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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 dewpoint and thermal resilience analysis as well as identify moisture risk avoidance strategies (adequate venting, vapouropen 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

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Civil Consultant

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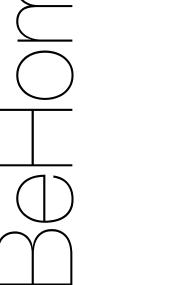
NOTE: These 'Issued for Review' plans are intended demonstrate to prospective **Builder**. **Owners** what the intended, pre-approved 'Permit-Ready' drawings will look like for applications with the City of barrie.

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.

Review 01 - WIP







Ontario Association of Architects

Issue(Project Ac

Ordre des architectes de l'Ontario

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BeHome Bachelor 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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- parties to the Contract. A *Builder* must be a licensed and bonded contractor with registrations with HCRA/Tarion as required by the ONHWPA 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 (OAA800 or OAA600) 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* beyond 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 clearance and all insurance polices 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 (8))**. 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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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 CofA 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 OLS to be provided by owners for all jobs *without exception*.

17. **Energy Performance & Sustainability:** Thomson Architecture, Inc. (TAI) undertakes Building Energy Modelling

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

16. **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

(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)

undertaken at the owner's expense.

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 https://climateatlas.ca. In our professional opinion, the loads and requirements in the OBC have become obsolete as minimums.

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- Thermal Resilience: Buildings shall be designed to remain habitable for a period of >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 <u>UBAKUS.de</u> software or OBJECTIVE 3.041+)
- 2) **Fire Resilience** measures shall consider 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
- S) 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 (ie from 4" to 6") and/or trench drains and french drains, and appropriate landscaping ie. swales to divert bulk site water away from building foundations and walls and/or temporary bulk water storage/swales or other protective means.
- 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 days. Separate behind-the-meter, isolated circuits to power critical appliances like a stovetop 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.

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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.I-M84 and provide temporary enclosure and
- heating when required (allowance for all Winter conditions to be carried by contractor in price as req'd).

 Provide saw cuts as real'd by Structural or provide fibroglass reinforcement in slab admixture as alternate.
- 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 CSA-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

- a) 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).
- b) 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.
- c) Exterior footings shall be founded at a level at least 5'-0" below fin. grade.
- d) Contractor to carry allowances for all geotechnical and concrete inspections and testing
- e) 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.
- f) 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 practor 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.
- 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

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

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2. These Contract Documents are the property of the Architect. 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 Construct 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.

included in the Architect's scope of work, The Architect will review Shop Drawings submitted by the Contractor for design conformance only.

3. 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.

4. Positions of exposed finished mechanical or electrical devices, fittings, and fixtures may be indicated on architectural drawings. The locations shown on the architectural drawings govern over the Mechanical and Electrical drawings. Those items not clearly located will be located as directed by the Architect. General and construction notes are intended to apply at all locations affected by the work. For locations of work refer to structural, mechanical and electrical documents, in addition to architectural.

These drawings are not to be used for construction unless noted below as "Issuance: For Construction" and countersigned by the Architect. 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.

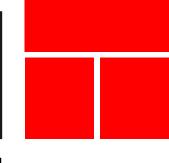
7. The Architect of these plans and specifications gives no warranty or representation to any party about the constructability of the building(s) represented by them. All contractors or subcontractors must satisfy themselves when bidding and at all times ensure that they can properly construct the work represented by these plans.
8. Original Dreadings and designs consequently provided by CMH/C's 'Pattern Book' from 1947 titled:

8. Original Drawings and designs generously provided by CMHC's 'Pattern Book' from 1947 titled: 67 Homes for Canadians available at the link: https://eppdscmssa01.blob.core.windows.net/cmhcprodcontainer/sf/project/archive/house_plans/catalogues/ca1-mh-47p68_w.pdf

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BeHome Bachelor Shed

project no. 2024.12

Site Address: TBD

Revision
01 - WIP
Notes & Legends 1-6



04 50 00 Masonry

- a) Masonry construction shall conform to CSA Standard CAN3-A371-M84.
- b) All plain and reinforced masonry shall conform to CAN3-A165 series-M85 for CMU and CAN/CSA-A82.1-M87 for
- c) All veneer masonry shall be installed c/w thermally-broken, 2-part brick-ties at 400mm OC vertically and horizontally fastened to structural sheathing, Mortar net, ALU Metal Flashings, Weepers, Edge Dams shall be provided as required
- d) All CMU shall have a min. ultimate compressive strength of 22 MPa on net area.
- e) Mortar for all masonry walls shall be type 'S' as defined in CSA standard A179-M1976.
- f) CMU walls shall be reinforced horiz. w/ standard 'blok-lok' at 16" OC vertically as per manfct. specs.
- g) Reinforced masonry shall be grouted with 15 MPa concrete, 3/8" aggregate ('pea' gravel) w/ 8" slump.

Brick Veneer Masonry: Placing And Bonding:

- a) Lay solid masonry units in full bed of mortar, with full head joints, uniformly jointed with other work. Remove excess mortar as Work progresses
- b) Perform job site cutting of masonry units with proper tools to provide straight, clean, unchipped edges. Prevent broken masonry unit corners or edges.
- c) Isolate top joint of masonry walls from horizontal structural framing members and slabs or decks with compressible
- d) Install weeps for full height of vertical joints spaced at 600 mm/24 inches on centre horizontally above through-wall flashing, above shelf angles and lintels, at bottom of walls.
- e) Mortar net: Do not permit mortar to drop or accumulate into cavity air space or to plug weeps.
- f) Secure anchors] to stud framed back-up and embed into masonry veneer at maximum 400mm/ 16 inches on centre vertically and 900mm/36 inches on centre horizontally. Place at maximum 75mm/3inches on centre each way around perimeter of openings, within 300mm/12inches of openings
- g) Reinforce joint corners and intersections with strap anchors 400mm/16 inches on centre.

Masonry Flashings:

- a) Extend flashings horizontally at foundation walls, above ledge or shelf angles and lintels, under parapet caps, at bottom
- b) Turn flashing up minimum 200mm/8 inches and seal to sheathing over stud/framed back-up.
- c) Lap end joints minimum 150mm/6 inches and seal watertight.
- d) Turn flashing, fold, and seal at corners, bends, and interruptions.

a) Install preformed joint filler and sealant in continuous lengths. Seal butt and corner joints in accordance with manufacturer's instructions.

Brick Or Masonry Ties To Structure - Important For Net Zero Target & OBC SB10 Compliance

- a) 2-Part Barrel or Wingnut-Style Thermally-broken Brick Ties (one point of contact through insulation)
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Attach sheathing with adhesive and screw fasteners.

b) Lumber dimensions to be in conformance with CSA 0141

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e) Place building paper between underlayment and sub-flooring.

a) Moisture content of lumber shall not be more than 19% [as per OBC 9.3.2.6]

b) Spaced 400mm OC Vert & Horiz or RTMS.

f) Fix-Firm (Fibre Composite Threaded Tie), or

staining and for its anti-fungal properties.

screws-structures/dgz

foundation anchor bolts.

only.

d) Acceptable Brands Include; Hohman & Barnard 2-Seal, or

e) Thermal-Grip Ci (by TruFast: https://www.trufastwalls.com/thermal-grip-masonry-veneer-anchor), or

c) Care must be taken to assure hardware does not cause corrosive staining on adjacent materials, and if staining

d) For high tannic content woods, ie. Cedar, to be fastened only with Stainless steel or ceramic-coated fasteners OAA.

e) For Cedar shakes and Shingles, Use of copper banding and traditional copper fasteners is recommended to limit

f) SIPS Screws to be GV steel c/w ceramic-or epoxy-coating (non-corrosive), Torx Head. Brands; TruFast, PowerPro,

GRK, SFS Intec, etc. Strength as req'd by Structural. ie. https://www.rothoblaas.com/products/fastening/screws/

g) Continuous Exterior Insulation Fasteners to be 2-part Stick-Pin type where possible due to reduced thermal bridging

a) Carry all partition and exterior studs (Wood and Steel) to underside of structure above (allow for structural deflection

where req'd) UNO, and where acoustic separation is to be maintained between suites, full construction assembly

including insulation must be continuous to U/S of structure, irrespective of ceiling height (ie. demising walls with a

c) Place sill gasket directly on sill flashing or cementitious foundation. Puncture gasket clean and fit tight to protruding

d) Secure subfloor perpendicular to floor framing with end joints staggered. Secure sheet edges over firm bearing.

effects (for spacing RTMS), or specialty insulation screws with cap-washers (ie. https://www.rothoblaas.com/products/

fastening/screws/screws-carpentry/thermowasher), otherwise 2-Part Washer (plastic) fasteners to foundation materials

occurs, contractor to remedy at first signs. For most species, galvanized or ceramic coated sufficient.

Wood Framing [as per OBC 9.3.2.5] (Note Steel Framing also here)

b) Construct double joist headers at floor and ceiling openings. Construct double joists under wall studding.

f) Secure flooring underlayment. Apply perpendicular to sub-flooring. Stagger end joints of underlayment.

g) 2-part SS ties may be considered an acceptable alternative on review by Architect.

b) All exterior fasteners and/or fasteners exposed to moisture to be Galvanized UNO

a) All metallic hardware shall resist effects of galvanic corrosion - by use of like metals, UNO

c) Connected to Structure (Typ)

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ga. 54mils = 16 ga

06 43 00

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carpenter ants per OBC 9.3.2.9.

and/or vapour barrier continuity as detailed.

blocking b/t joists spaced @1200mm [3'-11"] max.

as a superior alternative to discrete inlet blocking.

06 00 00 Pressure Treated Lumber (where applicable)

d) All guards secured in conformance to OBC standards [OBC 9.8.7.4]

g) Rail@ext landing [greater than 1800 above fin. grade] = 1070mm [3'-6"]

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moisture and rot resistant materials UNO.

Stairs and handrails

a) Guardrail/ handrail [as per OBC 9.8.7.1]

e) Rail@int landing = 900mm [2'-11"]

h) Rail@ext landing = 900mm [2'-11"]

f) Rail@int stair = 800mm [2'-7"]

a) All cut edges or faces of pressure treated lumber shall be primed prior to installation.

k) Sub-flooring shall be as per OBC 9.23.14 and installed as per 9.23.3.5

b) Handrails are required on at least one side of stairs or ramps less than 1100mm [3'-7"] in width

c) Handrails are required on both sides of stairs or ramps greater than 1100mm [3'-7"] in width

c) A clearance of not less than 200mm [8"] shall be provided between the finished grade and the cladding that is

d) All sill plates over exterior concrete foundation walls and interior walls on concrete slabs to be constructed from PT

e) Sheathing membranes shall conform to CAN/CGSB-51.32m [all wood framing that is not pressure treated and is in

h) Blocking Perpendicular: To fasten top and sill-plates securely when walls run perpendicular to joist spans, provide

j) Stud wall reinforcement for grab bars in washrooms shall be installed adjacent to toilets, shower, and bathtub in all

I) All floor finishes to be made level with adjacent floor finishes UNO. Max. allowable threshold is 13mm [1/2"] per OBC.

matches the equivalent in wood as per: 362S250-54 metal studs @ 400 OC match the stiffness of 2x4s for internal

pressures. Track to match the gauge 362T125-54. 33mils = 20 gauge (min structural gauge) 362T125-33. 43mils = 18

m) Alternatively, steel framing may be used in place of wood only as approved by architect when structural gauge

b) All framing at or above roof, including curbs, parapets, cant blocks, plywood, etc. to be of pressure-treated OAA

c) Contractor to use hidden/concealed deck screw fastening systems to minimize exposure to weather and maximize

washrooms. [as per OBC 9.5.2.3, 3.8.3.8[1][d], 3.8.3.13[1][f]. Architect shall accept continuous 16mm [3/4"] Sheathing

contact with concrete shall be separated from the concrete w/ approved closed cell foam gasketing.

g) Strapping shall be 19mmx164mm[1"x3"] spaced at 2100mm [7'-0"] OC where specified.

h) Blocking Parallel: Provide blocking@1200mm [3'-11"] max. below walls running parallel to joists.

f) All joists to be bridged w/ 38mmx38mm [2"x2"] cross bridging or solid blocking at 2100mm [7'-10"] OC max.

i) Solid wood bearing comprised of built-up wood studs to be constructed in accordance w/ OBC 9.17.4.2(2)

adversely affected by moisture, such as untreated wood, OSB, hardboard and 457mm [18"] in areas with Termites or

lumber over closed cell foam gaskets as capillary break and caulked and/or wrapped with membranes to maintain air

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- i) Rail@ext stair = 900mm [2'-11"]
- j) Vertical Pickets max. 100mm[4"] [OBC 9.8.7.5] UNO
- k) Clearance of not less than 50mm [2"] is required between the handrail and the surface behind it. [OBC 9.8.8.1]
- I) Guards are required if there is a difference in elevation greater than 600mm [24"] between the walking surface and any
- i) 12" or 300mm Horizontal railing extensions at the top and bottom of railings required per OBC 3.4.6.5.(10)(a), (b)

All stairs/ exterior stairs

- m) max. rise = 200mm [7 7/8"]
- n) min. run = 210mm [8 1/4"] o) min. tread = 235mm [9 1/4"]
- p) min. nosing = 25mm [1"]
- q) min. headroom = 1950mm [6'-5"]
- r) min. width = 860mm [2'-10"]

for curved stairs:

- s) min. run = 150mm[5 7/8"]
- t) min. aver. run = 200mm[7 7/8"]
- u) Fixed or non-fixed ladders for access to non-habitable spaces (ie. storage lofts) shall not be subject to OBC stair requirements except where ladders are designed to provide roof access per OBC 3.6.1.5
- v) Ladders required for RTUs shall be provided as required by CSA/ESA.

07 21 05

Compatible Sealants designed to remain flexible in cold weather applications to be installed and tooled in good workmanlike manner including tooling joints and application on bone-dry and clean surfaces at all gaps and junctions UNO between materials including but not limited to:

- a) Door frames all sides
- b) Thresholds for doors all sides
- c) Junctions of all dissimilar materials or systems
- d) Vertical Joints in Cladding UNO
- e) In-front of backer rod at all window frames, casework and trims (provisions for flashing drip edges at sills and heads notwithstanding)
- f) Plumbing fixtures and adjacent surfaces Neatly tool surface before curing (silicone, white colour UNO).
- g) Interface of cabinet millwork and washroom fixtures and accessories with walls, floors and tiles UNO ie. intended and detailed 'splash gaps' at 0.25" to allow for cleaning.
- h) Wall bases at floor and wall
- i) Seal joints and penetrations through building construction air tight.
- j) Place sealant or gaskets where necessary to arrest weather penetration.

Ventilated cavity assemblies, otherwise known as RainScreen cladding or facade systems shall remain un-caulked and open to atmosphere for drainage and facade pressurization without exception. This requirement conforms with all

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applicable codes, and failure to adhere to this requirement shall render null and void all claims to warranty of wall assemblies, per ProDemnity Non-Drained Exterior Wall Exclusion cited below:

...Exterior above-grade walls or wall assemblies designed according to Rainscreen principles include both Primary and Secondary Planes of Protection (water barriers), provision for drying of the assembly, and an air space no less than 10mm deep behind the cladding with positive drainage to the exterior to protect the interior of the building from precipitation that penetrates the Primary Plane of Protection. Regardless of the building code classification of the project, "Primary and Secondary Planes of Protection" shall have the meaning given to "First and Second Planes of Protection" respectively by the Ontario Building Code 2006, 9.27.2.3 (1)(a), (1)(b) and (1)(c)...."

Interior Sealants

- a) Interior: Acrylic Sealant (Visible to View): Single component, chemical curing, non-sagging, paintable, colour-matched
- b) Exterior: Butyl Sealant (Not Visible to View): Single component, chemical partial curing, permanently uncured, Gray
- c) Acoustic Sealant: Single component, non-skinning, high solids content, synthetic rubber, non-corrosive to metals or
- d) Silicone Sealant (Visible to View): Single component, mildew and fungi resistant, intended for moist interior environment, colour-matched to adjacent surfaces UNO.
- e) Primer: As recommended by sealant manufacturer.
- f) Install acrylic sealant in conjunction with gypsum board work.

07 60 00 Flashing

- a) Installation of flashing shall conform to OBC 9.27.3.8. All flashing shall be GVM UNO.
- b) Cladding [as per OBC 9.27.4] UNO
- c) Caulking shall be provided at vertical joints between different cladding materials unless the joint is suitably lapped or flashed to prevent the entry of rain. [OBC 9.27.2]
- d) The attachment of cladding shall be as per OBC 9.27.5
- e) Drips below window sills shall be provided w/ outward slope and a drip located not less than 25mm [1"] from the wall surface, complete with end-dams at any vertical termination.
- f) Custom architectural, heavy-duty 18ga GVM flashings as noted shall not be substituted by light gauge and/or
- g) Spray foam at window framing/openings is to limit air infiltration/exfiltration only and shall never be relied on as window
- j) Soft flashing (ie. a) Dupont FlexWrap NF or b) Huber Stretch Tape or c) SIGA Wigluv and/or SIGA Majvest SA shall be applied at ALL exterior openings prior to window or door installation and adhered and lapped per manufacturers instructions. Architect will provide manufacturer's suggested detailing on request - OR - Contractor to provide soft flashing in the form of c) ZIP Liquid Applied Flashing (c/w back dams at all opening sills) - OR - d) ALU or GV metal 'pan' flashings at all openings PRIOR to installation of windows/doors. Refer to Thomson Architecture's 'Openings'
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provide positive exterior drainage. Drainage openings shall never be caulked. Rigid mineral batt fire-stop material must be applied at any cavity greater than 19mm as required by OBC (typically at every floor level unless ventilated air-space is terminated by other means)

without exception, aka. 'Rain Screen' detailing, and shall be screened top and bottom as required, and flashed to

guide for 'Remote Wall' or other deep exterior insulated assemblies for detailing and sealing deep plywood window

h) All exterior cladding shall have a min. 9mm airspace backing to allow for drying, drainage and pressure equilization

- i) ZIP liquid-applied flashing or WRB tapes designed for concrete (ie. SIGA Rissan) shall be troweled smooth over the concrete:sheathing transition from min. 6" below TOW of Concrete and min. 8" above TOW of Concrete over sheathing. All ZIP or Plywood Wall Sheathing and Roofing Board joints and screw holes to be sealed with ZIP liquidapplied flashing as per manufacturers instructions. Un-faced OSB shall NOT be uses as exterior sheathing for roofs or walls without exception due to both poor screw-hold performance but also reduced durability wrt moisture resistance
- k) Caulking shall be provided at vertical joints between different cladding materials unless the joint is suitably lapped or flashed to prevent the entry of water. [OBC 9.27.2]
- I) Pressure-equalized rain-screen cladding and all continuous linear roof vents to be vented with airspace of min. 9mm, tops and bottoms to be screened to prevent insect and vermin entry with Cor-a-Vent or metal screening material.

07 20 00 Insulation

and vapour diffusion and drying potential.

- a) R-Values calculated for Nominal R-Values of Assemblies assume min. R4 for 2x4 at 10% of assembly (typ). No air films or other assembly layers contribute to Nominal R noted in Assembly Schedules - only insulation and framing. Actual Effective R-values for assemblies are higher than noted and may be calculated per ubakus.de assembly sheets
- b) Exterior Insulation shall be applied with furring outboard of the plane of insulation and is therefore the 'Rci' or Continuous Insulation and so Nominal Values shall be the same as Effective values.
- j) Foamed-in-place insulation at junctions and joints of wall and roof materials shall achieve a thermal and air/vapour
- k) Install Insulation as noted, in exterior walls, roof, and between ceiling framing spaces without gaps or voids.
- I) Carefully split batts to sandwich around wiring drilled through vertical studs but note any/all dedicated electrical chases to preserve continuity of insulation.
- m) Fit insulation tight in spaces and tight to exterior side of mechanical and electrical services within the plane of insulation UNO. Leave no gaps or voids. n) Uninsulated cavities with WRB and ARB membranes and insulation layers exterior to wall sheathing do not require
- airtight electrical boxes where such boxes face the conditioned space. o) Rigid Foamed Plastics Products: Install any factory applied membrane facing towards warm side of construction. Lap ends and side flanges of membrane [over] [between] framing members. Tape seal butt ends, lapped flanges, and tears
- p) SIPPU: Apply min. 2lb Polyurethane insulation by [spray] [froth] method, to a uniform monolithic density without voids and apply in all spaces and crevices in exterior wall and roof construction in order to maintain continuity of air seal and vapour retarder as per Manufacturer guidelines and specifications.
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or cuts in membrane.

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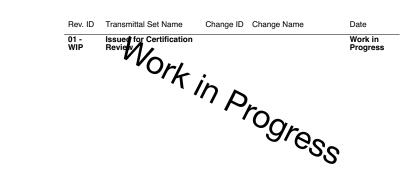
These documents by the Contractor. Upon written application, the Architect will provide written/graphic clarification or pplementary information regarding the intent of the Contract Documents, If Construction Administration services are cluded in the Architect's scope of work, The Architect will review Shop Drawings submitted by the Contractor for design

3. 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.

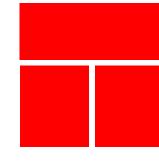
t all locations affected by the work. For locations of work refer to structural, mechanical and electrical documents, in These drawings are not to be used for construction unless noted below as "Issuance: For Construction" and countersigned by the Architect.

8. Original Drawings and designs generously provided by CMHC's 'Pattern Book' from 1947 titled: 67 Homes for Canadians available at the link: https://eppdscrmssa01.biob.core.windows.net/cmhcprodcontainer/st/project/archive/house_plans/catalogu.mh-47p68_w.pdf bidding and at all times ensure that they can properly construct the work represented by these plans.

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BeHome Bachelor Shed

project no. 2024.12

Site Address: TBD

01 - WIP Notes & Legends 7-12



- q) SIPPU under Slab On Grade Construction: Apply SIPPU insulation directly over tamped engineered gravel fill as noted in the Architect's Assembly Schedule page. Contractor to let in 6mil PU OAA at slab edges to preserve Vapour Barrier Continuity up concrete foundation walls. Any substitution to under-slab SIPPU most include a continuous Vapour Barrier such as 10mil PE with all seams taped (per above section 03 31 00: Slab On Grade).
- r) Always apply Insulation to achieve continuity of enclosure thermal resistance.
- s) Reduction of embodied carbon and Greenhouse Gas Intensity (GHGI) of all Insulated materials shall preference cellulosic and mineral fibre insulation over any/all board foam and spray in place plastic insulation products.

07 25 00 Weather Barriers: Building Science and Membranes

For Building Science supporting proposed wall and roof assemblies including vapour diffusion port detailing, Thomson Architecture closely follows the recommendations of Joe Lstriburek of BSI, refer to Building Science Corporation Bulletins:

- a) https://www.buildingscience.com/documents/insights/bsi-001-the-perfect-wall
- b) https://www.buildingscience.com/documents/insights/bsi-088-venting-vapor
- c) https://www.buildingscience.com/documents/building-science-insights-newsletters/bsi-096-hot-and-wet-dry

Available for free download at: https://www.buildingscience.com

It is important to consider the role and function of several different Control Layers or Barriers in Floors, Walls and Roofs, each has a different function and requires to be located in a different depth in each assembly. The Architect has clearly indicated the Control Layer type and placement in the Assemblies Schedule on page A0.07. The continuity and integrity of these respective Control Layers is fundamental to the building's ability to divert bulk water, limit heat loss through air leakage, and promote durability through limiting vapour diffusion and condensation within the Construction Assemblies. Failure to adhere to the noted specifications and Manufacturer's Specifications for the noted Control Layer products can have adverse consequences on both building performance and durability, and the Architect will not permit substitutions to the Control Layer products without review and approval.

Provision for Blower Door/Doorfan Airtightness testing shall be provided for a minimum of 2-intervals, a) The 'Pre-Drywall' Test, in order to determine Airtightness level prior to completion of interior finishes and to allow for remedial airtightness work and b) Conformation or 'Post-Drywall' testing, resulting in the final ACH number to match specified target and establish baseline for thermal systems performance.

Vapour Barriers: Inboard of Primary Insulation Layer

Use membranes and compatible sealant materials for controlling vapour diffusion. It should be noted that whichever interior AVB material is selected, its permeance rating must be noted, and any material exterior to that interior AVB must maintain a permeance of 10x the interior AVB material. That means if an interior AVB has a permeance of 1, then any/all materials outboard of that AVB need to have a permeance of 10 or greater to prevent condensation from occurring. Moisture shedding and moisture impermeable materials to used bridge and seal openings and penetrations between the

h) Any/all gaps in cladding or between different materials greater than 6mm (1/4") shall be taped, caulked or fitted with

All landscape plantings shall maintain min. 3' clearance from any building exterior wall or foundation, and maintained

for the service life of the building, to limit insect access to foundations and transitional materials and permit use of

Each trade is responsible for fire stopping around their penetration thru a rated wall or floor (as required).

All wood blocking, framing & bulkheads to be constructed with same fire resistance as required by partition rating.

Any exposed electrical wiring to be armoured cable or in GV conduits c/w appropriate fasteners

c) All doors in barrier free path of travel to be provided with power door operators and Universal button activators on

f) Exterior doors are to have aluminium cladding or frames, thermally broken with a rigid vinyl extrusion with thermally-

i) Exterior doors weather stripping is required for the full perimeter and be made of resilient material drop sill sweeps for

I) Interior Doors shall be at minimum solid core wood with V1 finished wood veneers by Metrie, Masonite, OAA complete

e) Trim interior door height by cutting bottom edges to a maximum of 12.5 mm for return air pathways UNO.

Fire stop (where applicable): Fire stop to be carried out in good construction practice including, but not

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screening to prevent the intrusion of insect and vermin.

insect barriers such as diatomaceous earth.

Top and bottom of rated wall assemblies

Joint Protection

Doors and Frames

a) Install all doors to requirements of OBC 3.8.

both sides where required by OBC.

the full width of the door leaf.

Gaps at junctions of fire protection rated columns and beams

Each trade to provide details of rated fire stops to architect.

Vertical and horizontal surrounding service penetrations through a fire separation

b) All doors in any Barrier Free Path of Travel to permit min. 860mm clear unencumbered width

d) A qualified hardware consultant is required to specify hardware for all doors noted (08710).

Putty back and stuff w. mineral batt insulation any electrical outlets in a Fire Separation

07 80 00

limited to:

07 90 00

08 10 00

(Section Pending)

broken door sills.

c) Inorganic materials shall be used in any instance of contact with soil or water. Interior

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interior and exterior environments shall be detailed to permit the free diffusion of vapour and diversion of bulk water away from building assemblies. Where an Interior AVB is noted, product shall be;

- a) MemBrain by Certainteed/St.Gobain which is designed to promote bi-directional drying or,
- b) Pro Clima Intello X (suitable for walls and roofs) or
- c) SIGA Majrex (applied with Twinnet DST and Rissan Tape, Print Side Facing Interior)
- d) Acoustic caulk or gasket or tape with compatible products, RTMS and lap AVB materials over structure, sill and top plates and fasten with DSA/T or hammer-tack AVB only along AVB caulked seams.
- e) All exterior openings to be flashed with a) Dupont FlexWrap NF or b) Huber Stretch Tape or Huber ZIP liquid applied flashing or c) VISCONN Liquid Applied flashing or d) SIGA Wigluv WRB Tape and lapped and adhered to interior AVB without exception, RTMS.
- f) ADA Airtight Drywall/Plywood approach may be considered an accepted alternative to interior vapour barrier membranes only when specified and appropriately detailed with tapes or gaskets at all seams.

WRB: Weather Resistive Barrier = Combined Air & Weather Barrier

- a) Lap WRB membranes and apply compatible sealants between layers. WRB shall cover entire roof surface and not only comprise areas traditionally reserved for ice dam protection. Caulk all edges and seams to ensure completeness
- g) AWRB/Air Barrier is to be lapped and adhered over entire exterior of structural sheathing and folded inwards at all edges and exterior openings.
- b) Materials and installation methods for air seal materials and assemblies, acceptable products include;
- c) Pro Clima Solitex ADHERO (Waterproof, Vapour-Open, Peel & Stick) primer recommended RTMS or
- d) ProClima MENTO 1000 (Waterproof, Vapour-Open, not Peel & Stick) or
- e) ProClima MENTO Plus (only where sheathing/underlayment is not required and as insulation retainer) or
- f) ProClima VISCONN Liquid Applied WRB & VISCONN Fibre (for gaps) or
- g) SIGA Majvest 500 SA WRB laps sealed with Wigluv Tapes and roller-applied or
- h) Huber ZIP Sheathing for Roofs or Walls (use appropriate product for location) c/w ZIP Tape or Liquid Applied Flashing. If ZIP System is used, tape or otherwise seal all fastener penetrations with ZIP liquid applied flashing or tape. Trowel on liquid applied ZIP flashing along bottom edge of sheathing at foundation wall joint and 16" above TOW of Foundation wall.
- i) Air seal materials to bridge and seal openings and penetrations of window frames, door frames, plumbing and vent stacks thru roofing, and other openings between the interior and exterior environments that will permit the designed free passage of air using products compatible with the Control Layer selected.

Vapour Diffusion Ports in 'Unvented' Hot Roof Assemblies (per: 2018 IRC Section R806.5.2)

Vapour diffusion ports must be provided at the peak of cathedral roofs (min. slope of 3:12 or greater is required to induce buoyancy) and are not to be confused with ridge vents, although they can use the same parts. Provided the roof assembly is comprised of a continuous air/vapour control layer on the warm side of the insulation (typically 1/3rd of the way towards the Interior of the R-Value layers), diffusion into the assembly is not a concern. However exterior air can still condense on any exterior assembly that is open to the atmosphere if the assembly drops below the dew point. For this reason a method

a) Provide thermal isolation where components penetrate or disrupt building insulation with foam insulation.

c) Install perimeter sealant and backing materials to achieve weather-tight installation.

thermal performance, type and protection of glass for the noted building.

applied so that the panel/door's existence and position is readily apparent

c) All high traffic areas to use SS corner guards to ht. of top of door casing UNO.

m) All high traffic areas to use SS wainscot height panel guards to height of min. 36" (915mm) UNO.

within 900mm of AFG) shall bear the same requirements.

g) Glass guards shall be tempered as per OBC 9.8.8.7

white or approved hygienic equivalent.

RFI at the Tender Phase of the project.

aka. P1 finish (typ.) except where other materials noted.

Plaster & Gypsum Board

b) Coordinate placement and seal of perimeter air barrier, vapour retarder materials, and crevice and crack sealing.

d) All doors and windows to conform to minimum values required by SB10/SB12 for the noted building type or better, c/

e) Types of glass, thickness, tempering, laminations etc. shall be governed by OBC Table 9.6.1.3 for glass in Doors, and

f) It is the responsibility of the door & window manufacturer and supplier/installer to provide only glazed assemblies that

h) Transparent Doors and Panels as per OBC 3.3.1.18: Non-transparent markers, guards or other fixtures shall be

a) Where applicable: Commercial kitchen walls walk-in coolers and other food prep. areas & ceilings to be lined with

approved, prefinished hygienic metal liner or approved alternate mounted on min. 1/2" plywood using pan screws in

b) All finish-side GWB to receive taping, mudding, sanded flush, with min. 1 coat primer & 2 coats premium latex paint -

d) Any finish that is either generic ie. 'Wood Siding' or 'Porcelain Tile' or 'Paint' or 'Hardwood Flooring' and/or otherwise

a) Install and finish gypsum board when ambient temperature is between 14 and 22°C. Maintain this temperature range

b) Deliver materials in original packages, containers or bundles bearing manufacturers brand name and identification.

d) Handle gypsum boards to prevent damage to edges, ends or surfaces. Protect metal accessories and trim from being

c) Store materials inside, level, under cover. Keep dry. Protect from weather, other elements and damage from

in areas to receive gypsum board for 48 hours before and during application and until joint cement and adhesives are

not specified shall be priced at a 'premium' level of quality subject to Architect and Owner approval through a standard

meet or exceed all OBC and CSA requirements and additional Architectural Specifications for structural sufficiency,

any glazing that could be mistaken for a door (such as sidelights wider than 500mm, glass curtain wall extending to

w triple-glazed panes, non-conductive glazing spacers, insulated gas fills, low-e coatings and thermally broken frames

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f) Ventilation: Ventilate building spaces as required to remove excess moisture that would prevent drying of joint treatment material immediately after its application.

of venting vapour diffusion as the assembly warms above the dew point should allow this vapour pressure to escape. Here

Any membrane must be rated at min. 20 Perms or higher and be rated for high-temperature applications. Vent widths

should be 1:600 of ceiling area, (per Joe Lstriburek). Standard metal ridge-vent flashings may be used over the Vapour

Base or Soffit Venting is considered unnecessary and in fact is counterproductive and should not be used in 'hot roof'

a) Liquid applied damp-proofing acts as a capillary break and limits water ingress through concrete structures and shall

b) Alternatives to liquid applied damp-proofing such as rigid free-draining insulation with a full-height, water impervious

a) Provide sealed sheet membrane capable of preventing migration of [radon and methane] gas and moisture into

c) Joint and Lap Seal membrane and seal with non-hardening, permanently flexible, high performance sealant with

a) Biological and Insect Resistance: Below grade foam insulation products and wall assemblies to be detailed to resist

to soil or air (ie. rainscreen or roof ventilation cavities), below that have better insect resistance.

b) Preference shall be given to cellular glass or mineral fibre insulation over EPS/EXP/SIPPU insulation products exposed

b) Gas [and Moisture] Barrier Membrane multi-ply low density polyethylene (LDPE) conforming to ASTM D4551, one (1)

insulation protection board is used (ie. GV Sheeting or Delta/Dimple Board & Cementitious panel, etc.) may be used

Diffusion Port. Any roof sheathing at the diffusion port must never be less than the perm rating of the selected membranes.

are a few vapour-open membranes that can be used at the roof peak:

c) Cosella-Dörken Delta-Foxx, rated at 550 perms (BSC test preference)

be applied at all substructure locations in contact with soil UNO.

c) Section Pending. Note new OBC and NBC requirements for same.

vapour barrier properties as recommended by membrane manufacturer.

layer of aluminum foil, one (1) layer reinforcing mesh.

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e) Nemco Industries RoofAquaGuard BREA, rated at 146 perms

a) Cosella-Dörken Delta-Maxx Titan, rated at 28 perms

b) Cosella-Dörken Vent S, rated at 120 perms

d) VaproShield SlopeShield, rated at 59 perms

Ground Moisture Barrier AKA Damp-Proofing

where there are no stories below-grade.

Radon Control

Subgrade Membrane

Insect & Vermin Barriers

insect intrusion per OBC 9.3.2.9.

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f) Dupont Tyvek (58 perms)

g) Provide protection that ensures completed gypsum drywall work will remain without damage or deterioration at time of

Framing, Furring And Trim

- a) Unless otherwise specified provide: framing, furring, trim (beads, control joints): minimum 0.5 mm thick core steel, hot dip galvanized (wipe coat) to ASTM A653.
- b) To ensure sound transmission class is effective all piping should be isolated from surrounding structures with resilient
- c) Place edge trim where gypsum board abuts dissimilar materials.
- d) Install acoustical sealant at both faces at top and bottom of walls, wall perimeters to manufacturer's instructions.

Resilient Channels

a) Resilient Channels need to be installed as per manufacturers recommendations and with approved fasteners and recommend spacing for sound attenuation to be effective. [Fasteners used to attach gypsum wallboard can not penetrate framing members.]

- a) Resilient furring channel: RC-1 byCGC.
- b) Corner beads: beaded angle with perforated flanges.
- c) Casing beads: channel shaped; beaded corners.
- d) Hangers: minimum 1/8" galvanized steel wire. e) Tie wire: minimum 16 ga soft annealed galvanized steel.
- f) Metal control joint section: bellows shaped section with perforated flanges.
- g) Reveal mouldings: extruded aluminum, profiles as indicated, by Fry, Reglet, Gordon or Pittcon Softforms.
- h) Edge trim: FryDMET-50.
- i) Drywall furring channels: 0.5 mm core thickness galvanized steel channels for screw attachment of gypsum board. j) Metal furring runners, hangers, tie wires, inserts, anchors: to CSA A82.30.
- k) Casing beads, square corner beads, control joints and edge trim: to ASTM C 1047, zinc-coated by hot-dip process, 0.5 mm base thickness, perforated flanges, one piece length per location.
- I) Insulating strip: rubberized, moisture resistant, 3 mm thick closed cell neoprene strip, 12 mm wide, with self sticking permanent adhesive on one face, lengths as required.

m) Provide corner beads at external corners.

n) Provide casing beads around openings and where gypsum board abutts dissimilar material and construction.

Fire Rated Assemblies

- a) Provide fire rated gypsum and cement board components and assemblies as indicated. Where firehose cabinets, electrical panels or other fixtures or equipment are recessed into fire rated partitions, provide fire rated backing to maintain required fire rating.
- b) Protect recessed fixtures in fire rated ceilings in accordance with fire rated assembly design report and/or as indicated.
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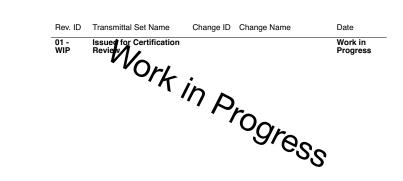
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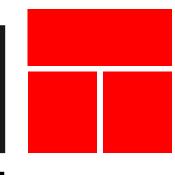
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BeHome Bachelor Shed

project no. 2024.12

Site Address: TBD

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g) All exterior glazing is to be triple sealed pane, clear, low E.

j) Insect Screens are to be black, glass fibre mesh, woven.

with painted hollow metal frames or as directed by owner.

k) All glass frame tracks to be aluminum extrusions UNO.

h) Tempered safety glass and/or low-iron to be provided only as required.

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bent or damaged.

construction operations and other causes.

e) Apply board and joint treatment to dry, frost free surfaces.

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- c) Bulkheads / partitions in ceiling spaces above fire rated glazed screens, doors or other elements shall have same fire rating as doors over which they occur.
- d) When fire or sound resistant ratings are necessary, water resistant gypsum board required for the rating shall extend down to the floor behind the ficxtures so that the construction will equal that of the tested system.
- e) Fire-stopping is required for all through penetrations of fire rated assemblies and must confirm to ULC 40 U19 FIRE STOP SYSTEMS.
- f) All electrical outlet boxes with openings through a membrane must be offset min 400mm/ 16" on opposite sides of the assembly and sealed with acoustical sealant.

Shaft Wall Assemblies

VERTICAL: Metal framed, ULC labelled Gypsum Board Shaftwall System by CGC or equivalent product by other manufacturer approved by Consultant.

HORIZONTAL: Canadian Gypsum Co. (CGC) Horizontal Shaft Wall Assembly, consisting of 1" thick CGC Shaft wall liner and three layers of 'A" thick Sheetrock Firecode "C" panels, fitted and fastened with metal studs, channels, runners, screws, anchors, trim and sealants as recommended by manufacturer. [Fire resistance rating: 2 hours, unless indicated otherwise.]

Ceilings

a) Renovated and New Basement Suites: All GWB ceilings and stair soffit to be furred down from U/S floor joists or structure using 1/2" galvanized resilient channel spaced max. 600mm OC, and constructed with (2 layers) 5/8" "Type X" GWB. Joist cavities to be filled with Roxul Batt to achieve 45min. required rating and STC49. All electrical to be concealed within floor joist and wall cavities fully clad in GWB, otherwise cable must be enclosed in conduit. Ceiling mounted light fixtures to be SURFACE mounted - NO POT LIGHTS. ALL mechanical and plumbing penetrations of the rated ceiling assembly shall be fire stopped without exception.

Acoustical Materials

- a) Acoustic Insulation: Acoustical Fire Batt by Roxul or equivalent product by Fibrex.
- b) Caulking: to CAN/CGSB-19.21-M87: Acoustical Sealant by Tremco, or CGC Acoustical Sealant.

Installation: Gypsum Board

Install work level to tolerance of 1:1200. Completed installation to be smooth, level or plumb, free from waves and other defects and ready for surface finish.

- a) Do not install damaged or damp boards.
- b) Do not apply gypsum board/cement board until bucks, anchors, blocking, sound attenuation, electrical and mechanical work are approved.
- c) Support light fixtures by providing additional ceiling suspension hangers within 150 mm of each corner and at maximum 600 mm around perimeter of fixture.
- d) Erect hangers and runner channels for suspended gypsum board ceilings in accordance with ASTM C 840 except where specified otherwise.
- e) Frame with furring channels, perimeter of openings for access panels, light fixtures, diffusers, grilles, etc.
- f) Furr for gypsum board faced vertical bulkheads within and at termination of ceilings.
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where indicated. Seal joints with sealant.

I) Install casing beads where gypsum board butts against surfaces having not having trim to conceal the junction and

g) Furr above suspended ceilings for gypsum board fire and sound stops and to form plenum areas as indicated.

h) Furr openings and around built-in equipment, cabinets, access panels, on four sides. Extend furring into reveals.

i) Install 150 mm continuous strip of 12.7 mm gypsum board along base of partitions where resilient furring installed.

j) Erect accessories straight, plumb or level, rigid and at proper plane. Use full length pieces where practical. Make joints

tight, accurately aligned and rigidly secured. Mitre and fit corners accurately, free from rough edges. Secure at 150 mm

- m) Furr duct shafts, beams, columns, pipes and exposed services where indicated.
- n) Install insulating strips continuously at edges of gypsum board and casing beads abutting metal window and exterior doorframes, to provide thermal break.
- o) Install access doors to electrical and mechanical fixtures specified in respective sections.
- p) Rigidly secure frames to furring or framing systems.

k) Install casing beads around perimeter of suspended ceilings.

Check clearances with equipment suppliers.

- q) Finish face panel joints and internal angles with joint system consisting of joint compound, joint tape and taping compound installed according to manufacturer's directions and feathered out onto panel faces.
- r) Finish gypsum board walls and ceilings to following levels in accordance with Association of the Wall and Ceiling Industries (AWCI) International Recommended Specification on Levels of Gypsum Board
- s) Finish corner beads, control joints and trim as required with two coats of joint compound and one coat of taping compound, feathered out onto panel faces.
- t) Fill screw head depressions with joint and taping compounds to bring flush with adjacent surface of gypsum board so as to be invisible after surface finish is completed.
- u) Sand lightly to remove burred edges and other imperfections. Avoid sanding adjacent surface of board.
- v) Unless otherwise specified, erect gypsum board vertically or horizontally, whichever results in fewer end joints.
- w) Locate edge or end joints over supports. Stagger vertical joints over different studs on opposite sides of wall.
- x) Locate board end joints over supporting members.
- z) Vertical joints on opposite sides of a partition in single layer applications shall not occur on the same stud.
- aa) Cut and fit gypsum board as required to accommodate other work.
- bb) Unless otherwise shown or specified, extend gypsum board on both sides of partitions to underside of structural deck above. Fasten gypsum board to studs, not to top channel. Allow for 13 mm deflection.

y) Horizontal butt joints on opposite sides of a partition in single layer applications shall be staggered not less then 12".

cc) Do not install gypsum board until wood blocking or other back-up components are installed. Remove and reinstall gypsum board at no extra cost to Contract where this requirements is not complied with.

a) FOR TWO LAYERS 5/8": FIRST LAYER 1 5/8" S drywall screws spaced 8" oc at edges, and 12" oc in the field. SECOND LAYER: 2 1/4" S OR W drywall screws spaced 8" oc at edges, and 12" oc in the field.[face layer screws must penetrate min. 20mm[3/4"] into wood framing members.

g) Provide 2 bead caulking system around horizontal and vertical perimeters of partitions. Apply continuous sealant

beads at each side of horizontal runner tracks and vertical end studs, between gypsum board and adjacent

i) Where acoustically insulated partitions meet steel deck running perpendicularly to partition, provide steel deck

a) Unless otherwise specified or shown, provide 5/8" thick gypsum board (more durable, wider spans).

CGC or equivalent product by CertainTeed. Use abuse resistant gypsum board where indicated.

b) ASTM C 36/C 36M-01,C1396 Specification for Gypsum Wallboard, including the requirements for Type X.

c) ASTM C 475-01, Specification for Joint Compound and Joint Tape for Finishing Gypsum Board.

h) Caulk around objects such as electrical outlets, light switches, electrical and mechanical panels and boxes, grilles, and

a) Install access doors supplied by Divisions 21 to 28 incl. Build doors into gypsum board elements flush and parallel to

b) Install steel door frames occurring in gypsum board partitions. Follow installation requirements specified in Section 08.

b) **FIRE RATED BOARD:** to ASTM C 36/C 36M: Regular, H" thick and Type X, 5/8" thick, 48" wide x maximum practical

c) **WATER RESISTANT BOARD:** to ASTM C 630/C 630M 12.5 mm thick X 1220 mm wide x maximum practical length.

resistant substrate for high moisture areas. [FIBEROCK® AQUA-TOUGHTM Interior Panels] Use moisture resistant

d) ProRoc 1/2" (12.7mm) Moisture & Mould Resistant Gypsum Board with M2Tech by Certainteed, or equivalent Mould

length, ends square cut, edges beveled. Use 5/8" (16mm) Type 'X' gypsum board for fire rated assemblies.

e) **CEMENT BOARD:** DUROCK® Cement Board by CGC, or equivalent. Use cementitious board where indicated.

f) ABUSE RESISTANT BOARD: FIBEROCK® VHI Abuse-Resistant Panels, 5/8" thick ASTM CI 278: FiberockVHI by

g) TILE BACKER BOARD: ASTM CI 178: Diamondback Glas Roc Tile Backer by CetainTeed. Use tile backer board

h) JOINT COMPOUND: USE DURABOND® Joint Compound, Essential for bed coat on FIBREROCK products [data

- b) FOR ONE LAYER 1/2": 1 5/8" type S drywall screws 16" oc.
- c) FOR ONE LAYER 5/8": 1 1/4" type S drywall screws 12" oc, 1" type S screws spaced 16" oc]
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f) Around objects penetrating gypsum board elements.

gypsum board in wet areas and where indicated.

a) American Society for Testing and Materials International, (ASTM)

d) ASTM C 514-01, Specification for Nails for the Application of Gypsum Board.

f) Exposed gypsum board for interior use: tapered edge: ASTM CI 396.

h) Fire rated gypsum board: Type 'X' board: ASTM CI 396.

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g) Unexposed gypsum board for interior use: backing board: ASTM CI 396.

i) ASTM C 840-01, Specification for Application and Finishing of Gypsum Board.

e) ASTM C 630/C 630M-01, Specification for Water-Resistant Gypsum Backing Board.

Door Frames/Access Doors

Gypsum Board Schedule

sheet EJC-1507]

References

walls and securely fastened.

other objects penetrating. Caulk behind metal control joint sections.

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j) ASTM C 954-00, Specification for Steel Drill Screws for the Application of Gypsum Panel Products or Metal Plaster

k) ASTM C 1002-01, Specification for Steel Self-Piercing Tapping Screws for the Application of Gypsum Panel Products

o) Application and finishing of gypsum board in accordance with ASTM C 840 except where specified otherwise.

q) Erect hangers and runner channels for suspended gypsum board ceilings in accordance with ASTM C 840 except

r) Install wall furring for gypsum board wall finishes in accordance with ASTM C 840, except where specified otherwise.

Bases to Steel Studs From 0.033 in. (0.84 mm) to 0.112 in. (2.84 mm) in Thickness.

l) ASTM C 1047-99, Specification for Accessories for Gypsum Wallboard and Gypsum Veneer Base.

p) Apply gypsum board sheathing in accordance with ASTM C840 except where specified otherwise.

b) Tiled surfaces to be installed over min. 3/4" T&G plywood screwed and glued on floor joists UNO.

f) All tile edging, transitions, and exterior corners to use Schluter anodized aluminum profiles UNO.

e) All tile to use Laticrete systems and accessories for thin-set mortar, hydro-ban membranes, epoxy grout, etc.

membrane to be adhered to tile backer with modified thin-set mortar per manufacturer instructions.

h) If ceramic tile is specified use matching ceramic cove tile base transition profile at all corners & threshold UNO.

j) Tile to be installed on min.1/2" mortar setting bed or on 1 1/2" concrete topping [w/ wire mesh reinforcing at

g) All floors to receive tile shall be applied over Schluter Ditra decoupling membrane (aka. 'Bond Breaker'). Decoupling

i) Where applicable, Shower tile over built-up mortar base or Schluter Kerdi Board Systems sloped to drain at 4% typ.

mid-depth] on Concrete Structural Deck or on min. 3/4" T&G plywood screwed and glued on floor joists UNO.

k) For wood-frame buildings, construct shower/tub base & thresholds from PT lumber c/w cut-end treatment UNO.

I) Cover shower base, threshold framing and entire washroom or wet-areas floors with waterproof membrane (ie.

m) A tile bond-breaker is required (ie. Schluter Ditra bond-breaker) over any framed floor system to limit cracking

q) Thin-set mortar and grout system: Laticrete Spectralock PRO Premium Epoxy (In colour selected by consultant)

s) Refer to Room Finish Schedule Sheet for Tile Brand, Format, Colour and Grout Colours

r) All work to be installed in accordance with manufacturer's directions and in accordance with TTMAC specifications.

u) TILE WALLS: Substitute GWB for Cementitious Tile Backer (CTB) on any wall to receive tile finish or ADD CTB if part of

d) For gypsum board on ceilings, screws should not be more then 12" apart.

j) Fastening resilient channels should be 38mm/ 1 1/2" from gypsum board edges.

g) Laminating adhesive: CGC Durabond 90 compound by CGC, or equivalent product by CertainTeed.

h) Apply gypsum board/cement board to metal furring or framing using screw fasteners for first layer. Maximum spacing

i) Fasten gypsum board to supports with screws spaced at maximum 12" o.c. [Closer fastening dimensions may reduce

1) Adhesive bonded gypsum board; apply 'A" x 'A" ribbons of laminating adhesive to back side of board, parallel to long

m) Where double layer gypsum board is required, screw fasten second layer through first, into framing; offset joints in

b) To ensure integrity of STC ratings, seal all cracks or openings, apply sealants below plates in stud walls, between

a) Board: polymer modified, fibreglass mesh reinforced concrete board, 'A" thick, tapered edges: PermaBoard by Unifix.

c) Unless otherwise specified, the face layers of all systems, except exterior gypsum sheathing panels, shall have joints

systems shall not be required to have joints or fasteners taped or covered with joint compound.

f) Board for textured finish or backing for ceramic tile: Durock by CGC V-i thick, or equivalent product by other

a) Tape and fill exposed joints, fastener heads, edges, corners, to produce an acceptable surface ready for decoration.

b) Conceal exposed flanges of corner beads, casing beads and other trim sections with at least 3 coats of cement,

taped with either paper tape of glass fibre mesh tape [min. level 1 as specified in GA-214. Base layers of multi-layer

bottom of drywall sheets and structure behind, and around all penetrations for services.

dimension; space adhesive ribbons at max.6" o.c. temporarily brace boards until complete adhesive bond develops.

k) Install gypsum sheathing horizontally at outside of exterior wall steel studs. Fasten each board at each stud with

e) Use only fasteners approved for use by board manufacturers.

f) Drywall screws: self-drilling, self-tapping, case hardened.

second layer.

Board for paint finish:

e) Fill coat: Acrybase by Unifix.

Procedure: Joint Compound

feathered out minimum 8".

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n) Steel drill screws: to ASTM C 1002. o) Nails: to ASTM F547ASTM C 514.

p) Stud adhesive: to CAN/CGSB-71.25 and ASTM C 557.

c) Acoustical sealant should be butyl rubber-based.

d) Joint compound: acrylic based: Acryjoint by Unifix.

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or Metal Plaster Bases to Wood Studs or Steel Studs.

s) Paper-Faced Metal Bead and Trim [data sheet ETR-00T9]

c) All tile to be min. 1/2" Porcelain material UNO

n) CAN/ULC-S102-1988(R2000), Surface Burning Characteristics of Building

a) Construct shower/tub base & thresholds from pressure-treated lumber UNO.

d) Apply 1/2" cementitious tile backer to all wall surfaces to receive tile UNO.

Schluter Ditra bond-breaker) and extend min. 8" up walls UNO.

n) Extend Tile Baseboard min. 8" up all walls otherwise;

o) Extend Wall Tile to height of door head casing UNO.

p) Wall tiles use thin-set mortar and epoxy tile grout system.

t) Colour match any/all caulking or sealants to grout colour UNO.

m) Underwriters' Laboratories of Canada (ULC)

where specified otherwise.

09 30 00 Tiled Areas:

manufacturer approved by Consultant.

Finishing Materials: Joint Compound

a) Sealants: in accordance with Section 07 92 00 - Joint Sealing.

b) Joint tape: 3" wide alkali resistant fibreglass mesh tape: Unitape by Unifix.

- c) Fill depressions at fastener head with cement, then apply 2 additional coats of cement to produce smooth, level
- d) Treat joints using 3 coat method as follows:
- e) Apply thin uniform layer of cement and embed joint tape.
- f) Immediately apply thin skim coat of cement over tape and allow to dry. g) Apply 2 additional coats of cement. Allow first coat to dry before applying second coat.
- h) Sand each coat of topping cement with fine sandpaper as required to produce smooth surface. Do not sand paper face of gypsum board
- i) Finish concealed fastener heads at fire rated gypsum board elements in manner specified for exposed
- k) Finish concealed joints at fire rated and at acoustically insulated gypsum board elements in manner specified for exposed work.
- I) Joint tape: 2" perforated type.
- m) Joint filler and topping cement: casein, vinyl or latex base, slow setting.
- n) Joint compound: to ASTM C 475, asbestos-free.

Control And Relief Joints

- a) Provide control joints where shown and at maximum 25' o.c.
- b) Break continuity of gypsum board and framing system at control joints; install continuous metal control joint section.
- c) Relief Joints:
- d) Provide relief joints where shown and where gypsum board assemblies abutt dissimilar construction.
- e) Stop gypsum board V* from abutting construction at dissimilar building elements, unless otherwise indicated.
- f) Where gypsum board comes into contact with window frames or exterior door/screen frames install thermal break. Adhere self-sticking tape to casing bead and compress during installation of gypsum board.
- g) Where indicated, install reveal mouldings.

Installation: Cementitious Board

- a) Screw fasten board to each supporting member at maximum 12" o.c.
- b) Finish cementitious board joints at locations scheduled to be painted with 3-step joint finishing system as recommended by board manufacturer. Apply fill coat over entire board surface to achieve smooth, uniform surface, ready for painting. Provide corner and casing beads similar to gypsum board installation.

Sound Control

- a) Acoustical Insulation: Provide acoustical insulation in gypsum board partitions and ceilings as indicated. Unless otherwise noted provide 2" thick insulation. Extend acoustical insulation overfull height of partition, including portions located above ceiling.
- b) Refer to Wall Assemblies/ Types.
- c) ACOUSTICAL CAULKING:
- d) Provide acoustical caulking at all partitions, bulkheads and ceilings scheduled to receive acoustical insulation as
- e) At perimeter of gypsum board partitions and ceilings.
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a rated assembly.

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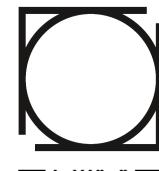
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7. The Architect of these plans and specifications gives no warranty or representation to any party about the constructability of the building(s) represented by them. All contractors or subcontractors must satisfy themselves when

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BeHome Bachelor Shed

project no. 2024.12

Site Address: TBD

01 - WIP Notes & Legends 19-24



- 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.

Hardwood Flooring

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

10 30 00 Fireplaces And Stoves

- a) Fireplaces shall conform to OBC 9.22 [as per OBC 9.21.1.3]
- b) Direct vent gas fireplace vent to be a min 300mm [12"] from any opening and AFG.
- c) 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.

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.

Plumbing Fixtures (22) and Accessories (10)

a) Install water closets in accordance with OBC section 3.8.3.9.

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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.
- I) Blocking to be provided for future grab bars as noted.

Plumbing Penetrations & Access

- a) Flash and counter flash where plumbing piping passes through weather or waterproofed walls, floors and roofs.
- b) Flash vent and soil pipes projecting above finished roof surface. For pipes through outside walls turn flange back into
- c) Set sleeves in position in advance of concrete work. Arrange reinforcing around sleeves.
- d) Extend sleeves through floors 100 mm/4 inches above finished floor level. Seal opening perimeter with sealant and provide floor cover plate.
- e) Install chrome plated escutcheons where piping passes through finished surfaces.
- f) 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
- b) Washroom and kitchen mechanical exhaust to be connected to HRV, noting all reg'd clearances (ie. min 6' from range)
- c) HRV to be installed, insulated and balanced by HRAI licensed professional and per HRAI and manufacturer
- d) Adequate attic, crawlspace and/or cavity venting (per OBC) to be installed by contractor.

ACOUSTICAL CEILING TILES & T-BAR

AUTHORITY HAVING JURISDICTION

AIR/VAPOUR BARRIER aka. VAPOUR

BUILDING AUTOMATION SYSTEM

CONTEMPLATED CHANGE ORDER

SUSPENSION SYSTEM

ABOVE FINISH FLOOR

RESISTIVE MEMBRANE

BELOW FINISHED FLOOR

BELOW FINISHED GRADE

ABOVE FINISHED GRADE

ALUMINUM

APPROXIMATE

AUDIO VISUAL

BARRIER FREE

BULKHEAD

BETWEEN

COAT HOOK

CARD READER

CATCH BASIN

COMPLETE WITH

CONTROL JOINT

CONTINUOUS INSULATION

BOARD

AFG

AHJ

A/V

AVB

BAS

BD

B/F

BFF

BFG

BHD

В/Т

CCO

CH

CR

C/W

CB

CJ

CI

APPROX

- 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 reg'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)

DIM

DN

DSA/T

DWGS

ECR

EIFS

SYSTEM

ELEC

ELEV

EPD

EQ

EL

EXP

EXT

EXST

F2F

FD

FF

FG

FO

FR

FSR

GΑ

GCA

EXST GR

EUI or TEUI

DTL

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1017 Dominion Rd., Algonquin Highlands, ON KOM 1J1

RTS

RTFM

RO

SCP

SLNT

SECT

SW

SIM

SPF

STOR

STRUCT

SATC

TBV

THK

TMPD GL

THERM

THRES

THRU

TFA

TFB

TJI

TO

TOB

TOC

TOW

TFF

TOF

TOC FTG

TOC WALL

SS

SIP PU

INSULATION

SJ/OWWSJ

SPECIFICATIONS

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ROOF DRAIN

ROUGH OPENING

SITE INSTRUCTION

SPRUCE/PINE/FIR

STAINLESS STEEL

STORAGE

CEILING

STRUCTURAL

THICKNESS

THRESHOLD

TOP OF ____

TOP OF BEAM

TOP OF WALL

TOP OF CONCRETE

TO FLOOR ABOVE

TO FLOOR BELOW

TRUSS JOIST/WOOD-I BEAM

TOP OF CONCRETE FOOTING

TOP OF FLOOR | TOP OF FOOTING |

TOP OF CONCRETE WALL

TOP OF FINISH FLOOR

TOP OF FRAMING

THROUGH

TEMPERED GLASS

SCUPPER

SEALANT

SECTION

SIDEWALK

REFER TO STRUCTURAL

REFER TO MANUFACTURER

READ THE F*CKING MANUAL

SPRAY IN PLACE PULYURETHANE

STEEL JOIST/OPEN WEB STEEL JOIST

SUSPENDED ACOUSTICAL TILE

TO BE VERIFIED BY CONTRACTOR

THERMAL GLAZING AS REQ'D BY OBC

ROOM

h) Controls: Airthings Wave+ c/w Radon & CO2 monitoring, programmed with IFTTT trigger to call HRV operation via

j) Drain Water Heat Recovery (DWHR) units (42% Efficiency) shall be installed as required by OBC SB12 3.1.1.12 at any/

a) Fire/Heat Detector: [Fixed temperature,] [Combination rate of rise and fixed temperature,] rated, self contained audible

d) Smoke Detector: [Ultraviolet] [Infrared] radiation type, self contained audible alarm, [120 VAC.] [Battery DC powered.]

i) Carbon Dioxide Detector: Sensor activated, self contained audible alarm, [120 VAC.] [Battery DC powered.] Locations:

c) Do not install boxes back-to-back in walls, provide separation, except provide minimum 600 mm/24 inch separation in

f) Install plastic air seal covers and apply acoustic sealant at all boxes at exterior walls and all ceilings with attic space

j) Install convenience receptacles 450mm/18 inches above floor, 150mm/6 inches above counter backsplash; grounding

k) Install galvanized steel plates on outlet boxes and junction boxes in unfinished areas, above accessible ceilings, and

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

TOM

TOS

TYP

U/S

UNO

UR

U/S B

U/S J

VERT

VEST

VOC

W/

WC

WD

WDMA

WGL

WH

W/O

WPM

WP

WRB

WRC

U/S SD

d) Use multiple-gang boxes where more than one device are mounted together; [do not use sectional boxes].

g) Vertically align adjacent wall-mounted outlet boxes for switches, thermostats, and similar devices.

Ecobee4 Thermostats at levels over 600ppm to 450ppm or RH of 60% or greater, OAA

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

b) All Electrical outlets shown on Drawings are approximate locations unless dimensioned.

all showers except where there is no vertical storey/crawlspace to accommodate the DWHR

i) Design for Relative Humidity targeting between 40-60% UNO.

alarm, [120 VAC.] [Battery DC powered.] Locations:

j) Install at ceiling locations appropriate to optimum sensoring.

Electrical

n) Outlet and switch heights per OBC.

on surface mounted outlets.

a) All switches and outlets to be Lutron Decora OAA.

e) Install boxes in walls without damaging wall insulation.

h) Set floor boxes level and flush with finish flooring material.

i) Install wall switches 1.2m/48 inches above floor, OFF position down.

coordinated on site with Finish Contractor and reviewed by architect

b) Kitchen.

c) Sleeping area.

Locations:

e) Near furnace.

f) Main floor hallway

g) Upstairs hallway.

h) Sleeping area.

26 10 00

acoustic walls.

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TOP OF FOUNDATION WALL

TOP OF SLAB | TOP OF STEEL

UNLESS NOTED OTHERWISE

UNDERSIDE OF STRUCTURAL DECK

VOLATILE ORGANIC COMPOUND

WINDOW & DOOR MANUFACTURERS

WEATHER RESISTIVE BARRIER (Vapour-

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WEEPING TILE C/W FILTER CLOTH

WEEP HOLE - or - WALL HUNG

WATERPROOF MEMBRANE

UNDERSIDE OF BEAM

UNDERSIDE OF JOIST

TOP OF JOIST

TYPICAL

URINAL

VERTICAL

VESTIBULE

WATER CLOSET

ASSOCIATION

WIRED GLASS

WATERPROOFING

WORKING POINT

WESTERN RED CEDAR

WITHOUT

WOOD | WOOD DOOR

UNDERSIDE

TOP OF MASONRY

TOP OF PARAPET

Water Control Checklists

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Contractor is to satisfy themselves that the Architect's Drawings indicate the following:

Design Stage

- 1. All wall and window systems comply with OBC, Insurer's & Warranty requirements of featuring at least two planes of
- 2. Primary building massing shall feature drainage planes designed to overlap and direct bulk water away from all building openings (ie. Doors, Windows, Mechanical Penetrations), and that bulk water shall not pool on walking surfaces or architectural elements unless designed for bulk water retention and freezing effects.
- 3. Fundamentals of Building Science is considered with respect to Airtightness (1.0ACH @50Pa or better is targeted, to be tested and confirmed)
- 4. Vapour Control and Diffusion (complete barriers and vents)
- 5. IAQ/EAQ Humidity Control (between 40-60% RH)
- 6. Drainage and Drying (preserve assembly moisture between 8-14% for interior wood and 12-18% exterior) per: https:// cwc.ca/wp-content/uploads/2019/03/publications-BP1_MoistureAndWoodFrameBuildings.pdf)
- 7. Ventilation effects (min. req'd ACH with 100% fresh air and Heat Recovery >80%)
- 8. Prevention of unnecessary wetting (provision of Overhangs, Ledges, Flashings, Drip Edges).
- 9. Protection of exterior doors and windows from precipitation, capillarity, snow-accumulation/melt by means of flashings with drip edges, positioning, roof overhangs, partial exterior frame insulation (ie. Thermal Bucks).
- 10. Design shall provide minimum overhangs of 24" (610mm) except where inverter roofs/parapets used (TAI standard) or where 2 planes of drainage are otherwise provided to divert bulk water ingress and promote drying.
- 11. Groundwater control measures are complete, from foundation protection to diversion to Sump and Sump discharge locations, damp-proofing, capillary breaks at all concrete, and moisture barriers under crawlspaces and vapour barriers under slabs.

Bid Stage

- 12. All roof drains, scuppers and diversion measures noted in sufficient quantity and size
- 13. Details of All Roof: Wall, Roof Curb and Parapet Details noting two planes of drainage where applicable are shown.
- 14. Ventilation and Drainage of all Wall Systems (Construction Assemblies Page: (A0.06) is noted.
- 15. Directionality of Drainage for all Roofs and Floors is noted.
- 16. Mechanical, Structural and other Sub-consultants to respect the Architect's design for prevention of prevention of bulk water ingress and vapour & humidity control.
- 17. Bulk water is designed to avoid pooling on walking surfaces or architectural elements

ABBREVIATIONS

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CIP CAST-IN-PLACE CONCRETE CG **CORNER GUARD** CL CENTRE LINE CLG CEILING CNTR COUNTER CofA COMMITTEE OF ADJUSTMENT C/W COMPLETE WITH C/C CENTRE TO CENTRE CMU CONCRETE MASONRY UNIT COMM COMMUNICATION CC CONCRETE COND CONDITION CPT CARPET CT 1 COUNTERTOP TYPE 1 (VARIABLE) CTR CENTRE DF DOUGLAS FIR DHW

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GFA GROSS FLOOR AREA OPERATIONAL GREENHOUSE GAS DOMESTIC HOT WATER HEATER INTENSITY (kgCO2e/m2/yr) 1017 Dominion Rd., Algonquin Highlands, ON KOM 1J1 2025 Outline Specifications | Version 2.1 | Page 29 of 34

DAMPROOFING

DEMOUNTABLE PARTITION

DUAL-SIDED ADHESIVE/TAPE

EMBODIED CARBON RATIO

ENVIRONMENTAL PRODUCT

DECLARATION (Data Sheets)

OPERATIONAL TOTAL ENERGY USE

FLAME SPREAD RATING - or - FLOOR

GROSS CONSTRUCTION AREA

INTENSITY (kgCO2e/m2/yr)

FLOOR TO FLOOR HEIGHT

FIRE RESISTANCE RATING

EXTERIOR INSULATION & FINISH

DIAMETER

DIMENSION

DOWN

DETAIL

DRAWINGS

(MTCO2e:MT)

ELECTRICAL

ELEVATOR

EQUAL

ELEVATION

EXPOSED

EXTERIOR

EXISITNG

EXISTING GRADE

FLOOR DRAIN

FINISH GRADE

FIRE HYDRANT

SPACE RATIO (%)

FIREPLACE

FIRE RATED

GAUGE

FINISHED FLOOR

FINISHED OPENING

FIRE HOSE CABINET

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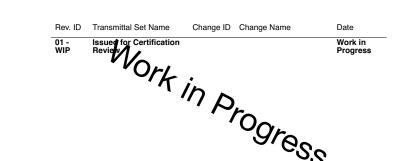
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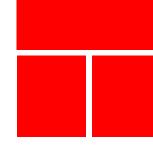
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BeHome Bachelor Shed

project no. 2024.12

Site Address: TBD

Revision 01 - WIP **Abbreviations**



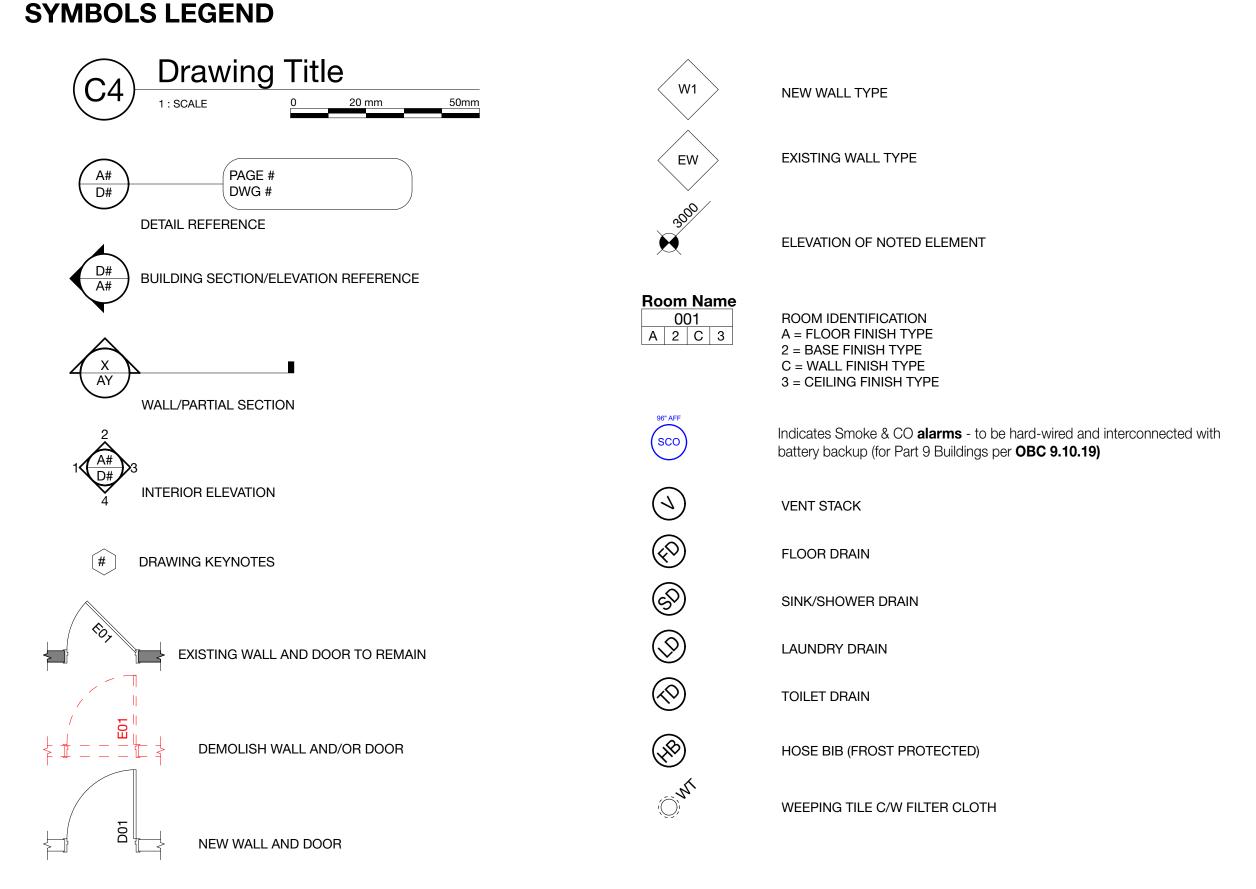
SATC	SUSPENDED ACOUSTICAL TILE	U/S J	UNDERSIDE OF JOIST
	CEILING	U/S SD	UNDERSIDE OF STRUCTURAL DECK
TBV	TO BE VERIFIED BY CONTRACTOR	VERT	VERTICAL
TMPD GL	TEMPERED GLASS	VEST	VESTIBULE
THK	THICKNESS	VOC	VOLATILE ORGANIC COMPOUND
THERM	THERMAL GLAZING AS REQ'D BY OBC	W/	WITH
THRES	THRESHOLD	WC	WATER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

1	/,	/.	/	/	/	/,	/,	//	/	//	//	//	//	/	/	\sim	/	/	/	/	/	/	/	/	\mathbb{Z}	/	/	/	/	/	/	/	/	Ζ,	/.	/	/	/.	/	/	/
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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-0151
- e) CONCRETE AIR ENTRAINMENT ASTM C260
- f) CONCRETE AGGREGATES CAN/CSA-A23.1M
- g) CONCRETE CEMENT CAN/CSA-A5M
- 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 I) 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

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- 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-086
- c) PRESSURE TREATED WOOD CAN/CSA-S406 and CSA-O322

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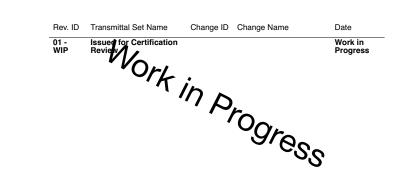
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Original Drawings and designs generously provided by CMHC's 'Pattern Book' from 1947 titled:
 67 Homes for Canacilans available at the link:
 https://epotabcrmssa01.blob.core.windows.net/cmhcprodcontainer/st/project/archive/house_plans/catalogues/ca1-mh-47p68_w.pdf

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Ontario Association of Architects Ordre des architectes de l'Ontario

thomson architecture inc

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BeHome Bachelor Shed

project no. 2024.12

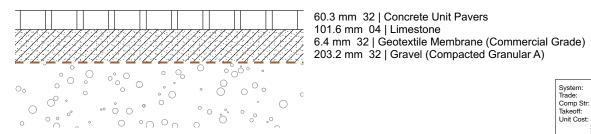
Site Address: TBD

Revision 01 - WIP Legends

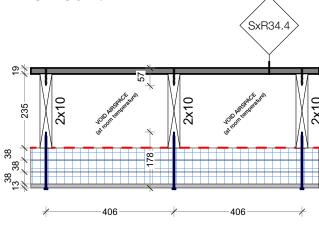
Structure

Plan ViewOBC/UL Assembly

LSup SI | Unit Paver



SxR34.4 Sx | R22.5 Crawlspace Outboard Insulated + **CB** Soffit



Owner-choice of finish flooring 16.0 mm T&G DFir Plywood Subfloor 38 mm T&G DFir Plywood Subfloor 234.95 SPF Joists c/w End and Midspan Blocking

(gravity-bearing, no joist hangars, pinned from below, see detail) 0.8 mm 07 | SIGA Majrex Smart Vapour Resistive Layer, Lapped Joints Sealed w. Rissan Tape 38.1 mm 07 | Insuation XPS Soprema (R5/inch) 38.1 mm 07 | Insuation XPS Soprema (R5/inch) 38.1 mm 07 | Insuation XPS Soprema (R5/inch) 12.7 mm 03 | Cement Board Soffit (GV Pan Head Fasteners, Neopren

10" GV Rothoblaas cladding screws with plastic pressure cap washer for foam insulation at truss centres, spaced max. 16" apart along stud length (vert), 24" between studs. Flush washers to U/S of Cement board Crawlspace Soffit. (Typ)

Walls Exterior

STC/FRR Plan ViewOBC/UL Assembly

Wx | R31 2x6 +3x GPS + GV Rainscreen 22.2 mm 07 | 7/8" Sinewave Galvalume Cladding (24ga) 19.1 mm 00 | Air Space + Wood Strapping 54 mm 07 | DuroSpan GPS (Plastifab) R10 - Tape All Seams 54 mm 07 | DuroSpan GPS (Plastifab) R10 - Tape All Seams 54 mm 07 | DuroSpan GPS (Plastifab) R10 - Tape All Seams 12.7 mm 06 | Plywood (edges & seams taped w. SIGA Rissan AVB Tape) 139.7 mm 06 | Wood Framing 2x

10" GV Rothoblaas cladding screws with plastic pressure cap washer for foam insulation at truss centres, spaced max. 16" apart along stud length

WHY EXTERIOR

Decades of advances in Canadian Building Science have shown that hybrid wall assemblies (insulated structural cavities) are difficult to correctly construct. Because of this, out-boarding of insulation is considered a new best-practice as advanced by NRCan's LEEPCore wall details, Morrison Herschfield's research documents, and the CCHRC's Remote Wall guide for cold climates: https://cchrc.org/remote-walls/

*Doors and Window Detailing is available as part of this full document set.

Advantages:

Structural materials are always at room temperature, warm wood = no condensate, no condensate = no mould A single control layer for air-tightness is easier to apply in one continuous wrap over roof and wall sheathing

Outboard insulation is fast and easy to install with special, long screws Interstitial condensation is completely avoided. Airtight electrical and plumbing penetrations are not necessary in the stud cavity, only where these exit the structure & Insulation

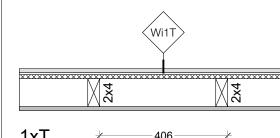
per: more resources link: M+H Research, LEEPCore walls, TAI research. https://natural-resources.canada.ca/energy-efficiency/home-energyefficiency/leep-nze-wall-guides

https://morrisonhershfield.com/bpa_library/considerations-forexterior-and-split-insulated-net-zero-energy-ready-wall-systems/ NOTE: Disclaimer...

Walls Interior

STC/FRR Plan ViewOBC/UL Assembly

Wi | 1x Tile (13)+89 W.Stud



Wa | 1xT Porcelain Tile Facing

6.4 mm 09 | Tiles Ceramic 6.4 mm 03 | Thinset Epoxy Grout 12.7 mm 03 | Tile Backer Board

Wi 2D140 Wi | W2d | 2xGypsum(16)+89 W.Stud ⟨Wi 2D140⟩

15.9 mm 09 | Gypsum Board (WetGuard) 139.7 mm 06 | Wood Framing 2x 15.9 mm 09 | Gypsum Board (WetGuard)

> 15.9 mm 09 | Gypsum Board (Regular) 88.9 mm 05 | Steel Framing + Void

15.9 mm 09 | Gypsum Board (Regular)

12.7 mm 09 | Gypsum Board (Regular)

6.4 mm 00 | Air Space + Wood Strapping

88.9 mm 06 | Wood Framing 2x

12.7 mm 03 | Tile Backer Board

12.7 mm 09 | Tiles Ceramic

Wi | 2xGypsum(13)+89 S.Stud



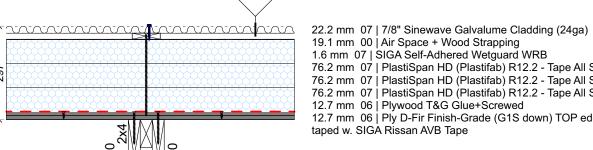
/ 406 →

STC/FRR Section View OBC/UL Assembly

Rx | R39 SD (Option A) 22.2 mm 07 | 7/8" Sinewave Galvalume Cladding (24ga) 19.1 mm 00 Air Space + Wood Strapping 1.6 mm 07 | SIGA Self-Adhered Wetguard WRB 12.7 mm 06 | Plywood T&G Glue+Screwed 12.7 mm 06 | Plywood (edges & seams taped w. SIGA Rissan AVB Tape) mh-47p68_w.pdf 76.2 mm 07 | PlastiSpan HD (Plastifab) R12.2 - Tape All Seams 76.2 mm 07 | PlastiSpan HD (Plastifab) R12.2 - Tape All Seams 76.2 mm 07 | PlastiSpan HD (Plastifab) R12.2 - Tape All Seams 12.7 mm 06 | Plywood (edges & seams taped w. SIGA Rissan AVB Tape) 38.1 mm 06 | SPF Structural Deck T&G 89mm

> Custom 2x10 Trusses per Structural. Note top Gusset and Nailing Pattern and Bottom Chord from 2x6. Trusses spaced at 48" OC.

Rx | R38 PLY (Option B)



19.1 mm 00 | Air Space + Wood Strapping 1.6 mm 07 | SIGA Self-Adhered Wetguard WRB 76.2 mm 07 | PlastiSpan HD (Plastifab) R12.2 - Tape All Seams 76.2 mm 07 | PlastiSpan HD (Plastifab) R12.2 - Tape All Seams 76.2 mm 07 | PlastiSpan HD (Plastifab) R12.2 - Tape All Seams

12.7 mm 06 | Plywood T&G Glue+Screwed 12.7 mm 06 | Ply D-Fir Finish-Grade (G1S down) TOP edges & seams taped w. SIGA Rissan AVB Tape

Custom 2x10 Trusses per Structural. Note top Gusset and Nailing Pattern and Bottom Chord from 2x6. Trusses spaced at 48" OC. Interior Ply Layer parallel with roof slope, fastened at edges to trusses w. Screws. Second ply layer glued and screwed (3/4" #8) to first layer in cross-laminated direction, at 90° to roof trusses. Screw pattern as indicated by Structural. Strapping GV Rothoblaas cladding screws with plastic pressure cap washer for foam insulation at truss centres, spaced max. 16" apart along truss length, 48"

2. These Contract Documents by the Contractor. Upon written application, the Architect will provide written(special preferance) of these documents by the Contractor. Upon written application, the Architect will provide written(special) calarification 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

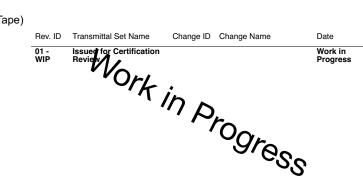
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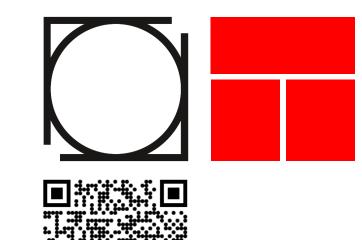
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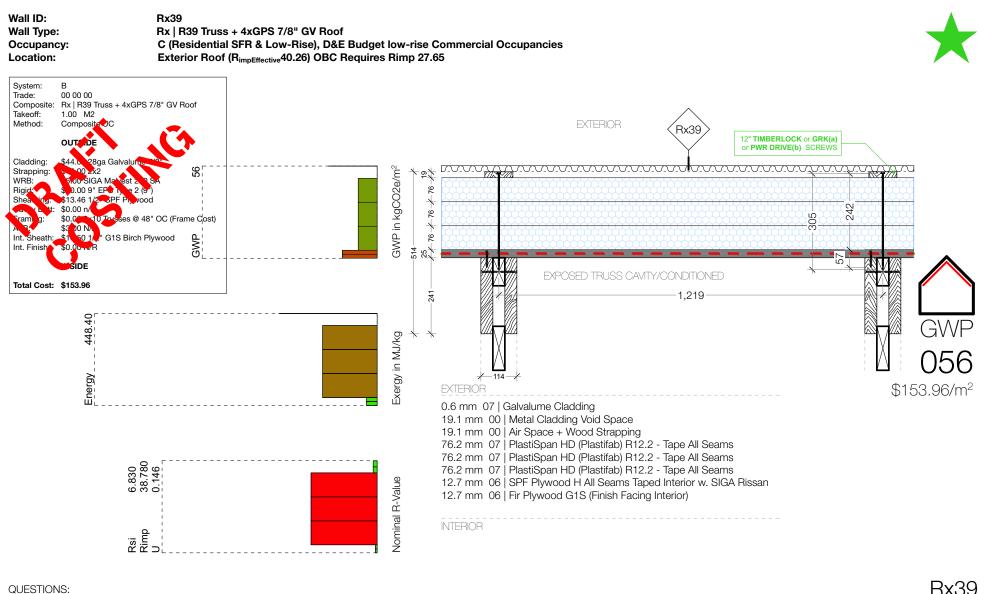
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BeHome Bachelor Shed

project no. 2024.12

Site Address: TBD

Revision 01 - WIP **Construction Assemblies**



1. Brand Preference: PlastiFab PlastiFap Plast

2. **History:** EPS In use in our office since 2022.
3. **Novelty:** Similar to Wx42 but with . UBAKUS.de analysis by TAI have shown that condensate danger is bypassed by keeping sheathing always on the 'warm' side. Interior AVB can be omitted as it is redundant. This assembly can be specified in R10, R20 and R30 assembly variants by layering insulation or by custom ordering thicker panels. In R20 and R30 walls, interior batt insulation can also be omitted as studies show the dead airspace alone can contribute as much as R4 to the assembly.

4. Applicability: We specify this on ultra-economy projects such as the BeHomes DADU and ADU projects (residential accessory dwellings), which were part of the first round of the CMHC Housing Supply Challenge. 5. **Regionality**: Only used in Ontario to date as that is the jurisdiction of 90% of our work.

5. **Trends:** This is an emergent trend, with low GWP and ease of construction, combustible construction is permitted.

7. **Benefits:** AVB and WRB are combined as a single 'smart' control layer in the taped mylar-metal film of the board insulation product. 8. Issues: Some inspectors question omission of an interior 'boly' AVB, With exterior insulation this is not needed, we provide inspectors with documents by BSC/Quick-Therm, etc. to explain the rational, but we can add that 3 coats of latex paint can also be considered an AVB (per Airtight Drywall Approach, (CHBA Builder Manual reference). Contractors complain that it is difficult to connect strapping to stud backing - for this reason we recommend marking the exterior of the founding wall at the centreline of each stud to assist with alignments and preserve the air and WRB layers. Many kinds of strapping material have been tested, PT plywood ripped down is preferred by some contractors over 1x4 SPF for straightness/flatness and ability to go wider for butted cladding seams. Top and bottoms of rainscreen airgaps must always be screened to prevent ingress of embers in case of wildfires and to prevent vermin entry

a) https://www.homedepot.ca/product/grk-3-8x12-inch-star-drive-round-washer-head-gold-rss-rugged-structural-screws/1001867720 (\$10/ea) b) https://www.homedepot.ca/product/pwr-drive--50-pack-3-8-inch-x-12-inch-cst-torx-star-drive-general-construction-structural-screws/1001808301 (\$270/50 = \$5.40 ea, \$4.47 in 125 pack)

WHY EXTERIOR INSULATION?

Decades of advances in Canadian Building Science have shown that hybrid wall assemblies (insulated structural cavities) are difficult to correctly construct. Because of this, out-boarding of insulation is considered a new best-practice as advanced by NRCan's LEEPCore wall details, Morrison Herschfield's research documents, and the CCHRC's Remote Wall guide for cold climates: https:// cchrc.org/remote-walls/

*Doors and Window Detailing is available as part of this full document set.

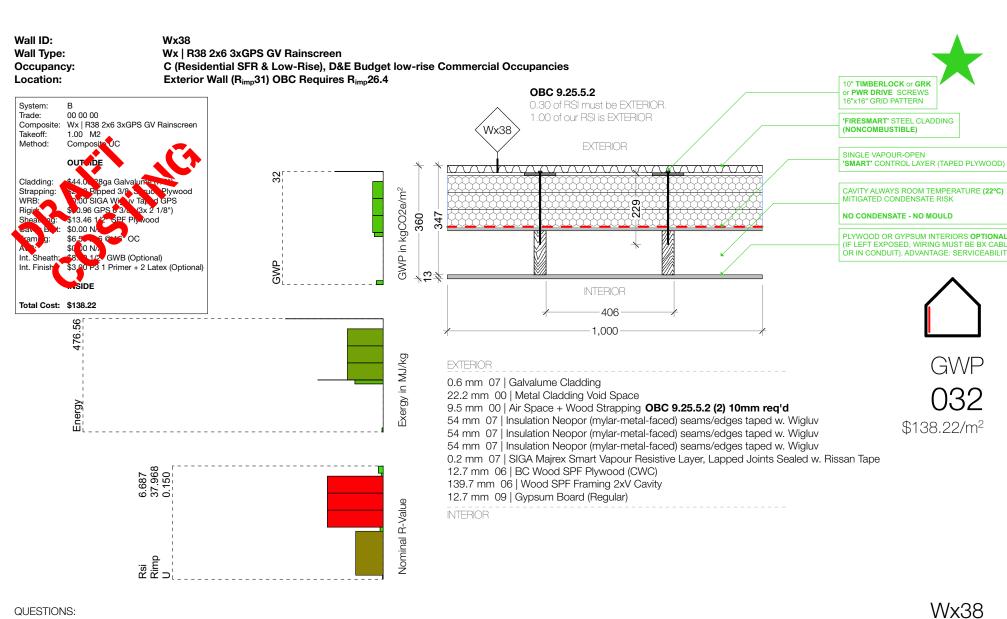
Advantages:

Structural materials are always at room temperature, warm wood = no condensate, no condensate = no mould A single control layer for air-tightness is easier to apply in one continuous wrap over roof and wall sheathing Outboard insulation is fast and easy to install with special, long screws Interstitial condensation is completely avoided. Airtight electrical and plumbing penetrations are not necessary in the stud cavity, only where these exit the structure & Insulation

per: more resources link: M+H Research, LEEPCore walls, TAI research. https://natural-resources.canada.ca/energy-efficiency/home-energy-efficiency/leep-nze-wall-guides

https://morrisonhershfield.com/bpa_library/considerations-for-exterior-and-split-insulated-net-zero-energy-readywall-systems/

NOTE: Disclaimer.



1. Brand Preference: PlastiFab DuroSpan GPS (Neopor) is specified as a least-cost alternative high-performance wall, where DuroSpan is readily available from the Home Depot at ~\$44/4'x8' sheet of R_{mn}10. Coated 8" Rothoblaas screws are used to secure strapping 8

3. **Novelty:** Similar to Wx42 but with mylar-metal films integral to the DuroSpan GPS (Graphite EPS aka BASF Neopor) insulation. WUFI analysis and studies by Quick-Therm, Morrison Hershfield, John Straube and others have shown that condensate danger is bypassed by keeping the majority of insulation on the exterior and sheathing always on the 'warm' side. Interior PE AVB can be omitted as it is redundant. This assembly can be specified in R10, R20 and R30 assembly variants by layering insulation or by custom ordering thicker

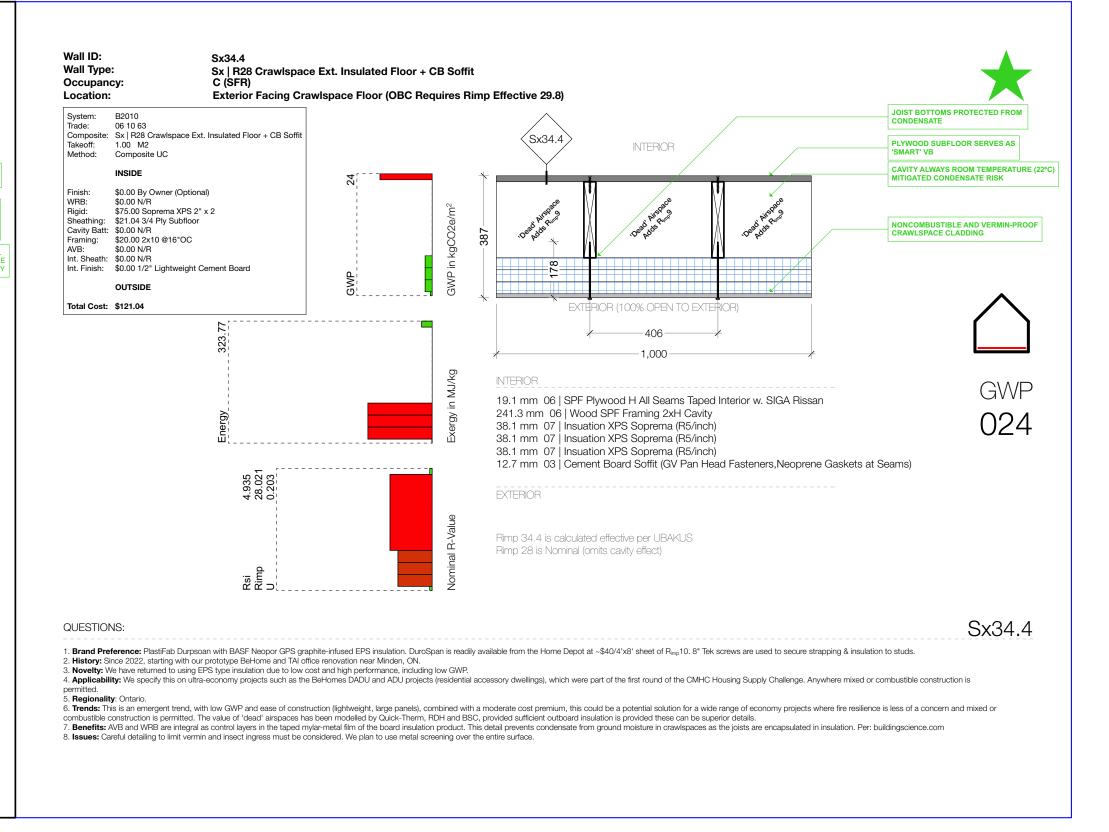
panels, In R20 and R30 walls, interior batt insulation can also be omitted as studies show the dead airspace alone can contribute as much as Rimp4 to the 89mm assembly (not accounted for in our nominal R-Values). 4. Applicability: We specify this on ultra-economy projects such as the BeHomes DADU and ADU projects (residential accessory dwellings), which were part of the first round of the CMHC Housing Supply Challenge.

5. Regionality: Only used in Ontario to date as that is the jurisdiction of 90% of our work.

5. Trends: This is an emergent trend, with ultra-low GWP and ease of construction, combined with low cost, this could be a potential solution for a wide range of economy projects.

7. Benefits: AVB and WRB are combined as a single 'smart' control layers in the taped mylar-metal film of the board insulation product and as a Self-Adhered membrane direct to the exterior of the structural sheathing.

8. Issues: Some inspectors question omission of an interior 'poly' AVB or 'cavity insulation'. With exterior insulation this is not needed, we provide inspectors with documents by Building Science professionals to explain the rationale, but we can add that 3 coats of latex paint can also be considered an AVB (per Airtight Drywall Approach, (CHBA Builder Manual reference). All foams must be detailed to limit ingress of insects and vermin per OBC 9.3.2.9



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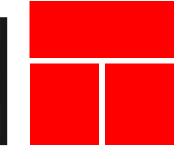
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project no. 2024.12

Site Address: TBD



INTERIORS



JUST SAY NO TO TUCK TAPE

Use only premium tapes specified at appropriate locations, RTMS

EXTERIORS



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



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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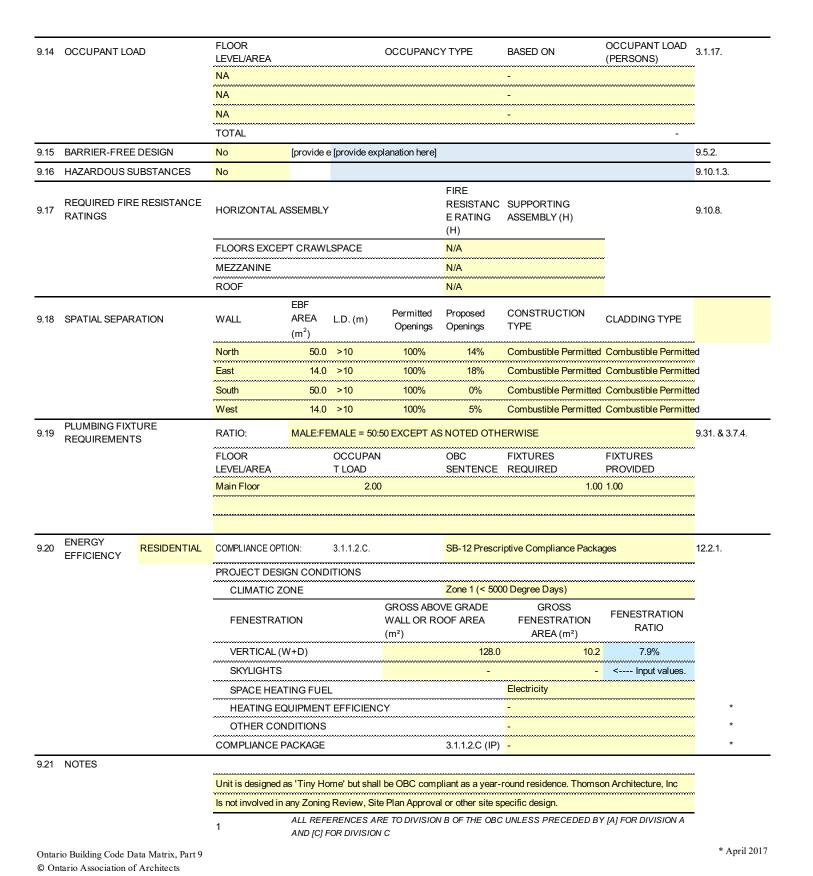
Site Address: TBD

Revision
01 - WIP
Control Layers



ECTION 1. Key Values ifetime Emissions Intensity kgC02e/m²/Service Life			ce 100% (Baseline)			rget (Design) 4	8% Reduction		Actual (Utility Bills)	N/A	Re	ference °
Lifetime Carbon nnual Operational Emissions Intensity kgC02e/m² Annual Carbon		38.6 Reference 36.1	ce 100% (Baseline)		Tai	20.1 geted (Design) 5	1% Reduction		N/A Actual (Utility Bills)	N/A	4	49%
otal Annual Operational Energy Use Intensity kWh//	m²/yr		ce 100% (Baseline)	\$ 33.97/m2	Tar	geted (Design) 5	1% Reduction	\$ 16.62/m2	Actual (Utility Bills)	N/A	Re	ference
SECTION 2. Building Information Major Occupancy	C - Residential		D	.1 Reporting Period	202			C.1	T.10 Cost of E	nergy by Se \$0.1300	ource /kWh	
Reference Standard Actual (Bills) or Targeted (Design) Use Carbon Benchmarking Standard	OBC SB12 3.1.1 Targeted Use Self Reported	.2.C4	D B B	.2 Project Name		Home Bachelor	Shed Net m2)	C.2 C.3 C.4	Gas Propane Wood	\$0.5070 \$1.6200 \$180.00	Gas/r Propa	ane/kg
Embodied Carbon Target	125.00 k	gCO2e/m2		.1 Certifier: .2 Licence No:	The 815	omson Architec i4	ture, Inc.	C.5	Oil	\$1.5000	Oil/lit	
Province	°C °I	F	L.1	.2 City	°C Bai		F Climate Zone	6.0	L.3.3	Days Coolin		erence
Heating Degree Days (HDD) Cooling Degree Days (CDD) Ground Facing GF HDD	4380 158 2940		L.2 G.4 L.2	.2 Capacitance	Values Pre	sent tic 5	0%	HDD Reference	ce Lookup <u>HD</u>	D - Energy St D - Energy St	<u>ar</u>	
Coldest Days (Location Specific) Hottest Days (Location Specific)	-24 -	11.2		.2 Tset Heating	22 24		1.6	B.1.3	Survival Temp.°C Cooling Override	10	4	100%
ECTION 4. Actual vs. Target Energy 8	ACTUAL (Utility	ENERGY / Bills)	ACTUAL NET ekWh	E.1 EF	MISSIONS kgCO2/yr	TARGET EN (Design)	TARGET NET	E.1 EMISSIONS kgCO2/yr	EMISSIC per Repor		
Total Electricity Use Total Fossil Gas Use Total Propane Use	5,000.00 k 0.00 m 0.00 k	n ³ /yr	5,000.00 0.00 0.00		0.00 0.00	3,541.49 k 0.00 n 0.00 k	n ³ /yr	3,541.49 0.00 0.00	488.72 0.00 0.00	1,921.	00 gCO2 00 gCO2 00 gCO2	2e/m3
Total Oil Use Total Wood Use Operational GHG & Energy Subtotals	0.00 li 0.00 n	tres/yr	0.00 0.00 5.000.00		0.00 0.00 690.00	0.00 li 0.00 n	tres/yr	0.00 0.00 3.541.49	0.00 0.00 488.72	150.0	00 gCO2	
Total Net Energy Annual Percapita Energy	18.00 G 5,000.00 k	Wh Actual	18.0	00 GJ Actual	090.00	12.75 G 3,541.49 k	Wh Target	NW.1	Nuclear Waste GJ Target	0.009	96 g/kWl 03 kgHL	NW/yr
Primary Energy ECTION 5. CO2e Emissions (E.1 = Scop.	3,541.49 k	•	127.8	kgCO2e/m ²			PER Factor kgC02e/m²					N/A
GHGI Operational (B6) Emissions/yr Typology-Based Carbon Intensity (A1-3)		MT CO2e/yr	E.1 E.3	.3 17.64	Cap (TGS²	E.1.4 E.3.3	882.17	(B6 Annual Er	nissions * Service L Factor (kJ/K)	ife) 3265	4	N// 100%
Total Embedded Carbon Emitted (A1-3) Lifetime Avoided (B6) Emissions		MT CO2e/Servio MT CO2e		Embodied CarboModelled Value (125.00 125.00	Total Thermal	Capacity (GJ/ºK)	3	4	25% 100%
ECTION 6. Renewable Energy Onsite Energy Subtotals	kWh/yr		R	5 Offsite Renewabl	e (REC)		kWh/yr	P.5	Exterior/Site/Othe	r Loads		kWh/y
Photovoltaics Wind	0.00		R R	.6 WWS Electricity .7 Green Natural Ga	as		0.00	ekWh/yr	0.00			
Remove EV Charging from TEUI	0.00 Targeted		R		,	itres/pp/day	0.00		Annual kWh/yr		р-1	erence
Total Hot+Cold Water Use (Method) DHW Use (40% of W.1.0)	User Defined		00 I/pp/day IF User		•	150.00 5	4,750 1,900	Net Emissions 1,145.37	-	kgCO2e	/yr 🗸	55% 55%
DHW or SHW Energy Source DHW or SHW Efficiency Factor (EF) Drain Water Heat Recovery Efficiency	Electric 100% 0%	1.0 0.0	00 Gas m³/yr 00 COPdhw 00 kWh/yr		W.5.2 (W. W.5.3 (W.	W Net System D 2DN) Net Deman 2.W) SHW Wast	d - Recovere	1,145.37	0.90	W.4.2 AFUE	√	1119 09
System Losses (% → W.1.3 Eqpt Gains)	114.54 k		, ,			naust (if Gas or O		0.00	0.00	W.3.4 Net O		d Litres
Radon (annual avg.) CO2 (annual avg.)	Targeted 50 B 550 p	3q/m ³							150 1000	% per Hea	alth Can	33% 55%
TVOC (annual avg.) Rel. Indoor Humidity Heating Season Avg.	100 p 45% R	pm RH	A.5	Rel. Indoor H	umidity Coolin	g Season Avg.	45%	RH	400 30-60	ppm %	4	25% 45%
Atmospheric Offsets ECTION 9. Occupant + Internal Gains		/IT/yr CO2e				Annual		Htg Gain	Cooling Gain	Htg Gain	Ref	erence
Occupants per Building (declared) Occupant Activity	1 Normal	G.1.3 G.1.4	Occupied Hrs/D Watts/pp (S+L)	Day 12		kWh/yr 513.46		% /8760 ②28.84%	kWh/yr 168.81	% 28.84 %	Rei	crence
Plug Loads Lighting Loads Equipment Loads	5 1.5 3.00	P.3	,			606.63 181.99 363.98	407.19 122.16	34.07% 10.22% 20.44%	199.44 59.83	34.07% 10.22% 20.44%	1	100% 133%
Elevator Loads (W/m² → Eqpt Gains) DHW System Losses	No Elevators	1.0	Equipment ope	C Lindent		114.54	76.88	6.43%	37.66	6.43%		
Plug/Light/Eqpt. Subtotals Internal Gains Totals						1,152.60 1,780.59	850.54 1,195.19	100%	416.59 585.40		1	
ECTION 10. Radiant Gains Doors	0.00	Orientation Alter if Skewed Average	SHGC 0.5 is Default 0.50	Winter Shad	ing %	Summer Shading %	Solar Gain Heating kWh/yr	Solar Gain Heating %	Solar Gain Cool Load kWh/yr	Solar Gain Cool Load % #DIV/0!	kW	h/m2/yr
Window Area North Window Area East Window Area South	1.10 1.10 7.93	North East South	0.50 0.50 0.50	0% 0% 0%		100% 100% 100%	84.63	0.22% 13.08% 86.70%	0.00	#DIV/0! #DIV/0! #DIV/0!	7	1.31 '6.94 '0.74
Window Area West Skylights	0.00	West Skylight	0.50 0.50	0% 0%		90%	0.00 0.00	0.00% 0.00%	0.00 0.00	#DIV/0! #DIV/0!	2	5.86 75
Subtotal Solar Gains Gains Utilization Factor (n-Factor) Net Usable Heating Season Gains	NRC 40% PH Method	1,842.24 1,842.24	Total Gains Total Gains	40.00% 99.25%			647.04 736.89 1,828.35	G.3 Net Us	0.00 able Gains by Metr Gains by PHPP M	nod Selected	ence)	
Net UN-usable Htg. Gains	A 2	Di #25-b-/Db	RSI	U-Value	• 0/	-6 A - 9 A	1,105.34	H41 0/	Heatgain	U4i 0/	D-4	·
Roof Walls Above Grade (Exclude Openings!)	28.53 64.24	40.26 30.77	7.09 5.42	0.141 0.185		21.85% 49.19%	kWh/yr 422.94	13.61% 040.10%	kWh/Cool Season 15.26	-13.61% -40.10%	Ref	146° 129°
Floor Exposed Doors	27.70 0.00	34.44 6.31	6.07 1.111	0.165 0.900		21.21% 0.00%	480.02 0.00	0.00%	17.32 0.00	15.45% 0.00%	4	1089 1789
Window Area North Window Area East Window Area South	1.10 1.10 7.93	6.31 6.31 6.31	1.111 1.111 1.111	0.900 0.900 0.900		0.84% 0.84% 6.07%	104.07	3.35% 3.35% 24.14%	3.75	-3.35% -3.35% -24.14%	1	1789 1789 1789
Window Area West Skylights Walls Below Grade (Conditioned Space)	0.00 0.00 0.00	6.31 6.31 22.71	1.111 1.111 4.00	0.900 0.900 0.250		0.00% 0.00% 0.00%	0.00	0.00% 0.00% 0.00%	0.00	0.00% 0.00% 0.00%	4	1789 1789 1089
Floor Slab (Conditioned Space) B.11 Interior Floors (incl. garages)	0.00 0.00	21.01	3.70	0.270		0.00%	0.00	<u>0.00%</u>	0.00	0 .00%	4	189%
Thermal Bridge Penalty (min. 5-70%) Envelope Totals	130.60	Assume Code I 22.81	Minimum Construc	tion at 50%)		100%	310.73 3,107.27	10.00%	0.00 112.09	0.00% 100%		
ECTION 12. Volume and Surface Metr	rics 130.60 m	n ²	U-Val. for Ae	U-Value W/m ² •K 0.249		Loss Rate kWh/m² 26.17	Heatloss kWh/yr 3,417.99	Gain Rate kWh/m ² 0.94	kWh/Cool Season	Heatloss %	Ref	erence
Total Area Exposed to Ground (Ag) Heating Natural Air Leakage Heatloss Building U-Value Combined Total & Trans	0.00 m 1 S	n ² Stories	U-Val. for Ag B.18.3 Shieldin	0.000 g Shielde 0.249	d	0.00	0.00 875.48 4,293.48	4,293.48	0.00 31.58	0.00% 20.39%		N/A
Total Conditioned Volume	76.71 n	n ³	Volume/Area	59%	F	rea/Volume	170%	4,230.40	123.30			N/
Total Floor Area (Cond. + Uncond.) Window:Wall Ratio (WWR) NRL ₅₀ Target Method NBC2025 (Part 9)	27.70 m 13.62% AL-1B	n ² - Only used in B.18	n E.3.2 .1 Target	1.17	L/s·	·m²					4	25%
ACH ₅₀ Target (Converts B.18.1) Ae ₁₀ or ELA ₁₀ (m ²)	7.17 0.153	B.18 B.18.5	2 Measured 1 n-Factor	1.50 22.2		B.18.3 A	Ae ₁₀ Zone	2			4	1009 32729
Primary Heating System	kWh/yr Heatpump	M.1.1 HSP	PF 12.5	M.1.2 COPheat	3.6	6 A	1.1.3 COPcoo	2.7	M.1.4 Sink	kWh/yr 2,661.6		ierence
Heating System Demand Heating Fuel Impact (ekWh/yr)	999.29 0.00	Net Emission M.2.3 Oil I/	s -	kgCO2e/yr M.2.4 Gas m3/yr	0.0	N	M.1.5. CEER M.2.5 AFUE	9.1 0.90	M.1.6 Sink M.2.5 Exhaust	406.2	9	100%
Heatpump or Dedicated Cooling System Heatpump Cool Elect. Load HRV/ERV/MVHR Efficiency (SRE)	244.23 89.00%	V.2	8.8 2 Ventil. Method	M.3.3 COPcool C 82 kWh/m²/yr Volume Constant		N	1.3.6 CEER	2.7 9.1 V.1.3	M.3.4 Sink ACH (Only if Volu	405.4 r 0.35	2 4 4	1249 189 1629
Per Person Ventilation Rate Volumetric Ventilation Rate Heating Season Ventil. Energy (kWh/yr)	8.33 I/ 7.46 I/ 948.61	's per person 's V.2	15.8	65 cfm 80 cfm n Ventil. Energy Rec	overed	29.988 n 26.85 n		V.1.5 V.1.7 V.2.3	90% Net Htg Season V	Unoccupied Yentil. Lost	Setback 104.3	
Incoming Cooling Season Ventil. Energy Outgoing Cooling Season Ventil. Energy Ventilation Free Cooling/Vent Capacity	27.48 24.46 12%			ctor (Calculated on C			61%	Dava Astiva C	agling Required /F	vnorimental)	4	
SECTION 14. TEDI & TELI Targeted	kWh/yr	V.4		ITTIIL		92.78 k kWh/m²/yr	vvn/yr	Days Active C	ooling Required (E	xperimentar)		kWh//y
TED Targeted TED Envelope (Excludes Ventilation)	3,660.93 3,556.58			.1 TEDI	/entilation)	132.16 128.40		Includes V.5 Ne	et Ventilation Losses, Exc	ludes T.7.3 CEDI		389
CED Cooling Load <i>Unmitigated</i> CEDI Cooling Load	767.76 3.16 y	V/m ² Unmitigate	T.4	.5 CEDI Unmitigate .7 CEDI Mitigated		27.72 2.68 y	V/m ² Mitigated		e Cool. & Vent. Exh	aust		650.52
TEL Total Envelope Heatloss CEG Cooling Envelope Heatgain	4,293.48 143.67			i.2 TELI i.4 CEGI		155.00 5.19						
ECTION 15. TEUI Targeted TEU Targeted Electricity	6,203.13	ekWh/yr		3.1 TEUI		223.94 k	Wh/m²/yr	Excludes ekWh o	f Gas or Oil loads, Assum	es 100% electric	Building, no	o Heatpurr
TEU Targeted Electricity if HP/Gas/Oil Bldg. Peak Heating Load (Enclosure Only)	3,541.49 k 1.50 k	W	T.6	i.4 TEUI-imp		127.85 k	Wh/m²/yr	5,104	BTU/hr	ads, and Applies	COP for HF	P Equipme
Peak Cooling Lood (Endeamy Out)			T.6	6.6 Peak Cooling Imp		U.U5 T	ons-Cooling		BTU/hr			
Peak Cooling Load (Enclosure Only) Peak Cooling Load (Enclosure + Gains) Max. Heating Load Intensity	0.16 k 0.58 k 54.00 y	W	T.6	.7 Peak Cooling Imp)		ons-Cooling .6.6 Mx. Cool		BTU/hr Enclosure Only)		×	108%

ONTARIO BUILDING CODE DATA MATRIX PART 9 - HOUSING AND SMALL BUILDINGS OBC REFERENCE [1] Name of Practice Thomson Architecture, Inc. 1017 Dominion Rd. Algonquin Highlands, ON. K0M1S0 Address 1 Address 2 Andy Thomson (705) 935-0355, thomsonarch@icloud.com Name of Project No. 2023.011, Rawley Resort Prototype BeHome Location/Address Stonewall Lane, Port Severn, ON. Date 2024.05.30 9.00 BUILDING CODE VERSION O.Reg. 332/12 9.01 PROJECT TYPE New Construction [A] 1.1.2. Modular (Off-site fabrication) Detached Accessory Dwa 9.02 OCCUPANCY CLASSIFICATION OCCUPANCY 9.10.2. Residential Select occupany group/division from in-cell drop-down list to the left. 9.03 SUPERIMPOSED MAJOR OCCUPANCIES 9.10.2.3. [If Yes, provide explanation below; add lines as necessary] 9.04 BUILDING AREA (m²) DESCRIPTION **EXISTING** NEW TOTAL [A] 1.4.1.2. Building Area (Gross/Main Level) 419.49 419.5 Optional Accessory Decks (to be added by owner) TOTAL 419.5 74.4 9.05 GROSS AREA (m²) DESCRIPTION **EXISTING** TOTAL [A] 1.4.1.2. NEW No Bsmt 419.5 Main Level 419.49 Storage Loft (below 5' in ht. not incl. in area) TOTAL 419.5 419.5 9.06 MEZZANINE AREA (m²) **EXISTING** DESCRIPTION NEW TOTAL 9.10.4.1. TOTAL 5.40 (m) ABOVE GRADE [A] 1.4.1.2. & 9.07 BUILDING HEIGHT STOREYS ABOVE GRADE STOREYS BELOW GRADE 9.08 NUMBER OF STREETS/ FIRE FIGHTER ACCESS 1 STREET(S) 9.10.20. 9.09 SPRINKLER SYSTEM Not Required Provided: None 9.10.8.2.-4. DESCRIBE 9.10 FIRE ALARM SYSTEM TYPE PROVIDED N/A 9.10.18. Not Required 9.11 WATER SERVICE/ SUPPLY IS ADEQUATE 9.12 CONSTRUCTION TYPE RESTRICTIONS Combustible Permitted 9.10.6. 9.13 POST-DISASTER BUILDING [A] 1.1.2.2.(2)



Copyright of this drawing is reserved by the Architect. The drawing and all associated documents are an instrument of service by the Architect. The drawing and the information contained therein may not be modified or reproduced in whole or in part without prior written permission of the Architect.
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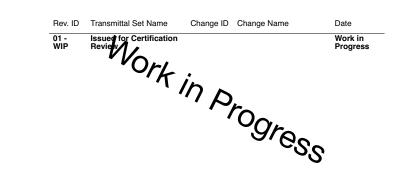
conformance only.

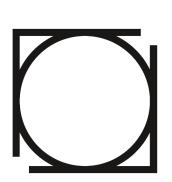
3. Drawings are not to be scaled for construction. The Contractor is to verify all existing conditions and dimensions required to perform the work and report any discrepancies with the Contract Documents to the Architect before commencing or continuing with any work.

4. Positions of exposed finished mechanical or electrical devices, fittings, and fixtures may be indicated on architectural drawings. The locations shown on the architectural drawings govern over the Mechanical and Electrical drawings. Those items not clearly located will be located as directed by the Architect. General and construction notes are intended to apply at all locations affected by the Work. For locations of work refer to structural, mechanical and electrical documents, in

5. These drawings are not to be used for construction unless noted below as "Issuance: For Construction" and countersigned by the Architect. 6. All work is to be carried out in conformance with the most current Building Code and Bulewe of the authorities having

7. The Architect of these plans and specifications gives no warranty or representation to any party about the constructability of the building(s) 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.
8. Original Drawings and designs generously provided by CMHC's 'Pattern Book' from 1947 titled: 67 Homes for Canadians available at the link: https://eppdscrmssa01.blob.core.windows.net/cmhcprodcontainer/st/project/archive/house_plans/catalogues/ca1-mh-47p68_w.pdf
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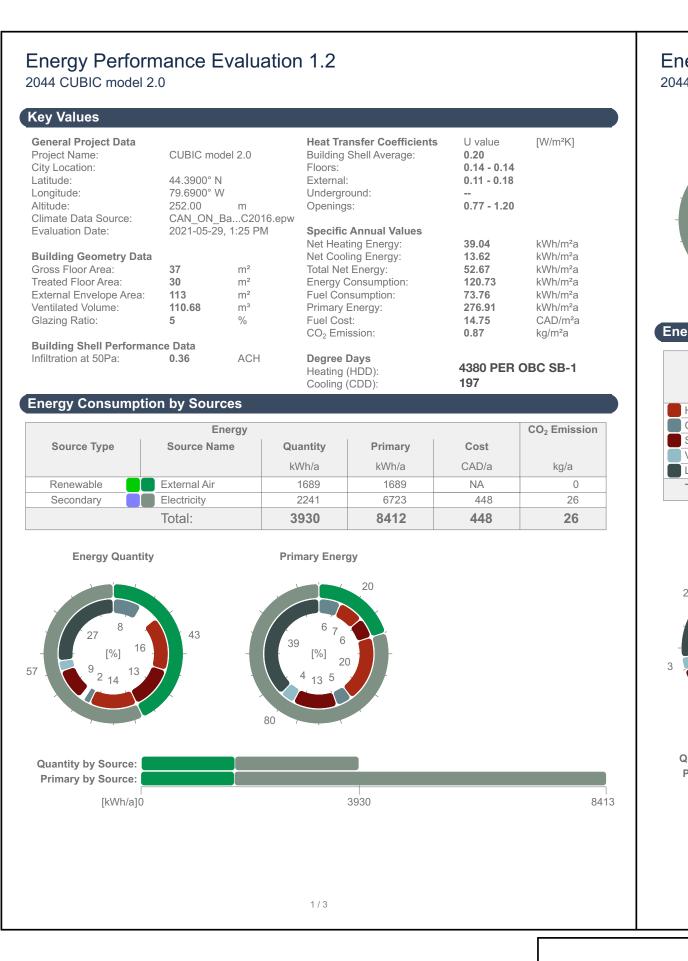
1017 Dominion Rd. Stanhope, ON K0M 1S0 cell: 705.935.0355 office: 705.935.0355 email: thomsonarch@icloud.com

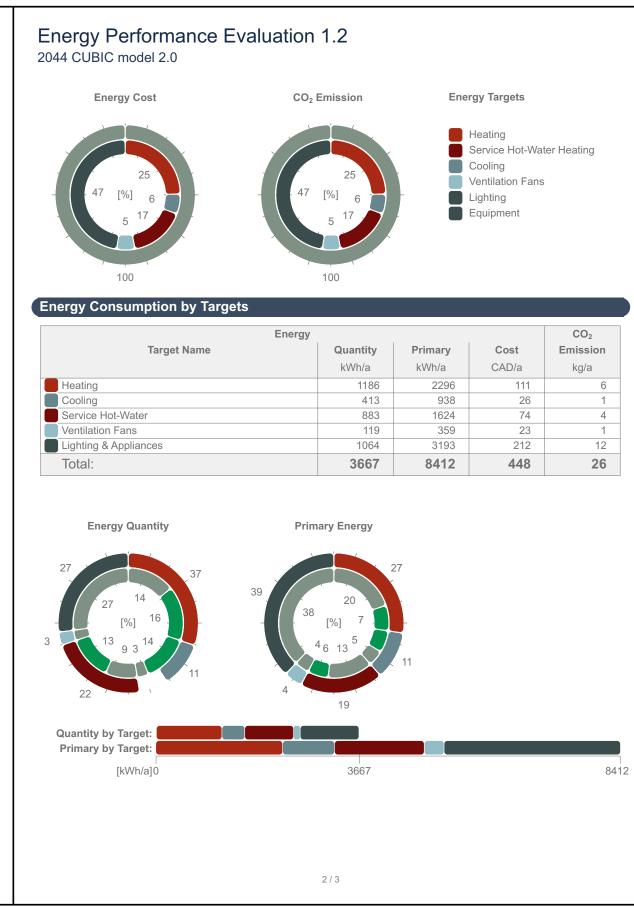
BeHome Bachelor Shed

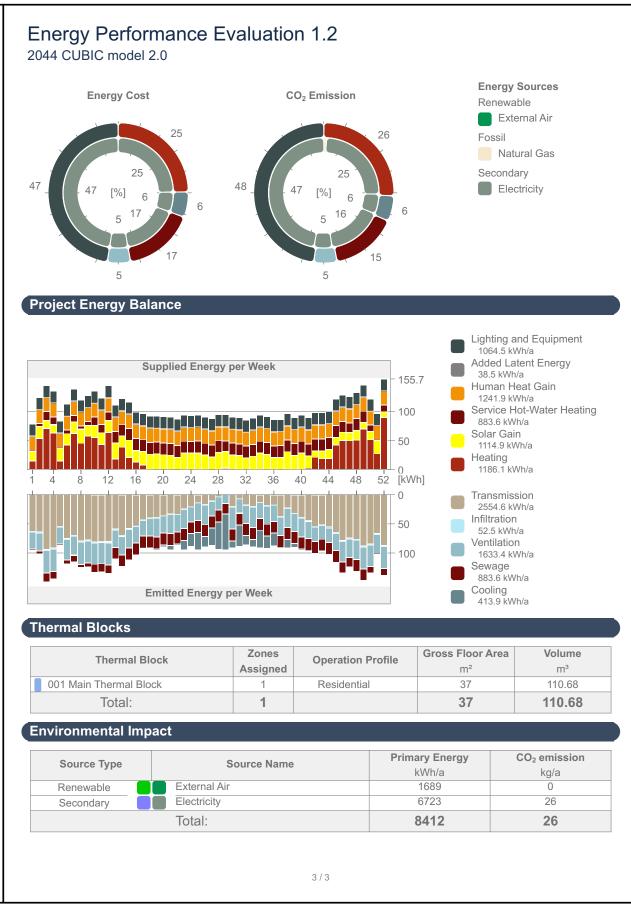
project no. 2024.12

Site Address: TBD

Revision
01 - WIP
OBC Matrix & Code Notes







Ontario *2012* MMA Supplementary Standard SB-12 Table 3.1.1.2.C (IP) **ZONE 1 - Compliance Packages for Electric Space Heating** Forming Part of Sentence 3.1.1.2.(3) Compliance Package Thermal Values(8) Component C2 C3 C4 60 + HH 60 + HH 50 50 Min. Nominal R(1) 0.016 0.016 0.020 0.020 Ceiling with Attic Space Min. Effective R(2) 59.90 59.90 49.23 49.23 Min. Nominal R⁽¹⁾ 31 Ceiling Without Attic Space Max. U(2) 0.036 0.036 0.036 0.036 PROPOSED ROOF INSULATION: R 40.3eff RSI 7.091 27.65 27.65 Min. Effective R(2) 27.65 --27.65--Min. Nominal R(1) 35 35 0.034 0.034 0.031 0.031 Exposed Floor Max. U⁽³⁾ 29.80 PROPOSED FLOOR INSULATION: R 34.4eff RSI: 6.066 Min. Effective R(3) 29.80 --32.02 -- ---32:02----Min. Nominal R(1) 19 + 10 ci 22 + 10 ci 22 + 10 ci 22 + 7.5 ci Walls Above Grade 0.040 0.038 0.038 0.042 Max. U(3) PROPOSED WALL INSULATION: R 30.8eff RSI: 5.420 Min. Effective R(3) 25.32 26.40 --23.90-- - 26.40 -Min. Nominal R(1) 20 + 8 ci 20 ci 20 ci 20 ci Basement Walls(6) Max. U(4) 0.044 0.047 0.047 0.047 22.71 21.12 Min. Effective R(4) 21.12 21.12 Min. Nominal R(1) 7.5 Below Grade Slab 0.116 Entire Surface > 600 mm Below Max. U⁽⁴⁾ _ _ _ 8.63 Min. Effective R⁽⁴⁾ Min. Nominal R(1) 10 10 10 10 Heated Slab or 0.090 0.090 0.090 0.090 Slab ≤ 600 mm Below Grade Min. Effective R(4) 11.13 11.13 11.13 11.13 Edge of Below Grade Slab 10 Min. Nominal R(1) 10 10 ≤ 600 mm Below Grade PROPOSED MAX. U-VALUE 0.25 0.21 ·---0.24------0:28 ---COMMERCIAL ENTRY DOOR: 0.67 (SI) Windows and Sliding Glass Doors Energy Rating 34 0.49 0.49 0.49 0.49 Max. U⁽⁵⁾ ASHP: MAX. SHGC ALL GLAZINGS: 40% Space Heating Equipment 7.1 HSPF 81% 75% --81%-- HRV Efficiency 80% Domestic Water Heater(7) Min. EF Column 1 Notes to Table 3.1.1.2.C (IP): The following definitions applies: HH = 10 inch high heel (1) The values listed are minimum Nominal R values for the thermal insulation component only. (2) U-Value and effective R value shall include entire ceiling assembly components, from interior air film to vented space air film above insulation. (3) U-Value and effective R value shall include entire exposed floor or above grade wall assembly components, from interior air film to exterior air film. (4) U-Value and effective R value shall include entire basement wall or slab assembly components and interior air film. (5) U-Value is the overall coefficient of heat transfer for a window assembly, sliding glass door assembly or skylight assembly expressed in Btu/(h•ft²•F). (6) In the case of basement wall assemblies, where R20 ci is required R12 + 10 ci is permitted to be used or vice versa; or where R12 + 5 ci is required, R15 ci is permitted to be used or vice versa. (7) If an EF of a water tank is not indicated in a compliance package, there is no EF requirement for water tank for that specific compliance package. (8) Nominal and effective R values are expressed in (h•ft²•F)/Btu. U-Values are expressed in Btu/(h•ft²•F). Page 34 • SB-12 Effective Date: July 7, 2016

Barrie SB12 Electric IP

Energy Efficiency Design Summary: Performance & Other Acceptable Compliance Methods (Building Code Part 9, Residential)

This form is used by a designer to demonstrate that the energy efficiency design of a house complies with the building code using the Performance or Other Acceptable Compliance Methods described in Subsections 3.1.2. and 3.1.3. of SB-12, This form must accurately reflect the information contained on the drawings and specifications being submitted. Refer to Supplementary Standard SB-12 for details about building code compliance requirements. Further information about energy efficiency requirements for new buildings is available from the provincial building code website or the municipal building

Building number, street name Cubic model 1.5			Unit number	Lot/Con
Municipality	Postal code	Reg. Plan number / other des	cription	
Port Severn (Midland) (4200 HD	D)		•	
B. Compliance Option [indicate the	building code compliance option	on being employed in this	s house design]	
☐ SB-12 Performance* [SB-12 - 3.1.2	* Attach energy perfo	ormance results usir	ng an approved s	oftware (see guide)
■ ENERGY STAR®* [SB-12 - 3.1.3.]	* Attach Builder Opti	on Package [BOP] f	orm	
☐ R-2000 ® *[SB-12 - 3.1.3.]	* Attach R-2000 HO	Γ2000 Report		
■ Zone 1 (< 5000 degree days)	= ≥ 92% AFUE = ≥ 84% < 92% AFUE	☐ Gas	□ Propane ■ Electric	□ Solid Fuel □ Earth Energy
	Heating Equipment Efficie			□ Solid Fuel
Ratio of Windows, Skylights & Glass (V			Characteristics	- Larar Energy
Area of walls = $\frac{128}{m^2}$ or $\frac{1}{m^2}$ Area of W, S & G = $\frac{10.2}{m^2}$ or $\frac{1}{m^2}$	W, S & G % = 7.9	☐ Slab-on-grour☐ Air Conditionii☐ Air Source He	am □ ICF Above (ad □ Walkout Bas ag □ Combo Unit at Pump (ASHP) be Heat Pump (GS	sement
SB-12 Performance Reference Building	Design Package indicating	g the prescriptive pa	ackage to be com	pared for compliance
SB-12 Referenced Building Package (innut design nackage): I	Package.C2	Table	.3.1.1.2.C

D. Building Specifications (provide values and ratings of the energy efficiency components proposed, or attach ENERGY STAR BOP form

Building Component		SI / R values m U-Value ⁽¹⁾	Building Component	Effic	iency Ratings
Thermal Insulation	Nominal	Effective	Windows & Doors Provide U-Value ⁽¹⁾ or ER	rating	
Ceiling with Attic Space		32.1	Windows/Sliding Glass Doors	0.9	
Ceiling without Attic Space	n/a		Skylights/Glazed Roofs	0.9	
Exposed Floor		39.27	Mechanicals		
Walls Above Grade	14+24c	32.58	Heating Equip.(AFUE)	ASHF	(Electric)
Basement Walls	n/a	n/a	HRV Efficiency (SRE% at 0°C)	81	
Slab (all >600mm below grade)	n/a		DHW Heater (EF)	-	
Slab (edge only ≤600mm below grade)	n/a		DWHR (CSA B55.1 (min. 42% efficiency))	42	# Showers_I
Slab (all ≤600mm below grade, or heated)	n/a		Combined Space / Dom. Water Heating		

(1) U value to be provided in either W/(m²•K) or Btu/(h•ft²•F) but not both

A. Project Information

E. Performance Design Verification [Subsection 3.1.2. Performance Compliance]

The a	annual energy consumption using Subsection 3.1.1. SB-12 Reference Building Package isGJ (1 GJ =1000MJ)
The a	annual energy consumption of this house as designed isGJ
The s	software used to simulate the annual energy use of the building is:
The b	ouilding is being designed using an air tightness baseline of:
	OBC reference ACH, NLA or NLR default values (no depressurization test required)
	Targeted ACH, NLA or NLR. Depressurization test to meet $\frac{0.6}{}$ ACH50 or NLR or NLA
	Reduction of overall thermal performance of the proposed building envelope is not more than 25% of the envelope of the compliance package it is compared against (3.1.2.1.(6)).
	Standard Operating Conditions Applied (A-3.1.2.1 - 4.6.2)
	Reduced Operating Conditions for Zero-rated homes Applied (A-3.1.2.1 - 4.6.2.5)
	On Site Renewable(s): Solar:
	Other Types:

F. ENERGY STAR or R-2000 Performance Design Verification [Subsection 3.1.3. Other Acceptable Compliance Methods]

- ☐ The NRCan "ENERGY STAR for New Homes Standard Version 12.6" technical requirements, applied to this building design result in the building performance meeting or exceeding the prescriptive performance requirements of the Supplementary Standard SB12 (A-3.1.3.1).
- ☐ The NRCan, "2012 R-2000 Standard" technical requirements, applied to this building design result in the building performance meeting or exceeding the prescriptive performance requirements of the Supplementary Standard SB12

Performance Energy Modeling Professional Energy Evaluator/Advisor/Rater/CEM Name and company:

Accreditation or Evaluator/Advisor/Rater License # Thomson Architecture, Inc. OAA 8154

ENERGY STAR or R-2000 Energy Evaluator/Advisor/Rater/ Name and company: Evaluator/Advisor/Rater License #

G. Designer(s) [name(s) & BCIN(s), if applicable, of person(s) providing information herein to substantiate that design meets the building code] **Qualified Designer:** Declaration of designer to have reviewed and take responsibility for the design work. n/a (OAA) Andy Thomson

2. These Contract Documents are the property of the Architect. The Architect bears no responsibility for the interpretation 2. These Contract Documents by the Contractor. Upon written application, the Architect will provide written(special preferance) of these documents by the Contractor. Upon written application, the Architect will provide written(special) calarification 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

3. 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.

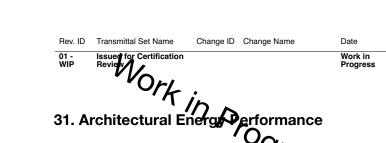
4. Positions of exposed finished mechanical or electrical devices, fittings, and fixtures may be indicated on architectural drawings. The locations shown on the architectural drawings govern over the Mechanical and Electrical drawings. Those items not clearly located will be located as directed by the Architect. General and construction notes are indeed to apply at all locations affected by the work. For locations of work refer to structural, mechanical and electrical documents, in a definition of the property of the control of the property of the control of the property of the pr

5. These drawings are not to be used for construction unless noted below as "Issuance: For Construction" and countersigned by the Architect. 6. All work is to be carried out in conformance with the most current Building Code and Bylaws of the authorities havin jurisdiction. All plumbing and drainage work to conform to current Ontario regulations. All electrical work to conform t 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(s) 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.

8. Original Drawings and designs generously provided by CMHC's 'Pattern Book' from 1947 titled:

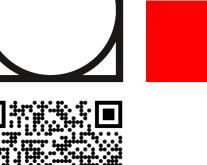
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Energy Simulation or Performant compliance methods do not guarantee that a finished building will meet the proposed targeted performance due to widely divergent user behaviours, construction methods, contractor experience and other site, weather and climate factors that are beyond the control or predictive power of the software standards. Compliance packages and performance simulations are not intended to predict actual performance, but rather to set targets over a baseline or reference case 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).

Load Calculations from Mechanical Consultant Shall govern. Architectural Energy Performance shall serve only as a check to Mechanical loads and to augment OBC SB10 Compliance data, summarizing all known envelope parameters such as RSI or U-values of noted assemblies.







thomson architecture inc

1017 Dominion Rd. Stanhope, ON K0M 1S0 cell: 705.935.0355 office: 705.935.0355 email: thomsonarch@icloud.com

BeHome Bachelor Shed

project no. 2024.12

Site Address: TBD

Revision 01 - WIP SB12 & Energy

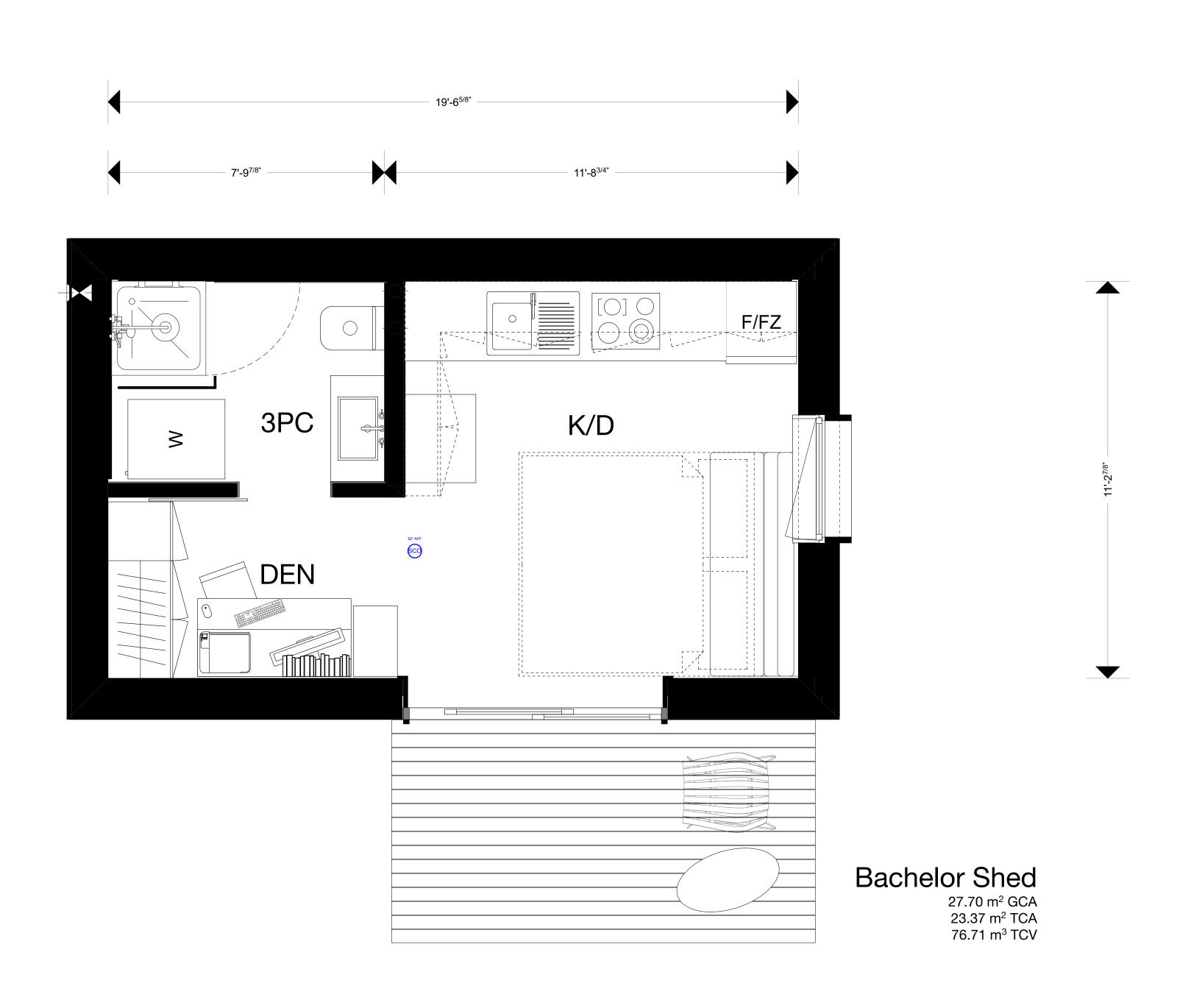


This site plan has been provided by the Owner/Applicant for reference only and has no legal value.

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



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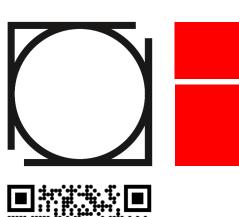
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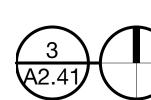
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BeHome Bachelor Shed

project no. 2024.12

Site Address: TBD

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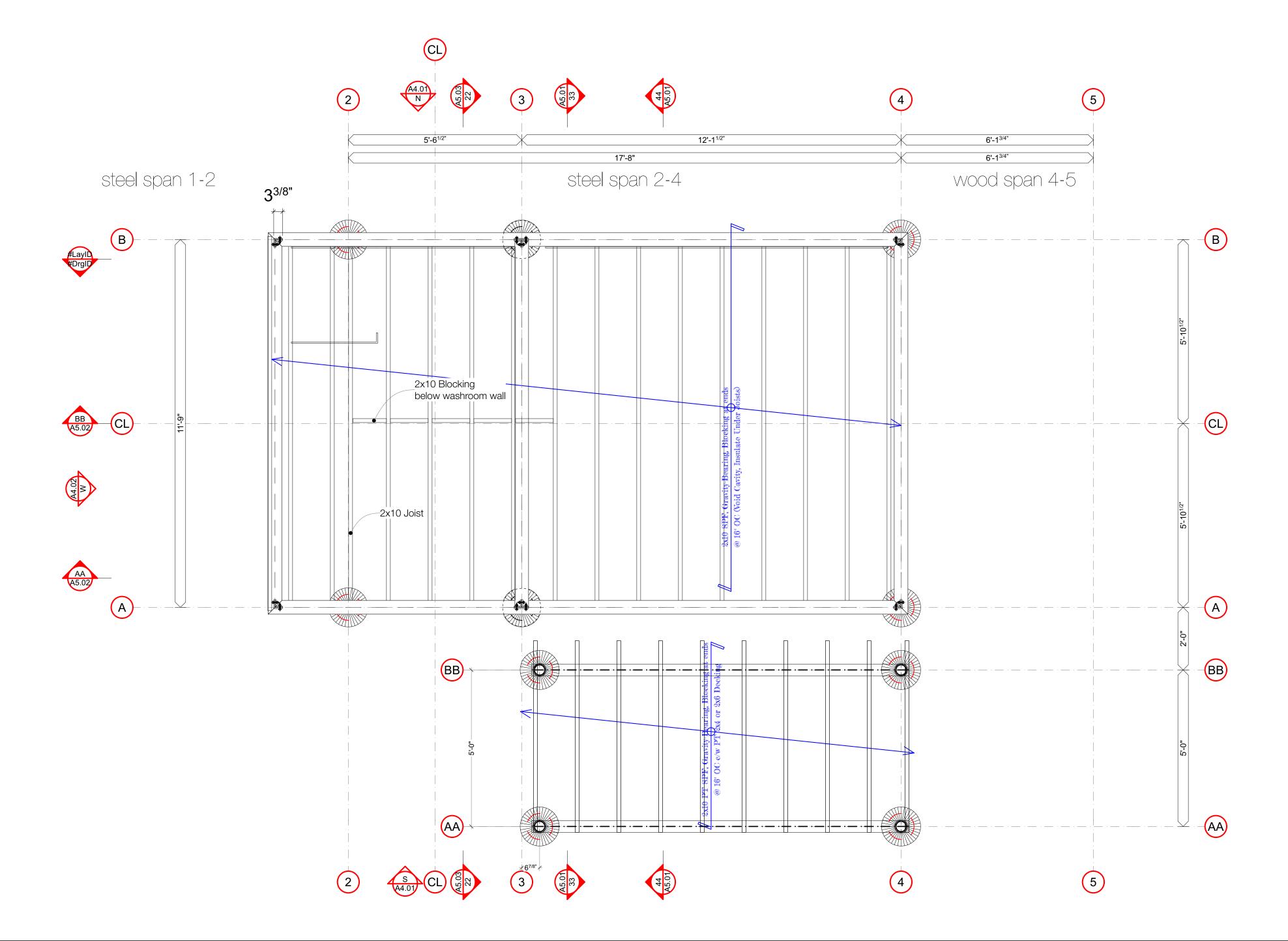


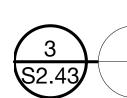
House Main Floor Plan



DESIGN LOADS:

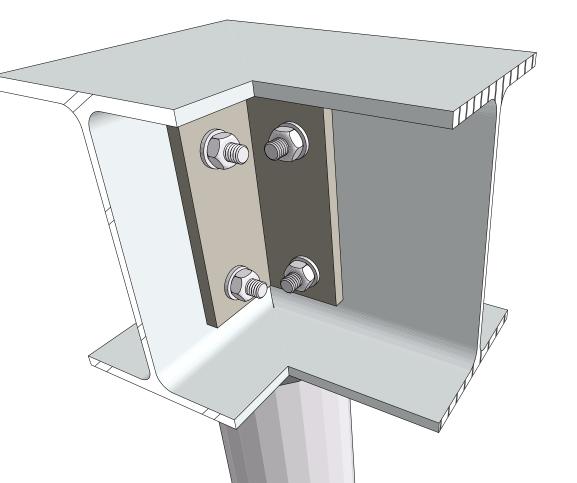
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 - Sr= 0.4 kPa Wind 1/50 = 0.36 kPa (7.5 psf)
 - Sa(0.2) = 0.108
- B. ROOF (SNOW)= 0.55*2.5 + 0.4 = 1.775kPa (37.1 psf)
- ROOF (DEAD)= 0.75 kPa (15 psf)
- C. FLOOR (LIVE)= 1.9 kPa (40 psf) FLOOR (DEAD)= 0.75 kPa (15 psf)





House Main Floor Plan

Scale: 1:24



Mitred Steel Connection



Mitred W8x18 Steel Beams (GV or Primed+Painted)

3/8" GV Steel Angle Fastened w. 2x 1/2" GV Steel Bolts per Leg spaced min. 1" from edges. Angles to Exterior and Exterior. Cut Steel to Mitre cleanly. Prime + Paint

GV Treat all finished surfaces.

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.

Mitred Steel Outside Corner

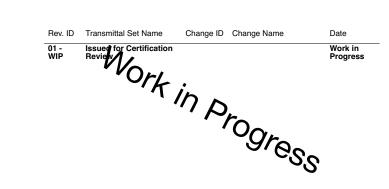
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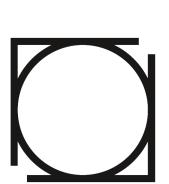
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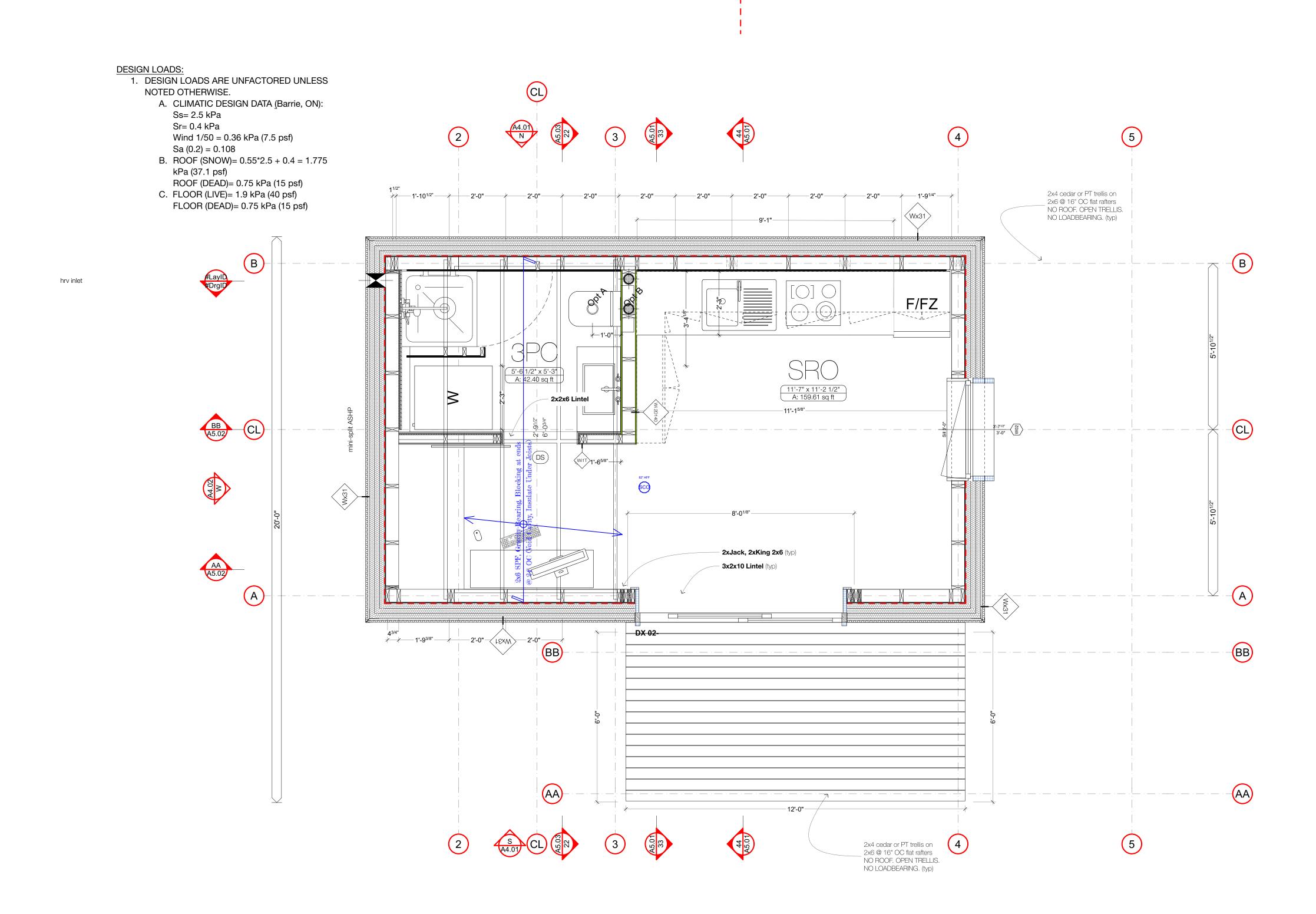
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Revision 01 - WIP Foundation Framing Plans



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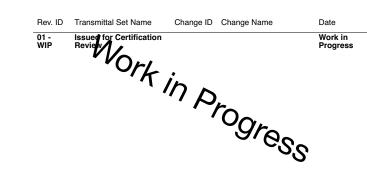
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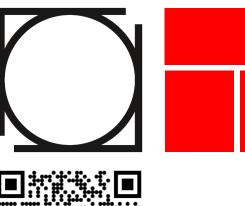
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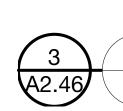
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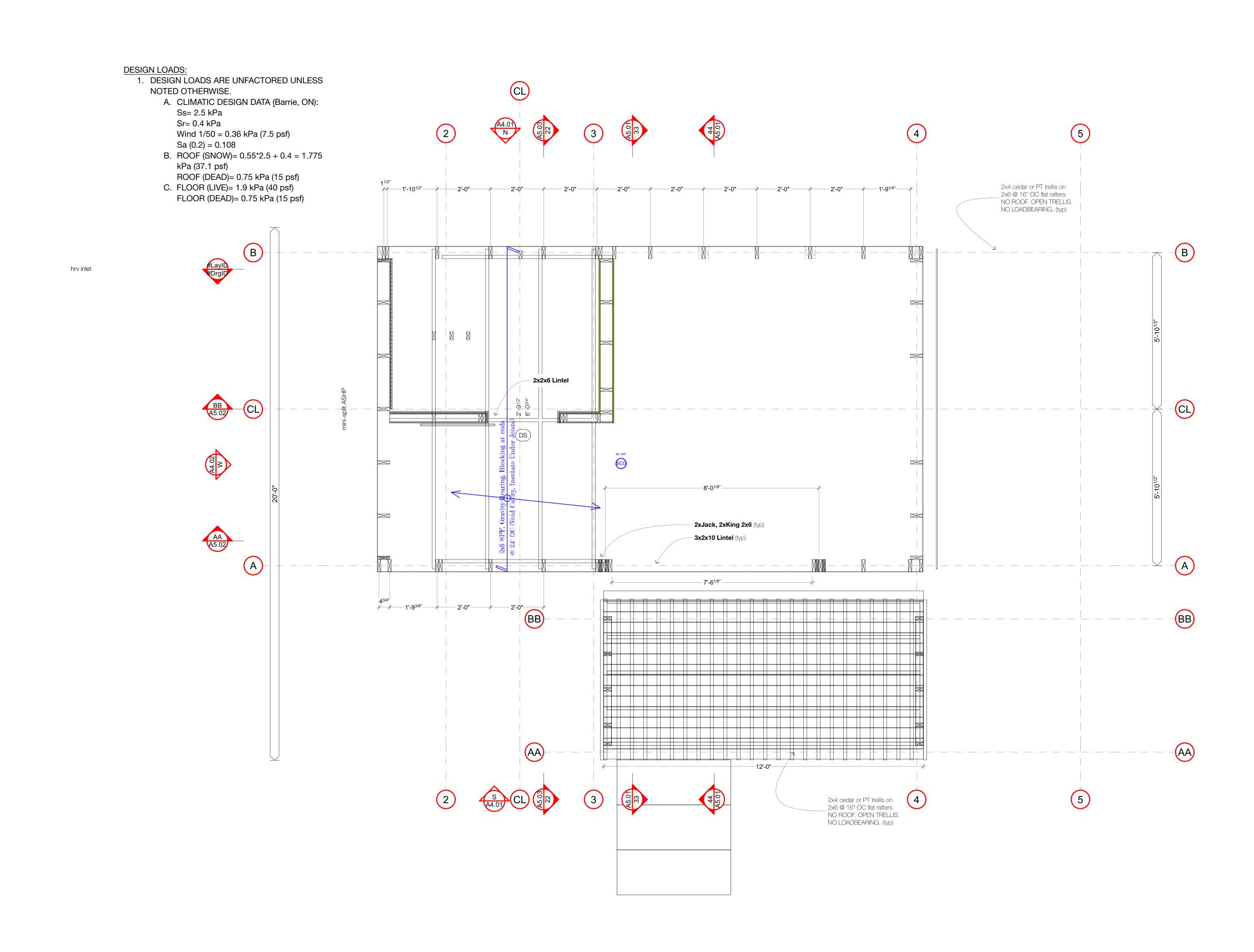
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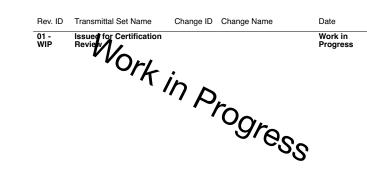
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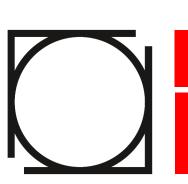
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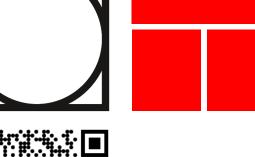
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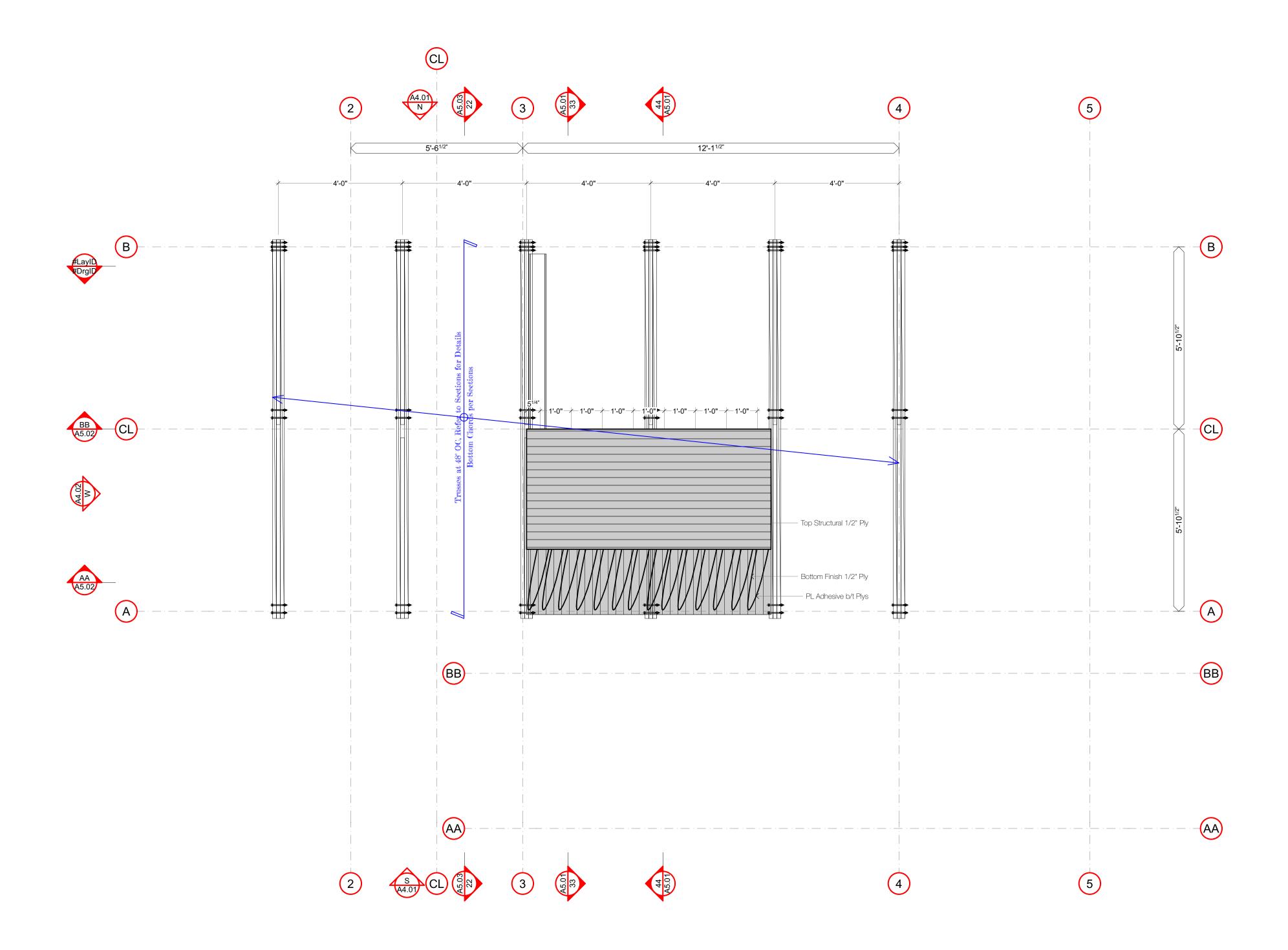
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Revision 01 - WIP Main Floor Framing Plans

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Revision 01 - WIP **Roof Framing Plans**



STRIP 4 5 B CL 24° AFF

20° AFF

RADIANT PANEL HEATER AA A5.02 A A (TEXW) BB -AA 5 4

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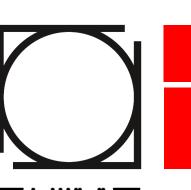
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Revision 01 - WIP Main Floor Electrical Plans

House Main Floor Plan Scale: 1:24

hrv inlet

						ACE Switch, Ou	tlet, Electrical + Mecha	nical Sch	edule						
Key	ID	Name	QTY	Cost	Description	Manufacturer	Housing/Accessories	Part #	Trim #		Ene	ergy Data		Mounting	Notes
Rey	טו	Ivaille	QII	Cost	Description	Manufacturer	Housing/Accessories	Fail#	1111111 #	VOLTS	WATTS	HRS	W-H	Wiodriting	Notes
	OUTLET		3	150.00	Standard Outlet					110.00	0.00		100.00		
42" AFF 99	SWITCH 1	\$	4	150.00	Single Gang Switchbox					110.00	0.00				
CABLE TO SERVICE AND ADDRESS OF THE PARTY OF	CAB/TEL/DAT	CABLE	1	100.00	Cable/Telephone/Data					12.00	0.00		24.00		
DHW DHW	DHW	DHW	1	500.00	Electric Tank					110.00	0.00		14400.00	In-Cabinet	
MW AAF	MW	GFI	1	150.00	Ground Fault Interrupt for Microv	vave				110.00	0.00		100.00		
GFI GFI	GFI	GFI	6	200.00	Ground Fault Interrupt					110.00	0.00		100.00		
FR N	FR	GFI	1	200.00	Ground Fault Interrupt for Fridge					110.00	0.00		100.00		
144" AFF	FAN OUTLET	J	1	150.00	Standard Octagon Junction					110.00	0.00		0.00		
ADIANT PANEL HEATER	RADIANT PANEL	Panel Rad	1	400.00	Instananeous Radiant Heater					110.00	0.00		480.00		
38° AFF	QUAD	Q	2	200.00	Quad Outlet					110.00	0.00		100.00		
R A	RANGE	R	1	200.00	220A Range Receptacle					220.00	0.00		1800.00		
ŝco	SMOKE	sco	1	200.00	Smoke + CO Detector					12.00	0.00		12.00	U/S Decking	
□ ŽTEL	CAB/TEL/DAT	TEL	1	100.00	Cable/Telephone/Data					12.00	0.00		24.00		
WP) [GFI	WP	1	200.00	Weather Protected Outdoor GFI					110.00	0.00		100.00		
II (WP)	GFI	WP	1	200.00	Weather Protected Outdoor GFI					110.00	0.00		2.00		

26 5050.00 18142.00

							ACE	Light Fixt	ure Schedu	le							
Key	Name	ID	QTY	Unit Cost	Bulb	Description	Housing/Accessories	Lens	Manufa	Part #	Trim #		Energy	/ Data		Position/Mounting	NOTES
Ney	INAITIC	שו	QII	OTHE COSE	Buib	Description	Tiodsing/Accessories	LCIIS	Wanda	ι αιι π	111111 #	VOLTS	WATTS	HRS	W-H	1 osition/iviounting	NOTES
		FAN	1	600.00	MR16-L	Contemporary	24" Extension	UV	G Squa	00-00	00-00	110.00	40.00		238.36	Ceilling	Straight Blades
M)	М	MILLWORK	7	20.00	XENON	. Millwork	Lucite Bezel					110.00	3.00		18.00	Millwork Underside	
90° AFF 428° AFF STRIP	STRIP	LED STRIP	1	45.00	LED	Pendant	Tulip Glass	Removed	Juno			110.00	7.00		42.00	Bulkhead	
96* AFF	W	LED SCONCE	6	90.00	LED MR16	Potlight (Halogen)	Lucite Bezel					110.00	3.00		18.00		

15 1325.00 514.36

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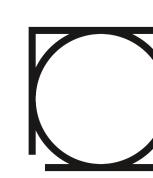
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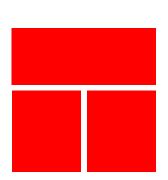
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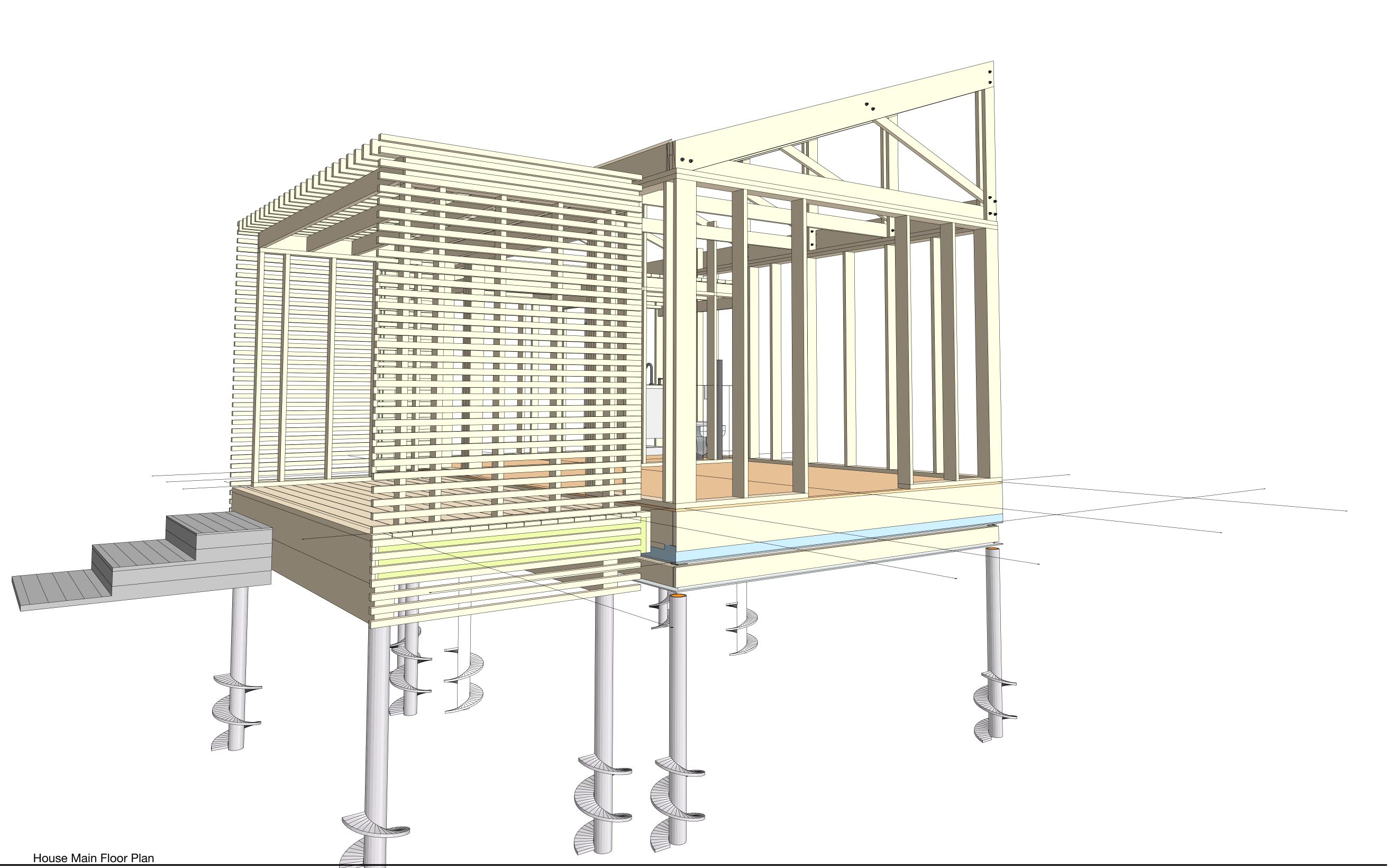
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Revision 01 - WIP **Electrical Schedule**





Scale: 1:32.16

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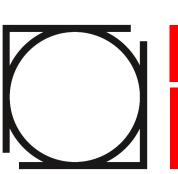
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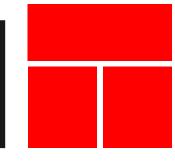
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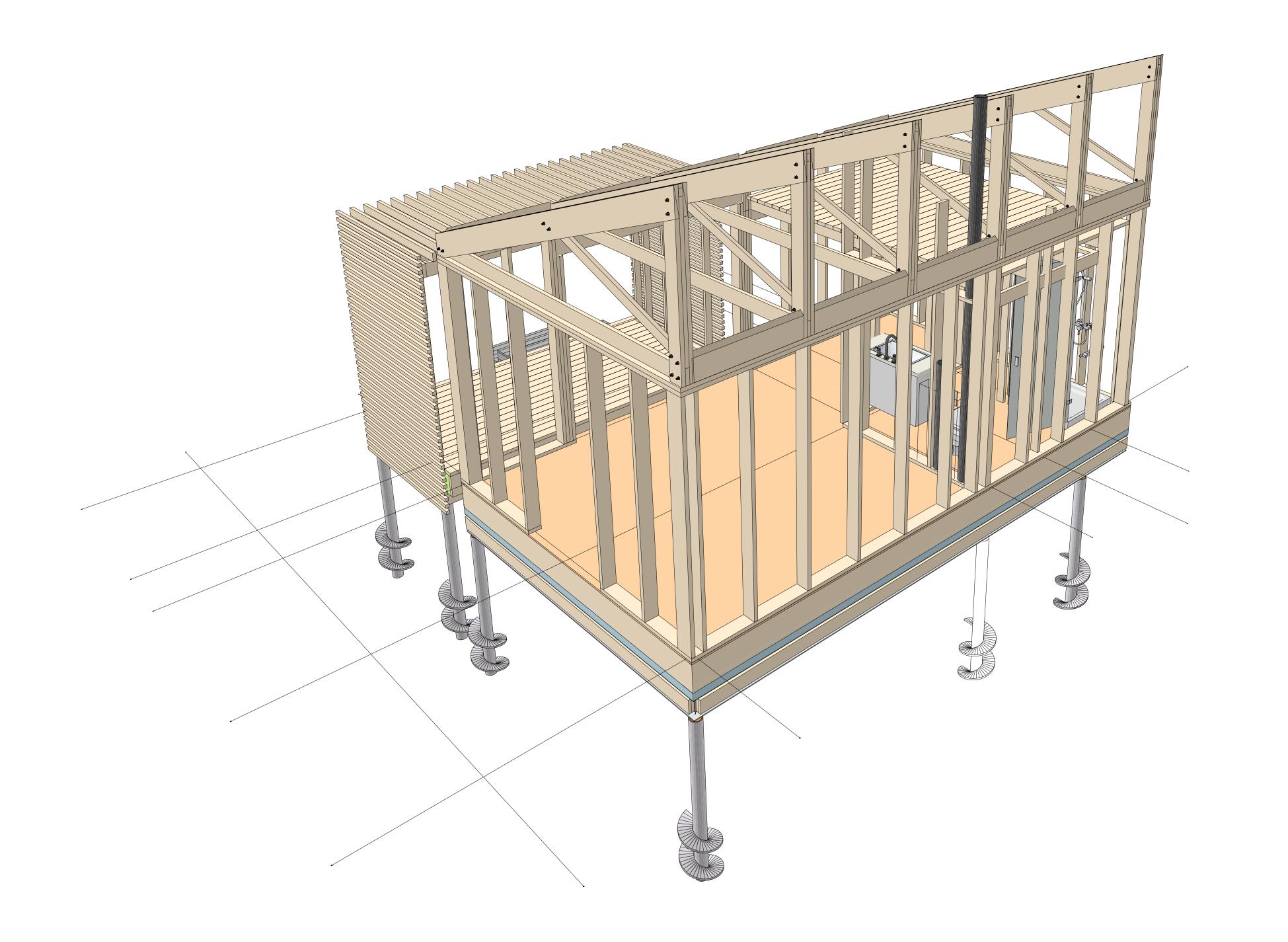
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Revision
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Assembly Perspective



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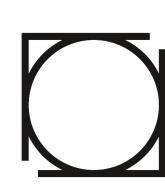
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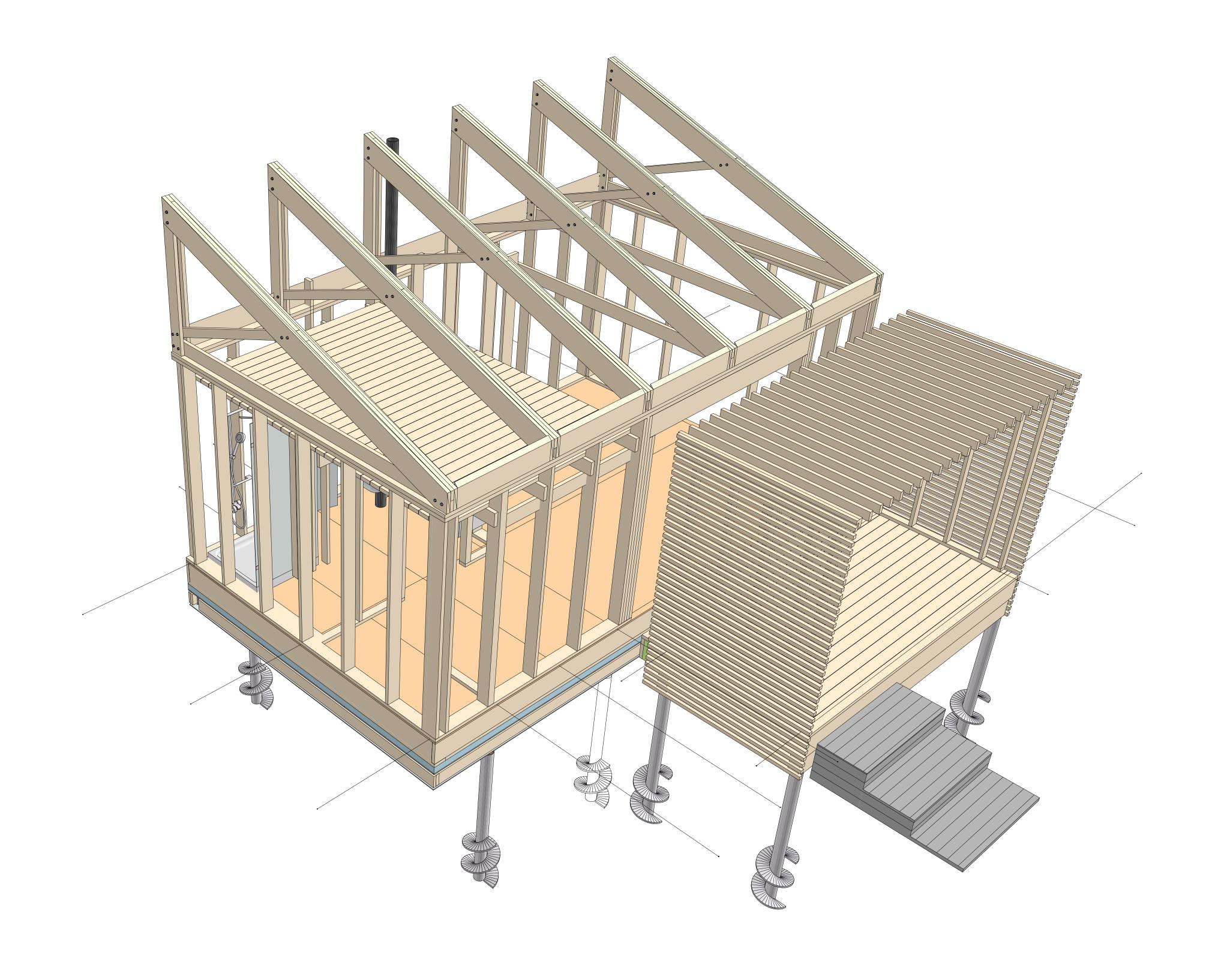
project no. 2024.12

Site Address: TBD

Revision
01 - WIP **Assembly Perspective**

House Main Floor Plan

Scale: 1:32.16



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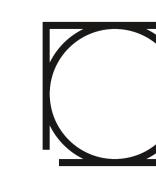
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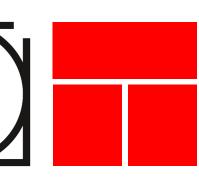
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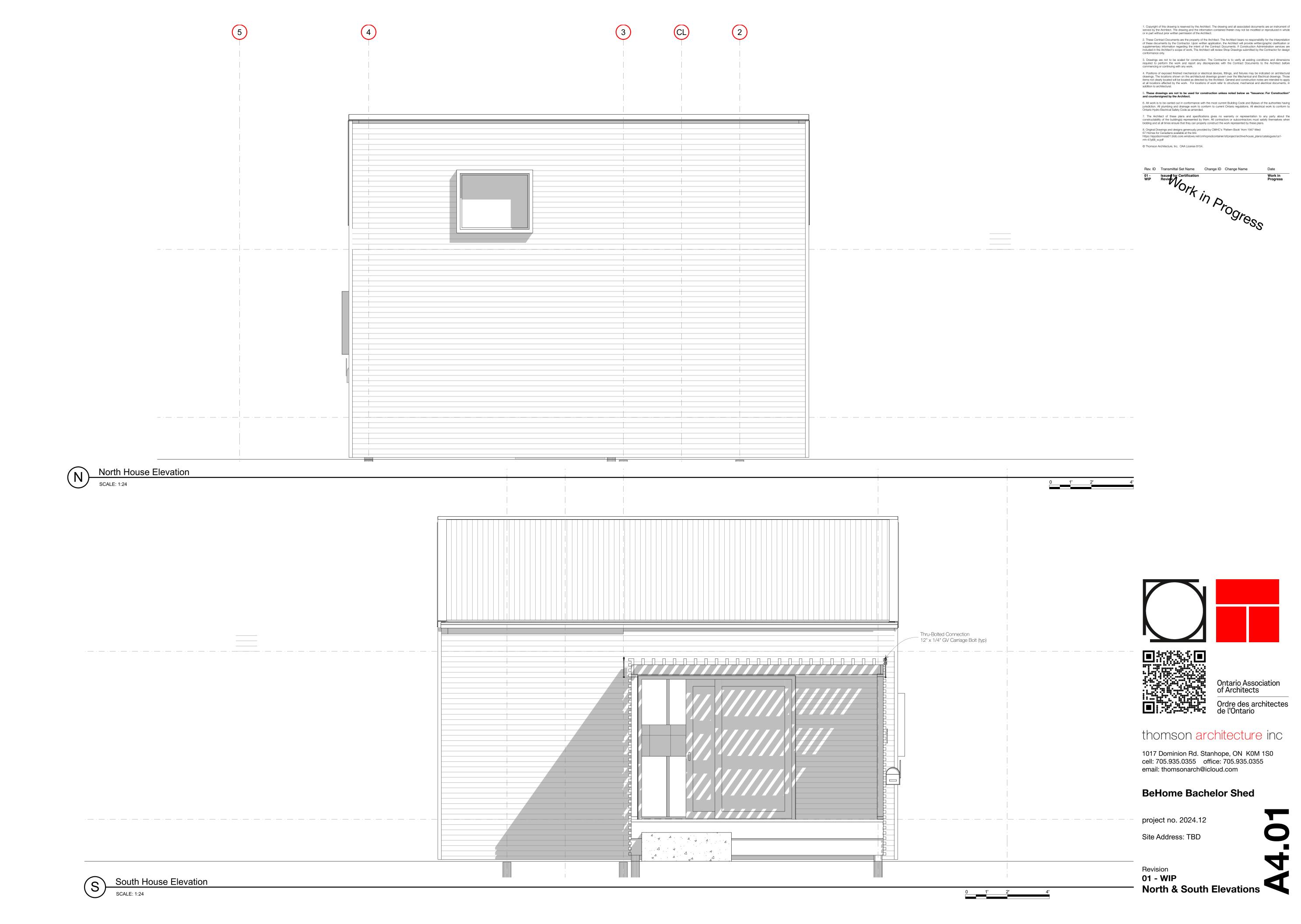
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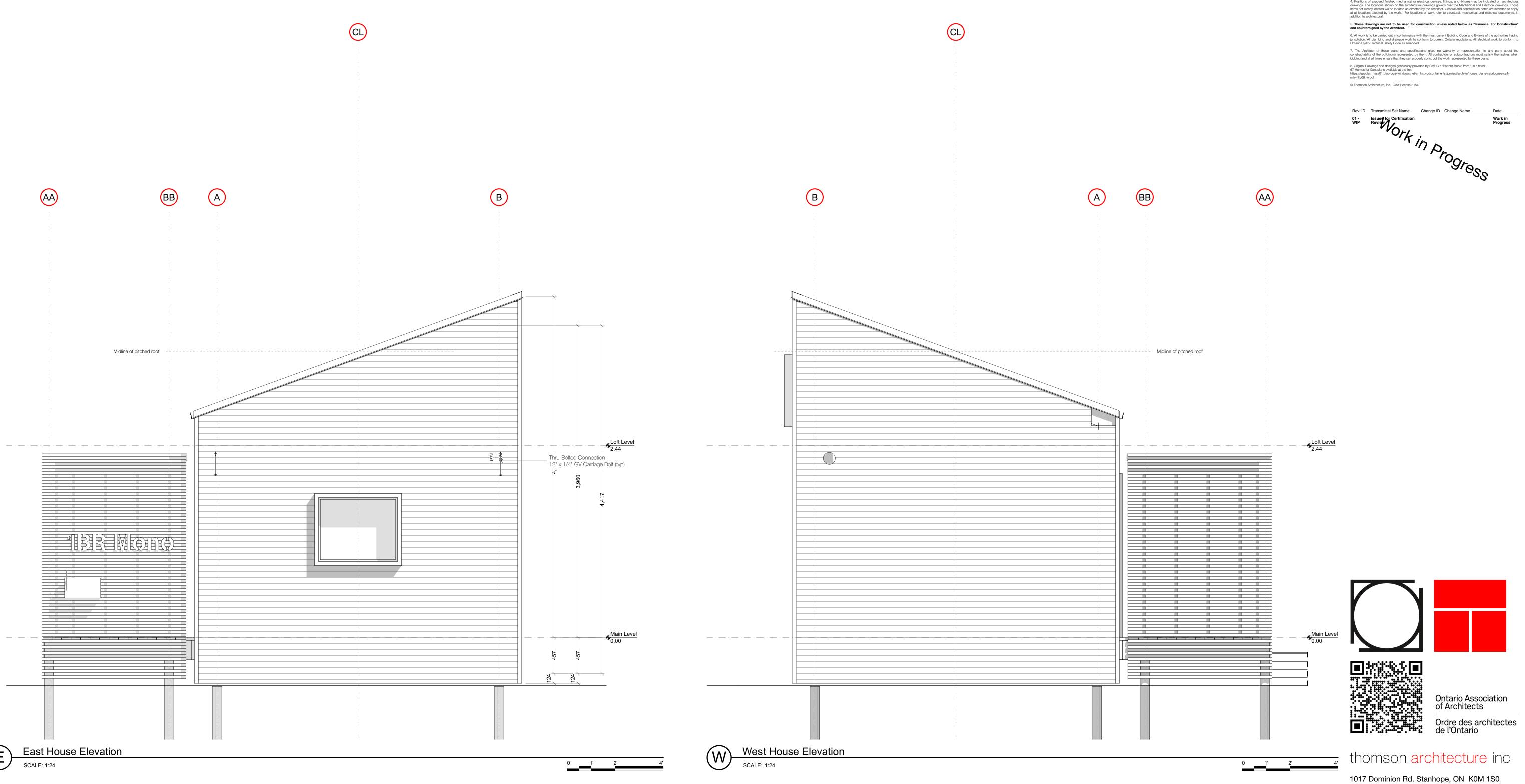
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Revision **01 - WIP**

Framing Perspective





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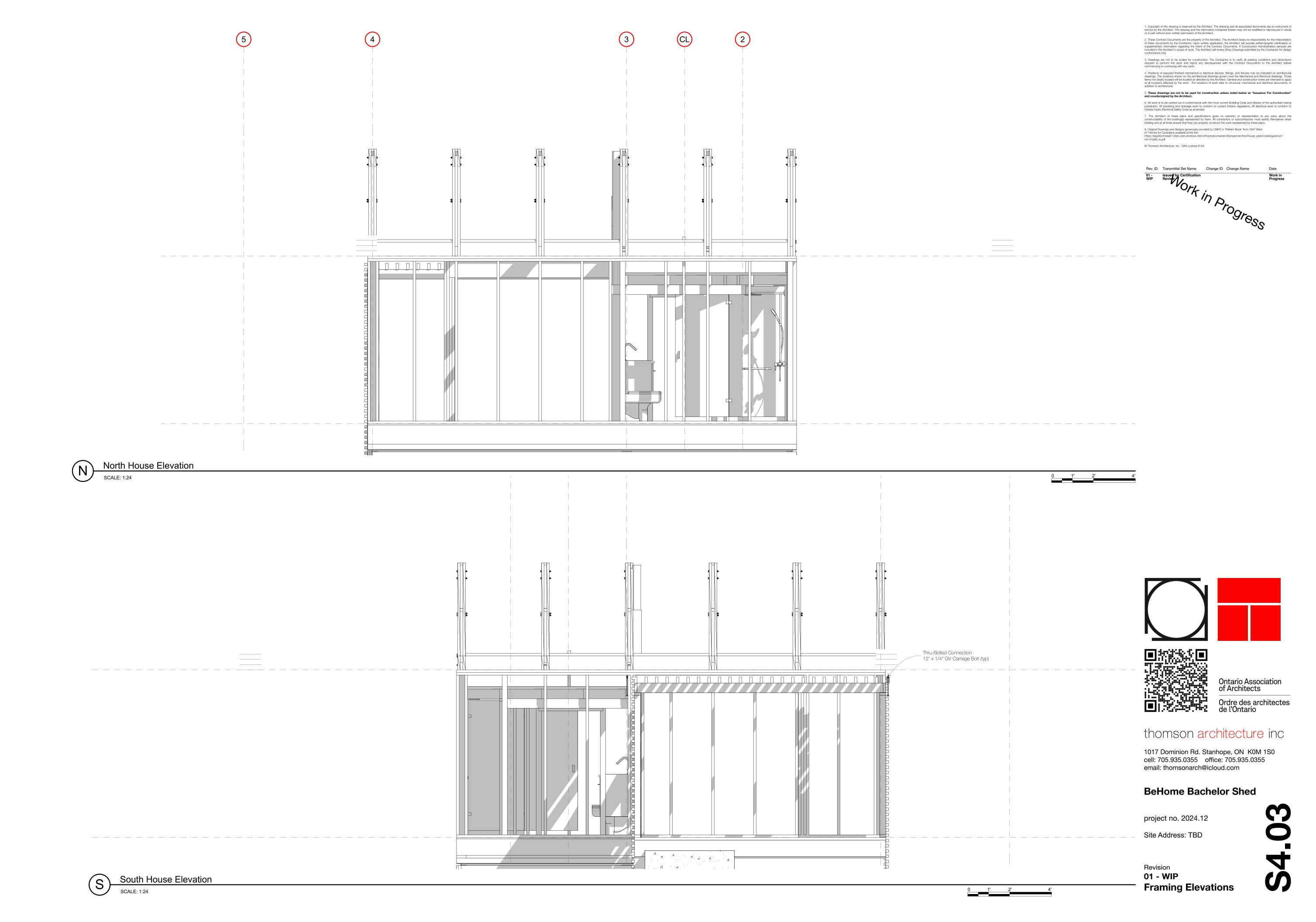
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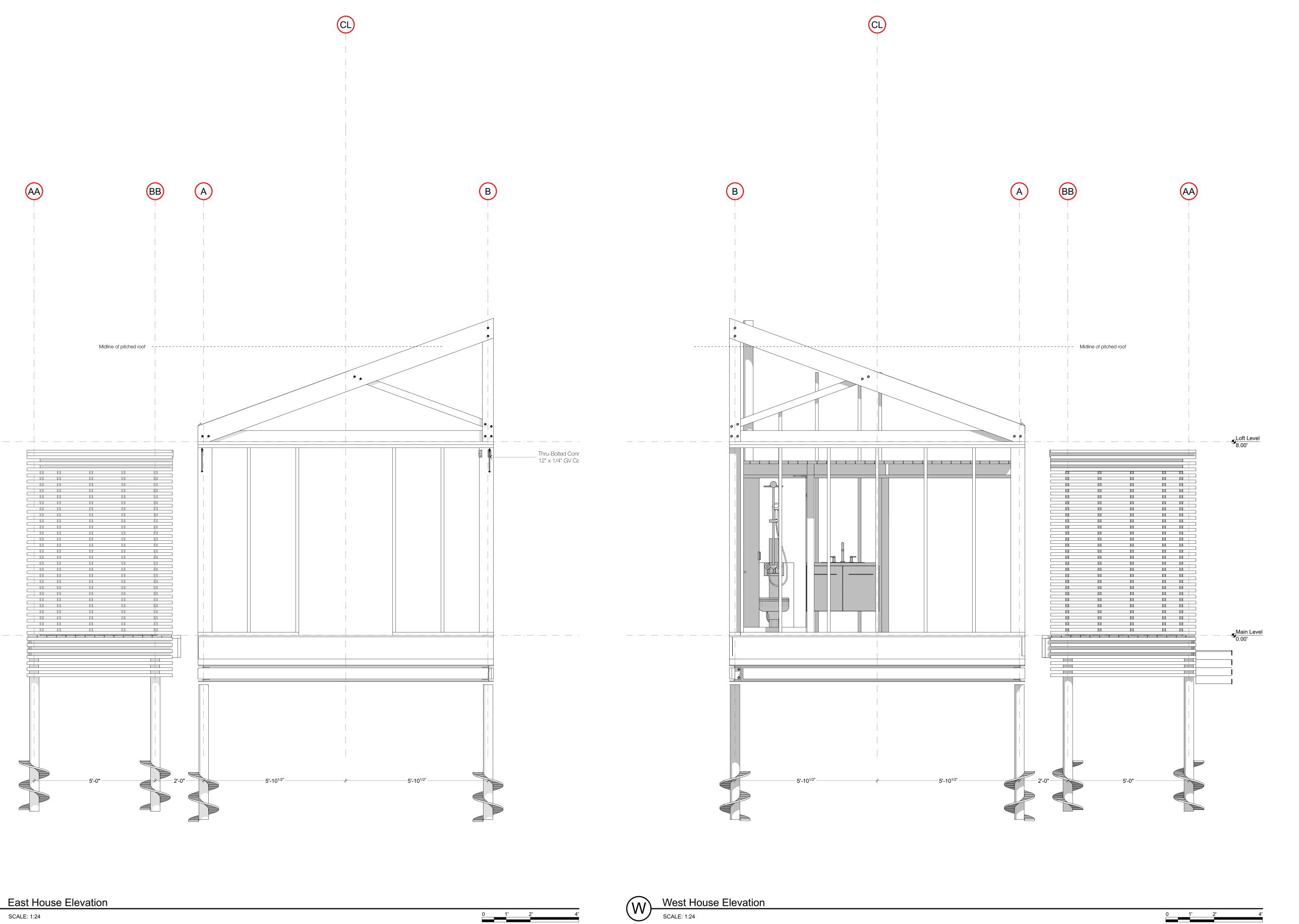
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Revision 01 - WIP East & West Elevations





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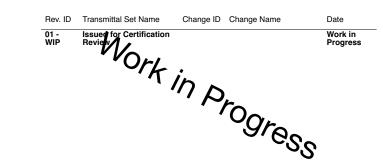
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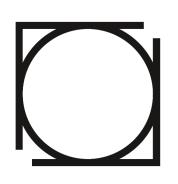
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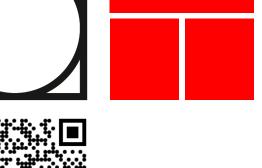
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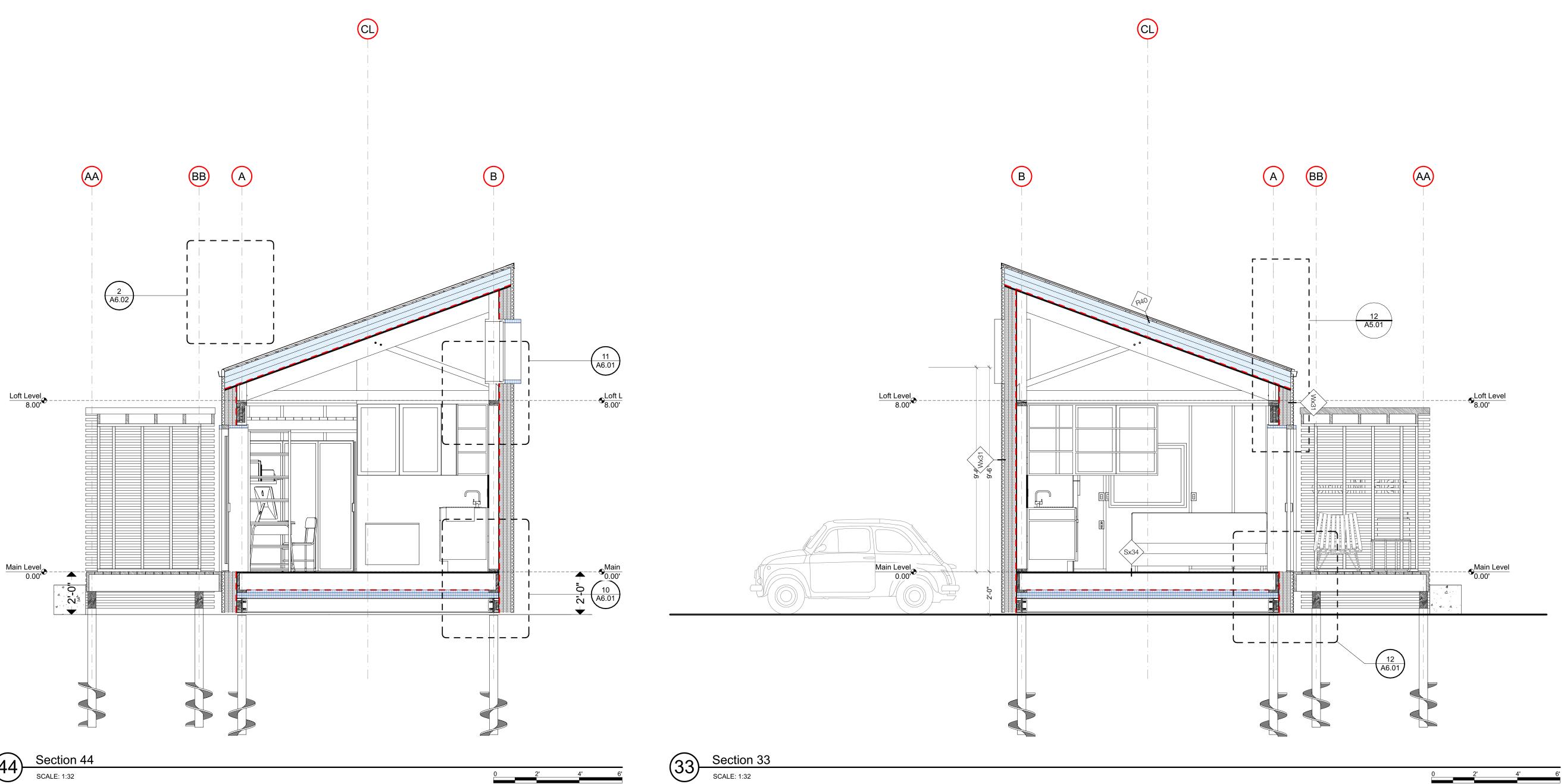
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Revision 01 - WIP **Framing Elevations**



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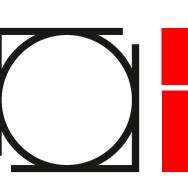
jurisaciton. All plumoning and drainage work to conform to current ontano regulations. All electrical work to conform to Ontario Hydro Electrical Salety Code as amended.

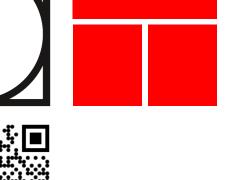
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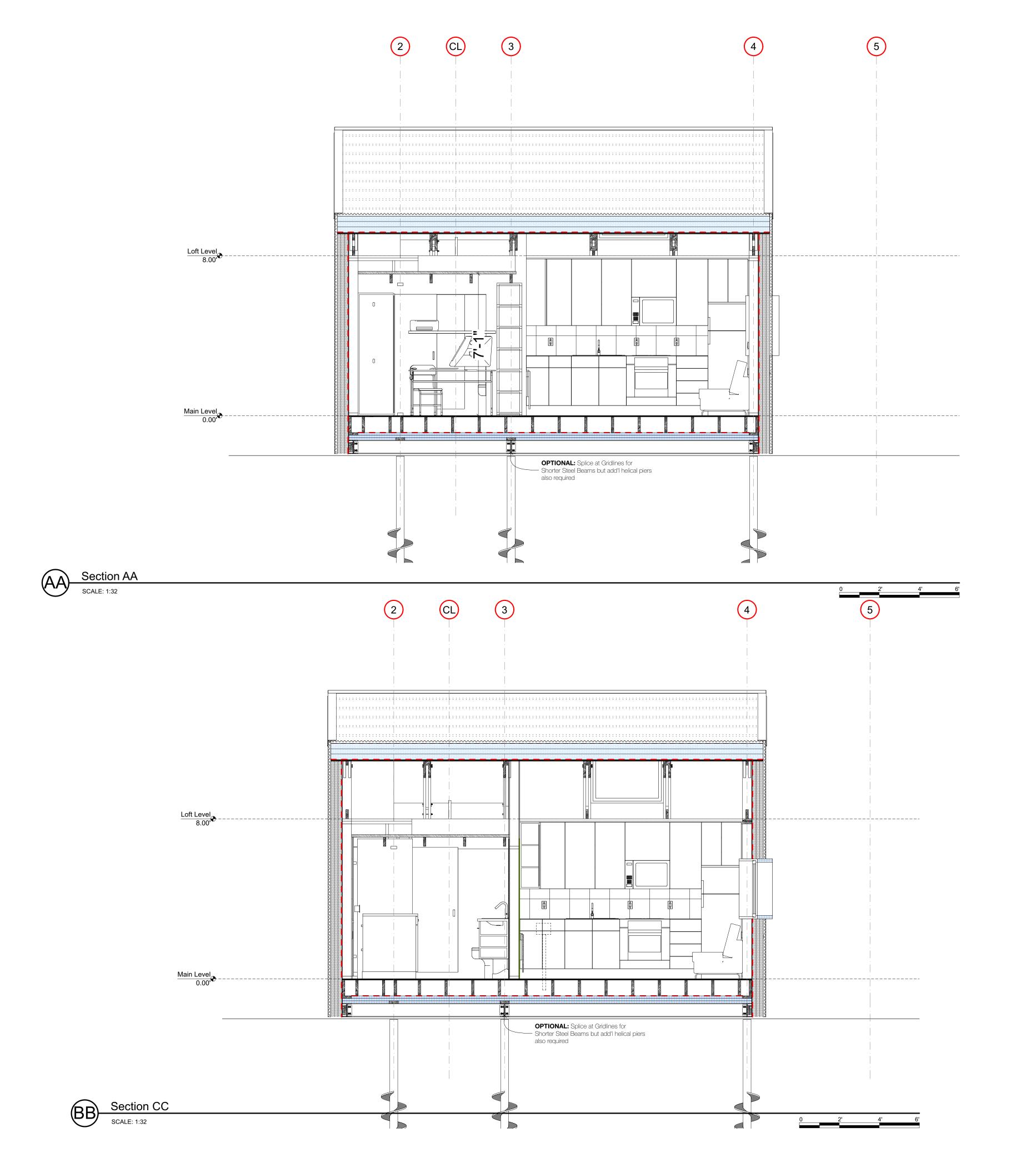
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Revision
01 - WIP
Building Sections



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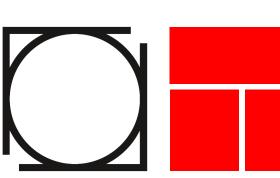
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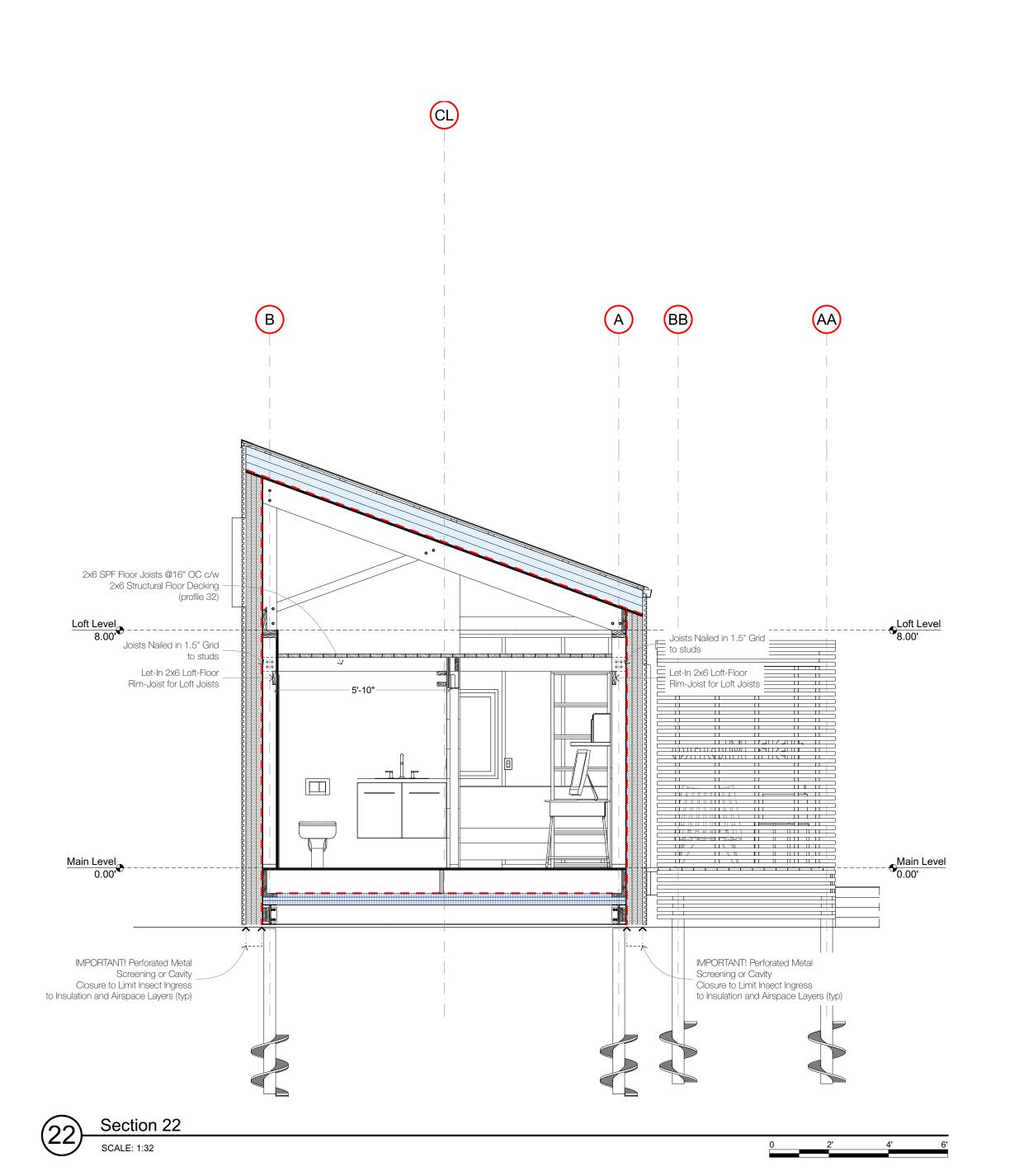
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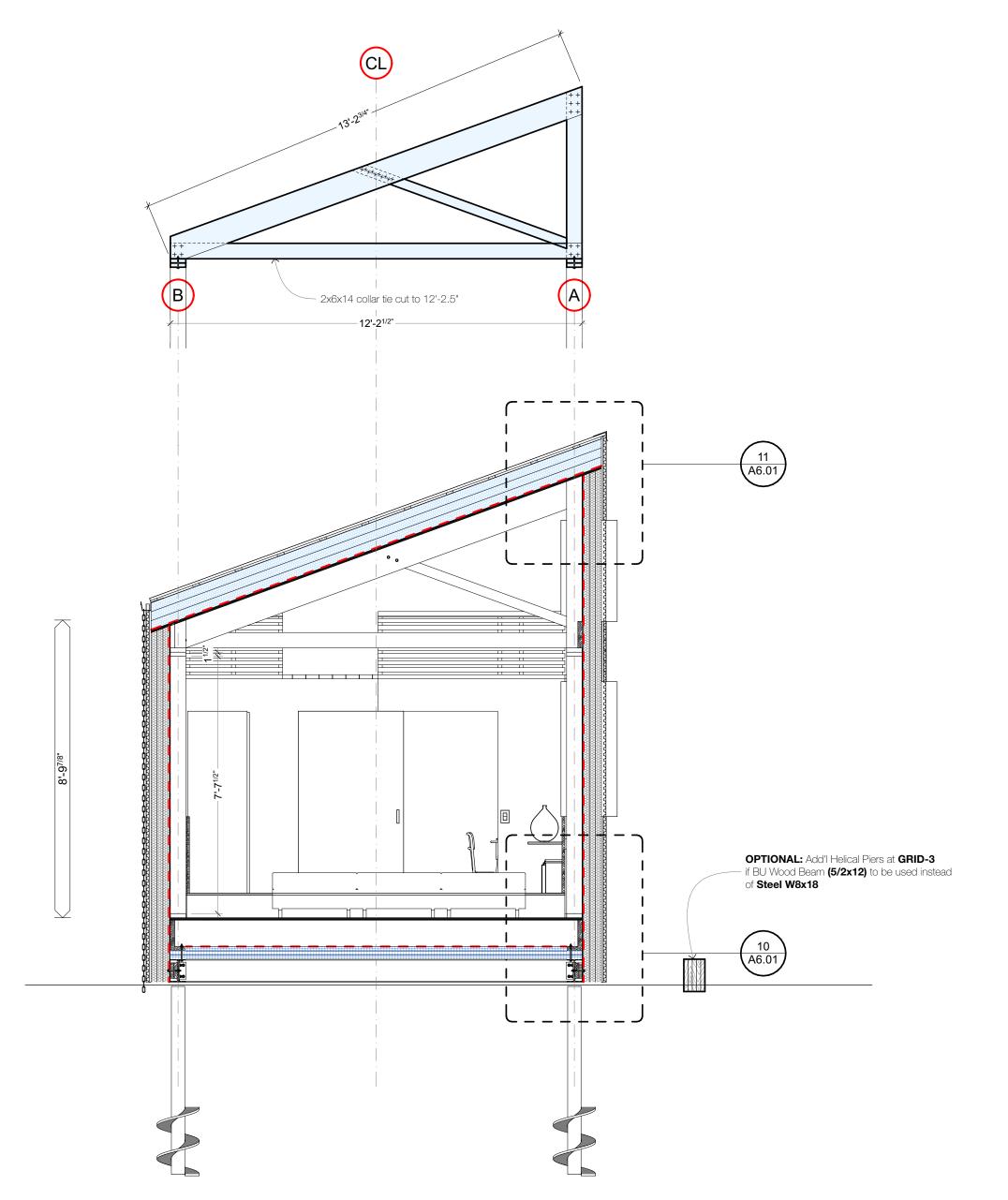
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Revision 01 - WIP **Building Sections**





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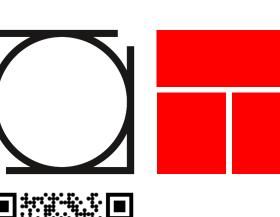
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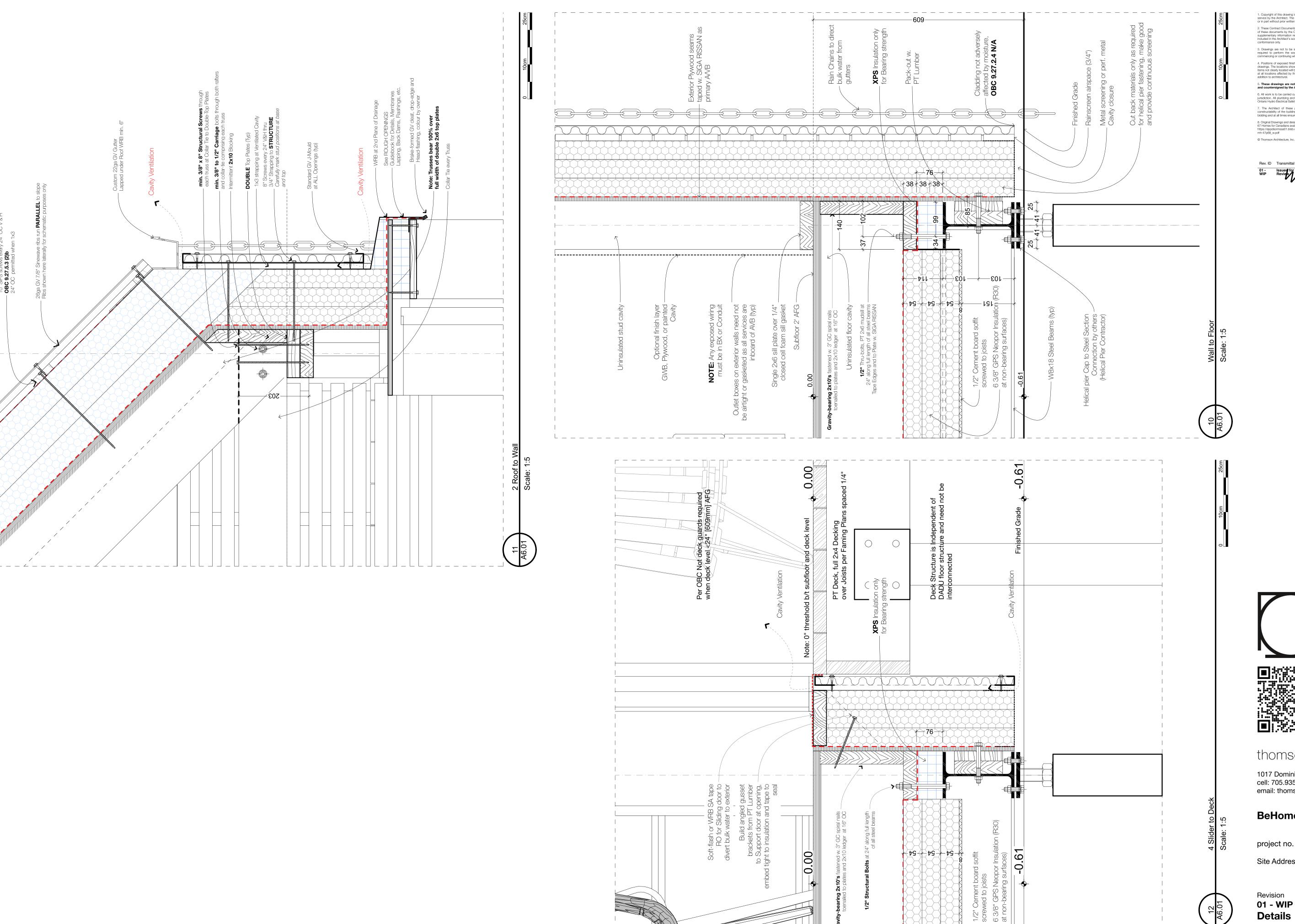
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Revision 01 - WIP **Building Sections**

Section 11 SCALE: 1:32



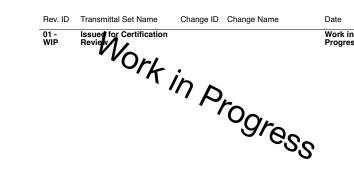
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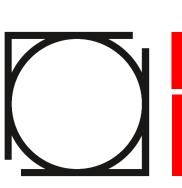
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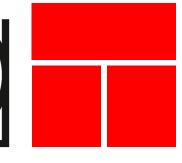
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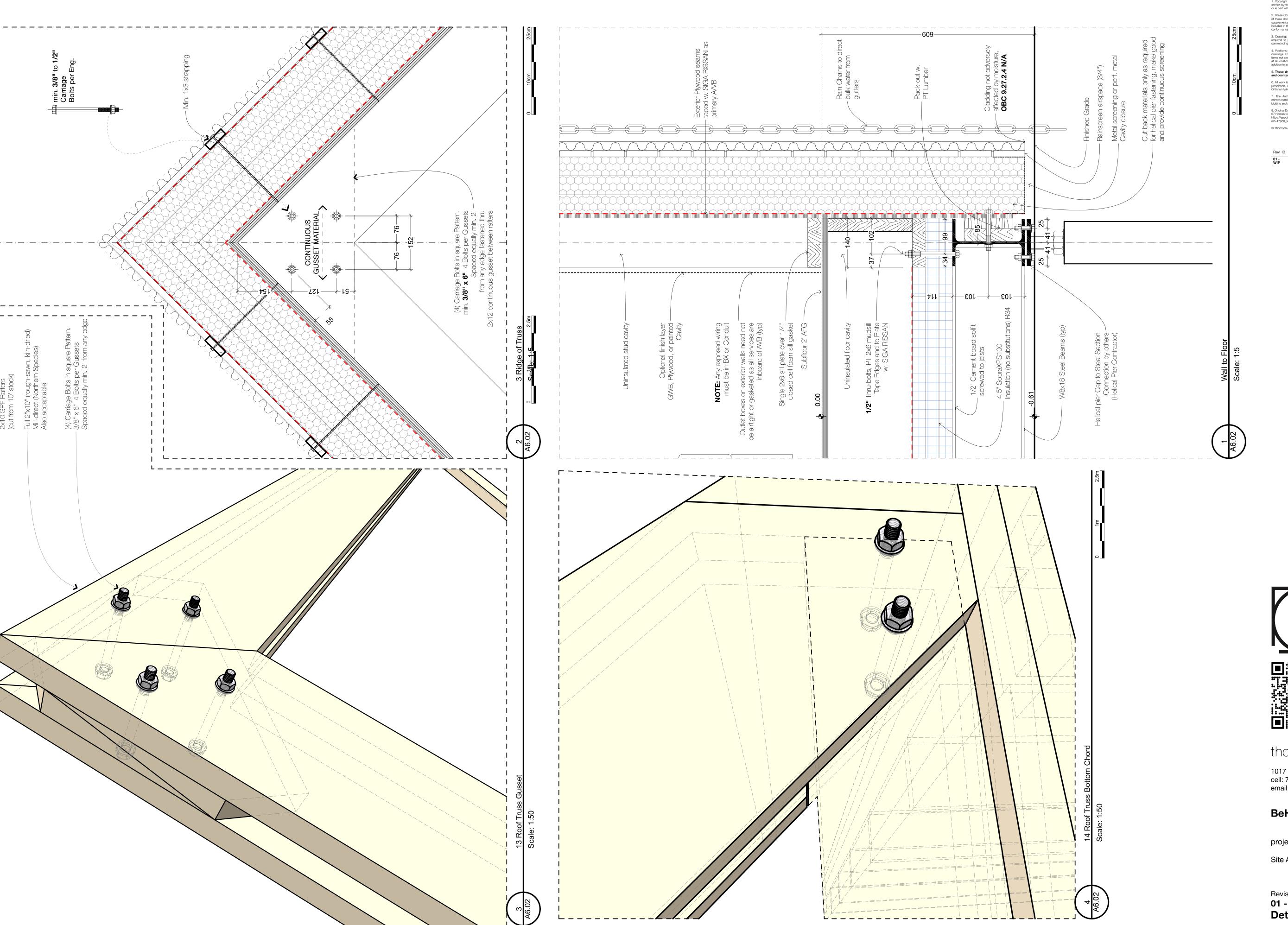
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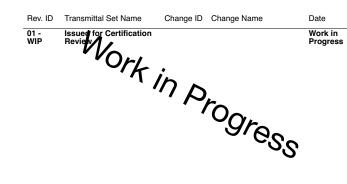


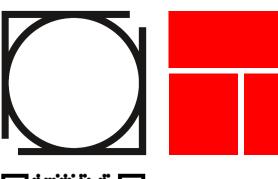
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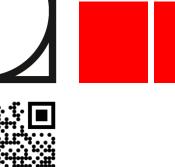
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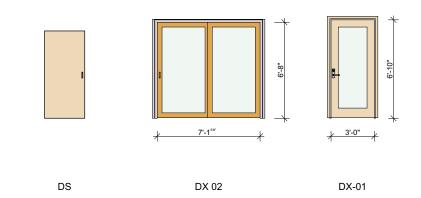
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Revision 01 - WIP **Details**

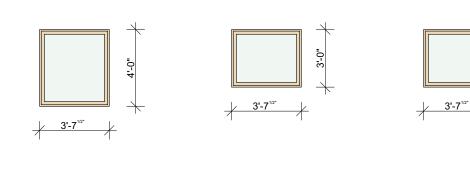
DOOR SO	HEDULE																							or in part without prior written permission of the Architect. 2. These Contract Documents are the property of the Architect. The Architect bears no responsibility for the interpretation of these documents by the Contractor. Upon written application, the Architect will provide written/graphic clarification or
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DS	101	1	3PC	<undefined></undefined>	2'	'-8" 6	6'-0" (J ^{3/4} "	•		06 Pine V	•		06 Pine V			<u> </u>	Off	Knob 12				custom 3/4" birch ply rail surface slider	 drawings. The locations shown on the architectural drawings govern over the Mechanical and Electrical drawings. Those items not clearly located will be located as directed by the Architect. General and construction notes intended to apply at all locations affected by the work. For locations of work refer to structural, mechanical and electrical documents, in addition to architectural.
DS	103	1	<undefined></undefined>	B/R	3'	'-0" 6'-0	-0 ^{3/4} " (J ^{3/4} "			06 Pine V			06 Pine V				Off	Knob 12				custom 3/4" birch ply rail surface slider	5. These drawings are not to be used for construction unless noted below as "Issuance: For Construction" and countersigned by the Architect.
DX 02	100	1	SRO	<undefined></undefined>	7'-	-1··· 6	6'-8" 1	3/4"			06 Oak Veneer			06 Oak Veneer	\boxtimes			Knob 12	Knob 12		\boxtimes	\boxtimes	Triple-glazed thermally broken Full-Glass L&S	6. All work is to be carried out in conformance with the most current Building Code and Bylaws of the authorities having iurisdiction. All olumbing and drainage work to conform to current Ontario regulations. All electrical work to conform to
DX-01	100	1	SRO	<undefined></undefined>	3'	-0" 6'-	'-10" 1	1 ^{3/4} " -	-		06 Pine H	PT	-	06 Pine H	\boxtimes		HD.8	Handle 8	Handle 5		\boxtimes	\boxtimes	Triple-glazed thermally broken Full-Glass Swin	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(s) 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.

DOOR LEGEND



WINDOW &	SCREE	N SCHEDI	JLE														
ID	ZO	NE QT	Y OPENS FROM	WIDTH	HEIG	HT 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></undefined>	3'-7 ^{1/2} "	4'-0"	0.91		N/R			Ano Aluminum Exterior/Wood Interior		TRIPLE LOW-E, ARGON c/w NC Edge Spacers				
W02	103	1	<undefined></undefined>	3'-7 ^{1/2} "	3'-0"	1.76		N/R			Ano Aluminum Exterior/Wood Interior		TRIPLE LOW-E, ARGON c/w NC Edge Spacers				
W02	100	1	<undefined></undefined>	3'-7 ^{1/2} "	3'-0"	1.76		N/R			Ano Aluminum Exterior/Wood Interior		TRIPLE LOW-E, ARGON c/w NC Edge Spacers				

WINDOW LEGEND



W02

W02

DOOR KEY

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

HMF HOLLOW METAL FRAME (NON-

INSULATED METAL FRAME

SCW SOLID CORE WOOD LEAF SCWG SOLID CORE WOOD LEAF W. **GLAZED INSERT** SCWGT

SCWGSL W. GLAZED **INSERT &**

HARDWARE GLAZING ELEMENTS PER THERM OBC, REFER TO NOTE

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

Contractor to supply & install Screen Doors at

WINDOW KEY

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

DB DEADBOLT (SEE HW MASTER

Lever-style multipoint Ext. Lockable Lever Style Ext. Lockable Lever Style Thumb-Turn Lock

Code Matrix for this project (refer to page A0.03 of

SINGLE LEAF EXTERIOR DOOR

THERMAL)

(THERMALLY-BROKEN)

SOLID CORE WOOD LEAF **INSERT & TRANSOM** W. GLAZED SOLID CORE WOOD LEAF

SIDELIGHT & TRANSOM

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

*D2X-IMCG EXISTING DOOR W. NEW

BELOW

this set)

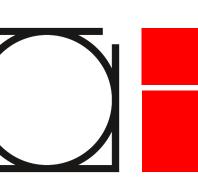
Exterior Swing and Sliding doors UNO

HARDWARE KEY

LIST)

Knob 12 Handle 5 Handle 8

NOTE: All Exterior-Facing Doors and Windows shall conform with Energy Performance Requirements as noted in the Ontario Building this set) UNO



Original Drawings and designs generously provided by CMHC's 'Pattern Book' from 1947 titled: 67 Homes for Canadians available at the link: https://epodscrmssa01.blob.core.windows.net/cmhcprodcontainer/st/project/archive/house_plans/catalogues/cmh-47p68_w.pdf

Rev. ID Transmittal Set Name Change ID Change Name

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thomson architecture inc

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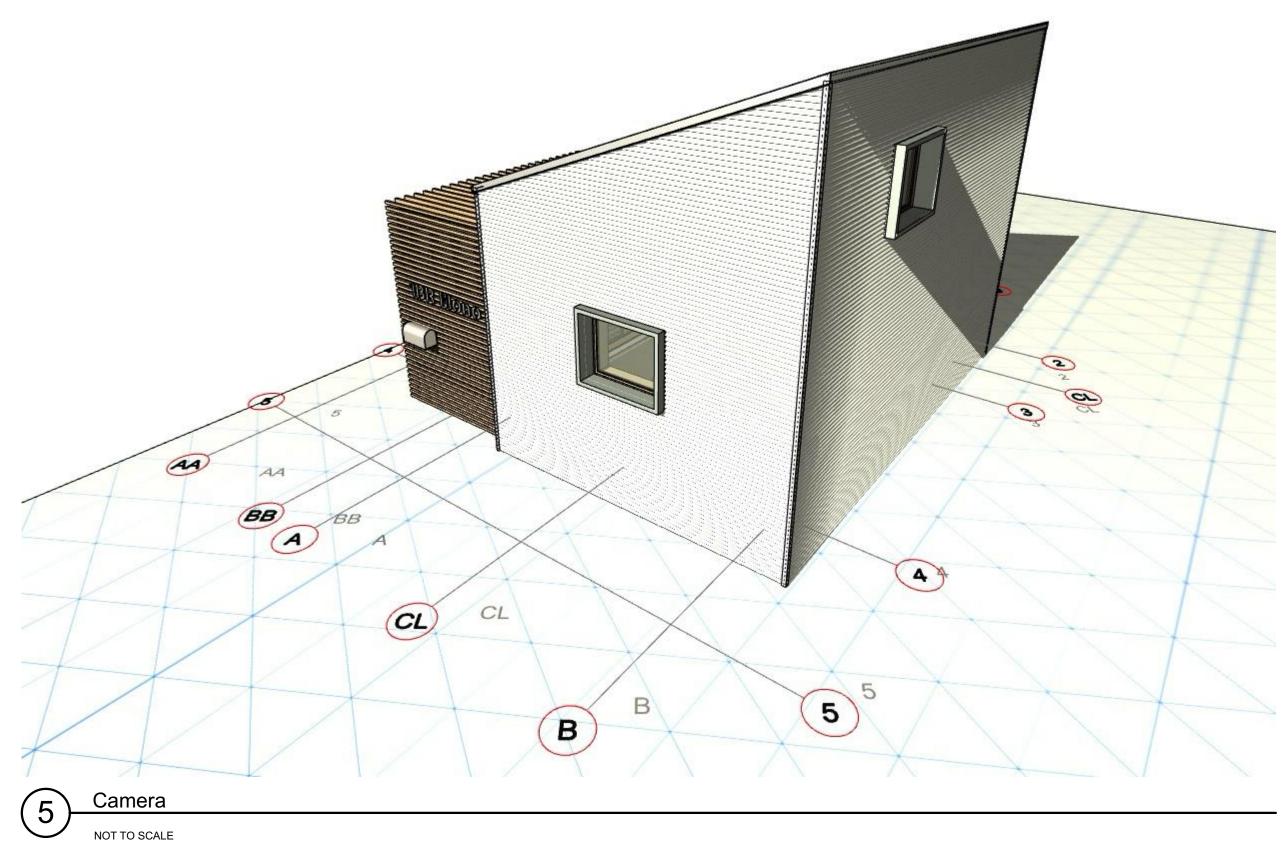
BeHome Bachelor Shed

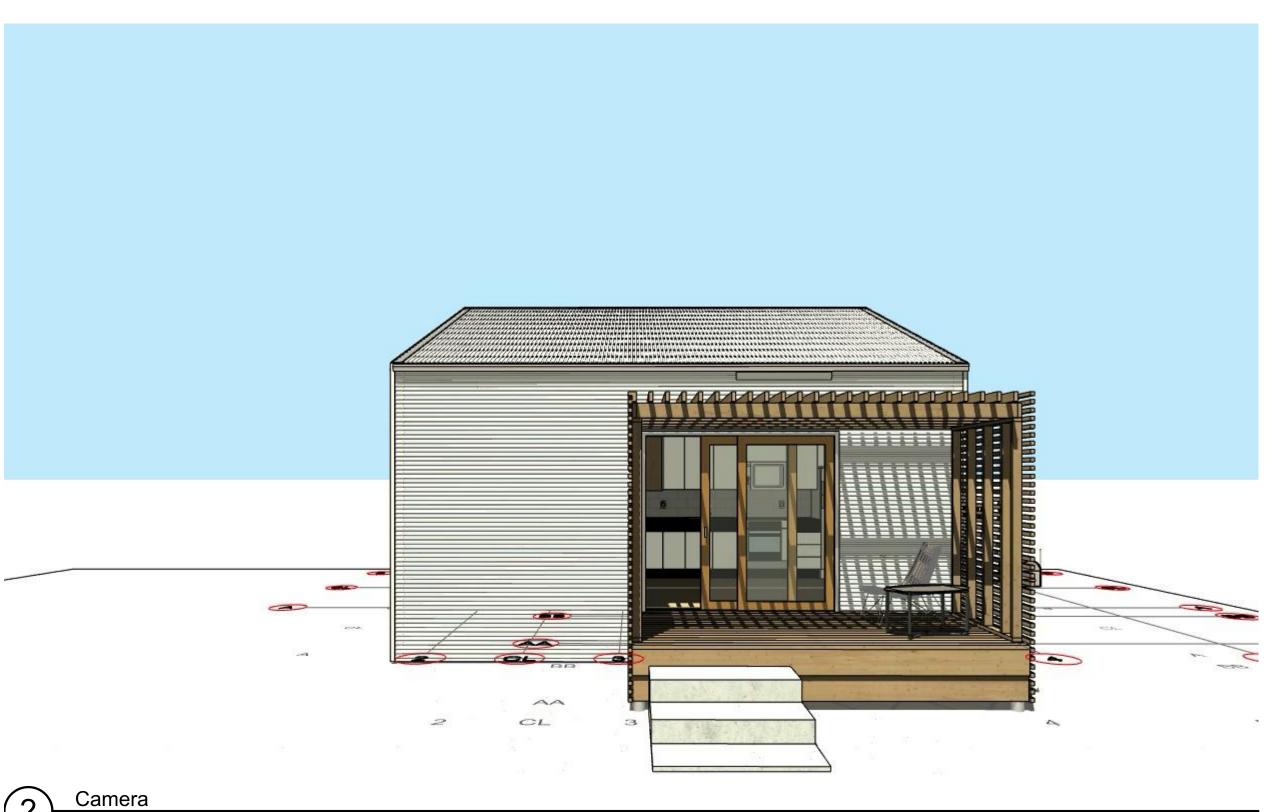
project no. 2024.12

Site Address: TBD

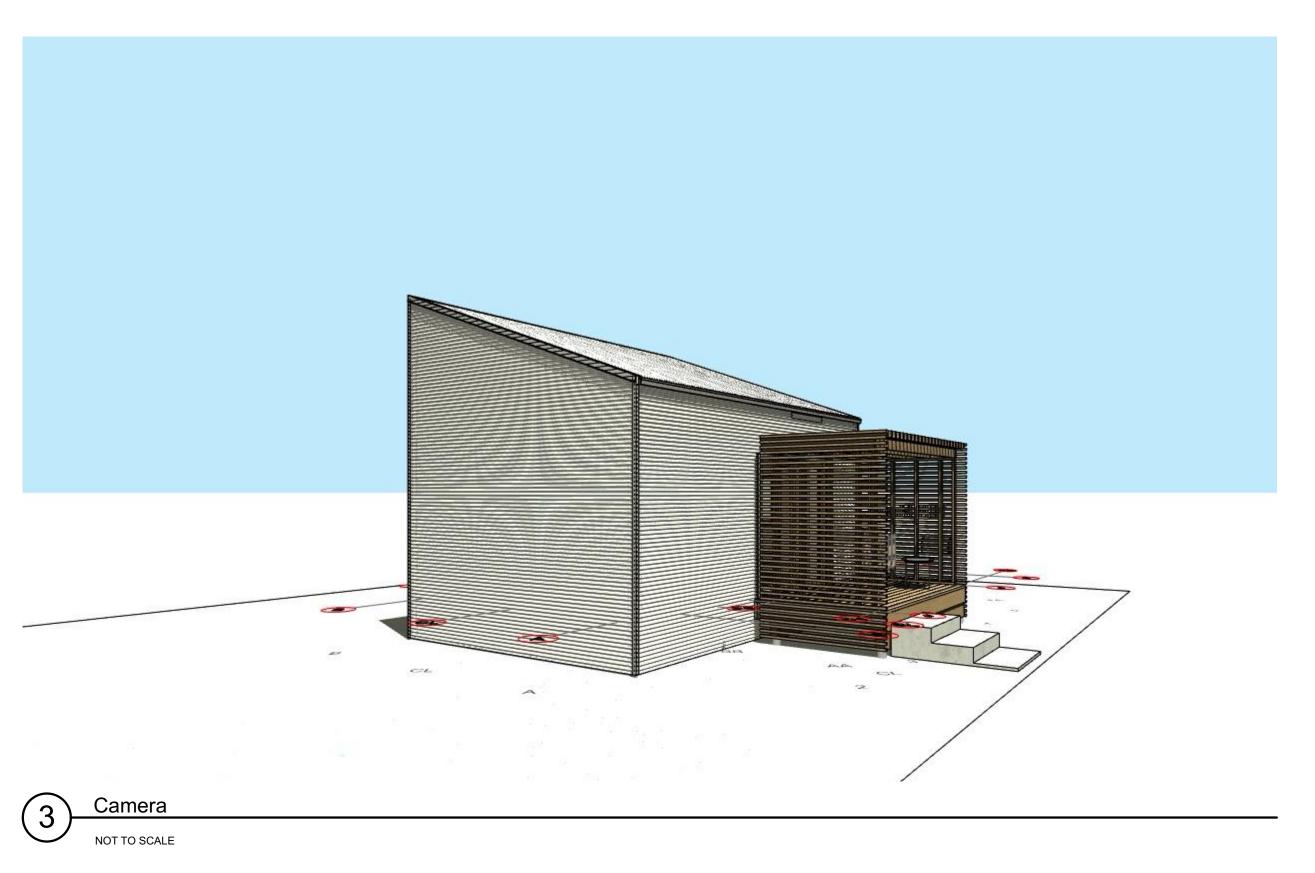
Revision 01 - WIP **Door & Window Schedule**

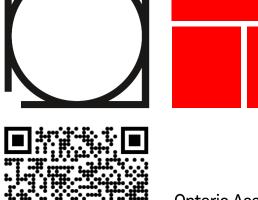






NOT TO SCALE







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BeHome Bachelor Shed project no. 2023.011

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

Revision 01 - WIP **3D Views**



Camera

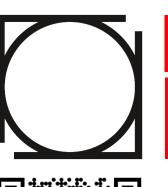
NOT TO SCALE















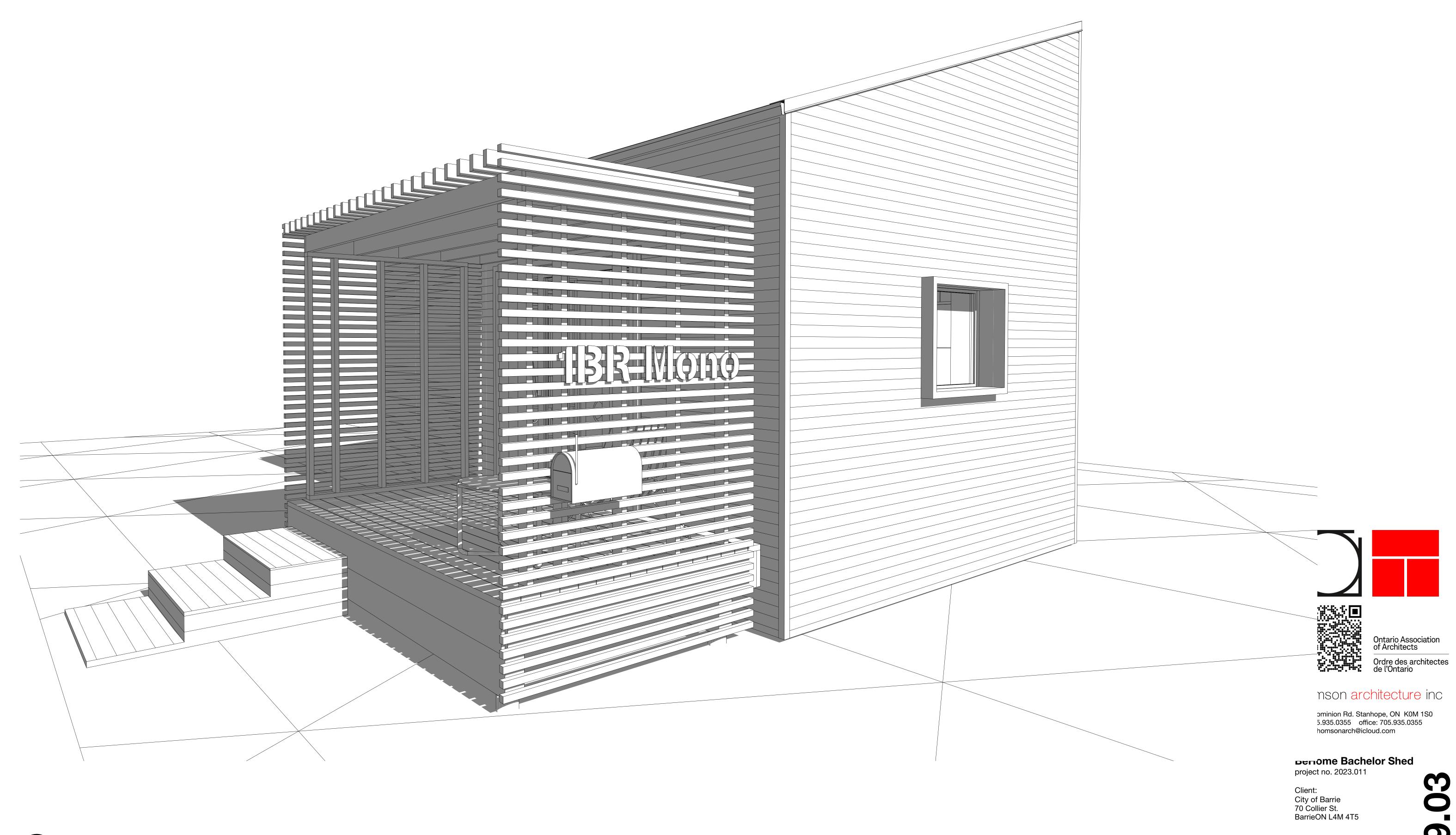
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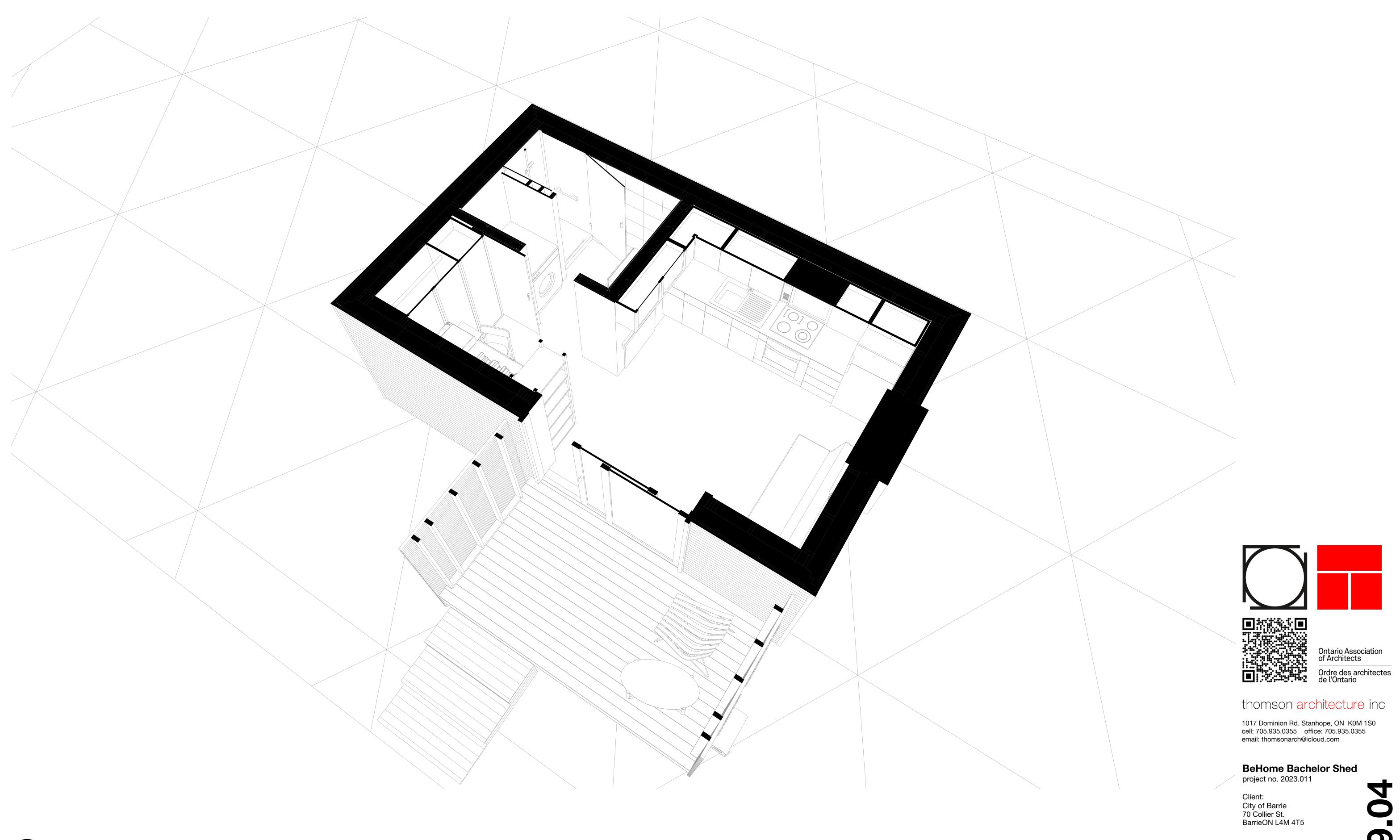
Revision 01 - WIP **3D Views**



House Main Floor Plan

Scale: 1:32.97

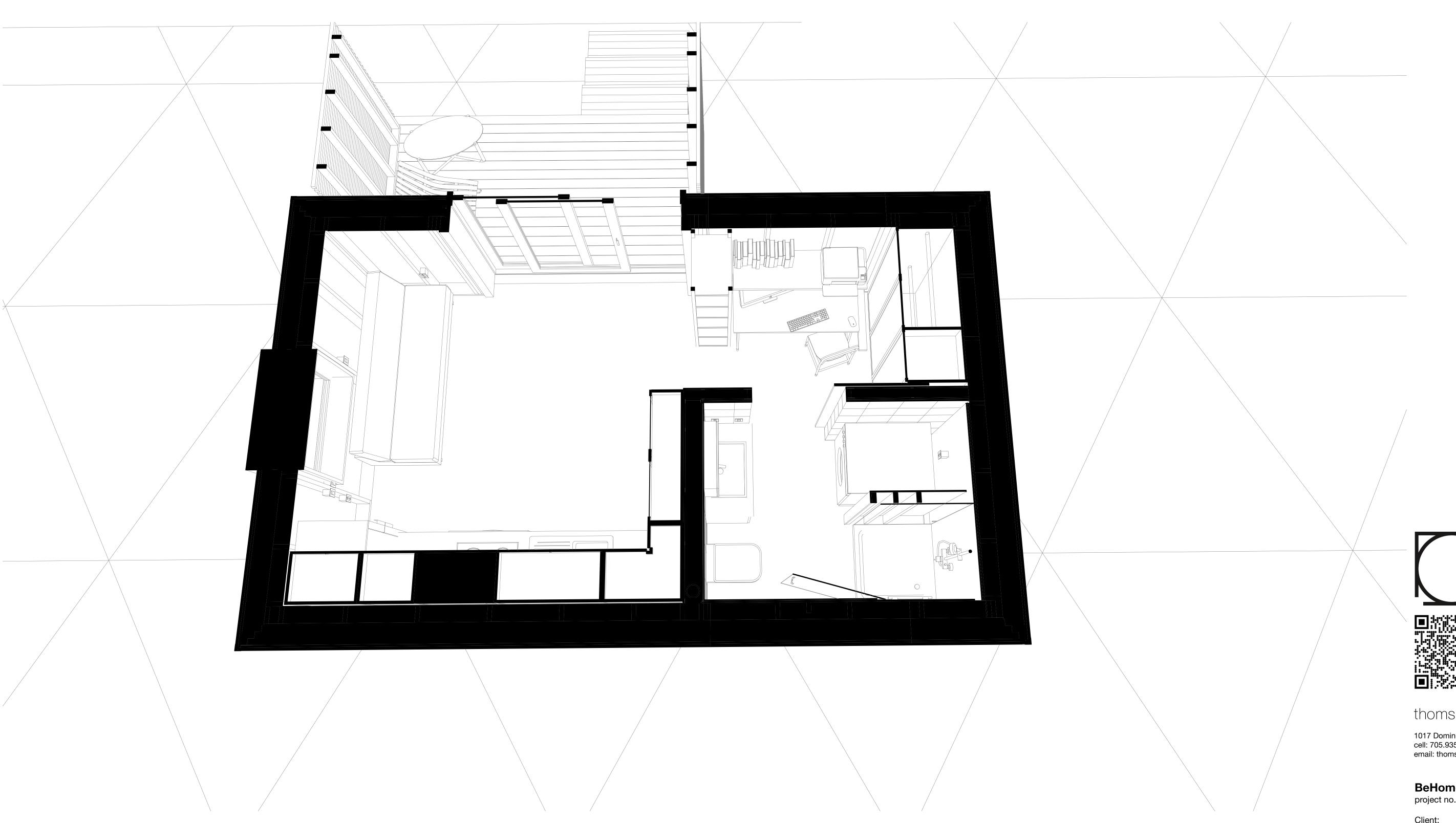
Revision 01 - WIP **3D Views**

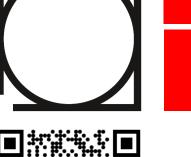


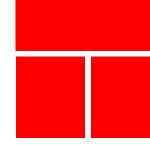
House Main Floor Plan

Scale: 1:32.97

Revision 01 - WIP **3D Views**









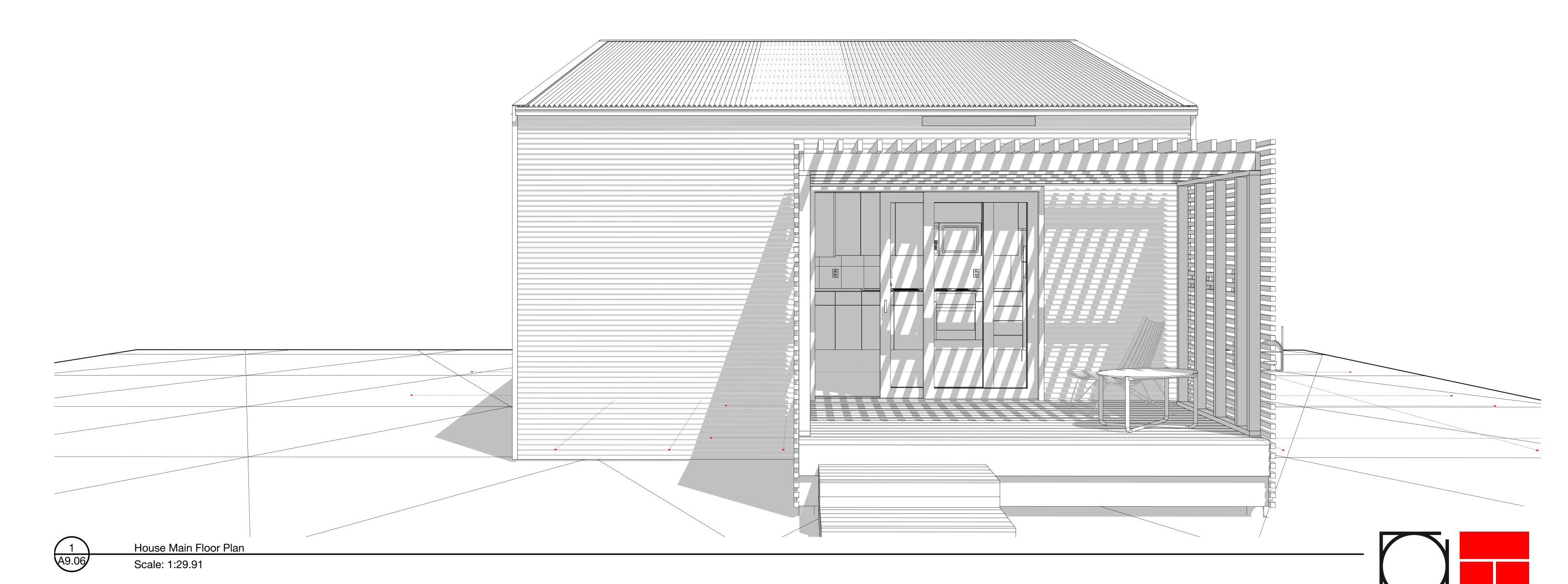
thomson architecture inc

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Revision 01 - WIP **3D Views**



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BeHome Bachelor Shed project no. 2023.011

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

Revision 01 - WIP **3D Views**

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

All changes shall be approved by Delta-T Designs Inc. pri Under no circumstances shall the contractor proceed in

prior to proceeding with the work.

General Notes This drawing is the property of Delta-T Designs Inc. and is

The contractor shall verify all dimensions on site and repo discrepencies to Delta-T Designs Inc. once discovered an

This drawing expresses the intent of the designer only, an the responsibiltiy of the contractor to verify all site condition 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 pior to proceeding. Delta-Designs Inc shall not be held liable for any issues that ma arise due to the contractor not requesting clarification

Drawings are scalled for Arch D - 24x36 P.Eng Seal (If Required

P.Eng Contact Info (If Required)

	Revision Schedule							
1	Revision	Revis						
	Description	Dat						
	Issued for	May 15 2025						
	Coordination	2025						

Revision	Revision	Revis
Number	Description	Dat
1	Issued for	May 15
	Coordination	2025
2	Updated for	June 19
	Coordination	2025
3	WIP	June 19
		2025



Delta-T Designs Inc. 16 Winstar Rd Unit 4 Oro-Medonte, Ontario LOL 2L0

705.791.9000 niss@deltatdesigns.ca

Project Number

2025-12 Project Name & Address

Barrie Single Dedicated Accessory **Dwelling Unit**

Barrie, Ontario

Cover Sheet

DIFFUSER LEGEND SUPPLY DIFFUSER (CEILING) RETURN GRILLE (CEILING) EXHAUST GRILLE (CEILING) REGISTER/GRILLE (CEILING/FLOOR) REGISTER/GRILLE (SIDEWALL) GRILLE/DIFFUSER/REGISTER TAG Diffuser Legend DUCTWORK LEGEND SUPPLY DUCT RETURN DUCT EXHAUST DUCT KITCHEN EXHAUST DUCT OUTDOOR AIR DUCT RECT. ELEVATION/VERTICAL ROUND ELEVATION/VERTICAL MANUAL BALANCING DAMPER MITRED ELBOW C/W TURNING VANES Ductwork Legend **CONTROLS LEGEND** \$ CO co₂ P

DIFFERENTIAL PRESSURE SENSOR MANUAL SWITCH CARBON MONOXIDE SENSOR CARBON DIOXIDE SENSOR PRESSURE SENSOR TEMPERATURE SENSOR / THERMOSTAT VFD VARIABLE FREQUENCY DRIVE

Controls Legend

PROJECT ABBREVIATIONS AVERAGE GLYCOL TEMPERATURE MIN MINIMUM

ABOVE FINISHED FLOOR AS HIGH AS POSSIBLE AIR HANDLING UNIT APPROXIMATE AIR SEPARATOR BACKFLOW PREVENTOR **COMPRESSED AIR CUBIC FEET PER MINUTE** CHILLED GLYCOL RETURN CHILLED GLYCOL SUPPLY CIRCULATION CHILLER CO **CARBON MONOXIDE CARBON DIOXIDE** CONTINUATION, CONTINUED CIRCULATING PUMP CONNECT TO EXISTING **COLD WATER COMPLETE WITH** CHILLED WATER RETURN **CWS** CHILLED WATER SUPPLY DEMOLISH **DUAL CHECK VALVE ASSEMBLY** DIRECT DIGITAL CONTROLS DEMOLISH DIAMETER DOWN DIRECT EXPANSION **EXISTING EXHAUST AIR** ELECTRIC BASEBOARD **EXHAUST FAN** ENTERING GLYCOL TEMPERATURE ENTERING **EXPANSION TANK** ELECTRIC UNIT HEATER **EWT ENTERING WATER TEMPERATURE ENERGY RECOVERY VENTILATOR** FLOOR CLEANOUT **FAN COIL UNIT**

FIRE DAMPER

FLOOR DRAIN

FORCED MAIN

FINNED TUBE

GALLONS

GALVANIZED

HOSE BIBB

HEATING COIL

HOT WATER

LAVATORY

LEAVING

LINEAR FEET

FIRE SMOKE DAMPER

GREASE INTERCEPTOR

GLYCOL MAKE-UP TANK

HEATING GLYCOL RETURN

HEATING GLYCOL SUPPLY

HOT WATER CIRCULATION

HEATING WATER RETURN

HEATING WATER SUPPLY

INTERNATIONAL FIRE CODE

LEAVING GLYCOL TEMP

HEAT EXCHANGER

INSIDE DIAMETER

HEAT RECOVERY VENTILATOR

INTERNATIONAL BUILDING CODE

INTERNATIONAL FUEL GAS CODE

INTERNATIONAL MECHANICAL CODE

LOW TEMP HEATING GLYCOL RETURN

LOW TEMP HEATING GLYCOL SUPPLY

LOW TEMP HEATING WATER RETURN

LOW TEMP HEATING WATER SUPPLY

LEAVING WATER TEMPERATURE

GALLONS PER MINUTE

FEET

GALV

HWC

HWS

IFC

LHGS

LHWS

LVG

LWT

THOUSAND BTU's PER HOUR MISCELLANEOUS NORMALLY CLOSED NO NORMALLY OPEN NO. NUMBER NON POTABLE COLD WATER OXYGEN OA **OUTSIDE AIR** ON CENTER OPEN ENDED DUCT OVERFLOW ROOF DRAIN **OVERFLOW RAIN LEADER** OUTSIDE AIR SUPPLY PUMP PUMPED CONDENSATE RETURN PRESSURE DROP PLUMBING & DRAINAGE INSTITUTE PROPYLENE GLYCOL PRE HEAT COIL POINT OF CONNECTION POUNDS PER SQUARE INCH GAUGE PSI POUNDS PER SQUARE INCH PUMPED WASTE RETURN AIR RADIANT CEILING PANEL **ROOF DRAIN** RECIRC RECIRCULATION REFRIGERANT LIQUID RFM RADIANT FLOOR MANIFOLD RFS REFRIGERANT SUCTION REHEAT HEATING COIL RAINLEADER REDUCED PRESSURE ZONE BACKFLOW PREVENTER **ROOF TOP UNIT** REFRIGERANT VAPOR RAIN WATER LEADER RADIANT ZONE SUPPLY AIR SANITARY PIPING STORM PIPING SCHEDULE SD STORM DRAIN SF SQUARE FEET SUPPLY FAN SGR SNOWMELT GLYCOL RETURN SNOWMELT GLYCOL SUPPLY SH STEAM HUMIDIFIER SMZ SNOWMELT ZONE STATIC PRESSURE SS STAINLESS STEEL TΑ TRANSFER AIR **TEMP TEMPERATURE** TOTAL DEVELOPED HEAD TSP TRAP SEAL PRIMER TYP TYPICAL UNIT HEATER UNDERWRITER'S LABORATORY UNLESS OTHERWISE NOTED UNIFORM PLUMBING CODE VAV VARIABLE AIR VOLUME VFD VARIABLE FREQUENCY DRIVE VENT THROUGH ROOF

VENT

WITH

WCO

WASTE

WATER CLOSET

WATER COLUMN

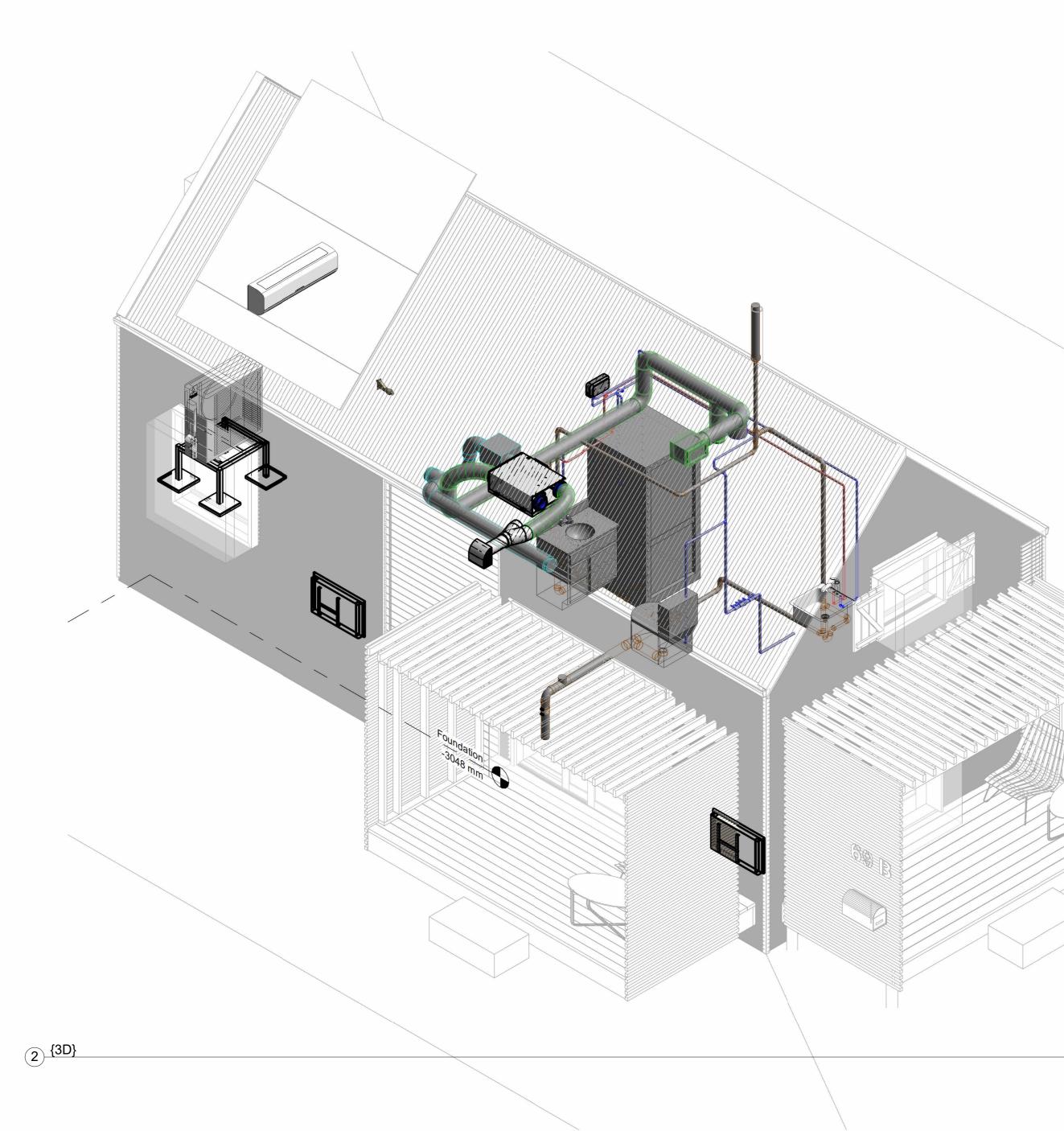
WALL CLEANOUT

WATER HEATER

WITH RESPECT TO

YARD CLEANOUT

WATER HAMMER ARRESTOR WATER PRESSURE DROP



DIVISION 01 - GENERAL REQUIREMENTS SECTION 013000 ADMINISTRATIVE REQUIREMENTS

PART 1 GENERAL SECTION INCLUDES

General administrative requirements

- Coordination Drawings.
- Submittals for review, information, and project closeout. Number of copies of submittals.
- Requests for Information (RFI) procedures Submittal procedures.
- GENERAL ADMINISTRATIVE REQUIREMENTS 1.2 Comply with requirements of Section 017000 - Execution and Closeout Requirements for coordination of execution of administrative tasks with timing of
 - construction activities Make the following types of submittals to Consultant:
 - Requests for Information (RFI). Requests for substitution.
 - Shop Drawings, product data, and samples.
 - Test and inspection reports.
 - Design data. Coordination Drawings.

Correction Punch List and Final Correction Punch List for Substantial Performance. Closeout submittals.

PART 3 EXECUTION COORDINATION DRAWINGS

PART 2 PRODUCTS - Not Used

Provide information required by Project Coordinator for preparation of coordination Drawings.

REQUESTS FOR INFORMATION (RFI)

- Review Drawings prior to submission to Consultant.
- Definition: A request seeking one of the following
 - 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.
 - A resolution to an issue which has arisen due to site conditions and affects design intent 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. 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. Prepare a separate RFI for each specific item.
 - Review, coordinate, and comment on requests originating with subcontractors and/or materials suppliers.
 - Do not forward requests which solely require internal coordination between subcontractors. 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
 - Unacceptable Uses for RFIs: Do not use RFIs to request the following::
 - Approval of submittals (use procedures specified elsewhere in this section).
 - 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.
- SUBMITTALS FOR REVIEW When the following are specified in individual sections, submit them for review
- Shop Drawings Submit to Consultant for review for the limited purpose of checking for compliance with information given and the design concept expressed in the Contract
- After review, provide copies and distribute in accordance with SUBMITTAL PROCEDURES article below 017800 Closeout Submittals
- SUBMITTALS FOR INFORMATION 3.4
- When the following are specified in individual sections, submit them for information:
- Certificates.
 - Test reports.
 - Inspection reports. Manufacturer's instructions

Product data.

- Manufacturer's site reports. Other types indicated.
- Submit for Consultant's knowledge as contract administrator or for Owner. SUBMITTALS FOR PROJECT CLOSEOUT
- Submit Correction Punch List for Substantial Performance. Submit Final Correction Punch List for Substantial Performance.
- When the following are specified in individual sections, submit them at project closeout in compliance with requirements of Section 017800 Closeout Submittals: Project record documents.
 - Operation and maintenance data.
 - Warranties.
- Other types as indicated.
- Submit for Owner's benefit during and after project completion.
- NUMBER OF COPIES OF SUBMITTALS 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
- SUBMITTAL PROCEDURES General Requirements
- Use a single transmittal for related items.
 - Submit separate packages of submittals for review and submittals for information, when included in the same specification section. Sequentially identify each item. For revised submittals use original number and a sequential numerical suffix.
 - Identify variations from Contract Documents and product or system limitations that may be detrimental to successful performance of the completed work. Distribute reviewed submittals. Instruct parties to promptly report inability to comply with requirements.
- Product Data Procedures: Submit only information required by individual specification sections.
- Collect required information into a single submittal. Submit concurrently with related shop drawing submittal.
- Do not submit (Material) Safety Data Sheets for materials or products.
- Shop Drawing Procedures: Prepare accurate, drawn-to-scale, original shop drawing documentation by interpreting the Contract Documents and coordinating related work.
- Generic, non-project-specific information submitted as Shop Drawings do not meet the requirements for Shop Drawings. Samples Procedures:
- Transmit related items together as single package. Identify each item to allow review for applicability in relation to Shop Drawings showing installation locations.
- SUBMITTAL REVIEW Submittals for Review: Consultant will review each submittal, and approve, or take other appropriate action.
- Submittals for Information: Consultant Consultant's actions will be reflected by marking each returned submittal using virtual stamp on digital submittals.
- Consultant's and consultants' actions on items submitted for review:
 - Authorizing purchasing, fabrication, delivery, and installation In General Conformance with Design: Indicates that submittal has no notes, marks or changes; work affected by submittal can proceed.
 - 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.
 - Not Authorizing fabrication, delivery, and installation: 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:
 - Resubmit revised item, with review notations acknowledged and incorporated.

END OF SECTION 013000

SECTION 014100 REGULATORY REQUIREMENTS

PART 1 GENERAL SUMMARY 1.1

- 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.
- SUMMARY OF GOVERNING BUILDING CODES AND STANDARDS OBC - Ontario Building Code (Regulation 163/24); 2024.
- REFERENCES TO REGULATORY REQUIREMENTS
- 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 discrepency, the more stringent requirements will prevail. 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:
- Contract Documents;

3.5

PART 1 GENERAL

END OF SECTION 017800

.1 Demonstration of products and systems where indicated in specific specification sections.

SECTION 017900

DEMONSTRATION AND TRAINING

.2 Specified standards and referenced documents.

This section supplements the definitions contained in the General Conditions.

See Section 013000 - Administrative Requirements, for submittal procedures.

See Section 013000 - Administrative Requirements, for submittal procedures.

Project Record Documents: Submit documents to Owner & Consultant

acceptance as the beginning of the warranty period.

Change Orders and other modifications to the Contract.

Manufacturer's instruction for assembly, installation, and adjusting

Ensure entries are complete and accurate, enabling future reference by Owner.

Reviewed Shop Drawings, product data, and samples.

Store record documents separate from documents used for construction.

Manufacturer's name and product model and number.

Record information concurrent with construction progress.

Product substitutions or alternates utilized.

Changes made by Addenda and modifications

Site changes of dimension and detail.

OPERATION AND MAINTENANCE DATA

Record Documents as maintenance Drawings.

For Each Item of Equipment and Each System:

operation and maintenance of the specific products.

Include sequence of operation by controls manufacturer.

Include test and balancing reports.

WARRANTIES AND BONDS

Co-execute submittals when required.

Provide control diagrams by controls manufacturer as installed.

Details not on original Contract Drawings

Description of unit or system, and component parts.

Include performance curves, with engineering data and tests.

nstructions; and alignment, adjusting, balancing, and checking instructions.

Additional Requirements: As specified in individual product specification sections.

volumes Tables of Contents in each volume, with the current volume clearly identified.

Verify that documents are in proper form, contain full information, and are notarized.

Provide servicing and lubrication schedule, and list of lubricants required.

ASSEMBLY OF OPERATION AND MAINTENANCE MANUALS

multiple binders are used, correlate data into related consistent groupings

Text: Manufacturer's printed data, or typewritten data on 20 pound paper.

description of product and major component parts of equipment.

Retain warranties and bonds until time specified for submittal.

Include manufacturer's printed operation and maintenance instructions.

Complete nomenclature and model number of replaceable parts.

Individual Product Sections: Warranties required for specific products or Work.

Individual Product Sections: Specific requirements for operation and maintenance data.

comments. Revise content of all document sets as required prior to final submission.

Maintain on site one set of the following record documents; record actual revisions to the Work:

original Contract Documents: Legibly mark each item to record actual construction including:

OPERATION AND MAINTENANCE DATA FOR EQUIPMENT AND SYSTEMS

Identify function, normal operating characteristics, and limiting conditions

emergency instructions. Include summer, winter, and any special operating instructions.

Provide original manufacturer's parts list, illustrations, assembly Drawings, and diagrams required for maintenance.

Provide charts of valve tag numbers, with location and function of each valve, keyed to flow and control diagrams

Where systems involve more than one specification section, provide separate tabbed divider for each system.

Drawings: Provide with reinforced punched binder tab. Bind in with text; fold larger Drawings to size of text pages.

Submit two sets of revised final documents in final form within 10 days after final inspection.

Make other submittals within 10 days after Date of Substantial Performance, prior to final Application for Payment.

Specifications: Legibly mark and record at each product section description of actual products installed, including the following:

As-Built Drawings: Drawings prepared and updated by the contractor throughout the Work, indicating a compilation of construction changes indicated in the

Product Data: Mark each sheet to clearly identify specific products and component parts, and data applicable to installation. Delete inapplicable information.

Typed Text: As required to supplement product data. Provide logical sequence of instructions for each procedure, incorporating manufacturer's instructions.

Where additional instructions are required, beyond the manufacturer's standard printed instructions, have instructions prepared by personnel experienced in the

Maintenance Requirements: Include routine procedures and guide for preventative maintenance and trouble shooting; disassembly, repair, and reassembly

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

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

Cover: Identify each binder with typed or printed title OPERATION AND MAINTENANCE INSTRUCTIONS; identify title of Project; identify subject matter of

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

Dividers: Provide tabbed dividers for each separate product and system; identify the contents on the divider tab; immediately following the divider tab include a

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

Operating Procedures: Include start-up, break-in, and routine normal operating instructions and sequences. Include regulation, control, stopping, shut-down, and

Drawings: Supplement product data to illustrate relations of component parts of equipment and systems, to show control and flow diagrams. Do not use Project

Install: To unpack, assemble, erect, apply, place, finish, cure, protect, clean, start up, and make ready for use.

Other definitions are included in individual specification sections.

Supply: To procure, deliver, unload, and inspect for damage.

SECTION 014216

Product: Material, machinery, components, equipment, fixtures, and systems forming the work result. Not materials or equipment used for preparation,

SECTION 017800

Submit two copies of preliminary draft or proposed formats and outlines of contents before start of Work. Consultant will review draft and return one

For equipment, or component parts of equipment put into service during construction and operated by Owner, submit completed documents within ten

For equipment or component parts of equipment put into service during construction with Owner's permission, submit documents within 10 days after

For items of Work for which acceptance is delayed beyond Date of Substantial Performance, submit within 10 days after acceptance, listing the date of

Submit one copy of completed documents 15 days prior to final inspection. This copy will be reviewed and returned after final inspection, with Consultant

CLOSEOUT SUBMITTALS

abrication, conveying, or erection and not incorporated into the work result. Products may be new, never before used, or re-used materials or equipment.

DEFINITIONS

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

SUMMARY

DEFINITIONS

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION 014216

PART 1 GENERAL

Provide: To supply and install.

SECTION INCLUDES

Warranties and bonds.

SUBMITTALS

Warranties and Bonds:

PART 2 PRODUCTS - Not Used

PART 3 EXECUTION

Project Record Documents.

Operation and Maintenance Data

RELATED REQUIREMENTS

Operation and Maintenance Data:

PROJECT RECORD DOCUMENTS

Specifications

Addenda.

END OF SECTION 014100

PART 1 GENERAL

1.2

Training of Owner personnel in operation and maintenance is required for: HVAC systems and equipment

RELATED REQUIREMENTS Section 019113 - General Commissioning Requirements: Additional requirements applicable to demonstration and training.

1.3 SUBMITTALS See Section 013000 - Administrative Requirements, for submittal procedures. QUALITY ASSURANCE

Instructor Qualifications: Familiar with design, operation, maintenance and troubleshooting of the relevant products and systems. Provide as instructors the most qualified trainer of those contractors and/or installers who actually supplied and installed the systems and equipment. Where a single person is not familiar with all aspects, provide specialists with necessary qualifications.

PART 2 PRODUCTS - NOT USED PART 3 EXECUTION

DEMONSTRATION - GENERAL Demonstrations conducted during system start-up do not qualify as demonstrations for the purposes of this section, unless approved in advance by Owner

Operating Equipment and Systems: Demonstrate operation in all modes, including start-up, shut-down, seasonal changeover, emergency conditions, and oubleshooting, and maintenance procedures, including scheduled and preventive maintenance 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.

Non-Operating Products: Demonstrate cleaning, scheduled and preventive maintenance, and repair procedures.

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

SECTION INCLUDES Support and attachment components for equipment, piping, and other plumbing work.

REFERENCE STANDARDS ASTM A123/A123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products; 2024. ASTM A153/A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware; 2016a.

ASTM B633 - Standard Specification for Electrodeposited Coatings of Zinc on Iron and Steel; 2019. MFMA-4 - Metal Framing Standards Publication; 2004.

PART 2 PRODUCTS

SUPPORT AND ATTACHMENT COMPONENTS

General Requiren Provide all required hangers, supports, anchors, fasteners, fittings, accessories, and hardware as necessary for the complete installation of plumbing work

Provide products listed, classified, and labeled as suitable for the purpose intended, where applicable 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.

Do not use wire, chain, perforated pipe strap, or wood for permanent supports unless specifically indicated or permitted. Steel Components: Use corrosion resistant materials suitable for the environment where installed. Zinc-Plated Steel: Electroplated in accordance with ASTM B633.

Galvanized Steel: Hot-dip galvanized after fabrication in accordance with ASTM A123/A123M or ASTM A153/A153M. Metal Channel (Strut) Framing Systems:

Provide factory-fabricated continuous-slot metal channel (strut) and associated fittings, accessories, and hardware required for site-assembly of supports. Comply with MFMA-4.

Hanger Rods: Threaded zinc-plated steel unless otherwise indicated. Minimum Size, Unless Otherwise Indicated or Required: Equipment Supports: 15 mm (1/2 inch) diameter.

Piping up to 1 inch (25 mm) nominal: 8 mm (1/4 inch) diameter.

Piping larger than 1 inch (25 mm) nominal: 10 mm (3/8 inch) diameter. Anchors and Fastener

.1 Unless otherwise indicated and where not otherwise restricted, use the anchor and fastener types indicated for the specified applications. PART 3 EXECUTION

INSTALLATION

Install products in accordance with manufacturer's instructions. Provide independent support from building structure. Do not provide support from piping, ductwork, conduit, or other systems.

Secure fasteners according to manufacturer's recommended torque settings.

Unless specifically indicated or approved by Consultant, do not provide support from suspended ceiling support system or ceiling grid.

Unless specifically indicated or approved by Consultant, do not provide support from roof deck. Do not penetrate or otherwise notch or cut structural members without approval of Consultant.

Equipment Support and Attachment:

Use metal fabricated supports or supports assembled from metal channel (strut) to support equipment as required. 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-

Use metal channel (strut) to support surface-mounted equipment in wet or damp locations to provide space between equipment and mounting surface. Securely fasten floor-mounted equipment. Do not install equipment such that it relies on its own weight for support.

.8 Remove temporary supports. END OF SECTION 220529

SECTION 220553 IDENTIFICATION FOR PLUMBING PIPING AND EQUIPMENT

PART 1 GENERAL SECTION INCLUDES

> Tags Pipe markers.

PART 2 PRODUCTS IDENTIFICATION APPLICATIONS Piping: Pipe markers.

Nameplates

Pumps: Nameplates. NAMEPLATES

Description: Laminated three-layer plastic with engraved letters Letter Colour: White.

Background Colour: Black Plastic: Conform to ASTM D709. PIPE MARKERS

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.

Plastic Tape Pipe Markers: Flexible, vinyl film tape with pressure sensitive adhesive backing and printed markings.

PREPARATION

Degrease and clean surfaces to receive adhesive for identification materials 3.2 INSTALLATION

Install plastic nameplates with corrosive-resistant mechanical fasteners, or adhesive. Apply with sufficient adhesive to ensure permanent adhesion and seal with

Install plastic tape pipe markers complete around pipe in accordance with manufacturer's instructions.

SECTION 220719 PLUMBING PIPING INSULATION

PART 1 GENERAL SECTION INCLUDES

Piping insulation REFERENCE STANDARDS

ASTM C177 - Standard Test Method for Steady-State Heat Flux Measurements and Thermal Transmission Properties by Means of the Guarded-Hot-Plate

ASTM C795 - Standard Specification for Thermal Insulation for Use in Contact with Austenitic Stainless Steel; 2008 (Reapproved 2018). ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2022.

ASTM E96/E96M - Standard Test Methods for Gravimetric Determination of Water Vapor Transmission of Materials; 2022. CAN/ULC S102.2 - Method of Test for Surface Burning Characteristics of Flooring, Floor Coverings, and Miscellaneous Materials and Assemblies; 2018.

CAN/ULC S702.1 - Standard for Mineral Fibre Thermal Insulation for Buildings, Part 1: Material Specification; 2021. TIAC - Best Practices Guide; Current. PART 2 PRODUCTS

REGULATORY REQUIREMENTS

2.2

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. GLASS FIBRE

Insulation: CAN/ULC S702.1 and ASTM C795; rigid molded, noncombustible. Ksi (K) Value: ASTM C177, 0.035 at 24 degrees C (0.24 at 75 degrees F). Maximum Service Temperature: 454 degrees C (850 degrees F).

Delta-T Designs Inc. 16 Winstar Rd Unit 4 Oro-Medonte, Ontario

General Notes This drawing is the property of Delta-T Designs Inc. and is

The contractor shall verify all dimensions on site and repo discrepencies to Delta-T Designs Inc. once discovered an

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

Under no circumstances shall the contractor proceed in

This drawing expresses the intent of the designer only, an

the responsibility of the contractor to verify all site condition

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 pior to proceeding. Delta-

arise due to the contractor not requesting clarification

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Drawings are scalled for Arch D - 24x36

Revision Schedule

Revision

Description

Issued for

Coordination

Updated for

Coordination

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P.Eng Seal (If Required

Revis

May 15

2025

June 1

2025

June 1

2025

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prior to proceeding with the work.

P.Eng Contact Info (If Required)

Revision

Number

705.791.9000 niss@deltatdesigns.ca

L0L 2L0

TBD

Project Number

Client Name

2025-12

Project Name & Address

Barrie Single Dedicated Accessory Dwelling Unit

Specifications

Barrie, Ontario

Reviewed B

Sheet Number

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

Vapour Barrier Jacket: White Kraft paper with glass fiber yarn, bonded to aluminized film; moisture vapour transmission when tested in accordance with ASTM Fittings: Brass and engineered polymer (EP) ASTM F1960. Drawings with 200 mm (8 inch) centreset spacing E96/E96M of 0.029 ng/Pa s m (0.02 perm-inches). Joints: Mechanical compression fittings. Supply Faucet: PART 3 EXECUTION Joints: ASTM F1960 cold-expansion fittings. 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 EXAMINATION (2.2 gpm), indexed handles. Verify that piping has been tested before applying insulation materials. PIPING SPECIALTIES Thermostatic Mixing Valve: ASME A112.1070 / ASSE 1070 / CSA B125.70 listed with combination stop, strainer, and check valves, and flexible stainless steel connectors. Verify that surfaces are clean and dry, with foreign material removed. Flow Controls: 3.2 INSTALLATION Construction: Class 125, Brass or bronze body with union on inlet and outlet, temperature and pressure test plug on inlet and outlet, blowdown/backflush Install in accordance with manufacturer's instructions. Single Compartment Bowl: ASME A112.19.3 / CSA B45.4; Type 302 stainless steel, self rimming and undercoated, with ledge back drilled for trim. Install in accordance with TIAC Best Practices Guide Calibration: Control flow within 5 percent of selected rating, over operating pressure range of 10 times minimum pressure required for control, maximum Double Compartment Bowl: ASME A112.19.3 / CSA B45.4; Type 302 stainless steel, self rimming and undercoated, with ledge back drilled for trim. Exposed Piping: Locate insulation and cover seams in least visible locations. minimum pressure 24 kPa (3.5 psi). Insulated pipes conveying fluids below ambient temperature: Insulate entire system including fittings, valves, unions, flanges, strainers, flexible connections, Water Pressure Reducing Valves: Drain: 38 mm (1-1/2 inch) chromed brass drain. Up to 50 mm (2 Inches): BATHTUBS AND SHOWERS pump bodies, and expansion joints. Bathtub: ASME A112.19.1 / CSA B45.2 enamelled cast iron bathtub with slip resistant surface, contoured front apron, 1500 mm (60 inches) long, CAN/CSA B356, bronze body, stainless steel, and thermoplastic internal parts, fabric reinforced diaphragm, strainer, threaded single union ends. Glass fiber insulated pipes conveying fluids below ambient temperature Provide vapour barrier jackets, factory-applied or site-applied. Secure with self-sealing longitudinal laps and butt strips with pressure sensitive adhesive. Relief Valves Bath Trim: ASME A112.18.1 / CSA B125.1; concealed over rim supply with spout and indexed handles, lever operated pop-up waste and overflow. Secure with outward clinch expanding staples and vapour barrier mastic. Insulate fittings, joints, and valves with moulded insulation of like material and thickness as adjacent pipe. Finish with glass cloth and vapour barrier ANSI Z21.22, AGA certified, bronze body, teflon seat, steel stem and springs, automatic, direct pressure actuated. 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 adhesive or PVC fitting covers. Temperature and Pressure ANSI Z21.22, AGA certified, bronze body, teflon seat, stainless steel stem and springs, automatic, direct pressure actuated, temperature relief 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 CPF/5 with seams located on bottom side of horizontal 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 maximum 98.9 degrees C (210 degrees F), capacity ASME BPVC-IV certified and labelled. PART 3 EXECUTION 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 Buried Piping: Provide factory fabricated assembly with inner all-purpose service jacket with self-sealing lap, and asphalt impregnated open mesh glass fabric, EXAMINATION and overflow. with 0.025 mm (one mil) thick aluminum foil sandwiched between three layers of bituminous compound; outer surface faced with a polyester film. Verify that excavations are to required grade, dry, and not over-excavated. HOSE BIB BOXES 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 PREPARATION Material: 316 stainless steel and heat tracer. Cover with aluminum jacket with seams located on bottom side of horizontal piping. Ream pipe and tube ends. Remove burrs. Finish: Satin. END OF SECTION 220719 Remove scale and dirt, on inside and outside, before assembly. Mount in wall fully recessed Prepare piping connections to equipment with flanges or unions. Provide with one-valve supply INSTALLATION Provide with NPT PVC ball valves and fittings. **SECTION 221005** Install in accordance with manufacturer's instructions. Provide with internal hose drain bracket and waste outlet. PLUMBING PIPING Provide non-conducting dielectric connections wherever jointing dissimilar metals PART 3 EXECUTION PART 1 GENERAL Route piping in orderly manner and maintain gradient. Route parallel and perpendicular to walls. EXAMINATION SECTION INCLUDES Verify that walls and floor finishes are prepared and ready for installation of fixtures. Install piping to maintain headroom, conserve space, and not interfere with use of space. System pipe and pipe fittings. Group piping whenever practical at common elevations Verify that electric power is available and of the correct characteristics. Sanitary sewer. Confirm that millwork is constructed with adequate provision for the installation of countertop lavatories and sinks. Provide clearance in hangers and from structure and other equipment for installation of insulation and access to valves and fittings. Domestic water. Provide access where valves and fittings are not exposed. Valves. Coordinate size and location of access doors with General Contractor. Rough-in fixture piping connections in accordance with minimum sizes indicated in fixture rough-in schedule for particular fixtures. Specialties: Where pipe support members are welded to structural building framing, scrape, brush clean, and apply one coat of zinc rich primer to welding. INSTALLATION Flow controls. Provide support for utility meters in accordance with requirements of utility companies. Install each fixture with trap, easily removable for servicing and cleaning. Water pressure reducing valves. 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 Provide chrome-plated rigid or flexible supplies to fixtures with loose key stops, reducers, and escutcheons. Relief valves. flux also complying with NSF 61 and NSF 372. Install components level and plumb. Connections for piping systems. PVC Pipe: Make solvent-welded joints in accordance with ASTM D2855. Install and secure fixtures in place with wall supports and bolts. RELATED REQUIREMENTS INTERFACE WITH WORK OF OTHER SECTIONS Sleeve pipes passing through partitions, walls and floors. Section 083100 - Access Doors and Panels. APPLICATION Review millwork Shop Drawings. Confirm location and size of fixtures and openings before rough-in and installation. REFERENCE STANDARDS Install unions downstream of valves and at equipment or apparatus connections 3.5 PROTECTION ANSI Z21.22 - American National Standard for Relief Valves and Automatic Gas Shutoff Devices for Hot Water Supply Systems; 2015. Install gate valves for shut-off and to isolate equipment, part of systems, or vertical risers. Protect installed products from damage due to subsequent construction operations. ASME B16.26 - Cast Copper Alloy Fittings for Flared Copper Tubes; 2024. Do not permit use of fixtures by construction personne Provide spring loaded check valves on discharge of water pumps. ASME B31.9 - Building Services Piping; 2014. Provide flow controls in water recirculating systems where indicated Repair or replace damaged products before Date of Substantial Performance. ASME BPVC-IV - Boiler and Pressure Vessel Code, Section IV - Rules for Construction of Heating Boilers; 2023, with Errata (2024). DISINFECTION OF DOMESTIC WATER PIPING SYSTEM END OF SECTION 224000 ASTM B42 - Standard Specification for Seamless Copper Pipe, Standard Sizes; 2020. Prior to starting work, verify system is complete, flushed and clean. ASTM B88 - Standard Specification for Seamless Copper Water Tube; 2020. 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). ASTM B88M - Standard Specification for Seamless Copper Water Tube (Metric); 2020. DIVISION 23 - HEATING, VENTILATING, AND AIR-CONDITIONING (HVAC) Inject disinfectant, free chlorine in liquid, powder, tablet or gas form, throughout system to obtain 50 to 80 mg/L residual. ASTM B813 - Standard Specification for Liquid and Paste Fluxes for Soldering of Copper and Copper Alloy Tube; 2016. SECTION 230517 Bleed water from outlets to ensure distribution and test for disinfectant residual at minimum 15 percent of outlets. ASTM B828 - Standard Practice for Making Capillary Joints by Soldering of Copper and Copper Alloy Tube and Fittings; 2016. SLEEVES AND SLEEVE SEALS FOR HVAC PIPING Maintain disinfectant in system for 24 hours. ASTM D2235 - Standard Specification for Solvent Cement for Acrylonitrile-Butadiene-Styrene (ABS) Plastic Pipe and Fittings; 2022. PART 1 GENERAL If final disinfectant residual tests less than 25 mg/L, repeat treatment ASTM D2564 - Standard Specification for Solvent Cements for Poly(Vinyl Chloride) (PVC) Plastic Piping Systems; 2020. SECTION INCLUDES Flush disinfectant from system until residual equal to that of incoming water or 1.0 mg/L. ASTM D2665 - Standard Specification for Poly(Vinyl Chloride) (PVC) Plastic Drain, Waste, and Vent Pipe and Fittings; 2020. Pipe sleeves. 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. ASTM D2729 - Standard Specification for Poly(Vinyl Chloride) (PVC) Sewer Pipe and Fittings; 2021. Manufactured sleeve-seal systems SERVICE CONNECTIONS ASTM D2855 - Standard Practice for the Two-Step (Primer & Solvent Cement) Method of Joining Poly (Vinyl Chloride) (PVC) or Chlorinated Poly (Vinyl REFERENCE STANDARDS Provide new sanitary sewer services. Before commencing work check invert elevations required for sewer connections, confirm inverts and ensure that these can Chloride) (CPVC) Pipe and Piping Components with Tapered Sockets; 2020. ASTM E814 - Standard Test Method for Fire Tests of Penetration Firestop Systems; 2013a (Reapproved 2017). be properly connected with slope for drainage and cover to avoid freezing. ASTM D3034 - Standard Specification for Type PSM Poly(Vinyl Chloride) (PVC) Sewer Pipe and Fittings; 2021. QUALITY ASSURANCE Provide new water service complete with approved reduced pressure backflow preventer and water meter with by-pass valves, pressure reducing valve, and sand ASTM F477 - Standard Specification for Elastomeric Seals (Gaskets) for Joining Plastic Pipe; 2014 (Reapproved 2021). Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section with minimum three years documented experience. ASTM F628 - Standard Specification for Acrylonitrile-Butadiene-Styrene (ABS) Schedule 40 Plastic Drain, Waste, and Vent Pipe with a Cellular Core; 2022. Clean equipment, pipes, valves, and fittings of grease, metal cuttings, and sludge that may have accumulated from the installation and testing of the system. END OF SECTION 221005 PART 2 PRODUCTS ASTM F876 - Standard Specification for Crosslinked Polyethylene (PEX) Tubing; 2022, with Editorial Revision. ASTM F877 - Standard Specification for Crosslinked Polyethylene (PEX) Plastic Hot- and Cold-Water Distribution Systems; 2022. PIPE SLEEVES ASTM F1960 - Standard Specification for Cold Expansion Fittings with PEX Reinforcing Rings for Use with Cross-Linked Polyethylene (PEX) and Polyethylene SECTION 224000 Vertical Piping: of Raised Temperature (PE-RT) Tubing; 2021. Sleeve Length: 25 mm (1 inch) above finished floor. PLUMBING FIXTURES AWWA C651 - Disinfecting Water Mains: 2014 PART 1 GENERAL Provide sealant for watertight joint. AWWA C900 - Polyvinyl Chloride (PVC) Pressure Pipe, 4 In. Through 12 In. (100 mm Through 300 mm), for Water Transmission and Distribution; 2016. SECTION INCLUDES Pipe Passing Through Below Grade Exterior Walls: CAN/CSA B356 - Water Pressure Reducing Valves for Domestic Water Supply Systems; 2010 (Reaffirmed 2020). Tank type water closets. Zinc coated or cast iron pipe. CAN/CSA B1800 - Thermoplastic Nonpressure Piping Compendium; 2021. Dual flush water closets. Provide watertight space with link rubber or modular seal between sleeve and pipe on both pipe ends. CSA B137 Series - Thermoplastic Pressure Piping Compendium; 2017. Pipe Passing Through Mechanical, Laundry, and Animal Room Floors above Basement Lavatories. Galvanized steel pipe or black iron pipe with asphalt coating. NSF 61 - Drinking Water System Components - Health Effects; 2017. NSF 372 - Drinking Water System Components - Lead Content; 2020. Bathtubs and showers. Connect sleeve with floor plate except in mechanical rooms. PPI TR-4 - PPI Listing of Hydrostatic Design Basis (HDB), Hydrostatic Design Stress (HDS), Strength Design Basis (SDB), Pressure Design Basis (PDB), and Showers. Clearances: Minimum Required Strength (MRS) Ratings For Thermoplastic Piping Materials or Pipe; 2017. Hose bib boxes. Provide allowance for insulated piping Wall, Floor, Floor, Partitions, and Beam Flanges: 25 mm (1 inch) greater than external; pipe diameter. QUALITY ASSURANCE REFERENCE STANDARDS ASME A112.6.1M - Supports for Off-the-Floor Plumbing Fixtures for Public Use; 1997 (Reaffirmed 2017). Perform work in accordance with applicable codes. All Rated Openings: Caulked tight with fire stopping material in compliance with ASTM E814 in accordance with Section 078400 to prevent the spread ASME A112.18.1 / CSA B125.1 - Plumbing Supply Fittings; 2018, with Errata. Comply with ASME B31.9. of fire, smoke, and gases. ASME A112.19.1 / CSA B45.2 - Enamelled Cast Iron and Enamelled Steel Plumbing Fixtures; 2018. PART 3 EXECUTION Valves: Manufacturer's name and pressure rating marked on valve body. Identify pipe with marking including size, ASTM material classification, ASTM specification, potable water certification, water pressure rating. ASME A112.19.2 / CSA B45.1 - Ceramic Plumbing Fixtures: 2018, with Errata. INSTALLATION ASME A112.19.3 / CSA B45.4 - Stainless Steel Plumbing Fixtures; 2017, with Errata. Route piping in orderly manner, plumb and parallel to building structure. Maintain gradient. PART 2 PRODUCTS GENERAL REQUIREMENTS ASME A112.19.14 - Six Liter Water Closets Equipped with Dual Flushing Device; 2013 (Reaffirmed 2018). Install piping to conserve building space, to not interfere with use of space and other work. 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; Install piping and pipe sleeves to allow for expansion and contraction without stressing pipe, joints, or connected equipment. ASME A112.1070 / ASSE 1070 / CSA B125.70 - Performance Requirements for Water Temperature Limiting Devices; 2020. NSF/ANSI/CAN 61 - Drinking Water System Components - Health Effects; 2021. Provide sleeves when penetrating footings, floors, walls, and partitions. Seal pipe including sleeve penetrations to achieve fire resistance equivalent to fire SANITARY SEWER PIPING, BURIED BEYOND 1500 MM (5 FEET) OF BUILDING NSF 372 - Drinking Water System Components - Lead Content: 202 When installing more than one piping system material, ensure system components are compatible and joined to ensure the integrity of the system. Provide ABS Pipe: ASTM F628. .10 ULC (DIR) - Online Certifications Directory (Canada); Current Edition Fittings: ABS. SUBMITTALS necessary joining fittings. Ensure flanges, union, and couplings for servicing are consistently provided. Joints: Solvent welded with ASTM D2235 cement. See Section 013000 - Administrative Requirements for submittal procedures. END OF SECTION 230517 Product Data: Provide catalog illustrations of fixtures, sizes, rough-in dimensions, utility sizes, trim, and finishes. PVC Pipe: ASTM D3034, DR-35. PART 2 PRODUCTS Fittings: PVC. **SECTION 230529** GENERAL REQUIREMENTS Joints: Push-on, using ASTM F477 elastomeric gaskets. HANGERS AND SUPPORTS FOR HVAC PIPING AND EQUIPMENT SANITARY SEWER PIPING, BURIED WITHIN 1500 MM (5 FEET) OF BUILDING 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 PART 1 GENERAL ABS Pipe: ASTM F628. SECTION INCLUDES Fittings: ABS. Water Efficiency: Provide water closets, urinals, lavatory faucets, and showerheads that comply with local water efficiency legislation Support and attachment components for equipment, piping, and other HVAC/hydronic work. Joints: Solvent welded with ASTM D2235 cement. REGULATORY REQUIREMENTS REFERENCE STANDARDS Comply with applicable codes for installation of plumbing systems. PVC Pipe: ASTM D2665 or ASTM D3034. ASTM A123/A123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products; 2024. Comply with ULC (DIR) requirements, where permitted by Authority Having Jurisdiction. Fittings: PVC. ASTM A153/A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware; 2016a. Joints: Solvent welded, with ASTM D2564 solvent cement. TANK-TYPE WATER CLOSETS 2.3 ASTM A181/A181M - Standard Specification for Carbon Steel Forgings, for General - Purpose Piping; 2022. SANITARY SEWER PIPING, ABOVE GRADE Floor-Mounted Bowl: ASTM A36/A36M - Standard Specification for Carbon Structural Steel; 2019. 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 ABS Pipe: ASTM F628. ASTM B633 - Standard Specification for Electrodeposited Coatings of Zinc on Iron and Steel; 2019. vitreous china closet tank with fittings and lever flushing valve, bolt caps, vandalproof cover locking device. Fittings: ABS. MFMA-4 - Metal Framing Standards Publication; 2004. Joints: Solvent welded with ASTM D2235 cement. Water Consumption: 6 L (1.6 gal) per flush, maximum. MSS SP-58 - Pipe Hangers and Supports - Materials, Design, Manufacture, Selection, Application, and Installation; 2009. PVC Pipe: CAN/CSA B1800 or ASTM D2729. Toilet Seats: OUALITY ASSURANCE .1 Plastic: Solid, white, elongated, open front, slow-closing hinged seat cover, and brass bolts with covers. Fittings: PVC. Comply with applicable building code Joints: Solvent welded, with ASTM D2564 solvent cement. DUAL FLUSH WATER CLOSETS Maintain at the project site a copy of each referenced document that prescribes execution requirements. DOMESTIC WATER PIPING, BURIED BEYOND 1500 MM (5 FEET) OF BUILDING ASME A112.19.14; high efficiency and low consumption, vitreous china, dual flush, tank type. PART 2 PRODUCTS Copper Pipe: ASTM B42, annealed. Flush System: Pressure-assisted, wash down with a half-flush consumption of 4 L (1.1 gal) per flush. SUPPORT AND ATTACHMENT COMPONENTS Fittings: ASME B16.26, cast bronze. Bowl: Elongated. General Requirements Rough in: 305 mm (12 inch). Joints: Flared. Provide all required hangers, supports, anchors, fasteners, fittings, accessories, and hardware as necessary for the complete installation of plumbing work. Seat: Manufacturer's standard or recommended elongated closed front seat with lid. PVC Pipe: AWWA C900 and CSA B137 Series. Provide products listed, classified, and labeled as suitable for the purpose intended, where applicable. DOMESTIC WATER PIPING, BURIED WITHIN 1500 MM (5 FEET) OF BUILDING Color: White. Where support and attachment component types and sizes are not indicated, select in accordance with manufacturer's application criteria as required for the Copper Pipe: ASTM B42, annealed. 2.5 LAVATORIES load to be supported. Include consideration for vibration, equipment operation, and shock loads where applicable. Fittings: ASME B16.26, cast bronze. Wall-Hung Basin: Do not use wire, chain, perforated pipe strap, or wood for permanent supports unless specifically indicated or permitted. Joints: Flared. 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 Steel Components: Use corrosion resistant materials suitable for the environment where installed. Cross-Linked Polyethylene (PEX) Pipe: ASTM F876 or ASTM F877. Drawings with 100 mm (4 inch) centreset spacing. Zinc-Plated Steel: Electroplated in accordance with ASTM B633. PPI TR-4 Pressure Design Basis Carrier: Galvanized Steel: Hot-dip galvanized after fabrication in accordance with ASTM A123/A123M or ASTM A153/A153M. ASME A112.6.1M; cast iron and steel frame with tubular legs, lugs for floor and wall attachment, threaded studs for fixture hanger, bearing plate Fittings: Brass and copper. Metal Channel (Strut) Framing Systems: Factory-fabricated continuous-slot metal channel (strut) and associated fittings, accessories, and hardware required for Fittings: Brass and engineered polymer (EP) ASTM F1960. site-assembly of supports Joints: Mechanical compression fittings. .2 Drop-In Basin: Comply with MFMA-4. Joints: ASTM F1960 cold-expansion fittings Vitreous China: ASME A112.19.2 / CSA B45.1; self-rimming, white, round shape, front overflow, soap depression, seal of putty, calking, or concealed Channel Material: vinyl gasket, and white finish. Size as indicated on Drawings with 100 mm (4 inch) centreset spacing. DOMESTIC WATER PIPING, ABOVE GRADE Outdoor and Damp or Wet Indoor Locations: Use galvanized steel. Copper Tube: ASTM B88 (ASTM B88M), Type K (A), Drawn (H). Under-Mount Basin: Minimum Channel Thickness: Steel sheet, 12 gauge, 2.66 mm (12 gauge, 0.1046 inch). 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 Mechanical Press Sealed Fittings: Double pressed type, NSF 61 and NSF 372 approved or certified, utilizing EPDM, non toxic synthetic rubber sealing Hanger Rods: Threaded zinc-plated steel unless otherwise indicated. white finish. Size as indicated on Drawings. Minimum Size, Unless Otherwise Indicated or Required: .2 Cross-Linked Polyethylene (PEX) Pipe: ASTM F876 or ASTM F877. .4 Pedestal Basin:

PPI TR-4 Pressure Design Basis:

Maximum Moisture Absorption: 0.2 percent by volume

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

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prior to proceeding with the work.

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

Under no circumstances shall the contractor proceed in

This drawing expresses the intent of the designer only, an the responsibility of the contractor to verify all site condition

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 pior to proceeding. Delta-

Designs Inc shall not be held liable for any issues that ma arise due to the contractor not requesting clarification

> Drawings are scalled for Arch D - 24x36 P.Eng Seal (If Required

P.Eng Contact Info (If Required)

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



Delta-T Designs Inc. 16 Winstar Rd Unit 4 Oro-Medonte, Ontario LOL 2L0

705.791.9000 niss@deltatdesigns.ca

TBD

Client Name

Project Number

2025-12

Project Name & Address

Barrie Single Dedicated Accessory

Dwelling Unit

Barrie, Ontario

Specifications

Drawn By

Reviewed B

Sheet Number

Che

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.7 Duct and Plenum Liner Application:
                                                                                                                                                                                                     Air outlets are installed and connected.
                               Equipment Supports: 13 mm (1/2 inch) diameter.
                              Piping up to 25 mm nominal: 6 mm (1/4 inch) diameter.
                                                                                                                                                                                                      Duct system leakage is minimized.
                                                                                                                                                                                                                                                                                                                                                                                    Adhere insulation with adhesive for 90 percent coverage.
                                                                                                                                                                                                      Hydronic systems are flushed, filled, and vented.
                                                                                                                                                                                                                                                                                                                                                                                    Secure insulation with mechanical liner fasteners. Refer to SMACNA (DCS) for spacing.
        .4 Pipe Supports:
                       Liquid Temperatures Up To 50 degrees C (122 degrees F):
                                                                                                                                                                                                                                                                                                                                                                                    Seal and smooth joints. Seal and coat transverse joints.
                                                                                                                                                                                                      Pumps are rotating correctly.
                              Overhead Support: MSS SP-58 Types 1, 3 through 12.
                                                                                                                                                                                                     Proper strainer baskets are clean and in place.
                                                                                                                                                                                                                                                                                                                                                                                    Seal liner surface penetrations with adhesive.
                               Support From Below: MSS SP-58 Types 35 through 38.
                                                                                                                                                                                                     Service and balance valves are open.
                                                                                                                                                                                                                                                                                                                                                                                    Duct dimensions indicated are net inside dimensions required for air flow. Increase duct size to allow for insulation thickness.
               Beam Clamps: MSS SP-58 Types 19 through 23, 25 or 27 through 30 based on required load.
                                                                                                                                                                                              Submit site reports. Report defects and deficiencies that will or could prevent proper system balance.
                                                                                                                                                                                                                                                                                                                                                            END OF SECTION 230713
                       Material: ASTM A36/A36M carbon steel or ASTM A181/A181M forged steel.
                                                                                                                                                                                              Beginning of work means acceptance of existing conditions.
                        Provide clamps with hardened steel cup-point set screws and lock-nuts for anchoring in place.
                                                                                                                                                                                               ADJUSTMENT TOLERANCES
                                                                                                                                                                                                                                                                                                                                                                                                                                       SECTION 230719
                                                                                                                                                                                             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
         .6 Riser Clamps
                                                                                                                                                                                                                                                                                                                                                                                                                                HVAC PIPING INSULATION
                       Provide copper plated clamps for copper tubing support.
                                                                                                                                                                                                                                                                                                                                                             PART 1 GENERAL
                       For insulated pipe runs, provide two bolt-type clamps designed for installation under insulation.
                                                                                                                                                                                             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
                                                                                                                                                                                                                                                                                                                                                                            SECTION INCLUDES
              Anchors and Fastener
                                                                                                                                                                                                                                                                                                                                                                            Piping insulation.
                                                                                                                                                                                              Hydronic Systems: Adjust to within plus or minus 10 percent of design.
                     Unless otherwise indicated and where not otherwise restricted, use the anchor and fastener types indicated for the specified applications.
                                                                                                                                                                                                                                                                                                                                                                            Jackets and accessories.
PART 3 EXECUTION
                                                                                                                                                                                              TAB PROCEDURE FOR AIR DISTRIBUTION SYSTEMS
                                                                                                                                                                                                                                                                                                                                                                             Engineered wall outlet seals and refrigerant piping insulation protection.
                INSTALLATION
                                                                                                                                                                                               Adjust air handling and distribution systems to provide required or design supply, return, and exhaust air quantities at site altitude.
                                                                                                                                                                                                                                                                                                                                                                            REFERENCE STANDARDS
                                                                                                                                                                                              Make air quantity measurements in ducts by Pitot tube traverse of entire cross sectional area of duct.
                Install products in accordance with manufacturer's instructions.
                                                                                                                                                                                                                                                                                                                                                                           ASTM C177 - Standard Test Method for Steady-State Heat Flux Measurements and Thermal Transmission Properties by Means of the Guarded-Hot-Plate
                 Provide independent support from building structure. Do not provide support from piping, ductwork, conduit, or other systems.
                                                                                                                                                                                               Measure air quantities at air inlets and outlets
                                                                                                                                                                                                                                                                                                                                                                             Apparatus: 2019.
                 Unless specifically indicated or approved by Consultant, do not provide support from suspended ceiling support system or ceiling grid.
                                                                                                                                                                                              Adjust distribution system to obtain uniform space temperatures free from objectionable drafts and noise.
                                                                                                                                                                                                                                                                                                                                                                            ASTM C534/C534M - Standard Specification for Preformed Flexible Elastomeric Cellular Thermal Insulation in Sheet and Tubular Form; 2020a.
                 Unless specifically indicated or approved by Consultant, do not provide support from roof deck.
                                                                                                                                                                                             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
                                                                                                                                                                                                                                                                                                                                                                            ASTM C795 - Standard Specification for Thermal Insulation for Use in Contact with Austenitic Stainless Steel; 2008 (Reapproved 2018).
                 Do not penetrate or otherwise notch or cut structural members without approval of Structural Engineer
                                                                                                                                                                                               by duct internal devices such as dampers and splitters.
                                                                                                                                                                                                                                                                                                                                                                            ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2022.
                                                                                                                                                                                               Vary total system air quantities by adjustment of fan speeds. Provide drive changes required. Vary branch air quantities by damper regulation.
                 Equipment Support and Attachment:
                                                                                                                                                                                                                                                                                                                                                                            ASTM E96/E96M - Standard Test Methods for Gravimetric Determination of Water Vapor Transmission of Materials; 2022.
                       Use metal fabricated supports or supports assembled from metal channel (strut) to support equipment as required.
                                                                                                                                                                                               Provide system schematic with required and actual air quantities recorded at each outlet or inlet.
                                                                                                                                                                                                                                                                                                                                                                            ASTM E283 - Standard Test Method for Determining the Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure
                       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-
                                                                                                                                                                                             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
                                                                                                                                                                                                                                                                                                                                                                             Differences Across the Specimen; 2004 (Reapproved 2012).
                                                                                                                                                                                               percent loading of filters.
                                                                                                                                                                                                                                                                                                                                                                           ASTM E331 - Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference;
                                                                                                                                                                                              Adjust outside air automatic dampers, outside air, return air, and exhaust dampers for design conditions.
                       Use metal channel (strut) to support surface-mounted equipment in wet or damp locations to provide space between equipment and mounting surface
                                                                                                                                                                                                                                                                                                                                                                             2000 (Reapproved 2016)
                        Securely fasten floor-mounted equipment. Do not install equipment such that it relies on its own weight for support.
                                                                                                                                                                                             Measure temperature conditions across outside air, return air, and exhaust dampers to check leakage.
                                                                                                                                                                                                                                                                                                                                                                            ASTM E2178 - Standard Test Method for Determining Air Leakage Rate and Calculation of Air Permeance of Building Materials; 2021a.
                 Secure fasteners according to manufacturer's recommended torque settings.
                                                                                                                                                                                              TAB PROCEDURE FOR WATER DISTRIBUTION SYSTEMS
                                                                                                                                                                                                                                                                                                                                                                            ASTM G153 - Standard Practice for Operating Enclosed Carbon Arc Light Apparatus for Exposure of Nonmetallic Materials; 2013 (Reapproved 2021).
                                                                                                                                                                                              Adjust water systems to provide required or design quantities.
         .8 Remove temporary supports.
                                                                                                                                                                                                                                                                                                                                                                      .10 CAN/ULC S102.2 - Method of Test for Surface Burning Characteristics of Flooring, Floor Coverings, and Miscellaneous Materials and Assemblies; 2018.
END OF SECTION 230529
                                                                                                                                                                                             Use calibrated Venturi tubes, orifices, or other metered fittings and pressure gauges to determine flow rates for system balance. Where flow metering devices are
                                                                                                                                                                                                                                                                                                                                                                     .11 CAN/ULC S702.1 - Standard for Mineral Fibre Thermal Insulation for Buildings, Part 1: Material Specification; 2021.
                                                                                                                                                                                               not installed, base flow balance on temperature difference across various heat transfer elements in the system
                                                                                                                                                                                                                                                                                                                                                            PART 2 PRODUCTS
                                                                                                                                                                                              Adjust systems to provide specified pressure drops and flows through heat transfer elements prior to thermal testing. Perform balancing by measurement of
                                                                          SECTION 230553
                                                                                                                                                                                                                                                                                                                                                                            REGULATORY REQUIREMENTS
                                                                                                                                                                                               temperature differential in conjunction with air balancing.
                                                                                                                                                                                                                                                                                                                                                                            Surface Burning Characteristics: Comply with CAN/ULC S102.2 or ASTM E84 where permitted by Authority Having Jurisdiction for flame-spread rating and
                                                     IDENTIFICATION FOR HVAC PIPING AND EQUIPMENT
                                                                                                                                                                                              Effect system balance with automatic control valves fully open to heat transfer elements.
PART 1 GENERAL
                                                                                                                                                                                                                                                                                                                                                                            smoke developed classification.
                                                                                                                                                                                             Effect adjustment of water distribution systems by means of balancing cocks, valves, and fittings. Do not use service or shut-off valves for balancing unless
                SECTION INCLUDES
                                                                                                                                                                                                                                                                                                                                                            2.2
                                                                                                                                                                                                                                                                                                                                                                            GLASS FIBRE, RIGID
                                                                                                                                                                                               indexed for balance point.
                                                                                                                                                                                                                                                                                                                                                                          Insulation: CAN/ULC S702.1 and ASTM C795; rigid molded, noncombustible.
                                                                                                                                                                                             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
                                                                                                                                                                                                                                                                                                                                                                                   Ksi (K) Value: ASTM C177, 0.035 at 24 degrees C (0.24 at 75 degrees F).
                                                                                                                                                                                              flow to other parts
                                                                                                                                                                                                                                                                                                                                                                                    Maximum Service Temperature: 454 degrees C (850 degrees F)
                Stencils
                                                                                                                                                                              END OF SECTION 230593
                                                                                                                                                                                                                                                                                                                                                                                    Maximum Moisture Absorption: 0.2 percent by volume
               Pipe markers.
                RELATED REQUIREMENTS
                                                                                                                                                                                                                                                                                                                                                                            Vapour Barrier Jacket: White kraft paper with glass fibre yarn, bonded to aluminized film; moisture vapour transmission when tested in accordance with ASTM
               Section 099123 - Interior Painting: Identification painting.
                                                                                                                                                                                                                                                         SECTION 230713
                                                                                                                                                                                                                                                                                                                                                                             E96/E96M of 0.029 ng/Pa s m (0.02 perm-inches).
                                                                                                                                                                                                                                                                                                                                                                            Tie Wire: 1.22 mm (0.048 inch) stainless steel with twisted ends on maximum 300 mm (12 inch) centers.
1.3
                REFERENCE STANDARDS
                                                                                                                                                                                                                                                       DUCT INSULATION
                                                                                                                                                                                                                                                                                                                                                                            FLEXIBLE ELASTOMERIC CELLULAR INSULATION
                                                                                                                                                                              PART 1 GENERAL
              ASTM D709 - Standard Specification for Laminated Thermosetting Materials; 2017.
PART 2 PRODUCTS
                                                                                                                                                                                                                                                                                                                                                                             Insulation: Preformed flexible elastomeric cellular rubber insulation complying with ASTM C534/C534M Grade 1; use molded tubular material wherever
                                                                                                                                                                                              SECTION INCLUDES
                IDENTIFICATION APPLICATIONS
                                                                                                                                                                                              Duct insulation.
               Air Handling Units: Nameplates.
                                                                                                                                                                                             Duct liner.
                                                                                                                                                                                                                                                                                                                                                                                    Minimum Service Temperature: Minus 40 degrees C (Minus 40 degrees F).
                                                                                                                                                                                                                                                                                                                                                                                    Maximum Service Temperature: 82 degrees C (180 degrees F).
                Control Panels: Nameplates
                                                                                                                                                                                              Insulation jackets
                                                                                                                                                                              1.2
                                                                                                                                                                                             REFERENCE STANDARDS
                                                                                                                                                                                                                                                                                                                                                                                   Connection: Waterproof vapour barrier adhesive.
               Ductwork: Stencilled painting
                                                                                                                                                                                              ASTM C518 - Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus; 2021.
                                                                                                                                                                                                                                                                                                                                                            2.4
               Piping: Pipe markers.
                                                                                                                                                                                                                                                                                                                                                                            JACKETS
                                                                                                                                                                                              ASTM C553 - Standard Specification for Mineral Fiber Blanket Thermal Insulation for Commercial and Industrial Applications; 2013 (Reapproved 2019).
                Pumps: Nameplates.
                                                                                                                                                                                                                                                                                                                                                                                 Jacket: One piece molded type fitting covers and sheet material, off-white colour
                                                                                                                                                                                              ASTM C612 - Standard Specification for Mineral Fiber Block and Board Thermal Insulation; 2014 (Reapproved 2019).
                Relays: Tags.
                                                                                                                                                                                               ASTM C916 - Standard Specification for Adhesives for Duct Thermal Insulation; 2020.
                                                                                                                                                                                                                                                                                                                                                                                           Minimum Service Temperature: minus 18 degrees C (0 degrees F).
                 Thermostats: Nameplates
               Valves: Tags and ceiling tacks where located above lay-in ceiling.
                                                                                                                                                                                              ASTM C1071 - Standard Specification for Fibrous Glass Duct Lining Insulation (Thermal and Sound Absorbing Material); 2019.
                                                                                                                                                                                                                                                                                                                                                                                           Maximum Service Temperature: 66 degrees C (150 degrees F).
                                                                                                                                                                                              ASTM E96/E96M - Standard Test Methods for Gravimetric Determination of Water Vapor Transmission of Materials; 2022.
                                                                                                                                                                                                                                                                                                                                                                                           Moisture Vapour Permeability: 0.0029 ng/Pa s m (0.002 perm inch), maximum, when tested in accordance with ASTM E96/E96M.
                Water Treatment Devices: Nameplates.
                                                                                                                                                                                              ASTM G21 - Standard Practice for Determining Resistance of Synthetic Polymeric Materials to Fungi; 2015, with Editorial Revision (2021).
                NAMEPLATES
                                                                                                                                                                                                                                                                                                                                                                                           Thickness: 0.25 mm (10 mil).
                Letter Colour: White.
                                                                                                                                                                                             CAN/ULC S102 - Method of Testing for Surface Burning Characteristics of Building Materials and Assemblies; 2018.
                                                                                                                                                                                                                                                                                                                                                                                          Connections: Brush on welding adhesive.
                                                                                                                                                                                             CAN/ULC S702.1 - Standard for Mineral Fibre Thermal Insulation for Buildings, Part 1: Material Specification; 2021.
                                                                                                                                                                                                                                                                                                                                                                            ENGINEERED WALL OUTLET SEALS AND REFRIGERANT PIPING INSULATION PROTECTION
                 Background Colour: Black.
                                                                                                                                                                                             SMACNA (DCS) - HVAC Duct Construction Standards Metal and Flexible; 2005 (Revised 2009).
                Plastic: Conform to ASTM D709.
                                                                                                                                                                                                                                                                                                                                                                          Pipe Penetration Wall Seal: Seals HVAC piping wall penetrations with compression gasket wall mounted rigid plastic outlet cover.
                                                                                                                                                                                             TIAC - Best Practices Guide; Current.
                                                                                                                                                                                                                                                                                                                                                                                    Outlet Cover Colour: Grav.
                                                                                                                                                                                       .12 UL 723 - Standard for Test for Surface Burning Characteristics of Building Materials; Current Edition, Including All Revisions.
                                                                                                                                                                                                                                                                                                                                                                                   Water Penetration: Comply with ASTM E331.
               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.
                                                                                                                                                                              1.3
                Metal Tags: Brass with stamped letters; tag size minimum 40 mm (1-1/2 inch) diameter with smooth edges.
                                                                                                                                                                                              QUALITY ASSURANCE
                                                                                                                                                                                                                                                                                                                                                                                    Air Leakage: Comply with ASTM E283.
                Valve Tag Chart: Typewritten letter size list in anodized aluminum frame.
                                                                                                                                                                                              Applicator Qualifications: Company specializing in performing the type of work specified in this section, documented experience.
                                                                                                                                                                                                                                                                                                                                                                                   Air Permeance: Comply with ASTM E2178.
                                                                                                                                                                                                                                                                                                                                                                          PART 2 PRODUCTS
                                                                                                                                                                                              REGULATORY REQUIREMENTS
                Stencils: With clean cut symbols and letters of following size:
                       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.
                                                                                                                                                                                              Surface Burning Characteristics: Flame spread index/Smoke developed index of 25/50, maximum, when tested in accordance with CAN/ULC S102 or UL 723.
                                                                                                                                                                                                                                                                                                                                                                                   Water/Vapour Permeability: Comply with ASTM E96/E96M.
                                                                                                                                                                                             Comply with TIAC Mechanical Insulation Best Practices Guide and CAN/ULC S702.1
                        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.
                                                                                                                                                                                                                                                                                                                                                             PART 3 EXECUTION
                        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.
                                                                                                                                                                                              GLASS FIBRE, FLEXIBLE
                                                                                                                                                                                              Insulation: ASTM C553; flexible, noncombustible blanket.
                PIPE MARKERS
                                                                                                                                                                                                                                                                                                                                                                            EXAMINATION
                 Plastic Pipe Markers: Factory fabricated, flexible, semi-rigid plastic, preformed to fit around pipe or pipe covering; minimum information indicating flow
                                                                                                                                                                                                      Ksi (K) value: 0.052 at 24 degrees C (0.36 at 75 degrees F), when tested in accordance with ASTM C518.
                                                                                                                                                                                                                                                                                                                                                                             Verify that piping has been tested before applying insulation materials.
                 direction arrow and identification of fluid being conveyed.
                                                                                                                                                                                                      Maximum Service Temperature: 649 degrees C (1200 degrees F)
                                                                                                                                                                                                                                                                                                                                                                             Verify that surfaces are clean and dry, with foreign material removed.
PART 3 EXECUTION
                                                                                                                                                                                                     Maximum Water Vapour Absorption: 5.0 percent by weight.
                                                                                                                                                                                                                                                                                                                                                            3.2
                                                                                                                                                                                                                                                                                                                                                                            INSTALLATION
                PREPARATION
                                                                                                                                                                                      .2 Vapor Barrier Jacket:
                                                                                                                                                                                                                                                                                                                                                                            Install in accordance with manufacturer's instructions
                                                                                                                                                                                                      Kraft paper with glass fibre yarn and bonded to aluminized film.
                                                                                                                                                                                                                                                                                                                                                                             Install in accordance with NAIMA National Insulation Standards.
                Degrease and clean surfaces to receive adhesive for identification materials.
                                                                                                                                                                                                      Moisture Vapour Permeability: 0.029 ng/Pa s m (0.02 perm inch), when tested in accordance with ASTM E96/E96M.
                                                                                                                                                                                                                                                                                                                                                                             Exposed Piping: Locate insulation and cover seams in least visible locations.
                Install nameplates with corrosive-resistant mechanical fasteners, or adhesive. Apply with sufficient adhesive to ensure permanent adhesion and seal with clear
                                                                                                                                                                                                      Secure with pressure sensitive tape.
                                                                                                                                                                                                                                                                                                                                                                             Insulated pipes conveying fluids below ambient temperature; insulate entire system including fittings, valves, unions, flanges, strainers, flexible connections, pump
                                                                                                                                                                                      .3 Vapor Barrier Tape:
                                                                                                                                                                                                                                                                                                                                                                             bodies, and expansion joints.
                Install tags with corrosion resistant chain
                                                                                                                                                                                                   Kraft paper reinforced with glass fibre yarn and bonded to aluminized film, with pressure sensitive rubber based adhesive.
                                                                                                                                                                                                                                                                                                                                                                          Glass fibre insulated pipes conveying fluids below ambient temperature:
                Apply stencil painting in accordance with Section 099123.
                                                                                                                                                                                              GLASS FIBRE, RIGID
                                                                                                                                                                                                                                                                                                                                                                                   Provide vapour barrier jackets, factory-applied or site-applied; secure with self-sealing longitudinal laps and butt strips with pressure sensitive adhesive.
                 Install plastic tape pipe markers complete around pipe in accordance with manufacturer's instructions.
                                                                                                                                                                                            Insulation: ASTM C612; rigid, noncombustible blanket.
                                                                                                                                                                                                                                                                                                                                                                                    Secure with outward clinch expanding staples and vapour barrier mastic.
                Install ductwork with stencilled painting. Identify with air handling unit identification number and area served. Locate identification at air handling unit, at each
                                                                                                                                                                                                     Ksi (K) Value: 0.035 at 24 degrees C (0.24 at 75 degrees F), when tested in accordance with ASTM C518.
                                                                                                                                                                                                                                                                                                                                                                                    Insulate fittings, joints, and valves with molded insulation of like material and thickness as adjacent pipe. Finish with glass cloth and vapour barrier
                                                                                                                                                                                                      Maximum Service Temperature: 232 degrees C (450 degrees F).
                 side of penetration of structure or enclosure, and at each obstruction.
END OF SECTION 230553
                                                                                                                                                                                                      Maximum Water Vapour Absorption: 5.0 percent.
                                                                                                                                                                                                                                                                                                                                                                            For hot piping conveying fluids 60 degrees C (140 degrees F) or less, do not insulate flanges and unions at equipment, but bevel and seal ends of insulation
                                                                                                                                                                                                                                                                                                                                                                            Glass fibre insulated pipes conveying fluids above ambient temperature.
                                                                                                                                                                                                     Maximum Density: 128 kg/cu m (8.0 lb/cu ft).
                                                                                                                                                                                     .2 Vapor Barrier Jacket:
                                                                                                                                                                                                                                                                                                                                                                                  Provide standard jackets, with or without vapour barrier, factory-applied or site-applied. Secure with self-sealing longitudinal laps and butt strips with
                                                                                                                                                                                                      Kraft paper with glass fibre varn and bonded to aluminized filr
                                                                                                                                                                                                                                                                                                                                                                                     pressure sensitive adhesive. Secure with outward clinch expa
                                                       TESTING, ADJUSTING, AND BALANCING FOR HVAC
                                                                                                                                                                                                      Moisture Vapour Permeability: 0.029 ng/Pa s m (0.02 perm inch), when tested in accordance with ASTM E96/E96M.
                                                                                                                                                                                                                                                                                                                                                                                   Insulate fittings, joints, and valves with insulation of like material and thickness as adjoining pipe. Finish with glass cloth and adhesive or PVC fitting
PART 1 GENERAL
                                                                                                                                                                                                      Secure with pressure sensitive tape.
                SECTION INCLUDES
                                                                                                                                                                                                                                                                                                                                                                           Continue insulation through walls, sleeves, pipe hangers, and other pipe penetrations. Finish at supports, protrusions, and interruptions
                                                                                                                                                                                             Vapor Barrier Tape:
                TAB procedure for air distribution systems
                                                                                                                                                                                                                                                                                                                                                                          Pipe Exposed in Mechanical Equipment Rooms or Finished Spaces (less than 3 meters (10 feet) above finished floor): Finish with canvas jacket sized for finish
                                                                                                                                                                                                    Kraft paper reinforced with glass fibre yarn and bonded to aluminized film, with pressure sensitive rubber based adhesive.
               Testing, adjustment, and balancing of hydronic and refrigerating systems.
                                                                                                                                                                                              DUCT LINER
                REFERENCE STANDARDS
                                                                                                                                                                                             Glass Fibre Insulation: Non-corrosive, incombustible glass fibre complying with ASTM C1071; flexible blanket, rigid board, and preformed round liner board;
                                                                                                                                                                                                                                                                                                                                                            END OF SECTION 230719
               AABC (NSTSB) - AABC National Standards for Total System Balance, 7th Edition; 2016.
                                                                                                                                                                                               impregnated surface and edges coated with poly vinyl acetate polymer, acrylic polymer, or black composite.
                ASHRAE Std 111 - Measurement, Testing, Adjusting, and Balancing of Building HVAC Systems; 2024.
                                                                                                                                                                                                      Fungal Resistance: No growth when tested according to ASTM G21
                                                                                                                                                                                                                                                                                                                                                                                                                                       SECTION 230913
               SMACNA (TAB) - HVAC Systems Testing, Adjusting and Balancing; 2002.
                                                                                                                                                                                                      Apparent Thermal Conductivity: Maximum of 0.045 at 24 degrees C (0.31 at 75 degrees F).
PART 2 PRODUCTS - Not Used
                                                                                                                                                                                                                                                                                                                                                                                                               INSTRUMENTATION AND CONTROL DEVICES FOR HVAC
                                                                                                                                                                                                      Service Temperature: Up to 121 degrees C (250 degrees F).
                                                                                                                                                                                                                                                                                                                                                            PART 1 GENERAL
PART 3 EXECUTION
                                                                                                                                                                                                     Rated Velocity on Coated Air Side for Air Erosion: 25.4 m/s (5,000 fpm), minimum.
               GENERAL REQUIREMENTS
                                                                                                                                                                                                                                                                                                                                                                           SECTION INCLUDES
3.1
                                                                                                                                                                                                                                                                                                                                                            1.1
                                                                                                                                                                                                     Minimum Noise Reduction Coefficients:
       .1 Perform total system balance in accordance with one of the following:
                                                                                                                                                                                                                                                                                                                                                                           Control panels.
                                                                                                                                                                                                             13 mm (1/2 inch) Thickness: 0.30.
                        AABC (NSTSB), AABC National Standards for Total System Balance.
                                                                                                                                                                                                                                                                                                                                                                          Control Valves:
                                                                                                                                                                                                           25 mm (1 inch) Thickness: 0.45.
                        ASHRAE Std 111, Practices for Measurement, Testing, Adjusting and Balancing of Building Heating, Ventilation, Air-Conditioning, and Refrigeration
                                                                                                                                                                                                                                                                                                                                                                                   Ball valves and actuators.
                                                                                                                                                                                              Adhesive: Waterproof, fire-retardant type, ASTM C916.
                                                                                                                                                                                                                                                                                                                                                                                    Electronic operators.
                                                                                                                                                                              PART 3 EXECUTION
                      SMACNA (TAB).
                                                                                                                                                                                                                                                                                                                                                                            Dampers.
                                                                                                                                                                                             EXAMINATION
                Begin work after completion of systems to be tested, adjusted, or balanced and complete work prior to Substantial Performance of the project.
                                                                                                                                                                                                                                                                                                                                                                          Damper Operators:
                                                                                                                                                                                              Verify that ducts have been tested before applying insulation materials.
                Where HVAC systems and/or components interface with life safety systems, including fire and smoke detection, alarm, and control, coordinate scheduling and
                                                                                                                                                                                                                                                                                                                                                                                   Electric operators.
                                                                                                                                                                                              Verify that surfaces are clean, foreign material removed, and dry.
                 testing and inspection procedures with the authorities having jurisdiction.
                                                                                                                                                                                                                                                                                                                                                                            Humidistats
                                                                                                                                                                                              INSTALLATION
             TAB Agency Qualifications:
                                                                                                                                                                                                                                                                                                                                                                                  Room humidistats.
                                                                                                                                                                                              Install in accordance with manufacturer's instructions
                       Company specializing in the testing, adjusting, and balancing of systems specified in this section.
                                                                                                                                                                                                                                                                                                                                                                     .6 Input/Output Sensors:
                                                                                                                                                                                               Install in accordance with TIAC guidelines
                        Having minimum of three years documented experience.
                                                                                                                                                                                                                                                                                                                                                                                    Temperature sensors.
                                                                                                                                                                                              Insulated ducts conveying air below ambient temperature
                       Certified by one of the following:
                                                                                                                                                                                                                                                                                                                                                                                    Humidity sensors.
                                                                                                                                                                                                      Provide insulation with vapour barrier jackets.
                               AABC, Associated Air Balance Council: www.aabc.com/#sle; upon completion submit AABC National Performance Guaranty.
                                                                                                                                                                                                                                                                                                                                                                                    Static pressure (air pressure) sensors.
                                                                                                                                                                                                      Finish with tape and vapour barrier jacket.
                               NEBB, National Environmental Balancing Bureau: www.nebb.org/#sle.
                                                                                                                                                                                                      Continue insulation through walls, sleeves, hangers, and other duct penetrations.
                              TABB, The Testing, Adjusting, and Balancing Bureau of National Energy Management Institute: www.tabbcertified.org/#sle.
                                                                                                                                                                                                                                                                                                                                                                                    Electric room thermostats.
                                                                                                                                                                                                      Insulate entire system including fittings, joints, flanges, fire dampers, flexible connections, and expansion joints.
               TAB Supervisor and Technician Qualifications: Certified by same organization as TAB agency.
                                                                                                                                                                                                                                                                                                                                                                                    Low-limit temperature cutout switch (freezestat).
                                                                                                                                                                                       .4 Insulated ducts conveying air above ambient temperature
               EXAMINATION
                                                                                                                                                                                                                                                                                                                                                                                    Line voltage thermostats.
                                                                                                                                                                                                     Provide with or without standard vapour barrier jacket.
                Verify that systems are complete and operable before commencing work. Ensure the following conditions:
                                                                                                                                                                                                                                                                                                                                                                                    Room thermostat accessories
                                                                                                                                                                                                      Insulate fittings and joints. Where service access is required, bevel and seal ends of insulation.
                        Systems are started and operating in a safe and normal condition.
                                                                                                                                                                                                                                                                                                                                                                                    Outdoor reset thermostats.
                                                                                                                                                                                              Ducts Exposed in Mechanical Equipment Rooms or Finished Spaces (below 3 meters above finished floor) ( (below 10 feet above finished floor)): Finish with
                        Temperature control systems are installed complete and operable
                                                                                                                                                                                                                                                                                                                                                                                    Immersion thermostats.
                        Proper thermal overload protection is in place for electrical equipment.
                                                                                                                                                                                                                                                                                                                                                                                    Airstream thermostats.
                                                                                                                                                                                            External Duct Insulation Application:
                        Final filters are clean and in place. If required, install temporary media in addition to final filters.
                                                                                                                                                                                                                                                                                                                                                                            Time clocks.
                                                                                                                                                                                                     Secure insulation with vapour barrier with wires and seal jacket joints with vapour barrier adhesive or tape to match jacket.
                        Duct systems are clean of debris.
                                                                                                                                                                                                                                                                                                                                                                            Sensors with transmitters:
                                                                                                                                                                                                      Secure insulation without vapour barrier with staples, tape, or wires
                       Fans are rotating correctly.
                                                                                                                                                                                                                                                                                                                                                                                  Room pressure monitors
                                                                                                                                                                                                      Install without sag on underside of duct. Use adhesive or mechanical fasteners where necessary to prevent sagging. Lift duct off trapeze hangers and
                        Fire and volume dampers are in place and open.
                                                                                                                                                                                                                                                                                                                                                                            RELATED REQUIREMENTS
                        Air coil fins are cleaned and combed.
                                                                                                                                                                                                                                                                                                                                                                             Section 260583 - Wiring Connections: Electrical characteristics and wiring connections.
                                                                                                                                                                                                      Seal vapour barrier penetrations by mechanical fasteners with vapour barrier adhesive.
                        Access doors are closed and duct end caps are in place.
                                                                                                                                                                                                                                                                                                                                                                            Section 262726 - Wiring Devices: Elevation of exposed components.
                                                                                                                                                                                                     Stop and point insulation around access doors and damper operators to allow operation without disturbing wrapping.
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3/16" = 1'-0"

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



Delta-T Designs Inc. 16 Winstar Rd Unit 4 Oro-Medonte, Ontario LOL 2L0

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TBD

Client Name

Project Number

2025-12

Project Name & Address

Barrie Single Dedicated Accessory

Dwelling Unit

Barrie, Ontario

Specifications

Che

Sheet Number

Reviewed B

1.3 REFERENCE STANDARDS	.1 Comply with ASME B31.9, CSA W55.3, CSA W117 and CSA B52 for installation of piping system.	
.1 AMCA 500-D - Laboratory Methods of Testing Dampers for Rating; 20122 ANSI/FCI 70-2 - Control Valve Seat Leakage; 2013.	 Welding Materials and Procedures: Comply with CSA B52 and applicable provincial regulations. Welders Certification: In accordance with the requirements of the Authority Having Jurisdiction. 	SECTION 233300
.3 NEMA DC 3 - Residential Controls - Electrical Wall-Mounted Room Thermostats; 2013. 1.4 SUBMITTALS	.4 Products Requiring Electrical Connection: Listed and classified by UL, as suitable for the purpose indicated. 2.3 PIPING	AIR DUCT ACCESSORIES PART 1 GENERAL
.1 See Section 013000 - Administrative Requirements for submittal procedures.	.1 Copper Tube: ASTM B280, H58 hard drawn or O60 soft annealed.	1.1 SECTION INCLUDES
.2 Product Data: Provide description and engineering data for each control system component. Include sizing as requested. Provide data for each system component and software module.	.1 Fittings: ASME B16.22 wrought copper2 Joints: Braze, AWS A5.8M/A5.8 BCuP silver/phosphorus/copper alloy.	.1 Air turning devices/extractors2 Backdraft dampers - metal.
.3 Shop Drawings: Indicate complete operating data, system Drawings, wiring diagrams, and written detailed operational description of sequences. Submit schedule	.3 Mechanical Press Sealed Fittings: Double pressed type complying with UL 207 and CSA B52.	 .3 Backdraft dampers - fabric. .4 Combination fire and smoke dampers.
of valves indicating size, flow, and pressure drop for each valve. For automatic dampers indicate arrangement, velocities, and static pressure drops for each system.	.2 Pipe Supports and Anchors: .1 Provide hangers and supports that comply with MSS SP-58.	.5 Duct access doors.
PART 2 PRODUCTS 2.1 EQUIPMENT - GENERAL	 If type of hanger or support for a particular situation is not indicated, select appropriate type using MSS SP-58 recommendations. Hangers for Pipe Sizes 50 mm (2 Inches) and Over: Carbon steel, adjustable, clevis. 	.6 Fire dampers7 Flexible duct connectors.
.1 Products Requiring Electrical Connection: Listed and classified as suitable for the purpose specified and indicated by an organization recognized by Standards	.3 Multiple or Trapeze Hangers: Steel channels with welded spacers and hanger rods.	.8 Smoke dampers9 Volume control dampers.
Council of Canada and acceptable to authorities having jurisdiction.Listed. CONTROL PANELS	 Wall Support for Pipe Sizes to 75 mm (3 Inches): Cast iron hook. Vertical Support: Steel riser clamp. 	.10 Low leakage (Class 1A) control dampers.
.1 Unitized cabinet type for each system under automatic control with relays and controls mounted in cabinet and temperature indicators, pressure gauges, pilot lights, push buttons and switches flush on cabinet panel face.	 Copper Pipe Support: Carbon steel ring, adjustable, copper plated. Hanger Rods: Mild steel threaded both ends, threaded one end, or continuous threaded. 	.11 Miscellaneous products: .1 Damper operators.
2.3 CONTROL VALVES	.8 Inserts: Malleable iron case of galvanized steel shell and expander plug for threaded connection with lateral adjustment, top slot for reinforcing rods, lugs	.2 Damper position switch3 Duct opening closure film.
.1 Ball Valves and Actuators: .1 Service: Use for brine (30 percent glycol), chilled water, or hot water.	for attaching to forms; size inserts to suit threaded hanger rods. 2.4 MOISTURE AND LIQUID INDICATORS	1.2 RELATED REQUIREMENTS
 Flow Characteristic: Include 2-way and 3-way diverting operation configured to fail normally closed (NC). Replacements in Kind: Provide pressure-independent type. 	.1 Indicators: Single port type, UL listed, with copper or brass body, flared or solder ends, sight glass, colour coded paper moisture indicator with removable element cartridge and plastic cap; for maximum temperature of 93 degrees C (200 degrees F) and maximum working pressure of 3,450 kPa (500 psi).	 Section 233100 - HVAC Ducts and Casings. Section 253513 - Integrated Automation Actuators and Operators: Damper operators.
.4 Rangeability: 500 to 1.	2.5 VALVES	 .3 Section 253516 - Integrated Automation Sensors and Transmitters: Damper position switch. 1.3 REFERENCE STANDARDS
.5 ANSI Rating: Class 1506 Leakage: Class IV (0.1 percent of rated capacity) per ANSI/FCI 70-2.	.1 Service Valves: .1 Forged brass body with copper stubs, brass caps, removable valve core, integral ball check valve, flared or solder ends, for maximum pressure of 3,450	 NFPA 90A - Standard for the Installation of Air-Conditioning and Ventilating Systems; 2018. NFPA 92 - Standard for Smoke Control Systems: 2018.
.7 Actuator Requirements: .1 Assembly: Factory-mounted.	kPa (500 psi). 2.6 STRAINERS	.3 NFPA 96 - Standard for Ventilation Control and Fire Protection of Commercial Cooking Operations; 2017.
 Input: 0 to 10 VDC configured for proportional control. Accessories: Provide with valve position indicator and manual override. 	PART 3 EXECUTION 3.1 PREPARATION	 SMACNA (DCS) - HVAC Duct Construction Standards Metal and Flexible; 2005 (Revised 2009). UL 33 - Safety Heat Responsive Links for Fire-Protection Service; Current Edition, Including All Revisions.
2.4 DAMPERS	.1 Ream pipe and tube ends. Remove burrs. Bevel plain end ferrous pipe.	.6 UL 555 - Standard for Fire Dampers; Current Edition, Including All Revisions7 UL 555C - Standard for Safety Ceiling Dampers; 2014.
 .1 Performance: Test in accordance with AMCA 500-D. .2 Frames: Galvanized steel, welded or riveted with corner reinforcement, minimum 12 gauge, 2.66 mm (12 gauge, 0.1046 inch). 	 Remove scale and dirt on inside and outside before assembly. Prepare piping connections to equipment with flanges or unions. 	PART 2 PRODUCTS
.3 Blades: Galvanized steel, maximum blade size 200 mm (8 inches) wide, 1,200 mm (48 inches) long, minimum 22 gauge, 0.76 mm (22 gauge, 0.0299 inch),	3.2 INSTALLATION	2.1 AIR TURNING DEVICES/EXTRACTORS .1 Multi-blade device with blades aligned in short dimension; steel construction; with individually adjustable blades, mounting straps.
attached to minimum 13 mm (1/2 inch) shafts with set screws. 2.5 DAMPER OPERATORS	 Install refrigeration specialties in accordance with manufacturer's instructions. Route piping in orderly manner, with plumbing parallel to building structure, and maintain gradient. 	2.2 BACKDRAFT DAMPERS - METAL
.1 General: Provide smooth proportional control with sufficient power for air velocities 20 percent greater than maximum design velocity and to provide tight seal against maximum system pressures. Provide spring return for two position control and for fail safe operation.	 Install piping to conserve building space and avoid interference with use of space. Group piping whenever practical at common elevations and locations. Slope piping one percent in direction of oil return. 	.1 Multi-Blade, Parallel Action Gravity Balanced Backdraft Dampers: Galvanized steel, with center pivoted blades of maximum 150 mm (6 inch) width, with felt or flexible vinyl sealed edges, linked together in rattle-free manner with 90 degree stop, steel ball bearings, and plated steel pivot pin; adjustment device to permit
.2 Electric Operators:	.5 Install piping to allow for expansion and contraction without stressing pipe, joints, or connected equipment.	setting for varying differential static pressure. 2.3 BACKDRAFT DAMPERS - FABRIC
 .1 Spring return, adjustable stroke motor having oil immersed gear train, with auxiliary end switch. 2.6 HUMIDISTATS 	.6 Arrange piping to return oil to compressor. Provide traps and loops in piping, and provide double risers as required. Slope horizontal piping 0.40 percent in direction of flow.	.1 Fabric Backdraft Dampers: Factory-fabricated.
.1 Room Humidistats: .1 Wall mounted, proportioning type.	 .7 Provide clearance for installation of insulation and access to valves and fittings. .8 Flood piping system with nitrogen when brazing. 	 Blades: Neoprene coated fabric material. Birdscreen: 12 mm (1/2 inch) nominal mesh of galvanized steel or aluminum.
.2 Throttling Range: Adjustable 2 percent relative humidity.	.9 Follow ASHRAE Std 15 procedures for charging and purging of systems and for disposal of refrigerant.	.3 Maximum Velocity: 1000 fpm (5 mps) face velocity. 2.4 COMBINATION FIRE AND SMOKE DAMPERS
Operating Range: 30 to 80 percent. Maximum Temperature: 43 degrees C (110 degrees F).	.10 Provide replaceable cartridge filter-driers, with isolation valves and valved bypass. END OF SECTION 232300	2.5 DUCT ACCESS DOORS
2.7 INPUT/OUTPUT SENSORS .1 Temperature Sensors:		.1 Fabrication: Rigid and close-fitting of galvanized steel with sealing gaskets and quick fastening locking devices. For insulated ducts, install minimum 25 mm (1 inch) thick insulation with sheet metal cover.
.1 Use thermistor or RTD type temperature sensing elements with characteristics resistant to moisture, vibration, and other conditions consistent with the	SECTION 233100 HVAC DUCTS AND CASINGS	 Less Than 300 mm (12 inches) Square: Secure with sash locks. Up to 450 mm (18 inches) Square: Provide two hinges and two sash locks.
application without affecting accuracy and life expectancy. Temperature Sensing Device: Compatible with project DDC controllers.	PART 1 GENERAL	2.6 FIRE DAMPERS
.2 Static Pressure (Air Pressure) Sensors: .1 Unidirectional with ranges not exceeding 150 percent of maximum expected input.	1.1 SECTION INCLUDES .1 Metal ductwork.	.1 Fabricate in accordance with NFPA 90A and UL 555, and as indicated2 Ceiling (Radiation) Dampers: Galvanized steel, 22 gauge, 0.76 mm (22 gauge, 0.0299 inch) frame and 16 gauge, 1.52 mm (16 gauge, 0.0598 inch) flap, two layers
.2 Temperature compensate with typical thermal error or 0.06 percent of full scale in temperature range of 5 to 40 degrees C (40 to 100 degrees F).	.2 Nonmetal ductwork3 Casing and plenums.	3.2 mm (0.125 inch) ceramic fibre on top side and one layer on bottom side for round flaps, with locking clip. 1. Boot Fitting: Factory-provided el type (90 degree). Include site-provided collar.
 Accuracy: One percent of full scale with repeatability 0.3 percent. Output: 0 to 5 VDC with power at 12 to 28 VDC. 	.4 Kitchen hood ductwork.	.2 Rated for hour service in compliance with UL 555C.
2.8 THERMOSTATS .1 Electric Room Thermostats:	.5 Duct cleaning. 1.2 REFERENCE STANDARDS	.3 Curtain Type Dampers: Galvanized steel with interlocking blades. Provide stainless steel closure springs and latches for horizontal installations. Configure with blades out of air stream except for 250 Pa (1.0 in-wc) pressure class ducts up to 300 mm (12 inches) in height.
.1 Type: NEMA DC 3, 24 volts, with setback/setup temperature control.	 ASHRAE (FUND) - ASHRAE Handbook - Fundamentals; Most Recent Edition Cited by Referring Code or Reference Standard. ASTM A36/A36M - Standard Specification for Carbon Structural Steel: 2019. 	.4 Fusible Links: UL 33, separate at 71 degrees C (160 degrees F) with adjustable link straps for combination fire/balancing dampers. 2.7 FLEXIBLE DUCT CONNECTORS
2.9 TIME CLOCKS 1.1 Seven day programming switch timer with synchronous timing motor and seven day dial, continuously charged Ni-cad battery driven power failure 8-hour carry	.3 ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2020.	.1 Fabricate in accordance with SMACNA (DCS) and as indicated.
over and multiple switch trippers to control systems for minimum of two and maximum of eight signals per day with two normally open and two normally closed output switches.	 CAN/ULC S102 - Method of Testing for Surface Burning Characteristics of Building Materials and Assemblies; 2018. NFPA 90A - Standard for the Installation of Air-Conditioning and Ventilating Systems; 2018. 	.2 Flexible Duct Connections: Fabric crimped into metal edging strip. 2.8 SMOKE DAMPERS
2.10 SENSORS WITH TRANSMITTERS	 SMACNA (DCS) - HVAC Duct Construction Standards Metal and Flexible; 2005 (Revised 2009). PART 2 PRODUCTS 	2.9 VOLUME CONTROL DAMPERS .1 Fabricate in accordance with SMACNA (DCS) and as indicated.
.1 Room Pressure Monitor: .1 Type: Externally-powered, remote differential pressure transmitter interconnected via tubing or cables to pick-up sensors located inside wall-section fitted	2.1 DUCT ASSEMBLIES	.2 Splitter Dampers:
module. Transmitter: Five percent accuracy, adjustable zero and span, 100 to 1 turndown, 0.1 percent of calibrated span linearity, 30 to 50 millisecond response	 1.1 Regulatory Requirements: Construct ductwork to comply with NFPA 90A standards. 2. Ducts: Galvanized steel, unless otherwise indicated. 	 Material: Same gauge as duct to 600 mm (24 inches) size in either direction, and two gauges heavier for sizes over 600 mm (24 inches). Blade: Fabricate of single thickness sheet metal to streamline shape, secured with continuous hinge or rod.
time, minimum overpressure of 150 percent over highest range value, alphanumeric indicating display, wired or wireless connectivity for configuration,	 Low Pressure Supply (Heating Systems): 125 Pa (1/2 in-wc) pressure class, galvanized steel. Low Pressure Supply (System with Cooling Coils): 125 Pa (1/2 in-wc) pressure class, galvanized steel. 	 .3 Operator: Minimum 6 mm (1/4 inch) diameter rod in self aligning, universal joint action, flanged bushing with set screw . .3 Single Blade Dampers:
and terminal strip within enclosed electronic components. Differential Pressure Monitoring Range: 0 to 124.4 Pa (0 to 0.5 in-wc), bidirectional.	.5 General Exhaust: 125 Pa (1/2 inch w.g.) pressure class, galvanized steel.	.1 Fabricate for duct sizes up to 150 by 750 mm (6 by 30 inch).
PART 3 EXECUTION 3.1 EXAMINATION	 Kitchen Cooking Hood Exhaust: 125 Pa (1/2 in-wc) pressure class, galvanized steel. Outside Air Intake: 125 Pa (1/2 in-wc) pressure class, galvanized steel. 	2.10 Blade: 24 gauge, 0.61 mm (24 gauge, 0.0239 inch), minimum. 2.10 LOW LEAKAGE (CLASS 1A) CONTROL DAMPERS
.1 Verify existing conditions before starting work.	.8 Transfer Air and Sound Boots: 125 Pa (1/2 in-wc) pressure class, fibrous glass. 2.2 MATERIALS	.1 Maximum Leakage Allowed: 15.2 L/sec sq m at 0.25 kPa (3 cfm/sf at 1 inch wg)2 Frame:
.2 Verify that systems are ready to receive work..3 Beginning of installation means installer accepts existing conditions.	.1 Galvanized Steel for Ducts: Hot-dipped galvanized steel sheet, ASTM A653/A653M FS Type B, with G60/Z180 coating.	.1 Material: 12 gage galvanized steel.
 Sequence work to ensure installation of components is complementary to installation of similar components in other systems. Coordinate installation of system components with installation of mechanical systems equipment such as air handling units and air terminal units. 	 Joint Sealers and Sealants: Non-hardening, water resistant, mildew and mold resistant. Type: Heavy mastic or liquid used alone or with tape, suitable for joint configuration and compatible with substrates, and recommended by manufacturer 	.2 Free-area: Single cross section3 Blade:
.6 Ensure installation of components is complementary to installation of similar components.	for pressure class of ducts. 2 VOC Content: Not more than 250 g/L, excluding water.	 Type: Multi-blade such as V or 3V for low to medium pressure. Operation: Opposed type.
 .7 Coordinate installation of system components with installation of mechanical systems equipment such as air handling units and air terminal units. 3.2 INSTALLATION 	.3 Surface Burning Characteristics: Flame spread index of zero and smoke developed index of zero, when tested in accordance with CAN/ULC S102.	.3 Maximum Individual Blade Height: 203 mm (8 inches).
 Install in accordance with manufacturer's instructions. Check and verify location of thermostats with plans and room details before installation. Locate 1,500 mm (60 inches) above floor. Align with lighting switches 	 .3 Hanger Rod: ASTM A36/A36M; steel, galvanized; threaded both ends, threaded one end, or continuously threaded. 2.3 DUCTWORK FABRICATION 	.4 Material: 12 gauge galvanized steel. 2.11 MISCELLANEOUS PRODUCTS
and humidistats. See Section 262726.	 Fabricate and support in accordance with SMACNA (DCS) and as indicated. No variation of duct configuration or size permitted except by written permission. Size round duct installed in place of rectangular ducts in accordance with 	.1 Damper manual operators supplied in compliance with Section 2535132 Damper position switch supplied in compliance with Section 253516.
.3 Provide conduit and electrical wiring in accordance with Section 260583. Electrical material and installation shall be in accordance with appropriate requirements of Division 26.	ASHRAE (FUND) Handbook - Fundamentals.	.3 Duct Opening Closure Film: Mold-resistant, self-adhesive film to keep debris out of ducts during construction. .1 Thickness: 0.05 mm (2 mils).
END OF SECTION 230913	 .3 Provide duct material, gauges, reinforcing, and sealing for operating pressures indicated. .4 Provide turning vanes of perforated metal with glass fibre insulation when acoustical lining is indicated. 	.2 High tack water based adhesive.
SECTION 232300	.5 Increase duct sizes gradually, not exceeding 15 degrees divergence wherever possible; maximum 30 degrees divergence upstream of equipment and 45 degrees convergence downstream.	.3 UV stable light blue colour4 Elongation Before Break: 325 percent, minimum.
REFRIGERANT PIPING PART 1 GENERAL	Fabricate continuously welded round and oval duct fittings in accordance with SMACNA (DCS). Where ducts are connected to exterior wall louvres and duct outlet is smaller than louvre frame, provide blank-out panels sealing louvre area around duct. Use	PART 3 EXECUTION 3.1 INSTALLATION
1.1 SECTION INCLUDES	same material as duct, painted black on exterior side; seal to louvre frame and duct.	.1 Install accessories in accordance with manufacturer's instructions, NFPA 90A, and follow SMACNA (DCS). See Section 233100 for duct construction and
.1 Piping2 Moisture and liquid indicators.	2.4 MANUFACTURED DUCTWORK AND FITTINGS .1 Flat Oval Ducts: Machine made from round spiral lockseam duct.	pressure class. 2 Provide backdraft dampers on exhaust fans or exhaust ducts nearest to outside and where indicated.
.3 Valves4 Strainers.	.1 Manufacture in accordance with SMACNA (DCS)2 Fittings: Manufacture at least two gauges heavier metal than duct.	.3 Provide duct access doors for inspection and cleaning before and after filters, coils, fans, automatic dampers, at fire dampers, combination fire and smoke dampers, and elsewhere as indicated. Provide for cleaning kitchen exhaust ducts in accordance with NFPA 96 Provide minimum 200 by 200 mm (8 by 8 inch) size for hand
.5 Expansion valves.	.3 Provide duct material, gauges, reinforcing, and sealing for operating pressures indicated.	access, size for shoulder access, and as indicated. Provide 100 by 100 mm (4 by 4 inch) for balancing dampers only. Review locations prior to fabrication.
.6 Engineered wall seals and insulation protection. 1.2 REFERENCE STANDARDS	 Spiral Ducts: Round spiral lockseam duct with galvanized steel outer wall. Manufacture in accordance with SMACNA (DCS). 	.4 Provide fire dampers, combination fire and smoke dampers, and smoke dampers at locations indicated, where ducts and outlets pass through fire rated components, and where required by Authorities Having Jurisdiction. Install with required perimeter mounting angles, sleeves, breakaway duct connections, corrosion resistant
 .1 ASHRAE Std 15 - Safety Standard for Refrigeration Systems; 2013. .2 ASME B16.22 - Wrought Copper and Copper Alloy Solder-Joint Pressure Fittings; 2018. 	.3 Round Ducts: Round lockseam duct with galvanized steel outer wall1 Manufacture in accordance with SMACNA (DCS).	springs, bearings, bushings and hinges. Install smoke dampers and combination smoke and fire dampers in accordance with NFPA 92.
.3 ASME B31.5 - Refrigeration Piping and Heat Transfer Components; 2016.	.4 Flexible Ducts: Two ply vinyl film supported by helically wound spring steel wire.	.6 Demonstrate re-setting of fire dampers to Owner's representative.
 ASME B31.9 - Building Services Piping; 2014. ASTM B280 - Standard Specification for Seamless Copper Tube for Air Conditioning and Refrigeration Field Service; 2020. 	 Insulation: Fibreglass insulation with polyethylene vapour barrier film. Pressure Rating: 2.50 kPa (10 in-wc) positive and 250 Pa (1.0 in-wc) negative. 	 At fans and motorized equipment associated with ducts, provide flexible duct connections immediately adjacent to the equipment. At equipment supported by vibration isolators, provide flexible duct connections immediately adjacent to the equipment.
AWS A5.8M/A5.8 - Specification for Filler Metals for Brazing and Braze Welding; 2011 (Amended 2012). CSA B52 - Mechanical Refrigeration Code; 2018.	Maximum Velocity: 20.3 m/sec (4000 fpm). Temperature Range: Minus 23 degrees C to 71 degrees C (Minus 10 degrees F to 160 degrees F).	.9 Provide balancing dampers at points on supply, return, and exhaust systems where branches are taken from larger ducts as required for air balancing. Install minimum 2 duct widths from duct take-off.
.8 CSA W55.3 - Certification of Companies for Resistance Welding of Steel and Aluminum; 2008 (Reaffirmed 2018).	PART 3 EXECUTION	.10 Use splitter dampers only where indicated.
 .9 CSA W117 - Safety in Welding, Cutting, and Allied Processes; 2019. .10 MSS SP-58 - Pipe Hangers and Supports - Materials, Design, Manufacture, Selection, Application, and Installation; 2009. 	3.1 INSTALLATION .1 Install, support, and seal ducts in accordance with SMACNA (DCS).	.11 Provide balancing dampers on duct take-off to diffusers, grilles, and registers, regardless of whether dampers are specified as part of the diffuser, grille, or register assembly.
.11 UL 207 - Standard for Refrigerant-Containing Components and Accessories, Nonelectrical; Current Edition, Including All Revisions. 1.3 QUALITY ASSURANCE	 Install in accordance with manufacturer's instructions. During construction provide temporary closures of metal or taped polyethylene on open ductwork to prevent construction dust from entering ductwork system. 	END OF SECTION 233300
.1 Installer Qualifications: Company specializing in performing the type of work specified in this section, with minimum 3 years of documented experience.	.4 Flexible Ducts: Connect to metal ducts with adhesive.	SECTION 233700
PART 2 PRODUCTS 2.1 SYSTEM DESCRIPTION	 .5 Duct sizes indicated are inside clear dimensions. For lined ducts, maintain sizes inside lining. .6 Locate ducts with sufficient space around equipment to allow normal operating and maintenance activities. 	AIR OUTLETS AND INLETS
.1 Where more than one piping system material is specified ensure system components are compatible and joined to ensure the integrity of the system is not jeopardized. Provide necessary joining fittings. Ensure flanges, union, and couplings for servicing are consistently provided.	.7 Use crimp joints with or without bead for joining round duct sizes 200 mm (8 inch) and smaller with crimp in direction of air flow. Use double nuts and lock washers on threaded rod supports.	PART 1 GENERAL 1.1 SECTION INCLUDES
.2 Provide pipe hangers and supports in accordance with ASME B31.5 unless indicated otherwise.	.9 Connect terminal units to supply ducts directly or with 300 mm (one foot) maximum length of flexible duct. Do not use flexible duct to change direction.	.1 Registers/grilles: .1 Floor-mounted, supply register/grilles.
.3 Liquid Indicators: .1 Use line size liquid indicators in main liquid line leaving condenser.	.10 At exterior wall louvres, seal duct to louvre frame and install blank-out panels. 3.2 CLEANING	.2 Ceiling-mounted, exhaust and return register/grilles.
.4 Valves: .1 Use service valves on suction and discharge of compressors.	.1 Clean duct system and force air at high velocity through duct to remove accumulated dust. To obtain sufficient air, clean half the system at a time. Protect equipment that could be harmed by excessive dirt with temporary filters, or bypass during cleaning.	Ceiling-mounted, supply register/grilles. Wall-mounted, supply register/grilles.
.5 Filter-Driers:	END OF SECTION 233100	 .5 Wall-mounted, exhaust and return register/grilles. .2 Duct-mounted supply and return registers/louvres.
 Use a filter-drier immediately ahead of liquid-line controls, such as thermostatic expansion valves, solenoid valves, and moisture indicators. REGULATORY REQUIREMENTS 		.3 Door grilles.

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

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Revision Schedule Revis Revision Revision Dat Number Description May 15 Issued for 2025 Coordination June 19 Updated for 2025 Coordination June 19 2025



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Client Name

TBD

Project Number

2025-12

Project Name & Address

Barrie Single Dedicated Accessory
Dwelling Unit

Barrie, Ontario

Specifications

Drawn By

Reviewed By

Che

Sheet Number

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.1 Combination louvres.
              Goosenecks.
              RELATED REQUIREMENTS
              Section 099123 - Interior Painting: Painting of ducts visible behind outlets and inlets.
              REFERENCE STANDARDS
              SMACNA (ASMM) - Architectural Sheet Metal Manual; 2012.
              SMACNA (DCS) - HVAC Duct Construction Standards Metal and Flexible; 2005 (Revised 2009).
1.4
              SUBMITTALS
              See Section 013000 - Administrative Requirements for submittal procedures.
              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.
              CEILING SUPPLY REGISTERS/GRILLES
              Type: Streamlined and individually adjustable curved blades to discharge air along face of grille, two-way deflection.
              Frame: 32 mm (1-1/4 inch) margin with countersunk screw mounting and gasket.
              Construction: Made of aluminum extrusions with factory enamel finish.
              Color: As indicated.
               Damper: Integral, gang-operated, opposed blade type with removable key operator, operable from face.
              CEILING EXHAUST AND RETURN REGISTERS/GRILLES
2.2
              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.
              Frame: 32 mm (1-1/4 inch) margin with countersunk screw mounting.
              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.
              Color: As indicated.
              WALL SUPPLY REGISTERS/GRILLES
              Type: Streamlined and individually adjustable 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, double deflection.
              Frame: 32 mm (1-1/4 inch) margin with countersunk screw mounting and gasket.
              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.
              Color: As indicated.
              Damper: Integral, gang-operated opposed blade type with removable key operator, operable from face.
2.4
              WALL EXHAUST AND RETURN REGISTERS/GRILLES
              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.
               Fabrication: Steel frames and blades, with factory baked enamel finish.
              Color: As indicated on the Drawings.
              FLOOR SUPPLY REGISTERS/GRILLES
              Individually adjustable blades, wide stamped border, single or double blade damper with set screw adjustment.
2.6
              DOOR GRILLES
              Type: V-shaped louvres 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.
               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.
              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.
              Fabrication: 16 gauge, 0.0598 inch (1.52 mm) thick galvanized steel thick galvanized steel welded assembly, with factory prime coat finish.
2.8
              GOOSENECKS
               Fabricate in accordance with SMACNA (DCS) of minimum 18 gauge, 1.21 mm (18 gauge, 0.0598 inch) galvanized steel.
              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
              INSTALLATION
              Install in accordance with manufacturer's instructions.
              Comply with SMACNA (ASMM) for flashing/counter-flashing of roof penetrations and supports for roof curbs and roof mounted equipment.
              Check location of outlets and inlets and make necessary adjustments in position to comply with architectural features, symmetry, and lighting arrangement.
               Install diffusers to ductwork with air tight connection.
              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
       .6 Paint ductwork visible behind air outlets and inlets matte black. Refer to Section 099123.
END OF SECTION 233700
                                                                        SECTION 237223
                                                    PACKAGED AIR-TO-AIR ENERGY RECOVERY UNITS
PART 1 GENERAL
              SECTION INCLUDES
              Energy recovery units.
              Vibration isolation.
              Accessories.
1.2
              WARRANTY
              See Section 017800 - Closeout Submittals for additional warranty requirements.
PART 2 PRODUCTS
              ENERGY RECOVERY UNITS
              Energy Recovery Units for Spot Ventilation or Whole House Ventilation: Prefabricated packaged system designed by manufacturer with exchange capillary core.
                     Access: Hinged and/or screwed access panels on front.
                      Suspension brackets at the unit base.
                      Framing: Galvanized steel body.
                      Provide a ceiling grille or access panel.
                      Provide with MERV 13 filters on supply and exhaust air ducts.
                      Provide exterior wall cap.
                      Permanent name plate listing manufacturer mounted inside door near electrical panel.
              ACCESSORIES
              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
               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.
3.2
              INSTALLATION
              Provide openings for suitable ductwork connection.
              SYSTEM STARTUP
              Provide services of manufacturer's authorized representative to provide start up of unit.
              CLEANING
       .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
              Air-source heat pumps.
              Air cooled condensing units.
              Indoor air handling (fan and coil) unit for ductless systems.
              RELATED REQUIREMENTS
1.2
              Section 260583 - Wiring Connections: Electrical characteristics and wiring connections and installation and wiring of thermostats and other controls components.
1.3
              REFERENCE STANDARDS
              AHRI 210/240 - Standard for Performance Rating of Unitary Air-Conditioning and Air-Source Heat Pump Equipment; 2008, Including All Addenda.
              AHRI 520 - Performance Rating of Positive Displacement Condensing Units; 2004.
              ASHRAE Std 15 - Safety Standard for Refrigeration Systems; 2013.
              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.
              CSA B52 - Mechanical Refrigeration Code; 2018.
              NFPA 90A - Standard for the Installation of Air-Conditioning and Ventilating Systems; 2018.
              NFPA 90B - Standard for the Installation of Warm Air Heating and Air-Conditioning Systems; 2018.
              UL 207 - Standard for Refrigerant-Containing Components and Accessories, Nonelectrical; Current Edition, Including All Revisions.
1.4
              SUBMITTALS
              See Section 013000 - Administrative Requirements for submittal procedures.
              Product Data: Provide rated capacities, weights, accessories, electrical nameplate data, and wiring diagrams.
              Shop Drawings: Indicate assembly, required clearances, and location and size of field connections.
              Design Data: Indicate refrigerant pipe sizing.
PART 2 PRODUCTS
2.1
              SYSTEM DESIGN
```

Split-System Heating and Cooling Units: Self-contained, packaged, matched factory-engineered and assembled, pre-wired indoor and outdoor units; UL listed.

.1 Heating and Cooling: Air-source electric heat pump located in outdoor unit with evaporator; auxiliary electric heat.

Provide refrigerant lines internal to units and between indoor and outdoor units, factory cleaned, dried, pressurized and sealed, with insulated suction line. Performance Requirements: See Drawings for additional requirements. Electrical Characteristics: Disconnect Switch: Field installed weatherproof disconnect. INDOOR AIR HANDLING UNITS FOR DUCTLESS SYSTEMS 2.2 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. Location: High-wall. Filter return air with washable, antioxidant pre-filter and a pleated anti-allergy enzyme filter. .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. Construction and Ratings: In accordance with AHRI 210/240 and UL 207. Manufacturer: System manufacturer. Remote Actuators: 2.3 OUTDOOR UNITS Outdoor Units: Self-contained, packaged, pre-wired unit consisting of cabinet, with compressor and condenser. Comply with AHRI 210/240. Cabinet: Galvanized steel with baked enamel finish, easily removed and secured access doors with safety interlock switches, glass fiber insulation with Construction and Ratings: In accordance with AHRI 210/240 with testing in accordance with ASHRAE Std 23.1 and UL 207. Air Cooled Condenser: Aluminum fin and copper tube coil, AHRI 520 with direct drive axial propeller fan resiliently mounted, galvanized fan guard. Accessories: Filter drier, high pressure switch (manual reset), low pressure switch (automatic reset), service valves and gauge ports, thermometer well (in liquid Provide thermostatic expansion valves. Operating Controls: Control by room thermostat to maintain room temperature setting. 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). ACCESSORY EQUIPMENT Room Thermostat: Wall-mounted, electric solid state microcomputer based room thermostat with remote sensor to maintain temperature setting; low-voltage; with following features: System selector switch (heat-off-cool) and fan control switch (auto-on). Automatic switching from heating to cooling.

Preferential rate control to minimize overshoot and deviation from setpoint. Short cycle protection. Programming based on weekdays, Saturday and Sunday. Selection features including degree F or degree C display, 12 or 24 hour clock, keyboard disable, remote sensor, fan on-auto. Battery replacement without program loss. Thermostat Display: Time of day. Actual room temperature. Programmed temperature. Programmed time. Day of week. System Mode Indication: Heating, Cooling, Fan Auto, Off, and On, Auto or On, Off. PART 3 EXECUTION EXAMINATION Verify that substrates are ready for installation of units and openings are as indicated on Shop Drawings. Verify that proper power supply is available and in correct location.

Verify that proper fuel supply is available for connection.

Install in accordance with NFPA 90A and NFPA 90B.

Install refrigeration systems in accordance with CSA B52 and ASHRAE Std 15.

Install in accordance with manufacturer's instructions and requirements of local authorities having jurisdiction.

INSTALLATION

END OF SECTION 238126.13

3.2

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to be reproduced without permission The contractor shall verify all dimensions on site and repo

discrepencies 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

Under no circumstances shall the contractor proceed in

This drawing expresses the intent of the designer only, an the responsibility of the contractor to verify all site condition 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 pior to proceeding. Delta-Designs Inc shall not be held liable for any issues that ma arise due to the contractor not requesting clarification

> Drawings are scalled for Arch D - 24x36 P.Eng Seal (If Required

P.Eng Contact Info (If Required)

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



Delta-T Designs Inc. 16 Winstar Rd Unit 4 Oro-Medonte, Ontario L0L 2L0

705.791.9000 niss@deltatdesigns.ca

TBD

Client Name

Project Number 2025-12

Project Name & Address

Barrie Single Dedicated Accessory

Dwelling Unit

Barrie, Ontario

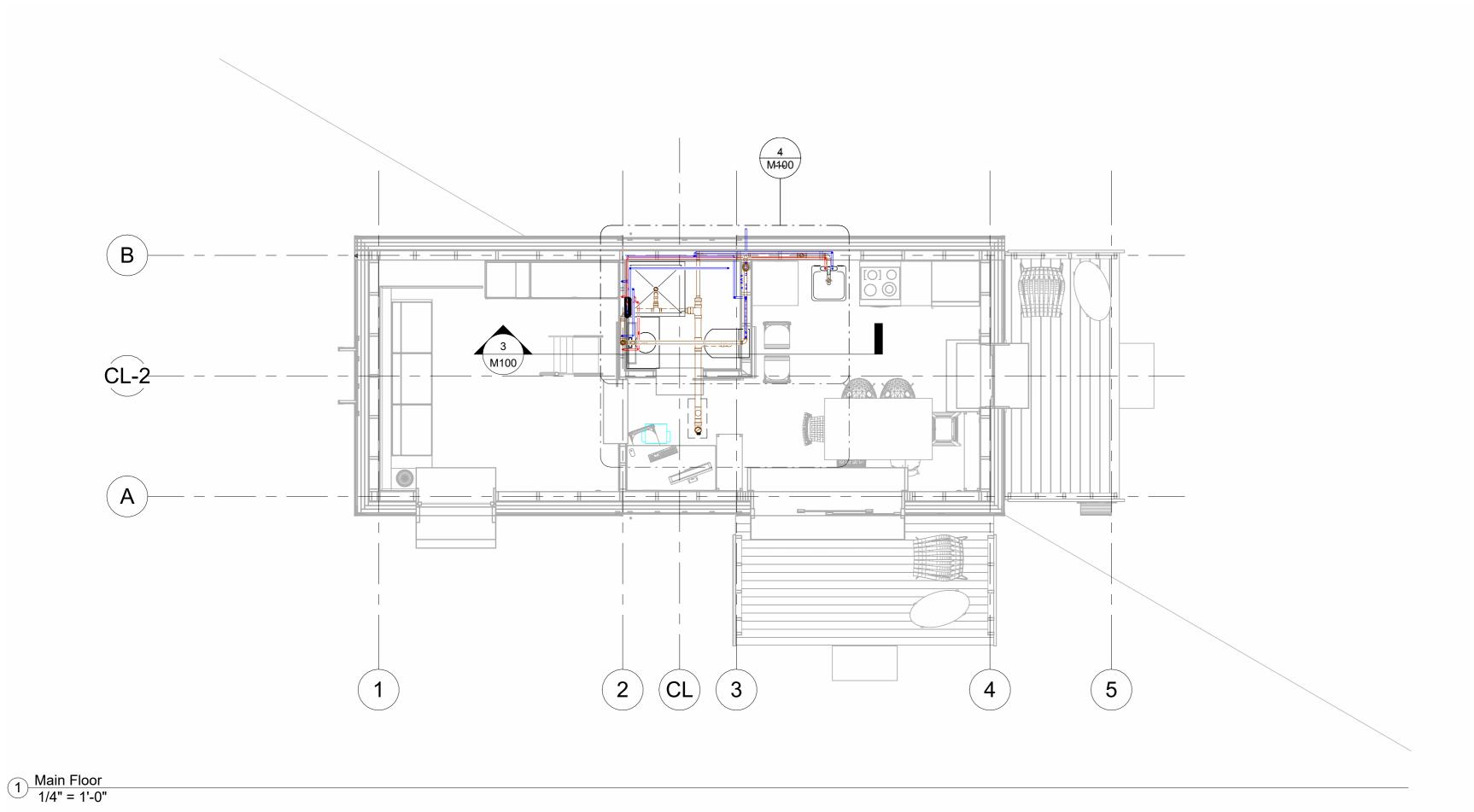
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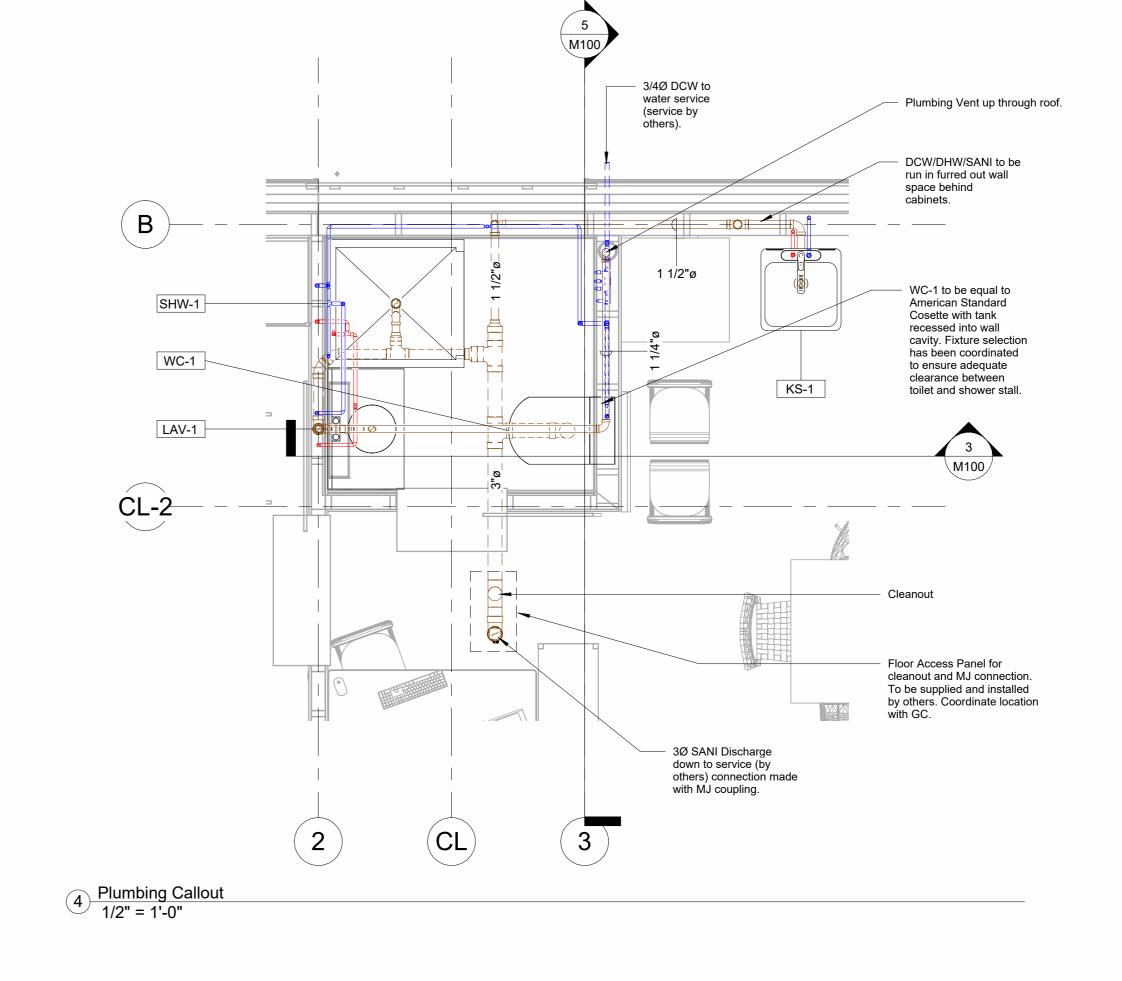
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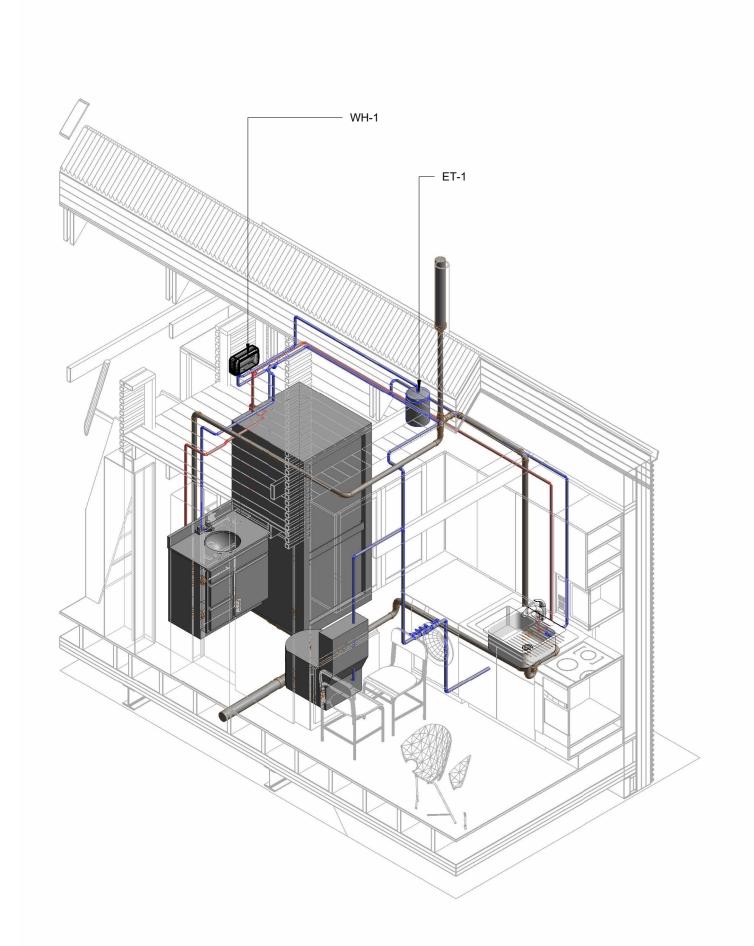
Reviewed By

Sheet Number

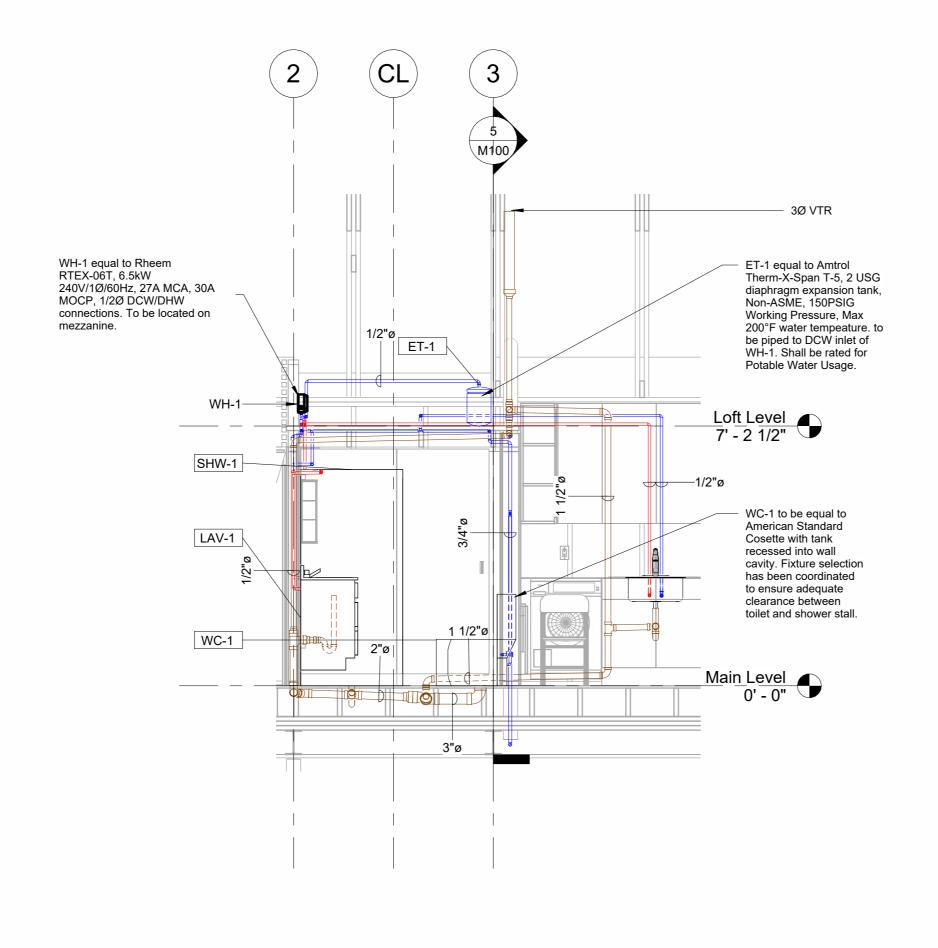
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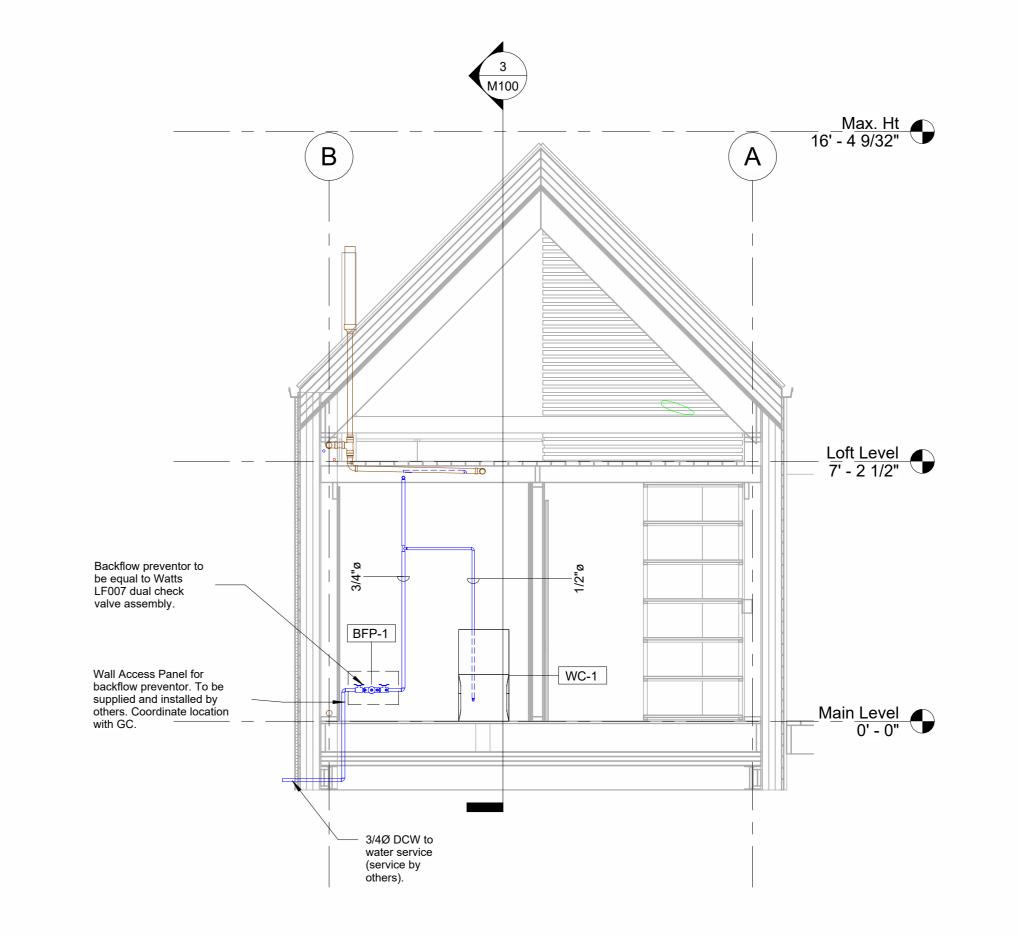






2 Plumbing 3D Section Box





3 Plumbing Section
3/8" = 1'-0"

5 Section 4 3/8" = 1'-0"

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Revision Schedule

	revision ochedule	
Revision Number	Revision Description	Revis Dat
1	Issued for Coordination	May 15 2025
2	Updated for Coordination	June 19 2025
3	WIP	June 19 2025



Delta-T Designs Inc. 16 Winstar Rd Unit 4 Oro-Medonte, Ontario L0L 2L0

705.791.9000 niss@deltatdesigns.ca

TBD

Project Number

Client Name

2025-12

Project Name & Address

Barrie Single Dedicated Accessory
Dwelling Unit

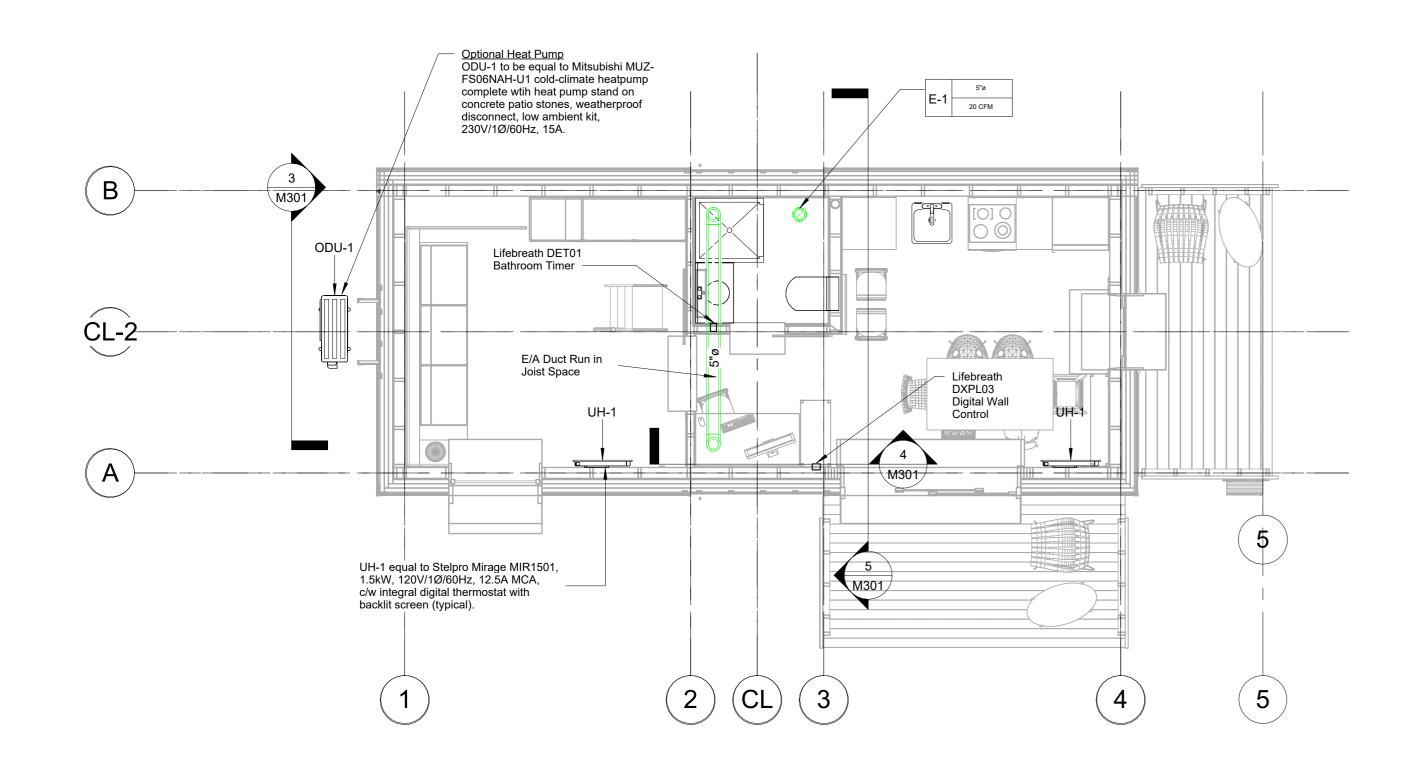
Barrie, Ontario

Plumbing Drawings

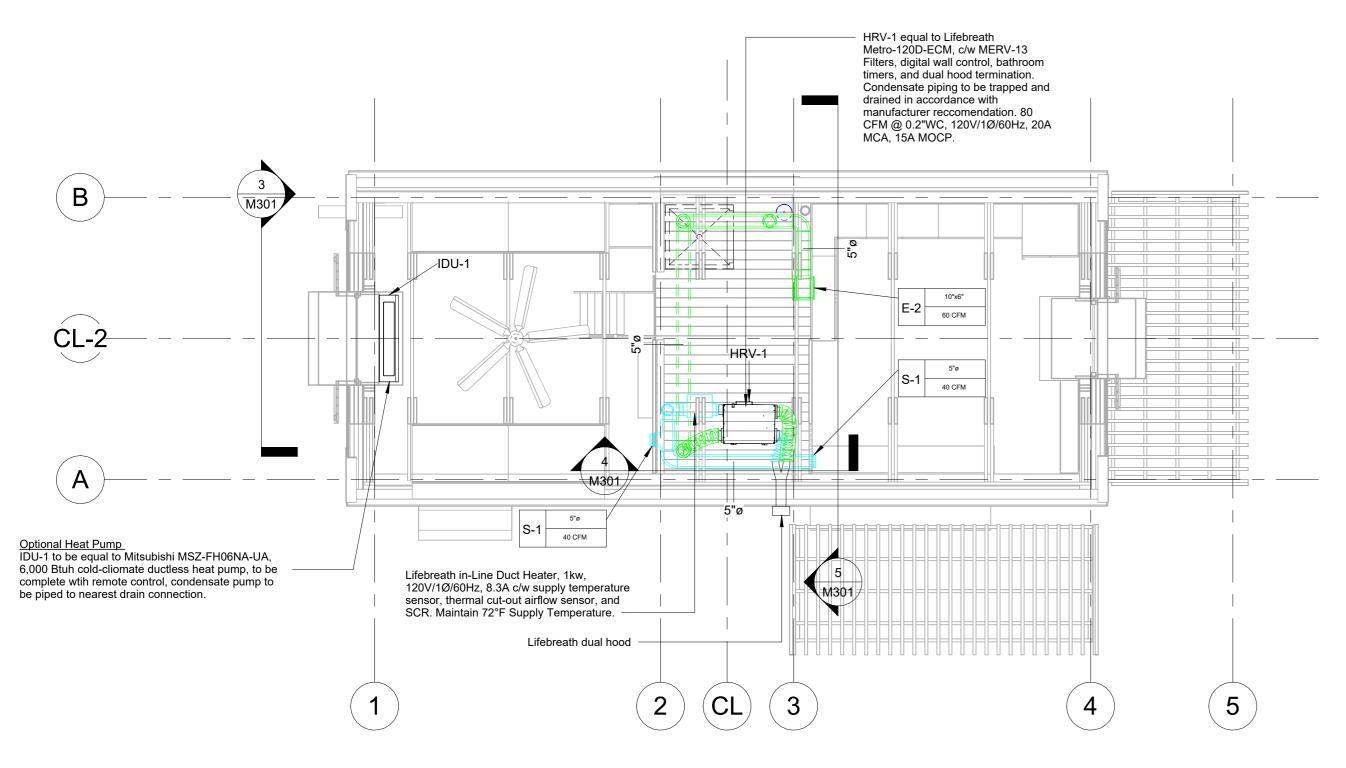
Reviewed By

Sheet Number

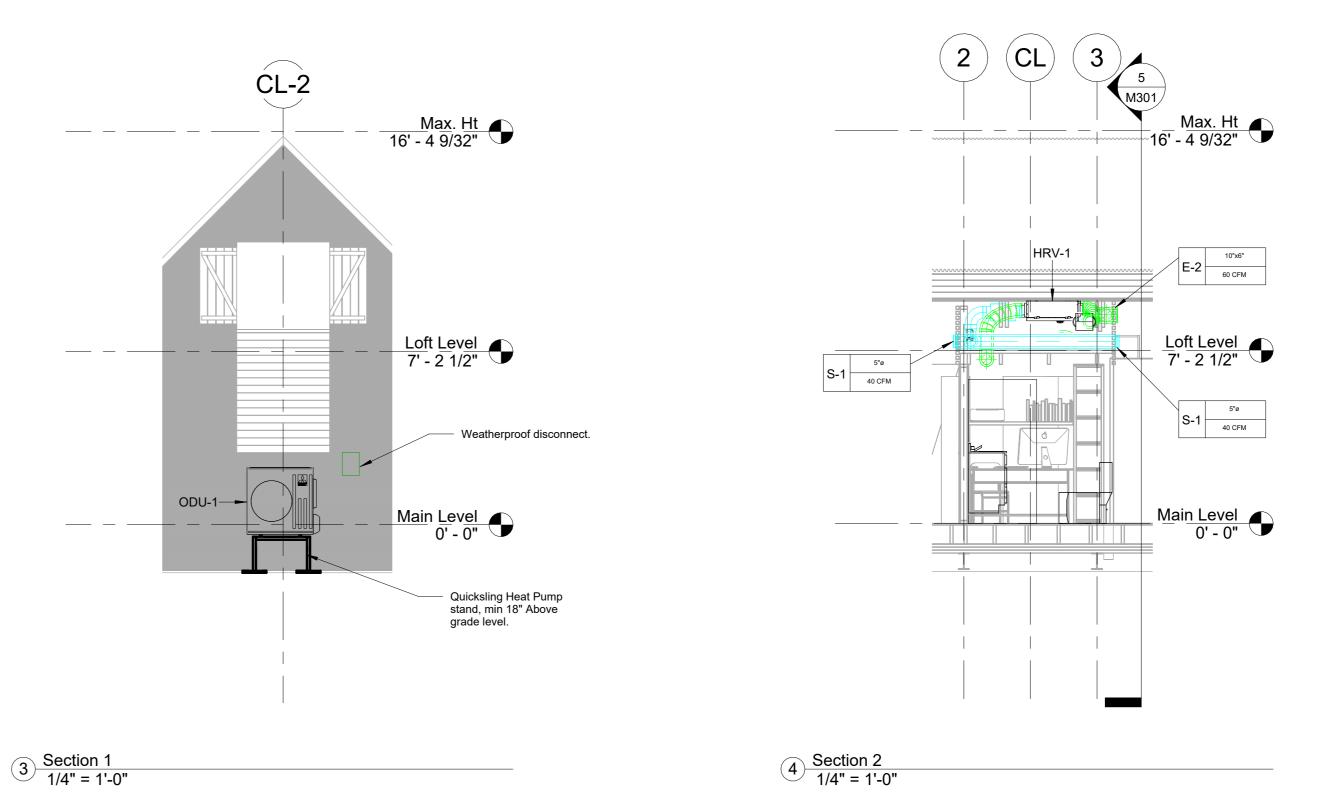
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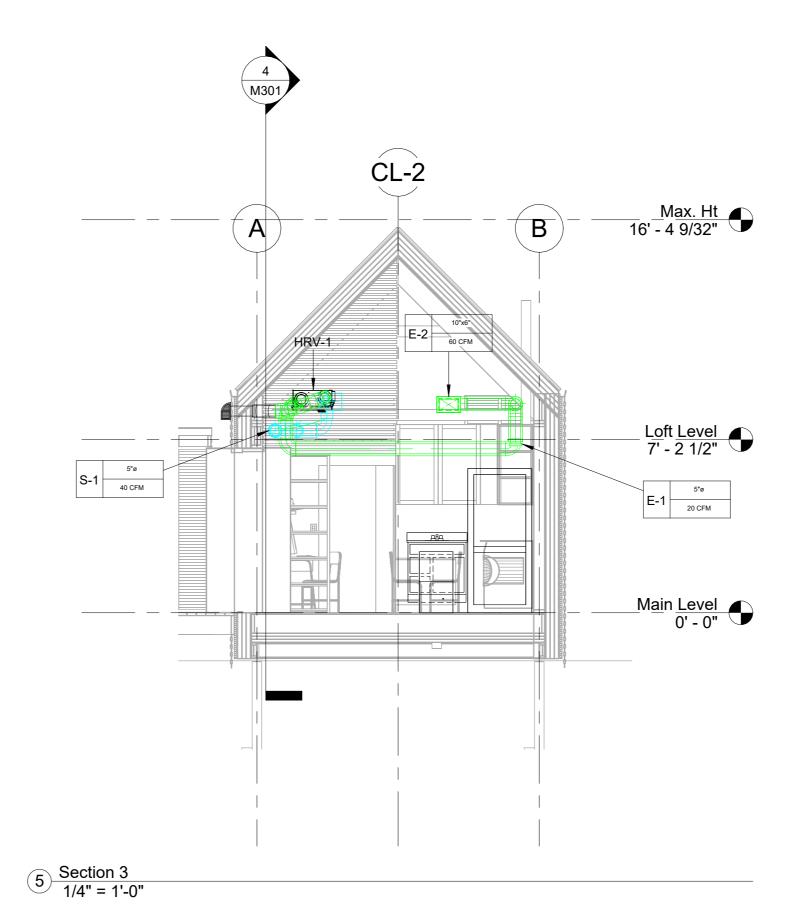


1 HVAC Main Level 1/4" = 1'-0"



2 Loft Level 1/4" = 1'-0"





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Drawings are scalled for Arch D - 24x36

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Revision Schedule

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



Delta-T Designs Inc. 16 Winstar Rd Unit 4 Oro-Medonte, Ontario L0L 2L0

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niss@deltatdesigns.ca

TBD

Project Number

Client Name

2025-12 Project Name & Address

Barrie Single Dedicated Accessory
Dwelling Unit

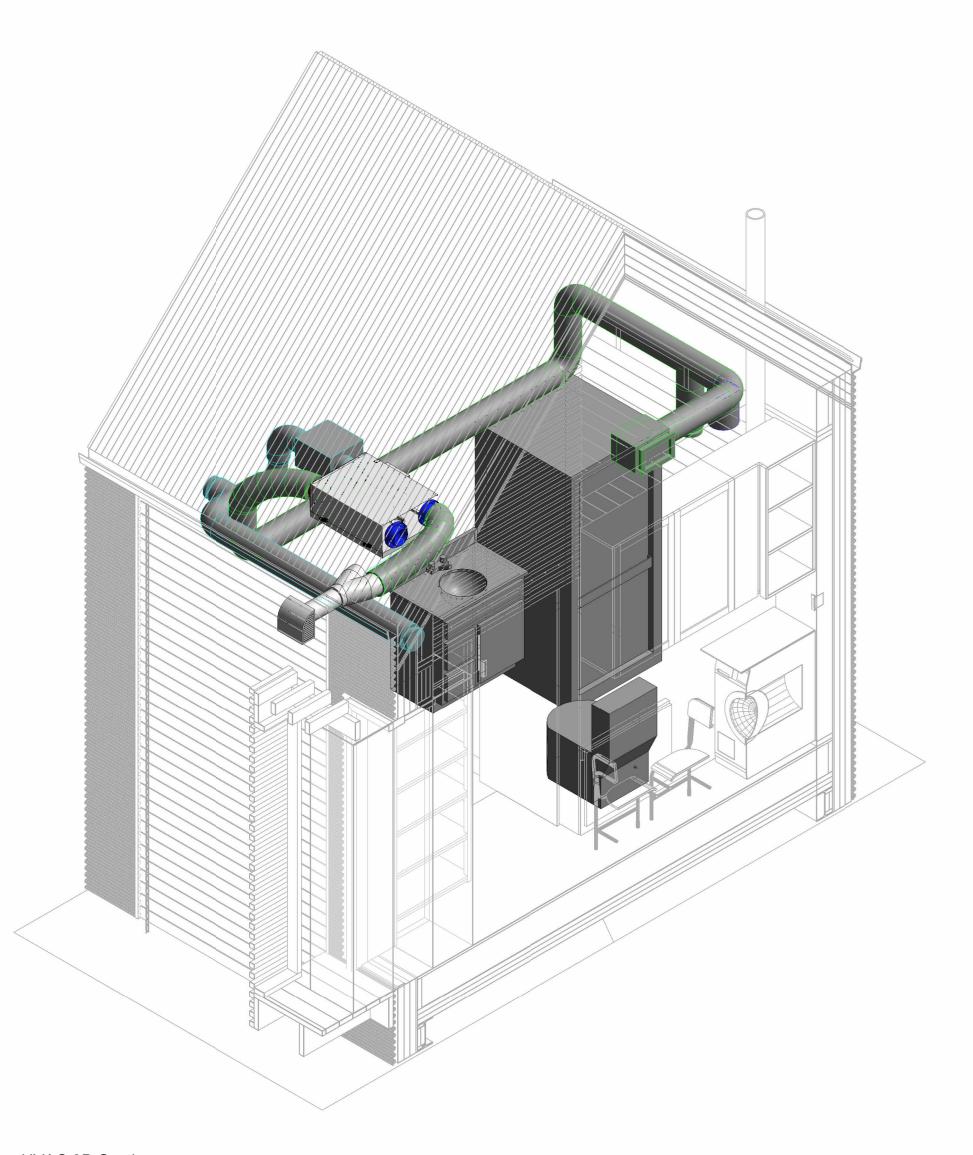
Barrie, Ontario

HVAC

Drawings

Sheet Number

M301



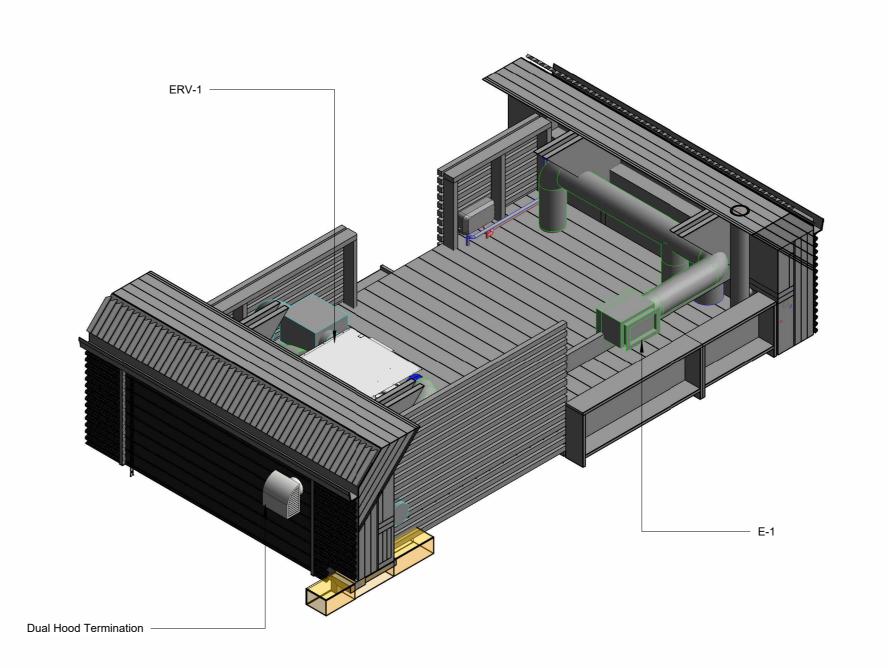
1 HVAC 3D Section

2 3D View 1





3 3D View 2



Mechanical Loft 3D

General Notes

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P.Eng Seal (If Required)

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Revision Schedule

Revision Schedule						
Revision	Revision	Revis				
Number	Description	Dat				
1	Issued for	May 15				
	Coordination	2025				
2	Updated for Coordination	June 19 2025				
3	WIP					
S	VVIP	June 19 2025				



Delta-T Designs Inc. 16 Winstar Rd Unit 4 Oro-Medonte, Ontario L0L 2L0

705.791.9000 niss@deltatdesigns.ca

Project Number

2025-12 Project Name & Address

Barrie Single Dedicated Accessory
Dwelling Unit

Barrie, Ontario

HVAC Drawings

Sheet Number

M302

	Heat loss and gain ca	alculation summary sheet CSA-F280-M12 Standard Form No. 1
	ssued for the use of Delta-T Designs used by any other persons without authorization. Documents for permit and/o	
	• • • • • • • • • • • • • • • • • • • •	ng location
Model:		Site:
Address:		Lot:
City and Province:	Barrie On	Postal code:
	Calculati	ons based on
Dimensional information	on based on:	
Attachment:	Detached	Front facing: North Assumed? No
Number of storeys:	1	Air tightness: Present (1961-) (ACH=3.57) Assumed? Yes
Weather location:	Barrie, ON, CA Ventilated: Include	
HRV?	75.0/	Internal shading: (none) Occupants: 2
Recovery %:	75 % Heating design conditions	Units: Imperial (I-P) Cooling design conditions
Outdoor temp: -	.11 °F Indoor temp: 72 °F Mean soil temp: 0 °F Above grade walls	Outdoor temp: 82 °F Indoor temp: 75 °F Latitude: 44 °N STrange: 19 Below grade walls
Style A: n,e,s,w - F	Firm wall, mtl ext, r-13 cav ins, 1/2" wood int firsh, r-20 ext bd ins, 2"x4" wood firm, 16" o.c. s	-
	IIII Wall, ITRI CAT, I-13 CAV IIIS, 1/2 WOOD III IIISII, I-20 CAT DU IIIS, 2 A4 WOOD IIIII, 10 U.C. S	
Style B:		Style B:
Style C:		Style C:
Style D:		Style D:
	Floors on soil	Ceilings
Style A:		Style A: 12K0 (Rf/clg ceiling, asphalt shingles roof mat, wd cons, r-6 deck ins, 1"thkns)
Style B:		Style B:
	Exposed floors	Style C:
Style A: 15A17 (Fir	floor, frm ftr, 10" thkns, vinyl ftr fnsh, r-30 cav ins, amb ovr)	Doors
Style B:		Style A:
	Windows	Style B:
	ng, cir low-e outr, 1/2" gap, insulated vinyl firm mat, cir low-e mid, argon gas, 1/4" thk, cir inn g (4 ft window ht, 0.5 ft sep.); 11 ft head ht	r, 5 Style C:
Style B: e - 3 glazir	g (+t whatewhit, 0.5 if sep.); 11 ft head ht g, (r) low-e outr, 1/2" gap, insulated vinyl firm mat, clr low-e mid, argon gas, 1/4" thk, clr inn g (7 ft window ht, 0.5 if sep.); 11 ft head ht	Skylights
Style C: s,w - 3 gla. 6.67 ft hea	sizing, cIr low-e outr, 1/2" gap, insulated vinyl frm mat, cIr low-e mid, argon gas, 1/4" thk, cIr i ad ht	nnr; Style A:
Style D: s - 3 glazir	ng, c'r low-e outr, 1/2" gap, insulated vinyl firm mat, cir low-e mid, argon gas, 1/4" thk, cir inn g (7 ft window ht, 0.5 ft sep.); 6.67 ft head ht	ir, 5 Style B:
Attached documents:		·
Notes:	Orientation is unknown. Will be sited anywhere in Barrie.	
	Calculations newformed by	
Name:	Calculations performed by	
Company:	Delta-T Designs Inc.	- M Dolto T
Address:	16 Winstar Rd, Unit 4	Delta-T Designs
	·	\ Dociono
City and Province:	Oro-Medonte On	L \Designs
Postal code:	LOL 2LO	
Telephone:	705-791-9000	
Fax:		
E-mail:	niss@deltatdesigns.ca	HRAI cert#: 9049

wrightsoft*

AMilak*/ Destative Hathamay Company

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

Component Constructions

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

Cert.#: 9049

Project Information

For: Barrie DADU Singles Barrie, On

Location: Barrie, ON, CA Elevation: 968 ft Latitude: 44°N Outdoor: Dry bulb (°F) Daily range (°F) Wet bulb (°F) Wind speed (mph)	Heating -11 15.0	Cooling 82 19 (70 7.5	М)	D R M Infil M E	door: Indoor templesign TD Itelative hult Itelative difference Itelative difference Itelative difference Itelative const. cate Itelative hult Itelativ	(°F) midity (%) fference (g	,	Heating 72 83 30 32.5 F280-12 Light loca Present (1.0	al shield		0
Construction description	ns		Or	Area	R-value	Insul R	A/R Btuh/°F	Htg TD/R Btuh/ft²	Loss Btuh	Clg TD/R Btuh/ft²	Gain Btuh
Walls				ıı	it-1/Bian	it - 17.Didii	Diany 1	Barrit	Dian	Dialivit	Dia
Frm wall, mtl ext, r-13 cav ins, 1/2" v	vood int fnsh, r-20 ex	t bd ins, 2"x4"	n	232	33.4	33.0	6.9	2.49	578	0.01	2
wood frm, 16" o.c. stud			е	83	33.4	33.0	2.5	2.49	205	0.30	25
			S	162	33.4	33.0	4.8	2.49	403	0.09	15
			w all	102 578	33.4 33.4	33.0 33.0	3.0 17.3	2.49 2.49	253 1439	0.30 0.13	31 73
Partitions (none)											
Windows 3 glazing, clr low-e outr, 1/2" gap, in argon gas, 1/4" thk, clr innr. 3 glazin vinyl frm mat, clr low-e mid, argon gwindow ht, 0.5 ft sep.); 11 ft head h	ng, clr low-e outr, 1/2" as, 1/4" thk, clr innr;	gap, insulated	е	12	6.3	0	1.9	13.1	158	19.7	236
3 glazing, clr low-e outr, 1/2" gap, in argon gas, 1/4" thk, clr innr: 3 glazin vinyl frm mat, clr low-e mid, argon g window ht, 0.5 ft sep.); 11 ft head h	ng, clr low-e outr, 1/2" as, 1/4" thk, clr innr,	gap, insulated	е	21	6.3	0	3.3	13.1	276	31.1	653
3 glazing, clr low-e outr, 1/2" gap, in argon gas, 1/4" thk, clr innr: 3 glazin	ng, clr low-e outr, 1/2"	gap, insulated	s	14	6.3	0	2.2	13.1	184	30.6	429
vinyl frm mat, clr low-e mid, argon g	as, 1/4" thk, clr innr, (6.67 ft head ht	W	14	6.3	0	2.2	13.1	184	46.3	648
			all	28	6.3	0	4.4	13.1	368	38.5	1077
3 glazing, clr low-e outr, 1/2" gap, in argon gas, 1/4" thk, clr innr: 3 glazin vinyl frm mat, clr low-e mid, argon g	ng, clr low-e outr, 1/2"	gap, insulated	s	56	6.3	0	8.8	13.1	736	15.9	888

Design Conditions

Doors (none)

wrightsoft*

AMTICAL* / Berkshiver Hathaneny Company

Right-Suite® Universal 2023 23.0.04 RSU22459 2025-May-15 22:13:04

Load Short Form

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

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

Project Information

Barrie DADU Singles Barrie, On

Design Information								
Htg Clg								
-11	82	Method	F280-12					
72	75	Expos. categ	Light local shielding					
83	7	Const. categ	Present (1961-) (ACH=3.57)					
-	М	Number of stories	1.0					
30	50							
33	24							
	-11 72 83 - 30	Htg Clg -11 82 72 75 83 7 - M 30 50	Htg Clg -11 82 Method 72 75 Expos. categ 83 7 Const. categ - M Number of stories 30 50					

Inside humidity (%) Moisture difference (gr/lb)	30 33	50 24			
HEATING EC	UIPMENT		COOLI	NG EQUIPMEN	т
Make Trade Model AHRI ref Efficiency Heating input Heating output Temperature rise Actual air flow Air flow factor Static pressure Space thermostat	80 AFUE 0 Btu 0 °F 347 cfm 0.032 cfm 0 in h	Efficiency h Sen h Late Tota n Actu l/Btuh Air f H2O Stat	de nd	0.0	ER 0 Btuh 0 Btuh 0 Btuh 147 cfm 44 cfm/Btuh 0 in H2O
ROOM NAME	Area (ft²)	Htg load (Btuh)	Clg load (Btuh)	Htg AVF (cfm)	Clg AVF (cfm)
Bedroom Bath KitchDin	127 33 160	4084 697 6049	3644 162 4066	131 22 194	16 ₋
Entire Building Other equip loads Equip. @ 0.87 RSM Latent cooling	d 319	10830 0	7872 0 6856 2362	347	34
TOTALS	319	10830	9218	347	34

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	80 Load Calcs Rev-2.rup Calc = F280-12 Front Door faces: N	Page 1

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Ceilings 12K0: Rf/clg ceiling, asphalt shingles roof mat, wd cons, r-6 deck ins, 1" thkns	431	9.6	6.0	44.9	8.67	3740	3.56	1533
Floors 15A17: Fir floor, frm fir, 10" thkns, vinyl fir fnsh, r-30 cav ins, amb ovr	319	29.0	30.0	11.0	1.44	458	0.04	13

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Loads for Multiple Orientations

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

Entire Building

Delta-T Designs Inc.

Project Information

Job: 2025-12 Rev-2

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

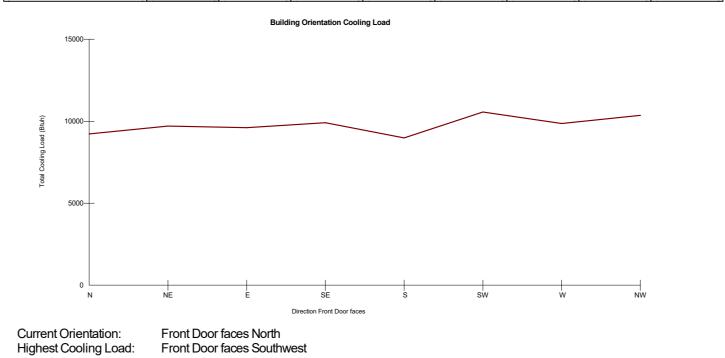
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Page 1

Date: May 14, 2025

Barrie DADU Singles Barrie, On

Design Conditions									
Location: Barrie, ON, CA Elevation: 968 f Latitude: 44°N Outdoor: Dry bulb (°F) Daily range (°F) Wet bulb (°F) Wind speed (mph)		ı	oling 82 19 (M) 70 7.5	Design Relative	emperature (° TD (°F) e humidity (%) e difference (g	(F)	ating 72 83 30 32.5	75 7 7 50 24.0	
Front Door	North	Northeast	East	Southeast	South	Southwest	West	Northwest	
Sensible Load (Btuh) Latent Load (Btuh) Total Load (Btuh) Heating AVF (cfm) Cooling AVF (cfm)	6856 2362 9218 347 347	7219 2486 9705 365 365	7148 2462 9611 362 362	7369 2538 9907 373 373	6681 2301 8983 338 338	7856 2706 10562 398 398	7330 2525 9855 371 371	7706 2654 10361 390 390	



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gle DADU/2025-12 DADU F280 Load Calcs Rev-2.rup Calc = F280-12 Front Door faces: N	9- :



Project Information

Barrie DADU Singles Barrie, On For:

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

Design Information Weather: Barrie, ON, CA **Summer Design Conditions** Winter Design Conditions Outside db Inside db Outside db Inside db Design TD Design TD
Daily range
Relative humidity
Moisture difference 50 % 24 gr/lb Sensible Cooling Equipment Load Sizing Heating Summary 7872 Btuh 0 Btuh 0 Btuh Structure Structure Ducts Central vent (0 cfm) 0 Btuh 0 Btuh Central vent (0 cfm) (none) Humidification 0 Btuh 0 Btuh 10830 Btuh 0 Btuh Piping Equipment load Use manufacturer's data 0.87 6856 Btuh Rate/swing multiplier Equipment sensible load Method F280-12 Latent Cooling Equipment Load Sizing Expos. categ Const. categ Number of stories Light local shielding Present (1961-) (ACH=3.57) 2362 Btuh 0 Btuh 0 Btuh Structure Central vent (0 cfm) Area (ft²) Volume (ft³) Air changes/hour Equiv. AVF (cfm) 2362 Btuh Equipment latent load 3350 0.09 Equipment Total Load (Sen+Lat) Req. total capacity at 0.70 SHR 9218 Btuh Heating Equipment Summary Cooling Equipment Summary Make Trade Cond Coil AHRI ref Make Trade Model AHRI ref 80 AFUE 0 Btuh 0 Btuh 0 °F Efficiency 0 SEER Efficiency Heating input Heating output Sensible cooling Latent cooling Temperature rise Actual air flow Total cooling Actual air flow 0.044 cfm/Btuh 0 in H2O 0.77 0.032 cfm/Btuh 0 in H2O Air flow factor Air flow factor Static pressure Static pressure Space thermostat Load sensible heat ratio

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Right-Suite® Universal 2023 23.0.04 RSU22459

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

Building Analysis Entire Building Delta-T Designs Inc.

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

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

> Project Information Barrie DADU Singles Barrie, On

Design Conditions Indoor:
Indoor temperature (°F)
Design TD (°F)
Relative humidity (%) Location:
Barrie, ON, CA
Elevation:
Latitude: Heating Outdoor: Dry bu Daily ra Wet bu Wind s

or: bulb (°F) ly range (°F) t bulb (°F) nd speed (mpl		eating C -11 - - - 15.0	82 19 (M) 70 7.5	Moisture difference (gr/lb) Infiltration: Method Expos. categ Const. categ Number of stories	32.5 F280-12 Light local shield Present (1961-) (1.0	24.0 ling (ACH=3.57
			Hea	ting		
oonent	Btuh/ft²	Btuh	% of load			
3	2.5	1439	13.3	Walls	Ventilation	

alls azing bors eilings bors iltration ucts vdronic umidification intilation ljustments tal	2.5 13.1 0 8.7 1.4 15.9	1439 1538 0 3740 458 1858 0 0 0 1797 0	13.3 14.2 0 34.5 4.2 17.2 0 0 16.6	Glazing Ventilation Infiltration Ceilings
			Coo	ling
mponent	Btuh/ft ²	Btuh	% of load	

omponent	Btuh/ft²	Btuh	% of load	
dalls lazing lazing lazing lazing lazing lazing lazing lazings lazing litration lacts lazing	0.1 24.4 0 3.6 0.0 0.3	73 2854 0 1533 13 38 0 153 3208 0 0	0.9 36.3 0 19.5 0.2 0.5 0 1.9 40.7 0	Glazing Internal Gains Ceilings

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%.

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Right-F280™ Worksheet Job: 2025-12 Rev-2 Date: May 14, 2025

Delta-T Designs Inc.

1 2 3	Room i							Entire 80.0	Building) ft			34.0	droom) ft			6.0	3ath) ft : 5.5 ft	
4	Room			-	r-			ft		d	10.5	11.5 x 11.0 ft 10.5 ft heat/cool			10.5			t/cool
	Ту	CST	R - value	Or	TD (Btu	/R ih/ft²)	Area (or peri		Loa (Btu		Area (or peri		Loa (Btu		Area (or peri		Load (Btuh	
1					Heat	Cool	Gross	N/P/S	Heat	Cool	Gross	N/P/S	Heat	Cool	Gross	N/P/S	Heat	Cool
		Frm wal Frm wal 3 glazi 3 glazi Frm wal 3 glazi Frm wal 3 glazi 12KO 15A17	33.42 33.42 6.33 6.33 33.42 6.33 9.59 28.96	e e e s s w w	2.5 2.5 13.1 13.1 2.5 13.1 13.1 2.5 13.1 8.7 1.4	0.3 19.7 31.1 0.1 30.6 15.9 0.3 46.3 3.6	232 116 12 21 232 14 56 116 14 431 319	232 83 111 162 0 56 102 0 431 319	578 205 158 276 403 184 736 253 184 3740 458	2 25 236 653 15 429 888 31 648 1533 13	92 0 0 0 92 14 0 116 14 171 127	92 0 0 78 0 102 0 171 127	229 0 0 194 184 0 253 184 1483 182	1 0 0 0 7 429 0 31 31 648 608 5	48 0 0 0 0 0 0 0 45 33	48 0 0 0 0 0 0 45 33	119 0 0 0 0 0 0 0 0 0 387 47	1!
6	a) Int	nductive los filtration entilation	ss/gain						7175 1858 1797	4473 38 153			2709 702 674	1729 155 58			554 143 0	11
8	Internal		Pec Ele	ple@) Applianc	239 es		2	1131	478 2730		2	014	478 1365		0		
	Subtota	al (lines 6 to	8)						10830	7872			4084	3644			697	1
9	Less tra Subtota	al ution losses			Ducts Hydror	nic	0% 0%	0%	0 0 10830 0 0	0 0 7872 0	0% 0%	0%	0 0 4084 0 0	0 0 3644 0	0% 0%	0%	0 0 697 0 0	1

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

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F280-12 Room Infiltration

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

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Room Name	Level	Htg load	Clg load	Htg AVF	Clg AVF
	Factor	(Btuh)	(Btuh)	(cfm)	(cfm)
Bedroom	1.00	702	15	8	2
Bath	1.00	143	1	2	0
KitchDin	1.00	1013	22	11	3
Entire Building	0	1858	38	21	5

Job: 2025-12 Rev-2 **Right-F280™ Worksheet** Date: May 14, 2025 Delta-T Designs Inc.

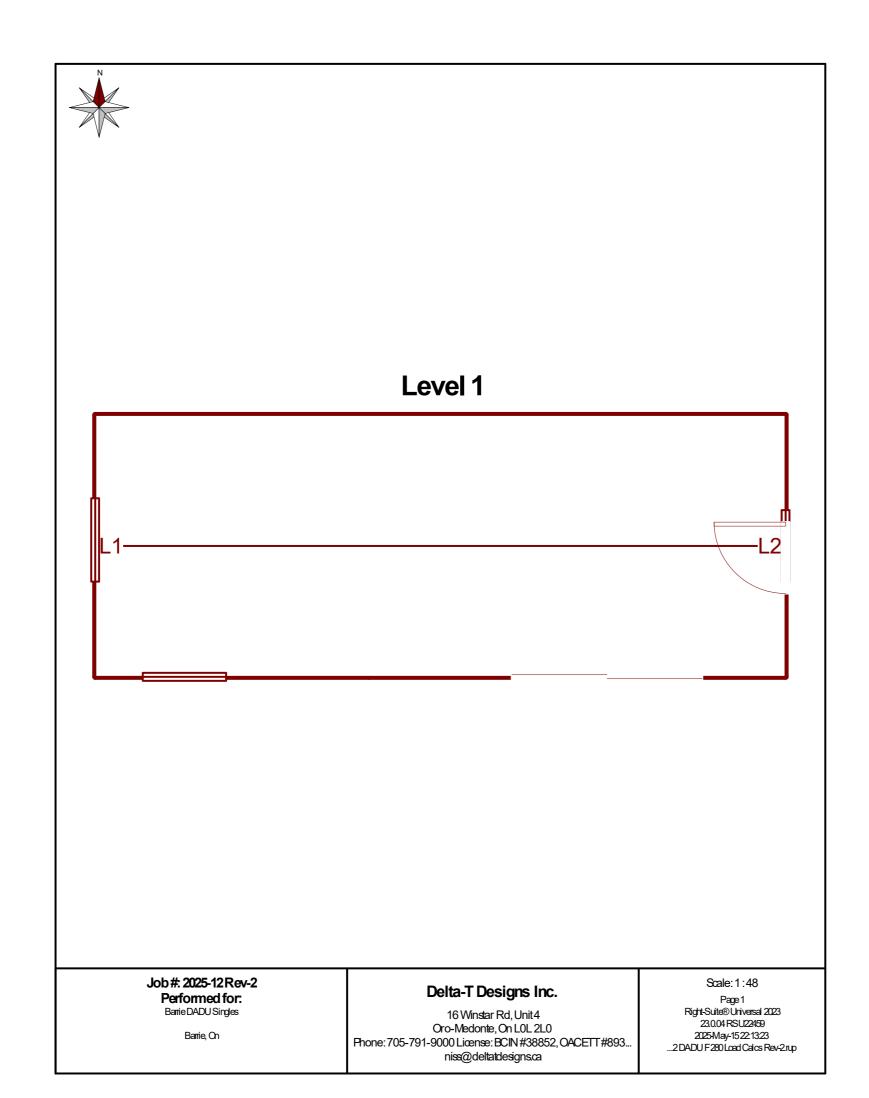
Cert.#: 9049
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2 3 4	Expose	dimensions	S	-	r .		10.5	40.0 1.0	chDin) ft < 159.5 f hea	t ut/cool			ı -				1	
	Ту	CST	R - value	Or	TD/ (Btu	h/ft²)	Area (or peri	m (ft)	Loa (Btu	ıh)	Area or per	Γ .	Loa	d r	Area or per	im	Loa	nd I
4				_	Heat	-	Gross	N/P/S	Heat	Cool	Gross	N/P/S	Heat	Cool	Gross	N/P/S	Heat	Co
5	₩ ₩ ₩	Frm wal Frm wal 3 glazi 3 glazi 3 glazi 5 glazi 5 glazi 12K0 15A17	33.42 33.42 6.33 33.42 6.33 9.59 28.96	e e s s w w -	2.5 2.5 13.1 13.1 2.5 13.1 13.1 1.4	46.3	56 0 0 216	0	0 0	236 653 8 0 888 0								
6	Total co	nductive lo	ss/gain						3912	2583								
7		iltration entilation							1013 1123									
8	Internal	gains:	Ped	ple@) Appliano	239 es		0		0 1365								
	Subtota	al (lines 6 to	8)						6049	4066								
9 10 11 12	Less external load Less transfer Subtotal Distribution losses Ducts Hydronic Redistribution						0% 0%	0%	0 0 6049 0 0	0 0 4066 0								

Right-Suite® Universal 2023 23.0.04 RSU22459

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

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Job: 2025-12 Rev-2 F280 Infiltration Report Date: May 14, 2025

Entire Building Delta-T Designs Inc.

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

For: Barrie DADU Singles Barrie, On

Design Conditions

Project Information

House type Detached Parkland, bushes, x/H ~ 10 Light local shielding Wall shielding 1.0 (w/o basement) Highest ceiling height (ft) Foundation Crawl Space

Air Leakage

Present (1961-) (ACH=3.57) Air tightness

0.370 ach

Flues Heavy shielding #1 #2 Shielding Diameter (in) Summary Heating Cooling Infiltation area 319 ft² 319 ft² Infiltration area Infiltration volume 3350 ft³ Infiltration volume 3350 ft³ Unadjusted air change rate 0.370 ach Unadjusted air change rate 0.089 ach Unadjusted AVF 21 cfm Unadjusted AVF 5 cfm 0 cfm 0 cfm Vent adjustment Vent adjustment **Net AVF** 21 cfm Net AVF 5 cfm

Net air change rate

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

Net air change rate

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0.089 ach

Delta-T Designs Inc. CSA F326 Calculations

Heating System / Combusiton Appliances Heating System Type: Non-Forced Air Maximum Building Depressurization Limit: Fuel Type: Electric Appliance Vent Type: No Combustion Appliance Custom Dep. Limit Value (Pa): n/a Depressurization Limit: No Depressurization Limit Exhaust System Type : Use F326 Worksheet: #N/A

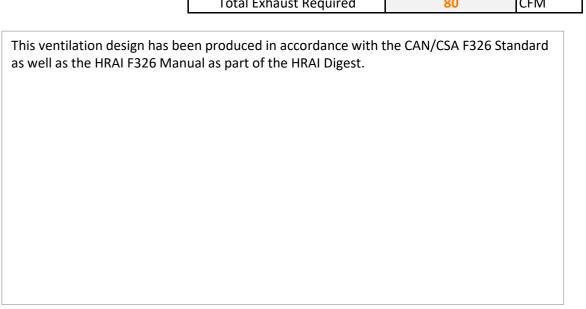
Critical Exhaust Condition (CEC) Equipment Equipment Types **CEC Note** Exhaust CFM #N/A CEC Depressurization calculations are NOT required #N/A because there is NO depressurization limit above. #N/A

Total Ventilation Capacity (TVC)

Qty.	Room Type	CFM of Outdoor Air Per Room	Total CFM By Room
	Unfinished Basement	20	
1	Master Bedroom	20	20
1	Bathrooms	10	10
1	Kitchens	10	10
1	Other Habital Rooms	10	10
		Total Ventilation Capacity (TVC)	50 CFM

Exhaust Capacities

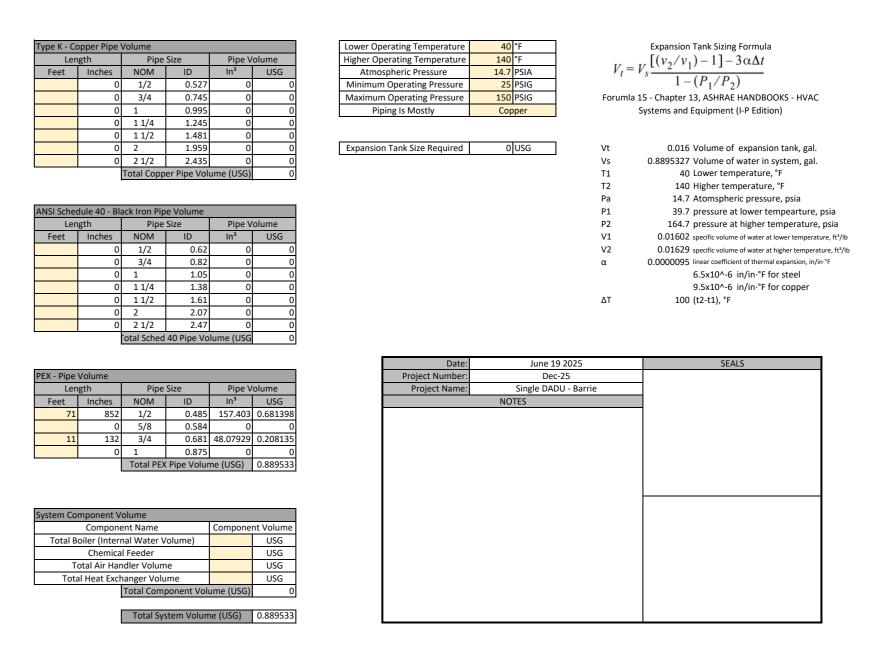
	-							
S	elect Exhaust Condition	Continuous						
ty	Room Type	CFM Exhaust Air Pe	er Room	Total CFM by Room				
1	Kitchen(s)	60		60				
1	Bathroom(s)	20		20				
		Total Exhaust Red	nuired	80	CFM			



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Formulae and Data are from ASHRAE Handbooks Delta-T Designs 2018