

March 16, 2023

TO ALL TENDERERS

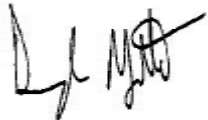
**MUNICIPALITY OF THE COUNTY OF ANTIGONISH – NET ZERO BUILDINGS –  
HEAT PUMP UPGRADES 22-82-B**

We attach herewith a copy of Addendum No. 1 to the tender documents. Please take note of the contents and amend your copy of the documents accordingly.

General Contractors are responsible for ensuring that all sub contractors are provided with a copy of the addendum.

Please acknowledge receipt of this information accordingly on page 1 of the Tender Form.

Very truly your,  
Strait Engineering Limited



Darryl Myette, P. Eng, PMP

Atch.  
Addendum No. 1 (1 Page)  
Drawings (8 pages)  
ATTACHMENT A – Bid Form Rev 1 (1 page)

**Addendum No. 1**  
**Municipality of the County of Antigonish**  
**Net Zero Buildings – Heat Pump Upgrades**  
**Project No. 22-82-B**

**March 16, 2023**

1. Please see attached revised drawings which include additional heat pumps for Heatherton Community Center. Also attached is the revised bid form to include Heatherton Community Center.

# MUNICIPALITY OF THE COUNTY OF ANTIGONISH

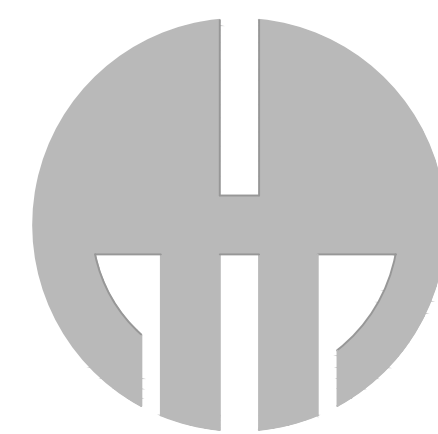
PROJECT TITLE:  
NET ZERO COMMUNITY BUILDINGS PROJECT

DRAWING PACKAGE #02:  
HEAT PUMP UPGRADES

CONSULTANT PROJECT No: 2022-3236  
DEPARTMENT PROJECT No: 22-82  
DATE: 13-MAR-2023

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PORT HAWKESBURY, NOVA SCOTIA

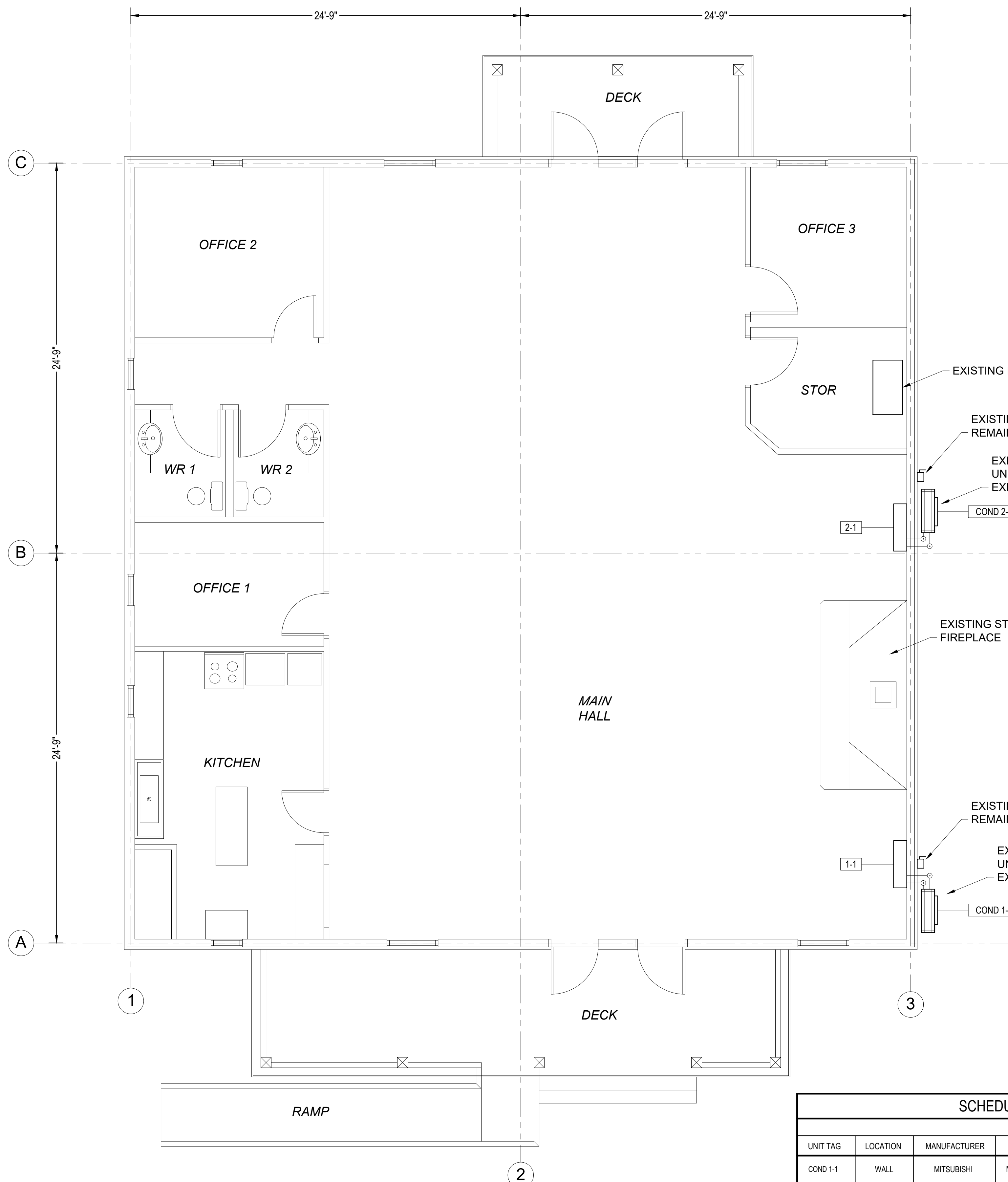


**A.H. Roy**  
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## LIST OF DRAWINGS

### Mechanical - Heat Pumps Package

M-101	KEPPOCH MOUNTAIN LODGE HEAT PUMP PLAN
M-102	HIGHLANDER CURLING CLUB HEAT PUMP PLAN
M-103	St. JOSEPHS COMMUNITY CENTRE HEAT PUMP PLAN
M-104	ARISAG PARISH HALL HEAT PUMP PLAN
M-105	HEATHERTON COMMUNITY CENTRE HEAT PUMP PLAN
M-106	MECHANICAL DETAILS & SPECIFICATIONS
E-101	ELECTRICAL DETAILS & SPECIFICATIONS



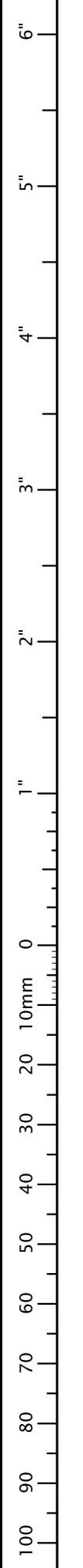
**KEPPOCH LODGE - SCOPE OF WORK:**

- 1) REMOVE & DISPOSE OF (OFF SITE) THE TWO EXISTING HEAT PUMPS (EVAPORATOR & CONDENSER) ALONG WITH EXISTING TUBING, JACKETS, COVERING/CAPPING, & INSULATION. REMOVE AND DISPOSE OF EXISTING WIRE FROM CONDENSER TO DISCONNECT. BALANCE OF ELECTRICAL FEED TO REMAIN.
- 2) SUPPLY & INSTALL 2 x NEW MINI-SPLIT HEAT PUMPS AS PER EQUIPMENT SCHEDULE. RE-USE EXISTING ELECTRICAL DISCONNECTS & PROVIDE NEW 3C #12 & #12 BOND IN Ø3/4" PVC CONDUIT OR LT FLEX TO NEW CONDENSERS & INDOOR UNITS.
- 3) SUPPLY & INSTALL TWO (2) NEW WALL MOUNTED CONTROLLERS, ONE FOR EACH MINI-SPLIT HEAT PUMP SYSTEM. CONTROLS TO BE BATTERY POWERED, PROGRAMMABLE (EITHER 5/2 DAY OR 7 DAY). LOCATIONS AS RECOMMENDED BY MANUFACTURER.
- 4) SEE DWG'S M-106 & E-101 FOR FURTHER SPECIFICATIONS, DETAILS, AND REQUIREMENTS.

SCHEDULE No.1/M-101				SCHEDULE OF CONDENSERS								REMARKS
UNIT TAG	LOCATION	MANUFACTURER	MODEL	REFRIGERANT PIPING		ELECTRICAL		COOLING	HEATING	SOUND		
				LIQUID (OD)	GAS (OD)	MIN. AMPS. (MCA)	FUSE SIZE				VOLT	MBH
COND 1-1	WALL	DAIKIN	QUZ-GL18NAH-U1	1/4	1/2	14	20	240/160	18	21.6	54 - 55	-
COND 2-1	WALL	DAIKIN	QUZ-GL18NAH-U1	1/4	1/2	14	20	240/160	18	21.6	54 - 55	-

SCHEDULE No.2/M-101				SCHEDULE OF EVAPORATORS								REMARKS		
UNIT TAG	LOCATION	MANUFACTURER	MODEL	AIR FLOW		ELECTRICAL		COOLING	HEATING	SOUND	REFRIGERANT			
				CFM	ESP	MIN. AMPS.	VOLT				LIQUID	GAS (OD)	DRAIN	
1-1	MAIN HALL	DAIKIN	MSZ-GL18NA	233 - 646	-	1	240/160	18	21.6	28 - 49	1/4	1/2	5/8	C/W WIRELESS CONTROLLER MODEL MFK1. HSPF TO BE 10.0 OR HIGHER.
2-1	MAIN HALL	DAIKIN	MSZ-GL18NA	233 - 646	-	1	240/160	18	21.6	28 - 49	1/4	1/2	5/8	C/W WIRELESS CONTROLLER MODEL MFK1. HSPF TO BE 10.0 OR HIGHER.

**1**  
M-101  
KEPPOCH LODGE HEAT PUMP PLAN  
SCALE: 1/4" = 1'



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REVISION	DESCRIPTION	DATE
2	RE-ISSUED FOR TENDER	2023-03-13
1	ISSUED FOR TENDER	2023-03-08

**A** A - Detail No.  
**B** B - Drawing No.

PROJECT  
**NET ZERO COMMUNITY BUILDINGS - HEAT PUMP PACKAGE**

LOCATION  
Various

**KEPPOCH MOUNTAIN LODGE HEAT PUMP PLAN**

SCALE AS NOTED DATE MAR 2023

DRAWN BY V.H. CHECKED D.D. / N.v.R. REVIEWED D.D. / N.v.R.

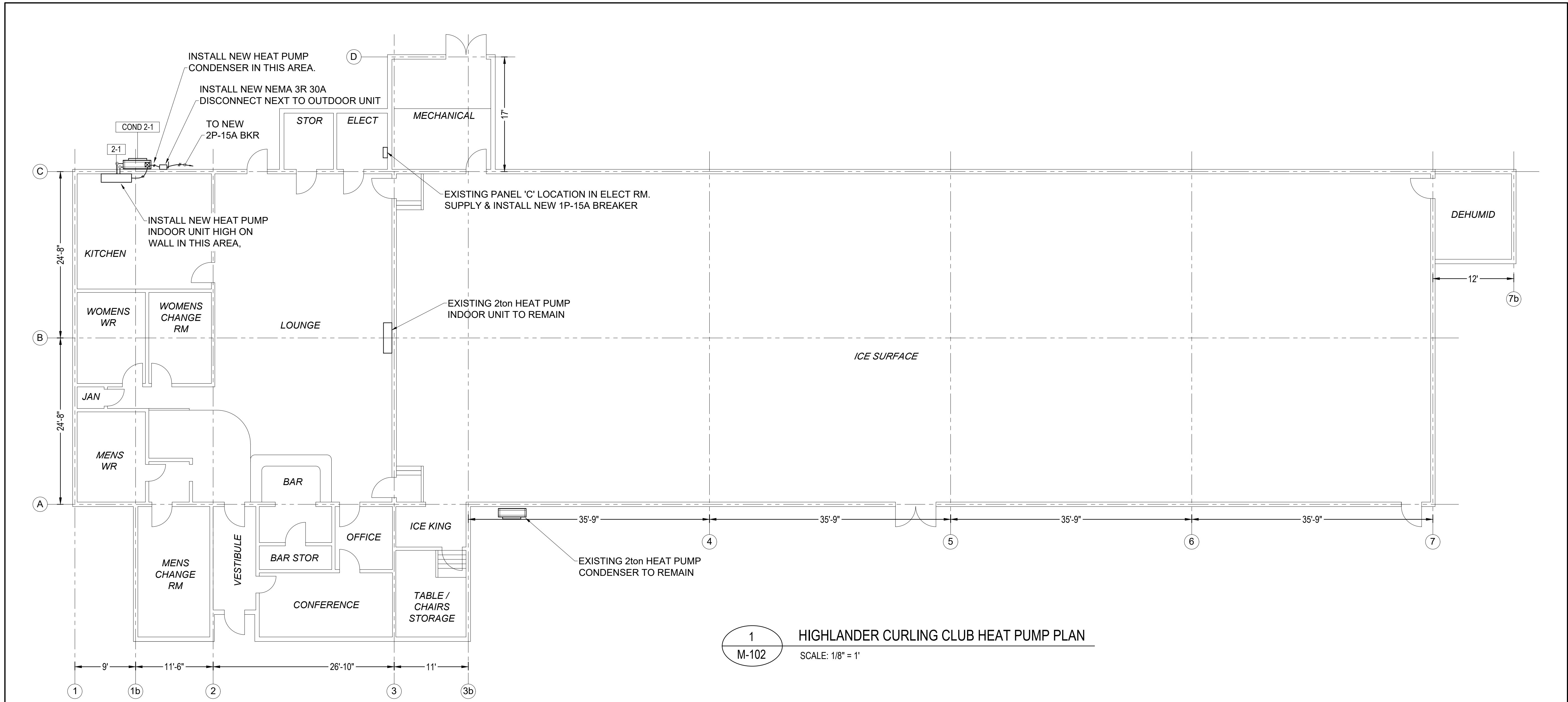
APPROVED DEPT. APPROVAL

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DEPT. JOB NO. DRAWING NO.

CONSULTANT'S NO. 2022-3236

TENDER NO. **M-101R2**



1 HIGHLANDER CURLING CLUB HEAT PUMP PLAN  
SCALE: 1/8" = 1'

HIGHLANDER CURLING CLUB - SCOPE OF WORK:

- 1) SUPPLY & INSTALL A NEW MINI-SPLIT HEAT PUMP SYSTEM FOR THE KITCHEN AS PER EQUIPMENT SCHEDULE.
- 2) PROVIDE NEW 2P-15A BREAKER IN PNL 'C'
- 3) FIELD ROUTE NEW FEEDERS AS INDICATED BELOW:
  - 3ja. 3C #12 & #12 BOND IN Ø3/4" PVC CONDUIT TO NEW NEMA 3R 30A RATED DISCONNECT NEXT TO OUTDOOR UNIT.
  - 3jb. 3C #12 & #12 BOND IN Ø3/4" LT FLEX FROM DISCONNECT TO OUTDOOR UNIT
  - 3jc. 3C #12 & #12 BOND IN Ø3/4" PVC CONDUIT AND/OR LT FLEX FROM OUTDOOR UNIT TO INDOOR UNIT.
- 4) ROUTE INDOOR UNIT CONDENSATE DRAIN DOWN EXT WALL & CONCEAL WITHIN LINESET COVER.
- 5) SUPPLY & INSTALL ONE (1) NEW WALL MOUNTED CONTROLLER, ONE FOR MINI-SPLIT HEAT PUMP SYSTEM. CONTROL TO BE BATTERY POWERED, PROGRAMMABLE (EITHER 5/2 DAY OR 7 DAY), LOCATION AS RECOMMENDED BY MANUFACTURER.
- 6) SEE DWG'S M-106 & E-101 FOR FURTHER SPECIFICATIONS, DETAILS, AND REQUIREMENTS.

SCHEDULE No.1/M-102				SCHEDULE OF CONDENSERS								REMARKS
UNIT TAG	LOCATION	MANUFACTURER	MODEL	REFRIGERANT PIPING		ELECTRICAL			COOLING	HEATING	SOUND	
				LIQUID (OD)	GAS (OD)	MIN. AMPS. (MCA)	FUSE SIZE	VOLT	MBH	MBH	dB(A)	
COND 2-1	WALL	DAIKIN	MUZ-GL09NAH	1/4	3/8	9	15	208/1160	9	10.9	48-50	-

SCHEDULE No.2/M-102				SCHEDULE OF EVAPORATORS								REMARKS			
UNIT TAG	LOCATION	MANUFACTURER	MODEL	AIR FLOW		ELECTRICAL		COOLING	HEATING	SOUND	REFRIGERANT				
				CFM	ESP	MIN. AMPS.	VOLT	MBH	MBH	dB(A)	LIQUID		GAS (OD)	DRAIN	
2-1	KITCHEN	DAIKIN	MSZ-GL09NA	109	406	-	1	208/1160	9	10.9	19-43	1/4	3/8	5/8	C/W WIRELESS CONTROLLER MODEL MHK1. HSPF TO BE 11.0 OR HIGHER.

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**NET ZERO COMMUNITY BUILDINGS - HEAT PUMP PACKAGE**

LOCATION  
Various

DRAWING  
**HIGHLANDER CURLING CLUB HEAT PUMP PLAN**

SCALE AS NOTED DATE MAR 2023

DRAWN BY V.H. CHECKED D.D. / N.v.R. REVIEWED D.D. / N.v.R.

APPROVED DEPT. APPROVAL

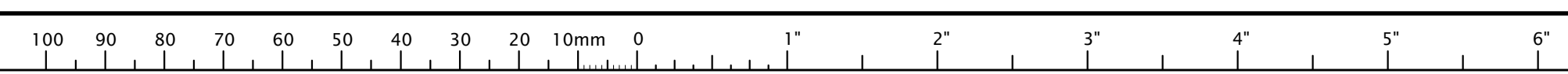
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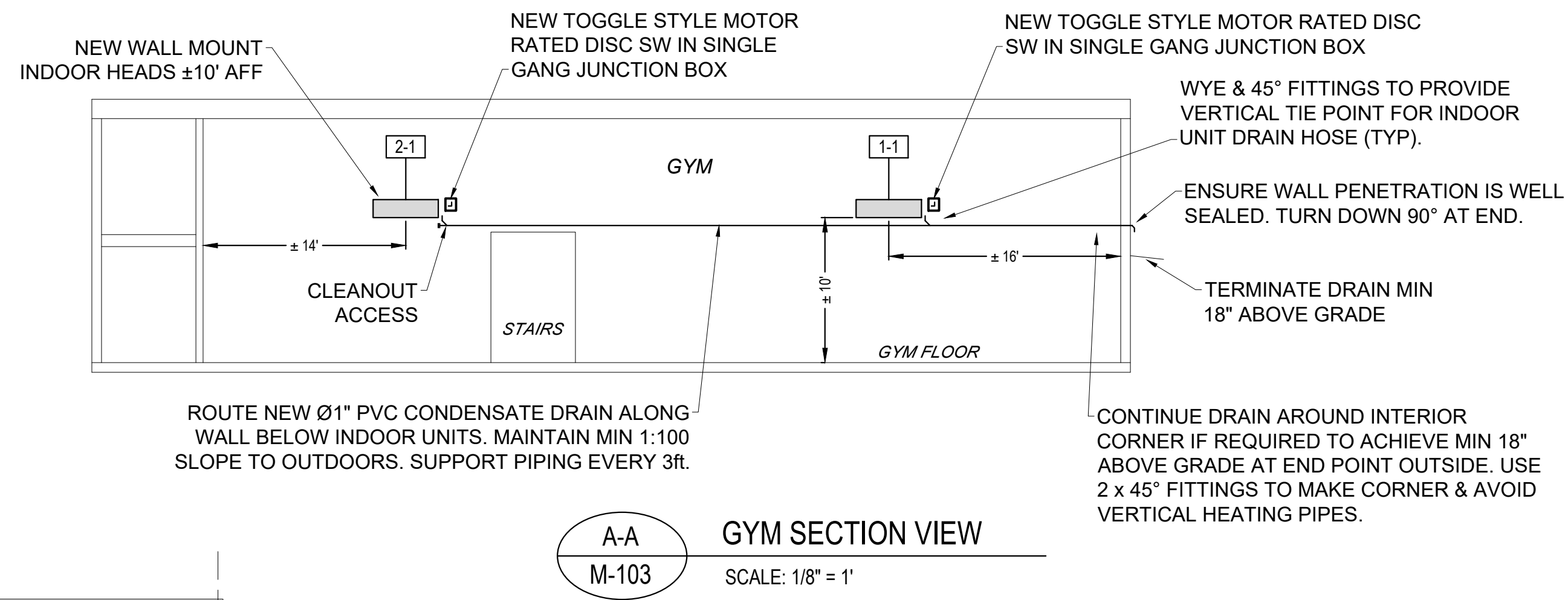
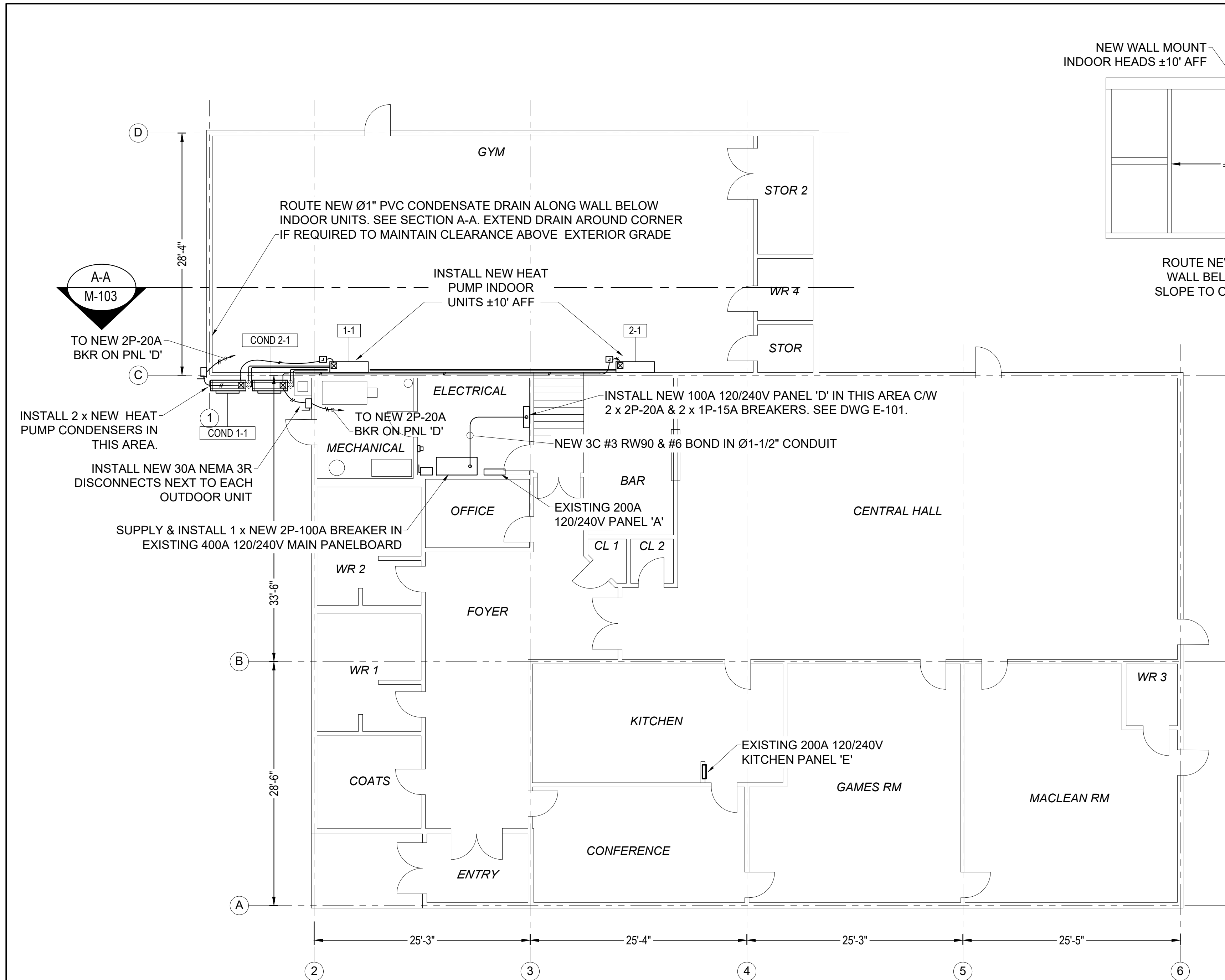
DEPT. JOB No. DRAWING NO.

CONSULTANT'S NO. 2022-3236

TENDER NO. M-102R2

SHEET 36 OF 24





A-A GYM SECTION VIEW  
SCALE: 1/8" = 1'

1 St. JOSEPHS COMMUNITY CENTRE HEAT PUMP PLAN  
M-103 SCALE: 1/8" = 1'

ST. JOSEPHS COMMUNITY CENTRE - SCOPE OF WORK:

- 1) SUPPLY & INSTALL 2 x NEW MINI-SPLIT HEAT PUMP SYSTEMS FOR THE GYM AS PER EQUIPMENT SCHEDULE.
- 2) SUPPLY & INSTALL NEW 100A 120/240V 1Ø PANEL 'D' IN ELECTRICAL ROOM C/W NEW 100A BREAKER IN MAIN PANELBOARD.
- 3) FIELD ROUTE NEW FEEDERS AS INDICATED BELOW:
  - 3)a. 3C #12 & #12 BOND IN Ø3/4" PVC CONDUIT TO NEW NEMA 3R 30A RATED DISCONNECTS NEXT TO OUTDOOR UNITS.
  - 3)b. 3C #12 & #12 BOND IN Ø3/4" LT FLEX FROM DISCONNECTS TO OUTDOOR UNITS.
  - 3)c. 3C #12 & #12 BOND IN Ø3/4" PVC CONDUIT AND/OR LT FLEX FROM OUTDOOR UNITS TO INDOOR UNITS.
- 4) SUPPLY & INSTALL TWO (2) NEW WALL MOUNTED CONTROLLERS, ONE FOR EACH MINI-SPLIT HEAT PUMP SYSTEM. CONTROLS TO BE BATTERY POWERED, PROGRAMMABLE (EITHER 5/2 DAY OR 7 DAY). LOCATIONS AS RECOMMENDED BY MANUFACTURER.
- 5) SEE DWG's M-106 & E-101 FOR FURTHER SPECIFICATIONS, DETAILS, AND REQUIREMENTS.

SCHEDULE No.1/M-103				SCHEDULE OF CONDENSERS								
UNIT TAG	LOCATION	MANUFACTURER	MODEL	REFRIGERANT PIPING		ELECTRICAL			COOLING MBH	HEATING MBH	SOUND dB(A)	REMARKS
				LIQUID (OD)	GAS (OD)	MIN. AMPS. (MCA)	FUSE SIZE	VOLT				
COND 1-1	WALL	DAIKIN	MUZ-GL18NAH-U1	1/4	1/2	14	20	240/160	18	21.6	54 - 55	-
COND 2-1	WALL	DAIKIN	MUZ-GL18NAH-U1	1/4	1/2	14	20	240/160	18	21.6	54 - 55	-

SCHEDULE No.2/M-103				SCHEDULE OF EVAPORATORS											
UNIT TAG	LOCATION	MANUFACTURER	MODEL	AIR FLOW		ELECTRICAL			COOLING MBH	HEATING MBH	SOUND dB(A)	REFRIGERANT			REMARKS
				CFM	ESP	MIN. AMPS.	VOLT	LIQUID				GAS (OD)	DRAIN		
1-1	GYM	DAIKIN	MSZ-GL18NA	233 - 646	-	1	240/160	18	21.6	28 - 49	1/4	1/2	5/8	CW WIRELESS CONTROLLER MODEL MHK1. HSPF TO BE 10.0 OR HIGHER.	
2-1	GYM	DAIKIN	MSZ-GL18NA	233 - 646	-	1	240/160	18	21.6	28 - 49	1/4	1/2	5/8	CW WIRELESS CONTROLLER MODEL MHK1. HSPF TO BE 10.0 OR HIGHER.	

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B - Drawing No.

PROJECT  
**NET ZERO COMMUNITY BUILDINGS - HEAT PUMP PACKAGE**

LOCATION  
Various

DRAWING  
**ST. JOSEPHS COMMUNITY CENTRE HEAT PUMP PLAN**

SCALE AS NOTED	DATE MAR 2023
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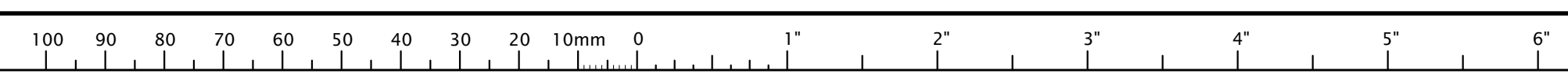
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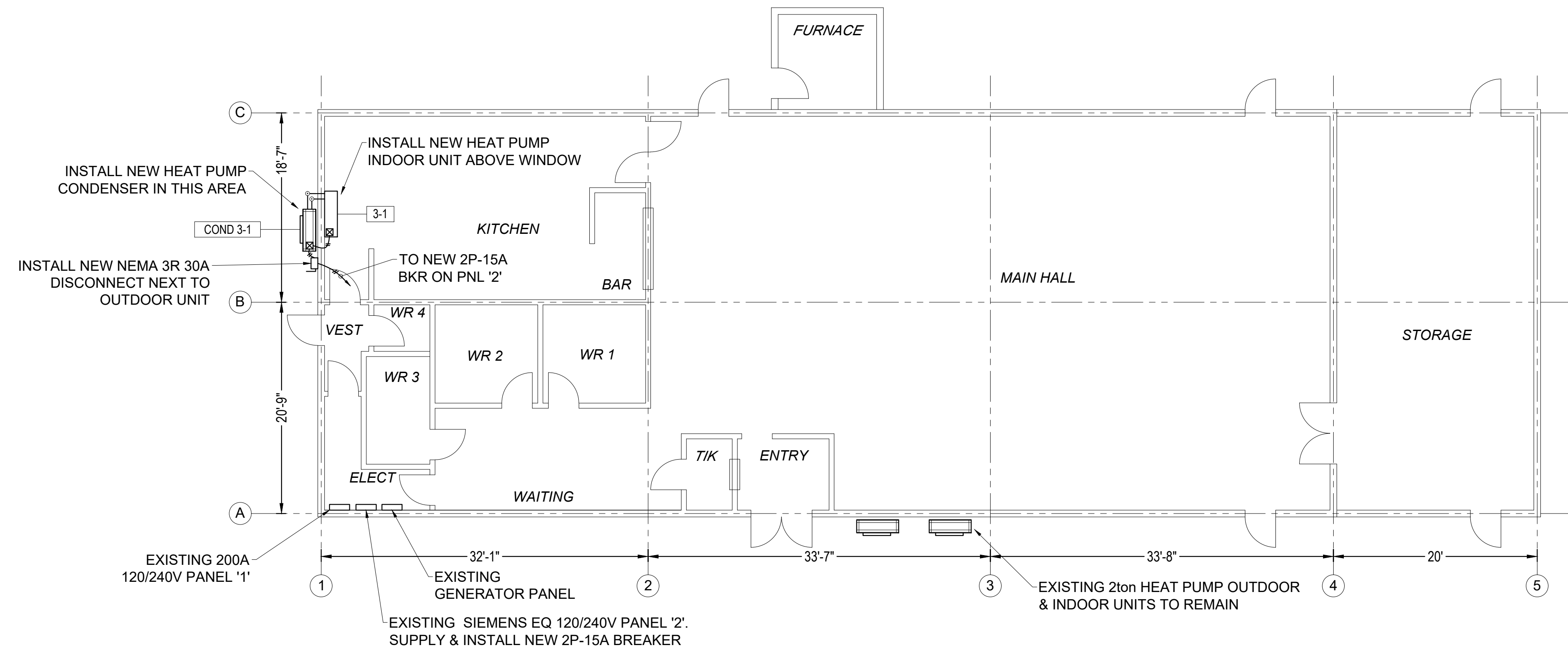
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CONSULTANT'S NO. 2022-3236	M-103R2
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TENDER NO.
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**1**  
**M-104**      **ARISAG PARISH HALL HEAT PUMP PLAN**  
SCALE: 1/8" = 1'

**ARISAG PARISH HALL - SCOPE OF WORK:**

- 1) SUPPLY & INSTALL A NEW MINI-SPLIT HEAT PUMP SYSTEM FOR THE KITCHEN AS PER EQUIPMENT SCHEDULE.
- 2) PROVIDE NEW 2P-15A BREAKER IN PNL '2'.
- 3) FIELD ROUTE NEW FEEDERS AS INDICATED BELOW:
  - 3)a. 3C #12 & #12 BOND IN Ø3/4" PVC CONDUIT TO NEW NEMA 3R 30A RATED DISCONNECT NEXT TO OUTDOOR UNIT.
  - 3)b. 3C #12 & #12 BOND IN Ø3/4" LT FLEX FROM DISCONNECT TO OUTDOOR UNIT
  - 3)c. 3C #12 & #12 BOND IN Ø3/4" PVC CONDUIT AND/OR LT FLEX FROM OUTDOOR UNIT TO INDOOR UNIT.
- 4) ROUTE INDOOR UNIT CONDENSATE DRAIN DOWN EXT WALL & CONCEAL WITHIN LINESET COVER.
- 5) SUPPLY & INSTALL ONE (1) NEW WALL MOUNTED CONTROLLER, ONE FOR MINI-SPLIT HEAT PUMP SYSTEM. CONTROL TO BE BATTERY POWERED, PROGRAMMABLE (EITHER 5/2 DAY OR 7 DAY). LOCATION AS RECOMMENDED BY MANUFACTURER.
- 6) SEE DWG'S M-106 & E-101 FOR FURTHER SPECIFICATIONS, DETAILS, AND REQUIREMENTS.

SCHEDULE No.1/M-104				SCHEDULE OF CONDENSERS								
UNIT TAG	LOCATION	MANUFACTURER	MODEL	REFRIGERANT PIPING		ELECTRICAL			COOLING MBH	HEATING MBH	SOUND dB(A)	REMARKS
				LIQUID (OD)	GAS (OD)	MIN. AMPS. (MCA)	FUSE SIZE	VOLT				
COND 3-1	WALL	mitsubishi	MUZ-GL09NAH	1/4	3/8	9	15	240/160	9	10.9	48-50	-

SCHEDULE No.2/M-104				SCHEDULE OF EVAPORATORS											
UNIT TAG	LOCATION	MANUFACTURER	MODEL	AIR FLOW		ELECTRICAL			COOLING MBH	HEATING MBH	SOUND dB(A)	REFRIGERANT			REMARKS
				CFM	ESP	MIN. AMPS.	VOLT	LIQUID				GAS (OD)	DRAIN		
3-1	KITCHEN	MITSUBISHI	MSZ-GL09NA	109	406	-	1	240/160	9	10.9	19-43	1/4	3/8	5/8	CW WIRELESS CONTROLLER MODEL Mhk1. HSPF TO BE 11.0 OR HIGHER.



2	RE-ISSUED FOR TENDER	2023-03-13
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<b>A</b>	A - Detail No.
<b>B</b>	B - Drawing No.

PROJECT  
**NET ZERO COMMUNITY BUILDINGS - HEAT PUMP PACKAGE**

LOCATION  
Various

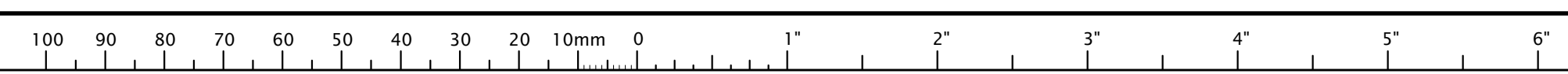
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**ARISAG PARISH HALL HEAT PUMP PLAN**

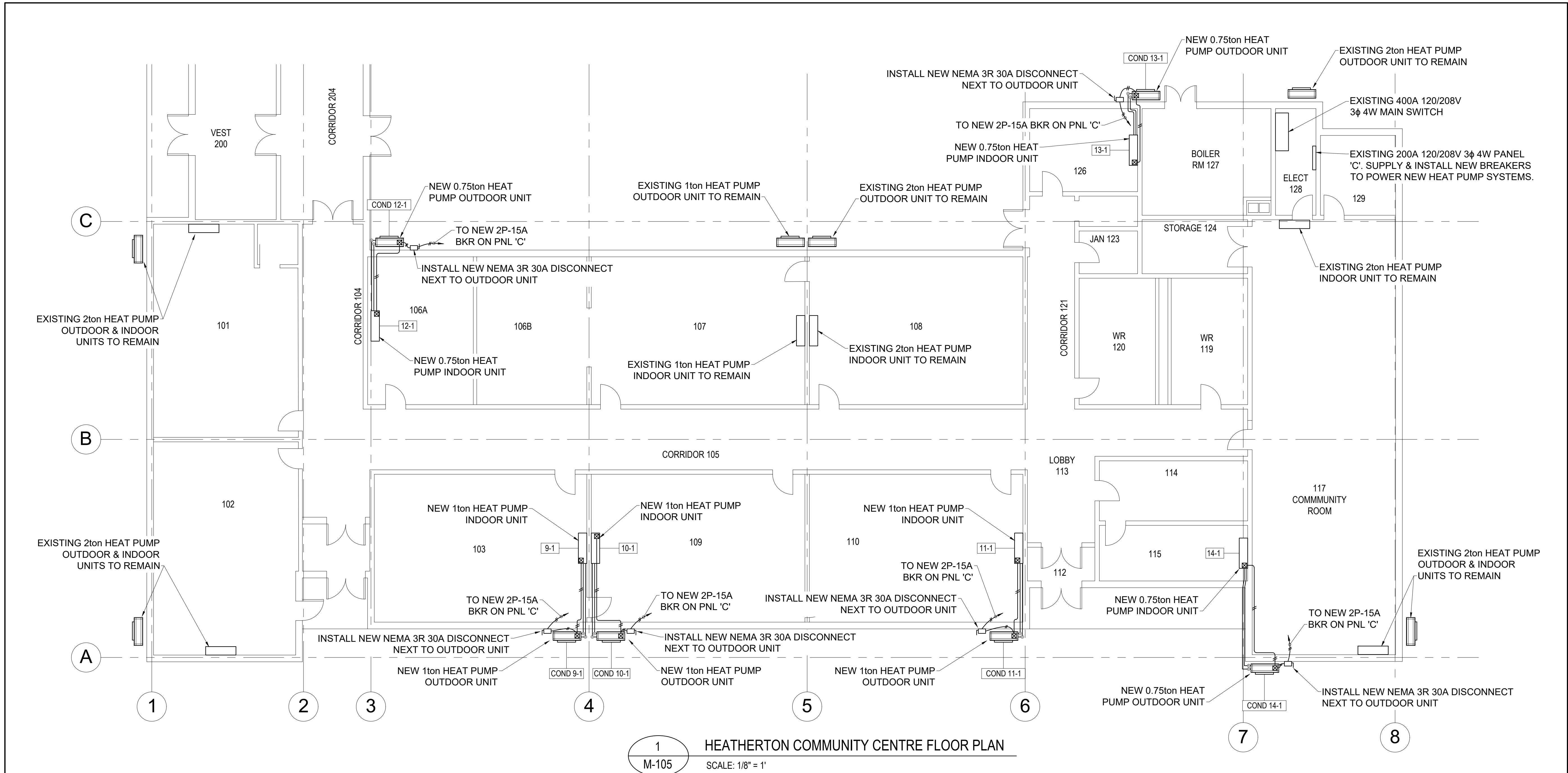
SCALE AS NOTED	DATE MAR 2023
DRAWN BY V.H.	CHECKED D.D. / N.v.R.
REVIEWED D.D. / N.v.R.	

APPROVED	DEPT. APPROVAL
SEAL	SEAL

DEPT. JOB No.	DRAWING NO.
CONSULTANT'S NO. 2022-3236	<b>M-104R2</b>
TENDER NO.	

SHEET 36 OF 24





1 HEATHERTON COMMUNITY CENTRE FLOOR PLAN  
M-105 SCALE: 1/8" = 1'

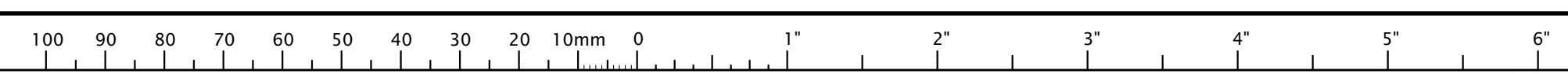
HEATHERTON COMMUNITY CENTRE - SCOPE OF WORK:

- 1) SUPPLY & INSTALL SIX (6) NEW MINI-SPLIT HEAT PUMP SYSTEMS FOR THE ROOMS INDICATED AS PER EQUIPMENT SCHEDULE.
- 2) PROVIDE SIX (6) NEW 2P-15A BREAKERS IN EXISTING ELECTRICAL PANEL 'C' IN MAIN ELECTRICAL ROOM.
- 3) FIELD ROUTE NEW FEEDERS AS INDICATED BELOW:
  - 3)a. 3C #12 & #12 BOND IN Ø3/4" PVC CONDUIT TO NEW NEMA 3R 30A RATED DISCONNECTS NEXT TO OUTDOOR UNITS.
  - 3)b. 3C #12 & #12 BOND IN Ø3/4" LT FLEX FROM DISCONNECTS TO OUTDOOR UNITS.
  - 3)c. 3C #12 & #12 BOND IN Ø3/4" PVC CONDUIT AND/OR LT FLEX FROM OUTDOOR UNITS TO INDOOR UNITS.
- 4) SUPPLY & INSTALL SIX (6) NEW WALL MOUNTED CONTROLLERS, ONE FOR EACH MINI-SPLIT HEAT PUMP SYSTEM. CONTROLS TO BE BATTERY POWERED, PROGRAMMABLE (EITHER 5/2 DAY OR 7 DAY). LOCATIONS AS RECOMMENDED BY MANUFACTURER.
- 5) SEE DWG's M-106 & E-101 FOR FURTHER SPECIFICATIONS, DETAILS, AND REQUIREMENTS.

SCHEDULE No.1/M-105				SCHEDULE OF CONDENSERS								
UNIT TAG	LOCATION	MANUFACTURER	MODEL	REFRIGERANT PIPING		ELECTRICAL			COOLING	HEATING	SOUND	REMARKS
				LIQUID (OD)	GAS (OD)	MIN. AMPS. (MCA)	FUSE SIZE	VOLT	MBH	MBH	dB(A)	
COND 9-1	WALL	DAIKIN	MUZ-GL12NAH-U2	1/4	3/8	9	15	208/1/60	12	14.4	49-51	-
COND 10-1	WALL	DAIKIN	MUZ-GL12NAH-U2	1/4	3/8	9	15	208/1/60	12	14.4	49-51	-
COND 11-1	WALL	DAIKIN	MUZ-GL12NAH-U2	1/4	3/8	9	15	208/1/60	12	14.4	49-51	-
COND 12-1	WALL	DAIKIN	MUZ-GL09NAH-U2	1/4	3/8	9	15	208/1/60	9	10.9	48-50	-
COND 13-1	WALL	DAIKIN	MUZ-GL09NAH-U2	1/4	3/8	9	15	208/1/60	9	10.9	48-50	-
COND 14-1	WALL	DAIKIN	MUZ-GL09NAH-U2	1/4	3/8	9	15	208/1/60	9	10.9	48-50	-

SCHEDULE No.2/M-105				SCHEDULE OF EVAPORATORS										
UNIT TAG	LOCATION	MANUFACTURER	MODEL	AIR FLOW		ELECTRICAL		COOLING	HEATING	SOUND	REFRIGERANT			REMARKS
				CFM	ESP	MIN. AMPS.	VOLT	MBH	MBH	dB(A)	LIQUID	GAS (OD)	DRAIN	
9-1	RM 103	DAIKIN	MSZ-GL12NA	109-406	-	1	208/1/60	12	14.4	19-45	1/4	3/8	5/8	C/W WIRELESS CONTROLLER MODEL MHK1. HSPF TO BE 11.0 OR HIGHER.
10-1	RM 109	DAIKIN	MSZ-GL12NA	109-406	-	1	208/1/60	12	14.4	19-45	1/4	3/8	5/8	C/W WIRELESS CONTROLLER MODEL MHK1. HSPF TO BE 11.0 OR HIGHER.
11-1	RM 110	DAIKIN	MSZ-GL12NA	109-406	-	1	208/1/60	12	14.4	19-45	1/4	3/8	5/8	C/W WIRELESS CONTROLLER MODEL MHK1. HSPF TO BE 11.0 OR HIGHER.
12-1	RM 106A	DAIKIN	MSZ-GL09NA	109-406	-	1	208/1/60	9	10.9	19-43	1/4	3/8	5/8	C/W WIRELESS CONTROLLER MODEL MHK1. HSPF TO BE 11.0 OR HIGHER.
13-1	RM 126	DAIKIN	MSZ-GL09NA	109-406	-	1	208/1/60	9	10.9	19-43	1/4	3/8	5/8	C/W WIRELESS CONTROLLER MODEL MHK1. HSPF TO BE 11.0 OR HIGHER.
14-1	RM 115	DAIKIN	MSZ-GL09NA	109-406	-	1	208/1/60	9	10.9	19-43	1/4	3/8	5/8	C/W WIRELESS CONTROLLER MODEL MHK1. HSPF TO BE 11.0 OR HIGHER.

2 THIS DRAWING SHEET IS ENTIRELY NEW FOR REV 2



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PROJECT  
**NET ZERO COMMUNITY BUILDINGS - HEAT PUMP PACKAGE**

LOCATION  
Various

DRAWING  
**HEATHERTON COMMUNITY CENTRE HEAT PUMP PLAN**

SCALE: AS NOTED DATE: MAR 2023

DRAWN BY: V.H. CHECKED: D.D. / N.v.R. REVIEWED: D.D. / N.v.R.

APPROVED: DEPT. APPROVAL:

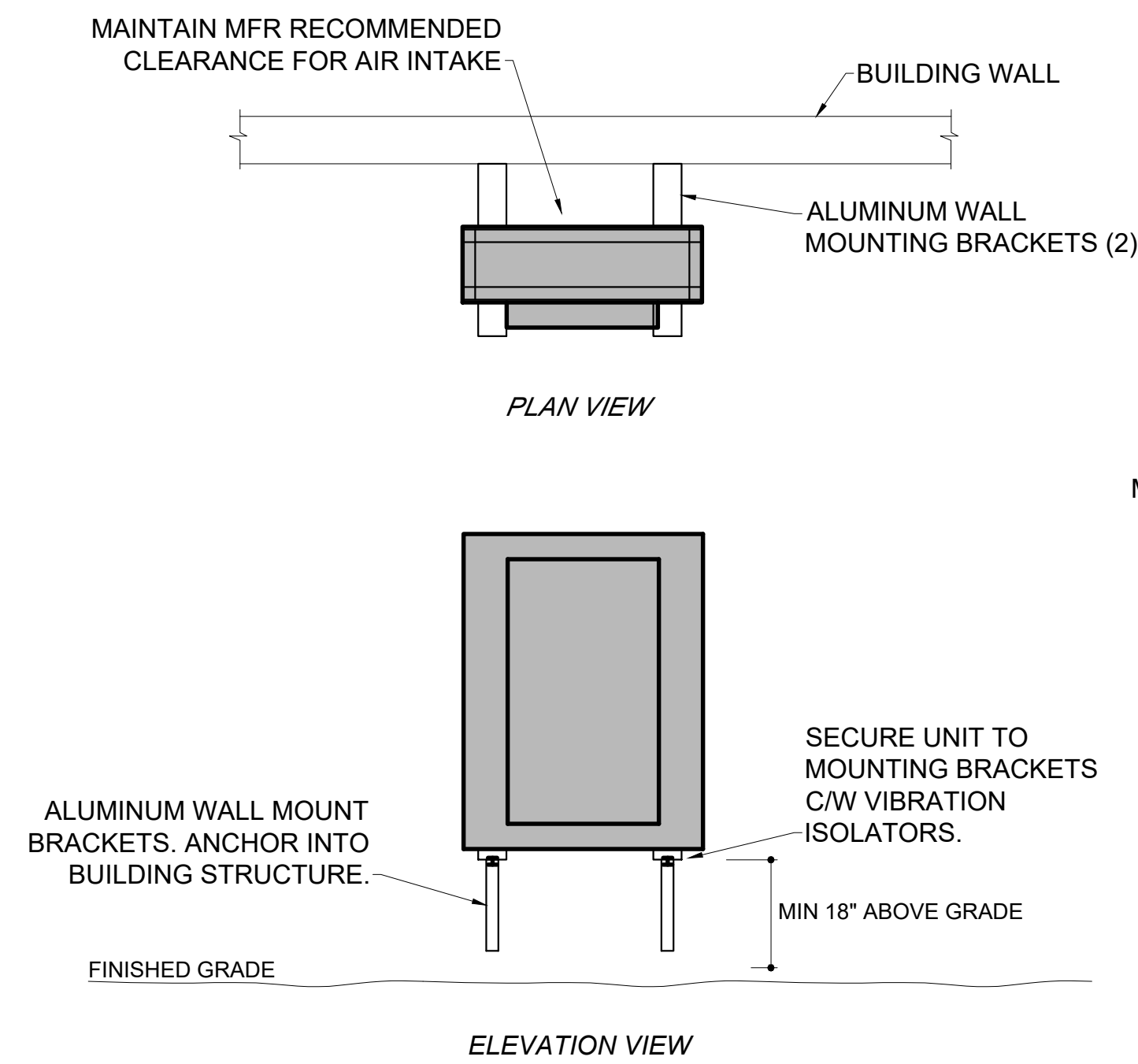
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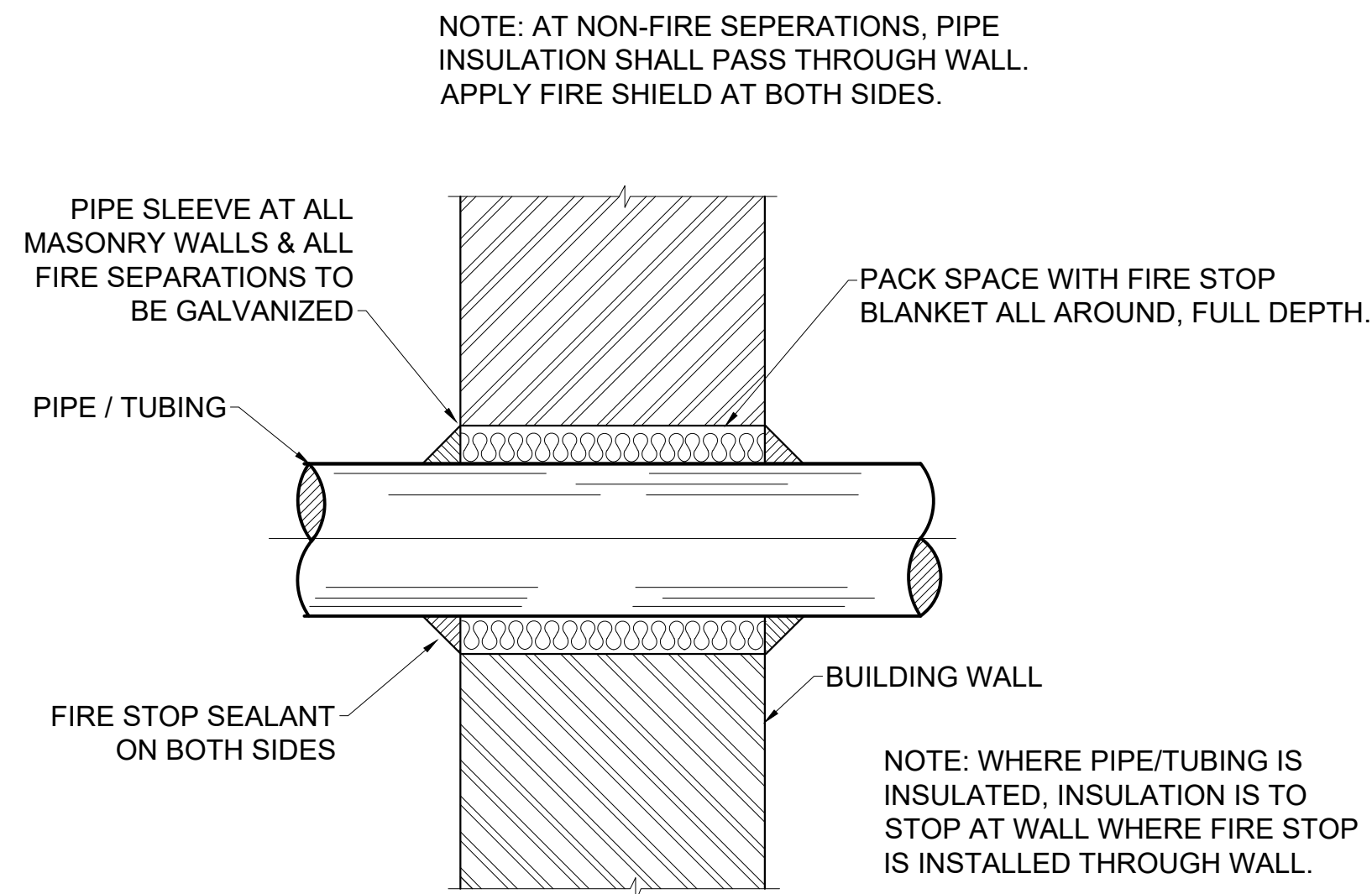
CONSULTANT'S NO.: 2022-3236 TENDER NO.:

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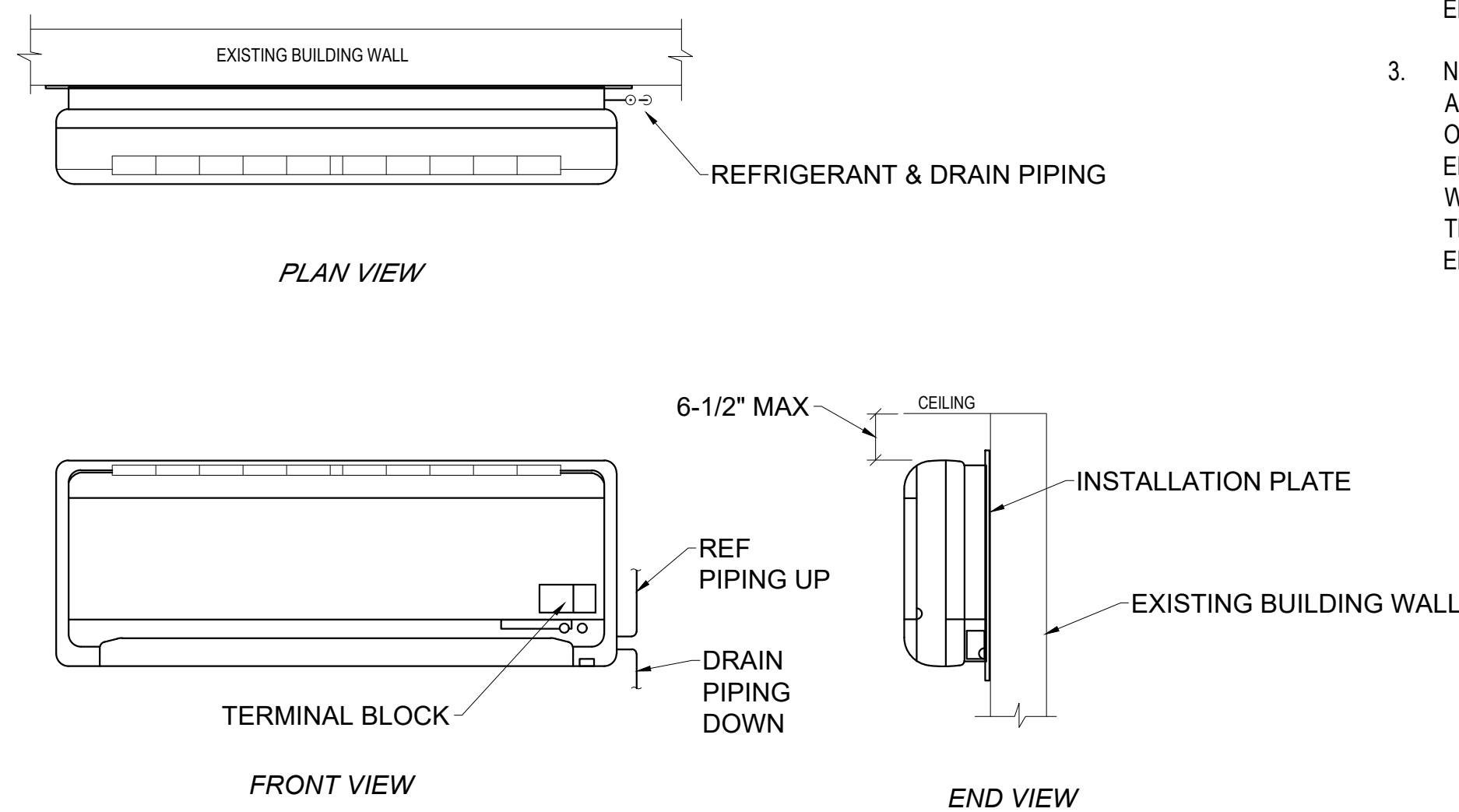
1 AIR COOLED CONDENSER  
M-501 N.T.S.



3 TYPICAL WALL PENETRATION  
M-501 N.T.S.

NOTES (All drawings)

- THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL THE CONTRACT DOCUMENTS INCLUDING ARCHITECTURAL, STRUCTURAL, MECHANICAL AND ELECTRICAL DRAWINGS AND SPECIFICATIONS.
- THE CONTRACTOR SHALL CHECK AND VERIFY ALL GRADES AND MEASUREMENTS ON THE JOB SITE & REPORT ANY DISCREPANCIES TO THE ENGINEER IN WRITING BEFORE COMMENCEMENT OF THE WORK.
- NOTWITHSTANDING WHATEVER MAY BE INDICATED ON THESE DRAWINGS AND/OR MECHANICAL SPECIFICATIONS REGARDING PHASE, VOLTAGE, SIZE OF MOTORS. THIS CONTRACTOR SHALL BE DEEMED TO EXAMINE ELECTRICAL DRAWINGS BEFORE TENDERING AND/OR ORDERING EQUIPMENT WITH MECHANICAL MOTORS OR ELECTRICAL CONNECTIONS TO ENSURE THAT EQUIPMENT QUOTED AND/OR ORDERED IS COMPATIBLE WITH ELECTRICAL DRAWINGS AND SYSTEM VOLTAGES AVAILABLE.



2 DUCTLESS SPLIT UNIT DETAIL  
M-501 N.T.S.

MECHANICAL SPECIFICATIONS:

PART 1 - GENERAL

- REFERENCES
  - NATIONAL BUILDING CODE 2015 EDITION.
  - NATIONAL PLUMBING CODE 2015 EDITION.
  - AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME)
  - AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)
  - CANADIAN STANDARDS ASSOCIATION (CSA)
- EQUIPMENT INSTALLATION
  - UNIONS OR FLANGES: PROVIDE FOR EASE OF MAINTENANCE AND DISASSEMBLY.
  - SPACE FOR SERVICING, DISASSEMBLY AND REMOVAL OF EQUIPMENT AND COMPONENTS: PROVIDE AS RECOMMENDED BY MANUFACTURER OR AS INDICATED.
  - INSTALL EQUIPMENT, RECTANGULAR CLEANOUTS AND SIMILAR ITEMS PARALLEL TO OR PERPENDICULAR TO BUILDING LINES.
- DEMONSTRATION AND OPERATING AND MAINTENANCE INSTRUCTIONS
  - SUPPLY TOOLS, EQUIPMENT AND PERSONNEL TO DEMONSTRATE AND INSTRUCT OPERATING AND MAINTENANCE PERSONNEL IN OPERATING, CONTROLLING, ADJUSTING, TROUBLE-SHOOTING AND SERVICING OF ALL SYSTEMS AND EQUIPMENT DURING REGULAR WORK HOURS, PRIOR TO ACCEPTANCE.
  - WHERE DEEMED NECESSARY, OWNER MAY RECORD THESE DEMONSTRATIONS ON VIDEO TAPE FOR FUTURE REFERENCE.
- CLEANING
  - CLEAN MECHANICAL SYSTEMS IN ACCORDANCE WITH DIVISION 15.
  - CLEAN INTERIOR AND EXTERIOR OF ALL SYSTEMS INCLUDING STRAINERS.
  - IN PREPARATION FOR FINAL ACCEPTANCE, CLEAN AND REFURBISH ALL EQUIPMENT AND LEAVE IN OPERATING CONDITION INCLUDING REPLACEMENT OF ALL FILTERS IN ALL AIR AND PIPING SYSTEMS.

PART 2 - PRODUCTS

- INSULATION
  - FIRE AND SMOKE RATING
    - IN ACCORDANCE WITH CANULC-S102.
      - MAXIMUM FLAME SPREAD RATING: 25.
      - MAXIMUM SMOKE DEVELOPED RATING: 50.
  - P-5 FLEXIBLE UNI-CELLULAR TUBULAR ELASTOMER.
    - TO CAN/CGSB-51.40 WITH VAPOR RETARDER JACKET.
    - JACKET TO CAN/CGSB 51-GP-52MA.
    - MAXIMUM 'K' FACTOR TO CAN/CGSB 51.40.
    - TO BE CERTIFIED BY MANUFACTURER TO BE FREE OF POTENTIAL STRESS CORROSION CRACKING CORRODANTS.
    - APPLICATION ON: REFRIGERATION PIPING/TUBING.
- FASTENINGS
  - PIPEWORK:
    - TAPE: SELF ADHESIVE, ALUMINUM, ULC LABELLED FOR LESS THAN 25 FLAME SPREAD AND LESS THAN 50 SMOKE DEVELOPED.
      - ACCEPTABLE MATERIAL: FATTAL INSULTAPE, BY S., FATTAL CANVAS INC.
    - LAP SEAL ADHESIVE: QUICK-SETTING FOR JOINTS AND LAP SEALING OF VAPOUR BARRIERS.
      - ACCEPTABLE MATERIAL: BAKOR 230-06; CHILDERS CP.80, FOSTER 87-75 ASBESTOS FREE AT 240 SQ. FT./GAL.
    - LAGGING ADHESIVE: FIRE RETARDANT COATING.
      - ACCEPTABLE MATERIAL: BAKOR 120-09; CHILDERS CP.50A-HV2, FOSTER 30-36 ASBESTOS FREE AT 50 SQ.FT./GAL.
- REFRIGERATION
  - TUBING
    - ALL PIPE SIZING PER MANUFACTURER RECOMMENDATIONS.
    - PROCESSED FOR REFRIGERATION INSTALLATIONS, DEOXIDIZED, DEHYDRATED AND SEALED.
      - HARD COPPER: TO ASTM B280, TYPE ACR B.
      - ANNEALED COPPER: TO ASTM B280, WITH MINIMUM WALL THICKNESS AS PER CSA B52 AND ASME B31.5; FOR USE WITHIN 1M (3 FT) OF UNITS ONLY.
  - FITTINGS
    - SERVICE: DESIGN PRESSURE 2133 KPA (300 PSI) AND TEMPERATURE 120°C (250°F).
    - BRAZED:
      - FITTINGS: WROUGHT COPPER TO ASME B16.22.
      - JOINTS: SILVER SOLDER, 45% AG-15% CU OR COPPER-PHOSPHOROUS, 95% CU-5%P AND NON-CORROSIVE FLUX TO BCUPS REQUIREMENTS.
    - FLANGED
      - BRONZE OR BRASS TO ASME B16.24, CLASS 150 AND CLASS 300.
      - GASKETS: SUITABLE TO SERVICE.
      - BOLTS, NUTS AND WASHERS: TO ASTM A307, HEAVY SERIES.
    - FLARED
      - BRONZE OR BRASS, FOR REFRIGERATION TO ASME B16.26.

- PIPE SLEEVES
  - HARD COPPER OR STEEL, SIZED TO PROVIDE 1/2 in. CLEARANCE AROUND BETWEEN SLEEVE & UNINSULATED PIPE OR BETWEEN SLEEVE AND INSULATION.
- VALVES
  - 7/8" (22mm) AND UNDER: CLASS 500, 500 PSI (3500 kPa), GLOBE OR ANGLE NON-DIRECTIONAL TYPE, DIAPHRAGM, PACKLESS TYPE, WITH FORGED BRASS BODY & BONNET, MOISTURE PROOF SEAL FOR BELOW FREEZING APPLICATIONS, BRAZED CONNECTIONS.
- INSULATION
  - ALL REFRIGERATION PIPE INSULATION TO BE INSULATED WITH 3/4" IMCALOK WITH NO LONGITUDINAL SEAM & BUTT JOINTS TAPED, EXTERIOR INSULATION TO BE FINISHED WITH ALUMAGUARD LT, WITH 4" OVERLAP.
- INSTALLATION
  - INSTALLATION BY RED SEAL CERTIFIED TRADESMAN.

PART 3 - EXECUTION

- PREPARATION
  - LAYOUT WORK IN ACCORDANCE WITH LINES AND GRADES AS INDICATED.
  - VERIFY LINES, LEVELS, DIMENSIONS AS INDICATED AGAINST ESTABLISHED BENCHMARKS, REPORT DISCREPANCIES TO ENGINEER AND OBTAIN WRITTEN INSTRUCTION.
  - WHEN REQUIRED BY ENGINEER, PROVIDE DRAWINGS SHOWING RELATIVE LOCATIONS OF VARIOUS SERVICES.
  - THE CONTRACTOR SHALL INSTALL EQUIPMENT IN GENERAL ACCORDANCE WITH PLANS PROVIDED WHILE TAKING INTO STRICT ACCOUNT THE NEED FOR CLEARANCE FOR MAINTENANCE OF ALL NEW AND EXISTING EQUIPMENT. IN THE EVENT OF DISCREPANCY WITH COST IMPLICATIONS CONTRACTORS SHALL OBTAIN CLARIFICATION FROM CONSULTANT.
- INSULATION
  - PIPEWORK:
    - APPLY INSULATION MATERIALS, ACCESSORIES AND FINISHES IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS AND AS SPECIFIED HEREIN.
    - REPAIR INSULATION IN EXISTING MECHANICAL AND RE-CANVAS.
    - INSTALL IN ACCORDANCE WITH ANSINFPFA 90A AND ANSINFPFA 90B.
    - SEAL AND FINISH EXPOSED ENDS AND OTHER TERMINATIONS WITH INSULATING CEMENT.
- FIRE STOPPING
  - FIRE STOP ALL PIPE PENETRATIONS THROUGH WALLS. ENSURE NO MORE THAN 1/2" CLEARANCE BETWEEN PIPE OR DUCT AND WALL SLEEVE. INFILL WITH FIRE WOOL AND FIRE STOP CAULKING.
- DUCTLESS SPLIT INSTALLATION
  - CONDENSATE SHALL BE DRAINED BY GRAVITY UNLESS NOTED OTHERWISE.
  - CW WIRELESS WALL CONTROLLER.
  - REFRIGERANT PIPING TYPE ACR. PIPING TO BE DONE BY CERTIFIED RED SEAL REFRIGERANT TECHNICIAN.
  - ALL PIPING TO BE INSULATED PER MFR RECOMMENDATIONS C/W PVC CAPPING. PROVIDE UV PROTECTION FOR ALL EXPOSED INSULATION.
  - MAKE ALL WALL PENETRATIONS AIR AND WATER/RAIN TIGHT.

END



2	RE-ISSUED FOR TENDER	2023-03-13
1	ISSUED FOR TENDER	2023-03-08
REVISION	DESCRIPTION	YYYY-MM-DD

A	A - Detail No.
B	B - Drawing No.

PROJECT  
**NET ZERO COMMUNITY BUILDINGS - HEAT PUMP PACKAGE**

LOCATION  
Various

DRAWING

**MECHANICAL DETAILS & SPECIFICATIONS**

SCALE AS NOTED	DATE MAR 2023
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DRAWN BY V.H.	CHECKED D.D. / N.v.R.	REVIEWED D.D. / N.v.R.
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APPROVED	DEPT. APPROVAL
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SEAL 	SEAL 
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DEPT. JOB No.	DRAWING NO.
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CONSULTANT'S NO. 2022-3236	M-106R2
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TENDER NO.	
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NEW PANEL 'D' - St. JOSEPHS COMMUNITY CENTRE

TABLE 1/E-102 PANEL "D" LOCATION - ELECTRICAL ROOM FED FROM - MAIN PANELBOARD			VOLTS - 120/240 PHASE - 1 WIRE - 3			MOUNTING - SURFACE MAINS 100 A ENTER AT - TOP		
WATT LOAD	DESCRIPTION	NO	BKR	BKR	NO	DESCRIPTION	PHASE LOAD	
							A	B
1680	HEAT PUMP COND 1-1	1	2P	2P	2	HEAT PUMP COND 2-1	1680	3360
1680		3	20A	20A	4		1680	3360
-	SPARE	5	15A	15A	6	SPARE	-	-
-	-	7	-	-	8	-	-	-
-	-	9	-	-	10	-	-	-
-	-	11	-	-	12	-	-	-
-	-	13	-	-	14	-	-	-
-	-	15	-	-	16	-	-	-
-	-	17	-	-	18	-	-	-
-	-	19	-	-	20	-	-	-
-	-	21	-	-	22	-	-	-
-	-	23	-	-	24	-	-	-
-	-	25	-	-	26	-	-	-
-	-	27	-	-	28	-	-	-
-	-	29	-	-	30	-	-	-
-	-	31	-	-	32	-	-	-
-	-	33	-	-	34	-	-	-
-	-	35	-	-	36	-	-	-
-	-	37	-	-	38	-	-	-
-	-	39	-	-	40	-	-	-
-	-	41	-	-	42	-	-	-
TOTAL LOAD 6.7 KW 28 A FEEDER: 3C #3 CU RW90 & #6 BOND IN Ø1" (27MM) EMT						NOTES:	TOTAL A	3360
							TOTAL B	3360

TABLE 1/E-101 ELECTRICAL SPECIFICATIONS

PART 1 GENERAL

- SUPPLY, INSTALL & REMOVE ALL MATERIAL DESCRIBED THEREIN AND ON THE DRAWINGS SO AS TO FORM A COMPLETE AND OPERATIONAL JOB.
- RUN ALL CONDUIT & CABLE PARALLEL OR PERPENDICULAR TO BUILDING LINES.
- ALL CABLES AND CONDUITS SHALL BE SUPPORTED INDEPENDENTLY OF EXISTING PIPES, CONDUITS AND EQUIPMENT. CONDUITS AND CABLE SHALL NOT LAY DIRECTLY UPON THE CEILING FROM SUPPORT. CABLES AND CONDUITS SHALL RUN A MINIMUM OF 6" FROM HOT WATER LINES.
- ALL CABLES SHALL BE TAGGED AT BOTH ENDS USING PANDUIT PLD TYPE LABELS.
- ALL CONDUIT RUNS SHALL CONTAIN A PULL CORD TO ACCOMMODATE FUTURE INSTALLATIONS.
- ALL BRANCH CIRCUITS AND COMPONENTS ON DISTRIBUTION PANELS AND FUSIBLE DISCONNECT SWITCHES SHALL BE PROPERLY IDENTIFIED AS TO WHAT THEY SERVE, FEED, ETC., SO AS TO PROVIDE FOR EASE OF MAINTENANCE. USE BLACK LAMICOID NAME PLATES WITH WHITE LETTERS ON THE OUTSIDE UNITS & DIRECTORIES INSIDE PANELS. ALL BRANCH CIRCUIT CONDUITS WITHIN PANELS SHALL BE LACED WITH T&B TY-RAP CABLE TIES AND SHALL BE IDENTIFIED ON THE TYPE SELF LAMINATING LABELS INSTALLED IN A "FLAGGED" MANNER. UPDATE PANEL DIRECTORIES WITH NEW CIRCUIT CONNECTIONS IN A TYPED MANNER. ALL RECEPTACLES SHALL ALSO BE IDENTIFIED WITH LAMACOID PLATES RIVETED TO BLOCK WALLS & GLUED TO DRYWALL. COLOR CODED DOTS ARE TO BE USED ON T-BAR CEILING SPLINES TO IDENTIFY ELECTRICAL DEVICES, JUNCTION BOXES, ETC. THAT ARE ABOVE T-BAR CEILING.
- FIRE SEAL ANY PENETRATIONS USING FIRE SEALING PRODUCT APPROVED FOR USE WITH THE ASSEMBLY BEING INSTALLED, FOR ALL CONDUITS RUNNING BETWEEN SUITES, FLOORS OR FIRE RATED ASSEMBLIES. THE APPLICATION SPECIFIC SHOP DRAWING SHALL BE SUBMITTED BY THE CONTRACTOR FOR REVIEW BY THE CONSULTANT PRIOR TO INSTALLATION.
- DURING CONSTRUCTION AND AT THE COMPLETION OF THIS PROJECT, THE SITE SHALL BE LEFT NEAT, TIDY AND FREE OF DEBRIS.
- ALL BRANCH CIRCUIT WIRING SHALL BE ACCOMPLISHED USING RW90 CABLE IN EMT CONDUIT RUN CONCEALED OR BY BX CABLE CONCEALED. ALL CABLE AS WELL AS CONDUIT & RACEWAY SHALL BE SIZED IN ACCORDANCE WITH THE CANADIAN ELECTRICAL CODE. REPLACE EXISTING BRANCH WIRING AS REQUIRED. USE SURFACE RACEWAY ON CONCRETE WALLS.
- THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL THE CONTRACT DOCUMENTS INCLUDING ARCHITECTURAL & MECHANICAL DRAWINGS & SPECIFICATIONS.
- PERFORM ELECTRICAL WORK IN ACCORDANCE WITH ALL REQUIREMENTS OF THE NSPI & CANADIAN ELECTRICAL CODE CSA STANDARD C.22.1 PART 1 & THE REQUIREMENTS OF THE FIRE MARSHALL'S OFFICE AS MINIMUM STANDARDS. THESE STANDARDS TOGETHER WITH ALL LOCAL OR MUNICIPAL RULES, REGULATIONS AND ORDINANCES SHALL BE CONSIDERED AS THE LATEST APPROVED EDITIONS AT THE TIME OF TENDER CLOSING. IN NO INSTANCE SHALL THE STANDARD ESTABLISHED BY THE CONTRACT DOCUMENTS, BE REDUCED BY ANY CODES.
- THE CONTRACTOR SHALL OBTAIN ALL SUCH PERMITS REQUIRED BEFORE AND/OR AFTER COMPLETION OF THE ELECTRICAL WORK AND SHALL FURNISH THE OWNER AND/OR ENGINEER WITH A CERTIFICATE OF FINAL INSPECTION FROM THE INSPECTION DEPARTMENT OF THE ELECTRIC UTILITY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CHECKING WITH THE INSPECTION AUTHORITIES PRIOR TO THE INSTALLATION & SHALL MAKE ANY ADJUSTMENTS NECESSARY. INCLUDE FOR ALL COSTS LEVIED BY THE LOCAL POWER & TELEPHONE UTILITIES.
- THE CONTRACTOR SHALL MAKE A CAREFUL EXAMINATION OF THE EXISTING EQUIPMENT AND THE SITE OF THE WORK AND THE EXISTING CONDITIONS IN ORDER TO BECOME ACQUAINTED WITH THE EXTENT OF THE WORK INVOLVED AND WITH ANY DIFFICULTIES WITH THE INSTALLATION OF EQUIPMENT. NO ALLOWANCES OF EXTRAS WILL BE ALLOWED FOR EXTRA EXPENSE DUE TO CONDITIONS ENCOUNTERED DURING THE COURSE OF THE WORK THAT COULD HAVE BEEN DETERMINED BY A SITE VISIT.
- THE WORK SHALL BE GUARANTEED FOR A PERIOD OF 12 MONTHS AFTER FINAL ACCEPTANCE.
- ALL EQUIPMENT AND EXPOSED NON-CURRENT CARRYING METAL, CONDUITS AND PARTS SHALL BE PERMANENTLY AND EFFICIENTLY GROUNDED TO MEET MINIMUM OF THE C.E.C. SECTION 10. ALSO ENSURE ADDITIONAL STANDARDS OF THE ELECTRIC UTILITY & TELEPHONE ARE ADHERED TO
- ALL EQUIPMENT SPECIFICATIONS & SHOP DRAWINGS SHALL BE INCLUDED IN THE OPERATIONS & MAINTENANCE MANUALS. PROVIDE SHOP DRAWINGS FOR ALL NEW EQUIPMENT PROVIDED ON THE PROJECT. PROVIDE RECORD DRAWINGS WHEN PROJECT IS COMPLETE INDICATING ALL CHANGES TO THE DRAWINGS.
- THIS CONTRACTOR IS TO REMOVE ALL EXISTING REDUNDANT OUTLET BOXES, CONDUIT AND/OR CABLE.
- ALL LAMPS SHALL HAVE COLOR TEMPERATURE TO MATCH EXISTING

PART 2 - POWER DISTRIBUTION

- ALL POWER WIRES SHALL BE STRANDED RW90 COPPER IN EMT CONDUIT UNLESS OTHERWISE NOTED. USE STEEL SET SCREW CONNECTORS FOR EMT. AC90 (BX) MAY BE USED FOR CONCEALED BRANCH CIRCUIT WIRING.
- SUPPLY AND INSTALL A GREEN INSULATED BOND #12AWG MIN. IN ALL NEW POWER CONDUIT DO NOT USE BARE BONDING WIRES. PROVIDE SEPARATE BOND FOR EACH CIRCUIT IN AREAS WHERE COMPUTERS WILL BE USED.

CIRCUIT RUN LENGTH	PHASE WIRE SIZE	BOND WIRE SIZE
1' TO 80'	#12	#14
81' TO 125'	#10	#12
126' TO 185'	#8	#10

PHASE "A"	RED
PHASE "B"	BLACK
PHASE "C"	BLUE
NEUTRAL	WHITE OR GREY
BOND	GREEN
GROUND	GREEN

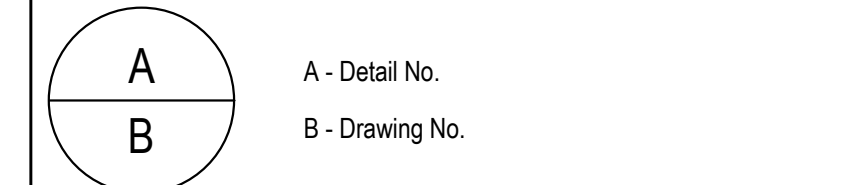
- TEST THAT ALL POWER WIRES ARE FREE OF SHORTS, GROUNDS, ETC., AND THAT INSULATION VALUES ARE PER CEC.
- LIQUID SEAL FLEXIBLE METAL CONDUIT, NOT SMALLER THAN 3/8" INSIDE DIAMETER, SHALL BE USED FOR CONNECTIONS TO ALL MOTORS AND VIBRATING EQUIPMENT, WITH A MAXIMUM OF #12 AWG IN 3/8" CONDUIT.
- WIRE SIZED TO BE INCREASED TO MEET CEC REQUIREMENTS OR AS OTHERWISE NOTED, WHICHEVER IS LARGER.
- WIRING ON CONDUITS EXCEEDING 50 VOLTS TO GROUND, SHALL BE OF SOFT DRAWN, STRANDED COPPER OF 98% CONDUCTIVITY, AND OF FULL AWG SIZE AS FOLLOWS:
- INSULATION TYPE SHALL BE RW90 X-LINK, RATED AT 600 VOLTS
- INSULATION COVERINGS FOR GROUND AND/OR BOND CONDUCTORS TO BE THERMOPLASTIC TYPE "TW75" RATED AT 600 VOLTS.
- MINIMUM WIRE SIZE UNLESS NOTED OTHERWISE SHALL BE #12 AWG.
- THE FOLLOWING TABLE IS TO BE USED TO COMPENSATE FOR VOLTAGE DROP FOR ALL 120V, 15A BRANCH CIRCUIT WIRING, AND IS TO INCLUDE BOTH "VERTICAL" AND "HORIZONTAL" LENGTHS OF CONDUCTOR RUNS. HOWEVER THE VOLTAGE DROP CALCULATION SHALL BE DONE AND WIRE SIZE INCREASED IF REQUIRED.
- ALL STRANDED CONDUCTORS PRIOR TO TERMINATING UNDER DEVICE BOLTS SUCH AS CIRCUIT BREAKERS, LIGHT SWITCHES, RECEPTACLES, ETC., ARE TO BE TWISTED TOGETHER SO AS TO FORM A SINGLE CONDUCTOR TO ENSURE A RELIABLE MECHANICAL CONNECTION.
- TYE-WRAPPING TO THE NEUTRAL WITH ITS RESPECTIVE PHASE CONDUCTORS ARE TO HAVE THEIR RESPECTIVE PHASE CONDUCTORS TYE-WRAPPED TOGETHER IN ACCORDANCE TO METHODS DESCRIBED PREVIOUSLY.
- ALL FEEDERS OR BRANCH CIRCUITS WHICH DO NOT HAVE NEUTRAL CONDUCTORS ARE TO HAVE THEIR RESPECTIVE PHASE CONDUCTORS TYE-WRAPPED TOGETHER IN ACCORDANCE TO THE METHODS DESCRIBED PREVIOUSLY.
- ALL PHASE CONDUCTOR SIZES UP TO AND INCLUDING #2 AWG AND NEUTRALS, BONDS AND GROUND CONDUCTORS UP TO AND INCLUDING #3/0 AWG SHALL BE COLOR CODED AS FOLLOWS:
- PROVIDE NEW BREAKERS IN EXISTING PANELS AS REQUIRED. COMPLETE PANEL DIRECTORIES INDICATING CIRCUITS.
- PROVIDE WEATHERPROOF EQUIPMENT AS INDICATED ON THE DRAWINGS FOR MECHANICAL EQUIPMENT LOCATED OUTDOORS
- PROVIDE CONNECTIONS TO ALL MECHANICAL EQUIPMENT ON PROJECT.
- PROVIDE CONNECTIONS TO ALL OWNER SUPPLIED EQUIPMENT.
- CONDUIT TO BE RUN CONCEALED. ALL CABLES AS WELL AS CONDUIT & RACEWAYS SHALL BE SIZED IN ACCORDANCE WITH THE ELECTRICAL CODE. USE AC90 CABLE FOR BRANCH CIRCUIT DROPS IN CONCEALED AREAS. HOME RUNS FROM ALL OUTLETS OR CIRCUITS SHALL BE RW90. AC90 (BX) CABLE WILL NOT BE USED FOR HOME RUNS.
- PANELBOARDS ARE TO BE CMV FACTORY INSTALLED BONDING TERMINAL STRIPS. IF MORE THAN ONE STRIP EXISTS BOND THEM TOGETHER WITH BONDING CONDUCTOR OF THE SAME SIZE AS THAT ACCOMPANYING THE PANEL FEEDER.
- BRANCH CIRCUIT PANELBOARDS (225A AND SMALLER)
  - EACH BRANCH CIRCUIT SHALL BE CLEARLY IDENTIFIED ON A TYPEWRITTEN DIRECTORY, WITH DIRECTORY BEING PROTECTED BY A CLEAR PLASTIC COVER
  - PANELBOARD ENCLOSURES ARE NOT TO BE LESS THAN 20" IN TOTAL WIDTH.
  - BRANCH CIRCUIT PANELBOARDS ARE TO BE FITTED WITH LOCK TYPE DOORS.
  - PANEL BOARDS ARE TO BE C/W THE FOLLOWING:
    - MINIMUM OF 10% SPARE 15A 1 POLE CIRCUIT BREAKERS
    - MINIMUM OF 10% SPARE SPACES FOR 1 POLE CIRCUIT BREAKERS
    - MINIMUM OF 10% OF BREAKER LOCKING DEVICES, BASED ON TOTAL NUMBER OF CIRCUIT BREAKERS THAT PANEL CAN ACCEPT.

PART 3 - LIGHTING

- SUBMISSIONS FOR LIGHTING APPROVED EQUALS ARE TO MEET ALL SPECIFIED STANDARDS INDICATED FOR EACH TYPE. SUBMISSIONS MUST BE APPROVED PRIOR TENDER CLOSING.
- LED LUMINAIRES ARE TO TESTED TO THE IES-TM21-12 STANDARD TO LUMEN MAINTAINANCE
- ALL LUMINAIRES TO HAVE COLOUR TEMPERATURE THAT MATCH EXISTING AND/OR EACH OTHER.



2	RE-ISSUED FOR TENDER	2023-03-13
1	ISSUED FOR TENDER	2023-03-08
REVISION	DESCRIPTION	YYYY-MM-DD



PROJECT  
**NET ZERO COMMUNITY BUILDINGS - HEAT PUMP PACKAGE**

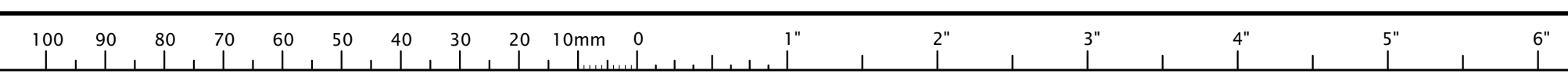
LOCATION  
**Various**

**ELECTRICAL DETAILS & SPECIFICATIONS**

SCALE AS NOTED	DATE MAR 2023
DRAWN BY V.H.	CHECKED D.D. / N.v.R.
APPROVED	REVIEWED D.D. / N.v.R.

DEPT. APPROVAL	DEPT. APPROVAL
SEAL	SEAL

DEPT. JOB No.	DRAWING NO.
CONSULTANT'S NO. 2022-3236	<b>E-101R2</b>
TENDER NO.	



**ATTACHMENT A: Net Zero Building – Heat Pump Upgrade Bid Form – Rev 1**

Please indicate pricing for each individual building as listed below. Prices should be exclusive of HST.

Keppoch Mountain \$ \_\_\_\_\_

Arisag Community Center \$ \_\_\_\_\_

St Josephs Community Center \$ \_\_\_\_\_

Highlander Club \$ \_\_\_\_\_

Heatherton Community Center \$ \_\_\_\_\_

TOTAL \$ \_\_\_\_\_