33	47	1	1	1		
										</														