

Tender Addendum 1

File	Tender	Tender No.
123056	Milford Bay Community Centre Mechanical System Upgrades	T-2024-012
Date	Owner	
December 10, 2024	Township of Muskoka Lakes	

Message to Bidder

The purpose of this addendum is to provide answers to questions posed by contractors following the tender submission and site meeting.

Clarifications to Tender

The Tender submittal deadline **has changed to** December 19th as a result of this Addendum.

Revisions to Drawings

1. Revcloud and revision numbering added to legend on M.1.
2. Fire damper schedules revised on M.1.
3. Return air grille and return duct elbow with acoustic insulation added to AHU-1 on M.5.
4. Acoustically lined ductwork added to AHU-1 return air ductwork on M.5.
5. Fire dampers added to ducts penetrating fire rated wall on M.5.
6. Fire damper tags revised on M.5 to align with updated schedule.
7. Fire damper and grille detail added to M.9.
8. General notes revised on M.4.
9. E1.1 - Revision marker has been added to the legend.
10. E2.1 - The term "Proposed Propane-Engine Generator Set" has been changed to "Existing Propane-Engine Generator Set".
11. E2.2 - The term "Proposed Propane-Engine Generator Set" has been changed to "Existing Propane-Engine Generator Set".
12. E2.3 - The term "ERV-1" has been changed to "ERV-2". The term "ERV-2" has been changed to "ERV-1".
13. E2.5 - The term "MD-2b" has been changed to "MD-1b". The term "ERV-2" has been changed to "ERV-1". Diamond note 5 has been added to Notes. CU-1 has been moved. The term "ERV-1" has been changed to "ERV-2". Control panel for HVAC has been added to the service room.
14. E2.6 - Forced fan heater FFH-17 has been added.
15. S.2 Insulation to R60 in roof system.
16. S.2 Approx 960 sf 3/4" CSP plywood installed in attic space around new mechanical equipment for walking surface.
17. S.2 New door to mezzanine area to access AHU-1.
18. S.2 New 3/4 hour fire rated door to mechanical room.
19. S.2 Reduced fire rating to 1 hour in mechanical room.

20. S.2 Reduced fire rating to 1 hour in mechanical room.

Questions and Answers

1. Will the bidder need to carry a cash allowance for temporarily relocating existing objects located in the mechanical room? **[TAT-JT]** Yes, carry a cash allowance of \$5,000.
2. Can the tender bids be submitted via email? **[TAT-JT]** Yes, the client has confirmed that the tender bids may be submitted via email, CMoore@muskokalakes.ca.
3. If Liquidated Damages are to be applied as per TC-18 then date for when calculation is applied would be from Substantial Completion as this is when the Project by definition is sufficiently ready for the owner to occupy and make beneficial use of it. The documents request for this calculation to be applied as per GC1.06 'Final Acceptance'. Please confirm and amend date to be as per Substantial Completion as this is when any damages "suffered by owner" would end. **[TAT]** The date of substantial completion is to be used to calculate liquidated damages, if applied.
4. Please advise if a Bonus clause will be added for early completion? **[TAT-JT]** There will be no bonus clause for early completion.
5. Please advise the Substantial Completion date recognises all long-lead items that have been specified within the issued for tender design, as this is out of the Contractors control when Equipment specifications have been single-sourced manufacturers? It is unreasonable for any LDs to be applied based on a sole-sourced manufacturer not being able to meet with the prescribed dates. **[TAT-JT]** Please refer to specification 19 on M.3, alternative manufacturers are acceptable with equivalent performance and specifications.
6. Please provide required copy of the OPSS. MUNI 100 referred to under Section C. All documents forming part of the contract agreement should be made available to Bidders at time of tender. **[TAT-JT]** Please refer to Appendix A for OPSS MUNI 100.
7. SP-D 7 "No Interruption of Service" - Please be aware that alternate facilities will have to be used for the duration of this contract based on the M&E Services being upgraded i.e Air, Heat, Water, Electrical will all be disrupted and taken out of service for vast periods of time. With the accompanying structural works also required for the upgrades the facility will be unsafe to permit the public and users' access during this time. **[TAT-JT]** The contractor shall make every effort to facilitate the ongoing activities/rentals of the community centre during the renovation. It is understood that the facility will be taken out of service for extended periods of time and that alternative facilities will have to be used for rental users. The contractor shall coordinate these closures with Township staff.
8. Please provide Architectural or Interior Design drawings and specifications referenced within the Mechanical drawings. **[TAT-JT]** Please refer to Appendix B for as built drawings provided by the township. Subsequent renovations have taken place but were not documented.
9. Dwg S.2 please provide Details / Cross Sections for the additional blocking required for AHU-1 as there is no design detail information provided. **[TAT-JT]** Solid blocking is a term for solid wood blocking between two joists, connection of blocking to be as per OBC 2012 9.23.3, as noted on S.1 in Appendix C.
10. Dwg S.2 please provide structural design for the added weights to Floors above the Washrooms where ERV-1 and AHU-1 are to be situated as no design detail has been provided. **[TAT-JT]** Please refer to drawing S.1 in Appendix C for the design loads. Unless reinforcing of the floor system is shown on S.2, the existing members are adequate to support the new loads.

11. Dwg S.2 requests for Top-up of existing insulation, with final R-value to be confirmed by Owner – Please confirm what we are to carry in the Bid based on no information being provided at tender. **[TAT-JT]** *Please provide and carry for R-60 fiberglass blown-in insulation. If possible, existing insulation is to be utilized to provide total insulation of R-60 and client is to receive a credit for insulation carried in tender pricing that is not required. Please refer to updated note on drawing S.2 in Appendix C.*
12. Dwg M.4 “General Notes” Please provide specification for products to be used or advise if any spares will be provided for the Floor and Ceiling finishes to be patch / repaired. **[TAT-JT]** *Client has advised that they would like the existing grilles and diffusers to remain in place except where shown on the demolition drawings. Please see Appendix C for updated drawings that reflect this change.*
13. Dwg M.7 Please confirm location of Propane Tank and provide details if it is to be situated on Car Park side of the facility. Eg. Fence / Screen around Tank? **[TAT-JT]** *Please refer to Appendix D for approximate location of new propane tank, location to be coordinated with client and sized to provide minimum one month of propane supply to the building.*
14. Please advise if areas such as the “Library” will be empty / cleared for the works to take place? **[TAT-JT]** *The contractor is to be responsible for emptying/clearing or protecting items in the library as necessary. Please coordinate with owner.*
15. Please provide existing As-Built drawings or confirm the issued for tender design includes for and has recognised all existing and as-built conditions of the facility? **[TAT-JT]** *Please refer to Appendix B for as built drawings provided by the township. Subsequent renovations have taken place but were not documented.*
16. The schedule for the boiler on drawing M.2 indicates that a zone pump controller will be provided with the boilers. Does this zone pump controller provide the control for pumps P-1, 2, 3? **[TAT-JT]** *Yes, the NFB-399C has dry contact relays for boiler pump, 3 zone pumps, and a low voltage terminal for up to three thermostats.*
17. Please confirm the boiler cascade controller will be provided with the boilers. **[TAT-JT]** *The Navien cascade cable is shipped loose with the boiler and shall be included in the tender bid pricing.*
18. Can you confirm that the proposed propane powered 55kw genset is not part of this project, as noted at site visit.? **[TAT-JT]** *The genset is existing and is not part of this project.*
19. One more thing, the 200Amp panel, is there a preferred brand? It looks like there are several different makes in the building. **[TAT-JT]** *Any manufacturer is acceptable as long as it meets the specification.*
20. Please confirm that a 120VAC circuit will be provided for an AHU/ERV control panel in the Service Room. **[TAT-JT]** *Yes, please refer to updated drawings in Appendix C.*
21. Is a surge protector to be provided? **[TAT-JT]** *Please refer to diamond note 2 on drawing E2.3 in Appendix C.*
22. Can you please provide the basis of design cutsheets for the hydronic heaters. **[TAT-JT]** *Please see attached cutsheets in Appendix E.*

Modifications to Tender

The contract completion date **has changed** to October 8, 2025, as a result of this Addendum.

Directions to Bidder

The Bidder shall:

1. Sign this Addendum in the space provided below and submit this Addendum to the Owner in the same envelope as the Tender
2. This Addendum must be used for the submission of the bid along with the remaining Form of Tender from the tender documents.
3. Enter this Addendum number, date and number of pages on the tender (Part III - Form of Tender Section 1.1.d)

Signature of Bidder

Date

Appendix A: OPSS. MUNI 100



OPSS MUNI GENERAL CONDITIONS OF CONTRACT

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SECTION GC 1.0 - INTERPRETATION

GC 1.01 Captions

.01 The captions appearing in these General Conditions have been inserted as a matter of convenience and for ease of reference only and in no way define, limit, or enlarge the scope or meaning of the General Conditions or any provision hereof.

GC 1.02 Abbreviations

.01 The abbreviations on the left below are commonly found in the Contract Documents and represent the organizations and phrases listed on the right:

"AASHTO"	-	American Association of State Highway Transportation Officials
"ACI"	-	American Concrete Institute
"ANSI"	-	American National Standards Institute
"ASTM"	-	ASTM International
"AWG"	-	American Wire Gauge
"AWWA"	-	American Water Works Association
"CCIL"	-	Canadian Council of Independent Laboratories
"CGSB"	-	Canadian General Standards Board
"CSA"	-	CSA Group - formerly Canadian Standards Association
"CWB"	-	Canadian Welding Bureau
"GC"	-	General Conditions
"ISO"	-	International Organization for Standardization
"MECP"	-	Ontario Ministry of the Environment, Conservation and Parks
"MTO"	-	Ontario Ministry of Transportation
"MUTCD"	-	Manual of Uniform Traffic Control Devices, published by MTO
"OHSA"	-	Ontario Occupational Health and Safety Act
"OLS"	-	Ontario Land Surveyor
"OPS"	-	Ontario Provincial Standard
"OPSD"	-	Ontario Provincial Standard Drawing
"OPSS"	-	Ontario Provincial Standard Specification
"OTM"	-	Ontario Traffic Manual
"PEO"	-	Professional Engineers Ontario
"SAE"	-	SAE International
"SCC"	-	Standards Council of Canada
"SSPC"	-	The Society for Protective Coatings
"UL"	-	Underwriters Laboratories
"ULC"	-	Underwriters Laboratories Canada
"WHMIS"	-	Workplace Hazardous Materials Information System
"WSIB"	-	Workplace Safety & Insurance Board

GC 1.03 Gender and Singular References

.01 References to the masculine or singular throughout the Contract Documents shall be considered to include the feminine and the plural and vice versa, as the context requires.

GC 1.04

Definitions

.01 For the purposes of the Contract Documents the following definitions shall apply:

Abnormal Weather means an extreme climatic condition characterized by wind speed, air temperature, precipitation, or snow fall depth, that is less than or greater than 1-1/2 standard deviations from the mean determined from the weather records of the 25-year period immediately preceding the tender opening date.

Actual Measurement means the field measurement of that quantity within the approved limits of the Work.

Addenda means any additions or change in the Tender documents issued by the Owner prior to Tender closing.

Additional Work means work not provided for in the Contract Documents and not considered by the Contract Administrator to be essential to the satisfactory completion of the Contract within its intended scope.

Agreement means the agreement between the Owner and the Contractor for the performance of the Work that is included in the Contract Documents.

Base means a layer of Material of specified type and thickness placed immediately below the pavement, driving surface, finished grade, curb and gutter, or sidewalk.

Business Day means any Day except Saturdays, Sundays, and statutory holidays.

Certificate of Subcontract Completion means the certificate issued by the Contract Administrator in accordance with clause GC 8.02.04.02, Certification of Subcontract Completion.

Certificate of Substantial Performance means the certificate issued by the Contract Administrator at Substantial Performance.

Change Directive means any written instruction signed by the Owner, or by the Contract Administrator where so authorized, directing that a Change in the Work or Extra Work be performed.

Change in the Work means the deletion, extension, increase, decrease, or alteration of lines; grades; dimensions; quantities; methods; drawings; substantial changes in geotechnical, subsurface, surface, or other conditions; changes in the character of the Work to be done; or Materials of the Work or part thereof, within the intended scope of the Contract.

Change Order means a written amendment to the Contract signed by the Contractor and the Owner, or the Contract Administrator where so authorized, covering contingencies, a Change in the Work, Extra Work, Additional Work; and establishing the basis for payment and the time allowed for the adjustment of the Contract Time.

Completion means contract completion as set out in the Construction Act.

Completion Certificate means the certificate issued by the Contract Administrator at Completion.

Completion Payment means the payment described more particularly in clause GC 8.02.04.07.

Construction Act means as set out in the Construction Act, R.S.O. 1990, c. C.30, as amended.

Constructor means, for the purposes of, and within the meaning of the Occupational Health and Safety Act, R.S.O. 1990, c.O.1, as amended and amendments thereto, the Contractor who executes the Contract.

Contract means the undertaking by the Owner and the Contractor to perform their respective duties, responsibilities, and obligations as prescribed in the Contract Documents.

Contract Administrator means the person, partnership, or corporation designated by the Owner to be the Owner's representative for the purposes of the Contract.

Contract Documents mean the executed Agreement between the Owner and the Contractor, Tender, General Conditions of Contract, Supplemental General Conditions of Contract, Standard Specifications, Special Provisions, Contract Drawings, Addenda incorporated in a Contract Document before the execution of the Agreement, such other documents as may be listed in the Agreement, and subsequent amendments to the Contract Documents made pursuant to the provisions of the Agreement.

Contract Drawings or **Contract Plans** mean drawings or plans, any Geotechnical Report, any Subsurface Report, and any other reports and information provided by the Owner for the Work, and without limiting the generality thereof, may include soil profiles, foundation investigation reports, reinforcing steel schedules, aggregate sources list, Quantity Sheets, and cross-sections.

Contract Time means the time stipulated in the Contract Documents for Substantial Performance or Completion of the Work, including any extension of time made pursuant to the Contract Documents.

Contractor means the person, partnership, or corporation undertaking the Work as identified in the Agreement.

Control Monument means any horizontal or vertical (benchmark) monument that is used to lay out the Work.

Controlling Operation means any component of the Work that, if delayed, may delay the completion of the Work.

Cut-Off Date means the date up to which payment shall be made for Work performed.

Daily Work Records mean daily Records detailing the number and categories of workers and hours worked or on standby, types and quantities of Equipment and number of hours in use or on standby, and description and quantities of Material utilized.

Day means a calendar day.

Drawings or **Plans** mean any Contract Drawings or Contract Plans, or any Working Drawings or Working Plans, or any reproductions of drawings or plans pertaining to the Work.

End Result Specification means specifications that require the Contractor to be responsible for supplying a product or part of the Work. The Owner accepts or rejects the final product or applies a price adjustment that is commensurate with the degree of compliance with the specification.

Engineer means a professional engineer licenced by the Professional Engineers of Ontario to practice in the Province of Ontario.

Equipment means all machinery and equipment used for preparing, fabricating, conveying or erecting the Work and normally referred to as construction machinery and equipment.

Estimate means a calculation of the quantity or cost of the Work or part of it depending on the context.

Extra Work means work not provided for in the Contract as awarded but considered by the Contract Administrator to be essential to the satisfactory completion of the Contract within its intended scope, including unanticipated Work required to comply with legislation and regulations that affect the Work.

Final Acceptance means the date on which the Contract Administrator determines that the Work has passed all inspection and testing requirements and the Contract Administrator is satisfied that the Contractor has rectified all imperfect Work and has discharged all of the Contractor's obligations under the Contract Documents.

Final Acceptance Certificate means the certificate issued by the Contract Administrator at Final Acceptance of the Work.

Final Detailed Statement means a complete evaluation prepared by the Contract Administrator showing the quantities, unit prices, and final dollar amounts of all items of Work completed under the Contract, including variations in tender items and Extra Work, all as set out in the same general form as the monthly Estimates.

Geotechnical Report means a report or other information identifying soil, rock, and ground water conditions in the area of any proposed Work.

Grade means the required elevation of that part of the Work.

Hand Tools means tools that are commonly called tools or implements of the trade and include small power tools.

Highway means a common and public highway any part of which is intended for or used by the general public for the passage of vehicles and includes the area between the lateral property lines thereof.

Inclement Weather means weather conditions or conditions resulting directly from weather conditions that prevent the Contractor from proceeding with a Controlling Operation.

Lot means a specific quantity of Material or a specific amount of construction normally from a single source and produced by the same process.

Lump Sum Item means a tender item indicating a portion of the Work for which payment will be made at a single tendered price. Payment is not based on a measured quantity, although a quantity may be given in the Contract Documents.

Major Item means any tender item that has a value, calculated based on its actual or estimated tender quantity, whichever is the larger, multiplied by its tender unit price, which is equal to or greater than the lesser of,

- a) \$100,000, or
- b) 5% of the total tender value calculated based on the total of all the estimated tender quantities and the tender unit prices.

Material means Material, machinery, equipment and fixtures forming part of the Work.

Monument means either a Property Monument or a Control Monument.

Owner means the party to the Contract for whom the Work is being performed, as identified in the Agreement, and includes, with the same meaning and import, "Authority."

Pavement means a wearing course or courses placed on the Roadway and consisting of asphaltic concrete, hydraulic cement concrete, Portland cement concrete, or plant or road mixed mulch.

Performance Bond means the type of security furnished to the Owner to guarantee completion of the Work in accordance with the Contract and to the extent provided in the bond.

Plan Quantity means that quantity as computed from within the boundary lines of the Work as shown in the Contract Documents.

Project means the construction of the Work as contemplated by this Contract.

Proper Invoice has the meaning as set out in the Construction Act.

Property Monument means any property bar, concrete pillar, rock post, cut cross or other object that marks the boundary between real property ownership.

Quality Assurance (QA) means a system or series of activities carried out by the Owner to ensure that Work meets the specified requirements.

Quality Control (QC) means a system or series of activities carried out by the Contractor, Subcontractor, supplier, and manufacturer to ensure that Work meets the specified requirements.

Quantity Sheet means a list of the quantities of Work to be done.

Quarried Rock means Material removed from an open excavation made in a solid mass of rock that, prior to removal, was integral with the parent mass.

Quarry means a place where aggregate has been or is being removed from an open excavation made in a solid mass of igneous, sedimentary, or metamorphic rock or any combination of these that, prior to removal, was integral with the parent areas.

Rate of Interest means the prejudgment interest rate determined under subsection 127(2) of the *Courts of Justice Act* or, if the contract or subcontract specifies a different interest rate for the purpose, the greater of the prejudgment interest rate and the interest rate specified in the contract or subcontract.

Records mean any books, payrolls, accounts, or other information that relate to the Work or any Change in the Work, Extra Work, Additional Work or claims arising therefrom.

Roadway means that part of the Highway designed or intended for use by vehicular traffic and includes the Shoulders.

Shoulder means that portion of the Roadway between the edge of the travelled portion of the wearing surface and the top inside edge of the ditch or fill slope.

Special Provisions mean directions containing requirements specific to the Work.

Standard Drawing or Standard Specification means a standard practice required and stipulated by the Owner for performance of the Work.

Statutory Holdback means the holdbacks required under the Construction Act.

Subbase means a layer of Material of specified type and thickness between the Subgrade and the Base.

Subcontractor means a person, partnership or corporation undertaking the execution of a part of the Work by virtue of an agreement with the Contractor.

Subgrade means the earth or rock surface, whether in cut or fill, as prepared to support the pavement structure, consisting of Base, Subbase, and Pavement.

Substantial Performance has the meaning as set out in the Construction Act, R.S.O. 1990, c. C.30, as amended.

Subsurface Report means a report or other information identifying the location of Utilities, concealed and adjacent structures, and physical obstructions that fall within the influence of the Work.

Superintendent means the Contractor's authorized representative in charge of the Work and who shall be a "competent person" within the meaning of the definition contained in the Occupational Health and Safety Act, R.S.O. 1990, c. 0.1, as amended.

Surety means the person, partnership or corporation, other than the Contractor, licensed in Ontario to transact business under the Insurance Act, R.S.O. 1990, c.1.8, as amended, executing a bond provided by the Contractor.

Tender means an offer in writing from the Contractor, submitted in the format prescribed by the Owner, to complete the Work.

Time and Material means costs calculated according to clause GC 8.02.05, Payment on a Time and Material Basis.

Utility means an aboveground or underground facility maintained by a municipality, public utility authority or regulated authority and includes services such as sanitary sewer, storm sewer, water, electric, gas, oil, steam, data transmission, telephone, and cable television.

Warranty Period means the applicable time period according to clause GC 7.16.02, Warranty.

Work means the total construction and related services required by the Contract Documents.

Working Area means all the lands and easements owned or acquired by the Owner for the construction of the Work.

Working Day means any Day,

- a) except Saturdays, Sundays and statutory holidays;
- b) except a Day as determined by the Contract Administrator, on which the Contractor is prevented by inclement weather or conditions resulting immediately therefrom, from proceeding with a Controlling Operation. For the purposes of this definition, this shall be a Day during which the Contractor cannot proceed with at least 60% of the normal labour and Equipment force effectively engaged on the Controlling Operation for at least 5 hours;
- c) except a Day on which the Contractor is prevented from proceeding with a Controlling Operation, as determined by the Contract Administrator by reason of,
 - i. any breach of the Contract by the Owner or if such prevention is due to the Owner, another contractor hired by the Owner, or an employee of any one of them, or by anyone else acting on behalf of the Owner.
 - ii. non-delivery of Owner supplied Materials.
 - iii. any cause beyond the reasonable control of the Contractor that can be substantiated by the Contractor to the satisfaction of the Contract Administrator.

Working Drawings or Working Plans means any Drawings or Plans prepared by the Contractor for the execution of the Work and may, without limiting the generality thereof, include formwork, falsework, and shoring plans; Roadway protection plans; shop drawings; shop plans; or erection diagrams.

GC 1.05 Ontario Traffic Manual

- .01 All references in the Contract Documents to the MUTCD, including all Parts and Divisions thereof, or MTO Traffic Control Manual for Roadway Work Operations, or Traffic Control Manual for Roadway Operations Field Edition are hereby deleted and replaced by all currently available books which make up the Ontario Traffic Manual.

GC 1.06 Final Acceptance

- .01 For the purposes of determining whether Final Acceptance has occurred, the Contract Administrator shall not take into account, in determining the discharge of the Contractor's obligations, any warranty obligation of the Contractor to the extent that the warranty extends beyond 12 months after Substantial Performance.

GC 1.07 Interpretation of Certain Words

- .01 The words "acceptable," "approval," "authorized," "considered necessary," "directed," "required," "satisfactory," or words of like import, shall mean approval of, directed, required, considered necessary, or authorized by and acceptable or satisfactory to the Contract Administrator, unless the context clearly indicates otherwise.

SECTION GC 2.0 - CONTRACT DOCUMENTS

GC 2.01 Reliance on Contract Documents

- .01 The Owner warrants that the information furnished in the Contract Documents can be relied upon with the following limitations or exceptions:
- a) Based on available information at the time of the contract, the location of all mainline underground Utilities that may affect the Work shall be shown to a tolerance of:
 - i. 1 m horizontal, and
 - ii. 0.3 m vertical
- .02 The Owner does not warrant or make any representation with respect to:
- a) interpretations of data or opinions expressed in any Subsurface Report available for the perusal of the Contractor, that are not included as part of the Contract Documents, and
 - b) other information specifically excluded from this warranty.

GC 2.02 Order of Precedence

- .01 In the event of any inconsistency or conflict in the contents of the following documents, such documents shall take precedence and govern in the following descending order:
- a) Agreement
 - b) Addenda
 - c) Special Provisions
 - d) Contract Drawings
 - e) Standard Specifications
 - f) Standard Drawings
 - g) Tender
 - h) Supplemental General Conditions
 - i) OPSS.MUNI 100 General Conditions of Contract
 - j) Working Drawings

Later dates shall govern within each of the above categories of documents.

- .02 In the event of any conflict among or inconsistency in the information shown on Drawings, the following rules shall apply:
- a) Dimensions shown in figures on a Drawing shall govern where they differ from dimensions scaled from the same Drawing;
 - b) Drawings of larger scale shall govern over those of smaller scale;
 - c) Detailed Drawings shall govern over general Drawings; and

- d) Drawings of a later date shall govern over those of an earlier date in the same series.
- .03 In the event of any inconsistency or conflict in the contents of Standard Specifications the following descending order of precedence shall govern:
- a) Owner's Standard Specifications
 - b) Ontario Provincial Standard Specifications
 - c) Other standards referenced in OPSSs and OPSDs (e.g., CSA, CGSB, ASTM, and ANSI).
- .04 The Contract Documents are complementary, and what is required by any one shall be as binding as if required by all.

SECTION GC 3.0 - ADMINISTRATION OF THE CONTRACT

GC 3.01 Contract Administrator's Authority

- .01 The Contract Administrator shall be the Owner's representative during construction and until the issuance of the Completion Certificate or the issuance of the Final Acceptance Certificate, whichever is later. All instructions to the Contractor, including instructions from the Owner, shall be issued by the Contract Administrator. The Contract Administrator shall have the authority to act on behalf of the Owner only to the extent provided in the Contract Documents.
- .02 All claims, disputes and other matters in question relating to the performance and the quality of the Work or the interpretation of the Contract Documents shall be referred to the Contract Administrator in writing by the Contractor.
- .03 The Contract Administrator may inspect the Work for its conformity with the Contract Documents, and to record the necessary data to establish payment quantities under the schedule of tender quantities and unit prices or to assess the value of the Work completed in the case of a lump sum price Contract.
- .04 The Contract Administrator shall provide an estimate of the amounts owing to the Contractor under the Contract as provided for in section GC 8.0, Measurement and Payment.
- .05 The Contract Administrator, to not cause delay in the schedule, shall, with reasonable promptness, review and take appropriate action upon the Contractor's submissions such as shop drawings, product data, and samples in accordance with the Contract Documents .
- .06 The Contract Administrator shall investigate all allegations of a Change in the Work made by the Contractor and issue appropriate instructions.
- .07 The Contract Administrator shall prepare Change Directives and Change Orders for the Owner's approval.
- .08 Upon written application by the Contractor, the Contract Administrator and the Contractor shall jointly conduct an inspection of the Work to establish the date of Substantial Performance of the Work or the date of Completion of the Work or both.
- .09 The Contract Administrator shall be, in the first instance, the interpreter of the Contract Documents and the judge of the performance thereunder by both parties to the Contract. Interpretations and decisions of the Contract Administrator shall be consistent with the intent of the Contract Documents and, in making these decisions, the Contract Administrator shall not show partiality to either party.
- .10 The Contract Administrator shall have the authority to reject any part of the Work or Material that does not conform to the Contract Documents.
- .11 In the event that the Contract Administrator determines that any part of the Work performed by the Contractor is defective, whether the result of poor workmanship the use of defective Material or damage through carelessness or other act or omission of the Contractor and whether or not incorporated in the Work or otherwise fails to conform to the Contract Documents, then the Contractor shall if directed by the Contract Administrator promptly, as directed by the Contract Administrator, remove the Work and replace, make good, or re-execute the Work at no additional cost to the Owner.
- .12 Any part of the Work destroyed or damaged by such removals, replacements, or re-executions shall be made good, promptly, at no additional cost to the Owner.

- .13 If, in the opinion of the Contract Administrator it is not expedient to correct defective Work or Work not performed in accordance with the Contract Documents, the Owner may deduct from monies otherwise due to the Contractor the difference in value between the Work as performed and that called for by the Contract Documents amount that will be determined in the first instance by the Contract Administrator.
- .14 Notwithstanding any inspections made by the Contract Administrator or the issuance of any certificates or the making of any payment by the Owner, the failure of the Contract Administrator to reject any defective Work or Material shall not constitute acceptance of defective Work or Material.
- .15 The Contract Administrator shall have the authority to temporarily suspend the Work for such reasonable time as may be necessary:
 - a) to facilitate the checking of any portion of the Contractor's construction layout;
 - b) to facilitate the inspection of any portion of the Work; or
 - c) for the Contractor to remedy its non-compliance with any provisions of the Contract Documents.

The Contractor shall not be entitled to any compensation for suspension of the Work in these circumstances.
- .16 The Owner has the right to terminate the Contract for wilful or persistent violation by the Contractor or its workers of any applicable laws or bylaws, including but not limited to, the Occupational Health and Safety Act legislation and regulations, Workplace Safety and Insurance Board Act, and Regulation 347 of the Environmental Protection Act.
- .17 If the Contract Administrator determines that any worker employed on the Work is incompetent, as defined by the Occupational Health and Safety Act, or is disorderly, then the Contract Administrator shall provide written notice to the Contractor and the Contractor shall immediately remove the worker from the Working Area. Such worker shall not return to the Working Area without the prior written consent of the Contract Administrator.

GC 3.02 Working Drawings

- .01 The Contractor shall arrange for the preparation of clearly identified and dated Working Drawings as called for by the Contract Documents.
- .02 The Contractor, to not cause delay in the Work, shall submit Working Drawings to the Contract Administrator with reasonable promptness and in orderly sequence . If either the Contractor or the Contract Administrator so requests, they shall jointly prepare a schedule fixing the dates for submission and return of Working Drawings. Working Drawings shall be submitted in printed form. At the time of submission, the Contractor shall notify the Contract Administrator in writing of any deviations from the Contract Documents that exist in the Working Drawings.
- .03 The Contract Administrator shall review and return Working Drawings in accordance with an agreed upon schedule, or otherwise, with reasonable promptness so as not to cause delay.
- .04 The Contract Administrator's review shall be to check for conformity to the design concept and for general arrangement only and such review shall not relieve the Contractor of responsibility for errors or omissions in the Working Drawings or of responsibility for meeting all requirements of the Contract Documents, unless a deviation on the Working Drawings has been approved in writing by the Contract Administrator.

- .05 The Contractor shall make any changes in Working Drawings that the Contract Administrator may require to make the Working Drawings consistent with the Contract Documents and resubmit, unless otherwise directed by the Contract Administrator. When resubmitting, the Contractor shall notify the Contract Administrator in writing of any revisions other than those requested by the Contract Administrator.
- .06 Work related to the Working Drawings shall not proceed until the Working Drawings have been signed and dated by the Contract Administrator.
- .07 The Contractor shall keep one set of the reviewed Working Drawings, marked as above, at the site at all times.

GC 3.03 Right of the Contract Administrator to Modify Methods and Equipment

- .01 The Contractor shall, when requested in writing, make alterations in the method, Equipment, or work force at any time the Contract Administrator considers the Contractor's actions to be unsafe, or damaging to either the Work or existing facilities or the environment.
- .02 The Contractor shall, when requested in writing, alter the sequence of its operations on the Contract so as to avoid interference with work being performed by others.
- .03 Notwithstanding the foregoing, the Contractor shall ensure that all necessary safety precautions and protection are maintained throughout the Work.

GC 3.04 Emergency Situations

- .01 The Contract Administrator has the right to determine the existence of an emergency situation and, when such an emergency situation is deemed to exist, the Contract Administrator may instruct the Contractor to take action to remedy the situation. If the Contractor does not take timely action or, if the Contractor is not available, the Contract Administrator may direct others to remedy the situation.
- .02 If the emergency situation was the fault of the Contractor, the remedial Work shall be done at the Contractor's expense. If the emergency situation was not the fault of the Contractor, the Owner shall pay for the remedial Work.

GC 3.05 Layout Information

- .01 The Contract Administrator shall provide background information, including without limitation, baseline and benchmark information, to facilitate the general location, alignment, elevation and layout of the Work.
- .02 The Contract Administrator shall provide pre and post construction inventories of all Monuments, etc. that are located within the Working Area.
- .03 The Owner shall be responsible only for the correctness of the layout information provided by the Contract Administrator.

GC 3.06 Extension of Contract Time

- .01 An application for an extension of Contract Time shall be made in writing by the Contractor to the Contract Administrator as soon as the need for such extension becomes evident and at least 15 Days prior to the expiration of the Contract Time. The application for an extension of Contract Time shall enumerate the reasons and state the length of extension required.

- .02 Circumstances suitable for consideration of an extension of Contract Time include the following:
 - a) Delays, subsection GC 3.07.
 - b) Changes in the Work, clause GC 3.10.01.
 - c) Extra Work, clause GC 3.10.02.
 - d) Additional Work, clause GC 3.10.03.
- .03 The Contract Administrator shall, in reviewing an application for an extension to the Contract Time, consider whether the delays, Changes in the Work, Extra Work, or Additional Work involve a Controlling Operation.
- .04 The Contract Time shall be extended for such additional time as may be recommended by the Contract Administrator and deemed fair and reasonable by the Owner.
- .05 The terms and conditions of the Contract shall continue for such extension of Contract Time.

GC 3.07 Delays

- .01 If the Contractor is delayed in the performance of the Work by,
 - a) war, blockades, and civil commotions;
 - b) errors in the Contract Documents;
 - c) an act or omission of the Owner or Contract Administrator, or anyone employed or engaged by them directly or indirectly, contrary to the provisions of the Contract Documents;
 - d) a stop work order issued by a court or public authority, provided that such order was not issued as the result of an act or omission of the Contractor or anyone employed or engaged by the Contractor directly or indirectly;
 - e) the Contract Administrator giving notice under section GC 7.0, Suspension of Work;
 - f) Abnormal Weather; or
 - g) archaeological finds, in accordance with subsection GC 3.15, Archaeological Finds,

then the Contractor shall be reimbursed by the Owner for reasonable costs incurred by the Contractor as the result of such delay, provided that in the case of an application for an extension of Contract Time due to Abnormal Weather, the Contractor shall, with the Contractor's application, submit evidence from Environment Canada in support of such application. Extension of Contract Time may be granted in accordance with subsection GC 3.06, Extension of Contract Time.
- .02 If the Work is delayed by labour disputes, strikes or lock-outs, including lock-outs decreed or recommended to its members by a recognized contractor's association, of which the Contractor is a member or to which the Contractor is otherwise bound, which are beyond the Contractor's control, then the Contract Time shall be extended in accordance with subsection GC 3.06, Extension of Contract Time.
- .03 In no case shall the extension of Contract Time be less than the time lost as the result of the event causing the delay, unless a shorter extension is agreed to by the Contractor. The Contractor shall not be entitled to payment for costs incurred as the result of such delays unless such delays are the result of actions by the Owner.

- .04 The Contractor shall not be entitled to payment for the cost of delays incurred as a result of a dispute between the Contractor and Owner. The Contractor shall execute the Work and may pursue resolution of the dispute in accordance with subsection GC 3.13, Claims, Negotiations, Mediations.

GC 3.08 Assignment of Contract

- .01 The Contractor shall not assign the Contract, either in whole or in part, without the prior written consent of the Owner.

GC 3.09 Subcontracting by the Contractor

- .01 Subject to clause GC 3.09.03, Subcontracting by the Contractor, the Contractor may subcontract any part of the Work, in accordance with the Contract Documents and any limitations specified therein.
- .02 The Contractor shall notify the Contract Administrator in writing in 10 Days prior to the start of construction of the intention to subcontract. Such notification shall identify the part of the Work, and the Subcontractor with whom it is intended.
- .03 The Contract Administrator shall, within 5 Days of receipt of such notification, accept or reject the intended Subcontractor. The rejection shall be in writing and shall include the reasons for the rejection.
- .04 The Contractor shall not, without the written consent of the Owner, change a Subcontractor who has been engaged in accordance with this subsection.
- .05 The Contractor shall preserve and protect the rights of the Owner under the Contract Documents with respect to that part of the Work to be performed under subcontract and shall,
- a) enter into agreements with the intended Subcontractors to require them to perform their Work in accordance with the Contract Documents; and
 - b) be as fully responsible to the Owner for acts and omissions of the Contractor's Subcontractors and of persons directly or indirectly employed by them as for acts and omissions of persons directly employed by the Contractor.
- .06 The Owner's consent to subcontracting by the Contractor shall not be construed to relieve the Contractor from any obligation under the Contract and shall not impose any liability upon the Owner. Nothing contained in the Contract Documents shall create a contractual relationship between a Subcontractor and the Owner.

GC 3.10 Changes

GC 3.10.01 Changes in the Work

- .01 The Owner, or the Contract Administrator where so authorized, may, by order in writing, make a Change in the Work without invalidating the Contract. The Contractor shall not be required to proceed with a Change in the Work until in receipt of a Change Order or Change Directive. Upon the receipt of such Change Order or Change Directive the Contractor shall proceed with the Change in the Work.
- .02 The Contractor may apply for an extension of Contract Time according to the terms of clause GC 3.06, Extension of Contract Time.

- .03 If the Change in the Work relates solely to quantities, payment for that part of the Work shall be made according to the conditions specified in clause GC 8.01.02, Variations in Tender Quantities. If the Change in the Work does not solely relate to quantities, then either the Owner or the Contractor may initiate negotiations upwards or downwards for the adjustment of the Contract price in respect of the Change in the Work pursuant to subsection GC 3.13, Claims, Negotiations, Mediation or payment may be made according to the conditions contained in clause GC 8.02.05, Payment on a Time and Material Basis.

GC 3.10.02 Extra Work

- .01 The Owner, or Contract Administrator where so authorized, may instruct the Contractor to perform Extra Work without invalidating the Contract. The Contractor shall not be required to proceed with the Extra Work until in receipt of a Change Order or Change Directive. Upon receipt of such Change Order or Change Directive the Contractor shall proceed with the Extra Work.
- .02 The Contractor may apply for an extension of Contract Time according to the terms of clause GC 3.06, Extension of Contract Time.
- .03 Either the Owner or Contractor may initiate negotiations upwards or downwards for the payment for the Extra Work pursuant to subsection GC 3.13, Claims, Negotiations, Mediation, or payment may be made according to the conditions contained in clause GC 8.02.05, Payment on a Time and Material Basis.

GC 3.10.03 Additional Work

- .01 The Owner, or Contract Administrator where so authorized, may request the Contractor to perform Additional Work without invalidating the Contract. If the Contractor agrees to perform Additional Work, the Contractor shall proceed with such Additional Work upon receipt of a Change Order.
- .02 The Contractor may apply for an extension of Contract Time according to the terms of subsection GC 3.06, Extension of Contract Time.
- .03 Payment for the Additional Work may be negotiated pursuant to subsection GC 3.13, Claims, Negotiations, Mediation, or payment may be made according to the conditions contained in clause GC 8.02.05, Payment on a Time and Material Basis.

GC 3.11 Notices

- .01 Any notice permitted or required to be given to the Contract Administrator or the Superintendent in respect of the Work shall be deemed to have been given to and received by the addressee on the date of delivery if delivered by hand, email, or by facsimile transmission and on the fifth Day after the date of mailing, if sent by mail.
- .02 The Contractor and the Owner shall provide each other with the mail and email addresses; cell phone, and telephone numbers for the Contract Administrator and the Superintendent at the commencement of the Work, and update as necessary.
- .03 In the event of an emergency situation or other urgent matter the Contract Administrator or the Superintendent may give a verbal notice, provided that such notice is confirmed in writing within 2 Days.
- .04 Any notice permitted or required to be given to the Owner or the Contractor shall be given in accordance with the notice provision of the Contract.

GC 3.12 Use and Occupancy of the Work Prior to Substantial Performance

- .01 Where it is not contemplated elsewhere in the Contract Documents, the Owner may use or occupy the Work or any part thereof prior to Substantial Performance, provided that at least 30 Days written notice has been given to the Contractor.
- .02 The use or occupancy of the Work or any part thereof by the Owner prior to Substantial Performance shall not constitute an acceptance of the Work or parts so occupied. In addition, the use or occupancy of the Work shall not relieve the Contractor or the Contractor's Surety from any liability that has arisen, or may arise, from the performance of the Work in accordance with the Contract Documents. The Owner shall be responsible for any damage that occurs because of the Owner's use or occupancy. Such use or occupancy of any part of the Work by the Owner does not waive the Owner's right to charge the Contractor liquidated damages in accordance with the terms of the Contract.

GC 3.13 Claims, Negotiations, Mediation

GC 3.13.01 Continuance of the Work

- .01 Unless the Contract has been terminated or completed, the Contractor shall in every case, after serving or receiving any notification of a claim or dispute, verbal or written, continue to proceed with the Work with due diligence and expedition. It is understood by the parties that such action shall not jeopardize any claim it may have.

GC 3.13.02 Record Keeping

- .01 Immediately upon commencing Work that may result in a claim, the Contractor shall keep Daily Work Records during the course of the Work, sufficient to substantiate the Contractor's claim, and the Contract Administrator shall keep Daily Work Records to be used in assessing the Contractor's claim, all in accordance with clause GC 8.02.07, Records.
- .02 The Contractor and the Contract Administrator shall attempt to reconcile their respective Daily Work Records on a daily basis, to simplify review of the claim, when submitted. If the Contractor and the Contract Administrator fail to reconcile their respective Daily Work Records, then the Contractor shall submit its Daily Work Records as part of its claim, whereby the resolution of the dispute about the Daily Work Records shall not be resolved until there is a resolution of the claim.
- .03 The keeping of Daily Work Records by the Contract Administrator or the reconciling of such Daily Work Records with those of the Contractor shall not be construed to be acceptance of the claim.

GC 3.13.03 Claims Procedure

- .01 The Contractor shall give verbal notice of any situation that may lead to a claim for additional payment immediately upon becoming aware of the situation.
- .02 The Contractor shall provide written notice within 7 Days of the commencement of any part of the Work that may be affected by the situation.
- .03 The Contractor shall submit detailed claims as soon as reasonably possible and in any event no later than 30 Days or such time as mutually agreed after completion of the Work affected by the situation. The detailed claim shall:
 - a) identify the item or items in respect of which the claim arises;
 - b) state the grounds, contractual or otherwise, upon which the claim is made; and

- c) include the Records maintained by the Contractor supporting such claim.
- .04 Within 30 Days of the receipt of the Contractor's detailed claim, the Contract Administrator may request the Contractor to submit any further and other particulars as the Contract Administrator considers necessary to assess the claim. The Contractor shall submit the requested information within 30 Days of receipt of such request.
- .05 Within 90 Days of receipt of the detailed claim, the Contract Administrator shall advise the Contractor, in writing, of the Contract Administrator's opinion regarding the validity of the claim.

GC 3.13.04 Negotiations

- .01 The parties shall make all reasonable efforts to resolve their dispute by amicable negotiations and agree to provide, without prejudice, open and timely disclosure of relevant facts, information, and documents to facilitate these negotiations.
- .02 Should the Contractor disagree with the opinion given in clause GC 3.13.03.05, with respect to any part of the claim, the Contract Administrator shall enter into negotiations with the Contractor to resolve the matters in dispute. Where a negotiated settlement cannot be reached and it is agreed that payment cannot be made on a Time and Material basis in accordance with clause GC 8.02.05, Payment on a Time and Material Basis, the parties shall proceed in accordance with clause GC 3.13.05, Mediation, or subsection GC 3.14, Arbitration.
- .03 Prior to the expiry of 30 Business Days from the date of receipt of the Contractors claim, the Contract Administrator shall provide a written response to the Contractor stating the Contract Administrator's final price for the Change Order and an explanation of the rationale and basis of the Contract Administrator's position which shall be deemed to be the initial site response.

GC 3.13.05 Mediation

- .01 If a claim is not resolved satisfactorily through the negotiation stage noted in clause GC 3.13.04, Negotiations, within a period of 30 Days following the opinion given in clause GC 3.13.03.05, and the Contractor wishes to pursue the issue further, the parties may, upon mutual agreement, utilize the services of an independent third-party mediator.
- .02 The mediator shall be mutually agreed upon by the Owner and Contractor.
- .03 The mediator shall be knowledgeable regarding the area of the disputed issue. The mediator shall meet with the parties together or separately, as necessary, to review all aspects of the issue. In a final attempt to assist the parties in resolving the issue themselves prior to proceeding to arbitration the mediator shall provide, without prejudice, a non-binding recommendation for settlement.
- .04 The review by the mediator shall be completed within 90 Days following the opinion given in clause GC 3.13.03.05.
- .05 Each party is responsible for its own costs related to the use of the mediation process. The cost of the third-party mediator shall be equally shared by the Owner and Contractor.

GC 3.13.06 Payment

- .01 Payment of the claim shall be made no later than 28 Days after the date of resolution of the claim or dispute. Such payment shall be made according to the terms of section GC 8.0, Measurement and Payment.

GC 3.13.07 Rights of Both Parties

- .01 It is agreed that no action taken under subsection GC 3.13, Claims, Negotiations, Mediation, by either party shall be construed as a renunciation or waiver of any of the rights or recourse available to the parties, provided that the requirements set out in this subsection are fulfilled.
- .02 It is further agreed that the parties may at any time resort to the adjudication procedure contained in the Construction Act.

GC 3.14 Arbitration

GC 3.14.01 Conditions of Arbitration

- .01 If a claim is not resolved satisfactorily through the negotiation stage noted in clause GC 3.13.04, Negotiations, or the mediation stage noted in clause GC 3.13.05, Mediation, either party may invoke the provisions of subsection GC 3.14, Arbitration, by giving written notice to the other party.
- .02 Notification that arbitration shall be implemented to resolve the issue shall be communicated in writing as soon as possible and no later than 60 Days following the opinion given in clause GC 3.13.03.05. Where the use of a third-party mediator was implemented, notification shall be within 120 Days of the opinion given in clause GC 3.13.03.05.
- .03 The parties shall be bound by the decision of the arbitrator.
- .04 The rules and procedures of the Arbitration Act, 1991, S.O. 1991, c.17, as amended, shall apply to any arbitration conducted hereunder except to the extent that they are modified by the express provisions of subsection GC 3.14, Arbitration.

GC 3.14.02 Arbitration Procedure

- .01 The following provisions are to be included in the agreement to arbitrate and are subject only to such right of appeal as exist where the arbitrator has exceeded his or her jurisdiction or have otherwise disqualified him or herself:
 - a) All existing actions in respect of the matters under arbitration shall be stayed pending arbitration;
 - b) All outstanding claims and matters to be settled are to be set out in a schedule to the agreement. Only such claims and matters as are in the schedule shall be arbitrated; and
 - c) Before proceeding with the arbitration, the Contractor shall confirm that all matters in dispute are set out in the schedule.

GC 3.14.03 Appointment of Arbitrator

- .01 The arbitrator shall be mutually agreed upon by the Owner and Contractor to adjudicate the dispute.
- .02 Where the Owner and Contractor cannot agree on a sole arbitrator within 30 Days of the notification of arbitration noted in clause GC 3.14.01.02, the Owner and the Contractor shall each choose an appointee within 37 Days of the notice of arbitration.
- .03 The appointees shall mutually agree upon an arbitrator to adjudicate the dispute within 15 Days after the last appointee was chosen or they shall refer the matter to the ADR Institute of Ontario (ADRIO), which may select an arbitrator to adjudicate the dispute within 7 Days of being requested to do so.
- .04 The arbitrator shall not be interested financially in the Contract nor in either party's business and shall not be employed by either party.

- .05 The arbitrator may appoint independent experts and any other persons to assist him or her.
- .06 The arbitrator is not bound by the rules of evidence that govern the trial of cases in court but may hear and consider any evidence that the arbitrator considers relevant.
- .07 The hearing shall commence within 90 Days of the appointment of the arbitrator.

GC 3.14.04 Costs

- .01 The arbitrator's fee shall be equally shared by the Owner and the Contractor.
- .02 The fees of any independent experts and any other persons appointed to assist the arbitrator shall be shared equally by the Owner and the Contractor.
- .03 The arbitration hearing shall be held in a place mutually agreed upon by both parties or in the event the parties do not agree, a site shall be chosen by the arbitrator. The cost of obtaining appropriate facilities shall be shared equally by the Owner and the Contractor.
- .04 The arbitrator may, in his or her discretion, award reasonable costs, related to the arbitration.

GC 3.14.05 The Decision

- .01 The reasoned decision shall be made in writing within 90 Days of the conclusion of the hearing. An extension of time to make a decision may be granted with consent of both parties. Payment shall be made in accordance with clause GC 3.13.06, Payment.

GC 3.15 Archaeological Finds

- .01 If the Contractor's operations expose any items that may indicate an archaeological find, such as but not limited to building remains, hardware, accumulations of bones, pottery, or arrowheads, the Contractor shall immediately notify the Contract Administrator and suspend operations within the area identified by the Contract Administrator. Notification may be verbal provided that such notice is confirmed in writing within 2 Days. Work shall remain suspended within that area until otherwise directed by the Contract Administrator in writing, in accordance with subsection GC 7.09, Suspension of Work.
- .02 Any delay in the completion of the Contract that is caused by such a suspension of Work shall be considered to be beyond the Contractor's control in accordance with clause GC 3.07.01.
- .03 Any Work directed or authorized in connection with an archaeological find shall be considered as Extra Work in accordance with clause GC 3.10.02, Extra Work.
- .04 The Contractor shall take all reasonable action to minimize additional costs that may accrue as a result of any work stoppage.

SECTION GC 4.0 - OWNER'S RESPONSIBILITIES AND RIGHTS

GC 4.01 Working Area

.01 The Owner shall acquire all property rights that are deemed necessary by the Owner for the construction of the Work, including temporary working easements, and shall indicate the full extent of the Working Area on the Contract Drawings.

GC 4.02 Approvals and Permits

.01 The Owner shall pay for all plumbing and building permits.

.02 The Owner shall obtain and pay for all permits, licences, and certificates solely required for the design of the Work.

GC 4.03 Management and Disposition of Materials

.01 The Owner shall identify in the Contract Documents the Materials to be moved within or removed from the Working Area and any characteristics of those Materials that necessitates special Materials management and disposition.

.02 In accordance with regulations under the Occupational Health and Safety Act, R.S.O. 1990, c.O.1, as amended, the Owner advises that,

- a) the designated substances silica, lead, and arsenic are generally present throughout the Working Area occurring naturally or as a result of vehicle emissions;
- b) the designated substance asbestos may be present in cement products, asphalt, and conduits for Utilities;
- c) the following hazardous materials are ordinarily present in construction activities: limestone, gypsum, marble, mica, and Portland cement; and
- d) exposure to these substances may occur as a result of activities by the Contractor such as sweeping, grinding, crushing, drilling, blasting, cutting, and abrasive blasting.

.03 The Owner shall identify in the Contract Documents any designated substances or hazardous materials other than those identified above and their location in the Working Area.

.04 If the Owner or Contractor discovers or is advised of the presence of designated substances or hazardous Materials that are in addition to those listed in clause GC 4.03.02, or not clearly identified in the Contract Documents according to clause GC 4.03.03, then verbal notice shall be provided to the other party immediately with written confirmation within 2 Days. The Contractor shall stop Work in the area immediately and shall determine the necessary steps required to complete the Work in accordance with applicable legislation and regulations.

.05 The Owner shall be responsible for any reasonable additional costs of removing, managing and disposing of any Material not identified in the Contract Documents, or where conditions exist that could not have been reasonably foreseen at the time of tendering. All work under this paragraph shall be deemed to be Extra Work.

- .06 Prior to commencement of the Work, the Owner shall provide to the Contractor a list of those products controlled under the Workplace Hazardous Materials Information System (WHMIS), that the Owner may supply or use on the Contract, together with copies of the Safety Data Sheets for these products. All containers used in the application of products controlled under WHMIS shall be labelled. The Owner shall notify the Contractor in writing of changes to the list and provide relevant Safety Data Sheets.
- .07 Unless expressly permitted in the Contract Documents, the Contractor shall not bring onto the Work Area any designated substance or hazardous Material per OHSA without the prior written authorization of the Contract Administrator.
- .08 The Contractor shall use all reasonable care to avoid spilling or disturbing any designated substances or hazardous Material per OHSA.

GC 4.04 Construction Affecting Railway Property

- .01 The Owner shall pay the costs of all flagging and other traffic control measures required and provided by the railway company unless such costs are solely a function of the Contractor's chosen method of completing the Work.
- .02 Every precaution shall be taken by the Contractor to protect all railway property at track crossings; or otherwise, on which construction operations are to take place in accordance with the terms of this Contract.
- .03 The Contractor shall be required to conduct the construction operations in such a manner as to avoid a possibility of damaging any railway property in the vicinity of the Works. Every reasonable precaution shall be taken by the Contractor to ensure the safety of the workers, Subcontractors, and Equipment, as well as railway property throughout the duration of the Contract.

GC 4.05 Default by the Contractor

- .01 If the Contractor fails to commence the Work within 14 Days of a formal order to commence Work signed by the Contract Administrator or, upon commencement of the Work, should neglect to prosecute the Work properly or otherwise fails to comply with the requirements of the Contract and, if the Contract Administrator has given a written statement to the Owner and Contractor that sufficient cause exists to justify such action, the Owner may, without prejudice to any other right or remedy the Owner may have, notify the Contractor in writing that the Contractor is in default of the Contractor's contractual obligations and instruct the Contractor to correct the default in the 5 Working Days immediately following the receipt of such notice.
- .02 If the Contractor is adjudged bankrupt, or makes a general assignment for the benefit of creditors because of the Contractor's insolvency or if a receiver is appointed because of the Contractor's insolvency, the Owner may, without prejudice to any other right or remedy the Owner may have, by giving the Contractor or receiver or trustee in bankruptcy notice in writing, terminate the Contract.

GC 4.06 Contractor's Right to Correct a Default

- .01 The Contractor shall have the right within the 5 Working Days following the receipt of a notice of default to correct the default and provide the Owner with satisfactory proof that appropriate corrective measures have been taken.
- .02 If the Owner determines that the correction of the default cannot be completed within the 5 Working Days following receipt of the notice, the Contractor shall not be in default if the Contractor,
 - a) commences the correction of the default within the 5 Working Days following receipt of the notice;

- b) provides the Owner with a schedule acceptable to the Owner for the progress of such correction; and
- c) completes the correction in accordance with such schedule.

GC 4.07 Owner's Right to Correct Default

- .01 If the Contractor fails to correct the default within the time specified in subsection GC 4.06, Contractor's Right to Correct a Default, or subsequently agreed upon, the Owner, without prejudice to any other right or remedy the Owner may have, may correct such default and deduct the cost thereof, as certified by the Contract Administrator, from any payment then or thereafter due to the Contractor.

GC 4.08 Termination of Contractor's Right to Continue the Work

- .01 Where the Contractor fails to correct a default within the time specified in subsection GC 4.06, Contractor's Right to Correct a Default, or subsequently agreed upon, the Owner, without prejudice to any other right or remedy the Owner may have, may terminate the Contractor's right to continue the Work in whole or in part by giving written notice to the Contractor.
- .02 If the Owner terminates the Contractor's right to continue with the Work in whole or in part, the Owner shall be entitled to,
 - a) take possession of the Working Area or that portion of the Working Area devoted to that part of the Work terminated;
 - b) utilize any Material within the Working Area;
 - d) withhold further payments to the Contractor with respect to the Work or the portion of the Work withdrawn from the Contractor until the Work or portion thereof withdrawn is completed;
 - d) charge the Contractor the additional cost over the Contract price of completing the Work or portion thereof withdrawn from the Contractor, as certified by the Contract Administrator and any additional compensation paid to the Contract Administrator for such additional service arising from the correction of the default;
 - e) charge the Contractor a reasonable allowance, as determined by the Contract Administrator, to cover correction to the Work performed by the Contractor that may be required under subsection GC 7.16, Warranty;
 - f) charge the Contractor for any damages the Owner sustained as a result of the default; and
 - g) charge the Contractor the amount by which the cost of corrections to the Work under subsection GC 7.16, Warranty, exceeds the allowance provided for such corrections.

GC 4.09 Final Payment to Contractor

- .01 If the Owner's cost to correct and complete the Work in whole or in part is less than the amount withheld from the Contractor under subsection GC 4.08, Termination of Contractor's Right to Continue the Work, the Owner shall pay the balance to the Contractor as soon as the final accounting for the Contract is complete.

GC 4.10 Termination of the Contract

- .01 Where the Contractor is in default of the Contract the Owner shall, without prejudice to any other right or remedy the Owner may have, terminate the Contract by giving written notice of termination to the Contractor, the Surety, and any trustee or receiver acting on behalf of the Contractor's estate or creditors.
- .02 If the Owner elects to terminate the Contract, the Owner shall provide the Contractor and the trustee or receiver with a complete accounting to the date of termination.

GC 4.11 Continuation of Contractor's Obligations

- .01 The Contractor's obligation under the Contract as to quality, correction, and warranty of the Work performed prior to the time of termination of the Contract or termination of the Contractor's right to continue with the Work in whole or in part shall continue to be in force after such termination.

GC 4.12 Use of Performance Bond

- .01 If the Contractor is in default of the Contract and the Contractor has provided a Performance Bond, the provisions of section GC 4.0, Owner's Responsibilities and Rights, shall be exercised in accordance with the conditions of the Performance Bond.

GC 4.13 Payment Adjustment

- .01 If any situation should occur in the performance of the Work that would result in a Change in the Work, the Owner shall be entitled to an adjustment and those adjustments shall be managed in accordance with clause GC 3.10.01, Changes in the Work.

SECTION GC 5.0 - MATERIAL

GC 5.01 Supply of Material

- .01 All Material necessary for the proper completion of the Work, except that listed as being supplied by the Owner, shall be supplied by the Contractor. The Contract price for the appropriate tender items shall be deemed to include full compensation for the supply and delivery of such Material.

GC 5.02 Quality of Material

- .01 All Material supplied by the Contractor shall be new, unless otherwise specified in the Contract Documents.
- .02 Material supplied by the Contractor shall conform to the requirements of the Contract.
- .03 As specified in the Contract Documents or as requested by the Contract Administrator, the Contractor shall make available, for inspection or testing, a sample of any Material to be supplied by the Contractor.
- .04 The Contractor shall obtain for the Contract Administrator the right to enter onto the premises of the Material manufacturer or supplier to carry out such inspection, sampling, and testing as specified in the Contract Documents or as requested by the Contract Administrator.
- .05 The Contractor shall notify the Contract Administrator of the sources of supply sufficiently in advance of the Material shipping dates to enable the Contract Administrator to perform the required inspection, sampling, and testing.
- .06 The Owner shall not be responsible for any delays to the Contractor's operations where the Contractor fails to give sufficient advance notice to the Contract Administrator to enable the Contract Administrator to carry out the required inspection, sampling, and testing before the scheduled shipping date.
- .07 The Contractor shall not change the source of supply of any Material without the written authorization of the Contract Administrator.
- .08 Material that is not specified shall be of a quality best suited to the purpose required, and the use of such Material shall be subject to the approval of the Contract Administrator.
- .09 All Material inspection, sampling, and testing shall be carried out on random basis in accordance with the standard inspection or testing methods required for the Material. Any approval given by the Contract Administrator for the Materials to be used in the Work based upon the random method shall not relieve the Contractor from the responsibility of incorporating Material that conforms to the Contract Documents into the Work or properly performing the Contract and of any liability arising from the failure to properly perform as specified in the Contract Documents.

GC 5.03 Rejected Material

- .01 Rejected Material shall be removed from the Working Area expeditiously after the notification to that effect from the Contract Administrator. Where the Contractor fails to comply with such notice, the Contract Administrator may cause the rejected Material to be removed from the Working Area and disposed of, in what the Contract Administrator considers to be the most appropriate manner, and the Contractor shall pay the costs of disposal and the appropriate overhead charges.

GC 5.04 Substitutions

- .01 Where the Contract Documents require the Contractor to supply a Material designated by a trade or other name, the Tender shall be based only upon supply of the Material so designated, that shall be regarded as the standard of quality required by the Contract Documents. After the acceptance of the Tender, the Contractor may apply to the Contract Administrator to substitute another Material identified by a different trade or other name for the Material designated as aforesaid. The application shall be in writing and shall state the price for the proposed substitute Material designated as aforesaid, and such other information as the Contract Administrator may require.
- .02 Rulings on a proposed substitution shall not be made prior to the acceptance of the Tender. Substitutions shall not be made without the prior approval of the Contract Administrator. The approval or rejection of a proposed substitution shall be at the discretion of the Contract Administrator.
- .03 If the proposed substitution is approved by the Contract Administrator, the Contractor shall be entitled to the first \$1,000 of the aggregate saving in cost by reason of such substitution and to 50% of any additional saving in cost in excess of such \$1,000. Each such approval shall be conveyed to the Contractor in writing or by issuance of a Certificate of Equality on the Owner's standard form of "Certification of Equality" and, if any adjustment to the Contract price is made by reason of such substitution, a Change Order shall be issued as well.

GC 5.05 Owner Supplied Material

GC 5.05.01 Ordering of Excess Material

- .01 Where Material is supplied by the Owner and where this Material is ordered by the Contractor in excess of the amount specified to complete the Work, such excess Material shall become the property of the Contractor on completion of the Work and shall be charged to the Contractor at cost plus applicable overheads.

GC 5.05.02 Care of Material

- .01 The Contractor shall, in advance of receipt of shipments of Material supplied by the Owner, provide adequate and proper storage facilities acceptable to the Contract Administrator, and on the receipt of such Material shall promptly place it in storage, except where it is to be incorporated forthwith into the Work.
- .02 The Contractor shall be responsible for acceptance of Material supplied by the Owner, at the specified delivery point and for its safe handling and storage. If such Material is damaged while under the control of the Contractor, it shall be replaced or repaired by the Contractor at no expense to the Owner, and to the satisfaction of the Contract Administrator. If such Material is rejected by the Contract Administrator for reasons that are not the fault of the Contractor, it shall remain in the care and at the risk of the Contractor until its disposition has been determined by the Contract Administrator.
- .03 Where Material supplied by the Owner arrives at the delivery point in a damaged condition or where there are discrepancies between the quantities received and the quantities shown on the bills of lading, the Contractor shall immediately report such damage or discrepancies to the Contract Administrator who shall arrange for an immediate inspection of the shipment and provide the Contractor with a written release from responsibility for such damage or deficiencies. Where damage or deficiencies are not so reported, it shall be assumed that the shipment arrived in good condition and order, and any damage or deficiencies reported thereafter shall be made good by the Contractor at no extra cost to the Owner.

- .04 The full amount of Material supplied by the Owner in each shipment shall be accounted for by the Contractor and such Material shall be at the risk of the Contractor after taking delivery. Such Material shall not, except with the written permission of the Contract Administrator, be used by the Contractor for purposes other than the performance of the Work under the Contract.
- .05 Empty reels, crates, containers, and other type of packaging from Material supplied by the Owner shall become the property of the Contractor when they are no longer required for their original purpose and shall be disposed of by the Contractor at the Contractor's expense unless otherwise specified in the Contract Documents.
- .06 Immediately upon receipt of each shipment, the Contractor shall provide the Contract Administrator copies of bills of lading, or such other documentation the Contract Administrator may require to substantiate and reconcile the quantities of Material received.
- .07 Where Material supplied by the Owner is ordered and stockpiled prior to the award of the Contract, the Contractor shall, at no extra cost to the Owner, immediately upon commencement of operations, check the Material, report any damage or deficiencies to the Contract Administrator and take charge of the Material at the stockpile site. Where damage or deficiencies are not so recorded by the Contractor, it shall be assumed that the stockpile was in good condition and order when the Contractor took charge of it, and any damage or deficiencies reported thereafter shall be made good by the Contractor at no extra cost to the Owner.

SECTION GC 6.0 - INSURANCE, PROTECTION AND DAMAGE

GC 6.01 Protection of Work, Persons and Property

- .01 The Contractor, the Contractor's agents, and all workers employed by or under the control of the Contractor, including Subcontractors, shall protect the Work, persons, and property from damage or injury. The Contractor shall be responsible for all losses and damage that may arise as the result of the Contractor's operations under the Contract, unless indicated to the contrary below.
- .02 The Contractor is responsible for the full cost of any necessary temporary protective Work and the restoration of all damage where the Contractor damages the Work or property in the performance of the Contract. If the Contractor is not responsible for the damage that occurs to the Work or property, the Contractor shall restore such damage, and such Work and payment shall be administered according to these General Conditions.
- .03 The Contractor shall immediately inform the Contract Administrator of all damage and injuries that occur during the term of the Contract. The Contractor shall then investigate and report back to the Contract Administrator within 15 Days of occurrence of incident, or as soon as possible. The Contract Administrator may conduct its own investigation and the Contractor shall provide all assistance to the Contract Administrator as may be necessary for that purpose.
- .04 The Contractor shall not be responsible for loss and damage that occurs as a result of,
 - a) war;
 - b) blockades and civil commotions;
 - c) errors in the Contract Documents; or
 - d) acts or omissions of the Owner, the Contract Administrator, their agents and employees, or others not under the control of the Contractor, but within the Working Area with the Owner's permission.
- .05 The Contractor and the Contractor's Surety shall not be released from any term or provision of any responsibility, obligation, or liability under the Contract or waive or impair any of the rights of the Owner, except by a release duly executed by the Owner.

GC 6.02 Indemnification

- .01 The Contractor shall indemnify and hold harmless the Owner and the Contract Administrator, their elected officials, agents, officers, and employees from and against all claims, demands, losses, expenses, costs, damages, actions, suits, or proceedings by third parties, hereinafter called "claims", directly or indirectly arising or alleged to arise out of the performance of or the failure to perform the Work, provided such claims are,
 - a) attributable to bodily injury, sickness, disease, or death or to damage to or destruction of tangible property;
 - b) caused by negligent acts or omissions of the Contractor or anyone for whose acts the Contractor may be liable; and
 - c) made in writing within a period of 6 years from the date of Substantial Performance of the Work as set out in the Certificate of Substantial Performance of the Work or, where so specified in the Contract Documents, from the date of certification of Final Acceptance.

- .02 The Contractor shall indemnify and hold harmless the Owner from all and every claim for damages, royalties or fees for the infringement of any patented invention or copyright occasioned by the Contractor in connection with the Work performed or Material furnished by the Contractor under the Contract.
- .03 The Owner expressly waives the right to indemnity for claims other than those stated in clauses GC 6.02.01 and GC 6.02.02.
- .04 The Owner shall indemnify and hold harmless the Contractor, their elected officials, agents, officers, and employees from and against all claims, demands, losses, expenses, costs, damages, actions, suits, or proceedings arising out of the Contractor's performance of the Contract that are attributable to a lack of or defect in title or an alleged lack of or defect in title to the Working Area.
- .05 The Contractor expressly waives the right to indemnity for claims other than those stated in clause GC 6.02.04.

GC 6.03 Contractor's Insurance

GC 6.03.01 General

- .01 Without restricting the generality of subsection GC 6.02, Indemnification, the Contractor shall provide, maintain, and pay for the insurance coverages listed under clauses GC 6.03.02 and GC 6.03.03. Insurance coverage in clauses GC 6.03.04, GC 6.03.05, and GC 6.03.06 shall only apply when so specified in the Contract Documents.
- .02 The Contractor shall provide the Contract Administrator with an original Certificate of Insurance for each type of insurance coverage that is required by the Contract Documents. The Contractor shall ensure that the Contract Administrator is, at all times in receipt of a valid Certificate of Insurance for each type of insurance coverage, in such amounts as specified in the Contract Documents. The Contractor will not be permitted to commence Work until the Contract Administrator is in receipt of such proof of insurance. The Contract Administrator may withhold payments of monies due to the Contractor until the Contractor has provided the Contract Administrator with original valid Certificates of Insurance as required by the provisions of the Contract Documents.

GC 6.03.02 Commercial General Liability Insurance

- .01 Commercial General Liability Insurance shall be in the name of the Contractor, with the Owner and the Contract Administrator named as additional insureds, with limits of not less than five million dollars inclusive per occurrence for bodily injury, death, and damage to property including loss of use thereof. The insurance shall be provided in a form acceptable to the Owner.
- .02 Approval of this insurance shall be conditional upon the Contractor obtaining the services of an insurer licensed to underwrite insurance in the Province of Ontario and obtaining the insurer's certificate of equivalency to the required insurance.
- .03 The Contractor shall submit annually to the Owner, proof of continuation of the completed operations coverage and, if the Contractor fails to do so, the limitation period for claiming indemnity described in clause GC 6.02.01 c), shall not be binding on the Owner.
- .04 Should the Contractor decide not to employ Subcontractors for operations requiring the use of explosives for blasting, pile driving or caisson work, removal or weakening of support of property building or land, the Commercial General Liability Insurance shall include the appropriate endorsements.
- .05 The policies shall be endorsed to provide the Owner with not less than 30 Days written notice in advance of cancellation, termination, or material change.

.06 "Claims Made" insurance policies shall not be permitted.

GC 6.03.03 Automobile Liability Insurance

.01 Automobile liability insurance in respect of licensed vehicles shall have limits of not less than five million dollars inclusive per occurrence for bodily injury, death and damage to property, in the following forms endorsed to provide the Owner with not less than 30 Days written notice in advance of any cancellation, termination, or material change.

- a) standard non-owned automobile policy including standard contractual liability endorsement, and
- b) standard owner's form automobile policy providing third party liability and accident benefits insurance and covering licensed vehicles owned or operated by the Contractor.

GC 6.03.04 Aircraft and Watercraft Liability Insurance

GC 6.03.04.01 Aircraft Liability Insurance

.01 Aircraft liability insurance with respect to owned or non-owned aircraft used directly or indirectly in the performance of the Work, including use of additional premises, shall be subject to limits of not less than five million dollars inclusive per occurrence for bodily injury, death, and damage to property including loss of use thereof, and limits of not less than five million dollars for aircraft passenger hazard. Such insurance shall be in a form acceptable to the Owner. The policies shall be endorsed to provide the Owner with not less than 30 Days written notice in advance of cancellation, change, or amendment restricting coverage.

GC 6.03.04.02 Watercraft Liability Insurance

.01 Watercraft liability insurance with respect to owned or non-owned watercraft used directly or indirectly in the performance of the Work, including use of additional premises, shall be subject to limits of not less than five million dollars inclusive per occurrence for bodily injury, death, and damage to property including loss of use thereof. Such insurance shall be in a form acceptable to the Owner. The policies shall be endorsed to provide the Owner with not less than 30 Days written notice in advance of cancellation, change, or amendment restricting coverage.

GC 6.03.05 Property and Boiler Insurance

GC 6.03.05.01 Property Insurance

.01 All risks property insurance shall be in the name of the Contractor, with the Owner and the Contract Administrator named as additional insureds, insuring not less than the sum of the amount of the Contract price and the full value, as may be stated in the Contract Documents, of Material that is specified to be provided by the Owner for incorporation into the Work.

GC 6.03.05.02 Boiler Insurance

.01 Boiler insurance insuring the interests of the Contractor, the Owner and the Contract Administrator for not less than the replacement value of boilers and pressure vessels forming part of the Work, shall be in a form acceptable to the Owner.

GC 6.03.05.03 Use and Occupancy of the Work Prior to Completion

.01 Should the Owner wish to use or occupy part or all of the Work prior to Substantial Performance, the Owner shall give 30 Days written notice to the Contractor of the intended purpose and extent of such use or occupancy. Prior to such use or occupancy, the Contractor shall notify the Owner in writing of

the additional premium cost, if any, to maintain property and boiler insurance, which shall be at the Owner's expense. If because of such use or occupancy the Contractor is unable to provide coverage, the Owner upon written notice from the Contractor and prior to such use or occupancy shall provide, maintain, and pay for property and boiler insurance insuring the full value of the Work, including coverage for such use or occupancy, and shall provide the Contractor with proof of such insurance. The Contractor shall refund to the Owner the unearned premiums applicable to the Contractor's policies upon termination of coverage.

- .02 The policies shall provide that in the event of a loss or damage, payment shall be made to the Owner and the Contractor as their respective interests may appear. The Contractor shall act on behalf of both the Owner and the Contractor for the purpose of adjusting the amount of such loss or damage payment with the insurers. When the extent of the loss or damage is determined, the Contractor shall proceed to restore the Work. Loss or damage shall not affect the rights and obligations of either party under the Contract, except that the Contractor shall be entitled to such reasonable extension of Contract Time relative to the extent of the loss or damage as the Contract Administrator may decide in consultation with the Contractor.

GC 6.03.05.04 Payment for Loss or Damage

- .01 The Contractor shall be entitled to receive from the Owner, in addition to the amount due under the Contract, the amount at which the Owner's interest in restoration of the Work has been appraised, such amount to be paid as the restoration of the Work proceeds, and in accordance with the requirements of section GC 8.0, Measurement and Payment. In addition, the Contractor shall be entitled to receive from the payments made by the insurers the amount of the Contractor's interest in the restoration of the Work.
- .02 The Contractor shall be responsible for deductible amounts under the policies, except where such amounts may be excluded from the Contractor's responsibility by the terms of this Contract.
- .03 In the event of a loss or damage to the Work arising from the action or omission of the Owner or others, the Owner shall pay the Contractor the cost of restoring the Work as the restoration of the Work proceeds and in accordance with the requirements of section GC 8.0, Measurement and Payment.

GC 6.03.06 Contractor's Equipment Insurance

- .01 All risks Contractor's Equipment insurance covering construction equipment used by the Contractor for the performance of the Work, including boiler insurance on temporary boilers and pressure vessels, shall be in a form acceptable to the Owner and shall not allow subrogation claims by the insurer against the Owner. The policies shall be endorsed to provide the Owner with not less than 30 Days written notice in advance of cancellation, change, or amendment restricting coverage. Subject to satisfactory proof of financial capability by the Contractor for self-insurance of the Contractor's Equipment, the Owner agrees to waive the equipment insurance requirement, and for the purpose of this Contract, the Contractor shall be deemed to be insured. This policy shall be amended to provide permission for the Contractor to grant prior releases with respect to damage to the Contractor's Equipment.

GC 6.03.07 Insurance Requirements and Duration

- .01 Each insurance policy as noted in the Contract Documents shall be in effect from the date of commencement of the Work until 10 Days after the date of Final Acceptance of the Work, as set out in the Final Acceptance Certificate.
- .02 The Contractor shall provide the Owner, on a form acceptable to the Owner, proof of insurance prior to commencement of the Work and signed by the underwriter or the broker.

- .03 The Contractor shall, on request, promptly provide the Owner with a certified true copy of each insurance policy exclusive of information pertaining to premium or premium bases used by the insurer to determine the cost of the insurance. The certified true copy shall include the signature of an officer of the insurer.
- .04 Where a policy is renewed, the Contractor shall provide the Owner, on a form acceptable to the Owner, renewed proof of insurance immediately following completion of renewal.
- .05 Unless specified otherwise, the Contractor shall be responsible for the payment of deductible amounts under the policies.
- .06 If the Contractor fails to provide or maintain insurance as required in subsection GC 6.03, Contractor's Insurance, or elsewhere in the Contract Documents, then the Owner shall have the right to provide and maintain such insurance and give evidence thereof to the Contractor. The Owner's cost thereof shall be payable by the Contractor to the Owner on demand.
- .07 If the Contractor fails to pay the cost of the insurance placed by the Owner within 28 Days of the date on which the Owner made a formal demand for reimbursement of such costs, the Owner may deduct the costs thereof from monies which are due or may become due to the Contractor.

GC 6.04 Bonding

- .01 The Contractor shall provide the Owner with the surety bonds in the amount required by the Contract Documents.
- .02 Such bonds shall be issued by a duly licensed surety company authorized to transact a business of suretyship in the Province of Ontario and shall be to the satisfaction of the Owner. The bonds shall be maintained in good standing until the Final Acceptance.

GC 6.05 Workplace Safety and Insurance Board

- .01 The Contractor shall provide the Contract Administrator with a copy of a Certificate of Clearance indicating the Contractor's good standing with the Workplace Safety and Insurance Board, as follows:
 - a) Immediately prior to the Contract Administrator authorizing the Contractor to commence Work.
 - b) Prior to issue of the Certificate of Substantial Performance.
 - c) Prior to expiration of the Warranty Period.
 - d) At any other time when requested by the Contract Administrator.

SECTION GC 7.0 - CONTRACTOR'S RESPONSIBILITIES AND CONTROL OF THE WORK

GC 7.01 General

GC 7.01.01 Site Visit

- .01 The Contractor warrants that the site of the Work has been visited during the preparation of the Tender and the character of the Work and all local conditions that may affect the performance of the Work are known.

GC 7.01.02 Commencement of Work

- .01 The Contractor shall not commence the Work nor deliver anything to the Working Area until the Contractor has received a written order to commence the work from the Contract Administrator.

GC 7.01.03 Control and Responsibility

- .01 The Contractor shall have complete control of the Work and shall effectively direct and supervise the Work so as to ensure conformity with the Contract Documents. The Contractor shall be responsible for construction means, methods, techniques, sequences, and procedures and for coordinating the various parts of the Work.
- .02 The Contractor shall provide adequate labour, Equipment, and Material to ensure the completion of the Contract in accordance with the Contract Documents. The Work shall be performed as vigorously and as continuously as weather conditions or other interferences may permit.
- .03 The Contractor shall have the sole responsibility for the design, erection, operation, maintenance, and removal of temporary structures and other temporary facilities and the design and execution of construction methods required in their use.
- .04 Notwithstanding clause GC 7.01.03, where the Contract Documents include designs for temporary structures and other temporary facilities or specify a method of construction in whole or part, such facilities and methods shall be considered to be part of the design of the Work, and the Contractor shall not be held responsible for that part of the design or the specified method of construction. The Contractor shall, however, be responsible for the execution of such design or specified method of construction in the same manner that the Contractor is responsible for the execution of the Work.
- .05 The Contractor shall comply with and conform to all statutes, laws, by-laws, regulations, requirements, ordinances, notices, rulings, orders, directives and policies of the municipal, provincial and federal governments and any other lawful authority and all court orders, judgments and declarations of a court of competent jurisdiction (collectively referred to as the "Laws"), applicable to the Work to be provided by, and the undertakings and obligations of, the Contractor under this Contract.

GC 7.01.04 Compliance with the Occupational Health and Safety Act

- .01 The Contractor shall execute the terms of the Contract in strict compliance with the requirements of the Occupational Health and Safety Act, R.S.O. 1990, c.O.1, as amended, (the "Act") and Ontario Regulation 213/91, as amended, (that regulates Construction Projects) and any other regulations as amended under the Act (the "Regulations") that may affect the performance of the Work, as the "Constructor" or "employer," as defined by the Act, as the case may be. The Contractor shall ensure that:
- a) worker safety is given priority in planning, pricing, and performing the Work;

- b) its officers and supervisory employees have a working knowledge of the duties of a "Constructor" and "employer" as defined by the Act and the provisions of the Regulations applicable to the Work, and a personal commitment to comply with them;
 - c) a copy of the most current version of the Act and the Regulations are available at the Contractor's office within the Working Area, or, in the absence of an office, in the possession of the supervisor responsible for the performance of the Work;
 - d) workers employed to carry out the Work possess the knowledge, skills, and protective devices required by law or recommended for use by a recognized industry association to allow them to work in safety;
 - e) its supervisory employees are "Competent Persons" as defined in the OHSA, and carry out their duties in a diligent and responsible manner with due consideration for the health and safety of the workers;
 - f) all Subcontractors and their workers are properly protected from injury while they are at the Working Area; and
 - g) following execution of the Contract and prior to the issuance of the order to commence by the Owner, upon request the Contractor submits to the Contract Administrator a copy of the Notice of Project issued to the Ministry of Labour.
- .02 The Contractor, when requested, shall provide the Owner with a copy of its health and safety policy and program at the pre-start meeting and shall respond promptly to requests from the Owner for confirmation that its methods and procedures for carrying out the Work comply with the Act and Regulations. The Contractor shall cooperate with representatives of the Owner and the inspectors appointed to enforce the Act and the Regulations in any investigations of worker health and safety in the performance of the Work. The Contractor shall indemnify and save the Owner harmless from any additional expense that the Owner may incur to have the Work performed as a result of the Contractor's failure to comply with the requirements of the Act and the Regulations.
- .03 Prior to commencement of the Work, the Contractor shall provide to the Contract Administrator a list of those products controlled under the Workplace Hazardous Materials Information System or "WHMIS", which the Contractor expects to use on the Contract. Related Safety Data Sheets shall accompany the submission. All containers used in the application of products controlled under "WHMIS" shall be labelled. The Contractor shall notify the Contract Administrator in writing of changes in the products to be used and provide relevant Safety Data Sheets.
- .04 During the course of the Work, the Contractor shall furnish forthwith to the Contract Administrator a copy of all correspondence, reports, orders or charges respecting occupational health and safety, including under the Act, Technical Standards and Safety Act, 2000, S.O. 2000, c.16 as amended, and the Criminal Code, R.S.C., 1985, c. C-46 as amended, which are received by, or which come to the notice of, the Contractor that apply or are relevant to any of the Work or activities conducted under the terms of the Contract.
- .05 Nothing in this Contract shall be construed as requiring the Owner to monitor or approve the workplace health and safety practices of the Contractor.

GC 7.01.05 Contractor's Representatives

- .01 The Contractor shall have an authorized representative on the site while any Work is being performed, to supervise the Work and act for or on the Contractor's behalf. Prior to commencement of construction, the Contractor shall notify the Contract Administrator of the names, addresses, positions, and cell phone, and telephone numbers of the Contractor's representatives who can be contacted at any time to deal with matters relating to the Contract, and update as necessary.

- .02 The Contractor shall designate a person to be responsible for traffic control and work zone safety. The designated person shall be a competent worker who is qualified because of knowledge, training, and experience to perform the duties; is familiar with Book 7 of the Ontario Traffic Manual; and has knowledge of all potential or actual danger to workers and motorists. Prior to the commencement of construction, the Contractor shall notify the Contract Administrator of the name; address; position; cell phone, and telephone numbers of the designated person, and update as necessary. The designated person may have other responsibilities, including other construction sites, and need not be present in the Working Area at all times.

GC 7.01.06 Assistance to the Contract Administrator

- .01 The Contractor shall, at no additional cost to the Owner, furnish all reasonable aid, facilities, and assistance required by the Contract Administrator for the proper inspection and examination of the Work or the taking of measurements for the purpose of payment.

GC 7.01.07 Schedule

- .01 The Contractor shall prepare and update, as required, a construction schedule of operations, indicating the proposed methods of construction and sequence of Work and the time the Contractor proposes to complete the various items of Work within the time specified in the Contract Documents. The schedule shall be submitted to the Contract Administrator within 14 Days from the Contract award. If the Contractor's schedule is materially affected by changes in the work, the Contractor shall submit an updated construction schedule, if requested by the Contract Administrator, within 7 Days of the request. This updated schedule shall show how the Contractor proposes to perform the balance of the Work, to complete the Work within the time specified in the Contract Documents.
- .02 For Contracts with a specified number of Working Days, the construction time shown on the initial schedule shall not exceed the specified number of Working Days. The activities on the critical path shall assist the Contract Administrator in determining the Controlling Operation for the purpose of the charging of Working Days. The construction schedule shall include all non-working periods and appropriate allowances for Inclement Weather.
- .03 For Contracts which specify a Contract Time, the construction time shown on the initial construction schedule shall not extend beyond the specified Contract Time. The construction schedule shall include all non-working periods and appropriate allowances for Inclement Weather.

GC 7.01.08 Errors and Inconsistencies Relating to the Contract

- .01 Where the Contractor finds any error, inconsistency, or omission relating to the Contract, the Contractor shall promptly report it to the Contract Administrator and shall not proceed with the activity affected until receiving direction from the Contract Administrator.
- .02 The Contractor shall promptly notify the Contract Administrator in writing if the subsurface conditions observed in the Working Area differ materially from those indicated in the Contract Documents.

GC 7.01.09 Utilities

- .01 The Contractor shall arrange with the appropriate Utility authorities for the stake out of all underground Utilities and service connections that may be affected by the Work. The Contractor shall observe the location of the stake outs prior to commencing the Work and if there is a discrepancy between the location of the stake outs and the locations shown on the Contract Documents, that may affect the Work, the Contractor shall immediately notify the Contract Administrator and the affected Utility companies, in order to resolve the discrepancy. The Contractor shall be responsible for any damage done to the underground Utilities and service connections by

the Contractor's forces during construction if the stake out locations are within the tolerances given in clause GC 2.01.01 a).

- .02 In the case of damage to or interference with any Utilities, pole lines, pipe lines, conduits, farm tiles, or other public or privately-owned works or property, the Contractor shall immediately notify the Owner, Contract Administrator, and the owner of the works of the location and details of such damage or interference.

GC 7.02 Monuments and Layout

- .01 Prior to commencement of construction, the Contract Administrator and the Contractor shall locate on site those Monuments that delineate the Working Area and may be used to lay out the Work, all as shown on the Contract Drawings. Property Monuments shall be inventoried in the report format required by the Owner.
- .02 These Monuments shall be protected by highly visible T-bars or 1.0 metre tall stakes with survey ribbon set within 0.3 metres of the Monument.
- .03 The Contractor shall be responsible for the preservation of all Property Monuments while the Work is in progress, except those Property Monuments that must be removed to facilitate the Work as identified and agreed by the Contractor and Contract Administrator. Monuments removed to facilitate the Work shall be replaced at the Owner's expense, and all others shall be replaced at the Contractor's expense.
- .04 All Monuments disturbed, damaged, or removed by the Contractor's operations shall be documented in the inventory report and replaced under the supervision of an Ontario Land Surveyor.
- .05 The Monument inventory report referred to in clauses GC 7.02.01 and GC 7.02.04 shall include as a minimum:
 - a) Contract number, Contract name, Contract Administrator's name;
 - b) Project/site construction limits;
 - c) Rough location, type, identification number, and condition of each Monument before and after construction;
 - d) The solutions for protection of the Monuments that may be impacted by construction;
 - e) Reference ties;
 - f) A summary of those Monuments affected by the Work and how they were reset or replaced, and by what type of Monument.
- .06 At no extra cost to the Owner, the Contractor shall provide the Contract Administrator with such materials and devices as may be necessary to lay out the baseline and benchmarks, and as may be necessary for the inspection of the Work.
- .07 The Contractor shall provide qualified personnel to lay out and establish all lines and grades necessary for construction. The Contractor shall notify the Contract Administrator of any layout work carried out, so that the same may be checked by the Contract Administrator.
- .08 The Contractor shall install and maintain substantial alignment markers and secondary benchmarks as may be required for the proper execution of the Work. The Contractor shall supply one copy of all alignment and grade sheets to the Contract Administrator.
- .09 The Contractor shall assume full responsibility for alignment, elevations, and dimensions of each and all parts of the Work, regardless of whether the Contractor's layout work has been checked by the Contract Administrator.

- .10 All stakes, marks, and reference points shall be carefully preserved by the Contractor. In the case of their destruction or removal, for any reason, before the end of the Contract Time such stakes, marks, and reference points shall be replaced, unless otherwise mutually agreed between the Contractor and the Contract Administrator, at the Contractor's expense.
- .11 Benchmarks and survey monuments identified in the Contract Documents shall be protected by the Contractor. In the case of their destruction or removal, such benchmarks and survey monuments shall be replaced by the Owner at the Contractor's expense.

GC 7.03 Working Area

- .01 The Contractor shall maintain the Working Area in a tidy condition and free from the accumulation of debris and prevent dust nuisance, mud, and ponding water, other than that caused by the Owner or others.
- .02 The Contractor's sheds, site offices, toilets, other temporary structures, and storage areas for Material and Equipment shall be grouped in a compact manner, maintained in a neat and orderly condition at all times and removed upon completion of the Work.
- .03 The Contractor shall confine the construction operations to the Working Area. Should the Contractor require additional space, the Contractor shall obtain such space at no additional cost to the Owner.
- .04 The Contractor shall not enter upon or occupy any private property for any purpose, unless the Contractor has received prior written permission from the property owner.
- .05 Upon completion of the Contract, the Working Area used by the Contractor shall be restored to its original condition or better unless otherwise specified in the Contract Documents including the removal of all excavated and stockpiled materials at the Contractor's expense.

GC 7.04 Damage by Vehicles or Other Equipment

- .01 If at any time, in the opinion of the Contract Administrator, damage is being done or is likely to be done to any Roadway or any improvement thereon, outside the Working Area, by the Contractor's vehicles or other Equipment, whether licensed or unlicensed Equipment, the Contractor shall, on the direction of the Contract Administrator, and at no extra cost to the Owner, make changes or substitutions for such vehicles or Equipment, and shall alter loadings, or in some other manner, remove the cause of such damage to the satisfaction of the Contract Administrator.

GC 7.05 Excess Loading of Motor Vehicles

- .01 Where a vehicle is hauling Material for use on the Work, in whole or in part; upon a Highway; and where motor vehicle registration is required for such vehicle, the Contractor shall not cause or permit such vehicle to be loaded beyond the legal limit specified in the Highway Traffic Act, R.S.O. 1990, c.H.8, as amended, whether such vehicle is registered in the name of the Contractor or otherwise, except where there are designated areas within the Working Area where overloading is permitted. The Contractor shall bear the onus of weighing disputed loads.

GC 7.06 Maintaining Roads and Detours

- .01 Unless otherwise specified in the Contract Documents, if an existing Roadway is affected by construction, it shall be kept open to both vehicular and pedestrian traffic.
- .02 Subject to the approval of the Contract Administrator, the Contractor shall, at no additional cost to the Owner, be responsible for providing and maintaining for the duration of the Work an alternative route for both pedestrian and vehicular traffic through the Working Area in accordance with the OTM,

whether along the existing Highway under construction or on a detour road beside or adjacent to the Highway under construction.

- .03 Subject to the approval of the Contract Administrator, the Contractor may block traffic for short periods of time to facilitate construction of the Work in accordance with the OTM. Any temporary lane closures shall be kept to a minimum.
- .04 The Contractor shall not be required to maintain a road through the Working Area until such time as the Contractor has commenced operations or during seasonal shut down or on any part of the Contract that has been accepted in accordance with these General Conditions. The Contractor shall not be required to apply de-icing chemicals or abrasives or carry out snowplowing.
- .05 Where only localized and separated sections of the Highway are affected by the Contractor's operations, the Contractor shall not be required to maintain intervening sections of the Highway until such times as these sections are located within the limits of the Highway affected by the Contractor's general operations under the Contract.
- .06 Where the Contract Documents provide for or the Contract Administrator requires detours at specific locations, payment for the construction of the detours and, if required, for the subsequent removal of the detours, shall be made at the Contract prices appropriate to such Work.
- .07 Compensation for all labour, Equipment, and Materials to do this Work shall be at the Contract prices appropriate to the Work and, where there are no such prices, at negotiated prices. Notwithstanding the foregoing, the cost of blading required to maintain the surface of such roads and detours shall be deemed to be included in the prices bid for the various tender items and no additional payment shall be made.
- .08 Where Work under the Contract is discontinued for any extended period, including seasonal shutdown, the Contractor shall, when directed by the Contract Administrator, open and place the Roadway and detours in a passable, safe, and satisfactory condition for public travel.
- .09 Where the Contractor constructs a detour that is not specifically provided for in the Contract Documents or required by the Contract Administrator, the construction of the detour and, if required, the subsequent removal shall be performed at the Contractor's expense. The detour shall be constructed and maintained to structural and geometric standards approved by the Contract Administrator. Removal and site restoration shall be performed as directed by the Contract Administrator.
- .10 Where, with the prior written approval of the Contract Administrator, the Highway is closed and the traffic diverted entirely off the Highway to any other Highway, the Contractor shall, at no extra cost to the Owner, supply, erect, and maintain traffic control devices in accordance with the OTM.
- .11 Compliance with the foregoing provisions shall in no way relieve the Contractor of its obligations under subsection GC 6.01, Protection of Work, Persons, and Property, dealing with the Contractor's responsibility for damage claims, except for claims arising on sections of Highway within the Working Area that are being maintained by others.

GC 7.07 Access to Properties Adjoining the Work and Interruption of Utility Services

- .01 The Contractor shall provide at all times and at no extra cost to the Owner,
 - a) safe and adequate pedestrian and vehicular access;
 - b) continuity of Utility services; and

c) access for emergency response services;

to properties adjoining the Working Area.

- .02 The Contractor shall provide at all times and at no extra cost to the Owner access to fire hydrants, water and gas valves, and all other Utilities located in the Working Area.
- .03 Where any interruptions in the supply of Utility services are required and are authorized by the Contract Administrator, the Contractor shall give the affected property owners notice in accordance with subsection GC 7.11, Notices by the Contractor, and shall arrange such interruptions so as to create a minimum of interference to those affected.

GC 7.08 Approvals and Permits

- .01 Except as specified in subsection GC 4.02, Approval and Permits, the Contractor shall obtain and pay for any permits, licences, and certificates, which at the date of tender closing, are required for the performance of the Work.
- .02 The Contractor shall arrange for all necessary inspections required by the approvals and permits specified in clause GC 7.08.01, Approvals and Permit.

GC 7.09 Suspension of Work

- .01 The Contractor shall, upon written notice from the Contract Administrator, discontinue or delay any or all of the Work and Work shall not be resumed until the Contract Administrator so directs in writing. Delays, in these circumstances, shall be administered according to subsection GC 3.07, Delays.

GC 7.10 Contractor's Right to Stop the Work or Terminate the Contract

- .01 If the Owner is adjudged bankrupt or makes a general assignment for the benefit of creditors because of insolvency or if a receiver is appointed because of insolvency, the Contractor may, without prejudice to any other right or remedy the Contractor may have, by giving the Owner or receiver or trustee in bankruptcy written notice, terminate the Contract.
- .02 If the Work is stopped or otherwise delayed for a period of 30 Days or more under an order of a court or other public authority and provided that such order was not issued as the result of an act or fault of the Contractor or of anyone directly employed or engaged by the Contractor, the Contractor may, without prejudice to any other right or remedy the Contractor may have, by giving the Owner written notice, terminate the Contract.
- .03 The Contractor may notify the Owner in writing, with a copy to the Contract Administrator, that the Owner is in default of contractual obligations if,
- a) the Contract Administrator fails to issue certificates in accordance with the provisions of section GC 8.0, Measurement and Payment;
 - b) the Owner fails to pay the Contractor, within 28 Days of the due dates identified in clause GC 8.02.04, Certification and Payment, the amounts certified by the Contract Administrator or within 28 Days of an award by an arbitrator or court; or
 - c) the Owner fails to comply with the requirements of the Contract.
- .04 The Contractor's written notice to the Owner shall advise that if the default is not corrected in the 7 Days immediately following receipt of the written notice, the Contractor may, without prejudice to any other right or remedy the Contractor may have, stop the Work or terminate the Contract.

- .05 If the Contractor terminates the Contract under the conditions set out in subsection GC 7.10, Contractor's Right to Stop the Work or Terminate the Contract, the Contractor shall be entitled to be paid for all Work performed according to the Contract Documents and for any losses or damage as the Contractor may sustain as a result of the termination of the Contract.

GC 7.11 Notices by the Contractor

- .01 Before any Work is carried out that may affect the property or operations of any Ministry or agency of government or any person; company; partnership; or corporation, including a municipal corporation or any board or commission thereof, and in addition to such notices of the commencement of specified operations as are prescribed elsewhere in the Contract Documents, the Contractor shall give at least 48 hours advance written notice of the date of commencement of such Work to the person, company, partnership, corporation, board, or commission so affected.

GC 7.12 Environmental Incident Management under Legislation Protecting the Environment and Natural Resources

- .01 The Contractor shall be in strict compliance with the requirements of the following legislation, as amended, regarding environmental incidents under the control of the Contractor or that are a result of the Contractor's operations:
- a) Environmental Protection Act, R.S.O. 1990, c. E.19
 - b) Fisheries Act, R.S.C. 1985, c. F-14
 - c) Technical Standards and Safety Act, 2000, S.O. 2000, c. 16
 - d) Pesticides Act, R.S.O. 1990, c. P.11
 - e) Ontario Water Resources Act, R.S.O. 1990, c. O.40
 - f) Transportation of Dangerous Goods Act, 1992, S.C.1992, c. 34
- .02 The requirements of the legislation listed in clause GC 7.12.01 include but are not restricted to:
- a) Immediate containment of the material, pollutant, contaminant, deleterious substance, or dangerous good;
 - b) Immediate notification of the environmental incident to the proper authority; and
 - c) Clean up and restoration of the environment to preconditions.
- .03 The Contractor shall possess a plan demonstrating that environmental incidents shall be managed to satisfy the requirements of clauses GC 7.12.01 and GC 7.12.02.
- .04 The Contractor shall provide a copy of the environmental incident plan to the Contract Administrator when required and shall inform the Contract Administrator immediately of:
- a) An environmental incident when it occurs; and
 - b) Any actions taken or intended to be taken by the Contractor regarding the environmental incident.

- .05 The Contractor shall indemnify and save the Owner harmless from any additional expense that the Owner may incur to have the Work performed as a result of the Contractor's failure to comply with the requirements of the legislation listed in clause GC 7.12.01.

GC 7.13 Obstructions

- .01 Except as otherwise noted in these General Conditions, the Contractor assumes all the risks and responsibilities arising out of any obstruction encountered in the performance of the Work and any traffic conditions, including traffic conditions on any Highway or road giving access to the Working Area caused by such obstructions, and the Contractor shall not make any claim against the Owner for any loss, damage, or expense occasioned thereby.
- .02 Where the obstruction is an underground Utility or other man-made object, the Contractor shall not be required to assume the risks and responsibilities arising out of such obstruction, unless the location of the obstruction is shown on the Plans or described in the Contract Documents and the location so shown is within the tolerance specified in clause GC 2.01.01 a), or unless the presence and location of the obstruction has otherwise been made known to the Contractor or could have been determined by the visual site investigation made by the Contractor in accordance with these General Conditions.
- .03 During the course of the Contract, it is the Contractor's responsibility to consult with Utility companies or other appropriate authorities for further information in regard to the exact location of these Utilities, to exercise the necessary care in construction operations, and to take such other precautions as are necessary to safeguard the Utilities from damage.

GC 7.14 Limitations of Operations

- .01 Except for such Work as may be required by the Contract Administrator to maintain the Work in a safe and satisfactory condition, the Contractor shall not carry out operations under the Contract on Saturdays, Sundays, and any holidays recognized by the Owner without permission in writing from the Contract Administrator.
- .02 The Contractor shall cooperate and coordinate the Work with other Contractors, Utility companies, and the Owner and they shall be allowed access to their Work or plant at all reasonable times.

GC 7.15 Cleaning Up Before Acceptance

- .01 Upon attaining Substantial Performance of the Work, the Contractor shall remove surplus materials, tools, and Equipment not required for the performance of the remaining Work. The Contractor shall also remove all temporary works and debris other than that caused by the Owner or others and leave the Work and Working Area clean and suitable for occupancy by the Owner, unless otherwise specified.
- .02 The Work shall not be deemed to have reached Completion until the Contractor has removed surplus materials, tools, and Equipment. The Contractor shall also have removed debris, other than that caused by the Owner, or others.

GC 7.16 Warranty

- .01 Unless otherwise specified in the Contract Documents for certain Materials or components of the Work, the Contractor shall be responsible for the proper performance of the Work only to the extent that the design and standards permit such performance.
- .02 Subject to the previous paragraph the Contractor shall correct promptly, at no additional cost to the Owner, defects or deficiencies in the Work that appear,

- a) prior to and during the period of 12 months from the date of Substantial Performance of the Work, as set out in the Certificate of Substantial Performance of the Work,
- b) where there is no Certificate of Substantial Performance, 12 months from the date of Completion of the Work as set out in the Completion Certificate, or
- c) such longer periods as may be specified in the Contract Documents for certain Materials or some of the Work.

The Contract Administrator shall promptly give the Contractor written notice of observed defects or deficiencies.

- .03 The Contractor shall correct or pay for damage resulting from corrections made under the requirements of clause GC 7.16.02.

GC 7.17 Contractor's Workers

- .01 The Contractor shall only employ orderly, competent, and skillful workers to do the Work and whenever the Contract Administrator shall inform the Contractor in writing that any worker or workers involved in the Work are, in the opinion of the Contract Administrator, incompetent, or disorderly such worker or workers shall be removed from the Work and shall not be employed on the Work again without the consent in writing of the Contract Administrator.

GC 7.18 Drainage

- .01 During construction and until the Work is completed, the Contractor shall make all reasonable efforts to keep all portions of the Work properly and efficiently drained, to at least the same degree as that of the existing drainage conditions.

SECTION GC 8.0 - MEASUREMENT AND PAYMENT

GC 8.01 Measurement

GC 8.01.01 Quantities

- .01 The Contract Administrator shall make an Estimate in writing once a month, unless otherwise specified in the Contract Documents, of the quantity of Work performed and provide such Estimate to the Contractor within 10 Days of the Cut-Off Date.
- .02 Quantities for progress payments shall be construed and held to approximate. The final quantities for the issuance of the Completion Payment shall be based on the measurement of Work completed.
- .03 Measurement of the quantities of the Work performed may be either by Actual Measurement or by Plan Quantity principles as indicated in the Contract. Adjustments to Plan Quantity measurements shall normally be made using Plan Quantity principles but may, where appropriate, be made using Actual Measurements. Those items identified on the Tender by the notation (P) in the unit column shall be paid according to the Plan Quantity. Items where the notation (P) does not occur shall be paid according to Actual Measurement or lump sum.

GC 8.01.02 Variations in Tender Quantities

- .01 Where it appears that the quantity of Work to be done or Material to be supplied or both by the Contractor under a unit price tender item may exceed or be less than the tender quantity, the Contractor shall proceed to do the Work or supply the Material or both required to complete the tender item and payment shall be made for the actual amount of Work done or Material supplied or both at the unit prices stated in the Tender except as provided below:
 - a) In the case of a Major Item where the quantity of Work performed or Material supplied or both by the Contractor exceeds the tender quantity by more than 15%, either party to the Contract may make a written request to the other party to negotiate a revised unit price for that portion of the Work performed or Material supplied or both which exceeds 115% of the tender quantity. The negotiation shall be carried out as soon as reasonably possible. Any revision of the unit price shall be based on the actual cost of doing the Work or supplying the Material or both under the tender item plus a reasonable allowance for profit and applicable overhead. Alternatively, where both parties agree, an allowance equal to 10% of the unit price on the amount of the underrun in excess of 15% of the tender quantity shall be paid.
 - b) In the case of a Major Item where the quantity of Work performed or Material supplied or both by the Contractor is less than 85% of the tender quantity, the Contractor may make a written request to negotiate for the portion of the actual overheads and fixed costs applicable to the amount of the underrun in excess of 15% of the tender quantity. For purposes of the negotiation, the overheads and fixed costs applicable to the item are deemed to have been prorated uniformly over 100% of the tender quantity for the item. Overhead costs shall be confirmed by a statement certified by the Contractor's senior financial officer or auditor and may be audited by the Owner. Alternatively, where both parties agree, an allowance equal to 10% of the unit price on the amount of the underrun in excess of 15% of the tender quantity shall be paid.

Written requests for compensation must be received no later than 60 Days after the issuance of the Completion Payment.

GC 8.02 Payment

GC 8.02.01 Non-Resident Contractor

- .01 If the Contractor is not a registered entity in Ontario, the Contractor shall obtain all necessary approvals, consents, permits, licences, certificates, registrations, and other authorizations prior to execution of the Contract.
- .02 The Contractor shall ensure that all Subcontractors the Contractor proposes to use for carrying out any of the Work required by the Contract and who are not a registered entity in Ontario have obtained all necessary approvals, consents, permits, certificates, registrations, and other authorizations prior to execution of the subcontract.

GC 8.02.02 Price for Work

- .01 Prices for the Work shall be full compensation for all labour, Equipment and Material required in its performance. The term "all labour, Equipment, and Material" shall include Hand Tools, supplies, and other incidentals.
- .02 Payment, for Work which is identified in the Contract Documents but not specifically detailed as part of any one item shall be deemed to be included in the items with which it is associated.

GC 8.02.03 Advance Payments for Material

- .01 The Owner shall make advance payments for Material intended for incorporation in the Work upon the written request of the Contractor and according to the following terms and conditions:
 - a) The Contractor shall deliver the Material to a site approved by the Contract Administrator and the Contractor shall, in advance of receipt of the shipment of the Material, arrange for adequate and proper storage facilities.
 - b) The value of aggregates, processed and stockpiled, shall be assessed by the following procedure:
 - i. Sources Other Than Commercial
 - (A) Granular A, B, BI, BII, BIII, M, and O shall be assessed at the rate of 60% of the Contract price.
 - (B) Coarse and fine aggregates for hot mix asphaltic concrete, surface treatment and Portland cement concrete shall be assessed at the rate of 25% of the Contract price for each aggregate stockpiled.
 - ii. Commercial Sources
 - Payment for separated coarse and fine aggregates shall be considered at the above rate when such Materials are stockpiled at a commercial source where further processing is to be carried out before incorporating such Materials into a final product. Advance payments for other Materials located at a commercial source shall not be made.
 - c) Payment for all other Materials, unless otherwise specified elsewhere in the Contract Documents, shall be based on the invoice price, and the Contractor shall submit proof of cost to the Contract Administrator before payment can be made by the Owner.
 - d) The payment for all Materials shall be prorated against the appropriate tender item by paying for sufficient units of the item to cover the value of the Material. Such payment shall not exceed 80% of the Contract price for the item.

- e) All Materials for which the Contractor wishes to receive advance payment shall be placed in the designated storage location immediately upon receipt of the Material and shall thenceforth be held by the Contractor in trust for the Owner as collateral security for any monies advanced by the Owner and for the due completion of the Work. The Contractor shall not exercise any act of ownership inconsistent with such security, or remove any Material from the storage locations, except for inclusion in the Work, without the consent, in writing, of the Contract Administrator.
 - f) Such materials shall remain at the risk of the Contractor who shall be responsible for any loss, damage, theft, improper use, or destruction of the Material however caused.
- .02 Where the Owner makes advance payments subject to the conditions listed in clause GC 8.02.03.01, such payment shall not constitute acceptance of the Material by the Owner. Acceptance shall only be determined when the Material meets the requirements of the appropriate specification.

GC 8.02.04 Certification and Payment

GC 8.02.04.01 Progress Payment

- .01 The Contractor shall submit a Proper Invoice for progress payments monthly or at intervals specified in the Contract Documents after starting the Work on this Contract. The Contractor shall submit the Proper Invoice to the Contract Administrator and to the Owner. This Proper Invoice shall be for work completed at the agreed to Cut-Off Date.
- .02 A Proper Invoice shall include;
 - a) the requirements as set out in section 6.1 of the Construction Act;
 - b) the quantities of Work performed;
 - c) the value of Work performed;
 - d) any advanced payment for Material;
 - e) the amount of Statutory Holdback, liens, Owner's set-off;
 - f) the amount of any applicable taxes;
 - g) the amount due to the Contractor; and
 - h) any other information that may be prescribed in the Contract Documents.
- .03 Payment shall be made within 28 Days of the submission of the Proper Invoice unless a notice of non-payment has been issued in accordance with the Construction Act.
- .04 The Owner shall retain the Statutory Holdback in the form and amount as required under the Construction Act.

GC 8.02.04.02 Certification of Subcontract Completion

- .01 Before the Work has reached the stage of Substantial Performance, the Contractor may notify the Contract Administrator, in writing that a subcontract is completed satisfactorily and ask that the Contract Administrator certify the completion of such subcontract.

- .02 The Contract Administrator shall issue a Certificate of Subcontract Completion, if the subcontract has been completed in a form satisfactory to the Contract Administrator, and all required inspection and testing of the works covered by the subcontract have been carried out and the results are satisfactory to the Contract Administrator.
- .03 The Contract Administrator shall set out in the Certificate of Subcontract Completion the date on which the subcontract was completed and, within 7 Days of the date the subcontract is certified complete, the Contract Administrator shall give a copy of the certificate to the Contractor and to the Subcontractor concerned.

GC 8.02.04.03 Subcontract Statutory Holdback Release Certificate and Payment

- .01 Following receipt of the Certificate of Subcontract Completion, the Owner shall release and pay the Contractor the Statutory Holdback retained in respect of the subcontract. Such release shall be made 61 Days after the date the subcontract was certified complete and providing the Contractor submits the following to the Contract Administrator:
 - a) a document satisfactory to the Contract Administrator that shall release the Owner from all further claims relating to the subcontract, qualified by stated exceptions such as holdback monies;
 - b) evidence satisfactory to the Contract Administrator that the Subcontractor has discharged all liabilities incurred in carrying out the subcontract;
 - c) a satisfactory clearance certificate or letter from the Workplace Safety and Insurance Board relating to the subcontract; and
 - d) a copy of the contract between the Contractor and the Subcontractor and a satisfactory statement showing the total amount due the Subcontractor from the Contractor.
- .02 Clause GC 8.02.04.03.01 d), shall only apply to Lump Sum Items and then only when the Contract Administrator specifically requests it.
- .03 Upon receipt of the Statutory Holdback, the Contractor shall forthwith give the Subcontractor the payment due under the subcontract.
- .04 Release of Statutory Holdback by the Owner in respect of a subcontract shall not relieve the Contractor, or the Contractor's Surety, of any of their responsibilities.

GC 8.02.04.04 Substantial Performance of Work

- .01 The Contractor, as part of the application for Substantial Performance, shall submit an itemized list of the outstanding work.
- .02 Upon application by the Contractor and when the Contract Administrator has verified that the Contract has been substantially performed, the Contract Administrator shall issue a Certificate of Substantial Performance.
- .03 The Contract Administrator shall set out in the Certificate of Substantial Performance the date on which the Contract was substantially performed and, within 7 Days after signing the said certificate, and shall provide a copy to the Contractor.
- .04 Upon receipt of a copy of the Certificate of Substantial Performance, the Contractor shall forthwith, as required by Section 32(1) Paragraph 5 of the Construction Act, as amended, publish a copy of the certificate in the manner set out in the regulations.

- .05 Where the Contractor fails to publish a copy of the Certificate of Substantial Performance as required above within 7 Days after receiving a copy of the certificate signed by the Contract Administrator, the Owner may publish a copy of the certificate at the Contractor's expense.
- .06 Except as otherwise provided for in Section 31 of the Construction Act, the 60 Day lien period prior to the release of holdback as referred to in clause GC 8.02.04.05, Substantial Performance Payment and Statutory Holdback Release Payment Certificates, shall commence from the date of publication of the Certificate of Substantial Performance as provided for above.

GC 8.02.04.05 Substantial Performance Payment and Substantial Performance Statutory Holdback Release Payment Certificates

- .01 Prior to the Contract Administrator issuing the Certificate of Substantial Performance, the Contractor shall submit a Proper Invoice for the Work completed. In addition to the requirements specified under section 8.02.04.01.02, the Proper Invoice shall include:
 - a) the value of Work performed to the date of Substantial Performance;
 - b) the value of outstanding or incomplete Work;
 - c) the amount of the Statutory Holdback, allowing for any previous releases of Statutory Holdback to the Contractor in respect of completed subcontracts and deliveries of pre-selected Equipment; and
 - d) the amount due the Contractor.
- .02 Payment shall be made within 28 Days of the date of submission of the Proper Invoice.
- .03 The Substantial Performance Statutory Holdback Release Payment Certificate shall be a payment certificate releasing to the Contractor the Statutory Holdback due in respect of Work performed up to the date of Substantial Performance. Payment of such Statutory Holdback shall be due 61 Days after the date of publication of the Certificate of Substantial Performance but subject to the provisions of the Construction Act and the submission by the Contractor of the following documents:
 - a) a satisfactory Certificate of Clearance from the Workplace Safety and Insurance Board; and
 - b) proof of publication of the Certificate of Substantial Performance.
- .04 Any amount of security retained shall be identified on the Substantial Performance Payment Certificate.

GC 8.02.04.06 Certification of Completion

- .01 Upon application by the Contractor and when the Contract Administrator has verified that the Contract has reached Completion, the Contract Administrator shall issue a Completion Certificate.
- .02 The Contract Administrator shall set out in the Completion Certificate the date on which the Work was completed and, within 7 Days of signing the said certificate, the Contract Administrator shall provide a copy to the Contractor.

GC 8.02.04.07 Completion Payment and Completion Statutory Holdback Release Payment Certificates

- .01 Prior to the Contract Administrator issuing the Completion Certificate, the Contractor shall submit a Proper Invoice for the Work completed. In addition to the requirements noted under section 8.02.04.01.02, the Proper Invoice shall include:
- a) measurement and value of Work at Completion;
 - b) the amount of the further Statutory Holdback based on the value of further Work completed over and above the value of Work completed shown in the Substantial Performance Payment Certificate referred to above; and
 - c) the amount due the Contractor.
- .02 The Completion Statutory Holdback Release Payment Certificate shall be a payment certificate releasing to the Contractor the further Statutory Holdback. Subject to any outstanding liens and permissible set-offs and upon submission of a satisfactory Certificate of Clearance from the Workplace Safety and Insurance Board, the Owner shall pay the remaining holdback on the Work done, within 28 Days after the expiration of the 60-Day lien period.
- .03 Any amount of security retained shall be identified on the Completion Payment Certificate.

GC 8.02.04.08 Interest

- .01 Interest due to the Contractor shall be based on simple interest and calculated using the applicable Rate of Interest. Interest shall begin to accrue on an amount that is not paid when it is due to be paid under Part-I of the Construction Act, at the prejudgment interest rate determined under subsection 127 (2) of the *Courts of Justice Act* or, if the Contract specifies a different interest rate for this purpose, the greater of the prejudgment interest rate and the interest rate specified in the Contract.

GC 8.02.04.09 Interest for Late Payment

- .01 Provided the Contractor has complied with the requirements of the Contract, including all documentation requirements, when payment by the Owner to the Contractor for Work performed, or for release of Statutory Holdback, is delayed by the Owner, then the Contractor shall be entitled to receive interest on the outstanding payment at the Rate of Interest, if payment is not received on the dates set out below:
- a) Progress Payment: 28 Days after submission of Proper Invoice;
 - b) Subcontract Statutory Holdback Release Payment: 89 Days after the date on which the subcontract was completed;
 - c) Substantial Performance Payment: 28 Days after the date of issuance of the certificate;
 - d) Substantial Performance Statutory Holdback Release Payment: 89 Days after publication of the Payment Certificate of Substantial Performance;
 - e) Completion Payment: 28 Days after the date certified as the date on which the Contract reached Completion; and
 - f) Completion Statutory Holdback Release Payment: 89 Days after the date certified as the date that the Work was completed.

- .02 If the Contractor has not complied with the requirements of the Contract, including all documentation requirements, prior to expiration of the time periods described in clause GC 8.02.04.09.01, interest shall only begin to accrue when the Contractor has completed those requirements.

GC 8.02.04.10 Interest for Negotiations and Claims

- .01 Except as hereinafter provided, where a notice of negotiation, notice of intent to claim and the subsequent claims are submitted in accordance with the time limits or procedure or both described by subsection GC 3.13, Claims, Negotiations, Mediation, the Owner shall pay the Contractor the Rate of Interest on the amount of the negotiated price for that part of the Work or on the amount of the settled claim. Such interest shall not commence until 30 Days after the satisfactory completion of that part of the Work.
- .02 Where the Contractor fails to give notice of a claim within the time limit prescribed by subsection GC 3.13, Claims, Negotiations, Mediation, interest shall not be paid.
- .03 Where a Contractor fails to comply with the 30 Day time limit and the procedures prescribed in clause GC 3.13.03.03 for submission of claims, interest shall not be paid for the delay period.

GC 8.02.04.11 Owner's Set-Off

- .01 Pursuant to the Construction Act, the Owner may retain from monies owing to the Contractor under this Contract an amount sufficient to cover any outstanding or disputed liabilities, including the cost to remedy deficiencies, the reduction in value of substandard portions of the Work, claims for damages by third parties that have not been determined in writing by the Contractor's insurer, undetermined claims by the Owner, and any assessment due the Workplace Safety and Insurance Board.
- .02 Under these circumstances the Owner will give the Contractor appropriate notice of such action.

GC 8.02.04.12 Delay in Payment

- .01 The Owner shall not be deemed to be in default of the Contract provided any delay in payment does not exceed the due dates as defined in clause GC 8.02.04.09.01.

GC 8.02.05 Payment on a Time and Material Basis

GC 8.02.05.01 Definitions

- .01 For the purpose of clause GC 8.02.05 the following definitions apply:

Cost of Labour means the amount of wages, salary, travel, travel time, food, lodging, or similar items and Payroll Burden paid or incurred directly by the Contractor to or in respect of labour and supervision actively and necessarily engaged on the Work based on the recorded time and hourly rates of pay for such labour and supervision but shall not include any payment or costs incurred for general supervision, administration, and management time spent on the entire Work or any wages, salary, or Payroll Burden for which the Contractor is compensated by any payment made by the Owner for Equipment.

Cost of Material means the cost of Material purchased or supplied from stock and valued at current market prices for the purpose of carrying out Extra Work by the Contractor or by others, when such arrangements have been made by the Contractor for completing the Work, as shown by itemized invoices.

Operated Rented Equipment means Rented Equipment for which an operator is provided by the supplier of the Equipment and for which the rent or lease includes the cost of the operator.

Payroll Burden means the payments in respect of workplace insurance, vacation pay, employment insurance, public liability and property damage insurance, sickness and accident insurance, pension fund, and such other welfare and benefit payments forming part of the Contractor's normal labour costs.

Rented Equipment means Equipment that is rented or leased for the special purpose of Work on a Time and Material Basis from a person, firm, or corporation that is not an associate of the lessee as the word "associate" is defined by the Securities Act, R.S.O. 1990, c.S.5, as amended, and is approved by the Contract Administrator.

Road Work means the preparation, construction, finishing, and construction maintenance of roads, streets, Highways, and parking lots and includes all work incidentals thereto other than Work on structures.

Sewer and Watermain Work means the preparation, construction, finishing, and construction maintenance of sewer systems and watermain systems, and includes all work incidental thereto other than Work on structures.

Standby Time means any period of time that is not considered Working Time and which together with the Working Time does not exceed 10 hours in any one Working Day and during which time a unit of Equipment cannot practically be used on other Work but must remain on the site in order to continue with its assigned task and during which time the unit is in fully operable condition.

Structure Work means the construction, reconstruction, repair, alteration, remodelling, renovation, or demolition of any bridge, building, tunnel, or retaining wall and includes the preparation for and the laying of the foundation of any bridge, building, tunnel, or retaining wall and the installation of Equipment and appurtenances incidental thereto.

The 127 Rate means the rate for a unit of Equipment as listed in OPSS.PROV 127, Schedule of Rental Rates for Construction Equipment, Including Model and Specification Reference, that is current at the time the work is carried out or for Equipment that is not so listed, the rate that has been calculated by the Owner, using the same principles as used in determining The 127 Rates.

Work on a Time and Material Basis means Changes in the Work, Extra Work, and Additional Work approved by the Contract Administrator for payment on a Time and Material basis. The Work on a Time and Material Basis shall be subject to all the terms, conditions, Standard Specifications and provisions of the Contract.

Working Time means each period of time during which a unit of Equipment is actively and of necessity engaged on a specific operation and the first 2 hours of each immediately following period during which the unit is not so engaged but during which the operation is otherwise proceeding and during which time the unit cannot practically be transferred to other Work but must remain on the site in order to continue with its assigned tasks and during which time the unit is in a fully operable condition.

GC 8.02.05.02 Daily Work Records

- .01 Daily Work Records, prepared as the case may be by either the Contractor's representative or the Contract Administrator reporting the labour and Equipment employed and the Material used on each Time and Material project, should be reconciled and signed each Day by both the Contractor's representative and the Contract Administrator. If it is not possible to reconcile the Daily Work Records, then the Contractor shall submit the un-reconciled Daily Work Records with its claim, whereby the resolution of the dispute about the Daily Work Records shall not be resolved until there is a resolution of the claim.

GC 8.02.05.03 Payment for Work

- .01 Payment as herein provided shall be full compensation for all labour, Equipment, and Material to do the Work on a Time and Material Basis except where there is agreement to the contrary prior to the commencement of the Work on a Time and Material Basis. The payment adjustments on a Time and Material basis shall apply to each individual Change Order authorized by the Contract Administrator.

GC 8.02.05.04 Payment for Labour

- .01 The Owner shall pay the Contractor for labour employed on each Time and Material project at 135% of the Cost of Labour up to \$3,500, then at 120% of any portion of the Cost of Labour in excess of \$3,500.
- .02 The Owner shall make payment in respect of Payroll Burden for Work on a Time and Material Basis at the Contractor's actual cost of Payroll Burden.
- .03 At the Owner's discretion, an audit may be conducted in which case the actual Payroll Burden so determined shall be applied to all Time and Material work on the Contract.

GC 8.02.05.05 Payment for Material

- .01 The Owner shall pay the Contractor for Material used on each Time and Material project at 120% of the Cost of the Material up to \$3,500, then at 115% of any portion of the Cost of Material in excess of \$3,500.

GC 8.02.05.06 Payment for Equipment

GC 8.02.05.06.01 Working Time

- .01 The Owner shall pay the Contractor for the Working Time of all Equipment, other than Rented Equipment and Operated Rented Equipment, used on the Work on a Time and Material basis at The 127 Rates with a cost adjustment as follows:
 - a) Cost \$12,000 or less - no adjustment;
 - b) Cost greater than \$12,000 but not exceeding \$24,000 - payment \$12,000 plus 90% of the portion in excess of \$12,000; and
 - c) Cost greater than \$24,000 - \$22,800 plus 80% of the portion in excess of \$24,000.
- .02 The Owner shall pay the Contractor for the Working Time of Rented Equipment used on the Work on a Time and Material Basis at 110% of the invoice price approved by the Contract Administrator up to a maximum of 110% of the 127 Rate. This constraint shall be waived when the Contract Administrator approves the invoice price prior to the use of the Rented Equipment.
- .03 The Owner shall pay the Contractor for the Working Time of Operated Rented Equipment used on the Work on a Time and Material Basis at 110% of the Operated Rented Equipment invoice price approved by the Contract Administrator prior to the use of the Equipment on the Work on a Time and Material Basis.

GC 8.02.05.06.02 Standby Time

- .01 The Owner shall pay the Contractor for Standby Time of Equipment at 35% of The 127 Rate or 35% of the invoice price whichever is appropriate. The Owner shall pay reasonable costs for Rented Equipment where this is necessarily retained in the Working Area for extended periods agreed to by

the Contract Administrator. This shall include Rented Equipment intended for use on other work, but has been idled due to the circumstances giving rise to the Work on a Time and Material Basis.

- .02 In addition, the Owner shall include the Cost of Labour of operators or associated labourers who cannot be otherwise employed during the Standby Time or during the period of idleness caused by the circumstances giving rise to the Work on a Time and Material Basis.
- .03 The Contract Administrator may require Rented Equipment idled by the circumstances giving rise to the Work on Time and Material Basis to be returned to the lessor until the Work requiring the Equipment can be resumed. The Owner shall pay such costs as a result from such return.
- .04 When Equipment is transported, solely for the purpose of the Work on a Time and Material Basis, to or from the Working Area on a Time and Material basis, payment shall be made by the Owner only in respect of the transporting units. When Equipment is moved under its own power it shall be deemed to be working. The method of moving Equipment and the rates shall be subject to the approval of the Contract Administrator.

GC 8.02.05.07 Payment for Hand Tools

- .01 Notwithstanding any other provision of this Section, no payment shall be made to the Contractor for or in respect of Hand Tools or Equipment that are tools of the trade.

GC 8.02.05.08 Payment for Work by Subcontractors

- .01 Where the Contractor arranges for Work on a Time and Material Basis, or a part of it, to be performed by Subcontractors on a Time and Material basis and has received approval prior to the commencement of such Work, in accordance with the requirements of subsection GC 3.09, Subcontracting by the Contractor, the Owner shall pay the cost of Work on a Time and Material Basis by the Subcontractor calculated as if the Contractor had done the Work on a Time and Material Basis, plus a markup calculated on the following basis:
 - a) 20% of the first \$3,500; plus
 - b) 15% of the amount from \$3,500 to \$12,000; plus
 - c) 5% of the amount in excess of \$12,000.
- .02 No further markup shall be applied regardless of the extent to which the work is assigned or sublet to others. If Work is assigned or sublet to an associate, as defined by the Securities Act, no markup whatsoever shall be applied.

GC 8.02.05.09 Submission of Invoices

- .01 At the start of the Work on a Time and Material Basis, the Contractor shall provide the applicable labour and Equipment rates not already submitted to the Contract Administrator during the course of such Work.
- .02 Separate summaries shall be completed by the Contractor. Each summary shall include the Change Directive or Change Order number and covering dates of the Work and shall itemize separately the labour, Materials, and Equipment. Invoices for Materials, Rented Equipment, and other charges incurred by the Contractor on the Work on a Time and Material Basis shall be included with each summary.

- .03 Each month the Contract Administrator shall include with the monthly progress payment, the costs of the Work on a Time and Material Basis incurred during the preceding month all in accordance with the contract administrative procedures and the Contractor's invoice of the Work on a Time and Material Basis.
- .04 The final summary as per clause 8.02.05.09.02 shall be submitted by the Contractor within 60 Days after the completion of the Work on a Time and Material Basis.

GC 8.02.05.10 Payment Other Than on a Time and Material Basis

- .01 Clause GC 8.02.05 does not preclude the option of the Contract Administrator and the Contractor negotiating a Lump Sum Item or unit price payment for Change in the Work, Extra Work, and Additional Work.

GC 8.02.05.11 Payment Inclusions

- .01 Except where there is agreement in writing to the contrary, the compensation, as herein provided, shall be accepted by the Contractor as compensation in full for profit and all costs and expenses arising out of the Work, including all cost of general supervision, administration, and management time spent on the Work, and no other payment or allowance shall be made in respect of such Work.

GC 8.02.06 Final Acceptance Certificate

- .01 After the acceptance of the Work or, where applicable, after the Warranty Period has expired, the Contract Administrator shall issue the Final Acceptance Certificate. The Final Acceptance Certificate shall not be issued until all known deficiencies have been adjusted or corrected, as the case may be, and the Contractor has discharged all obligations under the Contract.
- .02 Any remaining amount of security shall be released upon Final Acceptance of the Contract.

GC 8.02.07 Records

- .01 The Contractor shall maintain and keep accurate Records relating to the Work, Changes in the Work, Extra Work, Additional Work and claims arising therefrom. Such Records shall be of sufficient detail to support the total cost of the Work, Changes in the Work, Extra Work, Additional Work and claims arising therefrom. The Contractor shall preserve all such original Records until 12 months after the Final Acceptance Certificate is issued or until all claims have been settled, whichever is longer. The Contractor shall require that Subcontractors employed by the Contractor preserve all original Records pertaining to the Work, Changes in the Work, Extra Work, Additional Work and claims arising therefrom for a similar period of time.
- .02 The Owner may inspect and audit the Contractor's Records relating to the Work, Changes in the Work, Extra Work, and Additional Work at any time during the period of the Contract. The Contractor shall supply certified copies of any part of its Records required, whenever requested by the Owner.

GC 8.02.08 Taxes

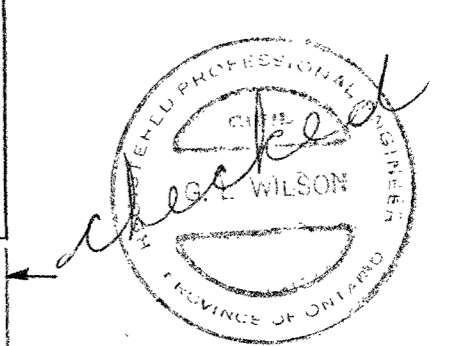
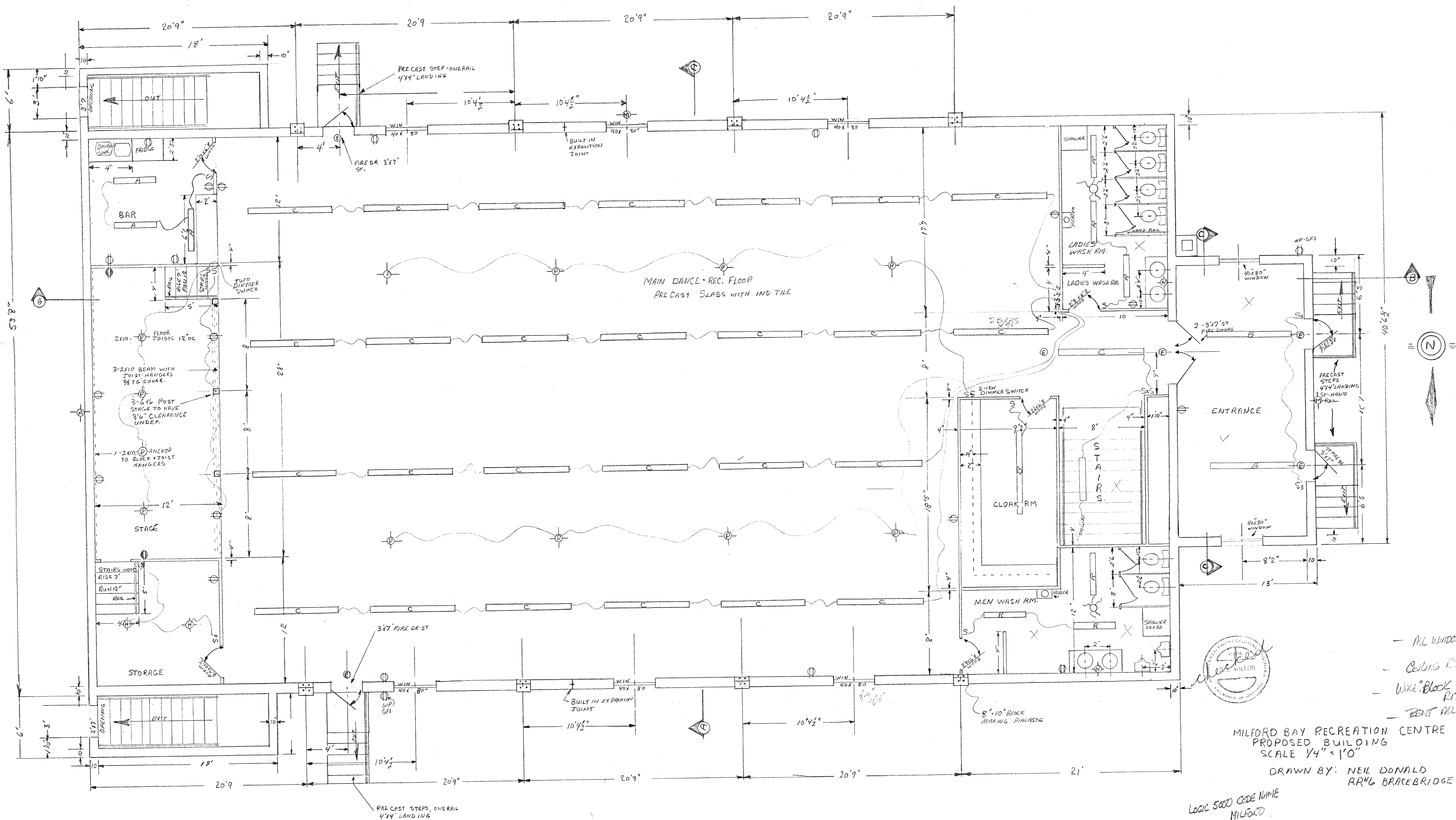
- .01 Where a change in Canadian Federal or Provincial taxes occurs after the date of tender closing for this Contract, and this change could not have been anticipated at the time of Tender, the Owner shall increase or decrease Contract payments to account for the exact amount of tax change involved.

- .02 Claims for compensation for additional tax cost shall be submitted by the Contractor to the Contract Administrator on forms provided by the Contract Administrator to the Contractor. Such claims for additional tax costs shall be submitted not less than 30 Days after the date of Final Acceptance.
- .03 Where the Contractor benefits from a change in Canadian Federal or Provincial taxes, the Contractor shall submit to the Contract Administrator on forms provided by the Contract Administrator, a statement of such benefits. This statement shall be submitted not later than 30 Days after Final Acceptance.
- .04 Changes in Canadian Federal or Provincial taxes that impact upon commodities, which when left in place form part of the finished Work, or the provision of services, where such services form part of the Work and where the manufacture or supply of such commodities or the provision of such services is carried out by the Contractor or a Subcontractor, are subject to a claim or benefit as detailed above. Services in the latter context means the supply and operation of Equipment, the provision of labour, and the supply of commodities that do not form part of the Work.
- .05 The Contractor shall add the Harmonized Sales Tax (HST) to all invoices.

GC 8.02.09 Liquidated Damages

- .01 When liquidated damages are specified in the Contract and the Contractor fails to complete the Work in accordance with the Contract, the Contractor shall pay such amounts as are specified in the Contract Documents.

Appendix B: As-Built Drawings

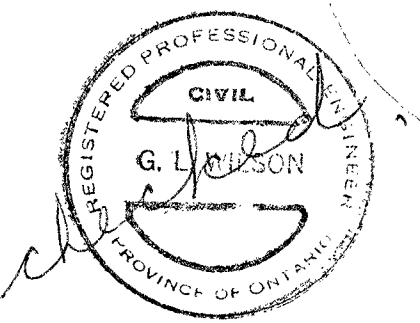
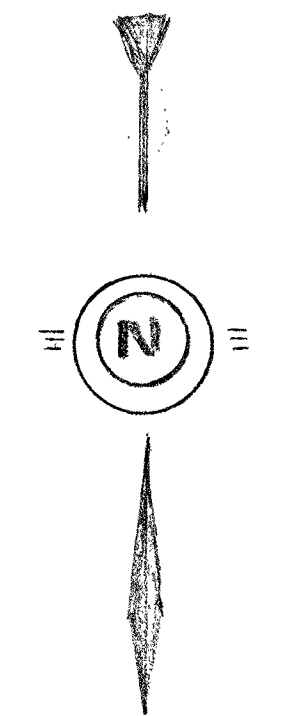
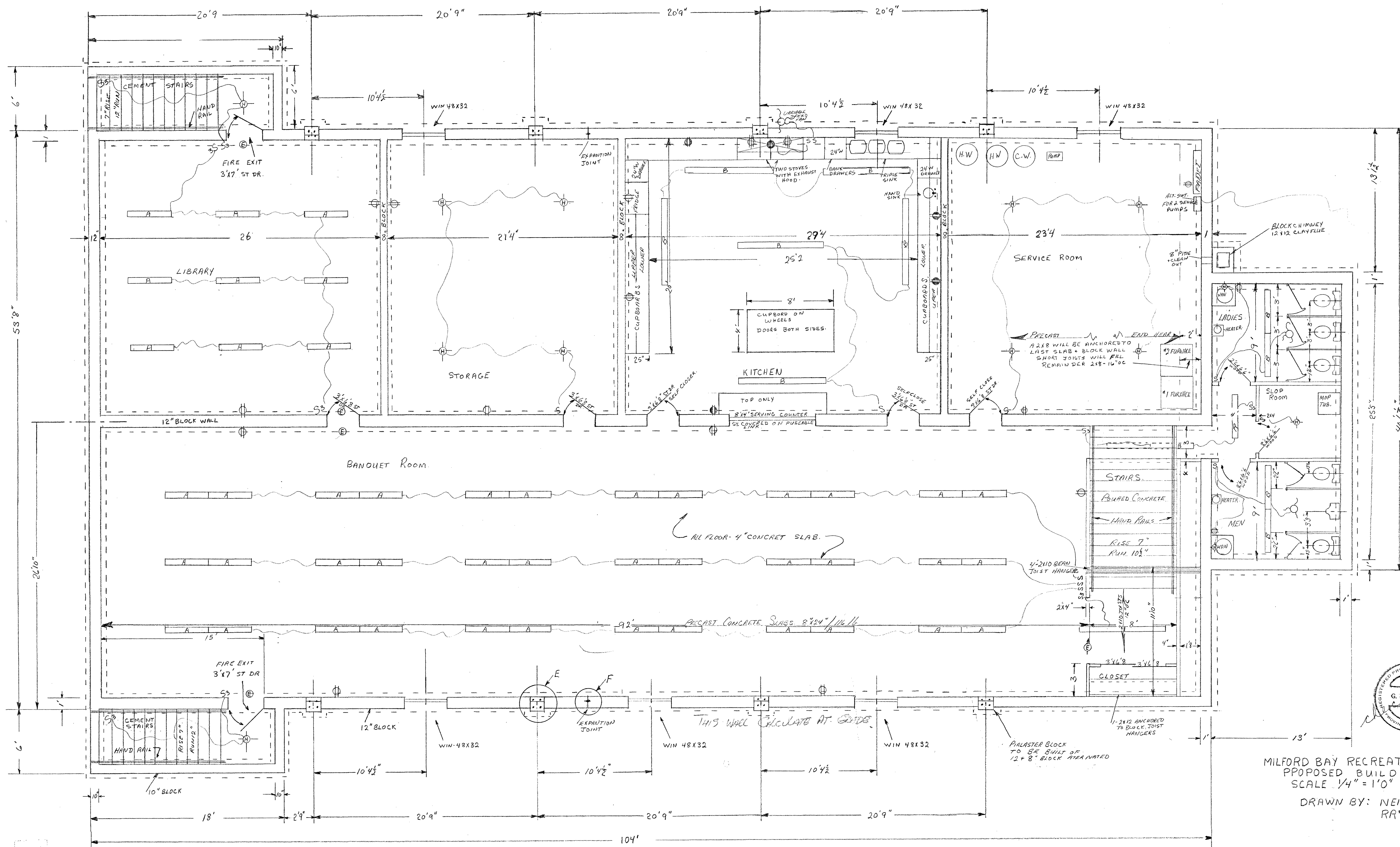


MILFORD BAY RECREATION CENTRE
 PROPOSED BUILDING
 SCALE 1/4" = 1'0"

DRAWN BY: NEIL DONALD
 RR#6 BRACEBRIDGE

LOGIC 5000 CODE NAME
 MILFORD

- ALL WINDOWS THERMOPLASTIC
- CEILING R20
- WALL "BLOCK CONSTRUCTION" R10
- FLOOR ALL BELOW GRADE R12 MIN.



MILFORD BAY RECREATION CENTRE
 PROPOSED BUILDING
 SCALE 1/4" = 1'0"
 DRAWN BY: NEIL DONALD
 RA#6 BRACEBRIDGE

Appendix C: Revised Drawings

MECHANICAL LEGEND

DOMESTIC COLD WATER PIPING	
DOMESTIC HOT WATER PIPING	
DOMESTIC HOT WATER RE-CIRCULATION PIPING	
PROPANE GAS PIPING	
SANITARY WASTE PIPING	
CONDENSATE DRAIN PIPING	
SANITARY VENT	
HYDRONIC HOT WATER RETURN PIPING	
HYDRONIC HOT WATER SUPPLY PIPING	
HYDRONIC HOT WATER RETURN PIPING (40% PG)	
HYDRONIC HOT WATER SUPPLY PIPING (40% PG)	
REFRIGERANT LIQUID PIPING	
REFRIGERANT SUCTION PIPING	
PIPE UP	
PIPED DOWN	
ISOLATION VALVE	
BACKFLOW PREVENTER	
PRESSURE RELIEF VALVE (PRV)	
WATER METER	
NATURAL GAS METER	
AIR FLOW DIRECTION	
EXISTING SERVICES OR EQUIPMENT	
EXISTING SERVICES OR EQUIPMENT TO BE REMOVED	
FLOOR DRAIN C/W TRAP	
SUPPLY DUCT UP/DOWN	
RETURN DUCT UP/DOWN	
SPIRAL DUCT UP/DOWN	
FIRE DAMPER	
BALANCING DAMPER	
MOTORIZED DAMPER	
THERMOSTAT	
DETAIL NUMBER	
SHEET NUMBER/ DETAIL LOCATION	
SIZE (INCHES)	
GRILLE/DIFFUSER TAG (SEE SCHEDULE)	
AIR FLOW- IMPERIAL: CFM, METRIC: L/S	

REVISION CLOUD

REVISION NUMBER

3
M8

S1 10" ø
250

AIR HANDLING UNIT SCHEDULE

TAG	MAKE	MODEL	SUPPLY AIR FAN		E.S.P. (IN WC)	COOLING		HEATING			ELECTRICAL				STRUCTURAL			ACCESSORIES/REMARKS		
			MAX FLOW (CFM)			TOTAL	SENSIBLE	HYDRONIC HEATING COIL			V/ø/Hz	FLA	MCA	MOCP	WEIGHT (LB)	DIMENSIONS (IN)				
			SA	OA				CAPACITY (MBH)	HOT WATER FLOW RATE (GPM)	HOT WATER TEMPERATURE (°F)						HEIGHT	WIDTH		LENGTH	
AHU-1	JOHNSON CONTROLS	AMI-H08	4,000	1,070	0.75	115.8	88.5	196.2	13.3	140	110	208/3/60	16.8	21.0	35.0	1,132	34"	48"	110"	C/W 4" BASE RAIL, DOUBLE WALL CASING, NON-FUSED DISCONNECT, LEFT HAND FAN ACCESS, SUPPLY AIR FAN ARRANGEMENT 1, VFD MOTOR CONTROL, SPRING ISOLATION, LEFT HAND FILTER ACCESS, 2" 30% PLEATED MERV 8 FILTER, LEFT HAND INLET ACCESS, MIXING BOX W/ 2 INLET DAMPERS: TOP AND REAR, LEFT HAND MOTOR, ODP PREMIUM MOTOR, DX COIL: GALVANIZED COIL CASING, GALVANIZED DRAIN PAN, LEFT HAND COIL HANDLING, 0.016" TUBE WALL, AND PROGRAMMABLE THERMOSTAT.
AHU-2	JOHNSON CONTROLS	FNPO8	760	640	0.3	24.6	16.8	11.6	0.7	140	110	115/1/60	4.8	6.0	15.0	176	16-3/4"	39-7/8"	47-1/4"	C/W BC02 24V UNIT S/S RELAY/FAN OPERATION RELAY & TRANSFORMER, GALVANIZED COIL CASING, CONTROL ENCLOSURE: HANDING OPPOSITE OF COIL 1, ENCLOSURE MOUNT: UNIT MOUNTED, FILTER BOTTOM ACCESS, GALVANIZED DRAIN PAN, INLET OPTION: MIXING BOX WITH LINKAGE, MIXING BOX DAMPER LOCATION: TOP AND REAR INLET, MOTOR CONTROL: 3 SPEED FIXED, 00012 TOGGLE DISCONNECT SWITCH - 15 AMPS, REAR RETURN, STANDARD FIBERGLASS, PROGRAMMABLE THERMOSTAT, RIGHT HAND DX COIL, HOT WATER COIL: FIELD PROVIDED PIPING PACKAGE SIZE 1/2", MANUAL AIR VENT, 1/2" VALVE PACKAGE, AND RIGHT HAND ACCESS

CONDENSING UNIT SCHEDULE

TAG	MAKE	MODEL	COOLING CAPACITY (MBH)	REFRIGERANT TYPE	ELECTRICAL			STRUCTURAL			ACCESSORIES/REMARKS	
					V/ø/Hz	MCA	MOCP	DIMENSIONS (IN)				WEIGHT (LB)
								HEIGHT	WIDTH	LENGTH		
CU-1	JOHNSON CONTROLS	KC120C00A2GLB1	113.0	R-454B	208/3/60	38.7	50	50"	32"	59"	435	27.4 LBS REFRIGERANT CHARGE, 80 FT. ONE WAY, 7/8" LIQUID LINE, 1-3/8" SUCTION LINE
CU-2	FRASER-JOHNSTON	XC324E2S11	22.5	R-454B	208/1/60	12.7	20	37"	26"	26"	135	3.6 LBS REFRIGERANT CHARGE, 30 FT. ONE WAY, 3/8" LIQUID LINE, 3/4" SUCTION LINE

ERV SCHEDULE

TAG	MAKE	MODEL	AIRFLOW (CFM)		E.S.P. (IN WC)		ELECTRICAL						STRUCTURAL		ACCESSORIES/REMARKS
			SUPPLY	EXHAUST	SUPPLY	EXHAUST	SUPPLY FAN			EXHAUST FAN			WEIGHT (LB)	DIMENSIONS (IN) (HxWxD)	
							V/ø/Hz	FLA	HP	V/ø/Hz	FLA	HP			
ERV-1	RUSKIN	MV1500XE	1070	1070	1.0	0.5	208/1/60	7.4	0.75	208/1/60	7.4	0.75	278	22x55x36	C/W VIBRATION ISOLATION DAMPERS
ERV-2	RUSKIN	MV750XE	640	640	1.0	0.5	208/1/60	5.0	0.5	208/1/60	5.0	0.5	261	22x47x32	C/W VIBRATION ISOLATION DAMPERS

LOUVER SCHEDULE

TAG	MAKE	MODEL	WIDTH (IN)	HEIGHT (IN)	E.S.P. (IN WC)	VOLUME (CFM)	VELOCITY (FPM)	AIRFLOW DIRECTION	ACCESSORIES/REMARKS
LV-1	GREENHECK	ESD-403	24	24	0.063	1,070	602	INTAKE	C/W BIRD SCREEN
LV-2	GREENHECK	ESD-403	24	24	0.063	1,070	602	EXHAUST	C/W BIRD SCREEN
LV-3	GREENHECK	ESD-403	20	20	0.054	640	556	INTAKE	C/W BIRD SCREEN

MOTORIZED DAMPER SCHEDULE

TAG	MAKE	MODEL	WIDTH (IN)	HEIGHT (IN)	ACCESSORIES/REMARKS
MD-1a	TAMCO	9000 ECT	24	24	C/W 24V BELIMO ACTUATOR
MD-1b	TAMCO	9000 ECT	24	24	C/W 24V BELIMO ACTUATOR
MD-2a	TAMCO	9000 ECT	20	20	C/W 24V BELIMO ACTUATOR
MD-2b	TAMCO	9000 ECT	15	7	C/W 24V BELIMO ACTUATOR

FAN SCHEDULE

TAG	MAKE	MODEL	ELECTRICAL			RPM	AIRFLOW (CFM)	E.S.P. (IN WC)	ACCESSORIES/REMARKS
			V/ø/Hz	HP	FLA				
EF-1,2,3,4	GREENHECK	SP-B150	120/1/60	1/5	1.8	1050	150	0.25	C/W INTEGRATED BACKDRAFT DAMPER
EF-5	GREENHECK	SP-A390-VG	120/1/60	1/20	1.5	1069	250	0.25	C/W INTEGRATED BACKDRAFT DAMPER
EF-6	GREENHECK	SP-A390-VG	120/1/60	1/20	1.5	1196	300	0.25	C/W INTEGRATED BACKDRAFT DAMPER

DIFFUSER & GRILLE SCHEDULE

TAG	MAKE	MODEL	SERVICE	ACCESSORIES/REMARKS
S1	E.H. PRICE	ARCD	SUPPLY AIR	ROUND CONE DIFFUSER, ALUMINUM, 4 CONES, FULLY ADJUSTABLE C/W BALANCING DAMPER.
S2	E.H. PRICE	610	SUPPLY AIR	DOUBLE DEFLECTION, SUPPLY REGISTER, ALUMINUM C/W BALANCING DAMPER, CONFIRM COLOUR WITH OWNER.
R1	E.H. PRICE	630	RETURN AIR	LOUVERED RETURN GRILLE W/ 45 DEG. DEFLECTION, 3/4" BLADE SPACING, ALUMINUM, CONFIRM COLOUR WITH OWNER.

FIRE DAMPER SCHEDULE

TAG	MAKE	MODEL	TYPE	FIRE RATING (HRS)	ORIENTATION	ACCESSORIES/REMARKS
FD-1	E.H. PRICE	FDD-B	B	1-1/2	VERTICAL	CAN/ULC-S112 CLASSIFIED DYNAMIC FIRE DAMPER, REFER TO DRAWINGS FOR SIZING
FD-2	E.H. PRICE	FDD-VAG	A	1-1/2	VERTICAL	CAN/ULC-S112 CLASSIFIED DYNAMIC FIRE DAMPER, REFER TO DRAWINGS FOR SIZING

DISCLAIMER AND COPYRIGHT
 CONTRACTOR MUST VERIFY ALL DIMENSIONS AND BE RESPONSIBLE FOR SAME. ANY DISCREPANCIES MUST BE REPORTED TO THE ENGINEER BEFORE COMMENCING WORK. DRAWINGS ARE NOT TO BE SCALED.
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BENCHMARKS

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NOTES

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No.	REVISION DESCRIPTION	DATE
1.	ISSUED FOR PERMIT AND TENDER	NOV/24
2.	ISSUED FOR ADDENDUM 1	DEC/24

ENGINEER STAMP

MILFORD BAY COMMUNITY CENTRE
 MILFORD BAY, ON

LEGEND & SCHEDULES

TATHAM ENGINEERING

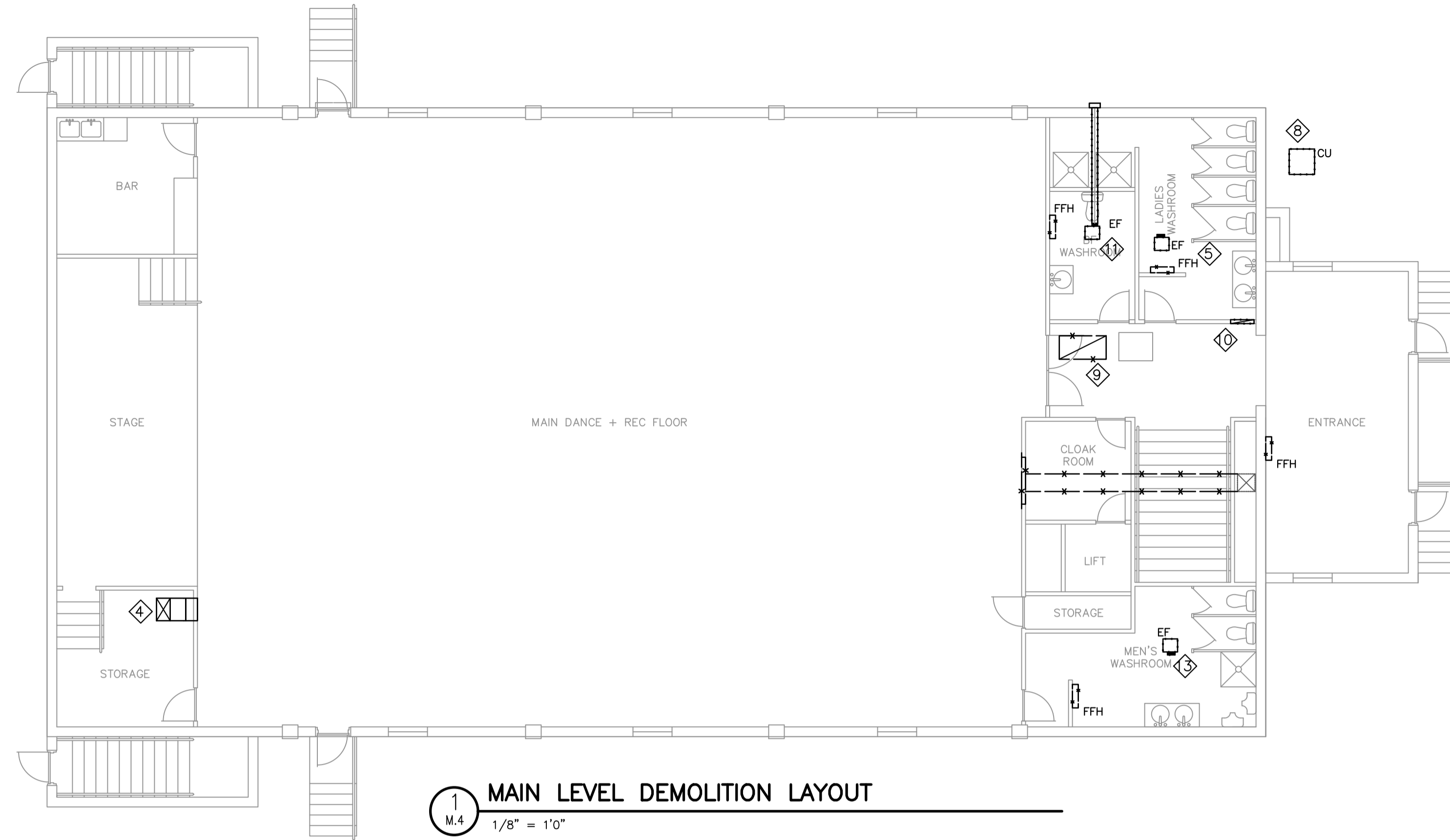
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DRAWING NOTES

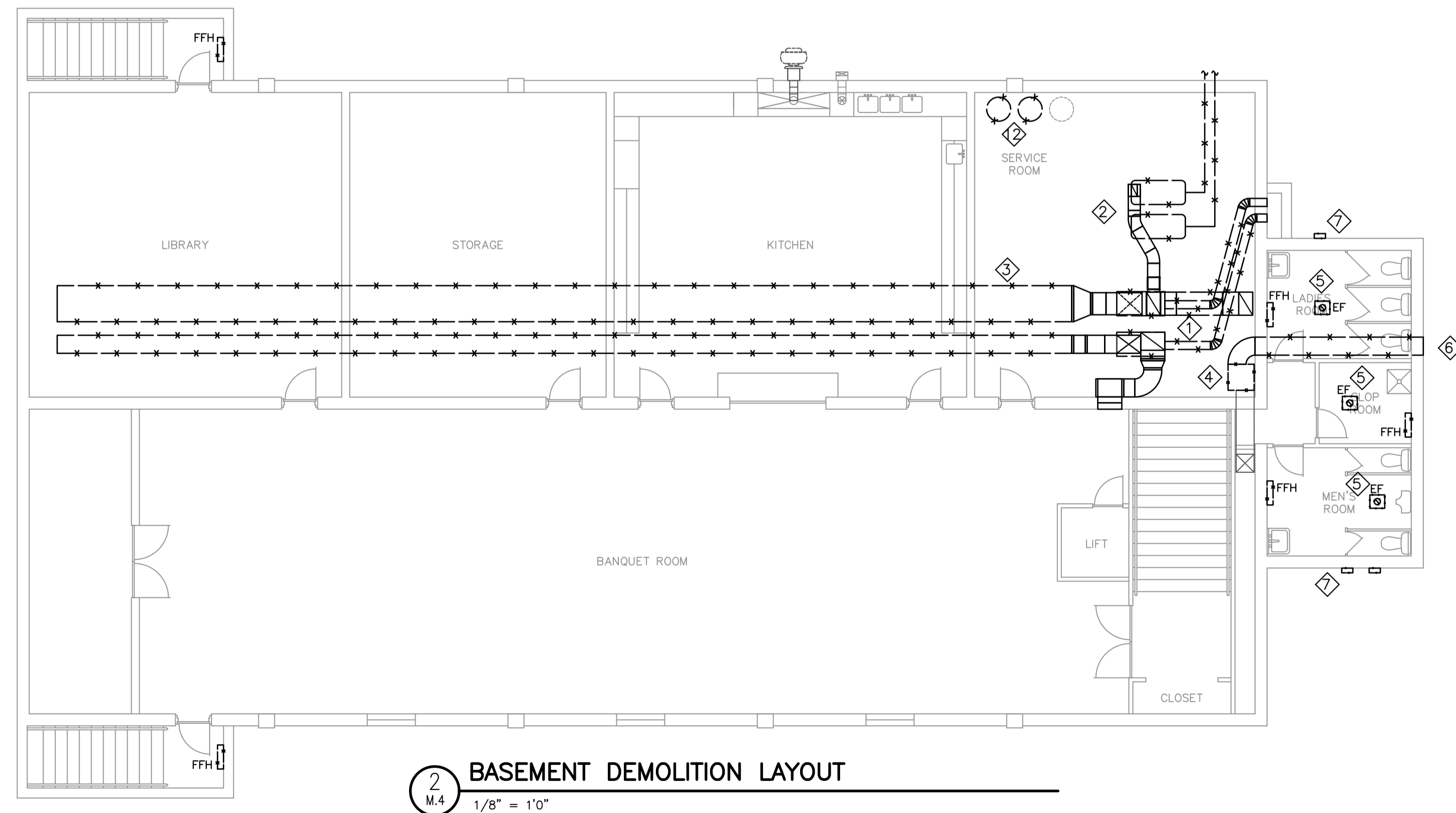
- ① REMOVE EXISTING FURNACE UNITS INCLUDING DUCTING AND FLUE VENTING.
- ② REMOVE EXISTING DIESEL FUEL STORAGE TANKS AND ASSOCIATED PIPING SYSTEMS.
- ③ REMOVE EXISTING SUPPLY AND RETURN DUCTING SYSTEMS IN THEIR ENTIRETY INCLUDING GRILLES AND FITTINGS.
- ④ REMOVE EXISTING EXHAUST FAN, OUTDOOR AIR INTAKE AND EXHAUST DUCTING WHERE INDICATED. KEEP EXHAUST FAN INLET DUCTING FOR REUSE AS INDICATED AND CLEAN DUCT BY APPROVED NADCA DUCT CLEANER. OUTDOOR AIR INTAKE DUCTING SHALL BE CAPPED WITH SHEET METAL AT CEILING LEVEL.
- ⑤ REMOVE EXISTING EXHAUST FAN AND LEAVE DUCTING IN PLACE.
- ⑥ INFILL AND PATCH EXISTING FAN LOUVER OPENING WITH CONCRETE MASONRY UNIT AND NON-SHRINK GROUT.
- ⑦ EXHAUST FAN OPENINGS IN HOLLOW CORE SLAB AND EXHAUST AIR WALL PENETRATIONS TO BE PATCHED AND SEALED WITH CONCRETE.
- ⑧ REMOVE EXISTING AIR CONDITIONING UNIT, CONDENSING UNIT AND ALL ASSOCIATED REFRIGERANT PIPING SYSTEMS.
- ⑨ REMOVE EXISTING 24"x48" R/A GRILLE AND PATCH DRYWALL CEILING OPENING.
- ⑩ REMOVE EXISTING 12"x24" R/A GRILLE AND PATCH DRYWALL OPENING.
- ⑪ REMOVE EXISTING EXHAUST FANS AND ASSOCIATED DUCTING.
- ⑫ REMOVE EXISTING DOMESTIC HOT WATER HEATERS.
- ⑬ CONTRACTOR SHALL CONFIRM EXISTING SIZE AND ROUTING OF EXHAUST FAN. FINDINGS SHALL BE PROVIDED TO ENGINEER AND OWNER.

GENERAL NOTES

EXISTING GRILLES AND DIFFUSERS NOT SHOWN ON DEMOLITION DRAWINGS ARE TO REMAIN IN PLACE.



1 MAIN LEVEL DEMOLITION LAYOUT
1/8" = 1'0"



2 BASEMENT DEMOLITION LAYOUT
1/8" = 1'0"

DISCLAIMER AND COPYRIGHT

CONTRACTOR MUST VERIFY ALL DIMENSIONS AND BE RESPONSIBLE FOR SAME. ANY DISCREPANCIES MUST BE REPORTED TO THE ENGINEER BEFORE COMMENCING WORK. DRAWINGS ARE NOT TO BE SCALED.

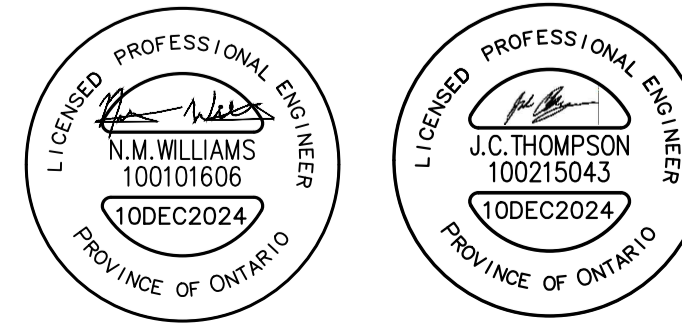
TATHAM ENGINEERING LIMITED CLAIMS COPYRIGHT TO THIS DRAWING WHICH MAY NOT BE USED FOR ANY PURPOSE OTHER THAN THAT PROVIDED IN THE CONTRACT BETWEEN THE OWNER/CLIENT AND THE ENGINEER WITHOUT THE EXPRESS CONSENT OF TATHAM ENGINEERING LIMITED.

BENCHMARKS

NOTES

No.	REVISION DESCRIPTION	DATE
1.	ISSUED FOR PERMIT AND TENDER	NOV/24
2.	ISSUED FOR ADDENDUM 1	DEC/24

ENGINEER STAMP



MILFORD BAY COMMUNITY CENTRE
MILFORD BAY, ON



DEMOLITION LAYOUT

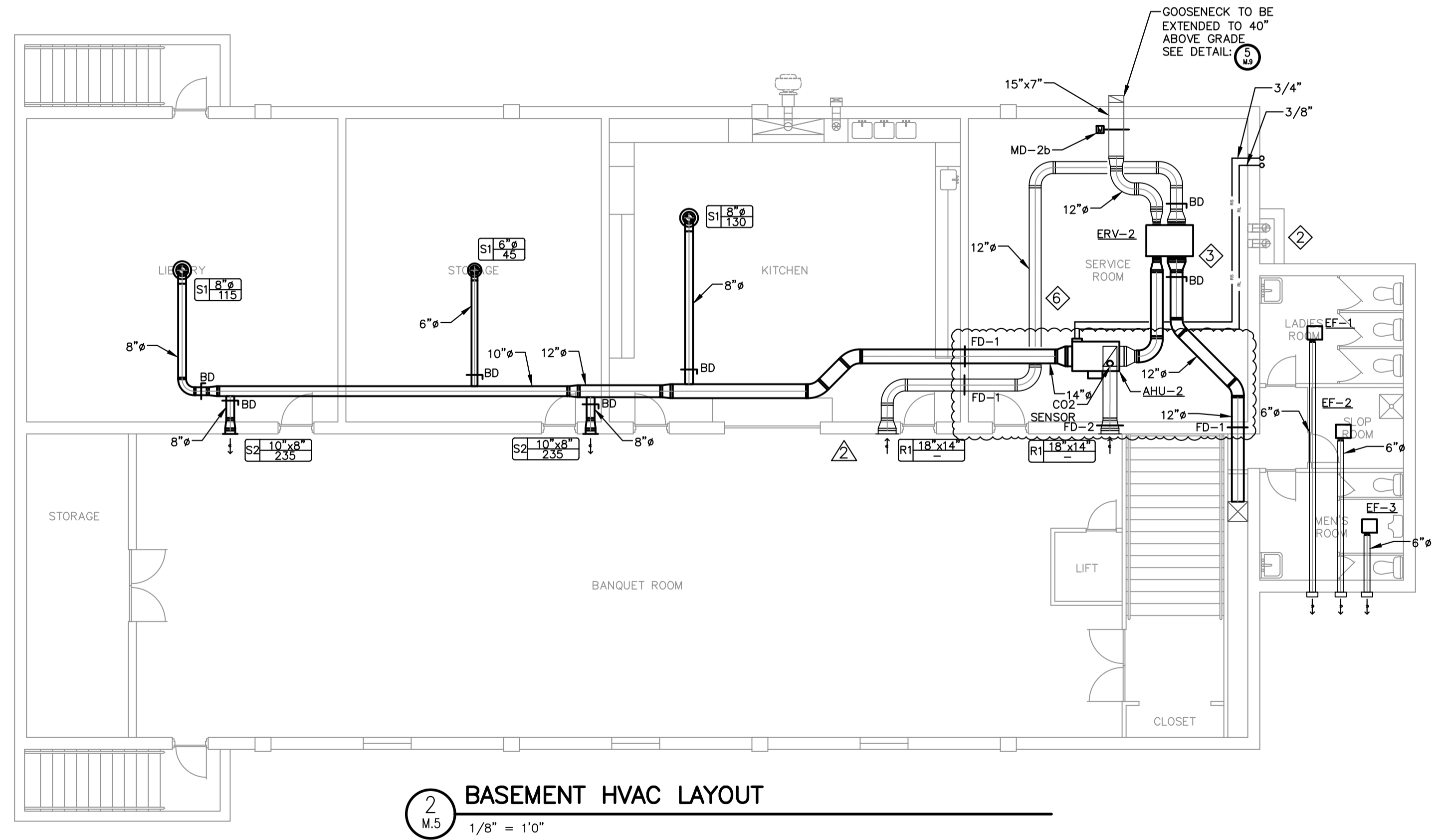
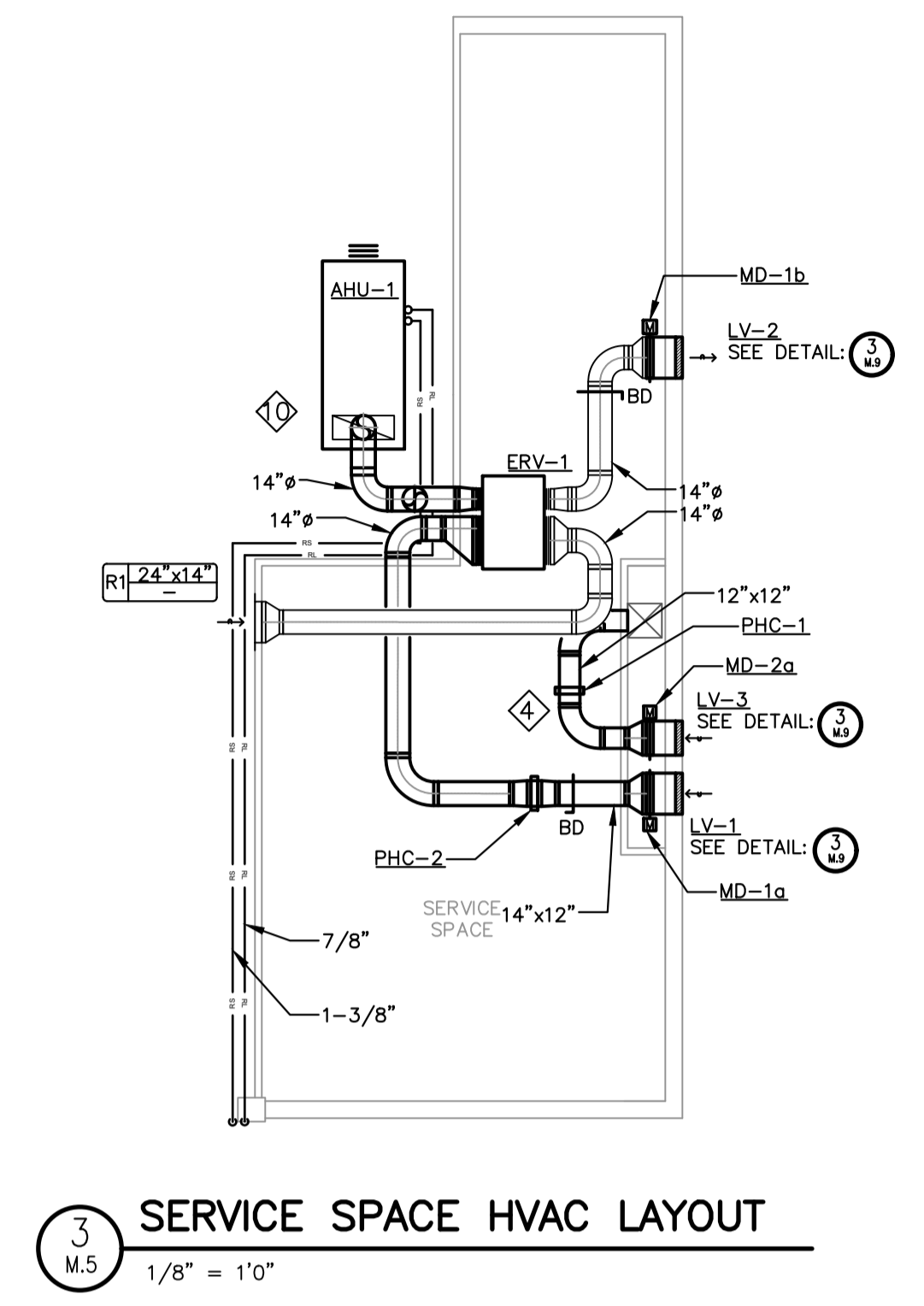
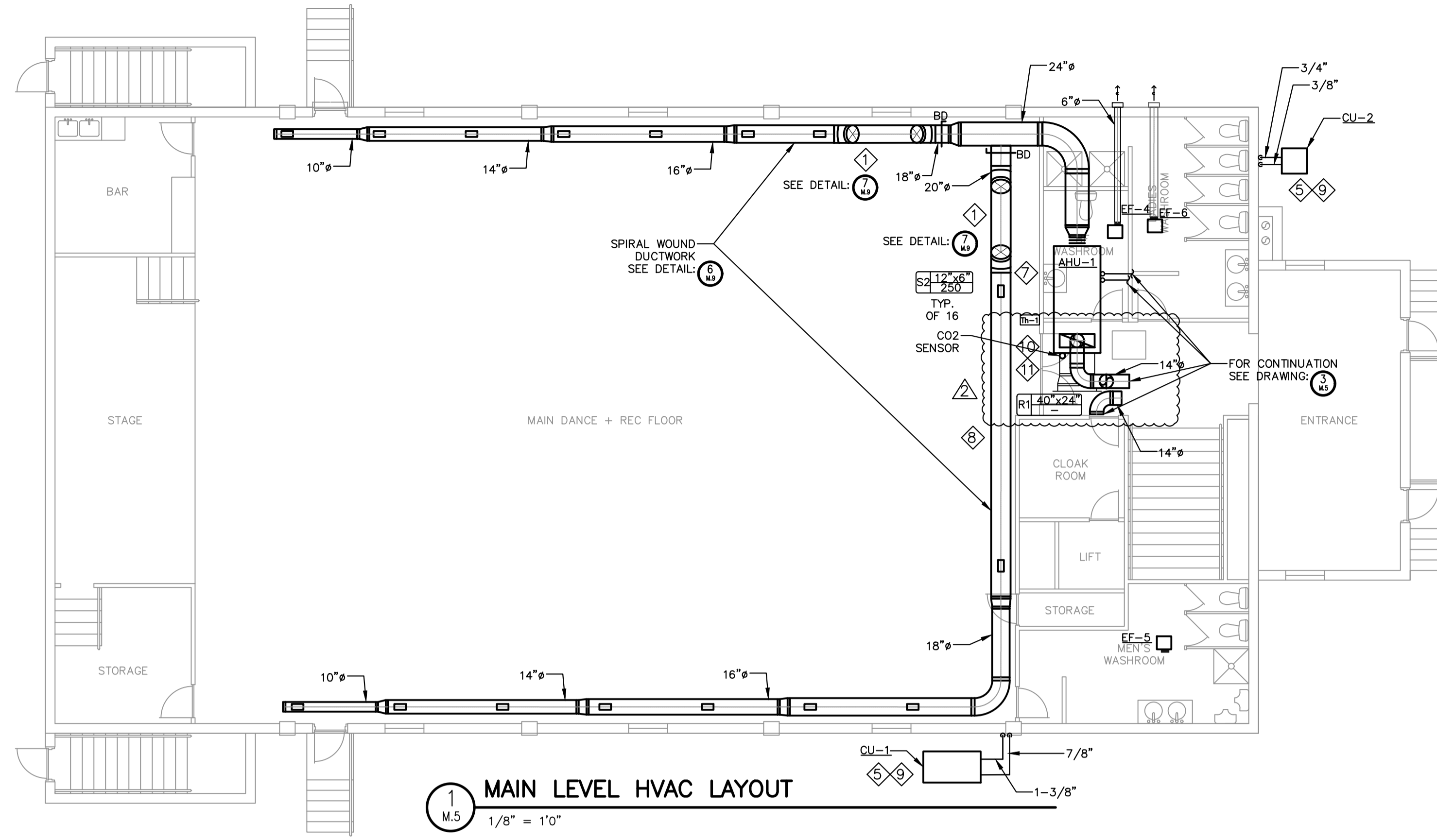
DESIGN: JT	FILE: 123056	DWG:
DRAWN: ML	DATE: DEC 2024	M.4
CHECK: NW	SCALE: AS SHOWN	

DRAWING NOTES

- ① DUCT TO UNDERSIDE OF CEILING.
- ② EXISTING OIL FURNACE EXHAUST DUCTS TO BE CAPPED WITH SHEET METAL AT EXTERIOR WALL.
- ③ ERV, HEATING COIL, AND COOLING COIL CEILING MOUNTED ON VIBRATION ISOLATORS.
- ④ INTAKE DUCT TO BE INSULATED UP TO PRE-HEATER.
- ⑤ MAINTAIN MANUFACTURERS RECOMMENDED CLEARANCES FROM BUILDING. PROVIDE LEVELED CONCRETE PAD WITH 6" OF LIMESTONE FILL TO PREVENT SETTLING.
- ⑥ AHU-2 CONDENSATE DRAIN TO BE PIPED TO EXISTING FLOOR DRAIN.
- ⑦ AHU-1 CONDENSATE DRAIN TO BE PIPED TO NEW HUB DRAIN LOCATED UNDER BY WASHROOM LAVATORY. TIE NEW HUB DRAIN INTO LAVATORY DRAIN BEFORE TRAP.
- ⑧ COORDINATE HVAC DUCTWORK INSTALLATION TO AVOID EXISTING ACOUSTIC PANELING. REMOVE ACOUSTIC PANELING AS REQUIRED.
- ⑨ MAINTAIN PROPOSED CONDENSING UNIT LOCATIONS. IF ALTERNATE LOCATIONS ARE CONSIDERED, CONSULT ENGINEER FOR INFORMATION.
- ⑩ ERV SUPPLY AIR TO BE DUCT DOWN TO TOP OF AHU-1 MIXING-BOX FROM HIGH LEVEL.
- ⑪ AHU MIXING BOX TO BE COMPLETE WITH ACOUSTICALLY LINED DUCTWORK TO RETURN AIR GRILLE.

H.V.A.C. DUCTWORK DISTRIBUTION NOTES

SPIRAL DUCT TO BE PROVIDED WHERE DUCTWORK WILL BE EXPOSED TO OCCUPIED SPACES



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BENCHMARKS

NOTES

No.	REVISION DESCRIPTION	DATE
1.	ISSUED FOR PERMIT AND TENDER	NOV/24
2.	ISSUED FOR ADDENDUM 1	DEC/24

ENGINEER STAMP

LICENSED PROFESSIONAL ENGINEER
N.M. WILLIAMS
100101606
10DEC2024
PROVINCE OF ONTARIO

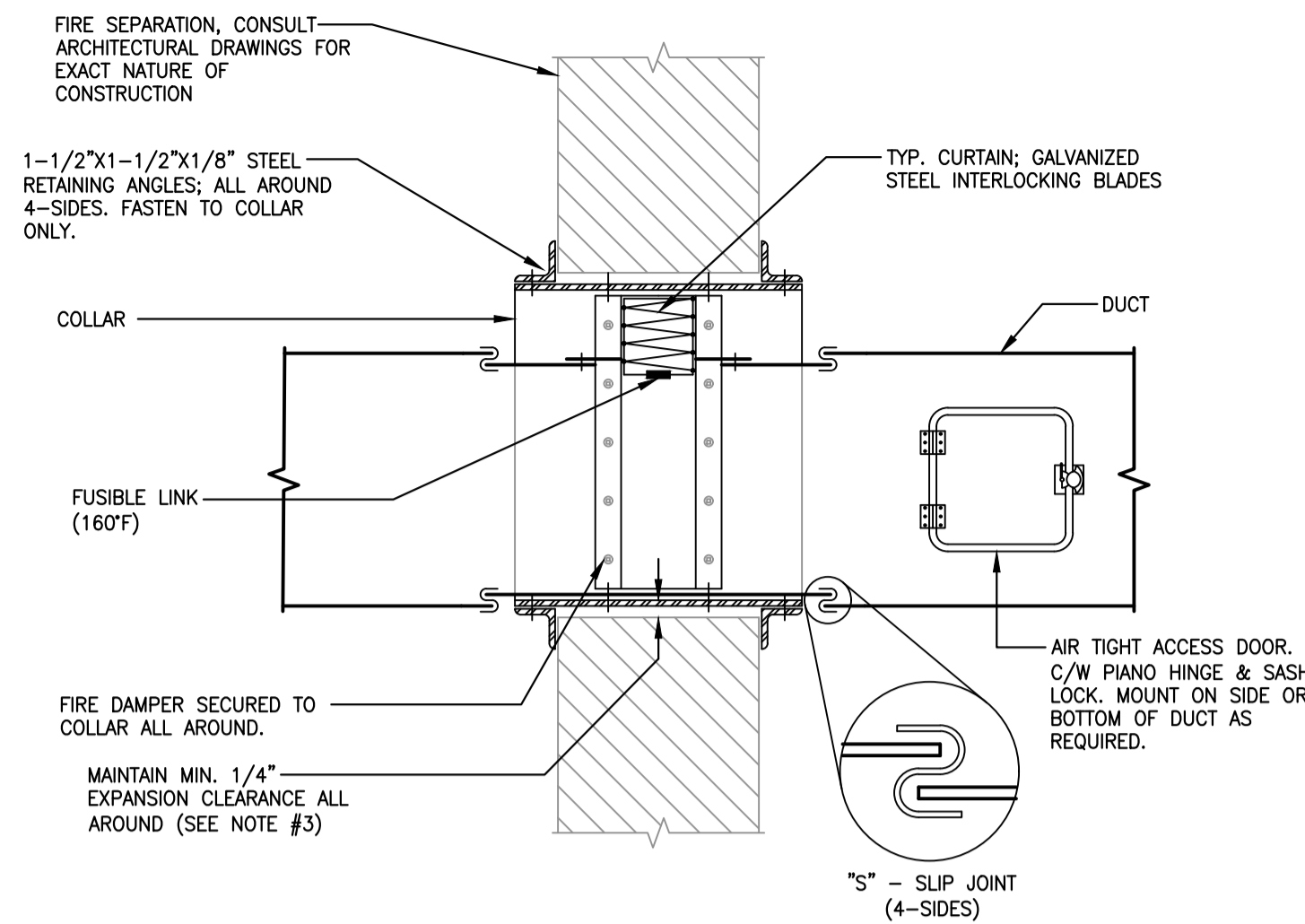
LICENSED PROFESSIONAL ENGINEER
J.C. THOMPSON
100215043
10DEC2024
PROVINCE OF ONTARIO

MILFORD BAY COMMUNITY CENTRE
MILFORD BAY, ON

HVAC LAYOUT

TATHAM ENGINEERING

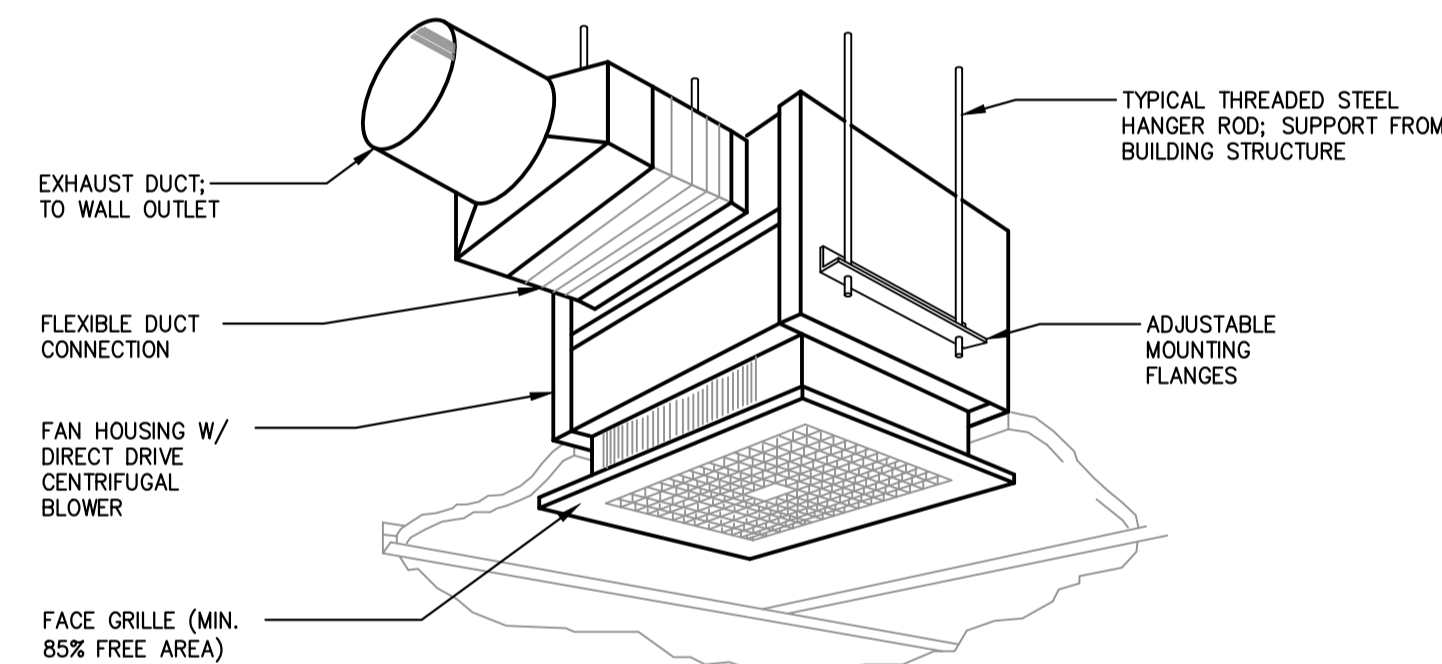
DESIGN: JT	FILE: 123056	DWG: M.5
DRAWN: ML	DATE: DEC 2024	
CHECK: NW	SCALE: AS SHOWN	



- NOTES:
1. FRAME, BLADES, AND COLLAR SHALL BE GALVANIZED STEEL CONSTRUCTION. COLLAR SHALL BE MIN. 14 GA.
 2. FOLLOW MANUFACTURER'S INSTRUCTIONS FOR THE INSTALLATION OF TYPE-"B" EXTERNAL CURTAIN FIRE DAMPERS. STANDARD OF ACCEPTANCE CONTROLLED AIR MANUFACTURING LIMITED, RUSKIN MANUFACTURING, OR HAILOR INDUSTRIES INC.
 3. DO NOT SEAL AROUND RETAINING ANGLES W FIRESTOP CAULKS AND/OR PUTTYS. DO NOT FILL ANNULAR SPACE (EXPANSION VOID) W FIRESTOP MATERIAL.
 4. HORIZONTAL INSTALLATION SIMILAR, C/W STAINLESS STEEL CLOSURE SPRING.
 5. SUBMIT SHOP DRAWINGS TO THE ENGINEER FOR REVIEW PRIOR TO INSTALLATION.

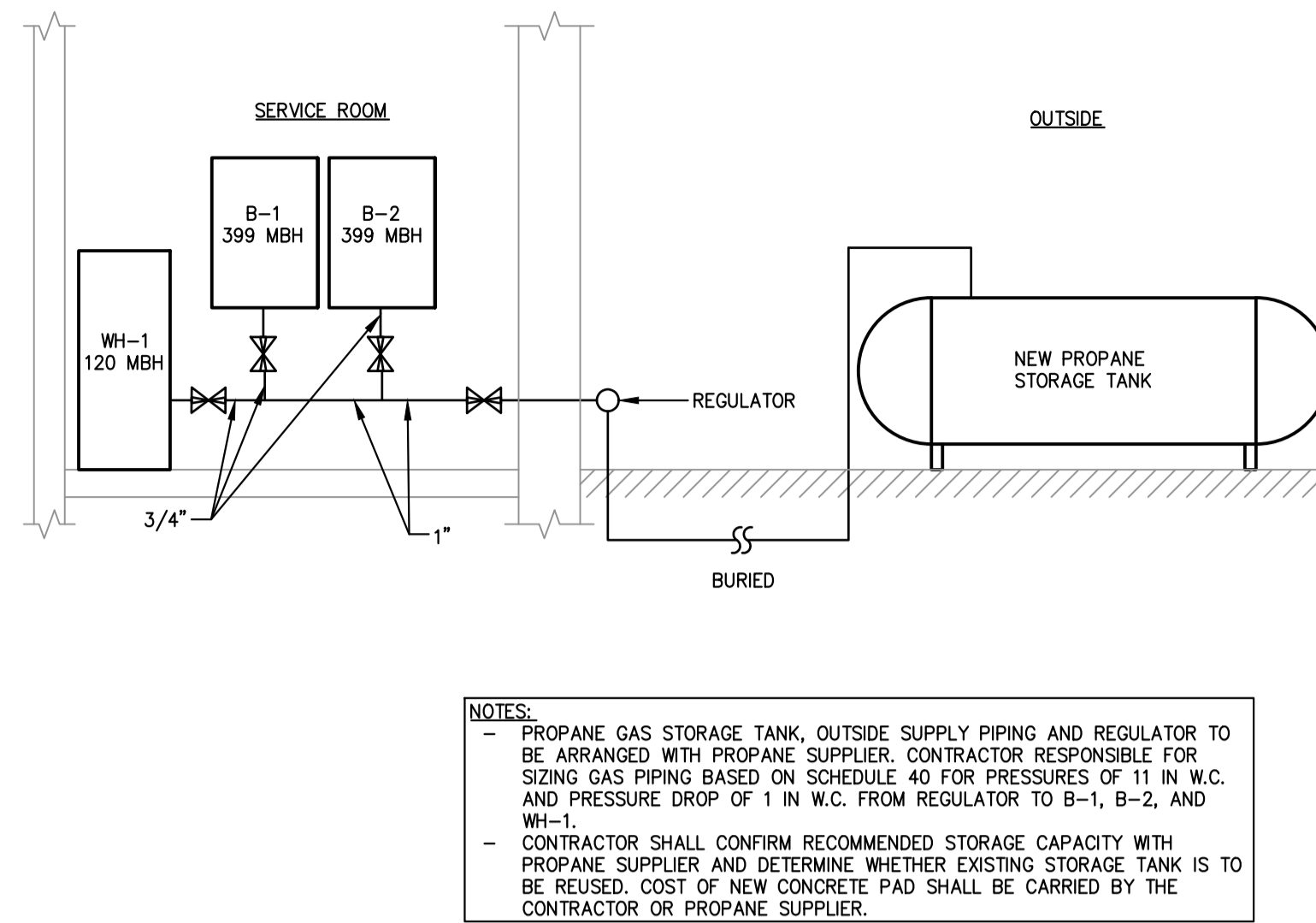
1 FIRE DAMPER DETAIL

M.9 - N.T.S.



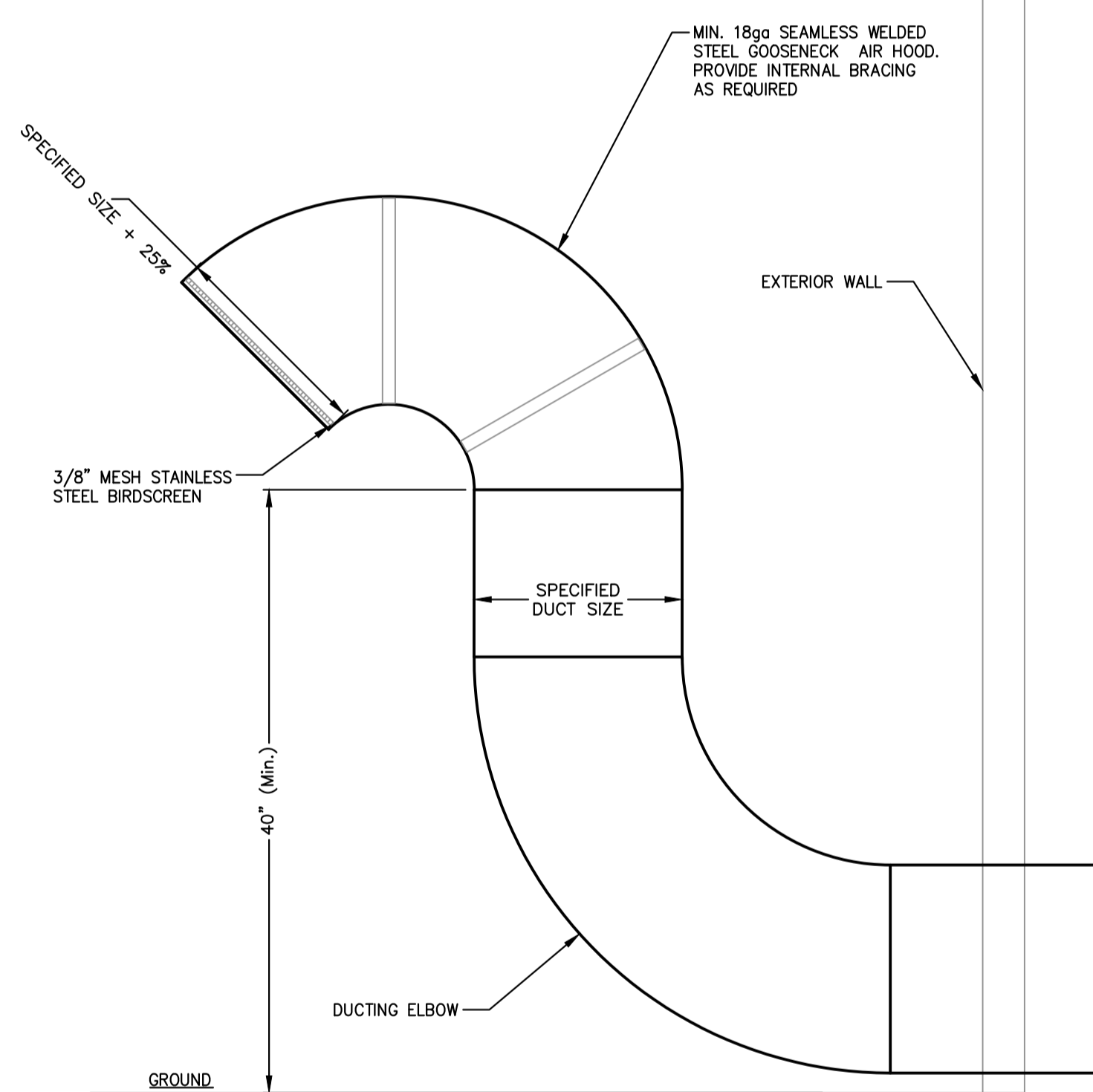
4 CEILING MOUNTED EXHAUST FAN DETAIL

M.9 - N.T.S.



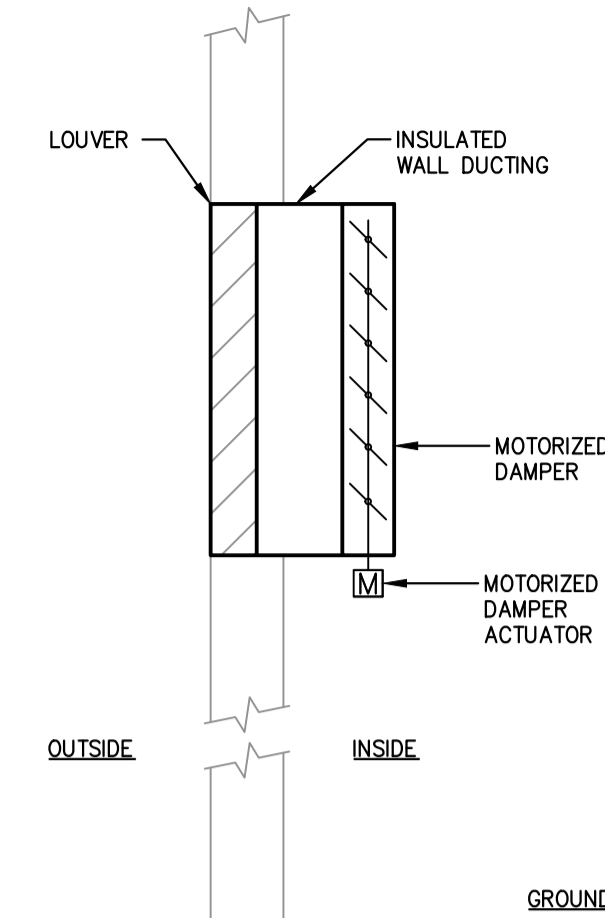
2 PROPANE GAS SCHEMATIC DETAIL

M.9 - N.T.S.



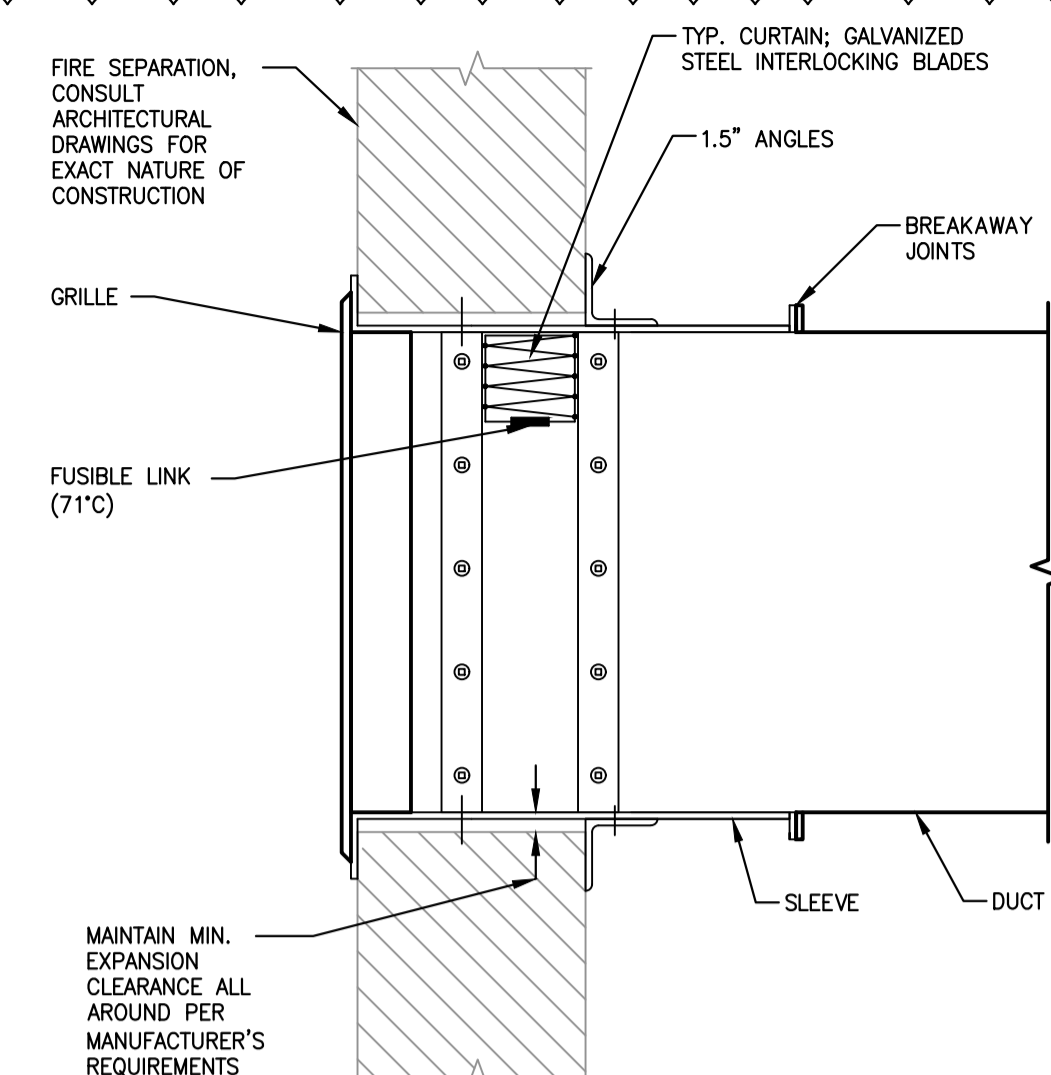
5 GROUND GOOSENECK DETAIL

M.9 - N.T.S.



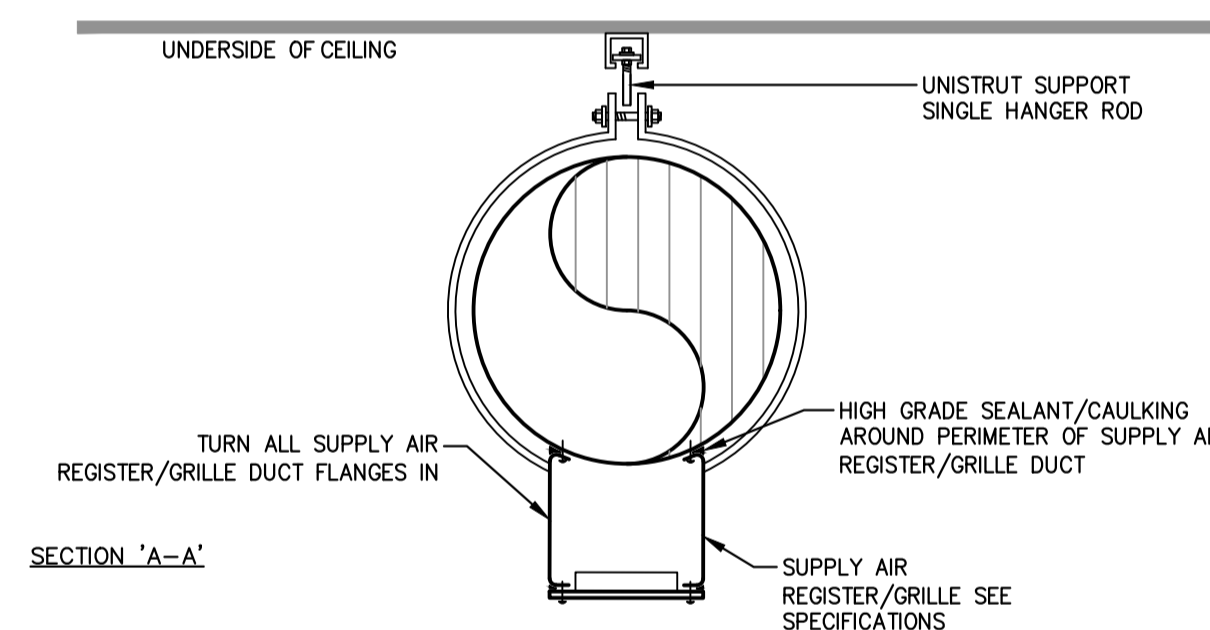
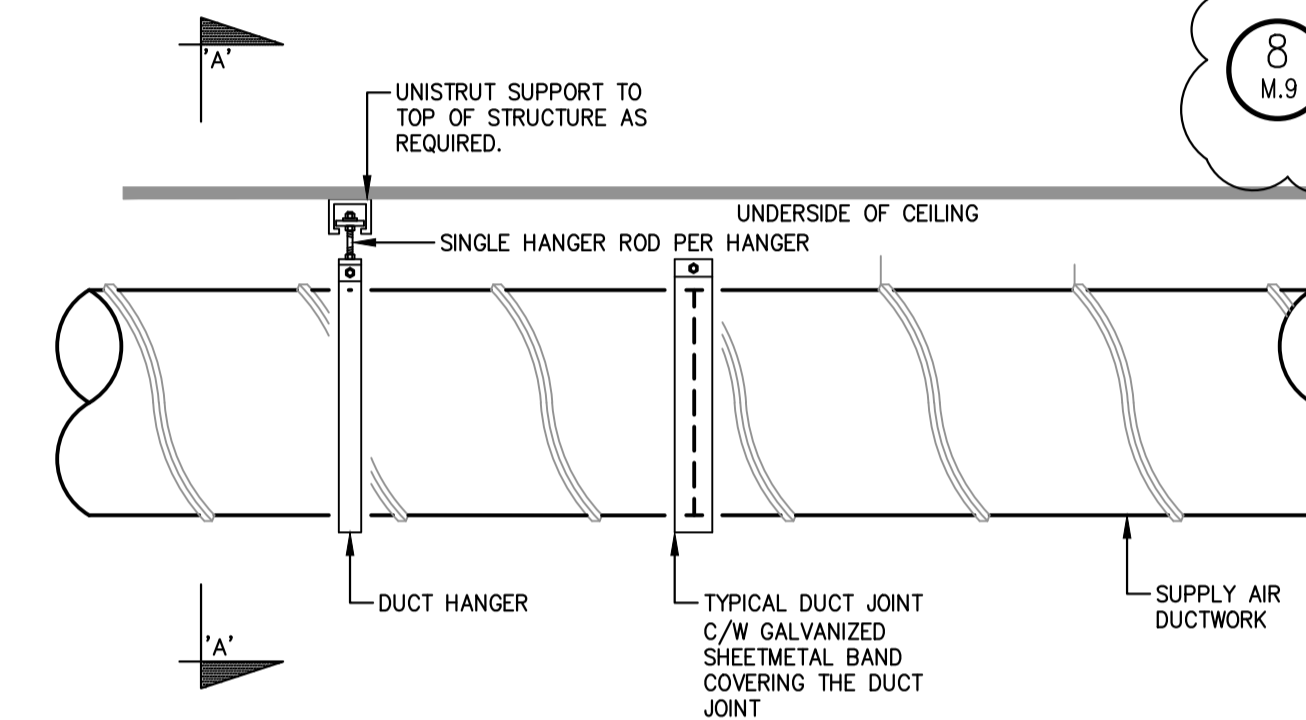
3 MOTORIZED DAMPER DETAIL

M.9 - N.T.S.



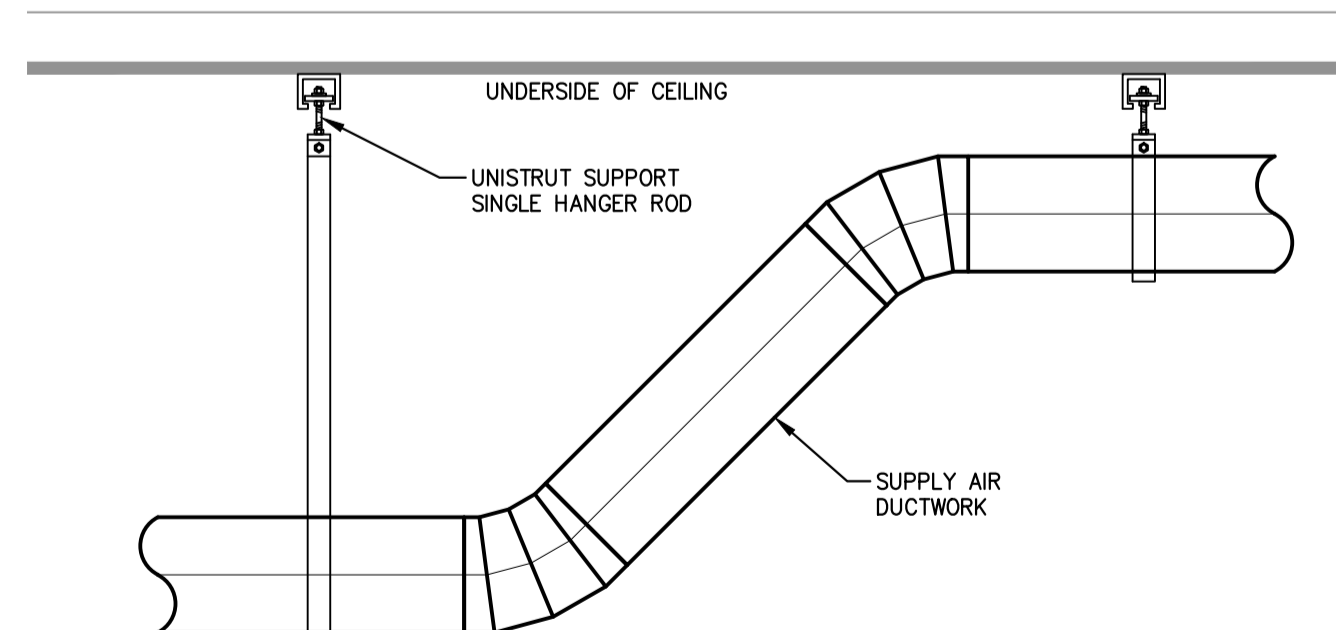
8 FIRE DAMPER AND GRILLE ASSEMBLY

M.9 - N.T.S.



6 EXPOSED SPIRAL DUCTWORK DETAILS

M.9 - N.T.S.



7 VERTICAL DUCT OFFSET DETAIL

M.9 - N.T.S.

DISCLAIMER AND COPYRIGHT
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BENCHMARKS

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ENGINEER STAMP

LICENSED PROFESSIONAL ENGINEER
N.M. WILLIAMS
100101606
10DEC2024
PROVINCE OF ONTARIO

LICENSED PROFESSIONAL ENGINEER
J.C. THOMPSON
100215043
10DEC2024
PROVINCE OF ONTARIO

MILFORD BAY COMMUNITY CENTRE
MILFORD BAY, ON

MECHANICAL DETAILS

TATHAM ENGINEERING

DESIGN: JT FILE: 123056 DWG: M.9
DRAWN: ML DATE: DEC 2024
CHECK: NW SCALE: AS SHOWN

GENERAL SYMBOLS

DETAIL SYMBOL:
 X = DETAIL NUMBER
 YZ = DRAWING NUMBER

▲ EQUIPMENT SUPPLIED BY ANOTHER DIVISION, INSTALLATION, WIRING AND CONDUIT BY DIVISION 16
 ■ EQUIPMENT NOT SUPPLIED UNDER THIS CONTRACT, INSTALLATION, WIRE AND CONDUIT BY DIVISION 16

⚡ SYMBOL INDICATES A DEVICE LOCATION, SEE BELOW (# DENOTES LOCATION NUMBER)
 ⚡ SYMBOL INDICATES MODIFICATION OR NEW WORK NOTE (# DENOTES NOTE NUMBER)
 Ⓝ SYMBOL INDICATES REMOVAL NOTE (# DENOTES REMOVAL NOTE NUMBER)

DEVICE LOCATIONS

▲ DEVICE LOCATED IN SERVICE ROOM
 ▲ DEVICE LOCATED NEAR EQUIPMENT

SINGLE LINE SYMBOLS AND CONTROL DIAGRAMS

SYMBOL	DESCRIPTION
	CIRCUIT BREAKER, MOULDED CASE WITH THERMAL & MAGNETIC TRIPS
	CURRENT TRANSFORMER
	CAPACITOR
	CONTROL POWER TRANSFORMER (CPT)
	FUSE
	FUSIBLE DISCONNECT SWITCH
	NON-FUSIBLE DISCONNECT SWITCH
	DRY-TYPE POWER TRANSFORMER (INDOOR)
	OIL-FILLED POWER TRANSFORMER (OUTDOOR)
	TIMER
	CONTACTOR (C) COIL, WITH COIL SUPPRESSOR
	CONTACT, N.O. AND N.C.
	TERMINAL BLOCK
	TEMPERATURE SWITCH, N.O AND N.C.
	SINGLE PHASE MOTOR
	LIGHT SWITCH C/W BACK BOX: - "S" INDICATES 2-WIRE SWITCH
	DISCONNECT SWITCH, UN-FUSED, # DENOTES NUMBER OF POLES
	THERMOSTAT
	REVISION MARKER - "#" DENOTES DURING WHICH ISSUE A REVISION WAS MADE

ALL SYMBOLS/DEVICES/ABBREVIATIONS LISTED MAY NOT APPLY

REMOVAL NOTES

GENERAL NOTES FOR ALL REMOVAL WORKS:
 • UNLESS OTHERWISE NOTED, "REMOVE" OR "REMOVED" INDICATES CONTRACTOR TO DISCONNECT, REMOVE AND DISPOSE OF ELECTRICAL EQUIPMENT AND/OR DEVICE INCLUDING POWER FEED CONDUITORS, CONDUIT AND/OR CABLE(S).
 • CONTRACTOR TO COORDINATE WITH THE TOWNSHIP ALL EQUIPMENT TO BE REMOVED AND EQUIPMENT TO BE SAVED.
 • CONTRACTOR TO ASSIST THE TOWNSHIP WITH DELIVERY OF EQUIPMENT TO BE SAVED, WITHIN THE TOWN.
 • ALL REMOVED EQUIPMENT TO BE DISPOSED BY THE CONTRACTOR.
 • CONTRACTOR TO PREPARE AN ELECTRICAL REMOVAL SCHEDULE FOR REVIEW WITH ENGINEER AND OWNER PRIOR TO BEGINNING ANY SHUT DOWN WORK.
 • ALL REMOVAL WORK SCHEDULES REQUIRED BY THE CONTRACTOR ARE TO BE APPROVED BY ENGINEER AND OWNER FIVE (5) WORKING DAYS PRIOR TO ANY POWER SHUTDOWN.
 • THE REMOVAL WORK IS TO OCCUR AFTER BUSINESS HOURS. CONTRACTOR IS TO INCLUDE ALL NECESSARY PREMIUM LABOUR TIME TO PERFORM REMOVAL WORK ON WEEKENDS, EVENINGS OR OTHER "NON-REGULAR" TIMES AS DIRECTED BY THE TOWNSHIP

NOTES

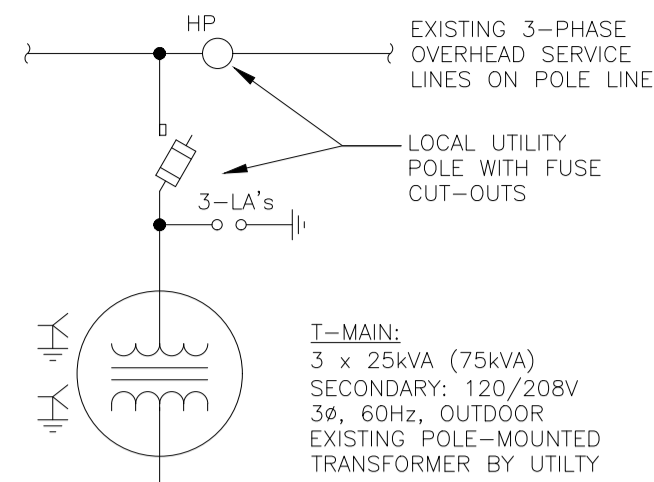
1 CONTRACTOR TO PROVIDE HVAC UNIT TIMER CONTROL PANEL (NEMA 4X) FOR CONDENSING UNITS CU-1 AND CU-2 AND (NEMA 12) FOR AIR HANDLING UNIT AHU-1, ENERGY RECOVERY VENTILATORS ERV-1 AND ERV-2.
 2 CONTRACTOR TO PROVIDE LOCAL DISCONNECT SWITCH (NEMA 4X) FOR CONDENSING UNITS CU-1 AND CU-2 AND (NEMA 12) FOR AIR HANDLING UNIT AHU-1.

ELECTRICAL EQUIPMENT LIST Summer Loads														Project Name: Milford Bay Community Centre		Original Date: 23-Sep-24							
Total Connected Load (kW): 76														System Voltage: 208		PF: 0.90		Phases: 3		Wires: 4		Service Size: 200AMPS, 120/208V, 3-Phase	
Total Demand Load (kW): 54														System Ampacity (based on Normal Demand): 168		Check MCA: 0							
Rev. No.	Item of Tag No.	Description	Location	Motor HP	Connected Load			Demand Load			Power Supply			Starter Type	Controls Description								
					kW	MCA	DCP	D.F.	kW	Volts	Phase	Hz	Amps										
New Loads																							
	ERV-1	Lower Level ERV	Lower Level Service Room		2.30			1	2.30	208	1	60			Delay Timer set at 120 seconds								
	ERV-2	Upper Level ERV	Upper Level		3.48			1	3.48	208	1	60			Delay Timer set at 150 seconds								
	AHU-1	Air Handling Unit	Upper Level		6.80			1	6.80	208	3	60			Delay Timer set at 90 seconds								
	AHU-2	Air Handling Unit	Lower Level		0.70			1	0.70	120	1	60											
	HW-1	Hot Water Tank	Lower Level Service Room		0.60			1	0.60	120	1	60											
	B-1	Condensing Boiler	Lower Level Service Room		1.44			1	1.44	120	1	60											
	B-2	Condensing Boiler	Lower Level Service Room		1.80			1	1.80	120	1	60											
	EF-1	Bathroom Fan	Lower Level Ladies room		0.21			0.5	0.11	120	1	60											
	EF-2	Bathroom Fan	Lower Level Strip room		0.21			0.5	0.11	120	1	60											
	EF-3	Bathroom Fan	Lower Level Men's room		0.21			0.5	0.11	120	1	60											
	EF-4	Bathroom Fan	Upper Level Men's Washroom		0.18			0.5	0.09	120	1	60											
	EF-5	Bathroom Fan	Upper Level Ladies Washroom		0.18			0.5	0.09	120	1	60											
	EF-6	Bathroom Fan	Upper Level Washroom		0.18			0.5	0.09	120	1	60											
	CU-1	Condensing Unit	Upper Level		12.50			0	0.00	208	3	60			Delay Timer set at 30 seconds								
	CU-2	Condensing Unit	Lower Level		2.37			0	0.00	208	1	60			Delay Timer set at 60 seconds								
	BP-1	Boiler Pump	Lower Level Service Room		0.27			0	0.00	120	1	60			Power fed from B-1								
	BP-2	Boiler Pump	Lower Level Service Room		0.10			0	0.00	120	1	60			Power fed from B-2								
	IP-1	Heat Exchanger Pump	Lower Level Service Room		0.10			1	0.10	120	1	60											
	IP-2	Heat Exchanger Pump	Lower Level Service Room		0.02			1	0.02	120	1	60											
	IP-3	Secondary Hydronic System Pump	Lower Level Service Room		0.03			1	0.03	120	1	60											
	RP-1	Hot Water Recirculation Pump	Lower Level Service Room		0.02			1	0.02	120	1	60											
	FFH-1	Hydronic Forced Fan Heater	Lower Level		0.14			1	0.14	120	1	60											
	FFH-2	Hydronic Forced Fan Heater	Lower Level		0.14			1	0.14	120	1	60											
	FFH-3	Hydronic Forced Fan Heater	Lower Level		0.12			1	0.12	120	1	60											
	FFH-4	Hydronic Forced Fan Heater	Lower Level		0.28			1	0.28	120	1	60											
	FFH-5	Hydronic Forced Fan Heater	Lower Level		0.20			1	0.20	120	1	60											
	FFH-6	Hydronic Forced Fan Heater	Lower Level		0.12			1	0.12	120	1	60											
	FFH-7	Hydronic Forced Fan Heater	Lower Level		0.10			1	0.10	120	1	60											
	FFH-8	Hydronic Forced Fan Heater	Lower Level		0.10			1	0.10	120	1	60											
	FFH-9	Hydronic Forced Fan Heater	Lower Level		0.10			1	0.10	120	1	60											
	FFH-10	Hydronic Forced Fan Heater	Upper Level		0.10			1	0.10	120	1	60											
	FFH-11	Hydronic Forced Fan Heater	Upper Level		0.14			1	0.14	120	1	60											
	FFH-12	Hydronic Forced Fan Heater	Upper Level		0.10			1	0.10	120	1	60											
	FFH-13	Hydronic Forced Fan Heater	Upper Level		0.28			1	0.28	120	1	60											
	FFH-14	Hydronic Forced Fan Heater	Upper Level		0.28			1	0.28	120	1	60											
	FFH-15	Hydronic Forced Fan Heater	Upper Level		0.12			1	0.12	120	1	60											
	FFH-16	Hydronic Forced Fan Heater	Upper Level		0.28			1	0.28	120	1	60											
Existing Loads																							
	SP-1	Sewage Pump	Lower Level		3.30			0.25	0.83	208	1	60			Duty/Standby								
	SP-2	Sewage Pump	Lower Level		3.30			0	0.00	208	1	60			Duty/Standby								
	Lighting	Entire Building			11.35			0.75	8.51	120	1	60			Recommendation - upgrade to LED								
	Roofdecks 100W/roceptacle	50			5.00			1	5.00	120	1	60											
	Bar Fan 120V/60A	Lower Level			0.10			0.5	0.68	120	1	60											
	Bar Fridge 6A	Lower Level			0.86			0.5	0.48	120	1	60											
	Storage Audio equipment box 15A	Lower Level			1.00			1	1.00	120	1	60											
	BF Washroom, 1 fan	Lower Level			0.25			0.5	0.125	120	1	60											
	Service Room, Water filter, 230V/11.6A	Upper Level			2.78			0.5	1.39	208	1	60											
	Service Room, IT box 120V	Upper Level			0.20			1	0.20	120	1	60											
	Kitchen microwave, 1pc, 120V	Upper Level			1.50			0.5	0.75	120	1	60											
	Kitchen fridge 1pc, 120V 4A	Upper Level			0.50			0.5	0.25	120	1	60											
	Kitchen fridge 1pc, 120V 4A	Upper Level			0.50			0.5	0.25	120	1	60											
	Kitchen range hood,	Upper Level			0.50			0.5	0.25	120	1	60											
	Kitchen dishwasher, 240V, 28A, 5 9kW	Upper Level			0.90			0.25	1.475	208	1	60			Install short trip breaker tied to generator								
	LR room Electrical panel and motor 240V/ 10A	Upper Level			2.00			0.25	0.50	208	1	60											
Total Connected Load (kW): 76																							
Total Demand Load (kW): 54																							
System Ampacity (based on Normal Demand): 168																							

1 ELECTRICAL EQUIPMENT LIST - SUMMER LOADS

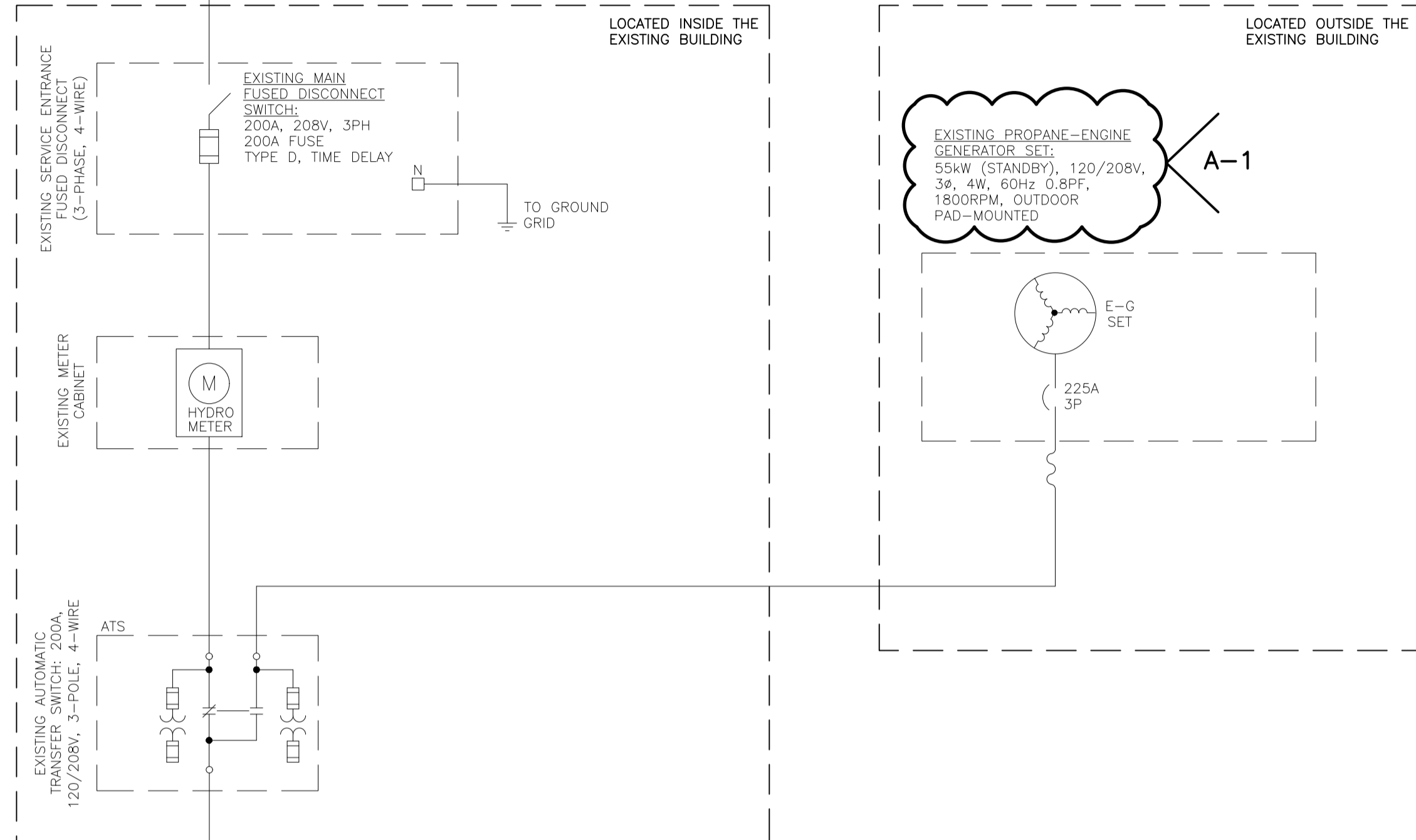
- NTS

ELECTRICAL EQUIPMENT LIST Winter Loads														Project Name: Milford Bay Community Centre		Original Date: 23-Sep-24							
Total Connected Load (kW): 76														System Voltage: 208		PF: 0.90		Phases: 3		Wires: 4		Service Size: 200AMPS, 120/208V, 3-Phase	
Total Demand Load (kW): 42														System Ampacity (based on Normal Demand): 129		Check MCA: 0							
Rev. No.	Item of Tag No.	Description	Location	Motor HP	Connected Load			Demand Load			Power Supply			Starter Type	Controls Description								
					kW	MCA	DCP	D.F.	kW	Volts	Phase	Hz	Amps										
New Loads																							
	ERV-1	Lower Level ERV	Lower Level Service Room		2.30			1	2.30	208	1	60			Delay Timer set at 120 seconds								
	ERV-2	Upper Level ERV	Upper Level		3.48			1	3.48	208	1	60			Delay Timer set at 150 seconds								
	AHU-1	Air Handling Unit	Upper Level		6.80			1	6.80	208	3	60			Delay Timer set at 90 seconds								
	AHU-2	Air Handling Unit	Lower Level		0.70			1	0.70	120	1	60											
	HW-1	Hot Water Tank	Lower Level Service Room		0.60			1	0.60	120	1	60											
	B-1	Condensing Boiler	Lower Level Service Room		1.44			1	1.44	120	1	60											
	B-2	Condensing Boiler	Lower Level Service Room		1.80			1	1.80	120	1	60											
	EF-1	Bathroom Fan	Lower Level Ladies room		0.21			0.5	0.11	120	1	60											
	EF-2	Bathroom Fan	Lower Level Strip room		0.21			0.5	0.11	120	1	60											
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	EF-4	Bathroom Fan	Upper Level Men's Washroom		0.18			0.5	0.09	120	1	60											
	EF-5	Bathroom Fan	Upper Level Ladies Washroom		0.18			0.5	0.09	120	1	60											
	EF-6	Bathroom Fan	Upper Level Washroom		0.18			0.5	0.09	120	1	60											
	CU-1	Condensing Unit	Upper Level		12.50			0	0.00	208	3	60			Delay Timer set at 30 seconds								
	CU-2	Condensing Unit	Lower Level		2.37			0	0.00	208	1	60			Delay Timer set at 60 seconds								
	BP-1	Boiler Pump	Lower Level Service Room		0.27			0	0.00	120	1	60			Power fed from B-1								
	BP-2	Boiler Pump	Lower Level Service Room		0.10			0	0.00	120	1	60			Power fed from B-2								
	IP-1	Heat Exchanger Pump	Lower Level Service Room		0.02			1	0.02	120	1	60											
	IP-2	Glycol Loop Pump	Lower Level Service Room		0.02			1	0.02	120	1	60											
	IP-3	Water Loop Pump	Lower Level Service Room		0.03			1	0.03	120	1	60											
	RP-1	Hot Water Recirculation Pump	Lower Level Service Room		0.02			1	0.02	120	1	60											
	FFH-1	Hydronic Forced Fan Heater	Lower Level		0.14			1	0.14	120	1	60											
	FFH-2	Hydronic Forced Fan Heater	Lower Level		0.14			1															

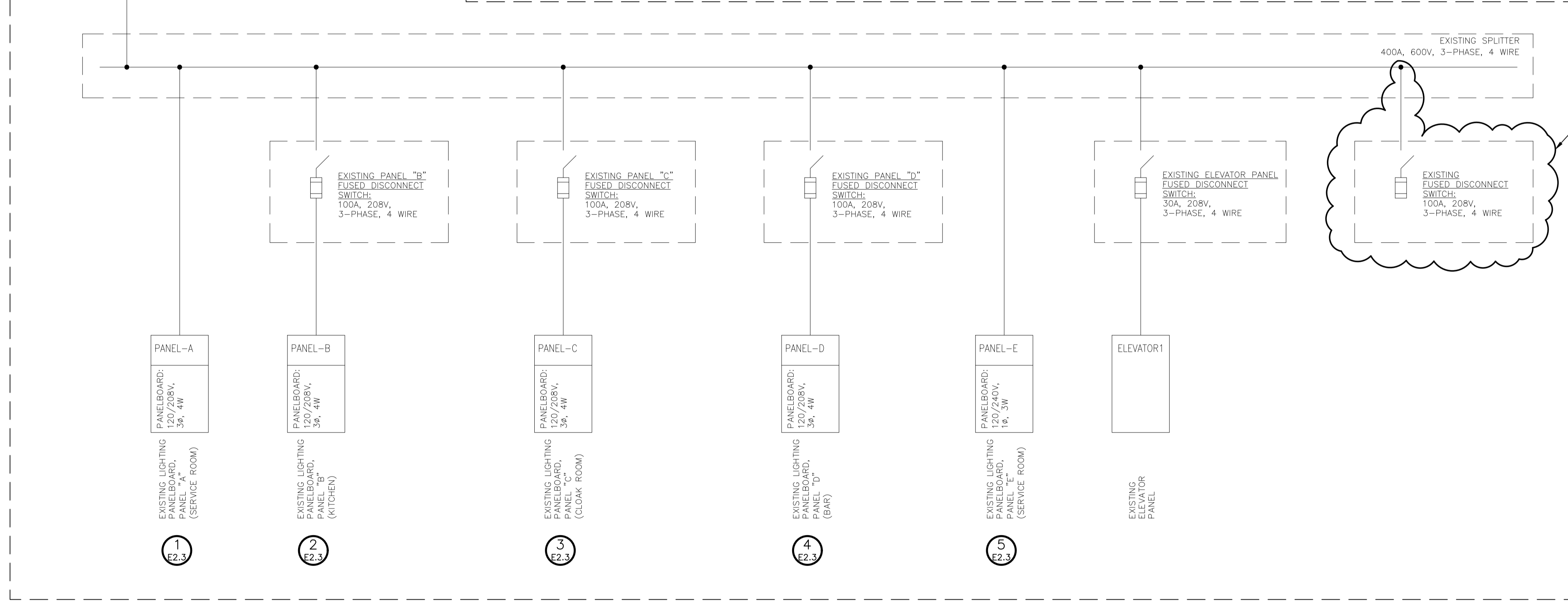


REMOVAL NOTES

1 EXISTING EQUIPMENT AND ASSOCIATED CONDUIT, WIRING, CABLES AND RACEWAYS TO BE REMOVED. CONTRACTOR TO DISPOSE OF ALL EQUIPMENT.



2 EXISTING POWER DISTRIBUTION IN SERVICE ROOM
E2.1 - NTS



1 SINGLE LINE DIAGRAM - EXISTING CONDITIONS AND MODIFICATIONS
E2.1 - NTS

DISCLAIMER AND COPYRIGHT
CONTRACTOR MUST VERIFY ALL DIMENSIONS AND BE RESPONSIBLE FOR SAME. ANY DISCREPANCIES MUST BE REPORTED TO THE ENGINEER BEFORE COMMENCING WORK. DRAWINGS ARE NOT TO BE SCALED.
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BENCHMARKS

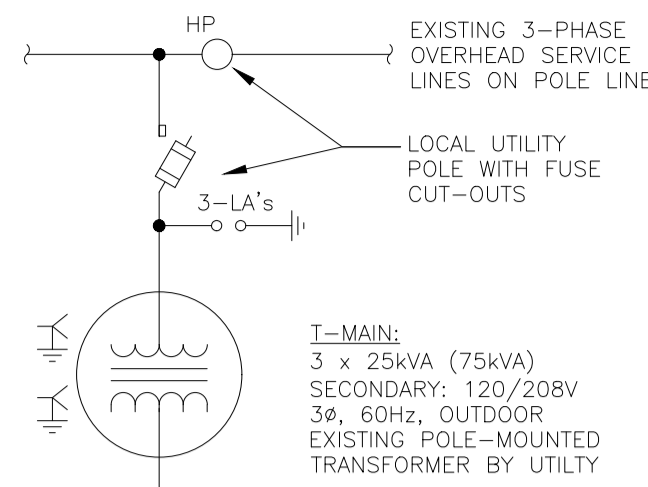
NOTES

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2.	ISSUED FOR ADDENDUM 1	DEC/24	

MILFORD BAY COMMUNITY CENTRE
MILFORD BAY, ON

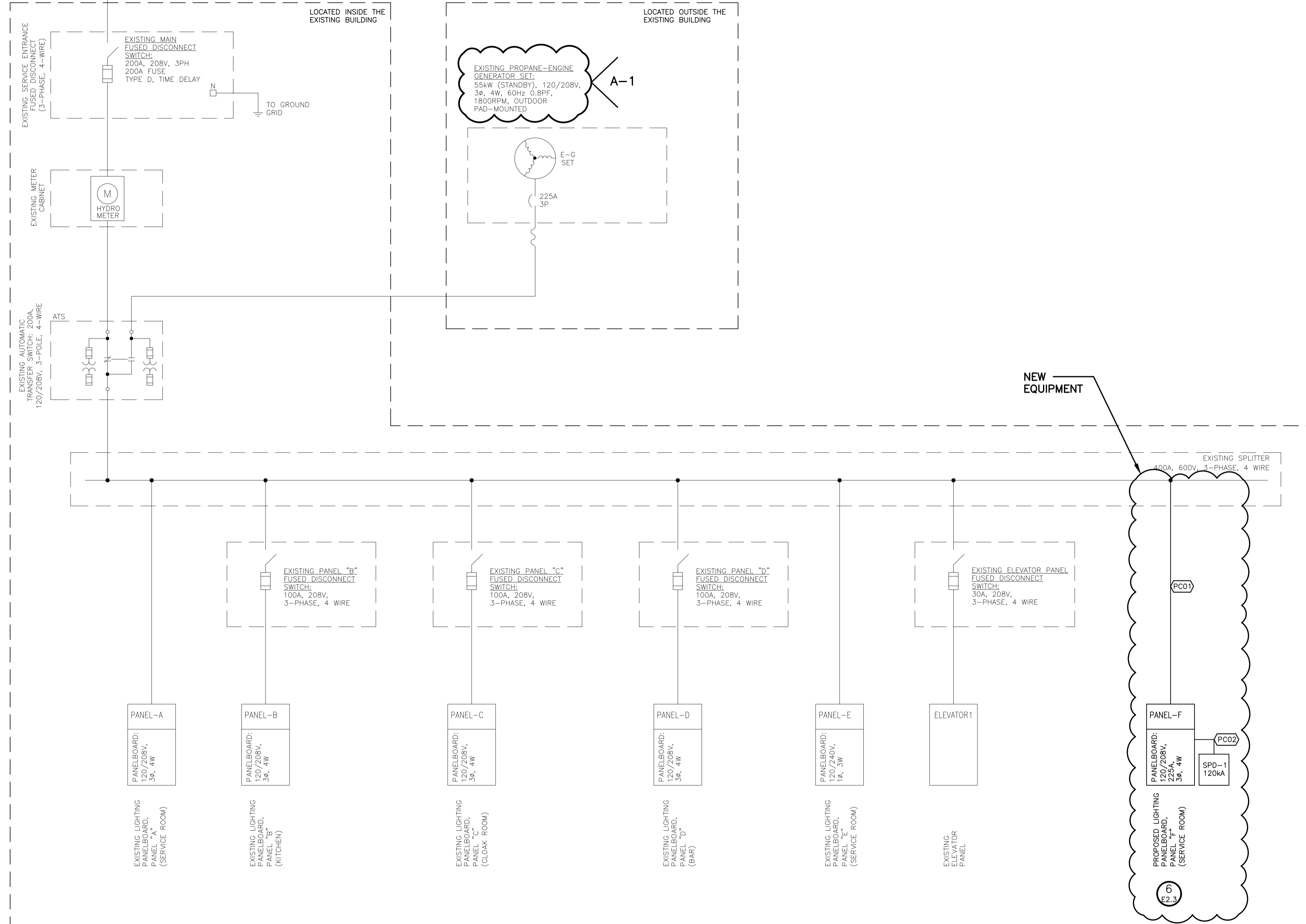
ELECTRICAL
EXISTING SINGLE LINE DIAGRAM

		DESIGN: JL	FILE: 123056	DWG: E2.1
		DRAWN: JL	DATE: DEC 2024	
		CHECK: SRT	SCALE: AS SHOWN	



POWER CABLE SCHEDULE

- PC01 4C#3/0AWG PLUS #6AWG GND, Cu, RW90, 1kV IN 53mmØ CONDUIT
- PC02 3C#6AWG, CU, PLUS GND, LOW IMPEDANCE CABLE (LIC) IN 41MMØ CONDUIT



1 PROPOSED SINGLE LINE DIAGRAM
E2.2 - NTS

DISCLAIMER AND COPYRIGHT
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MILFORD BAY COMMUNITY CENTRE
MILFORD BAY, ON
ELECTRICAL PROPOSED SINGLE LINE DIAGRAM

TATHAM ENGINEERING	
DESIGN: JL	FILE: 123056
DRAWN: JL	DATE: DEC 2024
CHECK: SRT	SCALE: AS SHOWN

DWG: **E2.2**

PANEL TAG NAME: 'PB-A'		120/208V, 3PH, 4W MAINS: 200A, Cu			MOUNTING: WALL LOCATION: SERVICE ROOM	
LOAD-W	CIRCUIT DESCRIPTION	PROT.	CIRCUITS	PROT.	CIRCUIT DESCRIPTION	LOAD-W
	SPARE	15A	1 A 19	15A		
1	ELEVATOR CAB	15A	2 B 20	20A	WATER HEATER	
	FURNACE	15A	3 C 21	2P		
	GENERATOR BLOCK HEATER	15A	4 A 22	20A	WATER HEATER	
		2P	5 B 23	2P		
	UV LIGHT	15A	6 C 24	20A	MAIN ENTRANCE HEATER	
1	UPSTAIRS DAMPER	15A	7 A 25	2P		
	BASEMENT LIGHTS	15A	8 B 26	15A	BASEMENT LIGHTS & PLUGS	
	BASEMENT LIGHTS	15A	9 C 27	15A	FURNACE ROOM & HALLWAY LIGHTS	
	MENS & WOMENS WASHROOM HEATERS	30A	10 A 28	15A	LIBRARY & BOARD ROOM LIGHTS	
		2P	11 B 29	15A	FIRE ALARM	
	LIBRARY LIGHTS & STAIR WELL	15A	12 C 30	20A		
	DOWNSTAIRS WASHROOMS, JANITOR & ELEVATOR ROOMS	15A	13 A 31	2P	SEWAGE PUMP	
1	WATER PUMP	30A	14 B 32	20A	NORTH ENTRANCE HEATER	
		2P	15 C 33	2P		
	EXHAUST FAN	30A	16 A 34	20A	LIBRARY ENTRANCE HEATER	
		2P	17 B 35	2P		
	SPACE	18	C 36		SPACE	

1 LIGHTING PANEL PB-A - EXISTING CONDITIONS AND MODIFICATIONS

- NTS
- PANEL LOCATED IN SERVICE ROOM

PANEL TAG NAME: 'PB-B'		120/208V, 3PH, 4W MAINS: 200A, Cu			MOUNTING: WALL LOCATION: KITCHEN	
LOAD-W	CIRCUIT DESCRIPTION	PROT.	CIRCUITS	PROT.	CIRCUIT DESCRIPTION	LOAD-W
	KITCHEN LIGHT	15A	1 A 13	15A		
	KITCHEN PLUG	20A	2 B 14	50A	DISHWASHER	
		2P	3 C 15	2P		
	KITCHEN PLUG	20A	4 A 16	20A	SPARE	
		2P	5 B 17	15A	DOUBLE FRIDGE	
	FRIDGE	20A	6 C 18	20A	KITCHEN PLUG	
		2P	7 A 19	2P		
	KITCHEN EXHAUST FAN	15A	8 B 20	20A	KITCHEN PLUG	
	SPACE		9 C 21	2P		
	NA	30A	10 A 22	20A	KITCHEN PLUG	
		2P	11 B 23	2P		
	SPACE		12 C 24	15A	EXHAUST FAN MEETING ROOM	

2 LIGHTING PANEL PB-B - EXISTING CONDITIONS AND MODIFICATIONS

- NTS
- PANEL LOCATED IN KITCHEN

PANEL TAG NAME: 'PB-C'		120/208V, 3PH, 4W MAINS: 200A, Cu			MOUNTING: WALL LOCATION: CLOAK ROOM	
LOAD-W	CIRCUIT DESCRIPTION	PROT.	CIRCUITS	PROT.	CIRCUIT DESCRIPTION	LOAD-W
	SPARE	15A	1 A 13	15A	WALL PLUG MAIN HALL RIGHT SIDE	
	LIGHTS MAIN HALL	20A	2 B 14	20A	OUTSIDE LIGHTS	
		2P	3 C 15	2P		
	POT LIGHTS LEFT SIDE	15A	4 A 16	15A	ENTRANCE HALL LIGHTS	
	MENS WASHROOM	15A	5 B 17	15A	POT LIGHTS RIGHT SIDE	
	WALL PLUG MAIN HALL	15A	6 C 18	15A	N/A	
	LADIES WASHROOM	15A	7 A 19	15A	COAT ROOM	
	WASHROOM	15A	8 B 20	15A	MAIN HALL LIGHTS LEFT	
	WASHROOM	15A	9 C 21	15A	MAIN HALL LIGHTS RIGHT	
	N/A	15A	10 A 22	15A	JANITOR CLOSET	
	N/A	15A	11 B 23	15A	EXIT LIGHTS	
	N/A	15A	12 C 24	15A	N/A	

3 LIGHTING PANEL PB-C - EXISTING CONDITIONS AND MODIFICATIONS

- NTS
- PANEL LOCATED IN CLOAK ROOM

PANEL TAG NAME: 'PB-D'		120/208V, 1PH, 3W MAINS: 125A, Cu			MOUNTING: WALL LOCATION: BAR	
LOAD-W	CIRCUIT DESCRIPTION	PROT.	CIRCUITS	PROT.	CIRCUIT DESCRIPTION	LOAD-W
	N/A	15A	1 A 13	15A	PLUG BY SINK	
	PLUG ON STAGE LEFT SIDE	15A	2 B 14	15A	FRIDGE AND LIGHTS	
	PLUG ON STAGE RIGHT SIDE	15A	3 C 15	15A	PLUGS ABOVE STAGE	
	STAIRWAY OFF STAGE	15A	4 A 16	15A	ABOVE STAGE POT LIGHTS	
	PLUG IN FRONT OF STAGE	15A	5 B 17	15A	LEFT & RIGHT STAGE BACK WALL PLUGS	
	DOWNSTAGE CHAIR STORAGE	15A	6 C 18	15A	N/A	
	SPACE	15A	7 A 19		SPACE	
	SPACE	15A	8 B 20		SPACE	
	SPACE	15A	9 C 21		SPACE	
	DAMPER MOTOR	15A	10 A 22		SPACE	
	EXHAUST FAN	15A	11 B 23		SPACE	
	N/A	15A	12 C 24		SPACE	

4 LIGHTING PANEL PB-D - EXISTING CONDITIONS AND MODIFICATIONS

- NTS
- PANEL LOCATED IN BAR

NEW EQUIPMENT

PANEL TAG NAME: 'PB-F'		120/208V, 3PH, 4W MAINS: 225A, Cu MAIN BREAKER 200A			MOUNTING: WALL LOCATION: SERVICE ROOM	
LOAD-W	CIRCUIT DESCRIPTION	PROT.	CIRCUITS	PROT.	CIRCUIT DESCRIPTION	LOAD-W
300	CONTROL PANEL FOR HVAC	15A	1 A 2	15A		
460	FORCED FAN HEATER FFH-1 & FFH-4	15A	3 B 4	2P	ENERGY RECOVERY VENTILATOR ERV-1	2300
460	FORCED FAN HEATER FFH-2, FFH-3 & FFH-17	15A	5 C 6	20A	ENERGY RECOVERY VENTILATOR ERV-2	3500
460	FORCED FAN HEATER FFH-5 & FFH-6	15A	7 A 8	2P		
690	FORCED FAN HEATER FFH-7, FFH-8 & FFH-9	15A	9 B 10	15A	HEATING BOILER B-1	1500
230	FORCED FAN HEATER FFH-10	15A	11 C 12	20A	HEATING BOILER B-2	1800
460	FORCED FAN HEATER FFH-11 & FFH-12	15A	13 A 14	15A	HOT WATER TANK HW-1	600
230	FORCED FAN HEATER FFH-13	15A	15 B 16	15A	HEAT EXCHANGER PUMP P-1	100
460	FORCED FAN HEATER FFH-14 & FFH-15	15A	17 C 18	15A	HEAT EXCHANGER PUMP P-2	100
230	FORCED FAN HEATER FFH-16	15A	19 A 20	15A	SECONDARY HYDRONIC SYSTEM PUMP P-3	600
100	CONTROL PANEL FOR CU-1	15A	21 B 22	15A	HOT WATER RE-CIRCULATION PUMP RP-1	100
100	CONTROL PANEL FOR CU-2	15A	23 C 24	15A	CONTROL PANEL FOR ERV-2	1050
100	CONTROL PANEL FOR AHU-1	15A	25 A 26	15A	CONTROL PANEL FOR ERV-1	1500
		35A	27 B 28	15A	AIR HANDLING UNIT AHU-2	700
6800	AIR HANDLING UNIT AHU-1	29	C 30	15A	SPARE	
		3P	31 A 32	15A	SPARE	
		50A	33 B 34	60A		
		35	C 36			
12550	CONDENSING UNIT CU-1	3P	37 A 38	3P	SURGE PROTECTION DEVICE SPD-1	
		20A	39 B 40	20A		
2640	CONDENSING UNIT CU-2	2P	41 C 42	20A	SPARE	

6 PROPOSED LIGHTING PANEL PB-D

- NTS
- PANEL LOCATED IN CLOAK ROOM

PANEL TAG NAME: 'PB-E'		120/240V, 1PH, 3W MAINS: 125A, Cu MAIN BREAKER 100A			MOUNTING: WALL LOCATION: SERVICE ROOM	
LOAD-W	CIRCUIT DESCRIPTION	PROT.	CIRCUITS	PROT.	CIRCUIT DESCRIPTION	LOAD-W
	SPARE	40A	1 A 2		SPARE	
	A/C	2P	3 B 4	20A		
	WASHER MACHINE	15A	5 A 6	2P		
			7 B 8	15A	SECURITY ALARM PANEL	
	SPACE		9 A 10		SPACE	
	SPACE		11 B 12		SPACE	
	SPACE		13 A 14		SPACE	
	SPACE		15 B 16		SPACE	
	SPACE		17 A 18		SPACE	
	SPACE		19 B 20		SPACE	
	SPACE		21 A 22		SPACE	
	SPACE		23 B 24		SPACE	

5 LIGHTING PANEL PB-E - EXISTING CONDITIONS AND MODIFICATIONS

- NTS
- PANEL LOCATED IN SERVICE ROOM

REMOVAL NOTES

- 1 EXISTING EQUIPMENT AND ASSOCIATED CONDUIT, WIRING, CABLES AND RACEWAYS TO BE REMOVED. CONTRACTOR TO DISPOSE OF ALL EQUIPMENT.
- CONTRACTOR TO TRACE EXISTING LIGHTING PANELS AND WIRING PRIOR TO PERFORMING WORK TO ENSURE PANELS LABELS MATCHES ACTUAL WIRING.
- 2 EXISTING DISHWASHER TO REMAIN. CONTRACTOR TO PROVIDE A SHUNT TRIP BREAKER.

NEW INSTALLATION NOTES

- 1 CONTRACTOR TO PROVIDE NEW CONDUIT AND WIRING TO ALL FIELD DEVICES.
- PANELBOARD GENERAL NOTES:
1. BREAKER SIZES LISTED ARE PROVIDED AS A GENERAL GUIDE. PRIOR TO INSTALLATION, CONTRACTOR TO CONFIRM ALL BREAKER SIZES WITH FINAL EQUIPMENT LOADS.
- 2. CONTRACTOR TO SIZE ALL FEEDER CABLES, WIRING AND CONDUIT BASED ON ONTARIO ELECTRICAL SAFETY CODE - LATEST EDITION. INCLUDE INSULATED GROUND CONDUCTOR IN ALL CONDUIT RACEWAYS.
- 3. CONTRACTOR TO VERIFY ALL PANEL CIRCUITS AND UPDATE PANEL SCHEDULE AS REQUIRED WITH TYPED DIRECTORY.
- 2 CONNECT POWER LEADS "AS SHORT AND STRAIGHT AS POSSIBLE" BETWEEN PANELBOARD PB-F AND SPD-1 SURGE SUPPRESSION PANEL. LOCATE SPD-1 TO THE LEFT OF THE PANELBOARD AND PROVIDE LOW IMPEDANCE CABLE AS SPECIFIED IN SPECIFICATION 16400.
- SPD-1 UNIT AND CABLE AS FOLLOWS:
• 4CJ6AWG, Cu PLUS GND. LOW IMPEDANCE CABLE (LIC) IN 41mm RPVC
• SPD1: TK-120-3Y208-FL, FOR 120/208V 3P WYE, 4W+G
- 3 DISHWASHER BREAKER TO BE SHUNT TRIPPED (S/T) BY LOAD SHED SIGNAL OF ATS WHEN LOSS OF NORMAL POWER IS DETECTED.
- 4 CONTRACTOR TO PROVIDE CONDUIT AND CABLE TO ALL NEW HVAC UNITS. CONTRACTOR IS RESPONSIBLE FOR SITE VERIFICATION OF ROUTING AND LENGTH PRIOR TO SUBMITTED TENDER BID OR QUOTE.

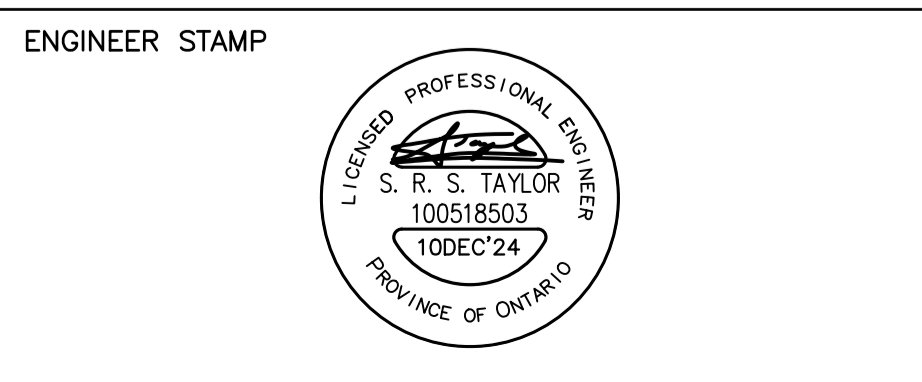
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BENCHMARKS

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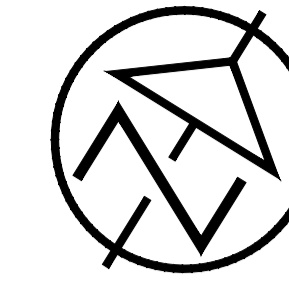
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MILFORD BAY, ON

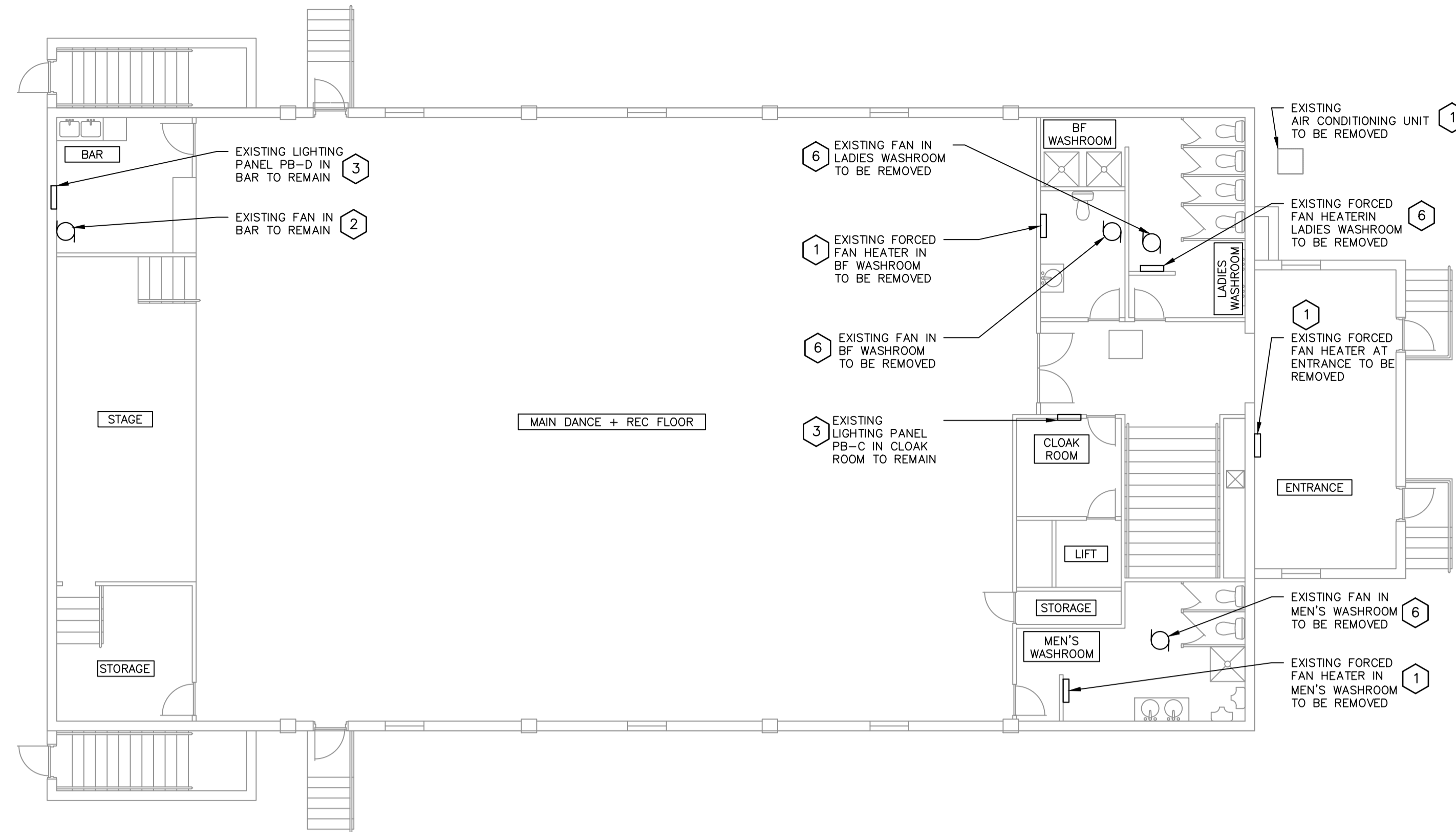
ELECTRICAL LIGHTING PANEL SCHEDULES

TATHAM ENGINEERING	
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DRAWN: JL	DATE: DEC 2024
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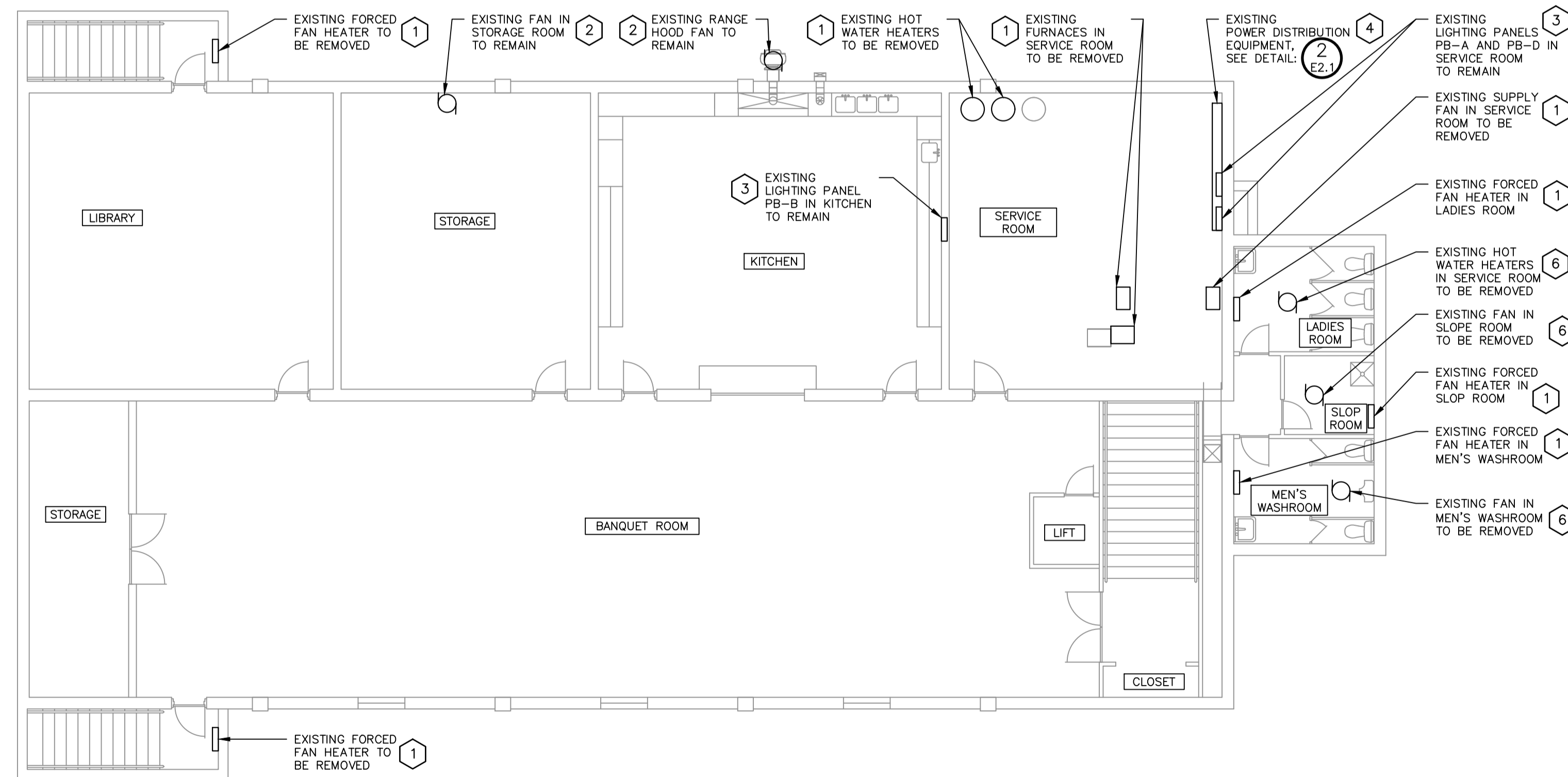


REMOVAL NOTES

- 1 EXISTING EQUIPMENT TO BE REMOVED. CONTRACTOR TO REMOVE ALL EXISTING EQUIPMENT, CONDUIT AND WIRING BACK TO ASSOCIATED PANEL(S).
- 2 EXISTING EQUIPMENT TO REMAIN.
- 3 EXISTING LIGHTING PANELS TO REMAIN. REFER TO CONTRACT DRAWINGS FOR REQUIRED REVISIONS TO THE EXISTING LIGHTING PANELS.
- 4 EXISTING POWER DISTRIBUTION EQUIPMENT TO REMAIN. REFER TO CONTRACT DRAWINGS FOR REQUIRED REVISIONS TO THE EXISTING POWER DISTRIBUTION EQUIPMENT.
- 5 REFER TO PANEL SCHEDULES ON DRAWING E2.3 FOR EQUIPMENT REMOVALS.
- 6 EXISTING FAN TO BE REMOVED. CONTRACTOR TO REMOVE CONDUIT AND WIRING BACK TO ASSOCIATED SWITCH.



1
E2.4
UPPER-LEVEL LAYOUT - EXISTING CONDITIONS 5
- SCALE: 1/8" = 1'0"



2
E2.4
BASEMENT LAYOUT - EXISTING CONDITIONS 5
- SCALE: 1/8" = 1'0"

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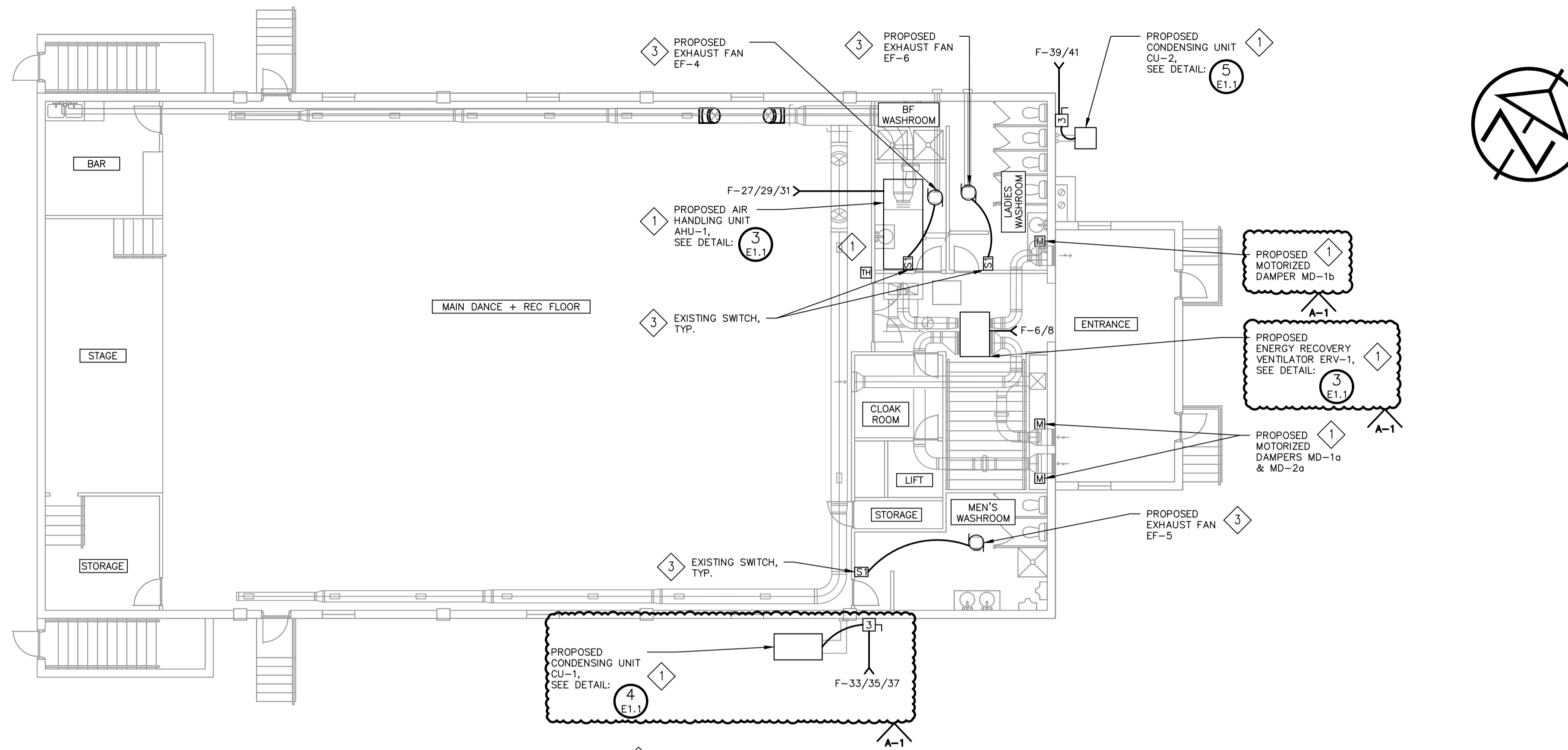
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MILFORD BAY, ON

ELECTRICAL BUILDING LAYOUT EXISTING CONDITIONS

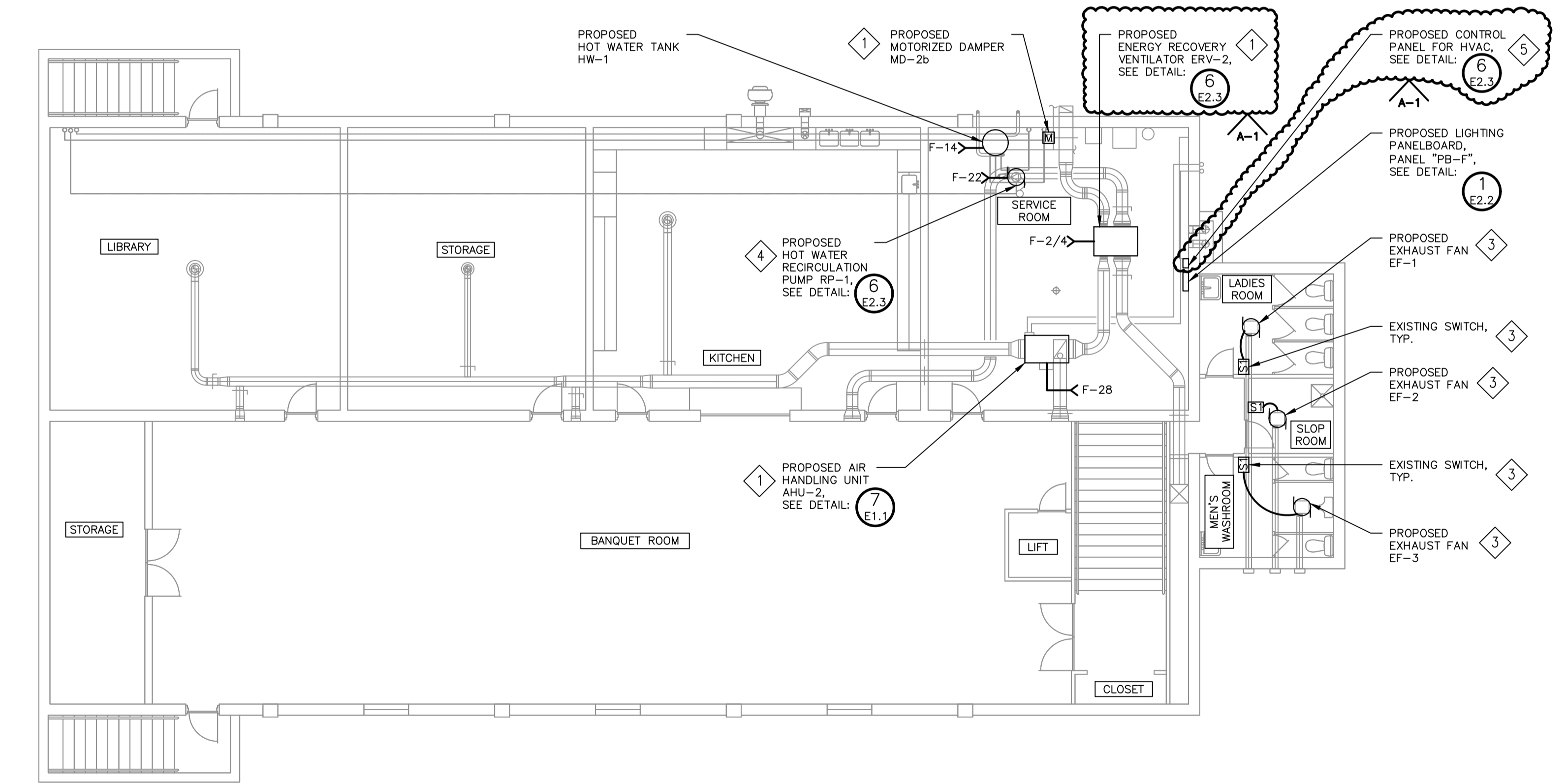


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DRAWN: JL	DATE: DEC 2024	E2.4
CHECK: SRT	SCALE: AS SHOWN	



- NOTES**
- 1 EQUIPMENT INSTALLED BY DIVISION 15 WITH CONDUIT AND WIRING PROVIDED BY DIVISION 16. FINAL WIRING AND CONTROLS REQUIREMENT FOR EQUIPMENT TO BE CONFIRMED DURING CONSTRUCTION WITH EQUIPMENT SHOP DRAWING.
 - 2 NOT ALL WIRING REQUIREMENTS BETWEEN HVAC UNITS ARE SHOWN. CONTRACTOR TO PROVIDE CONDUIT AND WIRING AS REQUIRED TO SUIT INSTALLATION AND TO CONNECT ALL UNITS AS REQUIRED. CONTRACTOR TO PROVIDE CONDUIT AND WIRING TO ALL NECESSARY CONTROLLERS AND THERMOSTATS. CONTRACTOR TO REFER TO EQUIPMENT SHOP DRAWINGS AND MANUFACTURERS INSTRUCTIONS FOR REQUIRED WIRING. PROVIDE BONDING CONNECTION OF ALL UNITS TO GROUND, PER MANUFACTURERS RECOMMENDATIONS.
 - 3 CONTRACTOR TO PROVIDE THE FAN AND ASSOCIATED WIRING. CONTRACTOR IS RESPONSIBLE TO VERIFY THE FAN VOLTAGE. REUSE OF THE EXISTING FAN SWITCH TO POWER NEW FAN IS PERMITTED. CONTRACTOR TO INVESTIGATE EXISTING FAN SWITCH AND CIRCUIT FOR SUITABILITY OF REUSE AND PROVIDE A NEW CONDUIT AND WIRING AS NECESSARY.
 - 4 CONTRACTOR TO PROVIDE A 15A RECEPTACLE FOR PROPOSED HOT WATER RECIRCULATION PUMP RP-1.
 - 5 CONTRACTOR TO PROVIDE A CONTROL PANEL FOR HVAC, SIZED TO SUIT. CONTROL PANEL TO INCLUDE:
 - 15A POWER FEED FOR TRANSFORMERS FROM LIGHTING PANEL LP-F
 - ONE INTERNAL TRANSFORMER 120/24VAC, 96VA FOR AHU-1 AND ERV-1
 - ONE INTERNAL TRANSFORMER 120/24VAC, 96VA FOR AHU-2 AND ERV-2
 - ONE EXTERNAL TRANSFORMER 120/24VAC, 100VA FOR BASEBOARD HEATING THERMOSTATS
 CONTROL PANEL AND TRANSFORMERS INSTALLED BY DIVISION 16 WITH CONTROL WIRING AND CONDUIT FOR CONTROL WIRING PROVIDED BY DIVISION 15.

1 UPPER-LEVEL HVAC LAYOUT - PROPOSED CONDITIONS
 - SCALE: 1/8" = 1'0"



2 BASEMENT HVAC LAYOUT - PROPOSED CONDITIONS
 - SCALE: 1/8" = 1'0"

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ELECTRICAL HVAC BUILDING LAYOUT PROPOSED CONDITIONS

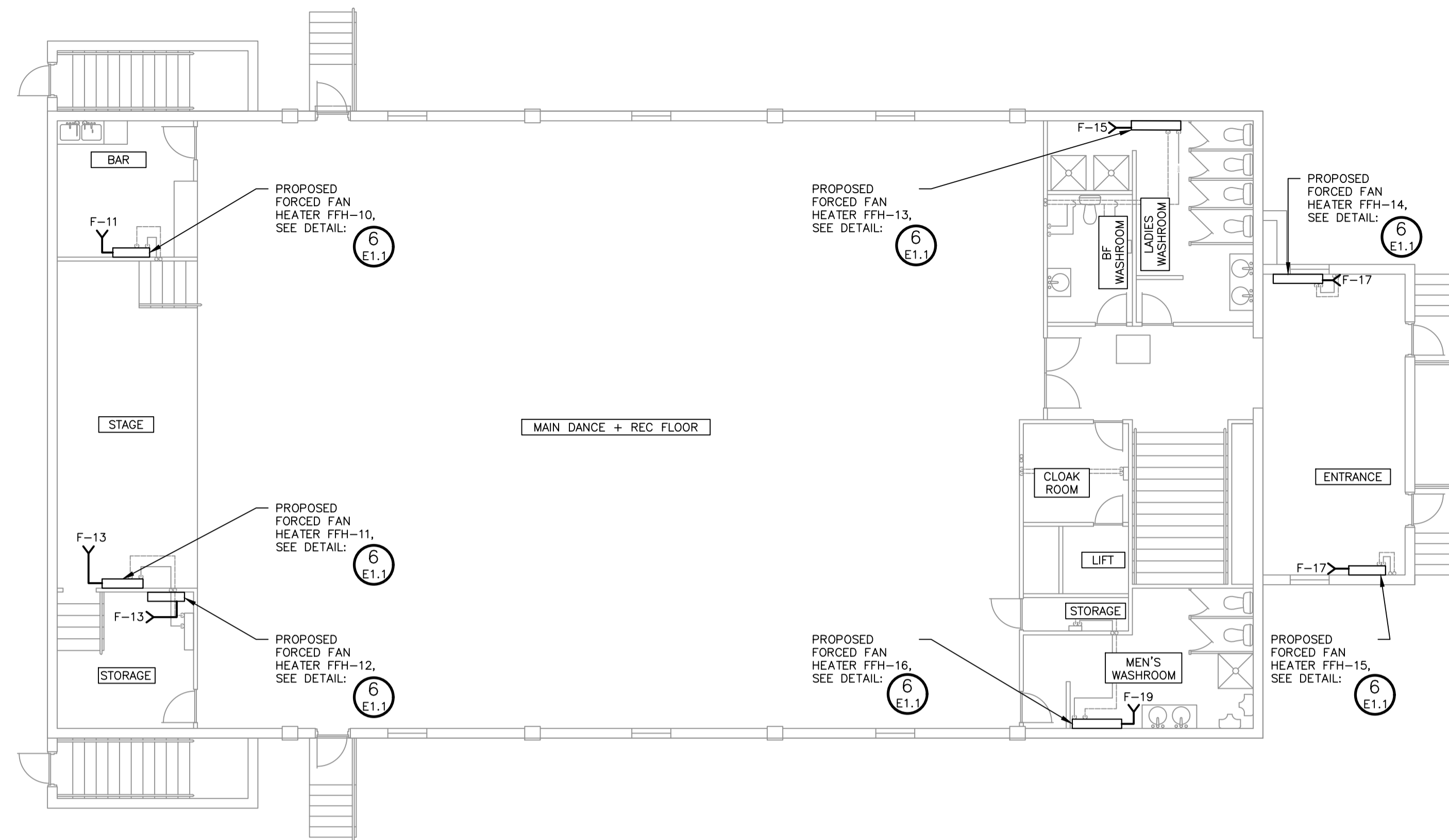
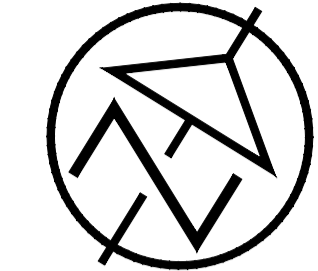
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DESIGN: JL	FILE: 123056	DWG: E2.5
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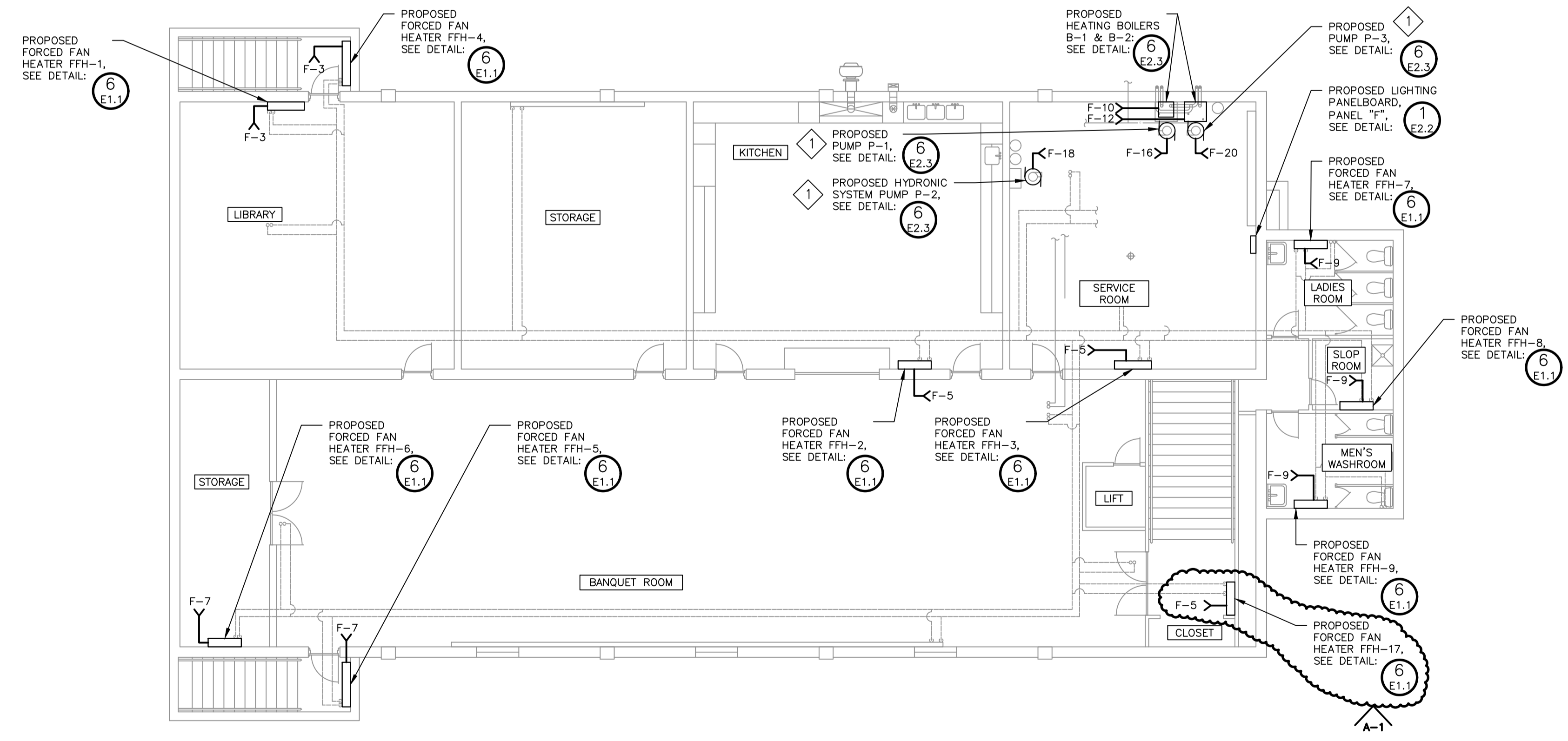
NOTES

1 EQUIPMENT INSTALLED BY DIVISION 15 WITH CONDUIT AND WIRING PROVIDED BY DIVISION 16. FINAL WIRING REQUIREMENT FOR EQUIPMENT TO BE CONFIRMED DURING CONSTRUCTION WITH EQUIPMENT SHOP DRAWING.

2 NOT ALL WIRING REQUIREMENTS BETWEEN UNITS ARE SHOWN. CONTRACTOR TO PROVIDE CONDUIT AND WIRING AS REQUIRED TO SUIT INSTALLATION AND TO CONNECT ALL UNITS AS REQUIRED. CONTRACTOR TO PROVIDE CONDUIT AND WIRING TO ALL NECESSARY CONTROLLERS, THERMOSTATS AND PUMPS. CONTRACTOR TO REFER TO EQUIPMENT SHOP DRAWINGS AND MANUFACTURERS INSTRUCTIONS FOR REQUIRED WIRING. PROVIDE BONDING CONNECTION OF ALL UNITS TO GROUND, PER MANUFACTURERS RECOMMENDATIONS.



1 UPPER-LEVEL HYDRONIC LAYOUT - PROPOSED CONDITIONS
 E2.6 - SCALE: 1/8" = 1'0"



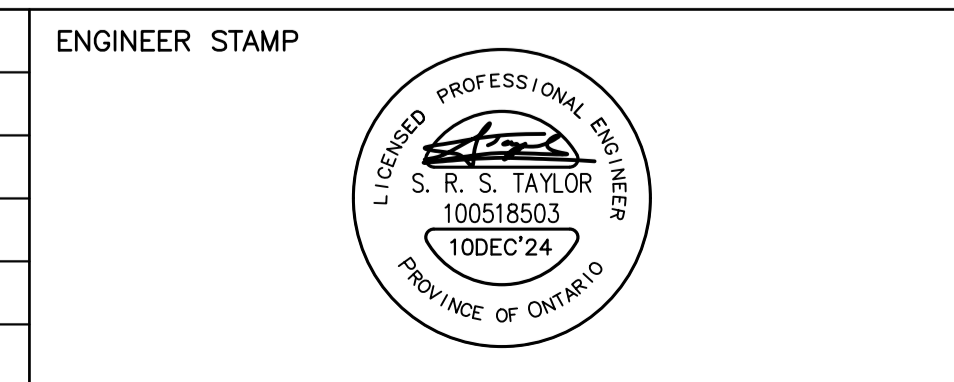
2 BASEMENT HYDRONIC LAYOUT - PROPOSED CONDITIONS
 E2.6 - SCALE: 1/8" = 1'0"

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MILFORD BAY COMMUNITY CENTRE
 MILFORD BAY, ON
ELECTRICAL HYDRONIC BUILDING LAYOUT PROPOSED CONDITIONS

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Electrical Specifications		Page 1 of 7
PART 1 – GENERAL		
1.1 Scope of Work		
.1	Provide all products and services mentioned or shown in the Contract Drawings with all incidentals necessary for the Milford Bay Community Centre site.	
.2	Provide all removal work and services mentioned or shown in the Contract Drawings.	
.3	Contractor will be responsible for all repairs during the warranty period.	
.4	Contractor is responsible to review all HVAC shop drawings and consult with supplier prior to installation.	
.5	Contractor to provide an installation with all necessary wiring, connections and conduit for proposed lighting panel and modifications to an existing lighting panels. Contractor to verify all panel circuits and update panel schedule as required with typed directory.	
.6	Provide dishwasher breaker to be shunt tripped by load shed signal of ATS when loss of normal power is detected.	
.7	Provide HVAC unit timer control panels mentioned or shown in the Contract Drawings.	
.8	Provide local disconnect switches for HVAC equipment mentioned or shown in the Contract Drawings. Disconnect Name ratings to comply with latest edition of OESC based on environment of disconnect installation location.	
.9	Provide and pay for all necessary permits and locates prior to beginning work.	
.10	Submit shop drawings for approval of all equipment and components for review by Consultant prior to ordering.	
.11	Provide and pay for all necessary ESA inspections, with a final certificate. Submit copy to Consultant for review.	
.12	All fees for Electrical Safety Authority to be included in this contract.	
.13	All distribution equipment as noted on drawings in provided under this contract.	
.14	Provide all required equipment, verification, testing and third-party commissioning as required by this specification.	
.15	As outlined in the tender form certain aspects of this contract will be performed in phases to allow other disciplines to complete their work. Contractor to allow for multiple phases of the site work, and all costs are to be included in this contract.	
.16	Contractor is responsible for preparation of As-built drawings and submit ESA Certificate as part of Substantial Performance.	
1.2 Standards		
.1	Provide all products and services in accordance with the latest addition of the following codes and standards:	
.1	Ontario Electrical Safety Code, latest edition applicable.	
.2	Canadian Standards Association.	
.3	Ontario Building Code, Latest Edition.	
1.3 Permits, Fees and Inspection		
.1	Coordinate all requirements for electrical inspection with local hydro authority.	
.2	Provide all licenses, permits and certificates required by the local authorities at no additional expense.	
.3	Arrange and pay for inspection(s) of the Works by the authorities having jurisdiction.	
.4	Upon completion of the Work, provide the Consultant with final, unconditional certificates of approval by the local inspection authorities.	
1.4 Examination of the Site and Contract Documents		

Electrical Specifications		Page 4 of 7
.10	For all buried incoming ducts provide a "buried cable" marker on the building where the buried service enters.	
1.11 Fireproofing		
.1	Where sleeves or openings are installed in walls, floors, roof or partitions to accommodate raceways, cables or bus duct, provide all necessary seals, fittings, barriers and fire-resistant materials to restore the installation to its original fire rating to the satisfaction of the Building Code, governing authorities and the Owner's insurance underwriters. Work To be completed by authorized fire proofing contractor.	
PART 2 – PRODUCTS		
2.1 Basic Materials		
.1	Grounding	
.1	Ground and bond metallic water pipes and electrical equipment in accordance with hydro requirements.	
.2	Ground secondary surge protection to 3m20mm galvanized steel ground rod buried at position of protective device without damage to other services.	
.3	Install an AC ground grid system as per section 10 of the Electrical Code.	
.2	Conduits and Fittings	
.1	Minimum conduit size: 21mm. Solvent weld (glue) all PVC joints.	
.2	All conduits to be CSA approved, complies with CSA C22.2 No. 211.2-06.	
.3	Use EMT conduit for all for all non-hazardous areas, indoor wiring. Use rigid PVC conduit for all underground or below grade installations, UV sunlight resistant.	
.4	Use rigid galvanized steel threaded conduit in all hazardous or classified areas, and as required by Ontario Electrical Safety Code.	
.5	Rigid PVC conduit for direct buried and concrete encased duct banks, as indicated on drawings.	
.6	Rigid PVC Type DB2 conduit for conduit sizes greater than 78mm diameter, for direct buried and concrete encased duct banks.	
.7	Include fittings as required.	
.8	Fish cord: 6mm stranded nylon cord, tensile strength 5kN.	
.3	Wire and Cable	
.1	Power distribution and lighting circuits. Single conductor stranded copper conductors, minimum #12AWG minimum with 600V Rated RW90 insulation for installation in wire-ways or conduit.	
.2	Power wiring to mechanical equipment: single conductor, Class B stranded copper, minimum size #12AWG minimum, 600V rated, RW90 insulation for installations in conduit. Include an insulated green conductor for ground wire.	
.3	Power wiring to all equipment: #12AWG minimum, solid copper, RW90, XLPE, two ground wires (1-bare, 1-insulated green), c/w interlocking aluminium armour and insulated grommets when entering boxes. Wiring must be CSA approved and equal to AC90 ISO-BX.	
.4	Size wiring as per electrical code for all loads, with minimum #12AWG wire size.	
.5	Control circuits (120V): single conductor, Class B standard copper, minimum size #14AWG, 600V rated, RW90 insulation for installations in conduit. Include an insulated green conductor for ground wire.	
.6	Contractor to verify voltage drop per rating for each load from panel board.	
2.2 Disconnect Switches		
.1	Fusible and non-fusible disconnect switch: size as indicated, enclosure rated for applicable area (see Clause 2.1).	
.2	Service entrance as noted on drawings.	
.3	Provision for padlocking in "on" and "off" switch position.	
.4	Mechanically interlocked door to prevent opening when handle in ON position.	
.5	Fuses: size as indicated.	
.6	Fuse holders: suitable without adaptors, for type and size of fuse indicated.	
.7	Quick-make, quick-break action, non-teasible mechanism with visible blade – dead front construction.	

Electrical Specifications		Page 2 of 7
.1	Examine Drawings and Specifications of the complete Project and become familiar with all local site conditions.	
.2	Submission of Tender confirms the Contractor accepts the Contract and site conditions without qualifications.	
.3	Failure to determine the existing conditions or the nature of the construction shall not be a basis for granting compensation.	
1.5 Construction Drawings		
.1	The electrical drawings are diagrammatic, intended to convey the scope of work and indicate general arrangements of equipment. Do not scale drawings unless a scale is identified.	
.2	Have the location of panels, conduits, luminaires, outlets and other equipment shown in the drawings reviewed by the Consultant before proceeding with the installation. Inform the Consultant of significant changes in location of equipment to meet field conditions and receive their authorization before proceeding. Obtain from the site Consultant the location of equipment not definitely located in the drawings.	
.3	Locations of panels, outlets, luminaires and other equipment indicated in the drawings are approximate and may be subject to revision found necessary or desirable by the Consultant at the time the work is installed. The Consultant may at their discretion request the relocation of electrical equipment within three metres of that shown prior to roughing in. This relocation shall be at no additional cost.	
.4	Drawings do not generally indicate the number of wires within conduits for outlets and fixtures. Provide the correct wire size and quantity as required by the indicated circuitry and control diagrams.	
1.6 Shop Drawings		
.1	Submit shop drawings in accordance with general Contract Conditions and include arrangement drawings, bill of materials, diagrams, nameplate drawings and product data as applicable for the following equipment:	
.1	Panelboard and breakers	
.2	Disconnect switches	
.2	Shop drawings shall provide all necessary details and information:	
.1	to allow the Consultant to assess that the equipment is in accordance with the Contract requirements;	
.2	to be suitable for binding into the operations and maintenance manuals; and	
.3	to be stamped and signed by the Contractor, thereby indicating that they have checked that the equipment offered conforms to the requirements of the Contract Documents.	
.3	Product data sheets shall include the name of the manufacturer and be clearly marked to show which items, features and options are offered.	
.4	Shop drawings that are not presented as required will be returned for revision and resubmission.	
.5	Shop drawings will be returned marked "Non Conforming – Revise and Resubmit," "Conforms with Design Intent with Revisions Noted" or "Conforms with Design Intent". Do not procure or start manufacture before receipt of submitted drawings stamped as 'Conforms with Design Intent with Revisions Noted' or 'Conforms with Design Intent' by the Consultant.	
.6	The review of shop drawings by the Consultant does not relieve the Contractor of their responsibilities for compliance with the Contract Documents.	
1.7 Construction Record Drawings (As Built)		
.1	Keep one set of all applicable contract (including updates) and shop drawings at the site.	
.2	Ensure that the latest issue drawings are marked up to reflect the work as installed and have these available for the Consultant's review at site.	
.3	Upon completion of the work, transfer all revisions to a clean set of prints and submit them to the Consultant as part of the final job documentation.	

Electrical Specifications		Page 5 of 7
.8	ON-OFF switch position indication on switch enclosure cover.	
.9	Early break auxiliary contact (switch), as indicated on drawings.	
.10	Acceptable manufacturers: Allen-Bradley, Cutler-Hammer, Siemens, GE and Square-D (Schneider).	
2.3 Power Panelboards		
.1	Panelboards: product of one manufacturer.	
.2	Designed for service entrance (as indicated) c/w main breaker rated 22kAIC. Main and feeder breakers must be series rated for 22kAIC.	
.3	Panelboard: bus and feeder breakers rated for 10,000 A (symmetrical) interrupting capacity or as indicated.	
.4	Sequence phase bussing with odd numbered breakers on left and even on right, with each breaker identified by permanent number identification as to circuit number and phase.	
.5	Panelboards: voltage mains, number of circuits, and number and size of branch circuit breakers as indicated.	
.6	Two keys for each panelboard (and key alike).	
.7	Copper buses with neutral of same ampere rating as mains.	
.8	Copper ground bar.	
.9	Mains: suitable for bolt on breakers.	
.10	Trim and door finish in accordance with Section 16010 – Electrical General Requirements.	
.11	Base panelboards on CSA C22.2 No. 29 – specification.	
.12	Panelboard Breakers:	
.1	Breakers with thermal and magnetic tripping in panelboards except as indicated otherwise.	
.2	Main breaker: separately mounted on top or bottom of panel to suit service and cable entry. When mounted vertically, down position should open breaker.	
.3	Lock on devices as indicated.	
.4	Bolt-on moulded case circuit breaker: quick-make, quick-break type, for manual and automatic operation with temperature compensation for 40°C ambient.	
.5	Common-trip breakers: with single handle for multi-pole applications.	
.6	Ground fault protection circuit breakers: Class A type, 120V AC, complete with automatic shunt trip, zero sequence transformer and facilities for testing and reset pushbuttons.	
PART 3 – EXECUTION		
3.1 Disconnect Switches		
.1	Install disconnect switches complete with fuses as indicated.	
.2	Provide all necessary mounting hardware.	
.3	Provide disconnect switches – surface mounted on brick, concrete or block walls with 3 mm thick lead washers between enclosure and wall face.	
.4	Mounting height: 1500 mm above finish floor level to top of switch enclosure.	
.5	Provide a Nameplate: Size 4.	
3.2 Power Panelboards		
.1	Locate panelboards as indicated and mount securely, plumb, true and square, to adjoining surfaces.	
.2	Install surface mounted panelboards on melamine backboards. Where practical, group panelboards on a common backboard.	
.3	Mount panelboards to height required by code or as indicated.	
.4	Connect loads to circuits. Perform a "load balance" check after all loads are connected.	
.5	Connect neutral conductors to common neutral bus with respective neutral identified.	

Electrical Specifications		Page 3 of 7
1.8 Operating and Maintenance Manual		
.1	Produce operating and maintenance manuals for all work and submit one complete preliminary PDF for the Consultant's review.	
.2	Submit two final approved hard copies and one PDF of the operating and maintenance manuals at project completion.	
.3	Coordinate installation of materials and equipment with work of other trades. Report any conflicts to the Consultant.	
.4	Coordinate with local utilities (hydro and telephone) and obtain all necessary information to ensure proper functioning of all the installed equipment. Notify the Consultant in writing of any resultant changes.	
.5	Relocate equipment and/or material installed, but not coordinated with the work of other trades as directed by the Consultant, at no extra cost.	
.6	Confirm with the local utility all aspects of primary and secondary power supply, including trenching, cabling, grounding and metering.	
1.9 Finishes		
.1	Shop-finish metal enclosures by application of rust resistant primer inside and out, and at least two coats of finishing enamel.	
.2	Clean and touch up any surfaces on shop-painted surfaces marred during shipment or installation with paint selected to match the original.	
.3	Wire brush and prime using a zinc-rich coating on any non-coated steel hangers, racks and fasteners to prevent rusting.	
1.10 Equipment Identification		
.1	Provide nameplates for all electrical equipment listing equipment identifier and function.	
.2	Nameplates:	
.1	Lamicoid 3 mm thick plastic engraving sheet, black face, white ore, mechanically attached with stainless steel screws or rivets.	
NAMEPLATES:		
Size 1: 1 line, 3 mm high letters		
Size 2: 1 line, 6 mm high letters		
Size 3: 2 lines, 6 mm high letters		
Size 4: 1 line, 12 mm high letters		
Size 5: 2 lines, 12 mm high letters		
Size 6: 1 line, 25 mm high letters		
Size 7: 2 lines, 25 mm high letters		
.3	Wording on nameplates to be approved by Engineer prior to manufacture.	
.4	Allow for average of twenty-five (25) letters per nameplate.	
.5	Identification to be English.	
.6	Disconnects, starters and contactors: Size 4, indicate equipment description and voltage.	
.7	Terminal cabinets, pull and junction boxes: Size 2, indicate panelboard system and voltage.	
.8	Transformers: Size 5 indicate tag number, kVA capacity, phases, system primary and secondary voltages.	
.9	Provide a typewritten circuit directory with clear plastic cover for each panel board in a suitable holder on the inside of each panel door. Indicate breaker circuit number, rating, load description, and associated load data. On outside of panel board door, indicate tag number, capacity, phases and voltages.	

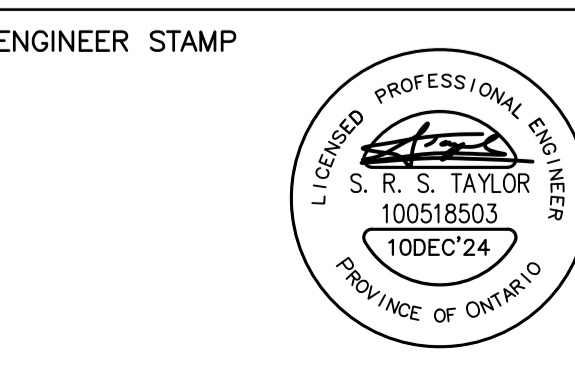
Electrical Specifications		Page 6 of 7
.6	Breaker sizes listed in the panelboard schedule(s) are provided as a general guide. Prior to installation, contractor to confirm all breaker sizes with final equipment loads.	
.7	Contractor to size all panelboard feeder wiring and conduit based on Ontario Electrical Safety Code - latest edition. Include insulated ground conductor in all conduit raceways.	
.8	Provide a Nameplate: Size 4.	
3.3 Disconnect Switches		
.1	Install disconnect switches complete with fuses as indicated.	
.2	Provide all necessary mounting hardware.	
.3	Provide disconnect switches – surface mounted on brick, concrete or block walls with 3 mm thick lead washers between enclosure and wall face.	
.4	Mounting height: 1500 mm above finish floor level to top of switch enclosure.	
.5	Provide a Nameplate: Size 4.	
3.4 Grounding		
.1	Provide a complete grounding system in accordance with the code and any service having jurisdiction.	
.2	Ground all electrical equipment, including distribution panels, lighting fixtures, motors, conduits, receptacles, wiring and control devices. Ensure conduits make a good mechanical connection at all points to maintain a continuous metallic ground throughout the complete system.	
.3	Ground all plumbing and mechanical services inside buildings to ensure that no item of equipment is left electrically isolated.	
.4	Provide ground bushings to all stubbed-up metallic conduits under panels and interconnect to ground bus with grounding conductor.	
.5	Provide grounding electrodes in accordance with the requirements of the code and any service authority having jurisdiction.	
.6	Provide separate insulated ground wire in all metal or plastic conduits buried in earth or installed in or below concrete slabs.	
.7	Provide separate ground conductor through all flexible conduit connections.	
3.5 Inspections		
.1	Advise Engineer so that he may inspect ducts prior to placing and be present during placement of concrete and clean out.	
3.6 Cable Installation in Ducts		
.1	Install cables as indicated in ducts.	
.2	Do not pull spliced cables inside ducts.	
.3	Install multiple cables in duct simultaneously.	
.4	Use CSA approved lubricants of type compatible with cable jacket to reduce pulling tension.	
.5	To facilitate matching of colour coded multiconductor control cables reel off in same direction during installation.	
.6	Before pulling cable into ducts and until cables properly terminated, seal ends of lead covered cables with wiping solder; seal ends of non leaded cables with moisture seal tape.	
3.7 Testing and Commissioning		
.1	Provide testing and commissioning of all electrical work. Notify the Consultant at least three working days before the testing and commissioning is scheduled to start. The Consultant may request repetition of any test for which due notification was not received.	
.2	Provide insulation test using 500V megger on the utility supply cables.	

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 CONTRACTOR MUST VERIFY ALL DIMENSIONS AND BE RESPONSIBLE FOR SAME. ANY DISCREPANCIES MUST BE REPORTED TO THE ENGINEER BEFORE COMMENCING WORK. DRAWINGS ARE NOT TO BE SCALED.
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BENCHMARKS	
No.	REVISION DESCRIPTION
1.	ISSUED FOR PERMIT AND TENDER
2.	ISSUED FOR ADDENDUM 1

NOTES	
No.	REVISION DESCRIPTION
1.	ISSUED FOR PERMIT AND TENDER
2.	ISSUED FOR ADDENDUM 1

ENGINEER STAMP	
DATE	NOV/24
DATE	DEC/24



MILFORD BAY COMMUNITY CENTRE
MILFORD BAY, ON

ELECTRICAL SPECIFICATIONS SHEET

TATHAM ENGINEERING	
DESIGN: JL	FILE: 123056
DRAWN: JL	DATE: DEC 2024
CHECK: SRT	SCALE: AS SHOWN
E3.1	

GENERAL NOTES

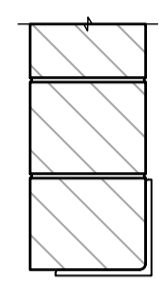
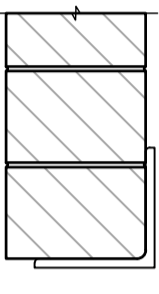
- THESE DRAWINGS ARE TO BE READ IN CONJUNCTION WITH ALL OTHER CONTRACT DOCUMENTS PREPARED BY ALL CONSULTANTS PRIOR TO CONSTRUCTION. REPORT DISCREPANCIES BEFORE PROCEEDING WITH THE WORK.
- ALL DIMENSIONS ARE IN FEET AND INCHES EXCEPT AS NOTED.
- FOLLOW ALL SECTIONS, DETAILS, AND STATEMENTS NOTED AS "TYPICAL", UNLESS OTHERWISE NOTED ON DRAWINGS. TYPICAL DETAILS SHOW STRUCTURAL INTENT RATHER THAN ACTUAL CONDITIONS FOR THE PROJECT. TYPICAL DETAILS APPLY TO SIMILAR CONDITIONS THROUGHOUT THE PROJECT UNLESS OTHERWISE NOTED.
- USE OF THESE DRAWINGS IS LIMITED TO THAT IDENTIFIED IN THE REVISIONS COLUMN. DO NOT CONSTRUCT FROM THESE DRAWINGS UNLESS MARKED "ISSUED FOR PERMIT AND/OR CONSTRUCTION"
- DO NOT USE INFORMATION ON THESE DRAWINGS FOR ANY OTHER PROJECT OR WORKS.
- THE CONTRACTOR SHALL REVIEW ALL DRAWINGS AND CONTRACT DOCUMENTS PRIOR TO AND DURING CONSTRUCTION TO ENSURE THAT THE ASSUMPTIONS MADE IN THE DRAWINGS REFLECT THE REQUIREMENTS OF CONSTRUCTION AND FIELD CONDITIONS ENCOUNTERED. WHERE DISCREPANCIES ARISE OR THE CONTRACTOR FINDS AN ERROR OR OMISSION RELATING TO THE CONTRACT, THE CONTRACTOR SHALL PROMPTLY REPORT IT TO THE STRUCTURAL CONSULTANT AND SHALL NOT PROCEED WITH THE ACTIVITY AFFECTED UNTIL RECEIVING DIRECTION FROM THE STRUCTURAL CONSULTANT.
- THE DRAWINGS SHOW THE COMPLETED STRUCTURE. THE CONTRACTOR IS RESPONSIBLE FOR SAFETY ON THE JOB SITE AND FOR DESIGN, INSTALLATION AND SUPERVISION OF ALL TEMPORARY BRACING AND FALSEWORK TO SUIT THE CONSTRUCTION METHODS AND TO SUPPORT THE SUPERIMPOSED CONSTRUCTION LOADS. DESIGN AND FIELD REVIEW OF ALL TEMPORARY WORKS TO BE CARRIED OUT BY A PROFESSIONAL ENGINEER RETAINED BY THE CONTRACTOR, LICENSED AND INSURED IN THE PROVINCE OF ONTARIO.
- ALL WORK AND MATERIALS SHALL CONFORM TO REQUIREMENTS SET OUT IN THE 2012 ONTARIO BUILDING CODE.
- ALL CODES AND STANDARDS REFERENCED SHALL BE THE LATEST EDITION REFERENCED BY THE 2012 ONTARIO BUILDING CODE (DIV. B, 1.3.1.2).
- ALL WORK IS TO BE CARRIED OUT IN ACCORDANCE WITH THE OCCUPATIONAL HEALTH AND SAFETY ACT OF ONTARIO.
- ALL DESIGN LOADS NOTED ON DRAWINGS ARE SPECIFIED LOADS (UNFACTORED) TO BE USED FOR ULS (FACTORED) DESIGN, UNLESS OTHERWISE NOTED:
 - A) ROOF DEAD LOAD = 15 psf
 - B) ACCESSIBLE UPPER LEVEL DL = 15 psf
 - C) MAIN FLOOR DL = 56 psf
 - D) ACCESSIBLE UPPER LEVEL LL = 75 psf
 - E) MAIN FLOOR LL (WASHROOM) = 50 psf
 - F) MAIN FLOOR LL (LOBBY) = 100 psf
- CLIMATIC DATA (BRACEBRIDGE):
 - SNOW = 65 psf
 - SR = 0.4 psf
- IMPORTANCE CATEGORY FOR BUILDINGS: HIGH
- DEAD LOAD (DL) IS THE SELF WEIGHT OF THE STRUCTURE PLUS THE SUPERIMPOSED DEAD LOAD (U.N.O.):
 - SELF WEIGHT IS DUE TO THE WEIGHT OF THE STRUCTURE ITSELF. IT VARIES WITH THE STRUCTURAL SYSTEM AND INCLUDES CONCRETE TOPPING ON STEEL DECK. SUPERIMPOSED DEAD LOADS (SDL) ARE NON-STRUCTURAL DEAD LOADS DUE TO NON-STRUCTURAL TOPPING, FINISHES, PARTITIONS, ROOFING MATERIALS, SUSPENDED EQUIPMENT, PAVERS, SOIL, ETC.
- ALL PROPRIETARY PRODUCTS SPECIFIED ON THESE DRAWINGS SHALL BE INSTALLED STRICTLY IN ACCORDANCE WITH THE MANUFACTURER'S WRITTEN SPECIFICATIONS. ALTERNATIVE PRODUCTS MAY ONLY BE USED WITH THE PRIOR APPROVAL OF THE STRUCTURAL CONSULTANT. CONTRACTOR IS RESPONSIBLE FOR PROVIDING WRITTEN DOCUMENTATION AND SPECIFICATIONS AS REQUIRED BY STRUCTURAL CONSULTANT FOR EVALUATION OF SUITABILITY OF ALTERNATE PRODUCTS.
- THESE DRAWINGS INDICATE STRUCTURAL DESIGN FOR BUILDING ONLY. DESIGN INFO APPLIES WITHIN THE BUILDING FOOTPRINT ONLY. ALL STRUCTURAL DESIGN FOR STRUCTURES OUTSIDE THE BUILDING FOOTPRINT IS BY OTHERS UNLESS NOTED OTHERWISE IN THESE DRAWINGS.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING LOCATES FOR ALL UTILITIES AND UNDERGROUND SERVICES PRIOR TO COMMENCING WORK AND SHALL COORDINATE WORK WITH SERVICES AND UTILITIES ADJACENT TO OR WITHIN THE AREA OF WORK.
- OPENINGS AND SLEEVES INDICATED ON THE STRUCTURAL DRAWINGS ARE FOR REFERENCE ONLY. COORDINATE ALL OPENING LOCATIONS AND DIMENSIONS WITH THE APPROPRIATE CONSULTANT AND THE SUB-CONTRACTOR PRIOR TO CONSTRUCTION.
- DO NOT CUT OR DRILL ANY OPENINGS IN STRUCTURAL MEMBERS WITHOUT WRITTEN PERMISSION FROM THE STRUCTURAL CONSULTANT UNLESS SPECIFICALLY NOTED ON THE STRUCTURAL DRAWINGS.
- REFER TO MECHANICAL, AND ELECTRICAL DRAWINGS FOR SMALL OPENINGS, SLEEVES, RECESSES, DEPRESSIONS, SUMPS, TRENCHES, CURBS, HOUSEKEEPING PADS, EQUIPMENT BASES, AND SLOPES NOT INDICATED ON THE STRUCTURAL DRAWINGS.

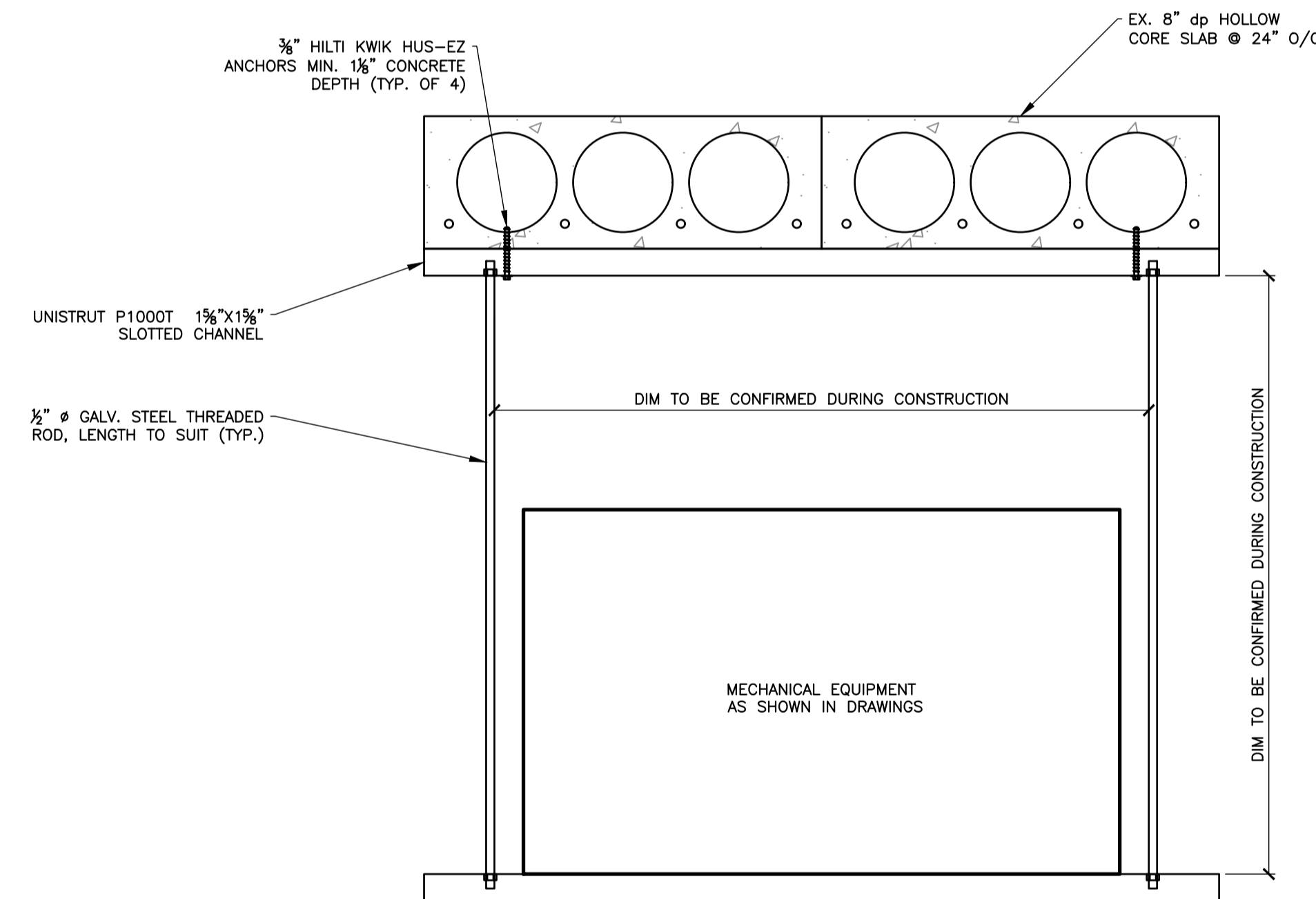
STRUCTURAL STEEL

- ALL STRUCTURAL STEEL SHALL BE NEW STOCK AND CONFORM TO THE FOLLOWING GRADES AND STANDARDS:
 - A) ANGLES, AND CHANNELS: CAN/CSA G40.21 TYPE 350W
- ALL STRUCTURAL STEEL SHALL BE FABRICATED AND ERECTED IN ACCORDANCE WITH CAN/CSA S16.
- NO HOLES SHALL BE CUT IN THE STRUCTURAL STEEL WITHOUT THE PRIOR APPROVAL OF THE STRUCTURAL CONSULTANT. NO STRUCTURAL STEEL SHALL BE CUT IN THE FIELD UNLESS REVIEWED AND APPROVED BY THE STRUCTURAL CONSULTANT.
- SUBSTITUTIONS FOR STEEL SECTIONS SHOWN ON DRAWINGS SHALL NOT BE MADE WITHOUT THE WRITTEN APPROVAL OF THE STRUCTURAL CONSULTANT.
- SPLICES IN STEEL MEMBERS OTHER THAN THOSE SHOWN ON THE DRAWINGS SHALL NOT BE PERMITTED.
- ALL STEELWORK SHARP/ROUGH EDGES SHALL BE GROUND BACK TO A SMOOTH SURFACE.
- CLEAN, PREPARE SURFACES AND SHOP PRIME STRUCTURAL STEEL IN ACCORDANCE WITH CAN/CSA-S16.1.
- TOUCH UP SHOP PRIMER TO BOLTS, WELDS, AND BURNED AND SCRATCHED SURFACES AT COMPLETION OF ERECTION.
- ALL EXTERIOR EXPOSED STEEL SHALL BE PROTECTED BY HOT DIP GALVANIZING OR TWO COATS OF GALVAFROID PAINT.

WOOD FRAMING

- WOOD AND ENGINEERED LUMBER COMPONENTS SHALL BE DESIGNED, FABRICATED, AND INSTALLED IN ACCORDANCE WITH CAN/CSA-086 AND THE ONTARIO BUILDING CODE (OBC) PART 9.
- ALL LUMBER SHALL BE NO. 1/2 GRADE SPF IN ACCORDANCE WITH CSA 086, UNLESS NOTED OTHERWISE.
- ALL LVL LUMBER SHALL BE 2.0E, 2900 FB MATERIAL AND SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S WRITTEN INSTRUCTIONS AND REQUIREMENTS.
- STEEL PLATES AND WASHERS SHALL BE IN ACCORDANCE WITH ASTM A36 (GRADE 250W).
- FASTENERS AND HARDWARE USED IN EXTERIOR APPLICATIONS SHALL BE HOT-DIPPED GALVANIZED.
- ALL LUMBER FASTENING SHALL BE IN ACCORDANCE WITH OBC PART 9 OR MANUFACTURER'S SPECIFICATIONS, UNLESS NOTED OTHERWISE. ALL NAILS, SPIKES, AND STAPLES SHALL BE IN ACCORDANCE WITH OBC 2012, 9.23.3.
- ALL INDIVIDUAL PLYS IN SIDE-LOADED LVL MEMBERS SHALL BE FASTENED TO EACH ADJACENT PLY USING FOUR ROWS OF 10dx3" LONG COMMON WIRE NAILS SPACED AT 12" O/C, UNLESS NOTED OTHERWISE.
- SPECIFIED CONNECTORS SHALL BE MANUFACTURED BY SIMPSON STRONG-TIE. SUBSTITUTIONS SHALL BE SUBMITTED FOR ENGINEERS APPROVAL PRIOR TO CONSTRUCTION.
- ALL PROPRIETARY CONNECTORS AND FIXINGS ARE TO BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURERS SPECIFICATIONS.
- NON-TREATED WOOD IN CONTACT WITH CONCRETE OR STONE SHALL BE PROTECTED BY SILL GASKET OR 6 MIL POLY.
- SOLID WOOD BLOCKING SHALL BE PROVIDED BENEATH ALL POINT LOADS.

LINTEL SCHEDULE	
MARK	SIZE
L1	L 8 x 8 x 1/2" CONCRETE BLOCK SUPPORT WITH 8" MINIMUM BEARING EACH END ON SOLID GROUDED CORES (2 COURSES HIGH). 
L2	L 10 x 10 x 3/4" CONCRETE BLOCK SUPPORT WITH 8" MINIMUM BEARING EACH END ON SOLID GROUDED CORES (2 COURSES HIGH). 




NOTE:
 -CONTRACTOR TO SCAN CONCRETE PRIOR TO DRILLING, LOCATE FASTENERS AWAY FROM EX. TENDONS AS SHOWN
 -EQUIPMENT TO BE SUPPORTED FROM 2 HOLLOW CORE SLABS AS SHOWN

D1 BASEMENT SLAB MOUNTING DETAIL
 SCALE: 1/2" = 1'-0"

DISCLAIMER AND COPYRIGHT

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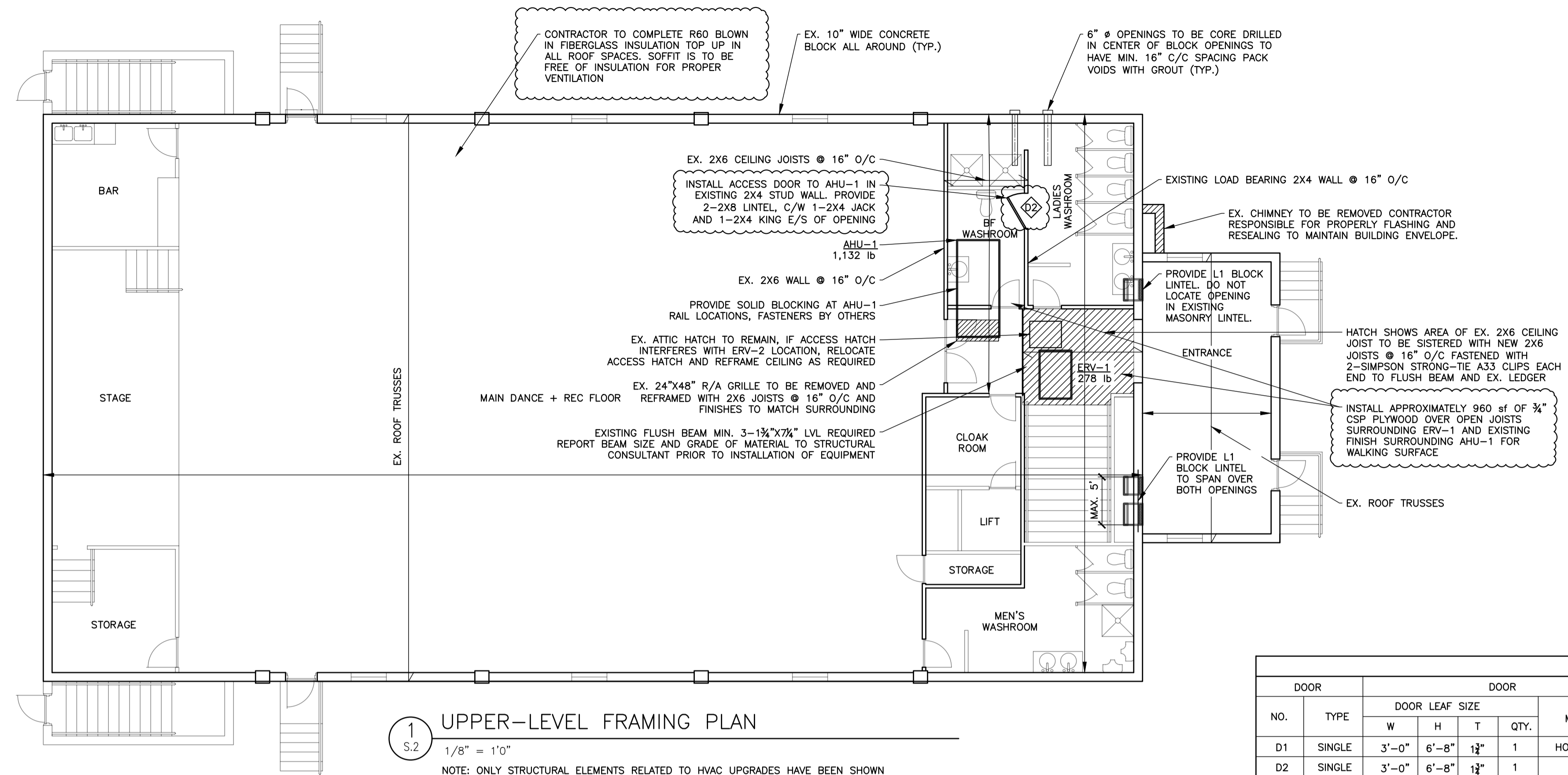
No.	REVISION DESCRIPTION	DATE	ENGINEER STAMP
1.	ISSUED FOR PERMIT AND TENDER	NOV/24	
2.	ISSUED FOR ADDENDUM 1	DEC/24	

MILFORD BAY COMMUNITY CENTRE
MILFORD BAY, ON

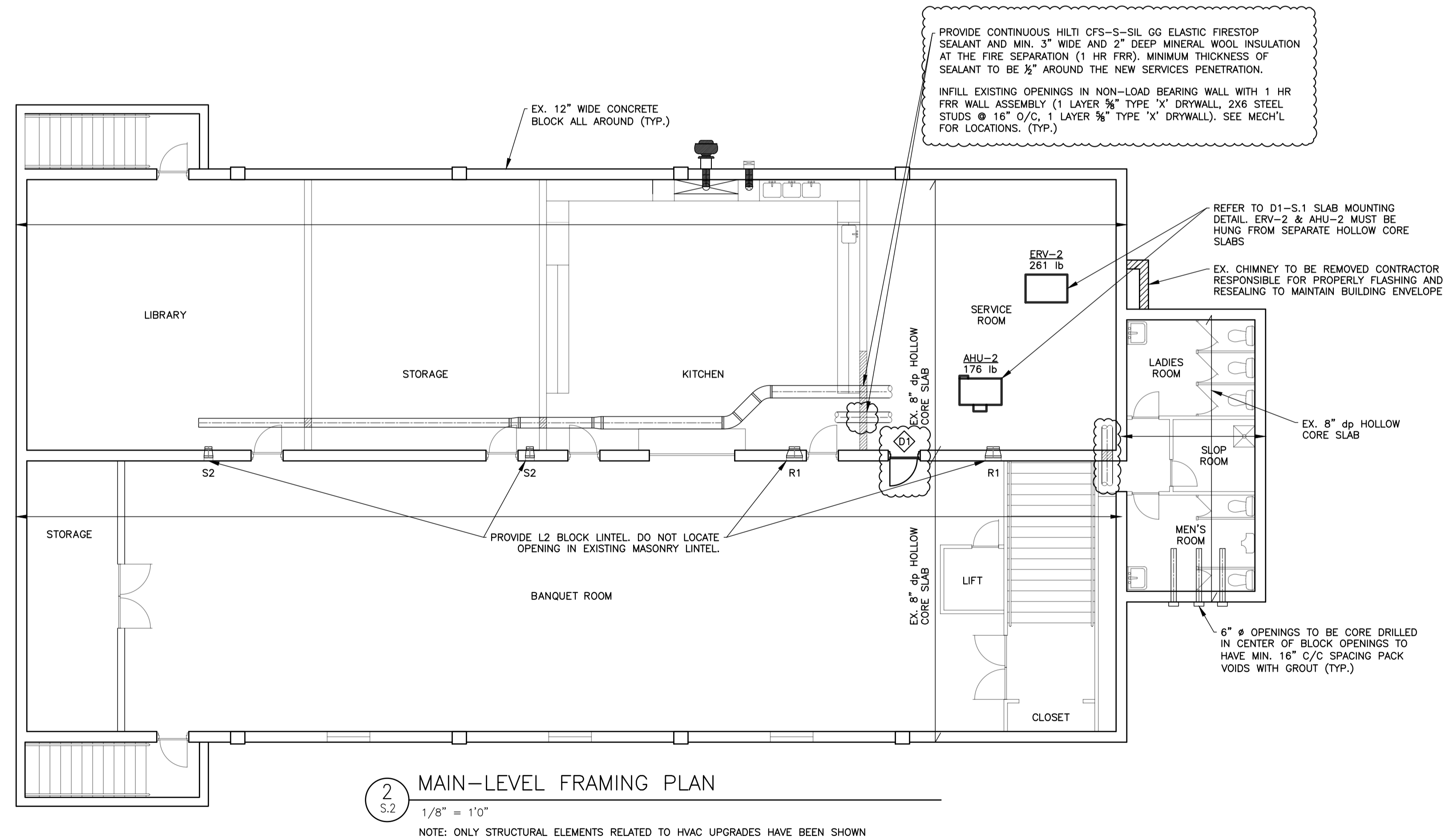


GENERAL NOTES & DETAILS

DESIGN: CG	FILE: 123056	DWG:
DRAWN: CG	DATE: OCT 2024	S.1
CHECK: LV	SCALE: AS NOTED	



DOOR SCHEDULE										
DOOR NO.	TYPE	DOOR LEAF SIZE				MATERIAL	FIRE RATING	CLOSER	DIRECTION	COMMENTS
		W	H	T	QTY.					
D1	SINGLE	3'-0"	6'-8"	1 1/2"	1	HOLLOW METAL	0.75 HOUR	YES	SWING OUT	INSULATED
D2	SINGLE	3'-0"	6'-8"	1 1/2"	1	WOOD		YES	SWING OUT	



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No.	REVISION DESCRIPTION	DATE	ENGINEER STAMP
1.	ISSUED FOR PERMIT AND TENDER	NOV/24	
2.	ISSUED FOR ADDENDUM 1	DEC/24	

MILFORD BAY COMMUNITY CENTRE
MILFORD BAY, ON
UPPER-LEVEL & MAIN-LEVEL FRAMING PLAN

TATHAM ENGINEERING

DESIGN: CG	FILE: 123056	DWG: S.2
DRAWN: CG	DATE: OCT 2024	
CHECK: LV	SCALE: AS NOTED	

**Appendix D:
Approximate Propane Tank
Location**

An aerial satellite-style photograph of a large, light-colored building with a dark roof. A red rectangular box is drawn on the roof, with a red arrow pointing from it to a white text box. The text box contains the text 'APPROXIMATE LOCATION OF NEW PROPANE TANK'. In the lower right area of the image, there is a location pin icon with the text '1020 Milford Bay Community Centre Recently viewed' overlaid on it. The building is surrounded by trees and a parking lot with several cars.

APPROXIMATE
LOCATION OF NEW
PROPANE TANK

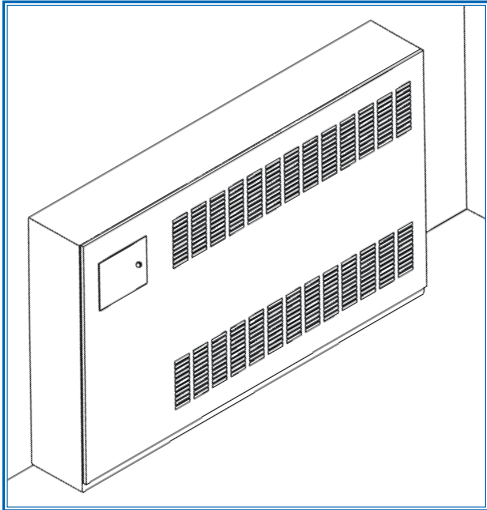
1020
Milford Bay
Community Centre
Recently viewed

Appendix E: Hydronic Heater Cutsheets

Project: Millford Bay Community Centre									
Engineer :									
Cabinet heater Schedule- Dated Oct 3rd 2024									
						EWT:140°F	LWT:110 °F	EAT:72°F	
			Heating Capacity MBH		CFM	Motor HP	Rosemex Model	Arr #	Qty
Dwg#	Tag	Area	Spec	Actual					
FFH-1	1	Library	17.5	18.88	400	1/15 HP	F-400-C		1
FFH-2	2	Kitchen	14.2	15	300	1/15 HP	F-300-C		1
FFH-3	3	Mech Room	16.7	16.5	335	1/15 HP	F-400-B		1
FFH-4	4	East Stairwell	25.1	25.1	505	1/4 HP	F-600-B		1
FFH-5	5	West Stairwell	21.9	20.9	410	1/4 HP	F-600-A		1
FFH-6	6	Banquet Storage	12.6	12.83	245	1/15 HP	F-300-B		1
FFH-7	7	Basement Ladies Rm	10.2	10.6	200	1/15 HP	F-300-A		1
FFH-8	8	Basement Janitor Rm	3.2	10.6	200	1/15 HP	F-300-A	Recommend using Wall	1
FFH-9	9	Basement Mens Rm	10.6	10.6	200	1/15 HP	F-300-A		1
FFH-10	10	Bar	9.4	10.6	200	1/15 HP	F-300-A		1
FFH-11	11	Stage	18.9	18.88	400	1/15 HP	F-400-C		1
FFH-12	12	Stage Storage	9.7	10.6	200	1/15 HP	F-300-A		1
FFH-13	13	UL Ladies WR	22.7	25.1	505	1/4 HP	F-600-B		1
FFH-14,15	14,15	Lobby	48.1	50.2	1/4 HP	F-600-B	F-300-B		2
FFH-16	16	UL Mens WR	24.4	25.1	505	1/4 HP	F-600-B		1

ALL CABINET UNIT HEATERS C/W FILTERS, COILS WITH LH CONNECTIONS & 3-SPEED CONTROLLERS
 ALL WALL MTD UNITS TO HAVE BUILT-IN THERMOSTATS AND CEILING UNITS WITH REMOTE THERMOSTAT





High capacity, modern styling, wide range of application, the Rosemex cabinet heater can answer the most exacting requirements of heating, ventilation and appearance.

The units are offered in five basic sizes. Each size is available in twenty-six different arrangements providing hundreds of varieties of floor, wall or ceiling mounted units.

INDEX

OPTIONAL EQUIPMENT NOISE LEVEL

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HOT WATER

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WIRING DIAGRAM COIL DIMENSIONS

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ROUGHING-IN DIMENSIONS

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ARRANGEMENTS

PAGE 8

STANDARD UNIT SPECIFICATIONS

CABINET

The cabinets are constructed of heavy 16 gauge furniture steel with removable fronts to provide easy access to motor, blower and heating element. The cabinets are rust proofed and then finished with a prime coat. They can be painted on the job to blend with any color scheme or can be furnished with a factory enamel finish.

COILS

The heating coils are of 5/8" O.D. seamless copper tubes expanded into aluminum fins to form a permanent mechanical bond. Two rows for hot water or steam. Female pipe coil connections. Steam distributing coils have cast iron headers. Supply and return connections on left side of units on all models and sizes.

BLOWERS

The blowers consist of two double inlet type centrifugal aluminum fans mounted directly on a double ended motor shaft.

ACCESS DOOR

Provides easier access to controls on left side with camlock fastener.

HINGED PANEL

Supplied on ceiling arrangements to remove fan deck & filter.

MOTORS

Permanent split capacitor type. Steel shell, die cast aluminium shields, galvanized steel cradle. Resilient mount. Self aligning sleeve bearings, horizontal mount, class "B" insulation, thermally protected. Windings are "tropical impregnated" for high humidity areas.

These motors have been thoroughly tested to provide whisper quiet performance with speed variations from high to low.

SPEED SWITCH

Solid state three speed control with off position.

FILTERS

Filters in these cabinet heaters are removable in seconds, without tools. After simply opening the unit's front panel, the filter easily slides out. Filters are provided as standard. Filters clean air entering the cabinet heater before it is discharged into conditioned space.

PIPING

Space is provided to allow all piping connections to be made inside the cabinet.

TABLE 1

UNIT SIZE	60°F ENTERING AIR TEMPERATURE												PERMANENT SPLIT CAPACITOR MOTOR 115/1/60			CFM	SOUND CLASS
	200°F EWT & 20°F DROP				200°F EWT & 30°F DROP				200°F EWT & 40°F DROP				HP	RPM	AMP. MAX.		
	MBH	FINAL AIR TEMP	US GPM	PRESS. DROP FT.H ₂ O	MBH	FINAL AIR TEMP	US GPM	PRESS. DROP FT.H ₂ O	MBH	FINAL AIR TEMP	US GPM	PRESS. DROP FT.H ₂ O					
F-300-A	22.4	163	2.24	0.40	21.0	156	1.40	0.20	19.5	150	0.98	0.10	1 x 1/15	650	0.80	200	1
F-300-B	26.2	158	2.62	0.50	24.5	152	1.63	0.25	22.7	145	1.14	0.15		850	1.00	245	1
F-300-C	30.6	154	3.06	0.70	28.5	147	1.90	0.30	26.3	141	1.32	0.20		1050	1.20	300	2
F-400-A	28.9	162	2.89	0.75	27.2	156	1.82	0.35	25.4	150	1.27	0.21	1 x 1/15	650	0.80	260	1
F-400-B	35.1	156	3.51	0.90	32.9	150	2.19	0.40	30.6	144	1.54	0.25		850	1.00	335	1
F-400-C	40.0	152	4.00	1.20	37.4	146	2.50	0.50	34.7	140	1.74	0.30		1050	1.20	400	2
F-600-A	44.4	159	4.44	1.60	42.0	154	2.80	0.70	39.5	148	1.98	0.40	1 x 1/4	650	1.70	410	1
F-600-B	51.3	154	5.13	2.20	48.1	148	3.20	1.05	44.8	142	2.24	0.55		850	2.20	505	1
F-600-C	58.2	150	5.82	2.60	54.4	144	3.62	1.20	50.5	138	2.52	0.60		1050	3.80	600	2
F-800-A	56.4	162	5.64	2.90	53.4	156	3.56	1.30	50.3	151	2.51	0.70	2 x 1/15	650	1.60	510	1
F-800-B	67.8	156	6.78	4.10	64.1	150	4.27	1.90	60.2	145	3.01	1.05		850	2.00	650	2
F-800-C	77.6	151	7.76	5.20	73.1	146	4.87	2.30	68.6	141	3.43	1.30		1050	2.40	780	2
F-1200-A	80.2	161	8.02	7.40	76.4	156	5.09	3.40	72.4	151	3.62	1.90	2 x 1/4	650	3.40	730	1
F-1200-B	93.3	156	9.33	10.10	88.6	151	5.90	4.60	83.8	146	4.19	2.50		850	4.40	890	2
F-1200-C	102.4	153	10.20	12.00	97.2	148	6.48	5.40	91.8	143	4.59	3.05		1050	7.60	1010	2

SPECIAL TURBO - HIGH R.P.M. UNITS

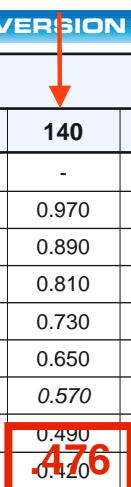
F-300-T	38.9	143	3.89	1.15	35.7	136	2.38	0.45	32.4	129	1.62	0.28	1 x 1/4	1650	3.80	430	3
F-400-T	47.5	144	4.75	1.90	43.8	137	2.92	0.80	40.2	131	2.01	0.45		1650	3.80	520	3
F-600-T	64.9	145	6.49	4.10	60.5	139	4.03	1.80	56.1	134	2.80	1.05		1650	3.80	700	3

TABLE 2

HOT WATER CONVERSION FACTORS*

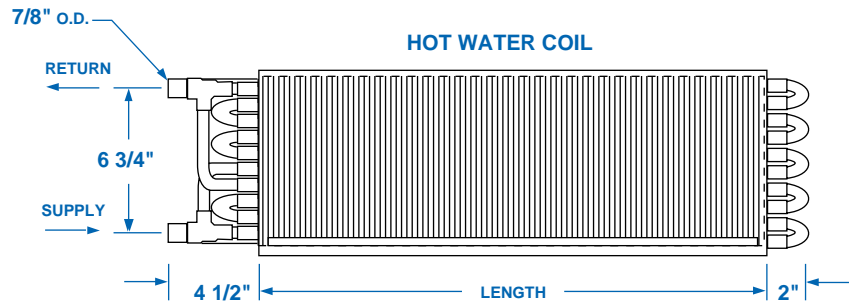
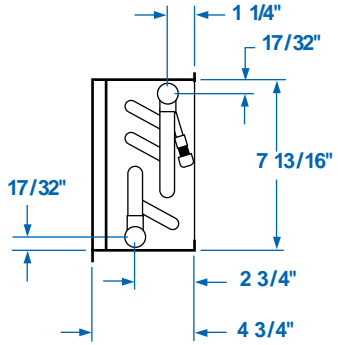
ENTER. AIR TEMPERATURE °F	ENTERING WATER TEMPERATURE °F											
	130	140	150	160	170	180	190	200	210	220	230	
0	-	-	1.157	1.251	1.320	1.413	1.490	1.572	1.653	1.735	1.830	
10	0.910	0.970	1.065	1.151	1.218	1.307	1.379	1.456	1.532	1.608	1.695	
20	0.830	0.890	0.975	1.058	1.146	1.210	1.278	1.353	1.427	1.498	1.582	
30	0.740	0.810	0.894	0.971	1.040	1.117	1.188	1.260	1.329	1.403	1.479	
40	0.650	0.730	0.810	0.886	0.955	1.030	1.101	1.172	1.241	1.312	1.389	
50	0.580	0.650	0.728	0.804	0.871	0.946	1.015	1.085	1.154	1.226	1.300	
60	0.500	0.570	0.648	0.723	0.789	0.862	0.931	1.000	1.069	1.138	1.212	
70	0.420	0.490	0.566	0.644	0.709	0.782	0.851	0.918	0.986	1.055	1.128	
80	0.350	0.420	0.493	0.566	0.631	0.702	0.771	0.837	0.904	0.972	1.045	
90	0.280	0.350	0.419	0.491	0.555	0.626	0.693	0.759	0.825	0.892	0.964	
100	0.210	0.270	0.346	0.417	0.480	0.551	0.616	0.682	0.747	0.813	0.885	

72 →



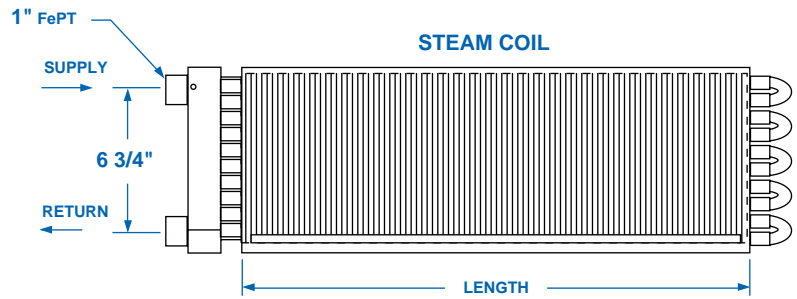
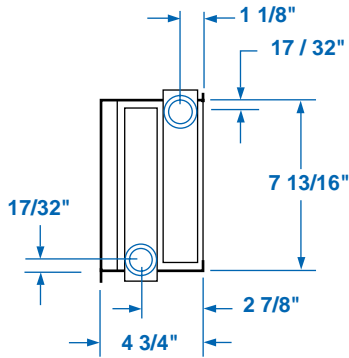
* To determine MBH capacity at any entering water temperature and entering air temperature, multiply rated capacities at 200°F EWT. and 60°F EAT. obtained from TABLE 1 by the appropriate conversion factor from TABLE 2.
NOTE THAT THE USGPM REMAINS CONSTANT.

COIL DIMENSIONS

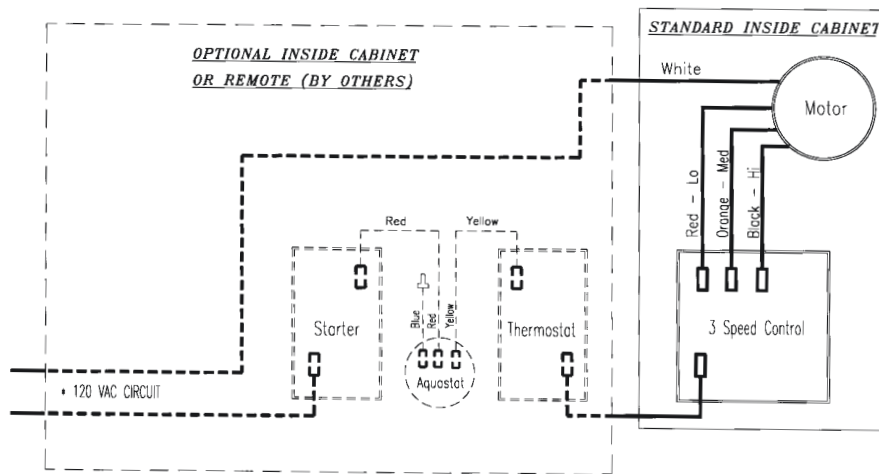


TYPES	CONNECTIONS
WATER	3/4" NOM.
STEAM	1" N.P.T.

MODEL	F-300	F-400	F-600	F-800	F-1200
LENGTH	22 3/4"	27"	35 3/4"	48"	64"

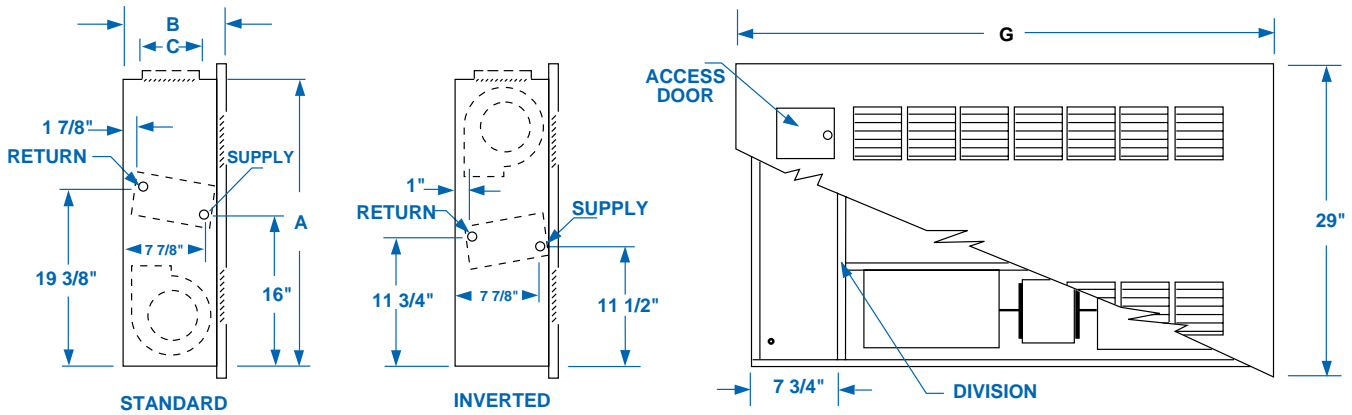


TYPICAL WIRING DIAGRAM

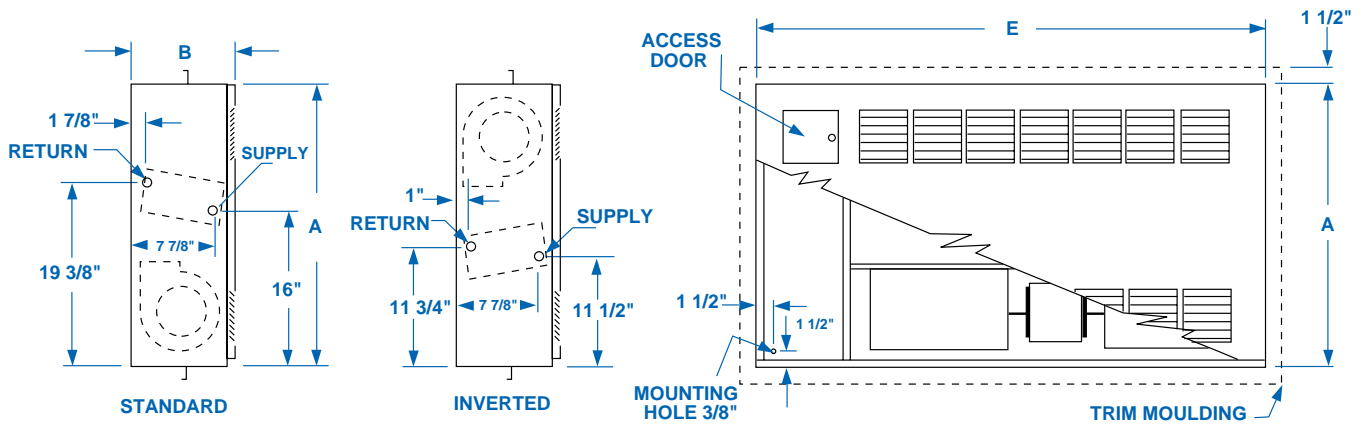


* ELECTRICAL WIRING AS PER LOCAL CODE WITH OVERCURRENT PROTECTION.

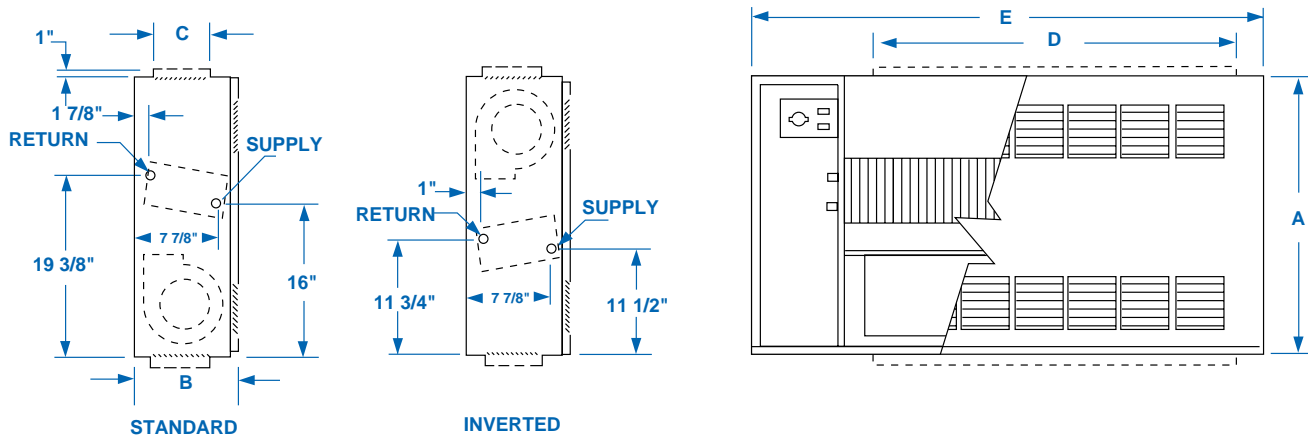
FULLY-RECESSED : Wall & Ceiling



SEMI-RECESSED with Trim-moulding: Wall & Ceiling



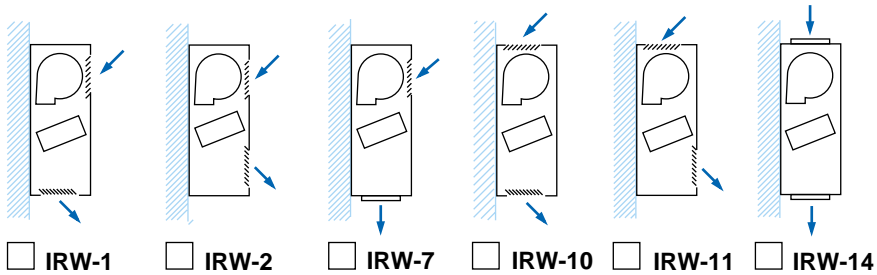
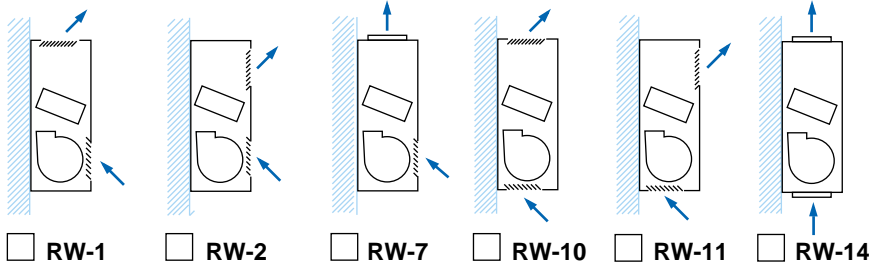
EXPOSED: Wall, Ceiling & Floor



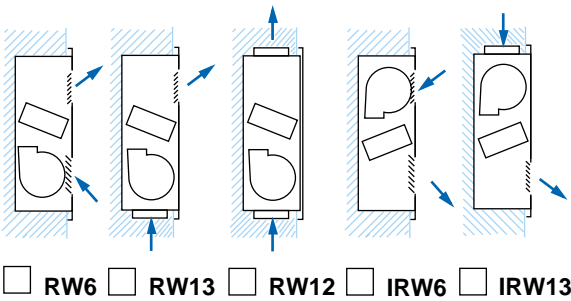
MODEL	A	B	C	D	E	G	WEIGHT - LBS
F & FS-300	26"	9 7/16"	5 1/8"	25 3/4"	37 3/4"	40 3/4"	100
F & FS-400	26"	9 7/16"	5 1/8"	29 3/4"	42"	45"	110
F & FS-600	26"	9 7/16"	5 1/8"	37 3/4"	50 3/4"	53 3/4"	125
F & FS-800	26"	9 7/16"	5 1/8"	49 3/4"	63 1/8"	66 1/8"	190
F & FS-1200	26"	9 7/16"	5 1/8"	65 3/4"	79"	82"	210

WALL MOUNTED

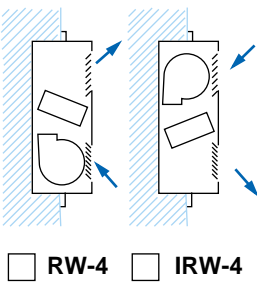
FULLY EXPOSED



FULLY RECESSED

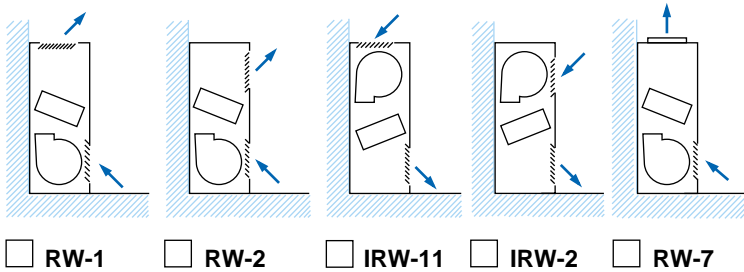


SEMI-RECESSED WITH WALL TRIM



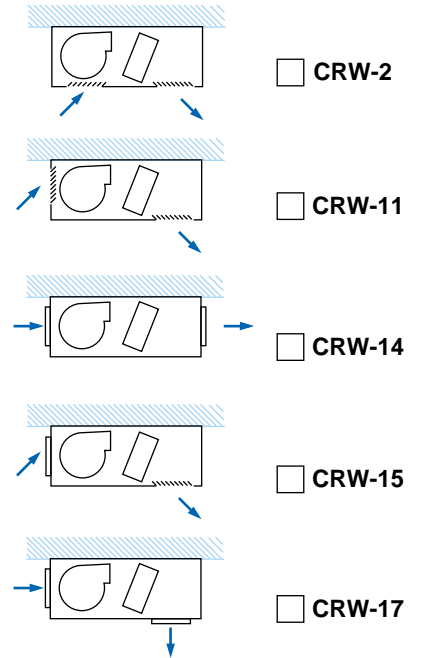
FLOOR MOUNTED

FULLY EXPOSED

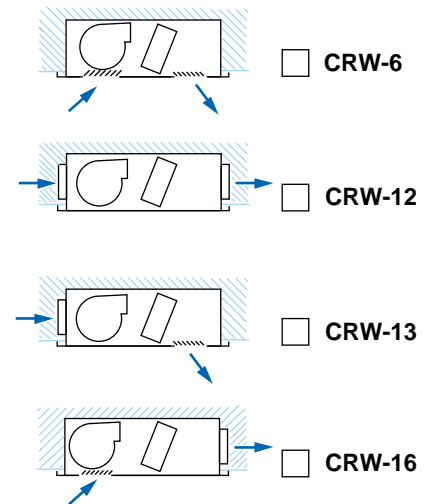


CEILING MOUNTED

FULLY EXPOSED C/W HINGED PANEL*



FULLY RECESSED C/W HINGED PANEL*

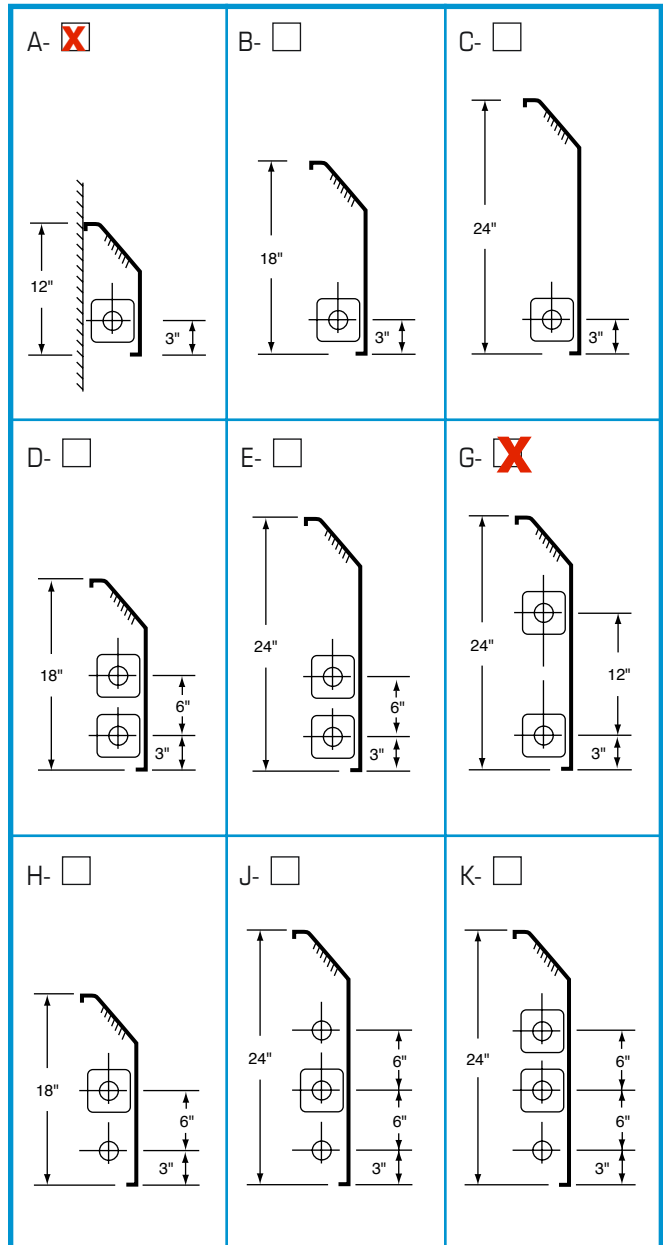
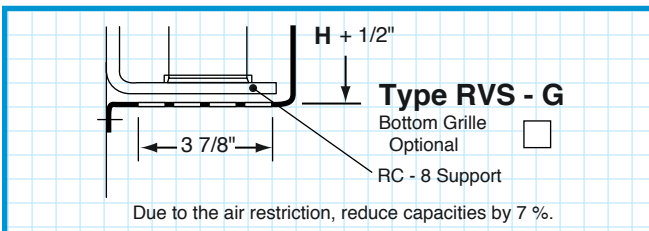
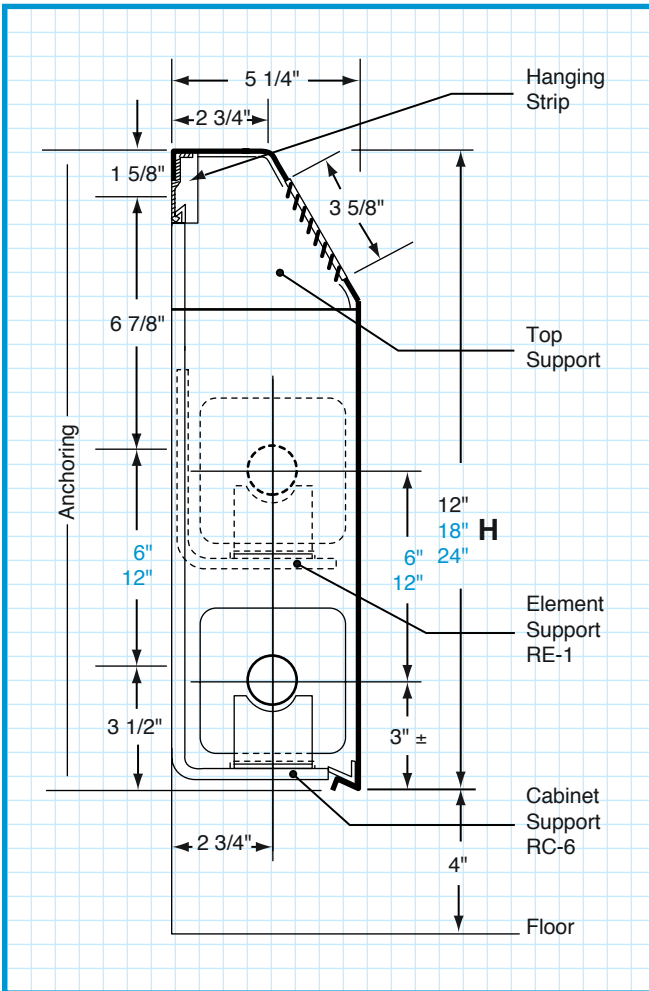
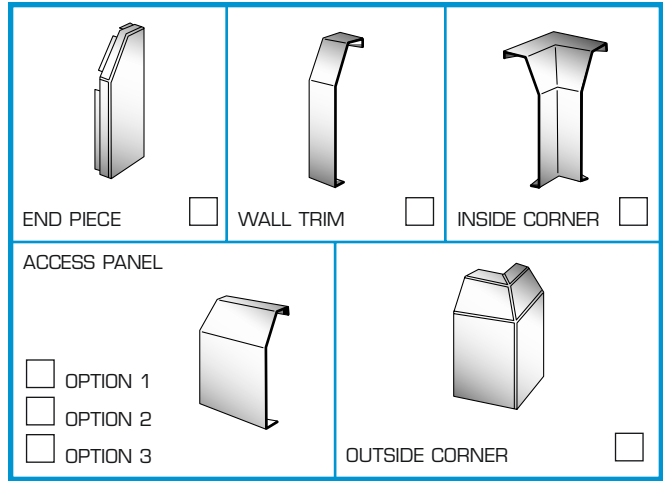
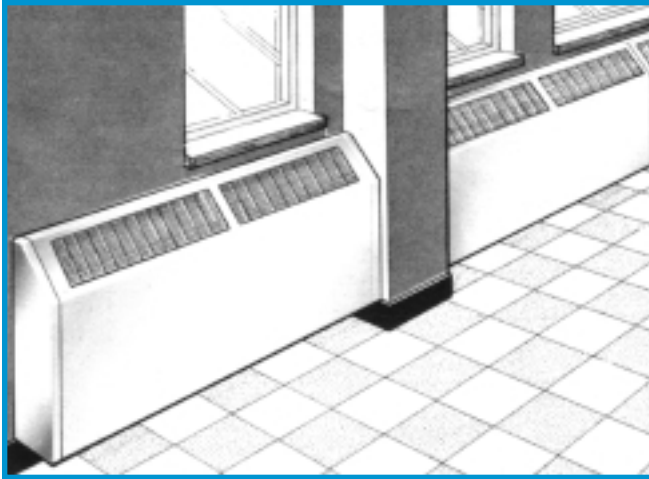


* IMPORTANT: NOT AVAILABLE FOR STEAM.

Note: Steam units are not available on bottom discharged arrangements (IRW)

WALLFIN RADIATION SCHEDULE

Architect:				Date :Sept 13th 2024						
Engineer:				Job: Millford Bay Community Centre						
Contractor:				Location:						
		Room	AWT: 125 F		Heati		Htg		Enclosure	
			EAT: 72F				Req			
Dwg #	Tag	Name or Number	Output MBH		Model	ROW S HIGH	length (Ft)	Model	Length (in)	
			SPEC	INSTALL						
		Basement Storage	10.3	10.5	44C3	2	12	RVS-G	site measured	
		Banquet Rm	38.6	38.6	44C3	2	44	RVS-G	site measured	
		UL Cloak Room	0.3	0.3	44C3	1	1	RVS-A	site measured	
		UL Storage	0.3	0.3	44C3	1	1	RVS-A	site measured	



Type RAF		ALUMINUM FINS / COPPER TUBE										
ELEMENT		ARRANGE- MENTS		ELEMENTS C/C (INCHES)	BTU/HR/LIN. FT. 65°F ENT. AIR							
NO.	DIM. FIN/TUBE				STEAM 1 PSIG	AVERAGE WATER TEMP. °F						
						200	190	180	170	160	150	140
44 C1	4" x 4" 52 Fin / Ft. 3/4" Dia.	A	H		1696	1458	1323	1170	1034	898	762	678
		B	J		1881	1618	1467	1297	1147	996	846	752
		C			1970	1694	1537	1359	1201	1044	887	788
		D	K	6	2435	2094	1899	1680	1485	1290	1096	974
		E		6	2560	2202	1997	1766	1561	1357	1152	1023
		G		12	2945	2532	2297	2032	1796	1561	1325	1178
34 C1	3" x 4" 52 Fin / Ft. 3/4" Dia.	A	H		1437	1235	1120	991	876	761	646	575
		B	J		1594	1370	1243	1099	972	844	717	638
		C			1669	1436	1301	1152	1018	884	751	667
		D	K	6	2064	1775	1609	1424	1259	1093	928	825
		E		6	2169	1865	1692	1496	1323	1149	976	867
		G		12	2496	2145	1947	1721	1522	1323	1123	998
44 C2	4" x 4" 52 Fin / Ft. 1" Dia.	A	H		1705	1466	1329	1176	1040	904	767	682
		B	J		1892	1627	1476	1305	1153	1002	851	757
		C			1982	1704	1545	1368	1209	1050	892	792
		D	K	6	2450	2106	1910	1690	1494	1298	1102	979
		E		6	2576	2214	2009	1777	1571	1364	1159	1030
		G		12	2962	2547	2310	2043	1806	1570	1333	1185
34 C2	3" x 4" 52 Fin / Ft. 1" Dia.	A	H		1445	1243	1127	997	881	766	650	578
		B	J		1603	1378	1250	1106	978	850	721	641
		C			1679	1443	1309	1158	1023	889	755	672
		D	K	6	2076	1785	1618	1431	1266	1100	933	830
		E		6	2182	1876	1702	1505	1330	1156	982	872
		G		12	2510	2158	1958	1731	1531	1330	1129	1004
44 C3	4" x 4" 48 Fin / Ft. 1 1/4" Dia.	A	H		1715	1475	1338	1183	1046	909	772	686
		B	J		1903	1636	1484	1312	1160	1008	856	761
		C			1993	1714	1555	1375	1216	1057	897	797
		D	K	6	2464	2119	1922	1700	1503	1306	1108	985
		E		6	2591	2228	2020	1788	1580	1373	1165	1036
		G		12	2979	2562	2323	2055	1817	1578	1340	1192
34 C3	3" x 4" 48 Fin / Ft. 1 1/4" Dia.	A	H		1454	1250	1133	1002	887	770	654	581
		B	J		1612	1386	1257	1112	983	854	725	644
		C			1688	1451	1317	1165	1029	894	759	675
		D	K	6	2088	1795	1628	1440	1273	1106	939	835
		E		6	2195	1887	1711	1514	1339	1163	987	882
		G		12	2525	2171	1969	1742	1539	1338	1136	1010
Type RSF		STEEL FINS / STEEL TUBE										
44 S3	4" x 4" 48 Fin / Ft. 1 1/4" Dia.	A	H		1370	1178	1068	945	836	725	616	547
		B	J		1513	1301	1180	1044	922	802	681	605
		C			1567	1346	1221	1080	955	830	705	626
		D	K	6	2113	1816	1648	1458	1289	1119	950	845
		E		6	2189	1882	1707	1510	1335	1159	984	876
		G		12	2366	2035	1845	1632	1443	1254	1064	946

EAT-72

AWT
125



505 BTU/H

877 BTU/H

NOTE: Water ratings have been determined by applying the IBR factors shown to the steam ratings and apply only when the water velocity is three feet per second. For other flow rates use correction factors from table no. 1, page 27.