

				CO	NDENS	NG UNIT	SCHEDULE			
TAG	G MAKE MODEL LOCATION RE		REFRIGERANT	SERVES COOLING CAPACITY (MBH)		DESIGN AMBIENT TEMPERATURE (°F)	SYSTEM MOCP	SYSTEM MCA	ELE (V	
CU-901	ENG A	CU403	ROOF	R-407C	AHU-901	428.0	95.0	100	85	5
NOTES: 1. PROVIDE START UP AND COMMISSIONING BY A FACTORY TRAINED TECHNICIAN, AS SPECIFIED. 2. INTEGRATE CONTROLS WITH EXISTING AIR HANDLING UNIT (EX AHU-901)										
	EXISTING AIR HANDLING UNIT SCHEDULE									

					EVISI	ING AIR	HANULI		3СП	EDULE	
TAG	MAKE	LOCATION	SUPPLY AIRFLOW (CFM)	SUPPLY ESP (in.W.C.)	SUPPLY MOTOR (HP)	RETURN AIRFLOW (CFM)	RETURN ESP (in.W.C.)	RETURN MOTOR (HP)	HEATING		
									INPUT (MBH)	OUTPUT (MBH)	TYPE
EX AHU-901	ENG A	ROOF	23,575	1.0	25.0	23,575	0.5	-	1,556	1,121	INDIRECT GAS FIRE

		MECHANIC	AL LEGE	ND
	LINETYPI	ES		VENTILATION
_ · _ · _ · _	CONTROLS WIRIN	IG		OUTDOOR AIR DUCT UP/DOWN
	SANITARY PIPING			SUPPLY DUCT UP/DOWN
STM	STORM PIPING			RETURN DUCT UP/DOWN
V	SANITARY VENT E	BRANCH PIPING		EXHAUST DUCT UP/DOWN
V <b>&gt;</b>	SANITARY VENT U	JP TO NEXT LEVEL		ROUND DUCT UP/DOWN
VK	SANITARY VENT U	JP THROUGH ROOF	************	ACOUSTIC DUCT INSULATION
	DOMESTIC COLD			BALANCING DAMPER
	DOMESTIC HOT W		BD	
	DOMESTIC HOT W			BD = BACKDRAFT DAMPER
			FD	
			E	FD = FIRE DAMPER
			ID	
C	CONDENSATE PIE			ID - IRIS DAWPER
F	FIRE STANDPIPE		MD	
SP	SPRINKLER PIPIN	G		MD - MOTORIZED DAWFER
VAC	CENTRAL VACUU	M PIPING	OD	OD = OPPOSED-BLADE DAMPER
	PRESSURE WASH	IER PIPING		
— HWS —	HEATING WATER	SUPPLY PIPING	SD	SD = SMOKE DAMPER
— — HWR — —	HEATING WATER	RETURN PIPING		
— HGS —	HEATING GLYCOL	. Supply Piping		SIDEWALL GRILLE
– — HGR — –	HEATING GLYCOL	. RETURN PIPING		SQUARE DIFFUSER C/W TAKEOFF AND
CWS	CHILLED WATER	SUPPLY PIPING		
CWR	CHILLED WATER	RETURN PIPING		BALANCING DAMPER
CGS	CHILLED GLYCOL	SUPPLY PIPING	6	TURNING VANES
– – CGR – –	CHILLED GLYCOL	RETURN PIPING	<u>ک</u> _	
	REFRIGERANT SU	IPPLY PIPING		SINGLE-LINE DUCTWORK ENDCAP
– — RR — –	REFRIGERANT RE			SINGLE-LINE DUCTWORK TAKEOFF
CS	CONDENSER WA			SINGLE-LINE DUCTWORK TRANSITION
- — CR — -	CONDENSER WA	ER RETURN PIPING		SINGLE-LINE DUCTWORK WALL CAP
— HPS —	HEAT PUMP SUPF			FIRE PROTECTION
- — HPR — –	HEAT PUMP RETU	IKN PIPING		
S	SIEAM PIPING		× ×	
	PLUMBIN	G	<b>-</b> \$ <i>j</i>	FIRE DEPARTMENT CONNECTION
	PIPE FLOW ARRO	W	•	SPRINKLER HEAD (PENDANT)
	PIPE CAP		0	SPRINKLER HEAD (UPRIGHT)
	PIPE CONNECTIO	N	▼	SPRINKLER HEAD (SIDEWALL)
	PIPE DROP			SCHEMATICS
0	PIPE RISE			HOSE END WITH CAP & CHAIN FOR
<del></del>	PIPE TEE (BELOV	/)		DRAINING
	PIPE TEE (ABOVE	)	<u> </u>	FLEX PIPE CONNECTION
<b></b> 9	SANITARY P-TRA	p		2-WAY CONTROL VALVE
	RUNNING P-TRAF	)		3-WAY CONTROL VALVE
				BACKFLOW PREVENTER
<del>\⊈</del>	FLOOR DRAIN		<b>†</b> *}	NORMALLY OPEN BACKWATER VALVE
•	ROOF DRAIN			AUTOMATIC FLOW REGULATING VALVE
-11	HOSE BIBB			
HI CA	COMPRESSED AI	ROUTLET		CHECK VALVE
H PW	PRESSURE WASH	IER BIBB		ISOLATION VALVE
	CLEANOUT			MANUAL BALANCING VALVE
	BUILDING CLEAN	OUT	ī	PRESSURE/TEMPERATURE PORT
G-GM-O	GAS METER		\$ <b></b>	PRESSURE BYPASS VALVE
G → (W) → (M) → (	WATER METER			PRESSURE REDUCING VALVE
	THRUST BLOCK			
	CONTRO	LS	*	
60				SOLENOID VALVE
				SUPERVISED VALVE
<u>(0)</u>	$UU_2 = UAKBON D$			TRIPLE DUTY VALVE
	NO <sub>2</sub> = NITROGEN	DIOXIDE		UNION
(EL	LEL = LOWER EXP	PLOSIVE LIMIT	AS	AIR SEPARATOR
 (F) (R)	HUMIDISTAT (COV	/ER/NO COVER)	AAV	
 	THERMOSTAT (CO	/ VER/NO COVFR)	<u> </u>	AIK VENT - AUTOMATIC
			MAV <b>4</b>	AIR VENT - MANUAL
ԾշԾշ	COVER)		Ę	
₩ ¥	WALL SWITCH (O	N-OFF/VARIABI F)	¥.	
ф Ф		··· ·= <b></b> /		
	TAGS	i		IHERMAL WELL
TYPE			- <del>'X</del>	WYE STRAINER C/W BALL VALVE, CAP & CHAIN
NECK (mm)	200Ø	DIFFUSER/GRILLE	∛ #∡	
FLOW (L/s)	120		Ă	PRESSURE SAFETY VALVE
TYP	E BB-1		Q	PRESSURE GAUGE C/W ISOLATION
LENGTH (mm	n) <u>2000</u>	RADIATION TAG		
CAPACITY (kW	/) — 4.0		<u> </u>	
CAPACITY (kV	$V_{0} \rightarrow \left( \begin{array}{c} 1 \\ 4.0 \end{array} \right)$	RADIATION TAG		FI=FLOW INDICATOR
			EM	FM=FLOW METER
DETAIL NUM		DRAWING	FS	ES=ELOW SWITCH
DRAWING NUM		REFERENCE		
		SECTION/ELEV/ATION	PS	PS=PRESSURE SWITCH
		REFERENCE		
			TS	TS=TEMPERATURE SWITCH
<u> </u>	<u>P-1</u>	EQUIPMENT TAG		
	1	KEYNOTE REFERENCE	FT	FT=FLOW TRANSMITTER
<b></b>				
				PT=PRESSURE TRANSMITTER
	EXISTING EQUIPN	IENT	 []	
	EXISTING EQUIPM	IENT TO BE	<u>_</u>	
11114411.	DEMOLISHED		<b></b>	CENTRIFUGAL FAN
			7	

# englobe @ **PROJECT MANAGER:** LUKE THIBAULT 780.801.6204 luke.thibault@englobecorp.com PROJECT#: 02407144 CONSULTANT TEAM: CODE COMPLIANCE THIS SET OF DRAWINGS AND THE DESIGNS CONTAINED WITHIN COMPLY WITH THE FOLLOWING CODES: BUILDING CODE: NBC (AE) 2023 ENERGY CODE: NECB 2020 CLIENT: PERMIT TO PRACTICE ENGLOBE CORP RM SIGNATURE RM APEGA DATE: . PERMIT NUMBER: P 07841 The Association of Professional Engineers and Geoscientists of Alberta (APEGA) DISCLAIMER: ALL INFORMATION, ENGINEERING AND APPLICATION OF THESE DESIGNS IS COPYRIGHTED, PROPRIETARY AND IS THE PROPERTY OF ENGLOBE CORP. DO NOT SCALE THE DRAWING. THIS INFORMATION MUST NOT BE COPIED OR REPRODUCED NOR TRANSFERRED TO ANY OTHER DRAWING OR PROJECT WITHOUT THE EXPRESSED WRITTEN PERMISSION OF AN AUTHORIZED AGENT ENGLOBE CORP. REVISIONS: ISSUED FOR TENDER 2025.05.01 DESCRIPTION YEAR.MN.D PROJECT NAME: AJMC FIELDHOUSE LOCATION: 58 SUNSET BLVD, WHITECOURT, AB DRAWING NAME: ROOF PLAN & SCHEDULES PROJECT#: 024 07 144 DRAWN: JR CHECKED: LT DESIGNED: LT DRAWING NUMBER:

PLOT DATE: Inursday, May 1, 2025 Fill ENAME: Z:\2004\02407000\024 07 144\_A.IMC Fieldhouse\2 MECHANICAL\1 DRAWINGS\024 07 144 - M100 ROOF PLAN dwg A. <u>GENERAL REQUIREMENTS</u>

- 1. Consultant is defined as the ENGLOBE CORP. representative administering the project. Where not explicitly specified, Contractor is defined as the Mechanical Contractor.
- Include all labour, material and equipment required for the installation, testing and placing into operation complete mechanical systems in accordance with the plans and specifications. Installation to conform with all applicable codes and standards and to the satisfaction of the authorities having jurisdiction.
- Refer to the Architectural specifications for information relating to bidding and contract requirements, and general requirements. Provide all bonds and surety as may be called for in the Request for Submission and/or in the General Conditions of the Contract.
   Include all PC sums, separate costs, etc., as requested in the bid documents.
- 5. Take out and pay for all mechanical permits.
- 6. The Contractor shall visit the site prior to bid submission and verify existing conditions for renovation and tenant improvement
- projects. New piping, ductwork and insulation standards shall at least match the existing installation or be higher if specified herein.
  Obtain clarification of the intended work from the Consultant, if required, before submitting bids. Review the site conditions, mechanical bid documents, (including Architectural, Structural, Electrical, and Civil bid documents) prior to submitting bids and report any discrepancies to the Consultant. Allow for the provision of all plumbing fixtures as shown on the mechanical and/or
- architectural tender documents.
  8. Verify operation, test, adjust and clean the system installed as part of this contract before substantial completion.
  9. Be responsible for any damage caused to the Owner's or other Contractor's work, property or personnel and protect finished and
- unfinished work from damage. Cover floors and other work with tarpaulins and other protective coverings to prevent damage from oil and grease spillages. Repair all damage to parts of the building resulting from the carrying out of work without expense to the Owner. Be responsible for the condition of all material and equipment supplied under this contract and provide all necessary protection for same, until the building has been completed and accepted. Damaged materials shall be rejected.
- Ensure that all materials are new and free from defects. Any existing material or equipment intended for re-use must be restored as to proper function and appearance, inspected and accepted by the Consultant.
- 11. Base bids on the products as specified. Product substitutions and alternates are permissible and shall be itemized with the bid giving reasons for the proposed change. Bidders are responsible to ensure substitutions are equivalent or superior in all respects to the named product(s). Bidders have the sole responsibility for making this determination during the bidding period. Revisions required to adapt accepted equals and alternatives shall be included in the contract price. No increase in the contract price will be considered to accommodate the use of equipment other than that specified. The Consultant reserves the right to accept or reject substitutions during shop drawing review.
- 12. Coordinate with the General Contractor the requirements for all concrete and general construction work required for the mechanical work and all cutting of existing floor slabs, if any. Coordinate the requirements for the provision of built-up roof curbs and flashings with the General Contractor. Include all counter-flashing attached to Mechanical apparatus and curbs supplied with equipment.
- Employ tradesmen who are fully qualified and licensed in accordance with Federal, Provincial, and Municipal regulations. Only first class workmanship will be accepted, not only in regards to safety, efficiency, durability, etc., but also in regard to the neatness of detail.
- 14. Layout and schedule all work to preclude interference with other work being carried out in the building. Cooperate with and give every facility to the several contractors to expedite the installation to the best advantage. Where equipment is to be built in with work of others, supply the equipment on schedule or give measurements to allow the necessary openings and space to be left. The Contractor shall coordinate with the various contractors to ensure pipes and ductwork routing is achievable. A thorough examination of the drawings and on-site conditions shall be completed prior to ordering of material and equipment. This includes all mechanical, architectural, structural, millwork, kitchen drawings, etc. Changes in duct sizing, as required, rerouting of piping or ducts, or any additional fittings or offsets shall be provided as required. To facilitate site coordination, the Contractor is required to prepare a cross section sketch through various portions of the building to show all structural, architectural, and electrical components to ensure system will fit within the spaces prior to order of materials and installation. No extras will be accepted for failure to comply with the above.
- 15. Contract documents are diagrammatic only. They are to establish scope, material, and quality. They are not detailed installation drawings. Minor details usually not shown or specified, and any incidental accessories required for proper installation of the system, are to be included in the work. Pipes and ductwork shall be installed in such a way as to conserve head room and interfere as little as possible with free use of the space through which they pass. All pipes and ductwork which are to be concealed shall be installed neatly and closely to the building structure so that the necessary furring can be kept as small as possible. Supply all miscellaneous metals, such as anchor bolts, expansion bolts, hanger inserts, angles, bars, plates, brackets that are related to the mechanical system installation.
- 16. Coordinate with the various contractors regarding locations of all holes for pipes, ducts, etc., included in the contract before walls and floors are built. Do all drilling for expansion bolts, hanger rods, brackets, supports, etc.. Obtain approval from structural and electrical Consultants before drilling and coring of existing structure. Provide X-ray of all required penetrations of the existing floor for locating in-floor rebar and conduit. Coordinate with the General Contractor regarding responsibility for all cutting and patching required for the work. Provide fire stopping in full compliance with manufacturer's installation instructions for all piping and ductwork that passes through fire-rated assemblies.
- 17. Be responsible for the establishment of all grades and elevations in connection with mechanical equipment, ductwork, piping, drains, etc.
- 18. Follow the recommended installation details and procedures for all equipment as found in suppliers technical data, supplemented by details given herein by these specifications or the drawings. Where indicated in the equipment schedules, include for a factory trained service technicians attendance on the site to participate in the start up and commissioning, including controls verification, certify the installation, verify the performance, provide maintenance and operating instructions and submit a report.
- 19. The system provided by the Contractor shall be guaranteed free from defects in workmanship and material. If within 12 months from date of substantial completion acceptance, if any systems or equipment installed by the Contractor is proven defective, it shall be repaired or replaced free of charge. Contractor to visit site at end of warranty period and submit report to Consultant.
- 20. Provide shop drawings in PDF format for all equipment as specified in the equipment sections of this specification or the equipment schedules. All shop drawings are to be legible and shall not include copies of faxed or poor quality information. Identify materials and equipment by manufacturer, trade name and model number. Include copies of applicable brochure or product material. Do not assume applicable product data is available in the Consultant's office. Maintenance and operating manuals are not suitable submittal material. Do not order equipment or material until the Consultant has reviewed and returned shop drawings. Consultant's review will be for conformity with the design concept and criteria. The Contractor remains solely responsible for ensuring that the materials meet or exceed the requirements of any and all related construction documents, and that the materials suit the site conditions and fit in the available space.
- 21. Contractor is responsible to inform the Consultant of job progress and coordinate times for site reviews. Prior to substantial completion site review, the Contractor is to provide a letter certifying work is complete, including a list of work not complete at the time of the site review. Cost for additional site reviews being required due to failure to comply with this requirement, will be charged to the Contractor.
- 22. All progress claims and pricing for Contemplated Change Notices to be submitted with a complete detailed equipment, material, and labour breakdown applicable to the project for all systems including: permits & mobilization, plumbing, heating, cooling, site services, fire protection, ventilation & refrigeration, HVAC controls, insulation, chemical treatment, balancing, O&M Manuals / as-built drawings, and other(s).
- 23. Maintain at the job site hardcopy prints, on which is recorded, day-by-day, all deviations from the contract documents, damper locations, access locations, tagged valves, piping, ducts, and equipment as installed; together with all changes made to the work including addenda, change notices, and site instructions. Checking of progress on the preparation of the record drawings will be carried out by the Consultant regularly. Dimension underground services installed relative to the structure, clearly dimension and mark, to ensure ease of locating at future date, all concealed piping, ducts, and/or other equipment. Clearly identify all changes in red on one (1) clean hardcopy set of project drawings. Cross off all changes as required, do not use whiteout; submit to the Consultant.
- 24. Provide to the Owner three (3) hardcopy sets of O&M Manuals for the mechanical systems and equipment in letter size heavy duty "D" ring binders appropriately marked with project name on the front cover & spine. Include in each manual one (1) electronic copy (PDF format) on a USB flash drive. Manuals to include written system description and operating procedures, drawing list, maintenance and installation brochures, valve tag list, test certificates, start-up reports, maintenance and lubrication schedules, shop drawings and warranty letter, list of subcontractors and equipment suppliers, c/w addresses and phone numbers. Instruct the Owner in the operation and maintenance of the mechanical systems. A suitable deficiency holdback will be retained until the above and related contract close-out requirements are completed.
- 25. Tag all valves and equipment and post a valve tag list in the mechanical room. Provide numbered brass or plastic tags for valves and lamacoid labels for equipment. Identify all piping and ductwork (size, service & flow direction) with stenciled painting at max 50' (15 m) intervals, before and after pipes passing through walls, at all sides of tees, and behind access doors. Provide ceiling tacks where access is required.
- 26. The Owner shall have the privilege of temporary and trial usage of any device, equipment and materials as soon as the Contractor shall claim said work complete and in accordance with plans and specifications, for such length of time as deemed necessary, sufficient for complete testing. No claims will be made by this Contractor for damage caused by defective material or workmanship. Do not use the permanent heating system for temporary heat without the Owner's written permission.

#### B. <u>PIPING</u>

- 1. Contractor to coordinate the building system installation with the site work. Be responsible for setting grades and confirm all
- elevations prior to installation.
  Hangers and supports shall secure pipe in place, maintain grade by adjustment, provide for expansion and appear neat. Install supports of strength and rigidity to suit loading without unduly stressing the structure. Hangers for piping shall be adjustable ring or clevis type. Steel for ferrous piping and copper for copper piping. Trapeze type hangers may be used where several pipes run at the same elevation. Provide isolation between copper pipe and steel hangers. Use of perforated band strap hangers is not acceptable in non-combustible construction. Use of perforated band strap hangers is acceptable in wood frame construction for Code Group 'C' residential projects. Perforated band strap hangers shall only be permitted to support individual pipes by wrapping around the pipe, secured with a bolt, and securely fastened to the building structure. Provide C-Clamp for fastening hangers to joist or install hanger rods in roof structure as approved by the Consultant. Pipe hangers shall be spaced at maximum intervals as noted in the local building code according to pipe material and size. Pipe under the building in the fill shall be supported continuously, by bedding in sand. For piping below structural slabs on grade, provide stainless steel hangers.
- Piping the following specification indicates the piping and fittings that may be utilized for the project. The Contractor shall submit manufacturer shop drawings for the piping and fittings proposed for use on the project. Contractor to confirm specific manufacturer, application, and installation requirements and warranty limitations prior to selecting and installing a particular product. Contractor to ensure all materials are in accordance with the applicable code requirements relating to material flame spread and smoke development, use of combustible materials, and use of materials in and penetrating fire-rated assemblies.

)	Refrigerant:	
	ACR copper	Wrought c

Wrought copper, Brazed Cast copper, Brazed

# 4. Isolate steel and copper pipe with dielectric couplings. Where bronze bodied valves isolate steel and copper pipe, no insulated

Provide valves in accordance v	vith the following	schedule, valve to be m	nanufactured and certified for the service application.
Function	Туре	Size	Remarks
Isolation	Ball	Up to 3"(75mm)	Cast bronze, full port, seals to suit application, solder or threaded ends
Isolation	Gate	Over 3"(75mm)	Cast iron body, rising stem, OS&Y, flange ends
Isolation	Butterfly	Over 3"(75mm)	Cast or ductile lugged or grooved body, stainless stee disc, extended neck, EPDM seat.
Manual Balancing	Globe	Up to 3"(75mm)	Bronze body with union bonnet, rising stem, stainless steel disc, solder or threaded ends
Manual Balancing	Globe	Over 3"(75mm)	Cast iron body, bronze trim, rising stem, OS&Y, plug-type disc, renewable seat, flanged ends

Install all piping to allow for expansion and contraction. Provide flexible pipe connections, expansion joints and compensators, pipe loops, swing joints, and offsets.
 Test all piping systems in accordance with industry standards. Hydro test all liquid systems; air or nitrogen test gas systems. Test

to minimum  $1\frac{1}{2}$  times operation pressure for a minimum of 2 hours, or as required by code.

## E. <u>INSULATION</u>

couplings are required.

- 1. Provide insulation for ducts and piping as specified below and in accordance with TIAC guidelines.
- 2. All insulating material, flexible connectors, combustible coverings, etc., shall have flame spread ratings and smoke development classification not exceeding current code requirements.
- 3. Provide canvas recovery jacket on all indoor exposed insulation. Aluminum or PVC recovery in wet areas or when exposed to the elements or subject to damage. Foil-faced vapour insulation on supply ducts, cold ducts and cold pipes.
- 4. Provide insulation to the following standards throughout the building:

Piping Service & Equipment	Nominal Sizes	Insulation in.(mm)
Refrigerant (Armaflex insulation)	All Sizes	1⁄2 (15)

## F. CONTROLS AND INTERFACE WITH THE ELECTRICAL CONTRACTOR

Supply the Electrical Contractor with information necessary to accurately locate motors and any control devices that require wiring by the Electrical Contractor. Coordinate with the Electrical Contractor the electrical requirements for all mechanical equipment. Confirm the voltage and phase with the Electrical Contractor prior to ordering of equipment and submission of shop drawings. Be responsible for any additional electrical costs resulting from alternative mechanical equipment being supplied. Provide the Electrical Contractor with a motor list based on the coordinated electrical connection requirements and the shop drawings. Include in the motor list a complete inventory of all equipment and systems that require electrical connections. Include the equipment tag number, location, motor HP or kW, voltage, phase, starter and control requirements and interlocks. The Engineers design motor list can be made available, for information purposes only, upon request.

- 1. All electric/electronic controls devices by the Mechanical Contractor and/or their sub-trades. All conduit & wiring by the Electrical Contractor:
  - Mechanical Contractor or their sub-contractors or equipment suppliers to provide all control devices. Wiring of low and line voltage related to the mechanical controls to be by the Electrical Contractor.
  - Provide shop drawings c/w product data for all devices, valve and damper schedules, wiring schematics and
    operational description for all equipment that is provided with automatic control.
  - Devices and control equipment to be as detailed below or as specified in the equipment schedules.
  - Mechanical Contractor to verify the operation of all systems and equipment. Calibrate all control devices.

