Township of Muskoka Lakes

Request for Tender

Contract #T-2024-35

Walker's Point Community Center Kitchen Ventilation System Upgrades

TOWNSHIP OF MUSKOKA LAKES

CONTENTS

SECTION A

TENDER

TOWNSHIP OF MUSKOKA LAKES

INDEX TO TENDER

TOWNSHIP OF MUSKOKA LAKES

TENDER

PART I TENDER CALL

The Corporation of the Township of Muskoka Lakes (after this called the "Owner") invites Tenders for:

Contract Number: T-2024-35

Described as Walker's Point Community Centre Kitchen Ventilation System Upgrades

Tenders shall be addressed and delivered to:

Township of Muskoka Lakes
P.O. Box 129
1 Bailey Street
Port Carling, Ontario
P0B 1J0

Tenders shall be received until: **2:00 p.m. April 25, 2024**

Tenders received by the time and date specified above shall be opened and read in public as soon as possible after that time. Public reading of a Tender does not imply any decision by the Owner as to whether a Tender is or is not irregular.

PART II TENDER CONDITIONS

TC-1 Completion and Submissions of Tenders

1.1 The Tenderer shall complete all documents pertaining to this Contract in ink or in type.

1.2 If the Tenderer is a corporation, an authorized officer of the corporation shall sign and seal the Form of Tender.

1.3 If the Tenderer is a partnership, a minimum of two partners shall sign the Form of Tender and signatures shall be witnessed.

1.4 If the Tenderer is a sole proprietorship, the sole proprietor shall sign the Form of Tender and the signature shall be witnessed.

1.5 The Tenderer shall submit its Tender by the date and time specified in Part I of the Tender.

1.6 The Tenderer shall submit to the Owner:
a) Part III – Form of Tender;
b) the tender deposit;

1.7 The Tenderer shall submit the Tender in a sealed and opaque envelope properly identified with the contract number, contract description, name of Tenderer, due date and time.

1.8 Tender irregularities will be dealt with in accordance with the Township of Muskoka Lakes Purchasing By-Law 2004-161, as amended.

1.9 All inquiries/questions regarding this Tender are to be sent via email to Corey Moore, Manager of Parks, Recreation, and Facilities at cmoore@muskokalakes.ca. Inquiries must be received no later than five (5) Business Days prior to the tender submission deadline specified in Part I of the Tender or as amended by addendum. Unless otherwise addressed through an addendum, all responses to bid inquiries shall not be incorporated as part of the Contract or in any way change the Contract.

TC-2 Tender Deposit

2.1 At the time of tendering, the Tenderer shall submit a tender deposit with its Tender, in the form any one of the following:
a) Bid bond signed and sealed by the Tenderer's Surety
b) Irrevocable letter of credit
c) Certified cheque

2.2 The tender deposit must be an original and shall equal at least ten percent (10%) of the Total Tender Price.

2.3 Tender Deposits shall be made to the order of or in favour of "The Corporation of the Township of Muskoka Lakes".

2.4 The Owner shall not pay interest on Tender deposits.

2.5 The Owner shall retain the Tender deposit of the Tenderers with the first and second lowest acceptable bid until:

a) the successful Tenderer has executed the Form of Agreement in accordance with Section TC-14 and TC-19 of the Tender; and
b) the successful Tenderer has provided all securities and other documents in accordance with Sections TC-12 and TC-19 of the Tender.

2.6 The Owner shall return the deposits of all other Tenderers within five (5) Business Days of tender opening.

2.7 If bid bonds are used as a Tender deposit, bonds must be from a Surety Company authorized by law to carry on business in the Province of Ontario.

TC-3 Basis of Award

3.1 The Township intends to award a contract to the Tenderer who submits the lowest acceptable bid (in accordance with the Township Procurement Policy By-law 2004-161, as amended) by Total Tender Price. Upon formal notification of award, the Tenderer shall thereafter be known as the Contractor.

TC-4 Addenda

4.1 Addenda will be posted on the Township website (www.muskokalakes.ca) for viewing and shall be located in the same area of the webpage that the Tender documents are downloaded from.

4.2 The Township will not notify Tenderers of addendums and it is the responsibility of the Tenderer to monitor the webpage and retrieve posted addendums prior to submitting their bid.

4.3 The Tenderer shall ensure that all addenda that are issued are acknowledged and listed under Section FT-1 of the Tender.

4.4 The deadline for the posting of addenda is no later than three (3) Business Days prior to tender submission deadline as specified in Part I of the Tender or as amended by addendum.

TC-5 Irregular Tenders

5.1 The Owner shall be the sole judge of whether or not a Tender is irregular.

TC-6 Unbalanced Tenders

6.1 The Tenderer shall not submit an unbalanced Tender.

6.2 The Owner shall have the right to:
a) deem a Tender to be unbalanced; and
b) reject a Tender which it deems to be unbalanced.

TC-7 Collusion

7.1 The Tenderer shall not engage in collusion of any sort and, in particular, shall:
a) ensure that no person or other legal entity, other than the Tenderer, has any undisclosed interest in the Tenderer's Tender; and
b) prepare its Tender without any knowledge of, comparison of figures with or arrangement with any other person or firm preparing a Tender for the same work.

TC-8 Right to Accept or Reject Tenders

8.1 Notwithstanding any other provision in this Contract, the Owner shall have the right to:
a) accept any Tender;
b) reject any Tender; and
c) reject all Tenders.

8.2 Without limiting the generality of Section TC-8.1, the Owner shall have the right to:
a) accept an irregular Tender;
b) accept a Tender which is not the lowest Tender; and
c) reject a Tender even if it is the only Tender received by the Owner.

8.3 Acceptance of the Tender shall occur at the time the Owner awards the Tender and not necessarily at the time the award is communicated to the successful Tenderer.

TC-9 Contract Documents

9.1 The Tenderer shall obtain and review all Contract Documents as listed in the Form of Tender including all Addenda issued by the Owner pertaining to this Contract.

TC-10 Errors, Omissions and Discrepancies in the Contract Documents

10.1 If the Tenderer finds any errors or omissions in or discrepancies among the Contract Documents, it shall immediately notify the Owner at the address specified in Part I of the Tender.

10.2 No oral explanation or interpretation by any person shall modify any of the Contract Documents.

TC-11 Mandatory Site Meeting

11.1 The Tenderer shall be present for mandatory site meeting at 1074 Walker's Point Rd., Walker's Point on April 4th, 2024, at 9 am to walk the facility and understand the installation requirements.

TC-12 Irrevocability of Offer

12.1 The Tenderer shall not revoke its offer until after the expiration of sixty (60) days after the opening of Tenders by the Owner.

12.2 If the Tenderer revokes its offer prior to the expiration of sixty (60) days after the Tender opening, the Tenderer shall forfeit its Tender deposit, but this shall not prohibit the Owner from pursuing any other legal remedy which it may have.

TC-13 Successful Tenderer - Securities

13.1 The successful Tenderer shall provide each in the amount of at least five percent (5%) of the Total Tender price:

a) a performance security or bond signed and sealed by the Tenderer's Surety; and
b) a labour and material payment bond signed and sealed by the Tenderer's Surety.

OR

The successful Tenderer may request the Owner to retain the 10% Tender Deposit from Section TC-2 in lieu of this bonding, provided that the Tender Deposit from Section TC-2 was not in the form of a Bid Bond.

13.2 The Surety of the successful Tenderer and the bonds referred to in Section TC-12.1(a) and TC-12.1(b) must be originals and shall be to the satisfaction of the Owner if this option is exercised.

TC-14 Successful Tenderer - WSIB Certificate of Clearance

14.1 The successful Tenderer shall provide the Owner with a valid Workplace Safety & Insurance Board Certificate of Clearance to the satisfaction of the Owner and in accordance with GC6.05 OPS General Conditions.

TC-15 Successful Tenderer - Execution of Form of Agreement

15.1 The successful Tenderer shall execute in accordance with TC-1, in triplicate, the Form of Agreement provided in the Contract Documents.

15.2 The successful Tenderer shall forward the executed Form of Agreement to the Owner.

TC-16 Successful Tenderer - Insurance

16.1 The successful Tenderer shall provide the Owner with an original Certificate of Insurance for each type of insurance coverage required by Section GC6.03 of the OPS General Conditions.

16.2 The successful Tenderer shall carry insurance, pursuant to Section GC6.03.02 of the OPS General Conditions in the amount of at least FIVE MILLION DOLLARS ($5,000,000.00).

16.3 The successful Tenderer shall carry insurance, pursuant to Sections GC6.03 of the OPS General Conditions which names the following as additional insured:

The Corporation of the Township of Muskoka Lakes
P.O. Box 129, 1 Bailey Street
Port Carling, ON, P0B 1J0

TC-17 Successful Tenderer - Contractor's Responsibilities Sign-Off Form

17.1 The successful Tenderer shall provide the Owner a completed and signed *Contractor's Responsibilities Sign-Off Form* as per the Township of Muskoka Lakes Health and Safety Policy HS-007-PRO-B. A copy of the policy is available during bidding upon request to the Township contact identified in TC-1. The policy shall be provided to the successful Tenderer upon notification of award.

TC-18 Successful Tenderer - Time for Completion

18.1 The successful Tenderer shall complete the Work as defined in GC1.06 by September 1, 2024, and this shall be the date used for the calculation of Liquidated Damages as per TC-18.1.

18.2 The successful Tenderer acknowledges that time shall be deemed to be of the essence of the Contract. For the Tenderer's purpose of establishing a schedule for the Work, it is anticipated that contract award will be complete within 30 calendar days after the opening of tenders by the Owner. Upon notice of award, the successful Tenderer will be required to complete submissions to the Owner as per TC-19.1. Upon receipt of all required submissions from the successful Tenderer, the Owner will return an executed Form of Agreement and a Purchase Order to the Tenderer within 10 Business Days. Authorization to commence work shall be provided by the Owner as detailed in the Special Provisions of this contract.

18.3 Milestone dates associated with the Contract will be adjusted, when possible, due to any delays to the anticipated award schedule caused by the Owner during the contract award and/or issuance of the authorization to commence work.

TC-19 Successful Tenderer - Liquidated Damages

19.1 Pursuant to Section GC 8.02.09 of the OPS General Conditions, the liquidated damages shall be in the amount of:

Five Hundred DOLLARS ($ 500) per calendar day beyond the dates outlined for Completion, as determined in TC-17.

19.2 When applied, liquidated damages will be subtracted off the final submitted invoice prior to payment.

TC-20 Successful Tenderer - Submission of Documentation

20.1 The successful Tenderer shall submit the documentation required by Sections TC-12, TC-13, TC-14, TC-15 and TC-16 within seven (7) calendar days of the day the Owner notifies the successful Tenderer that the documentation should be sent to the Owner.

20.2 If the successful Tenderer fails to comply with Section TC-19.1 the Owner may, in its sole discretion, withdraw its acceptance of the Tender and the Tenderer shall have no recourse whatsoever against the Owner.

TC-21 Successful Tenderer - Commencement of the Work

21.1 The successful Tenderer shall not commence the Work until it has received authority to proceed with the work from the Owner as well as the fully executed Form of Agreement signed by both parties (Tenderer and Owner) and a Purchase Order issued by the Owner).

TC-22 Successful Tenderer - Vendor Performance Management Notice

22.1 The contract resulting from this Tender may be subject to performance evaluation conducted by the Owner. The Owner reserves the right to consider the results of this performance evaluation in the award of future contracts and/or in the selection of vendors for future work. Performance evaluation will be managed in accordance with Township policy HS-007-POL, “Contractor Activities and Control Policy” and Township Procurement Policy By-law 2004-161, as amended.

TOWNSHIP OF MUSKOKA LAKES

PART III - FORM OF TENDER

Tender by:

_____
NAME OF TENDERER

_____

_____

_____
ADDRESS OF TENDERER TELEPHONE NUMBER

_____
FAX NUMBER

_____
E-MAIL

after this called the "Tenderer".

FT-1 Contract Documents

1.1 The Contract Documents for Contract Number T-2024-35 are:

a) Tender
   i) Part I - Tender Call
   ii) Part II - Tender Conditions
   iii) Part III - Form of Tender
b) Form of Agreement
c) OPS General Conditions
d) Special Provisions - General
e) Drawings
f) All Addenda issued pertaining to the Contract as acknowledged below:
   Addendum No.___ dated _____, 2024, No. of Pages ___
   Addendum No.___ dated _____, 2024, No. of Pages ___
   Addendum No.___ dated _____, 2024, No. of Pages ___
   Addendum No.___ dated _____, 2024, No. of Pages ___
   Addendum No.___ dated _____, 2024, No. of Pages ___
   Addendum No.___ dated _____, 2024, No. of Pages ___
   Addendum No.___ dated _____, 2024, No. of Pages ___

FT-2 Tenderer's Declarations

2.1 The Tenderer declares that it has obtained and read the Contract Documents.

2.2 The Tenderer declares that it understands and agrees to be bound by the

Contract Documents.

2.3 Without limiting the generality of Section FT-2.2, the Tenderer declares that it has, at the time of tendering, fulfilled all of those obligations under the Contract which are required to be fulfilled by the time of tendering.

2.4 The Tenderer declares that all information which it has provided or will provide to the Owner is true.

FT-3 Tenderer's Offer

3.1 The Tenderer offers to do the work in accordance with the Contract Documents.

3.2 The Tenderer offers to do the work and to accept payment at the unit prices specified in the Schedule of Prices in Section FT-4 of the Tender, in accordance with the Contract Documents.

3.3 The Total Tender Price, based on the estimated quantities in the Schedule of Prices, is:

_____

_____ DOLLARS

($_____)

FT-4 Schedule of Prices

4.1 The Schedule of Prices attached is Section FT-4.2 of the Tender.

This offer is made this_____day of_____, 20_____

_____
Signature of Witness
(only if required by TC-1)

_____
Signature of Tenderer
(Corporate Seal if required by TC-1)

_____
Signature of Tenderer
(Second Signature if required by TC-1)

_____
Print Name of Tenderer(s)

FT-4.2 SCHEDULE OF PRICES

CONTRACT NUMBER Contract #T-2024-35 Walker's Point Community Centre Kitchen Ventilation System Upgrades						
Item	Spec. Code	Item Description	Unit	Quantity	Unit Price	Total
1	SP-F 1	EF-1 Exhaust fan	Lump Sum	1		
2	SP-F 2	SF-1 Supply fan	Lump Sum	1		
3	SP-F 3	DH-1 Duct heater	Lump Sum	1		
4	SP-F 4	RH-1 Range hood	Lump Sum	1		
5	SP-F 5	Fire wrap	Lump Sum	1		
6	SP-F 6	Ductwork	Lump Sum	1		
7	SP-F 7	Motorized damper and louver	Lump Sum	1		
8	SP-F 8	Fire suppression system	Lump Sum	1		
9	SP-F 9	Electrical splitter	Lump Sum	1		
10	SP-F 10	Electrical panel board	Lump Sum	1		
11	SP-F 11	Electrical wiring	Lump Sum	1		

12	SP-F 12	Panel board circuit breakers	Lump Sum	1		
13	SP-F 13	Standalone circuit breaker with shunt trip	Lump Sum	1		
Total Tender Price (Transfer Amount to FT-3.3 of the Tender)						
Tenderer's HST Registration Number:						

4.3 All prices to be shown excluding HST.

4.4 It is understood that the estimated quantities in the foregoing schedule are solely for the purpose of facilitating the comparison of bids and the Tenderer's compensation will be computed upon the basis of the actual quantities in the completed work, whether they be more or less shown herein.

4.5 The quantities shown in this Tender are an estimate only and are not a guarantee of the amount of material to be supplied under this contract. The Township of Muskoka Lakes reserves the right to adjust quantities without a change in the tendered unit price.

4.6 The unit price shall govern whenever the total amount bid for an item does not agree with the extension of the quantity and the unit price, and the total item amount from Section FT-4.2 and the Total Tender Price in Section FT-3.3 and FT-4.2 shall be corrected accordingly.

SECTION B

FORM OF AGREEMENT

TOWNSHIP OF MUSKOKA LAKES

FORM OF AGREEMENT

This Form of Agreement witnesses that a Contract was made as of the_____day of

_____ , 20____.

BETWEEN:

_____

_____

_____

_____

(after this called the "Contractor")

AND:

THE CORPORATION OF THE TOWNSHIP OF MUSKOKA LAKES

(after this called the "Owner")

AND WITNESSES that the Contractor and the Owner agree as follows:

FA-1 The Contractor shall perform the following work:

Contract Number T-2024-35

Described as Walker's Point Kitchen Community Centre

Ventilation System Upgrades

_____

_____

FA-2 The Contractor shall perform the work in accordance with the Contract Documents listed in the Tender.

FA-3 The Owner shall pay the Contractor in accordance with the unit prices in the Schedule of Prices in the Tender pursuant to the Contract Documents.

FA-4 The provisions of the Contract Documents shall endure to the benefit of and be binding upon the Contractor and the Owner and their respective heirs, legal representatives, successors and assigns.

IN WITNESS WHEREOF the Contractor and the Owner have executed, in the manner required by law, this Form of Agreement.

Signature	*Date*	*Signature*	*Date*
Contractor (Corporate Seal if required by TC-1)		Director of Public Works The Township of Muskoka Lakes	

Signature	*Date*
Contractor (Second Signature if required by TC-1)	

Signature	*Date*
Witness (Only if required by TC-1)	

SECTION C

OPS
GENERAL CONDITIONS
OF CONTRACT

ONTARIO PROVINCIAL STANDARDS

GENERAL CONDITIONS OF CONTRACT

The Contractor acknowledges that the general conditions of this contract are the Ontario Provincial Standard "OPS General Conditions of Contract". It is the responsibility of the Contractor to ensure that they have the correct document.

For this contract the following version of the OPS General Conditions of Contract shall apply:

OPS General Conditions November 2019 (OPSS.MUNI 100).

SECTION D

SPECIAL PROVISIONS - GENERAL

TOWNSHIP OF MUSKOKA LAKES

SPECIAL PROVISIONS - GENERAL

Special Provisions - General are non-technical specifications, which can amend or extend the OPS General Conditions contained in Section C of the Tender documents. Special Provisions - General do not relate to any one specific tender item but apply to either a number of tender items or the contract as a whole.

Special Provisions - General rank third (c) in the order of precedence, GC2.02.

The Contractor acknowledges that the Special Provisions - General as produced by the Township of Muskoka Lakes and listed herein are provisions of this Contract.

TOWNSHIP OF MUSKOKA LAKES

SPECIAL PROVISIONS – GENERAL

GENERAL WORK

SP-D 1. SCOPE OF WORK

The Contractor shall perform all the general work covered by the following specifications.

SP-D 2. LOCATION OF THE WORK

The location of the work is the Walker's Point Community Centre located at 1074 Walker's Point Road, Walker's Point.

SP-D 3. SCHEDULE OF WORK

Upon being awarded the Contract, the Contractor shall forthwith supply to the Owner for their approval a copy of their detailed planned Schedule of Work, showing clearly that the Work will be completed within the stipulated time. No work shall commence on the Contract until the Owner has approved the Schedule of Work.

The Schedule of Work shall indicate proposed progress in 1-week periods for at least the following work as applicable:

Removal of existing exhaust fan and range hood.

Installation of the new supply and exhaust fan.

Installation of the new range hood including fire suppression system.

Electrical equipment and wiring installation.

Rough in electrical for new kitchen range, kitchen range to be supplied by the Township of Muskoka Lakes.

De-energization of main electrical service and removal of existing load side conductors.

Re-energization of main electrical service and connection of new load side conductors.

SP-D 4. AUTHORIZATION TO START WORK

The Work shall not begin prior to approval by the Township of Muskoka Lakes and shall be completed by September 1, 2024 as identified in Part II Tender Conditions as the date used for the calculation of liquidated damages.

SP-D 5. HOURS OF WORK

No work shall occur outside of 7:00 am to 5:00 pm, Monday to Friday or on any Provincial and/or Federal statutory holidays (including Easter Monday and Civic Holiday) without prior written approval from the Contract Administrator.

SP-D 6. AFTER HOURS CONTACT

The contractor shall ensure that an authorized representative is available which can be contacted 24 hours a day, 7 days a week for emergency purposes.

SP-D 7. NO INTERRUPTION OF SERVICE

The Contractor shall make every effort to facilitate the ongoing activities/rentals of the community centre during the renovation.

SP-D 8. PERFORMANCE BOND & LABOUR AND MATERIALS PAYMENT BOND

The Contractor shall provide bonds in accordance with Part II Tender Conditions.

SP-D 9. GENERAL LIABILITY & AUTOMOBILE LIABILITY INSURANCE

The Contractor shall provide insurance in accordance with Part II Tender Conditions. Proof of this insurance must be provided to the Owner, prior to commencing the Work.

SP-D 10. PERMITS & FEES

The Contractor shall obtain all necessary permits and approvals required for this Contract and pay all respective fees.

SP-D 11. MATERIALS SUPPLIED BY THE CONTRACTOR

The Contractor shall base their Tender on the materials specified as to quality and price. The Contractor may, however, after acceptance of their Tender, request permission to substitute alternative material where "other approved" is allowed in the specification. Should the Owner not approve such alternative material, the Contractor shall have no claim whatsoever against the Owner. All material supplied by the Contractor shall be new, in no case remanufactured or factory reconditioned and in no case recycled from any site unless specifically approved and tested by the Owner.

SP-D 12. FENCING

Fencing shall be erected in areas where there exists, in the opinion of the Owner, a danger to pedestrians or vehicular traffic for the installation or removal of equipment to/from the site. No separate payment will be made for fencing but shall be part of the General Work of the Contract.

SP-E 13. SAFE WORKING PRACTICES AND CONTINGENCY PLANNING DURING COVID-19 PANDEMIC

Upon award of the Contract and prior to any work being undertaken, the Contractor shall provide the Contract Administrator with a detailed policy outlining the safe working practices to decrease potential hazards of exposure and/or contamination during the COVID-19 Pandemic. The policy may include, but is not limited to the following information:

- Responsibility of the Project Manager, Site Supervisors, Foreman, Operators and Labourers.
- Responsibility of all employees to be aware of all federal/provincial/municipal health authorities' policies, procedures and orders, as well as any relevant changes to the Occupational Health and Safety Act.
- Requirements for the use of applicable personal protective equipment, including a summary of the supplies and equipment that will be made available.
- Revisions to working protocol, as required to adhere with current federal or provincial guidelines, including, but not limited to separation requirements, disinfection of equipment, trailers, service vehicles, etc.
- Protocol for dealing with the public in the event it is required, such as the need for access to a home to confirm service locations.
- Changes to site or documentation protocol to protect the site in the event the site is shut down due to infection, government enforced shut down or other reasons associated with COVID-19.

The Contractor will be responsible for ensuring the protocol, expectations and requirements are strictly followed by all staff and visitors to the site.

The Contactor shall also provide a detailed contingency plan outlining how they will manage the site in the event that members of their project team or construction staff become infected with the COVID-19 virus or need to quarantine for any reason and/or in the event of a government or municipal enforced shut down. The contingency plan shall outline replacement staff and measures to be taken in the field to ensure the site is maintained and monitored in a safe condition.

The detailed COVID-19 safe working practices policy and contingency plan will be reviewed by the Contract Administrator and the Client and the Contractor shall update these documents to address comments and concerns throughout construction as required.

SP-D 14. MEASUREMENT & PAYMENT

No measurement of quantities will be made for the General Work. No direct payment will be made for any of this General Work. The Contractor shall allow in their bid for all labour, material and equipment necessary for the general work described herein or specified elsewhere in the Contract.

SECTION E

Drawings

TOWNSHIP OF MUSKOKA LAKES

Contract Drawings

The Contract Drawings do not relate to any one specific tender item, but apply to either a number of tender items or the contract as a whole.

The Contract Drawings rank fourth (d) in the order of precedence, GC2.02.

The Contractor acknowledges that the Contract Drawings as produced by Tatham Engineering Ltd for the Township of Muskoka Lakes and listed herein are provisions of this Contract.

WALKER'S POINT COMMUNITY CENTRE
KITCHEN VENTILATION SYSTEM UPGRADES

TOWNSHIP OF MUSKOKA LAKES
1074 WALKER'S POINT ROAD

DRAWING INDEX

TATHAM ENGINEERING

PROJECT 123244
ISSUED FOR TENDER
FEBRUARY, 2024

TOWNSHIP OF MUSKOKA Lakes

PROJECT 123244
ISSUED FOR TENDER
FEBRUARY, 2024

TATHAM ENGINEERING

DRAWING LIST

DRAWING #	DRAWING TITLE
M1	LEGEND, SCHEDULES, AND SPECIFICATIONS
M2	HVAC DEMOLITION LAYOUT
M3	HVAC INSTALLATION LAYOUT
M4	MECHANICAL DETAILS
S1	STRUCTURAL DETAILS

MECHANICAL SYMBOLS AND ABBREVIATIONS

PIPING

- DOMESTIC COLD WATER
- DOMESTIC HOT WATER
- DOMESTIC HOT WATER RE-CIRCULATION
- SANITARY WASTE NEW

PIPE FITTINGS

- ELBOW UP
- ELBOW DOWN
- TEE UP
- TEE DOWN
- ELBOW
- TEE
- C.O. C.O. CLEANOUT ABOVE GRADE/ BELOW GRADE
- FLOOR DRAIN

DUCT SYMBOLS

- BD BALANCING DAMPER
- LOUVER
- AIR FLOW DIRECTION
- LOUVERED GRILLE
- SUPPLY DUCTING
- EXHAUST/RETURN DUCTING
- SUPPLY DUCT
- RETURN DUCT
- EXHAUST DUCT
- CIRCULAR DUCT

FIRE PROTECTION

- FE-1 WALL MOUNTED TYPE K FIRE EXTINGUISHER
- MS FIRE SUPPRESSION SYSTEM MANUAL ACTIVATION CONTROL

KITCHEN CONTROLS

- GKC GREENHECK KITCHEN CONTROLLER

ABBREVIATIONS

AFF	ABOVE FINISHED FLOOR	HWT	HOT WATER TANK
AHU	AIR HANDLING UNIT	HWH	HOT WATER HEATER
ALT	ALTERNATE	HRV	HEAT RECOVERY VENTILATOR
AP	ACCESS PANEL	LV	LAVATORY OR LOUVRE
AS	AIR SEPARATOR	MBH	1000 BTU/HOUR
BBH	ELECTRIC BASE BOARD HEATER	MD	MOTORIZED DAMPER
BTU	BRITISH THERMAL UNIT	MPR	MULTI PUMP RELAY
BV	BALANCE VALVE	MS	MOP SINK
CA	COMBUSTION AIR	OA	OUTSIDE AIR
CB	CATCH BASIN	OED	OPEN ENDED DUCT
CO	CLEANOUT	PRV	PRESSURE REDUCING VALVE
COND	CONDENSATE	RA	RETURN AIR
CONV	HYDRONIC CONVECTOR	RG	RETURN GRILLE
CS	COUNTER SINK	RPZ	REDUCED PRESSURE BACKFLOW PREVENTER
CU	CONDENSING UNIT	RIV	ROOF INTAKE VENT
C/W	COMPLETE WITH	RRV	ROOF RELIEF VENT
DCW	DOMESTIC COLD WATER	SA	SUPPLY AIR
DHW	DOMESTIC HOT WATER	SAN	SANITARY
DHWR	DOMESTIC HOT WATER RE-CIRCULATION	SG	SUPPLY GRILLE
DX	DIRECT EXPANSION COOLING COIL	SR	SUPPLY REGISTER
E/A	EXHAUST AIR	TP	TRAP PRIMER LINE
EG	EXHAUST GRILLE	TYP	TYPICAL
EF	EXHAUST FAN	UH	UNIT HEATER- HYDRONIC
ERV	EXHAUST RECOVERY VENTILATOR	UR	URINAL
ESP	EXTERNAL STATIC PRESSURE	VS	VENT STACK
EX	EXPANSION TANK	VTR	VENT THRU ROOF
FC	FAN COIL	WC	WATER CLOSET
FD	FLOOR DRAIN OR FIRE DAMPER	WH	WALL HYDRANT
FFH	FORCED FLOW HEATER	WS	WASTE STACK
FTR	HYDRONIC FINNED TUBE RADIATION	ZCM	ZONE CONTROL MODULE
GC	GENERAL CONTRACTOR		
HB	HOSE BIBB		
HX	HEAT EXCHANGER		

VALVES

- SHUT-OFF VALVE
- VERTICAL SHUT-OFF/NEEDLE VALVE
- BALANCING VALVE
- CHECK VALVE
- PRESSURE REDUCING VALVE
- MAKEUP WATER VALVE
- FCV FLOW CONTROL VALVE
- PRESSURE RELIEF VALVE
- AUTOMATIC AIR VENT
- CONTROL VALVE (TCV)
- 3-WAY CONTROL VALVE
- THROTTLING VALVE
- ZV ZONE VALVE
- BACKFLOW PREVENTER

TEMPERATURE CONTROL

- T DUCT HEATER TEMPERATURE CONTROLLER

DRAWING NOTATIONS

1 6/75

DIFFUSER, GRILLE OR REGISTER
1. TYPE (SEE SCHEDULE)
2. SIZE- IMPERIAL: IN. METRIC: MM
3. AIR FLOW- IMPERIAL: CFM, METRIC: L/S

1/M4 — DETAIL; SHEET NUMBER OF DETAIL LOCATION

NOT ALL SYMBOLS & ABBREVIATIONS ARE USED IN DRAWINGS

DAMPER AND CONTROLS SCHEDULE

TAG	DESCRIPTION	MAKE	VOLTAGE	MODEL	REMARKS/ ACCESSORIES
MD-1a	INSULATED MOTORIZED DAMPER	TAMCO	120	9000	C/W NORMALLY CLOSED, FAIL OPEN BELIMO TFB120 ACTUATOR

LOUVER SCHEDULE

TAG	MAKE	DESCRIPTION	MODEL	WIDTH	HEIGHT	PRESSURE DROP IN. WG	AIRFLOW, CFM	REMARKS/ ACCESSORIES
LV-1	GREENHECK	INTAKE LOUVER	ESD-403	16	32	0.05	800	C/W BIRD SCREEN

GENERAL SPECIFICATIONS:

1. REVIEW WORK AREA AND READ DRAWINGS IN CONJUNCTION WITH ALL DISCIPLINES BEFORE COMMENCING WORK. NOTIFY ENGINEER OF ANY DISCREPANCIES BETWEEN PLANS AND POTENTIAL ISSUES ON WORK-SITE. NO ADDITIONAL PAYMENTS WILL BE MADE RELATED TO CLAIMS FOR ITEMS THAT WOULD HAVE BEEN APPARENT IF THE WORK AREA AND ALL PLANS WERE REVIEWED PRIOR TO PRICING THE WORKS.
2. THE GENERAL CONTRACTOR SHALL OBTAIN AND PAY FOR NECESSARY PERMITS PERTAINING TO THE INSTALLATION OF THEIR WORK AND PROVIDE ANY CERTIFICATES AND SIGN-OFFS AS CIRCUMSTANCES REQUIRE.
3. WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE LATEST EDITION OF THE ONTARIO BUILDING CODE, ONTARIO FIRE CODE, OCCUPATIONAL HEALTH AND SAFETY ACT, AND AUTHORITIES HAVING JURISDICTION. MATERIALS SHALL CONFORM TO THE LATEST EDITION OF THE CANADIAN STANDARDS ASSOCIATION, AND AUTHORITIES HAVING JURISDICTION. STANDARDS SET OUT IN DESIGN DRAWINGS SHALL NOT BE REDUCED BY CONFORMANCE TO APPLICABLE CODES AND STANDARDS. MAKE ALL MINOR MODIFICATIONS AS REQUIRED BY AUTHORITIES HAVING JURISDICTION AT NO COST TO THE OWNER.
4. SUBMIT ELECTRONIC SHOP DRAWINGS FOR EQUIPMENT LISTED ON THE SCHEDULES FOR REVIEW PRIOR TO ORDERING. REVIEW OF SHOP DRAWINGS DOES NOT RELIEVE THE CONTRACTOR OF THEIR RESPONSIBILITIES TO PROVIDE A COMPLETE WORKING SYSTEM CONSISTENT WITH THE INTENT OF THE DESIGN DRAWINGS. CONTRACTOR SHALL REVIEW DESIGN DRAWINGS, EQUIPMENT SCHEDULES AND SHOP DRAWINGS FOR ERRORS AND OMISSIONS AND ELEMENTS RELATING TO WORKS/ASSEMBLY ON-SITE.
5. AT THE COMPLETION OF THE PROJECT THE CONTRACTOR SHALL PROVIDE MARKED UP RECORD DRAWINGS AND OPERATION AND MAINTENANCE MANUALS. THE FIRST PAGE OF THE OPERATION AND MAINTENANCE MANUAL SHALL BE A TYPE WRITTEN DOCUMENT EXPLAINING THE DETAILED MAINTENANCE REQUIREMENTS AND SCHEDULE FOR THE SYSTEM AND ANY OTHER INFORMATION THAT IS SPECIFIC TO THIS PROJECT. GENERIC OPERATIONS AND MAINTENANCE MANUALS WITH NO PROJECT SPECIFIC INFORMATION WILL NOT BE ACCEPTED.
6. PROVIDE TRAINING FOR THE OPERATOR OR OWNER'S REPRESENTATIVE. PROVIDE COMMISSIONING SERVICES AS REQUIRED.
7. LABEL ALL EQUIPMENT, PIPING, CONDUIT ETC.
8. THE CONTRACTOR IS RESPONSIBLE FOR STORAGE AND SECURITY OF MATERIALS AND EQUIPMENT ON THE JOB SITE.
9. THE OWNER'S PROPERTY MUST BE KEPT IN TIDY CONDITION. PROMPTLY REMOVE GARBAGE FROM THE SITE. CLEAN WORK AREA PRIOR TO ALL INSPECTIONS AND KEEP SITE IN A SAFE CONDITION.
10. DESIGN DRAWINGS ILLUSTRATE THE GENERAL LAYOUT OF THE WORK ONLY. COORDINATE THE INSTALLATION OF WORK WITH OTHER TRADES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROPER LAYOUT OF EQUIPMENT AND MATERIALS AND ENSURING THERE ARE NO INTERFERENCES WITH OTHER SYSTEMS.
11. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CUTTING AND PATCHING REQUIRED FOR THE INSTALLATION OF THEIR WORK.
12. EQUIPMENT SHALL BE INSTALLED, STARTED, TESTED, AND ADJUSTED AS PER THE MANUFACTURERS' INSTRUCTIONS, AND AS NECESSARY TO ENSURE OPTIMUM PERFORMANCE. EQUIPMENT SHALL BE INSTALLED TO ALLOW FOR EASY ACCESS AND MAINTENANCE.
13. THE CONTRACTOR SHALL GUARANTEE WORK PERFORMED UNDER THIS CONTRACT FOR A PERIOD OF ONE (1) YEAR FROM THE DATE OF SUBSTANTIAL COMPLETION. ENSURE THAT ALL EQUIPMENT IS WARRANTED BY THE MANUFACTURER FOR A MINIMUM OF ONE (1) YEAR FROM THE DATE OF SUBSTANTIAL COMPLETION.
14. MATERIALS AND EQUIPMENT SHALL BE NEW, TOP QUALITY AND SPECIFICATION GRADE, EXCEPT WHERE NOTED OTHERWISE.
15. THIS SPECIFICATION SHALL BE CONSIDERED TO BE THE BASE BID SPECIFICATION AND CONTRACTORS MUST CARRY THE BASE BID MANUFACTURERS IN THEIR QUOTATION. ALTERNATE MANUFACTURERS OF EQUIPMENT CAN ONLY BE OFFERED AS PROPOSED ALTERNATES WITH THE CORRESPONDING PRICE REDUCTIONS PASSED ALONG TO OWNER.
16. THE CONTRACTOR SHALL NOT WELD TO OR MAKE A HOLE IN A STRUCTURAL MEMBER WITHOUT REVIEW FROM THE STRUCTURAL ENGINEER. ATTACHMENTS TO STRUCTURAL MEMBERS SHALL BE MADE WITH SUITABLE CLAMPS OR CLIPS.
17. THE GENERAL CONTRACTOR SHALL PROVIDE ALL OPENINGS AND REINFORCEMENT FRAMING AS REQUIRED.
18. ALL MATERIALS IN CEILING SPACE USED FOR RETURN AIR PLENUM MUST BE PLENUM RATED.
19. CONFIRM FIRE SEPARATIONS WITH ARCHITECTURAL DRAWINGS AND GENERAL CONTRACTOR. ALL PENETRATIONS THROUGH FIRE SEPARATIONS SHALL BE FITTED WITH EXPANSION SLEEVES AND ULC CERTIFIED FIRE STOPPING. ACCEPTABLE MATERIAL: HILTI OR APPROVED EQUIVALENT.
20. THE OWNER RESERVES THE RIGHT TO MAKE MINOR ALTERATIONS TO THE LOCATION OF EQUIPMENT ETC AT NO ADDITION TO THE CONTRACT AMOUNT.
21. THESE DRAWINGS ARE SCHEMATIC IN NATURE AND INTENDED TO SERVE AS A GUIDE SHOWING QUANTITIES AND GENERAL ARRANGEMENTS AND ARE NOT NECESSARILY WORKING DRAWINGS FROM WHICH MEASUREMENTS CAN BE TAKEN, EXCEPT WHERE DIMENSION FIGURES ARE SPECIFICALLY SHOWN. INFORMATION INVOLVING ACCURATE MEASUREMENTS OF BUILDING SHALL BE TAKEN FROM ARCHITECTURAL BUILDING DRAWINGS OR FROM THE SITE.
22. MAINTAIN ADEQUATE LIABILITY INSURANCE TO PROTECT OWNER AND ALL CONTRACTORS.
23. TEMPORARY LIGHTING AND POWER FOR CONSTRUCTION BY GENERAL CONTRACTOR.
24. ALL EQUIPMENT, PIPING, CONDUIT, WIRING, JUNCTION BOXES, HARDWARE, ETC. INSTALLED IN OPEN CEILING SPACES SHALL BE INSTALLED IN AN INCONSPICUOUS AND AESTHETICALLY PLEASING MANNER UP TO THE SOLE DISCRETION OF THE OWNER AND ENGINEER. ALL EQUIPMENT, PIPING, CONDUIT, WIRING, JUNCTION BOXES, HARDWARE SHALL BE INSTALLED IN CHASES, ABOVE ADJACENT CEILINGS WHERE POSSIBLE.
25. SUITABLE ACCESS DOORS MUST BE PROVIDED WHERE NECESSARY TO ACCESS VALVES, JUNCTION BOXES, CLEAN OUTS, FIRE DAMPERS, AND OTHER EQUIPMENT AND APPURTENANCES. ALL ITEMS REQUIRING ACCESS PANELS ARE NOT NECESSARILY SHOWN, CARRY A REASONABLE COST ALLOWANCE. COORDINATE EXACT LOCATION OF COMPONENTS REQUIRING ACCESS AND SELECT SIZES WHICH ARE SUITABLE FOR MAINTENANCE.
    - 25.1. FOR GYPSUM WALLS AND CEILINGS IN OCCUPIED AREAS, PROVIDE CONCEALED DOORS WITH 5/8" RECESS TO RECEIVE DRYWALL, ACCEPTABLE MATERIAL: FOR STANDARD CEILINGS AND WALLS ACUDOR DW-5015 OR EQUIVALENT, FOR 90 MINUTE FIRE RATING ACUDOR FW(C)-5015 OR EQUIVALENT, FOR GREATER RATING, CONTACT ENGINEER AND ARCHITECT.
    - 25.2. FOR GYPSUM, PLASTER, MASONRY OR TILE WALLS AND CEILINGS IN UTILITY AND STORAGE AREAS, PROVIDE UNIVERSAL FLUSH ACCESS DOOR, ACCEPTABLE MATERIAL: FOR STANDARD CEILINGS AND WALLS ACUDOR UF-5000 OR EQUIVALENT, FOR 90 MINUTE FIRE RATING ACUDOR FW-5050, FOR GREATER RATING, CONTACT ENGINEER AND ARCHITECT.
26. PAY FOR AND COORDINATE ALL UTILITY LOCATES AS REQUIRED.
27. PROVIDE WATER-PROOFING OF BUILDING OPENINGS RELATED TO THE WORK OF ALL TRADES.

HVAC SPECIFICATIONS

1. DUCTS SHALL BE FABRICATED AND INSTALLED IN ACCORDANCE WITH THE LATEST EDITION OF THE ONTARIO BUILDING CODE, ONTARIO FIRE CODE, AND THE ASHRAE AND SMACNA STANDARDS.
2. AIR DISTRIBUTION SYSTEMS MUST BE BALANCED TO WITHIN 5% OF THE SPECIFIED VALUES SHOWN ON THE DRAWINGS. BALANCE AIR HANDLING UNITS PROVIDING VENTILATION TO THE VENTILATION LEVELS SHOWN. THE BALANCING MUST BE PERFORMED BY AN INDEPENDENT, NEBB CERTIFIED FIRM, SPECIALIZING IN THIS WORK. THE MECHANICAL CONTRACTOR SHALL TURN OVER THE BALANCING REPORT PRIOR TO SUBSTANTIAL COMPLETION BEING AWARDED.
3. VOLUME DAMPERS MUST BE INSTALLED IN THE AIR DISTRIBUTION SYSTEMS AS SHOWN ON THE DRAWINGS AND AS NECESSARY TO ALLOW PROPER BALANCING.
4. DUCTS MUST BE SEALED TO PREVENT AIR LEAKAGE. SEAL TO SMACNA AND ASHRAE 90.1 STANDARDS. FOR UNPAINTED DUCTS INSTALLED IN VISIBLE SPACES, THE DUCT MASTIC IS TO BE APPLIED TO THE INTERIOR OF DUCT JOINTS AND PENETRATIONS AND SHALL NOT BE VISIBLE FROM THE EXTERIOR. MASTIC MAY BE APPLIED TO THE EXTERIOR OF DUCTS ONLY IN AREAS WHERE IT IS NOT VISIBLE TO OCCUPANTS. EXPOSED MASTIC SHALL BE PAINTABLE AND IS TO BE APPLIED NEATLY WITH THE EXCESS REMOVED. REFER TO ARCHITECT'S DRAWINGS TO CONFIRM WHETHER OR NOT DUCTS ARE TO BE PAINTED.
5. FLEXIBLE DUCT CONNECTIONS SHALL BE USED TO CONNECT FANS OR AIR HANDLERS TO RIGID DUCT TO REDUCE THE TRANSFER OF NOISE VIBRATION.
6. FINAL CONNECTIONS TO DIFFUSERS SHALL BE MADE USING HARD ELBOWS CONNECTED TO FLEXIBLE ALUMINUM DUCTS TO MINIMIZE NOISE VIBRATION WHERE SHOWN. MAXIMUM 5' OF FLEXIBLE DUCT.
7. FIRE DAMPERS MUST HAVE A FIRE PROTECTION RATING IN ACCORDANCE WITH THE NFPA AND MUST BEAR THE ULC LABEL. USE DYNAMIC AND TYPE 'B' FIRE DAMPERS ONLY.
8. INSTALL FOIL BACKED VAPOUR RETARDANT FIBERGLASS INSULATION WITH JOINTS AND SEAMS SEALED WITH 3" FOIL TAPE ON DUCTS ACCORDING TO THE INSTALLED LOCATION:
    - 8.1. SF-1, R-8 INSULATION ON THE FULL LENGTH OF OUTDOOR AIR INTAKE AND SUPPLY AIR DUCT TO KITCHEN HOOD COLLAR.
9. PROVIDE TWO (2) SETS OF FILTERS FOR EQUIPMENT. ONE (1) SET FOR USE DURING CONSTRUCTION, AND ONE (1) SET TO BE INSTALLED IMMEDIATELY PRIOR TO BALANCING.
10. DUCT SIZES ARE SHOWN IN INCHES AND DO NOT INCLUDE FOR INTERNAL INSULATION.
11. PIPES AND EQUIPMENT MUST BE INSTALLED SO AS TO MINIMIZE THE TRANSFER OF VIBRATION TO THE BUILDING AND ALSO TO ALLOW FOR EXPANSION AND CONTRACTION AS NECESSARY.
12. EQUIPMENT SHALL BE ASHRAE 90.1 COMPLIANT.
13. LINE VOLTAGE STARTERS, CONTROLS AND EQUIPMENT SAFETY SWITCHES SHALL BE SUPPLIED BY MECHANICAL CONTRACTOR AND INSTALLED BY ELECTRICAL CONTRACTOR UNLESS OTHERWISE NOTED ON THE ELECTRICAL DESIGN DRAWINGS. LOW VOLTAGE STARTERS AND CONTROLS SHALL BE SUPPLIED AND INSTALLED BY MECHANICAL CONTRACTOR.
14. ELECTRICAL WIRING, CONDUIT, JUNCTION BOXES, BACK BOXES, MOUNTING HARDWARE ETC. ABOVE 24V TO BE SUPPLIED AND INSTALLED BY ELECTRICAL CONTRACTOR. CONTROLS WIRING, CONDUIT, JUNCTION BOXES, BACK BOXES, MOUNTING HARDWARE ETC. 24V AND BELOW TO BE INSTALLED BY MECHANICAL CONTRACTOR (MECHANICAL CONTRACTOR MAY SUB-CONTRACT THIS WORK TO ELECTRICAL CONTRACTOR).
15. THERMOSTATS AND CONTROLLERS INTENDED TO BE OPERATED BY THE OCCUPANT AND LOCATED IN A BARRIER-FREE PATH OF TRAVEL. SHALL BE MOUNTED 4FT (1200MM) ABOVE THE FINISHED FLOOR.
16. THE MECHANICAL CONTRACTOR SHALL INSTALL PIPE WITH SLEEVES IN ORDER TO PREVENT CONTACT WITH CONCRETE, MASONRY OR SIMILAR MATERIALS.
17. ROOF CURBS AND FLASHINGS ARE TO BE SUPPLIED BY THE MECHANICAL CONTRACTOR, INSTALLED BY THE GENERAL CONTRACTOR/ROOFER.
18. ALL EQUIPMENT SHALL BE INSTALLED IN SUCH A MANNER THAT MANUFACTURER'S RECOMMENDED CLEARANCES ARE MAINTAINED. THE CONTRACTOR SHALL LAY OUT THE WORK BASED ON THE MANUFACTURER'S RECOMMENDED CLEARANCES AND ADVISE ENGINEER IMMEDIATELY IF ANY SITE CONDITIONS NEGATIVELY AFFECT THE PROPER INSTALLATION OF ALL EQUIPMENT.
19. ALL DOOR UNDERCUTS INDICATED SHALL BE MIN 3/4". COORDINATE WITH GENERAL CONTRACTOR.
20. THIS CONTRACTOR SHALL REVIEW AND CONFIRM ALL EXISTING INDOOR METALLIC PIPING SYSTEMS ARE BONDED. PROVIDE BONDING FOR ALL NEW INDOOR METALLIC PIPING SYSTEMS AND EXISTING SYSTEMS WITHOUT PROPER BOND. BONDING SHALL BE INSTALLED TO THE REQUIREMENTS OF OESC 10-406. THE GENERAL CONTRACTOR SHALL DETERMINE IF BONDING IS BY MECHANICAL OR ELECTRICAL.
21. CLEAN ALL EXISTING GRILLES AND DIFFUSERS WHICH ARE SHOWN TO REMAIN.
22. DUCTWORK CONNECTIONS TO OUTDOOR AIR HANDLING UNITS WITH HORIZONTAL DISCHARGE SHALL BE EQUIPPED WITH WEATHER-TIGHT GASKETS AND FLASHING SHALL BE PROVIDED.

KITCHEN VENTILATION SYSTEM SPECIFICATIONS:

1. THE PROPOSED KITCHEN EXHAUST HOOD LAYOUT SHOWN ON THESE DRAWINGS ARE TO ILLUSTRATE THE GENERAL LOCATIONS OF EQUIPMENT. A KITCHEN EXHAUST HOOD AIRFLOW RATE OF 150 CFM/FT WAS USED TO ESTABLISH THE EXHAUST FAN AND MAKE-UP AIR UNIT SIZING. THIS AIRFLOW RATE SHALL BE CONFIRMED WITH THE FINAL KITCHEN LAYOUT PROVIDED BY THE OWNER. THE CONTRACTOR SHALL PROVIDE A COMPLETE SET OF SHOP DRAWINGS FOR SYSTEM INSTALLATION INCLUDING HOOD, EXHAUST DUCT, APPLIANCES, FIRE DETECTORS, PIPING, NOZZLES, FUEL SHUTOFF DEVICES, AGENT STORAGE CONTAINERS, AND MANUAL ACTIVATION DEVICES. SHOP DRAWINGS AND CERTIFICATION THAT INSTALLATION IS IN COMPLIANCE WITH THE TERMS OF THE LISTING AND MANUFACTURER'S INSTRUCTIONS SHALL BE SUBMITTED TO OWNER'S ENGINEER AND AHJ FOR REVIEW. SHOP DRAWINGS TO BE IDENTIFIED AS PRE-ENGINEERED AND UL300 LISTED, OR BE STAMPED BY A PROFESSIONAL ENGINEER.
2. WORK MUST BE PERFORMED IN ACCORDANCE WITH THE LATEST EDITION OF THE ONTARIO ELECTRICAL SAFETY CODE, ONTARIO BUILDING CODE, ONTARIO FIRE CODE, OCCUPATIONAL HEALTH AND SAFETY ACT, NFPA 96 AND LOCAL CODES.
3. EXCEPT WHERE ENCLOSURES ARE REQUIRED, PROVIDE THE FOLLOWING CLEARANCES FROM HOODS, GREASE REMOVAL DEVICES, EXHAUST FANS AND DUCTS EXCEPT WHERE THE MATERIAL/DEVICE IS LISTED FOR LESSER CLEARANCES:
    - 3.1. 18 INCHES TO COMBUSTIBLE MATERIAL
    - 3.2. 3 INCHES TO LIMITED COMBUSTIBLE MATERIAL
    - 3.3. 0 INCHES TO NON-COMBUSTIBLE MATERIAL
4. FIELD-APPLIED GREASE DUCT WRAP, SHALL BE INSTALLED IN ACCORDANCE WITH CAN/ULC-S144, EQUIVALENT TO 3M FIRE BARRIER DUCT WRAP 615+, AND TO ASTM E 2336 AND ENCLOSURES PER ASTM E 814 OR ANSI/UL 1479 WITH RATING EQUAL TO ASSEMBLY BEING PENETRATED.
5. GREASE DUCTS SHALL BE CONSTRUCTED OF AND SUPPORTED BY CARBON STEEL NOT LESS THAN 0.06" (NO. 16 MSG) IN THICKNESS OR STAINLESS STEEL NOT LESS THAN 0.048" (NO. 18 MSG) IN THICKNESS.
6. FACTORY-BUILT GREASE DUCT SHALL BE LISTED IN ACCORDANCE WITH ANSI/UL 1978 AND INSTALLED PER MANUFACTURER'S RECOMMENDATIONS.
7. HOOD CONSTRUCTION AND INSTALLATION TO NFPA STANDARDS AND MANUFACTURER'S RECOMMENDATIONS. HOODS SHALL BE UL 710 LISTED AND NSF STANDARD 2 CERTIFIED. HOODS SHALL BE SIZED WITH MINIMUM 6" (150mm) OVERHANG BEYOND ALL COOKING APPLIANCES; MUST BE SUFFICIENT TO CAPTURE AND REMOVE GREASE-LADEN VAPOURS.
8. PROVIDE END SKIRTS ON ALL HOODS WHERE CROSS DRAFTS MAY EXIST.
9. PROVIDE GREASE REMOVAL DEVICE IN HOOD TO UL 1046. MESH FILTER ARE NOT PERMITTED. GREASE REMOVAL DEVICE SHALL BE MINIMUM 18" (450mm) FROM COOKING SURFACES. PROVIDE CLEARANCE OF 4' (1.2m) FROM CHARCOAL BROILERS. PROVIDE STEEL BAFFLE PROTECTION FROM HEAT SOURCES.
10. GREASE FILTERS TO UL 1046. INSTALL IN EASILY ACCESSIBLE LOCATION AT ANGLE NOT LESS THAN 45DEG FROM HORIZONTAL. PROVIDE DRIP TRAY AND METAL CONTAINER WITH CAPACITY NOT EXCEEDING 1 GAL (3.8ltr).
11. PROVIDE DUCTWORK PER NFPA 96 WITH SLOPE BACK TO THE KITCHEN HOOD, DO NOT INSTALL WITH DIPS OR TRAPS, DO NOT TIE IN WITH ANY OTHER DUCTWORK SYSTEMS, PROVIDE MINIMUM 20"x20" (0.5mx0.5m) GREASE TIGHT ACCESS PANEL CONSTRUCTED WITH SAME MATERIAL AS DUCT C/W 1500DEG F RATED GASKET AT ALL CHANGES OF DIRECTIONS, BOTH SIDES OF EXHAUST FANS (WITHIN 3FT (0.9m)). PROVIDE SIGN "ACCESS PANEL – DO NOT OBSTRUCT".
12. PROVIDE ALL DUCT SUPPORT HARDWARE, JOINTS (TELESCOPING AND BELL JOINTS) ETC. TO NFPA 96.
13. PROVIDE SUITABLE WEATHER PROTECTIVE COATING ON ALL DUCTWORK ON EXTERIOR OF BUILDING.
14. PROVIDE UPBLAST FAN COMPLETE WITH FLEXIBLE WEATHERPROOF WIRING, HINGE AND HOLD OPEN RETAINER, GREASE COLLECTION CONTAINER LISTED FOR USE IN COMMERCIAL COOKING APPLICATIONS, AND SHALL BE LISTED FOR USE IN COMMERCIAL COOKING APPLICATIONS PER UL 705.
15. LIGHTING UNITS IN HOODS SHALL BE LISTED FOR USE IN COMMERCIAL COOKING APPLICATIONS AND SHALL BE WIRED THROUGH KITCHEN HOOD CONTROL PANEL C/W RELAY TO SHUT OFF DURING FIRE.
16. PROVIDE READILY ACCESSIBLE MEANS OF MANUAL ACTIVATION LOCATED AT 48" (1.2m) AFF. DEVICE SHALL BE INDEPENDENT OF AUTOMATIC ACTIVATION AND SHALL BE FULLY MECHANICAL. POST INSTRUCTIONS FOR MANUAL OPERATION OF FIRE EXTINGUISHING SYSTEM IN CONSPICUOUS LOCATION IN KITCHEN.
17. PROVIDE K-CLASS PORTABLE FIRE EXTINGUISHER IN COOKING AREAS TO NFPA 10.
18. AUTOMATIC FIRE EXTINGUISHING SYSTEMS SHALL COMPLY WITH UL300 AND NFPA 12, NFPA 13, NFPA 17, NFPA 17A.
19. INSTALLATION AND CLEARANCES OF ALL KITCHEN COOKING APPLIANCES SHALL BE TO NFPA 96 AND MANUFACTURER'S RECOMMENDATIONS.
20. PROVIDE SHUNT TRIP BREAKERS FOR ALL ELECTRICAL COOKING APPLIANCES.
21. WHERE OCCUPANCY IS PROTECTED BY FIRE ALARM SYSTEM, PROVIDE SUPERVISORY EQUIPMENT/SIGNAL TO FIRE ALARM SYSTEM WHERE ELECTRICAL POWER IS REQUIRED TO OPERATE AUTOMATIC FIRE EXTINGUISHING SYSTEM.
22. VENTILATION NORMAL OPERATION.
    - 22.1. UPON VENTILATION SYSTEM START SIGNAL FROM THE KITCHEN HOOD MANUFACTURER SUPPLIED CONTROL PANEL, MD-1a SHALL OPEN AND THE END SWITCH SHALL START SF-1 AND EF-1. MD-1a SHALL BE NORMALLY CLOSED, FAIL OPEN.
    - 22.2. DH-1 SHALL ENABLE WHEN THE SF-1 DISCHARGE AIR TEMPERATURE IS LESS THAN THE SETPOINT OF 65°F, ADJUSTABLE. SCR CONTROL IS PROVIDED TO MODULATE THE ELECTRIC ELEMENT HEAT INPUT TO THE AIRSTREAM TO MAINTAIN DISCHARGE AIR TEMPERATURE. REMOTE THERMOSTAT PROVIDED TO ADJUST DH-1 SETPOINT.
    - 22.3. UPON VENTILATION SYSTEM STOP SIGNAL FROM THE KITCHEN HOOD MANUFACTURER SUPPLIED CONTROL PANEL, DH-1 SHALL BE DE-ENERGIZED, MD-1a SHALL BE DE-ENERGIZED AND RETURN TO NORMALLY CLOSED POSITION.
23. UPON ACTIVATION OF FIRE EXTINGUISHING SYSTEM THE FOLLOWING SEQUENCE OF OPERATION SHALL OCCUR:
    - 23.1. ALL SOURCES OF FUEL AND POWER SHALL BE AUTOMATICALLY SHUT OFF. ALL SHUTOFF DEVICES SHALL REQUIRE A MANUAL RESET.
    - 23.2. AUDIBLE AND/OR VISUAL ALARM SHALL BE ACTIVATED.
    - 23.3. WHERE OCCUPANCY IS PROTECTED BY FIRE ALARM SYSTEM, ACTIVATION SHALL TRIGGER FIRE ALARM SYSTEM BY MEANS OF MICRO-SWITCH.
    - 23.4. EF-1 SHALL STAY RUNNING AFTER EXTINGUISHING SYSTEM HAS BEEN ACTIVATED UNLESS FAN SHUTDOWN IS REQUIRED BY A LISTED COMPONENT IN THE AUTOMATIC FIRE EXTINGUISHING SYSTEM.
    - 23.5. EF-1 SHALL BE TURNED ON UPON ACTIVATION OF AUTOMATIC FIRE EXTINGUISHING SYSTEM.
    - 23.6. SF-1 SHALL BE SHUT DOWN UPON ACTIVATION OF AUTOMATIC FIRE EXTINGUISHING SYSTEM.
    - 23.7. DH-1 SHALL BE INTERLOCKED TO KITCHEN HOOD MANUFACTURER SUPPLIED CONTROL PANEL TO ENSURE SHUTDOWN UPON ACTIVATION OF AUTOMATIC FIRE SUPPRESSION SYSTEM.
    - 23.8. ELECTRICAL POWER TO ELECTRICAL COOKING APPLIANCES SHALL BE TURNED OFF.

FAN SCHEDULE

TAG	DESCRIPTION	MAKE	MODEL	CFM	ESP, IN.W.C.	V/ø/Hz	HP	REMARKS/ACCESSORIES
EF-1	DIRECT DRIVE UPBLAST CENTRIFUGAL ROOF EXHAUST FAN	GREENHECK	CUE-140HP-VG	900	0.9	240/1/60	1/2	C/W MOTOR WITH CSA APPROVAL, STANDARD CURB CAP, UL/cUL 705 LISTED – "POWER VENTILATORS FOR REST. EXH. APPLIANCES", SWITCH, NEMA-1, TOGGLE, SHIPPED WITH UNIT, JUNCTION BOX MOUNTED & WIRED HINGE, HIGH TEMP CURB SEAL RATED FOR CONTINUOUS DUTY @ 1500f, GREASE TRAP, BIRDSCREEN, HEAT BAFFLE, BEARINGS WITH GREASE FITTINGS, AND VARI-GREEN MOTOR.
SF-1	DIRECT DRIVE CENTRIFUGAL INLINE FAN	GREENHECK	SQ-120-VG	800	0.56	240/1/60	1/2	C/W VARI-GREEN MOTOR, SLOPED FILTER BOX, 2" PLEATED (MERV 8) FILTERS, AND VIBRATION ISOLATORS, GREENHECK VARI-GREEN 485055 HOA CONTROLLER.

ELECTRIC DUCT HEATER SCHEDULE

TAG	MAKE	MODEL	ELECTRICAL			WIDTH (IN)	HEIGHT (IN)	SETPOINT (°F)	ACCESSORIES/REMARKS
			V/ø/Hz	KW	AMPS				
DH-1	THERMOLEC	MSCO	240/1/60	20.0	87.0	16	16	65	C/W SCR CONTROL AND REMOTE CONTROLLER TO ADJUST TEMPERATURE.

RANGE HOOD SCHEDULE

TAG	MAKE	MODEL	DIMENSIONS (IN.)			EXHAUST					SUPPLY					MATERIAL	ACCESSORIES/REMARKS
						VOLUME (CFM)	SP (IN. WC)	THROAT VEL. (FPM)	COLLAR SIZE		VOLUME (CFM)	SP (IN. WC)	THROAT VEL. (FT/S)	DUCT SIZE			
			W	D	H				W (IN.)	L (IN.)				W (IN.)	L (IN.)		
RH-1	GREENHECK	GXEW	72	56	24	900	0.45	1600	9	9	800	0.01	200	12	24	430 STAINLESS STEEL	C/W GREENHECK KITCHEN CONTROLLER MODEL GKC-CV W/ TOUCHSCREEN DIRECTLY MOUNTED TO CONTROLLER PANEL, STAINLESS STEEL BACKSPLASH PANEL 80"(H) x 72"(W), STAINLESS STEEL X-TRACTOR (SPARK ARRESTOR INCL.) EXHAUST FILTERS, UL LISTED LIGHT FIXTURE, REMOVABLE GREASE CUP W/ CONCEALED GREASE TROUGH, TEMPERATURE SENSOR(S), 1" FACTORY INSTALLED LAYER OF INSULATION IN 3" STANDOFF ON BACKSIDE OF HOOD, PROVIDE 22 GAUGE SHEET METAL ON 1" MINERAL WOOL BATT INSULATION ON TOP OF HOOD, PERFORATED SUPPLY AIR CURTAIN, UL 710 LISTING. UL 300 LISTED FIRE SUPPRESSION SYSTEM. CONTINUOUS LIQUIDTIGHT WELDED CONSTRUCTION.

NOTES

No.	REVISION DESCRIPTION	DATE
1.	ISSUED FOR CLIENT REVIEW	JAN/24
2.	ISSUED FOR TENDER	FEB/24

ENGINEER SEAL

LICENSED PROFESSIONAL ENGINEER — N.M.WILLIAMS 100101606 — 07FEB2024 — PROVINCE OF ONTARIO

WALKERS POINT COMMUNITY CENTER

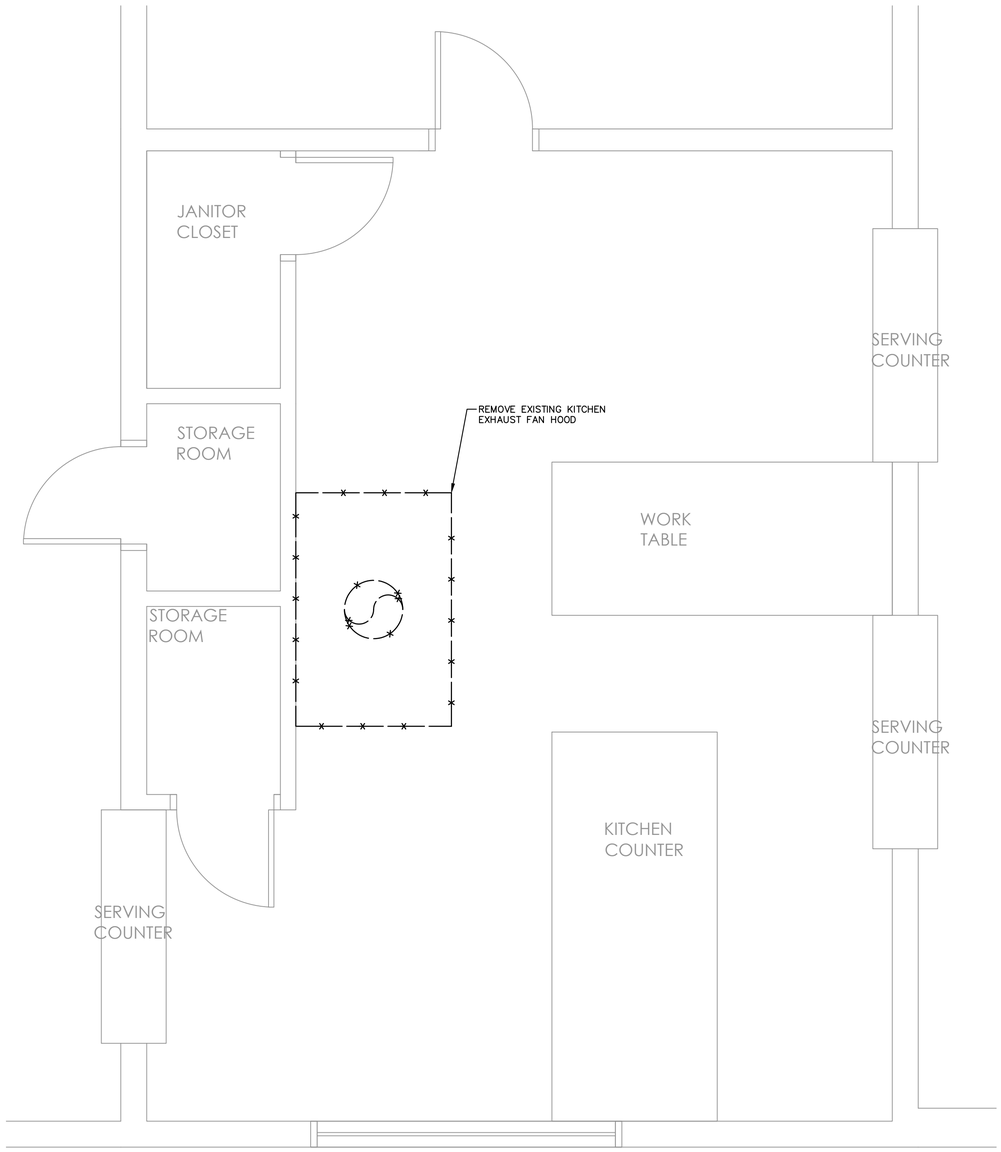
TOWNSHIP OF MUSKOKA LAKES

TATHAM ENGINEERING

MECHANICAL
LEGEND, SCHEDULES, AND SPECIFICATIONS

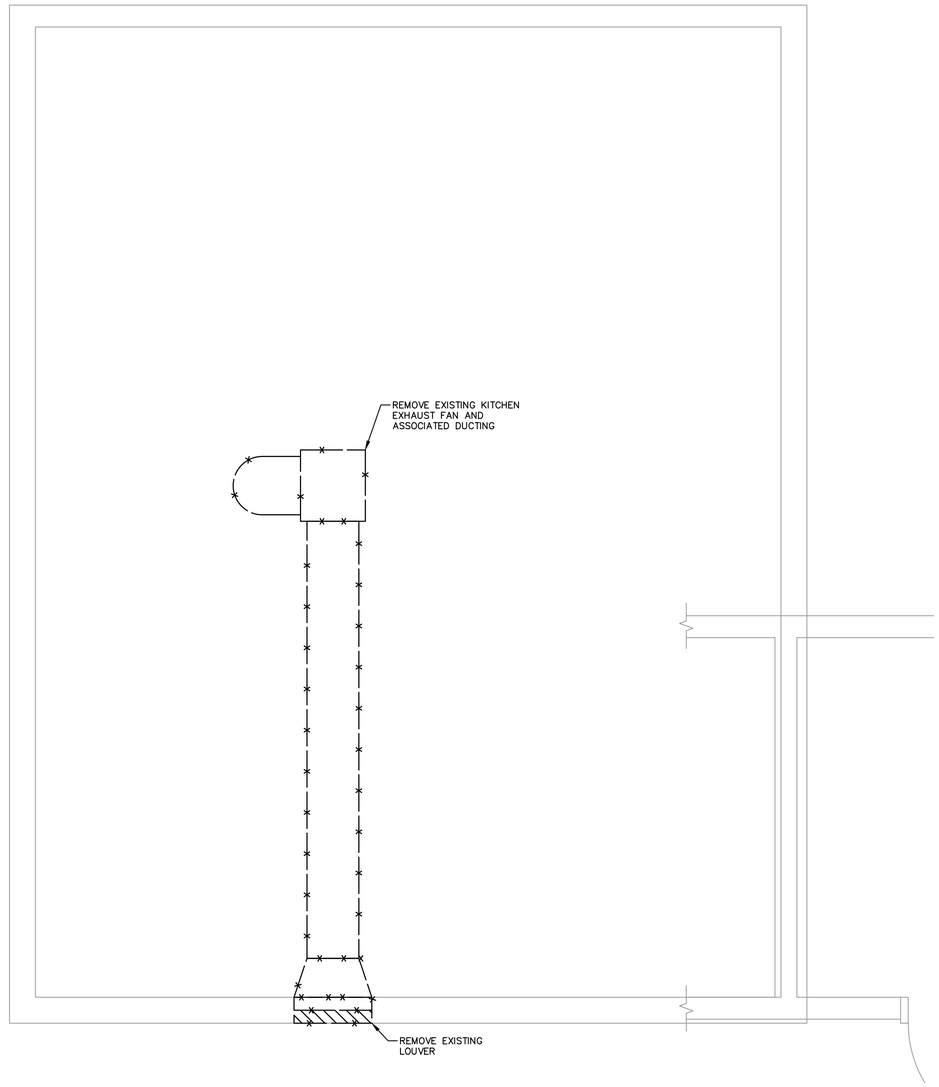
DESIGN: JT	FILE: 123244	DWG: M1
DRAWN: ML	DATE: FEB 2024	
CHECK: NW/LV	SCALE: AS SHOWN	

Drawing Name: 123244 – M1 M2 M3.dwg, Plotted: Feb 07, 2024



1 M2 HVAC DEMOLITION LAYOUT – GROUND LEVEL

– SCALE: 1/2"=1'–0"



2 M2 HVAC DEMOLITION LAYOUT – ATTIC LEVEL

– SCALE: 1/2"=1'–0"

NOTES

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1.	ISSUED FOR CLIENT REVIEW	JAN/24
2.	ISSUED FOR TENDER	FEB/24

ENGINEER SEAL

LICENSED PROFESSIONAL ENGINEER
N.M.WILLIAMS
100101606
07FEB2024
PROVINCE OF ONTARIO

WALKERS POINT COMMUNITY CENTER

TOWNSHIP OF MUSKOKA LAKES

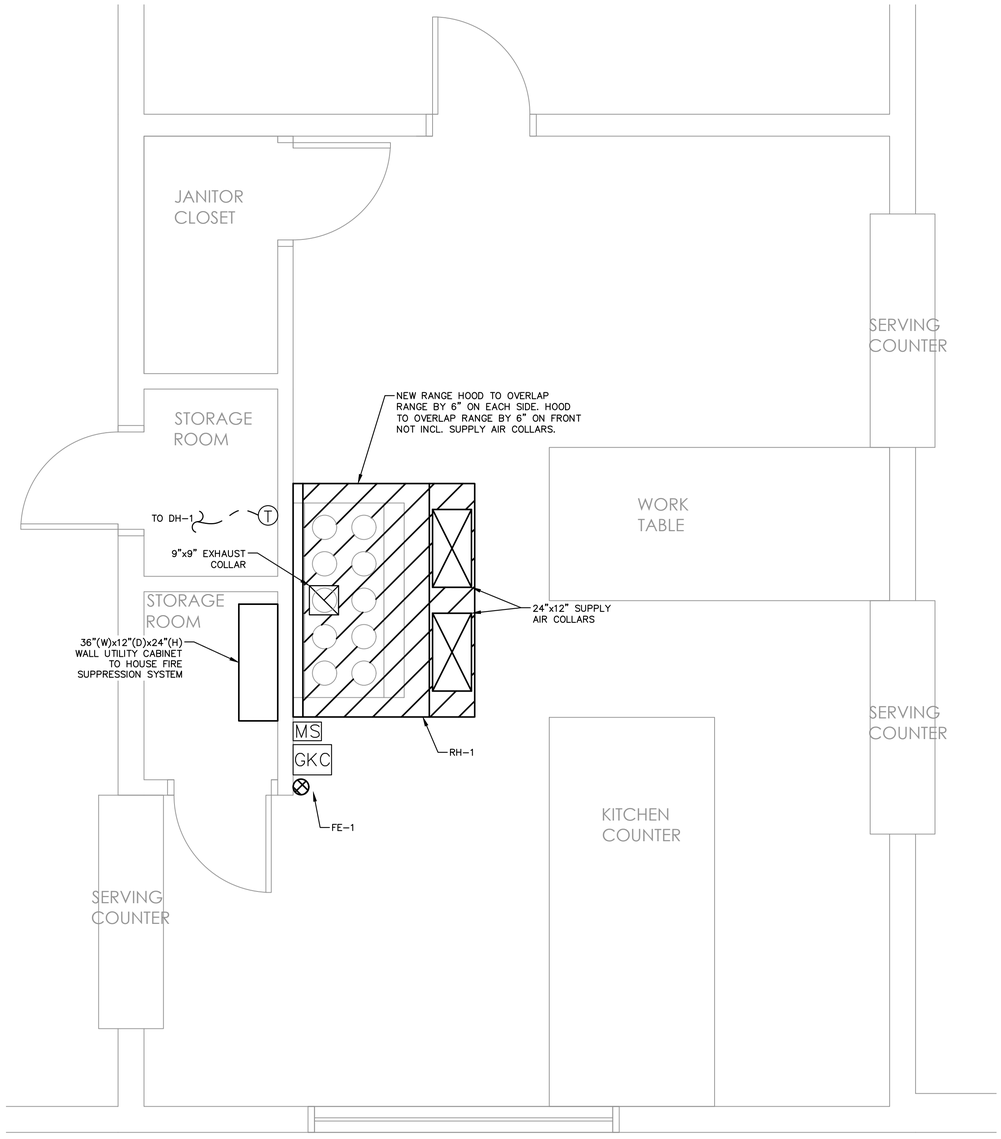
MECHANICAL

HVAC DEMOLITION LAYOUT

TATHAM ENGINEERING

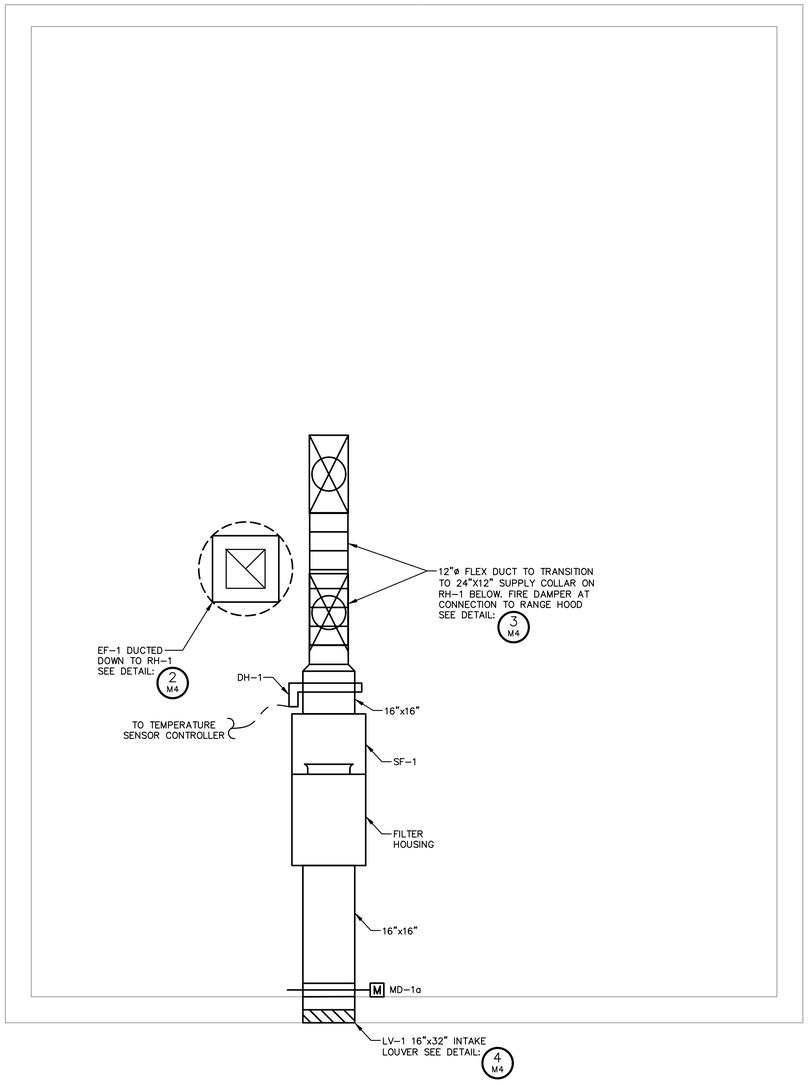
DESIGN: JT	FILE: 123244	DWG: **M2**
DRAWN: ML	DATE: FEB 2024	
CHECK: NW/LV	SCALE: AS SHOWN	

Drawing Name: 123244 – M1 M2 M3.dwg, Plotted: Feb 07, 2024



1 M3 HVAC INSTALLATION LAYOUT – GROUND LEVEL

– SCALE: 1/2"=1'-0"



2 M3 HVAC INSTALLATION LAYOUT – ATTIC LEVEL

– SCALE: 1/2"=1'-0"

NOTES

No.	REVISION DESCRIPTION	DATE
1.	ISSUED FOR CLIENT REVIEW	JAN/24
2.	ISSUED FOR TENDER	FEB/24

ENGINEER SEAL

LICENSED PROFESSIONAL ENGINEER
N.M.WILLIAMS
100101606
07FEB2024
PROVINCE OF ONTARIO

WALKERS POINT COMMUNITY CENTER

TOWNSHIP OF MUSKOKA LAKES

MECHANICAL
HVAC INSTALLATION LAYOUT

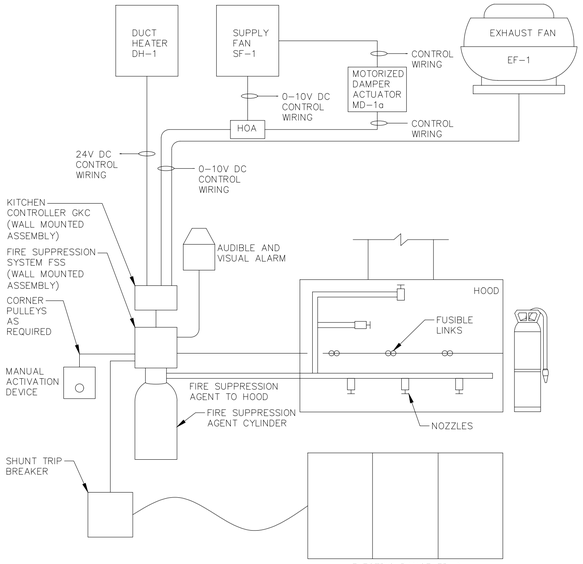
TATHAM ENGINEERING

DESIGN: JT	FILE: 123244	DWG: **M3**
DRAWN: ML	DATE: FEB 2024	
CHECK: NW/LV	SCALE: AS SHOWN	

Drawing Name: 123244 – M1 M2 M3.dwg, Plotted: Feb 07, 2024

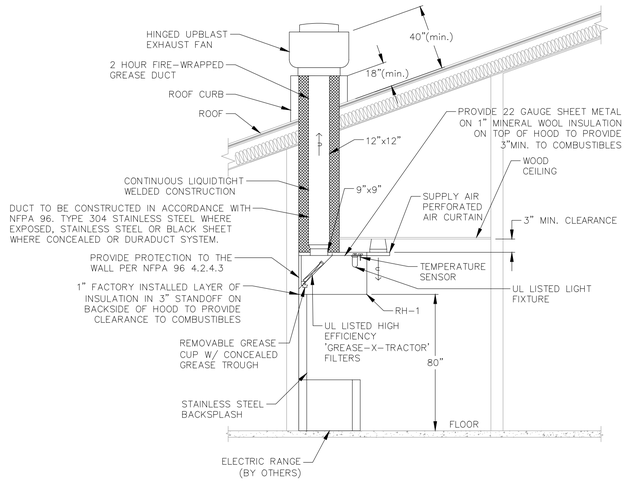
KITCHEN VENTILATION SYSTEM FIRE SUPPRESSION SCHEMATIC NOTES::

1. REFER TO SPECIFICATIONS ON DRAWING M1 FOR SEQUENCE OF OPERATIONS.
2. DETAILED DESIGN BY SUPPLIER/CONTRACTOR. SUBMIT SHOP DRAWINGS FOR REVIEW BY ENGINEER PER SPECIFICATION DRAWING M1.
3. SCHEMATIC IS GENERAL ONLY. REFER TO MANUFACTURER'S INSTALLATION MANUAL FOR DETAILED WIRING INFORMATION.
4. PROVIDE FACTORY PRE-PIPED NOZZLES FOR WET CHEMICAL FIRE SUPPRESSION SYSTEM CONFORMING TO NFPA 96, NFPA 17A, ULC 1254 AND AHJ REQUIREMENTS.



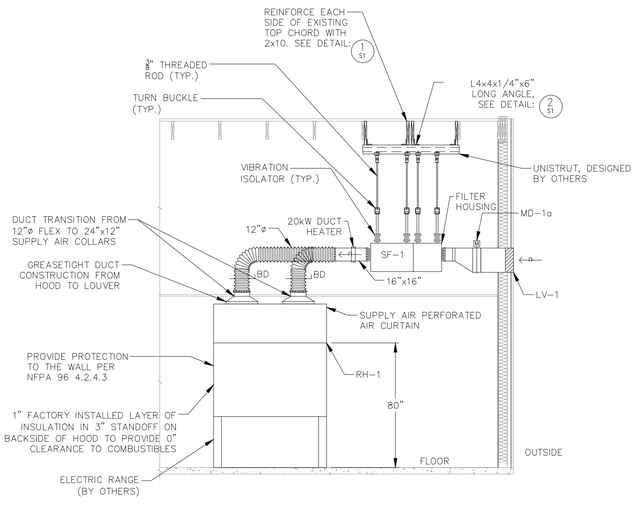
1 M4 KITCHEN VENTILATION FIRE SUPPRESSION SCHEMATIC

– N.T.S.



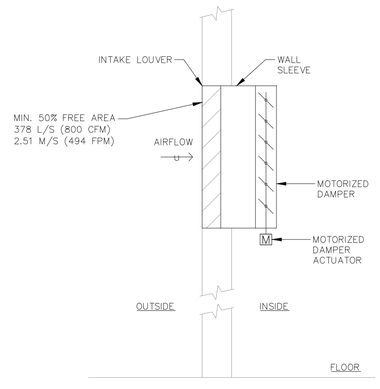
2 M4 KITCHEN EXHAUST DETAIL

– N.T.S.



3 M4 KITCHEN MUA DETAIL

– N.T.S.



4 M4 MOTORIZED DAMPER DETAIL

– N.T.S.

NOTES

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1.	ISSUED FOR CLIENT REVIEW	JAN/24
2.	ISSUED FOR TENDER	FEB/24

ENGINEER SEAL

LICENSED PROFESSIONAL ENGINEER N.M.WILLIAMS 100101606 07FEB2024 PROVINCE OF ONTARIO

LICENSED PROFESSIONAL ENGINEER Feb 7/24 L. M. VINT 100540450 PROVINCE OF ONTARIO STRUCTURAL ONLY

WALKERS POINT COMMUNITY CENTER

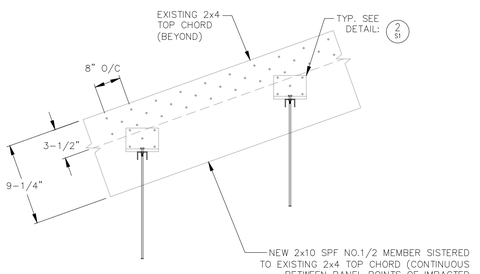
TOWNSHIP OF MUSKOKA LAKES

MECHANICAL DETAILS

TATHAM ENGINEERING

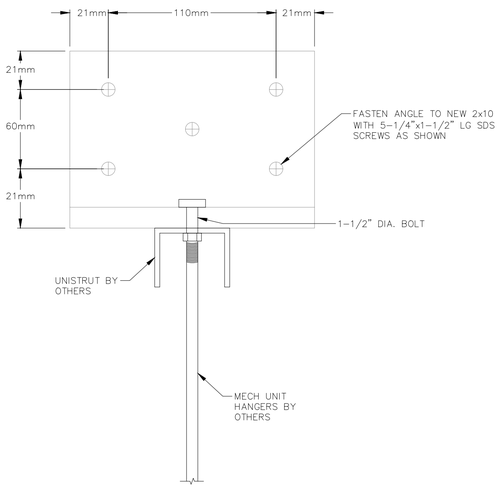
DESIGN: JT	FILE: 123244	DWG: **M4**
DRAWN: ML	DATE: FEB 2024	
CHECK: NW/LV	SCALE: AS SHOWN	

Drawing Name: 123244 – M1 M2 M3.dwg, Plotted: Feb 07, 2024



1/S1 TRUSS REINFORCING DETAIL

– N.T.S.



2/S1 SUPPORT DETAIL

– N.T.S.

GENERAL STRUCTURAL NOTES:

1. ALL WORK AND MATERIALS SHALL CONFORM TO REQUIREMENTS SET OUT IN THE 2012 ONTARIO BUILDING CODE.
2. ALL WORK IS TO BE CARRIED OUT IN ACCORDANCE WITH THE OCCUPATIONAL HEALTH AND SAFETY ACT OF ONTARIO.
3. THE CONTRACTOR SHALL EXAMINE ALL DRAWINGS, CONFIRM ALL DIMENSIONS AND REPORT ANY DISCREPANCIES TO THE ENGINEER PRIOR TO COMMENCING WORK.
4. ALL DESIGN LOADS NOTED ON DRAWINGS ARE WORKING LOADS AND ARE AS FOLLOWS:
   - 4.1. GROUND LOAD (SS) = 54.3 psf (2.7 kPa) (Gravenhurst)
   - 4.2. SNOW LOAD ROOF FACTOR (CB) = 0.8
   - 4.3. ASSOCIATED RAIN LOAD (SR) = 8 psf (0.4 kPa)
   - 4.4. ROOF DEAD LOAD = 15.6 psf (0.75 kPa)
   - 4.5. EQUIPMENT WEIGHT = 156 LBS (0.70kN)
5. DURING CONSTRUCTION, THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING THE STRUCTURE AND ADJACENT STRUCTURES IN A STABLE CONDITION AND ENSURING NO PART SHALL BE OVERSTRESSED UNDER CONSTRUCTION ACTIVITIES. THE CONTRACTOR SHALL PROVIDE ALL TEMPORARY BRACING AND/OR PROPPING AS NECESSARY.

WOOD:

1. ALL 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.
2. ALL LUMBER SHALL BE S-P-F NO.1/2 IN ACCORDANCE WITH CAN/CSA-086 UNLESS OTHERWISE NOTED.
3. ALL WOOD CONNECTIONS SHALL BE IN ACCORDANCE WITH CLAUSE 9.23 OF THE ONTARIO BUILDING CODE UNLESS OTHERWISE NOTED.
4. ALL CONNECTORS BY SIMPSON STRONG-TIE SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S WRITTEN INSTRUCTION.

STRUCTURAL STEEL NOTES:

1. ALL STRUCTURAL STEEL SHALL BE NEW STOCK AND CONFORM TO THE FOLLOWING GRADES AND STANDARDS:
   - 1.1. ANGLES: CAN/CSA G40.21 TYPE 350W
2. ALL STRUCTURAL STEEL SHALL BE FABRICATED AND ERECTED IN ACCORDANCE WITH CAN/CSA-S16.1.
3. ALL BOLTS, NUTS, AND WASHERS FOR STRUCTURAL STEEL CONNECTIONS SHALL CONFORM TO ASTM A325.
4. NO HOLES SHALL BE CUT IN STRUCTURAL STEEL WITHOUT THE PRIOR APPROVAL OF THE STRUCTURAL ENGINEER.

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ENGINEER SEAL

LICENSED PROFESSIONAL ENGINEER
Feb 7/24
L. M. VINT
100540450
PROVINCE OF ONTARIO
STRUCTURAL ONLY

WALKERS POINT COMMUNITY CENTER

TOWNSHIP OF MUSKOKA LAKES

STRUCTURAL DETAILS

TATHAM ENGINEERING

DESIGN: JT	FILE: 123244	DWG: **S1**
DRAWN: ML	DATE: FEB 2024	
CHECK: NW/LV	SCALE: AS SHOWN	

Drawing Name: 123244 – M1 M2 M3.dwg, Plotted: Feb 07, 2024

SINGLE LINE SYMBOLS AND CONTROL DIAGRAMS

SYMBOL	DESCRIPTION
	CIRCUIT BREAKER, MOULDED CASE WITH THERMAL & MAGNETIC TRIPS
	MOTOR CIRCUIT PROTECTOR (MCP) STYLE BREAKER, WITH MAGNETIC TRIPS ONLY
	NEMA SIZE 1 STARTER WITH THERMAL OVERLOAD TRIP
VFD MS BP	VARIABLE FREQUENCY DRIVE, C/W BYPASS MOTOR STARTER/CONTACTOR AND CONTROL TRANSFORMER
	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)
	SEAL (EYS) FITTING C/W CHICO POWDER
MS1	MOTOR STARTER (MS) COIL, WITH COIL SUPPRESSOR
X	PILOT LIGHT, WHERE "X" INDICATES LENS COLOR: R=RED, W=WHITE, G=GREEN
X	PUSH TO TEST STYLE PILOT LIGHT
ETM	ELAPSE TIME METER, IN HOURS
CR#	CONTROL RELAY (# DENOTES RELAY NUMBER)
	TERMINAL BLOCK
	SOLENOID VALVE
	CONTACT, N.O. AND N.C.
	TEMPERATURE SWITCH, N.O AND N.C.
	LIMIT OR POSITION SWITCH, N.O AND N.C.
	PRESSURE SWITCH, N.O AND N.C.
	LEVEL OR FLOAT SWITCH, N.O AND N.C.
	TORQUE SWITCH, N.O AND N.C.
	PUSHBUTTON DEVICE, N.O AND N.C.
	SELECTOR SWITCH, 2-POSITION & 3-POSITION

DRAWING LIST - ELECTRICAL

LIGHTING AND POWER ELECTRICAL SYMBOLS

SYMBOL	DESCRIPTION
X	1'x4' FLUORESCENT LUMINAIRE. "X" DENOTES LUMINAIRE TYPE (REFER TO LUMINAIRE SCHEDULE).
A-2a	A - DENOTES SWITCH LEG 2 - DENOTES BRANCH CIRCUIT NUMBER a - DENOTES PANEL DESIGNATION
X	2'x4' FLUORESCENT LUMINAIRE. "X" DENOTES LUMINAIRE TYPE (REFER TO LUMINAIRE SCHEDULE)
X	CEILING MOUNTED LUMINAIRE - "x" DENOTES TYPE
X	WALL MOUNTED LUMINAIRE - "x" DENOTES TYPE
X	EXIT LIGHT - "x" DENOTES TYPE
S1	LIGHT SWITCH C/W BACK BOX: - "S" INDICATES 2-WIRE SWITCH - "S3" INDICATES 3-WIRE SWITCH - "S4" INDICATES 4-WIRE SWITCH - "D" INDICATES DIMMER (SIZE TO SUIT) - "T" INDICATES MANUAL TIMER - "M" INDICATES MOTION DETECTOR
	EMERGENCY REMOTE HEADS
	EMERGENCY BATTERY UNIT WITH REMOTE HEADS AND CHARGER (BU#)
	EMERGENCY REMOTE HEADS: EXPLOSION PROOF - CLASS 1 DIV. 1&2
	ELECTRICAL PANEL/ENCLOSURE
	DUPLEX RECEPTACLE
	SINGLE RECEPTACLE
GFI	GFI TYPE DUPLEX RECEPTACLE
	SPLIT DUPLEX RECEPTACLE
D	DRYER RECEPTACLE
	WELDING RECEPTACLE
	SINGLE PHASE MOTOR
	THREE PHASE MOTOR
	SINGLE PHASE MANUAL STARTER SWITCH WITH LOCK-OFF AND PILOT LIGHT
	MANUAL STARTER SWITCH C/W PILOT LIGHT AND HAND/OFF/AUTO SELECTOR SWITCH
	CONTROL STATION OR PANEL
#	DISCONNECT SWITCH, UN-FUSED, # DENOTES NUMBER OF POLES
K	UNAUTHORIZED ENTRY KEYPAD UNIT
DS	MAGNETIC REED DOOR SWITCH
MS	MOTION SENSOR
SD	SMOKE DETECTOR
	TELEPHONE OUTLET
	DATA OUTLET
JB	JUNCTION BOX
Tv	THERMOSTAT (VENTILATION)
TH	THERMOSTAT

GENERAL SYMBOLS

X / YZ	DETAIL SYMBOL: X = DETAIL NUMBER YZ = DRAWING NUMBER
	EQUIPMENT SUPPLIED BY ANOTHER DIVISION, INSTALLATION, WIRING AND CONDUIT BY DIVISION 16
	EXISTING OR RELOCATED EQUIPMENT, NEW WIRING 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 A REMOVAL NOTE (# DENOTES NOTE NUMBER)

STANDARD ABBREVIATIONS - ELECTRICAL

ABBREVIATION	DESCRIPTION
A	AMPERES (CONTINUOUS)
AC	ALTERNATING CURRENT
ASYM	ASYMMETRICAL
ATS	AUTOMATIC TRANSFER SWITCH
AUTO	AUTOMATIC
AWG	AMERICAN WIRE GAUGE
BU	BATTERY UNIT (EMERGENCY)
°C	DEGREE CELSIUS
C	CONDUCTOR
CCT	CIRCUIT
℄	CENTERLINE
C/W	COMPLETE WITH
CPT	CONTROL POWER TRANSFORMER
CSA	CANADIAN STANDARDS ASSOCIATION
CT	CURRENT TRANSFORMER
Cu	COPPER
DC	DIRECT CURRENT
DISC	DISCONNECT
DPDT	DOUBLE POLE DOUBLE THROW
DPST	DOUBLE POLE SINGLE THROW
EEMAC	ELECTRICAL AND ELECTRONIC MANUFACTURERS ASSOCIATION OF CANADA
EP	EXPLOSION PROOF (SEE "CLASSIFICATION SUMMARY")
ETM	ELAPSED TIME METER
ESA	ELECTRICAL SAFETY AUTHORITY
GFI	GROUND FAULT INTERRUPTER
GND	GROUND
HOA	HAND-OFF-AUTOMATIC
HP	HORSEPOWER
Hz	HERTZ
IEEE	INSTITUTE OF ELECTRICAL & ELECTRONIC ENGINEERS
INST	INSTANTANEOUS
I/O	INPUT/OUTPUT
ISB	INTRINSIC SAFETY BARRIER
JB	JUNCTION BOX
kAIC	KILO-AMP INTERRUPTING CAPACITY
kVA	KILOVOLTAMPERE
kW	KILOWATT
kWh	KILOWATT HOUR
kV	KILOVOLT
LA	LIGHTNING ARRESTOR
LOR	LOCAL-OFF-REMOTE
LUC	LOCAL UTILITY COMPANY
MAN	MANUAL
MCC	MOTOR CONTROL CENTRE
MH	MANHOLE
mm	MILLIMETER
MOT	MOTOR
N	NEUTRAL
NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
N/A	NON AUTOMATIC
N.O.	NORMALLY OPEN
N.C.	NORMALLY CLOSED
NP	NAMEPLATE
NTS	NOT TO SCALE
OESC	ONTARIO ELECTRICAL SAFETY CODE
O/H	OVERHEAD
O/L	OVERLOAD
OO	ON-OFF
PB	PUSHBUTTON
PDC	POWER DISTRIBUTION CENTRE
PH. OR ø	PHASE OR DIAMETER
PLC	PROGRAMMABLE LOGIC CONTROLLER
REM	REMOTE
RGS	RIGID GALVANIZED STEEL
RPVC	RIGID PVC CONDUIT
SN	SOLID NEUTRAL
SPDT	SINGLE POLE DOUBLE THROW
SPMDD	STANDARD PROCTOR MAXIMUM DRY DENSITY
SPST	SINGLE POLE SINGLE THROW
SS	STAINLESS STEEL
SW	SWITCH
SYM	SYMMETRICAL
TDC	TIME DELAY ON CLOSING
TDDO	TIME DELAY ON DROP-OUT (OR OFF TIMER)
TDO	TIME DELAY ON OPENING
TDPU	TIME DELAY ON PICK-UP
TYP.	TYPICAL
U/G	UNDERGROUND
VA	VOLT-AMPERE
VFD	VARIABLE FREQUENCY DRIVE
WP	WEATHERPROOF
316SS	316 STAINLESS STEEL

MASTER ELECTRICAL LEGEND

ALL SYMBOLS/DEVICES/ABBREVIATIONS LISTED MAY NOT APPLY

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.

NOTES

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1	ISSUED FOR CLIENT REVIEW	FEB/24
2	ISSUED FOR TENDER	FEB/24

ENGINEER SEAL

LICENSED PROFESSIONAL ENGINEER
S. R. S. TAYLOR
100518503
07FEB'24
PROVINCE OF ONTARIO

WALKERS POINT COMMUNITY CENTER

TOWNSHIP OF MUSKOKA LAKES

TATHAM ENGINEERING

ELECTRICAL

LEGEND AND DRAWING LIST

DESIGN: JES	FILE: 123244	DWG: E-1
DRAWN: JES	DATE: SEP 2023	
CHECK: SRT	SCALE: AS SHOWN	

Drawing Name: 123244 - E-1 to E-5.dwg, Plotted: Feb 07, 2024

POWER CABLE SCHEDULE

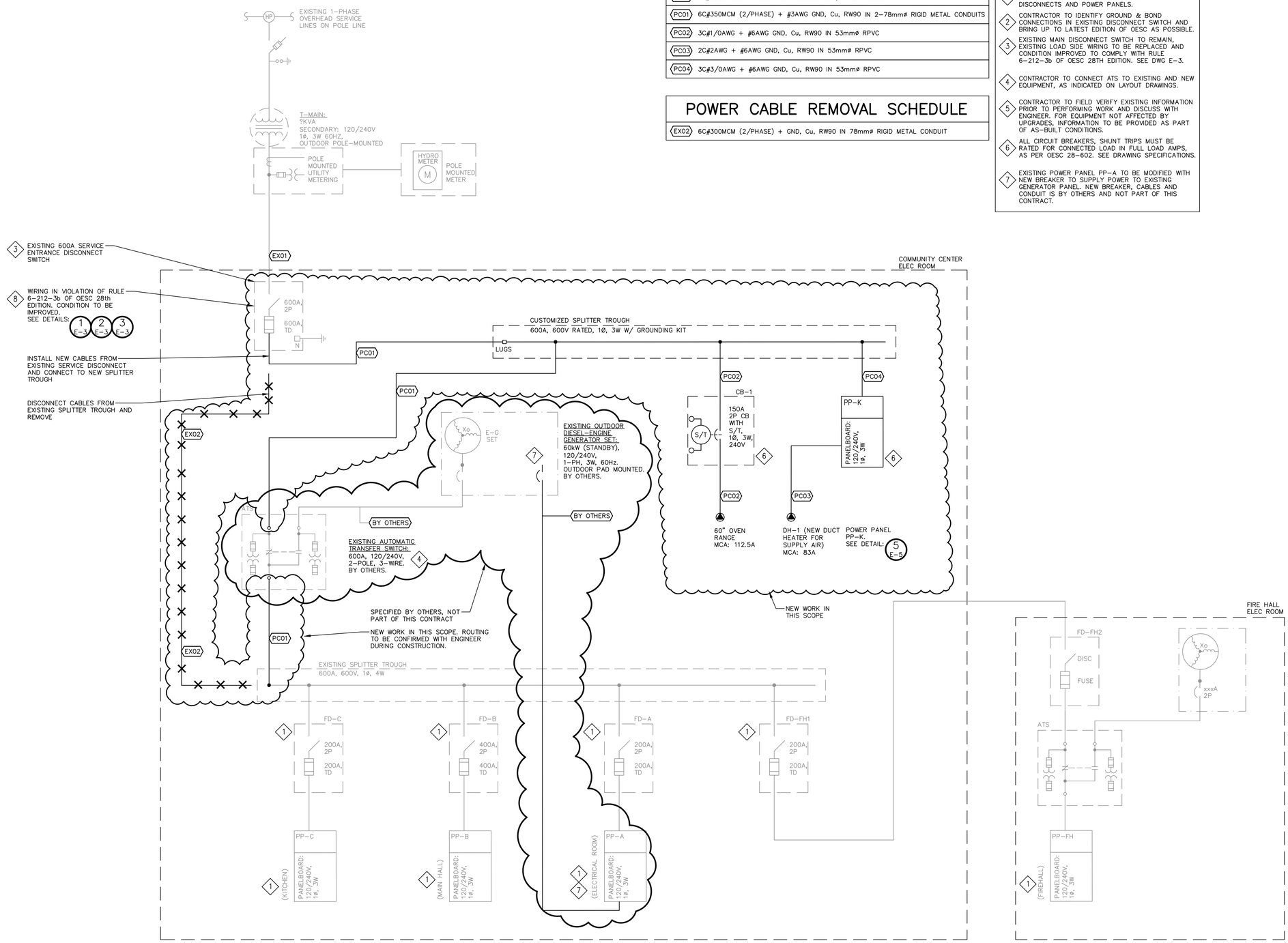
EX01	3C#750MCM + GND, AL, RW90 IN FROM U/G DUCTBANK
PC01	6C#350MCM (2/PHASE) + #3AWG GND, Cu, RW90 IN 2-78mmø RIGID METAL CONDUITS
PC02	3C#1/0AWG + #6AWG GND, Cu, RW90 IN 53mmø RPVC
PC03	2C#2AWG + #6AWG GND, Cu, RW90 IN 53mmø RPVC
PC04	3C#3/0AWG + #6AWG GND, Cu, RW90 IN 53mmø RPVC

POWER CABLE REMOVAL SCHEDULE

EX02	6C#300MCM (2/PHASE) + GND, Cu, RW90 IN 78mmø RIGID METAL CONDUIT

NOTES

1. EXISTING EQUIPMENT, CONDUIT AND WIRING TO REMAIN. CREATE NEW LAMICOID LABELS TO IDENTIFY EXISTING DISCONNECTS AND POWER PANELS.
2. CONTRACTOR TO IDENTIFY GROUND & BOND CONNECTIONS IN EXISTING DISCONNECT SWITCH AND BRING UP TO LATEST EDITION OF OESC AS POSSIBLE.
3. EXISTING MAIN DISCONNECT SWITCH TO REMAIN, EXISTING LOAD SIDE WIRING TO BE REPLACED AND CONDITION IMPROVED TO COMPLY WITH RULE 6-212-3b OF OESC 28TH EDITION. SEE DWG E-3.
4. CONTRACTOR TO CONNECT ATS TO EXISTING AND NEW EQUIPMENT, AS INDICATED ON LAYOUT DRAWINGS.
5. CONTRACTOR TO FIELD VERIFY EXISTING INFORMATION PRIOR TO PERFORMING WORK AND DISCUSS WITH ENGINEER. FOR EQUIPMENT NOT AFFECTED BY UPGRADES, INFORMATION TO BE PROVIDED AS PART OF AS-BUILT CONDITIONS.
6. ALL CIRCUIT BREAKERS, SHUNT TRIPS MUST BE RATED FOR CONNECTED LOAD IN FULL LOAD AMPS, AS PER OESC 28-602. SEE DRAWING SPECIFICATIONS.
7. EXISTING POWER PANEL PP-A TO BE MODIFIED WITH NEW BREAKER TO SUPPLY POWER TO EXISTING GENERATOR PANEL. NEW BREAKER, CABLES AND CONDUIT IS BY OTHERS AND NOT PART OF THIS CONTRACT.



1 E-2 SINGLE LINE DIAGRAM 5
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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ENGINEER SEAL

LICENSED PROFESSIONAL ENGINEER
S. R. S. TAYLOR
100518503
07FEB'24
PROVINCE OF ONTARIO

WALKERS POINT COMMUNITY CENTER
TOWNSHIP OF MUSKOKA LAKES

TATHAM ENGINEERING

ELECTRICAL
SINGLE LINE DIAGRAM

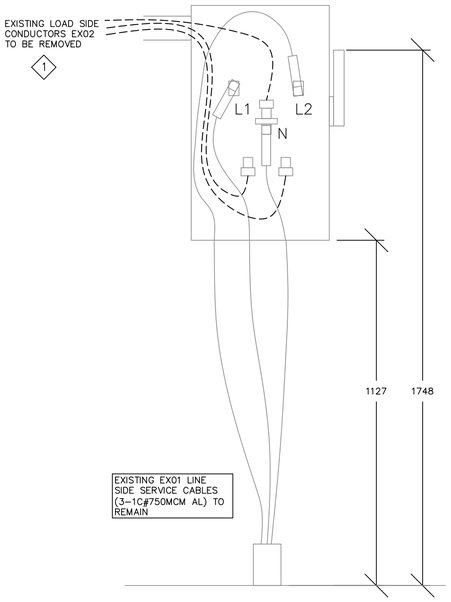
DESIGN: JES	FILE: 123244	DWG: E-2
DRAWN: JES	DATE: SEP 2023	
CHECK: SRT	SCALE: AS SHOWN	

Drawing Name: 123244 – E-1 to E-5.dwg, Plotted: Feb 07, 2024

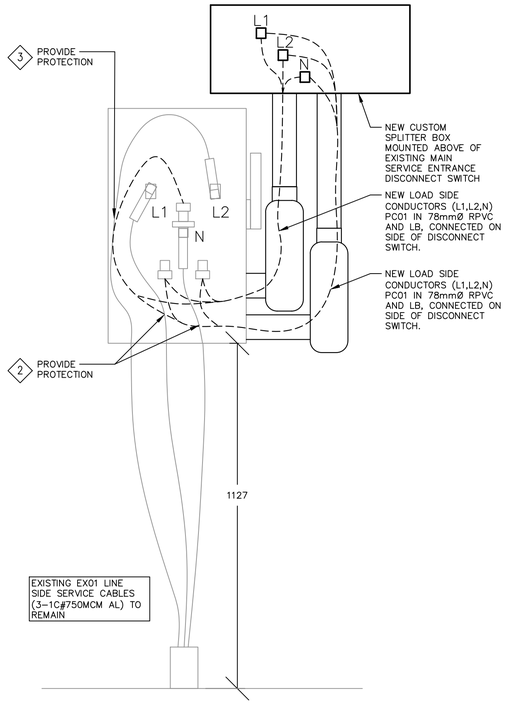
NOTES

1. EXISTING MAIN DISCONNECT SWITCH TO REMAIN, EXISTING LOAD SIDE WIRING TO BE REPLACED AND CONDITION IMPROVED TO COMPLY WITH RULE 6-212-3b OF OESC 28TH EDITION.
2. PROVIDE A PIECE OF PHYSICAL PROTECTION (SUCH AS FIBERBOARD OR ANOTHER PROTECTIVE INSULATED BARRIER) OVER LINE SIDE L1 AND NEUTRAL CONDUCTOR OF EX01, RATED FOR THE APPROPRIATE TEMPERATURES.
3. PROVIDE A PIECE OF PHYSICAL PROTECTION (SUCH AS FIBERBOARD OR ANOTHER PROTECTIVE INSULATED BARRIER) OVER LINE SIDE L1 AND L2 CONDUCTORS OF EX01, RATED FOR THE APPROPRIATE TEMPERATURES.

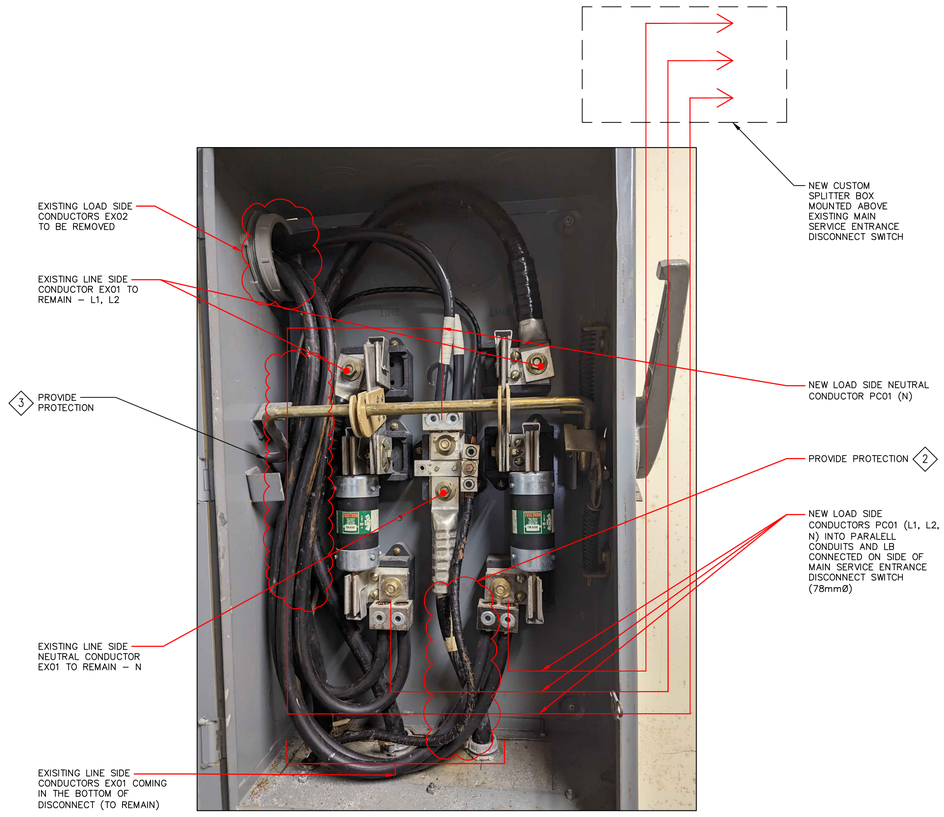
INSTALL LB, CONDUIT AND CUSTOM SPLITTER SUCH THAT THERE IS NO INTERFERENCE WITH OPERATION OF MAIN SERVICE ENTRANCE DISCONNECT SWITCH



EXISTING CONDITIONS



PROPOSED CONDITIONS



1 E-3 EXISTING MAIN DISCONNECT WIRING DETAIL

- SCALE 1:10
- DRAWING SHOWN IN mm

2 E-3 PROPOSED MAIN DISCONNECT WIRING DETAIL

- SCALE 1:10
- DRAWING SHOWN IN mm

3 E-3 SERVICE ENTRANCE DISCONNECT SWITCH – PICTURE 1

- NTS

NOTES

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07FEB'24
PROVINCE OF ONTARIO

WALKERS POINT COMMUNITY CENTER
TOWNSHIP OF MUSKOKA LAKES

ELECTRICAL
SERVICE ENTRANCE
DISCONNECT LAYOUT

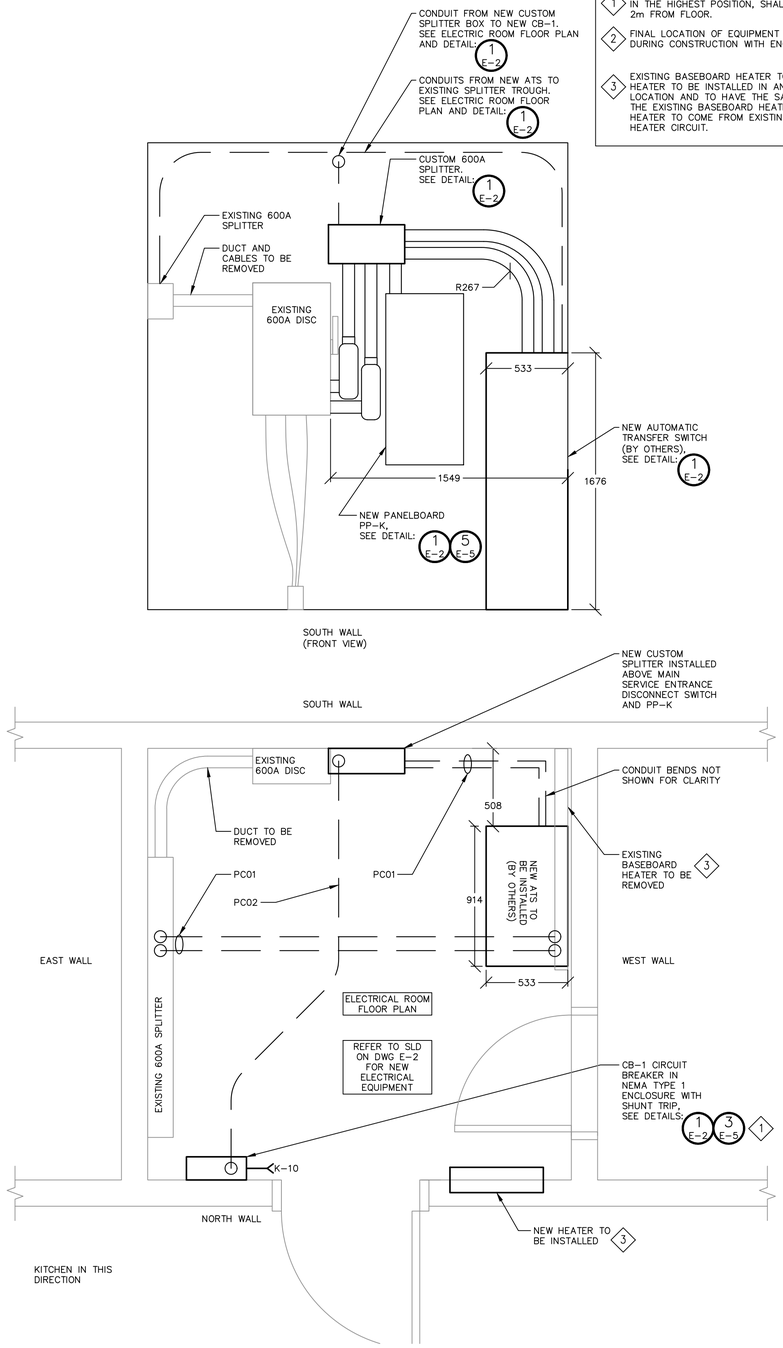
TATHAM ENGINEERING

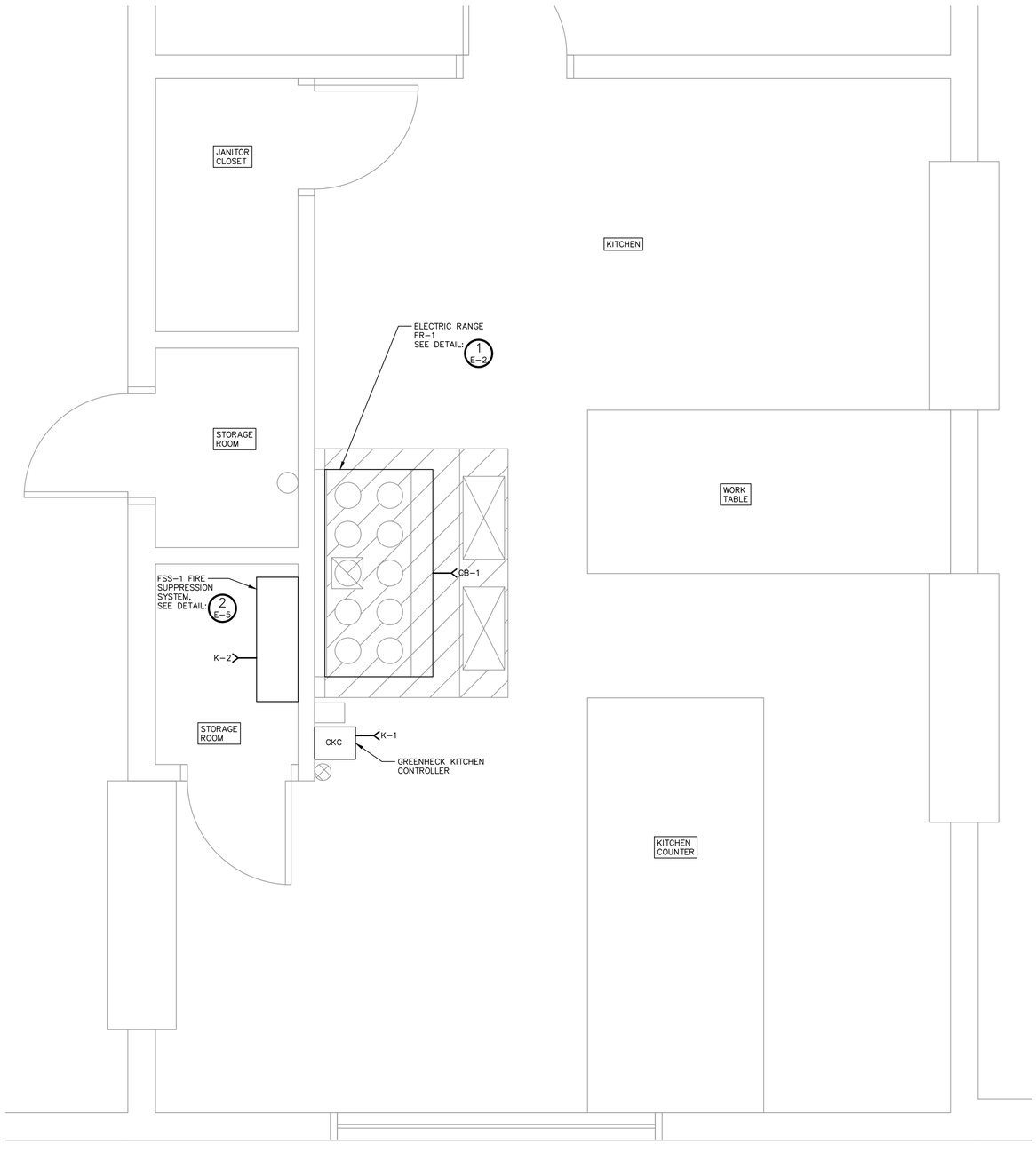
DESIGN: JES	FILE: 123244	DWG:	
DRAWN: JES	DATE: SEP 2023		E-3
CHECK: SRT	SCALE: AS SHOWN		

Drawing Name: 123244 – E-1 to E-5.dwg, Plotted: Feb 07, 2024

NOTES

1. OPERATING HANDLE OF THE CIRCUIT BREAKER, WHEN IN THE HIGHEST POSITION, SHALL NOT BE MORE THEN 2m FROM FLOOR.
2. FINAL LOCATION OF EQUIPMENT TO BE CONFIRMED DURING CONSTRUCTION WITH ENGINEER.
3. EXISTING BASEBOARD HEATER TO BE REMOVED. NEW HEATER TO BE INSTALLED IN AN ALTERNATE LOCATION AND TO HAVE THE SAME HEAT OUTPUT AS THE EXISTING BASEBOARD HEATER. POWER FOR NEW HEATER TO COME FROM EXISTING BASEBOARD HEATER CIRCUIT.





1 E-4 ELECTRICAL ROOM LAYOUT 2

- SCALE 1:20
- FOR ALTERNATE LAYOUT OF CB-1 AND PP-K, CONFIRM ARRANGEMENT WITH ENGINEER DURING CONSTRUCTION
- INSTALL ALL EQUIPMENT WITH 1m CLEARANCE IN FRONT OF EQUIPMENT AS PER OESC.

2 E-4 KITCHEN LAYOUT

- SCALE 1:20

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07FEB'24
PROVINCE OF ONTARIO

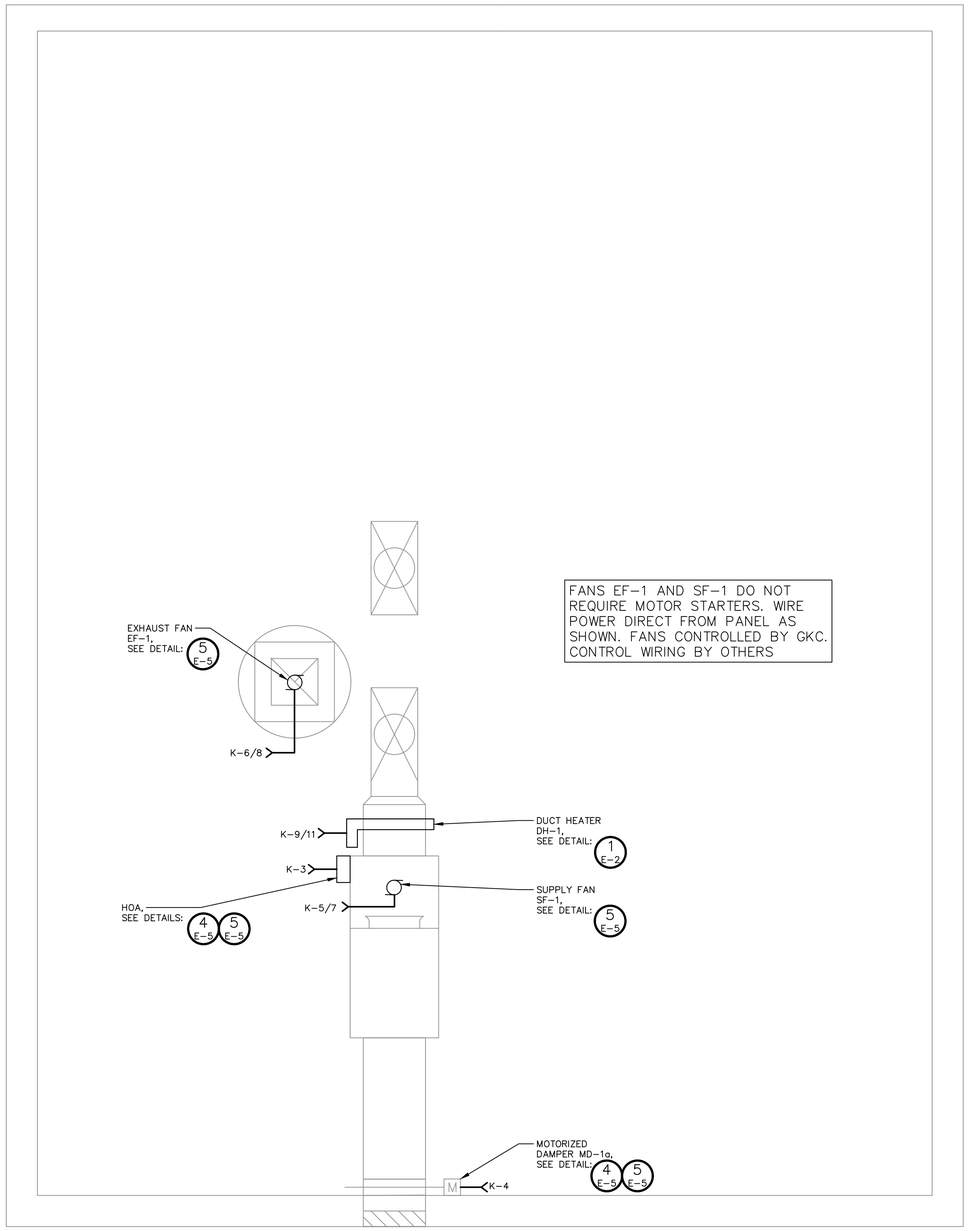
WALKERS POINT COMMUNITY CENTER
TOWNSHIP OF MUSKOKA LAKES

ELECTRICAL
BUILDING LAYOUT

TATHAM ENGINEERING

DESIGN: JES	FILE: 123244	DWG: E-4
DRAWN: JES	DATE: SEP 2023	
CHECK: SRT	SCALE: AS SHOWN	

Drawing Name: 123244 – E-1 to E-5.dwg, Plotted: Feb 07, 2024



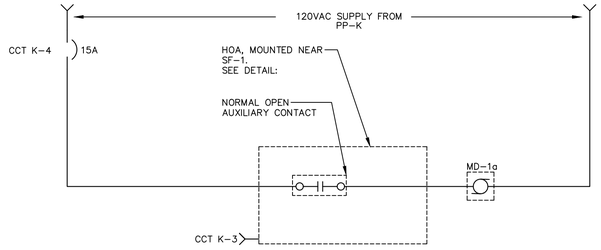
1 E-5 ATTIC LAYOUT

- SCALE 1:20

PANEL TAG NAME: 'PP-K'		120/240V, 1PH, 3W BUS: 225A, Cu, 22kAIC MB: 200A					MOUNTING: SURFACE LOCATION: ELECTRICAL ROOM	
LOAD-W	CIRCUIT DESCRIPTION	PROT.		CIRCUITS		PROT.	CIRCUIT DESCRIPTION	LOAD-W
	GKC KITCHEN CONTROLLER	15A	1	A	2	15A	FSS-1 FIRE SUPPRESSION SYSTEM	
	HOA	15A	3	B	4	15A	MOTORIZED DAMPER MD-1a	100
1,127	SUPPLY FAN SF-1	15A / 2P	5	A	6	15A / 2P	EXHAUST FAN EF-1	1,127
			7	B	8			
20,000	DUCT HEATER DH-1	110A / 2P	9	A	10	15A	SHUNT TRIP CIRCUIT	
			11	B	12	15A	SPARE	
	SPARE	15A	13	A	14	15A	SPARE	
	SPACE		15	B	16		SPACE	
	SPACE		17	B	18		SPACE	
	SPACE		19	A	20		SPACE	
	SPACE		21	A	22		SPACE	
	SPACE		23	B	24		SPACE	
	SPACE		25	A	26		SPACE	
	SPACE		27	B	28		SPACE	
	SPACE		29	A	30		SPACE	

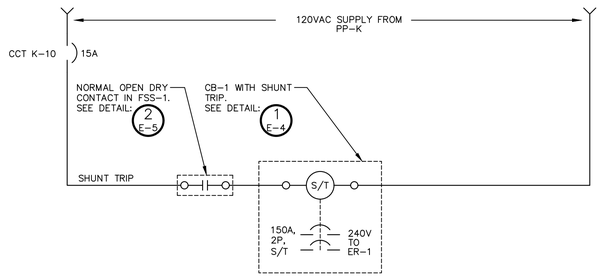
5 E-5 POWER PANEL PP-K

- NTS
- PANEL LOCATED LOCATED IN ELECTRICAL ROOM



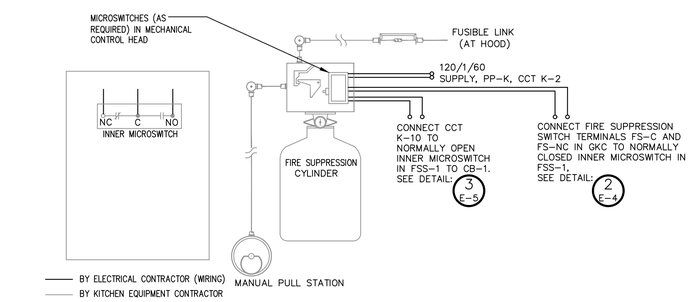
4 E-5 HOA CONTROL WIRING DIAGRAM

- NTS
- DIAGRAM FOR HOA DAMPER CONTROL
- OTHER CONTROL WIRING BY MECHANICAL CONTRACTOR



3 E-5 ST-1 SHUNT TRIP CONTROL WIRING DIAGRAM

- NTS
- DIAGRAM FOR SHUNT TRIP ST-1 TO DISCONNECT POWER TO ELECTRIC RANGE ER-1



2 E-5 FIRE SUPRESSION SYSTEM WIRING DIAGRAM

- NTS
- DIAGRAM FOR KITCHEN FSS-1 FIRE SUPPRESSION SYSTEM
- NOTE: WIRING SCHEMATIC IS REPRESENTED FOR INTENT ONLY. CONTRACTOR TO FOLLOW MANUFACTURERS SPECIFICATIONS AND PROVIDE SUFFICIENT SHUNT TRIP BREAKERS FOR ALL ELECTRICAL EQUIPMENT UNDER HOOD

NOTES

No.	REVISION DESCRIPTION	DATE
1	ISSUED FOR CLIENT REVIEW	FEB/24
2	ISSUED FOR TENDER	FEB/24

ENGINEER SEAL

LICENSED PROFESSIONAL ENGINEER
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100518503
07FEB'24
PROVINCE OF ONTARIO

WALKERS POINT COMMUNITY CENTER
TOWNSHIP OF MUSKOKA LAKES

ELECTRICAL
ATTIC LAYOUT AND WIRING DIAGRAMS

TATHAM ENGINEERING

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PART 1 – GENERAL

1.1 General

.1 In case of a discrepancy between statement(s) or value(s) in this section or contract drawing(s), the higher statement or value takes precedence and shall govern.

.2 "Local Inspector, Inspection Department or Authority" mean agents of any authority having jurisdiction over construction and safety standards associated with any part of electrical work on site, such as ESA for Ontario.

.3 "Power Supply Authority" or "LUC" means electrical local utility company responsible for delivery of electrical power to project site.

.4 "Electrical Code" or "OESC" means Ontario Electrical Safety Code C22.1 or code in force at project location, latest edition.

.5 "Indicated" means as shown on contract drawings or noted in contract documents.

.6 "Provide" means fabricate, supply, install, test and commission the electrical system and/or equipment.

.7 "Remove" or "Removed" means to disconnect, remove, and dispose of equipment, material or item.

1.2 Scope of Work

.1 Reconnect main service entrance disconnect switch as per contract drawings. Remove existing load side conductors as per contract drawings. Provide new load side conductors and reconnect existing service entrance disconnect as per contract drawings.

.2 Coordinate work with LUC to provide the required electrical service disconnect during work on the main service entrance switch.

.3 Provide new custom splitter box as per contract drawings.

.4 Provide new shunt trip circuit breaker for new electric range as per contract drawings.

.5 Provide new panelboard as per contract drawings.

.6 Provide control wiring with kitchen controller and fire suppression system as per contract drawings.

.7 Site Acceptance Testing (SAT) Assistance: When system is ready for service, provide assistance with operating instructions and start-up procedures during scheduled commissioning. Provide all necessary assistance to place the equipment into normal operating modes and train the Township operators.

.8 Coordinate construction schedule with the Township prior to commencing work.

.9 Conduit systems, as indicated, complete with wiring and terminations.

.10 All conduit, fittings, outlets, field terminations, field wiring and cable as required, to provide a complete operating system.

.11 Include all necessary mounting hardware, channel supports and fasteners to provide a complete operating system.

.12 ESA Inspections throughout project construction stages as required. Final inspection certificate will be required for Substantial Performance.

1.3 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.

1.4 Permits, Fees and Inspection

.1 Provide all licenses, permits and certificates required by the LUC at no additional expense.

.2 Arrange and pay for all required inspection(s), including but not limited to the Electrical Safety Authority.

.3 Upon completion of the Work, provide the Township with final, unconditional certificates of approval by the local inspection authorities.

1.5 Examination of the Site and Contract Documents

.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.

1.6 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 all equipment shown in the drawings reviewed by the Township before proceeding with the installation. Inform the Township of significant changes in location of equipment to meet field conditions and receive their authorization before proceeding. Obtain from the Township the location of equipment not definitely located in the drawings.

.3 Locations of all material 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 Township 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 control wiring. Provide the correct wire size and quantity as required by the indicated circuitry and control diagrams.

1.7 Submissions

.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 Custom splitter box.
- .2 Circuit breaker with shunt trip and enclosure.
- .3 Panelboard and breakers.

.2 Product data sheets shall include the name of the manufacturer and be clearly marked to show which items, features and options are offered.

.3 Shop drawings that are not presented as required will be returned for revision and resubmission.

.4 Submittal Procedure:
- .1 The Contractor shall submit digital copies in PDF format to the Owner and Engineer via email. All drawings are to be submitted electronically in pdf format.
- .2 The drawings will be returned to the Contractor stamped and marked "Conforms with Intended Design", "Conforms with Intended Design with Revisions Noted", or "Non-Conforming – Revise and Resubmit".
- .3 When drawings are returned "Non-Conforming – Revise and Resubmit", make the necessary alterations and resubmit.
- .4 When drawings are returned "Conforms with Intended Design with Revisions Noted", the drawings may be used to execute the work in compliance with the Contract Documents. No other alterations are to be made to the drawings by the Contractor subsequent to receipt of drawings stamped and marked as above. If further changes are made in addition to the Engineer's notations, then the drawings must be resubmitted for further review.

- .5 When drawings are returned "Conforms with Intended Design", the Contractor shall be responsible for distribution of additional copies of Shop Drawings as necessary and as requested by the Engineer..

.5 The review of shop drawings by the Township or Engineer does not relieve the Contractor of their responsibilities for compliance with the Contract Documents.

.6 At end of project, provide PDF copy of the Operating and Maintenance Manuals of all equipment, including copies of shop drawings and all test results.

1.8 Construction Record Drawings

.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 Township's review at site.

.3 Upon completion of the work, transfer all revisions to a clean set of prints and submit to Consultant for "As-Built" record as part of the final job documentation.

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 Warranty

.1 All material to warrantied for material and labour for one (1) year upon substantial completion.

PART 2 – PRODUCTS

2.1 Basic Materials

.1 Provide all necessary mounting brackets, hangars, etc., as required for installation.

.2 Upon delivery of equipment on site and quantities accounted for, the contractor will assume liability for damaged, lost, stolen, etc..

.3 Contractor is responsible for all labour and material costs during the for equipment failures during the warranty period.

2.2 Circuit Breaker with Shunt Trip

.1 Indoor, NEMA Type 1 enclosure.

.2 H-Frame 150A, 2 pole, 600VAC, 25kAIC at 240V, lugs, thermal magnetic, 80% with Shunt Trip Circuit Breaker Accessory, 110VAC to 130VAC.

.3 General arrangement of circuit breaker with shunt trip as indicated on electrical contract drawings. Accommodate shunt trip control wiring as indicated.

.4 Provide all necessary warning signs as required by local inspection authorities.

.5 Acceptable Enclosure: H150S

.6 Acceptable Circuit Breaker: HDL26150.

.7 Acceptable Shunt Trip Circuit Breaker Accessory: S29386.

.8 Acceptable manufacturer: Square D/Schneider Electric.

2.3 Power Panelboard

.1 Indoor, NEMA Type 1 enclosure

.2 Acceptable manufacturers: Square D/Schneider Electric

.3 Designed for as indicated c/w main breaker rated 22kAIC. Main and feeder breakers must be series rated for 22kAIC.

.4 Panelboard: bus and feeder breakers rated for 10,000 A (symmetrical) interrupting cap or as indicated.

.5 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.

.6 Panelboards: voltage mains, number of circuits, and number and size of branch circuit breakers as indicated.

.7 Copper buses with neutral of same ampere rating as mains, and Copper ground bar.

.8 Mains: suitable for bolt on breakers.

.9 Base panelboards on CSA C22.2 No. 29 – specification.

.10 Acceptable Products: NQ Circuit Breaker Panel with front NC44S and box MH44

.11 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 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.
- .7 Acceptable Products: QOB-VH.

2.4 Custom Splitter Box

.1 Indoor, NEMA Type 1 enclosure.

.2 600A, 600VAC, 1 phase, 3 Wire, complete with grounding kit.

.3 Order custom size to suit number of terminations and field conditions as per contract drawings or find acceptable standard size splitter.

.4 Acceptable Manufacturers: Hammond Manufacturing.

2.5 Low Voltage Wire (1000V and Below)

.1 Conductors: stranded Copper conductors, with minimum power conductor size: No. 12 AWG, minimum control conductor size: No. 14 AWG.

.2 Power conductors: size as indicated, with cross linked polyethylene (XLPE) insulation rated 1000 V – RW90 or RWU90, as indicated.

.3 Provide Sunlight Resistant ("SR" type) insulated conductors where exposed to weather.

.4 Control conductors: RW90, XLPE insulation rated 600V – RW90.

.5 Control wiring: copper with thermoplastic insulation type TEW rated at 600V.

2.6 Conduits and Ducts

.1 Minimum above grade conduit size: 21mm (3/4"), and minimum below grade conduit size: 27mm (1").

.2 Rigid PVC conduit, manufactured to schedule 40 wall thickness. Solvent weld compound for all PVC joints. Complies with CSA C22.2 No. 211.2-06. All conduit to be UV rated.

.3 Fittings: manufactured for use with conduit specified. Coating and UV rating: same as conduit. Fittings to incorporate nylon insulated throat or bushing.

.4 Factory "ells" where 90° bends. Use "large or utility" sweeping bends to reduce pulling cable tensions.

2.7 Miscellaneous Equipment

.1 Wire markers: computer printed, black letters on white background, self-laminating – vinyl markers, number of markers as required.

.2 Cable markers for cables or conductors greater than 13 mm diameter: strap-on type, rigid PVC, black letters on white background, with PVC covered aluminium straps.

.3 Terminal blocks: minimum 600 V rated, modular, sized to accommodate conductor size used.

.4 Where screw-type terminals are provided on equipment field wiring: terminate with pressure-type insulated copper fork tongue terminals.

.5 Splice connectors for wire sizes Nos. 12-10 AWG inclusive: compression spring type.

.6 Splice connectors for wire sizes No. 8 AWG and larger: split-bolt type, sized to suit number and size of conductors, c/w flame retardant foot-type insulator.

.7 Cable ties shall be nylon, one-piece, self-locking type.

PART 3 – EXECUTION

3.1 Installation Requirements

.1 Rewire main service entrance disconnect as indicated, including removal of existing load side conductors.

.2 Install custom splitter box, circuit breaker with shunt trip, and power panelboard as indicated.

.3 Make power and control connections as indicated.

.4 Make grounding connections between equipment ground busses and system grounding system.

.5 Connect loads to circuits. Perform a "load balance" check after all loads are connected.

.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 typed directory for the new panelboard.

.9 Check all factory-made connections for mechanical security, electrical continuity and current phasing.

.10 Provide a Lamicoid nameplate on new circuit breaker and new power panelboard. Lamicoid: 3mm thick plastic engraving sheet, black face, white core, with double-sided adhesive tape.

3.2 Conduits and Wiring

.1 Install all wire and cable according to the drawings, with a minimum power conductor size of No. 12 AWG and minimum control conductor size of No. 14 AWG.

.2 No splices shall be permitted in cable or wiring runs, and shall only be permitted in junction boxes.

.3 Identify each conductor by plastic slip-on markers at each termination with circuit or wire number.

.4 Use CSA approved lubricants of type compatible with cable jacket to reduce pulling tension.

3.3 Testing and Commissioning

.1 Provide testing and commissioning of all electrical work and control systems.

.2 Notify the Township at least three working days before the testing and commissioning is scheduled to start. The Township may request repetition of any test for which due notification was not received.

.3 Provide insulation test using 500V megger on all new power cables.

END OF SPECIFICATIONS

NOTES

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ENGINEER SEAL

LICENSED PROFESSIONAL ENGINEER
S. R. S. TAYLOR
100518503
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PROVINCE OF ONTARIO

WALKERS POINT COMMUNITY CENTER
TOWNSHIP OF MUSKOKA LAKES

TATHAM ENGINEERING

ELECTRICAL
ELECTRICAL SPECIFICATIONS

DESIGN: JES	FILE: 123244	DWG: E-6
DRAWN: JES	DATE: SEP 2023	
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