MECHANICAL LEGEND AND SYMBOLS

PLUMBING & DRAINAGE

- DCW — DOMESTIC COLD WATER
- DHW — DOMESTIC HOT WATER
- DHWR — DOMESTIC HOT WATER RECIRCULATION
- NPW — NON-POTABLE WATER
- TW — TEMPERED HOT WATER
- IW — IRRIGATION WATER
- BRIN — BRINE WATER
- CHEM — CHEMICAL WATER
- SW — SOFT WATER
- SAN — SANITARY DRAIN -ABOVE GRADE
- SAN — SANITARY DRAIN -BELOW GRADE
- SAN-P — PUMPED SANITARY DRAIN
- STM — STORM DRAIN -ABOVE GRADE
- STM — STORM DRAIN -BELOW GRADE
- STM-P — PUMPED STORM DRAIN
- PW — PROCESS DRAIN -ABOVE GRADE
- PW — PROCESS DRAIN -BELOW GRADE
- PW-P — PUMPED PROCESS DRAIN
- W — WEEPER DRAIN (SUB-DRAIN)
- V — VENT
- COND — CONDENSATE DRAIN
- DRAIN — OVERFLOW DRAIN
- FD-A — FLOOR DRAIN (LETTER INDICATES TYPE SEE SPECIFICATION)
- FFD-A — FUNNEL FLOOR DRAIN (LETTER INDICATES TYPE SEE SPECIFICATION)
- ROOF DRAIN (CONVENTIONAL)
- FUNNEL DRAIN -ELEVATION
- HB — HOSE BIBB
- NFWH — HYDRANT -NON-FREEZE
- SHOWER HEAD
- % — PITCH-INDICATES DOWN SLOPE
- CO — CLEANOUT -ABOVE GRADE
- CO — CLEANOUT -ABOVE GRADE
- CO — CLEANOUT -BELOW GRADE
- CO — CLEANOUT -BELOW GRADE
- RUNNING TRAP
- BFP — BACKFLOW PREVENTOR
- BACK WATER VALVE (FOR SEWAGE)
- BACKFLOW PREVENTER (ANTI-SIPHON DEVICE 25mm & LARGER)
- BACKFLOW PREVENTER (ANTI-SIPHON DEVICE UNDER 25mm)

FIRE PROTECTION

- FP — FIRE STANDPIPE
- SP — SPRINKLER PIPE
- DFP — DRY FIRE STANDPIPE
- DSP — DRY SPRINKLER PIPE
- PREACTION — PRE-ACTION PIPE
- DELUGE — DELUGE PIPE
- CAG — DRY SPRINKLER PIPE
- PENDENT SPRINKLER HEAD
- UPRIGHT SPRINKLER HEAD
- CONCEALED SPRINKLER HEAD
- SIDEWALL SPRINKLER HEAD
- EXISTING SPRINKLER HEAD TO BE REMOVED
- FE — EXPOSED FIRE EXTINGUISHER
- FE&CAB — FIRE EXTINGUISHER WITH CABINET
- SEAMESE FIRE DEPARTMENT CONNECTION
- PORTABLE FIRE EXTINGUISHER

Sheet Schedule

M100	HUCUL POND ARENA LEGEND AND SYMBOLS
M101	HUCUL POND ARENA LOWER LEVEL FLOOR PLAN
M102	HUCUL POND ARENA UPPER LEVEL FLOOR PLAN
M103	DOMESTIC HOT WATER PREHEAT SCHEMATIC
M104	HUCUL POND ARENA GENERAL NOTES FOR STRUCTURAL DESIGN

DRAWING NOTES

- A / M101 — SECTION DESIGNATION / DRAWING TO FIND SECTION
- 3 / M101 — DETAIL DESIGNATION / DRAWING TO FIND DETAIL
- HC ## — PLUMBING FIXTURE TAG (REFER TO SPEC)
- 2x WC-1 (QUANTITY, TAG) — EQUIPMENT TAG (REFER TO SCHEDULE)
- 2x B 250 12"ø (QUANTITY REQUIRED, TYPE, VOLUME (CFM, L/S), SIZE) — AIR OUTLET TAG (REFER TO SCHEDULE)
- # — KEY NOTES
- CE — CONNECT TO EXISTING
- REL — RELOCATE EXISTING
- NC — NORMALLY CLOSED TAG
- NO — NORMALLY OPEN TAG
- PC — NORMALLY PARTIALLY CLOSED TAG

MECHANICAL PIPING

- X-YYY — "X" PIPE SIZE NPS / "Y" PIPE SERVICE
- HWS — HEATING WATER SUPPLY
- HWR — HEATING WATER RETURN
- HCS — HEATING / CHILLED WATER SUPPLY
- HCR — HEATING / CHILLED WATER RETURN
- GLY-HWS — GLYCOL HEATING WATER SUPPLY
- GLY-HWR — GLYCOL HEATING WATER RETURN
- CHWS — CHILLED WATER SUPPLY
- CHWR — CHILLED WATER RETURN
- PCHWS — PROCESS CHILLED WATER SUPPLY
- PCHWR — PROCESS CHILLED WATER RETURN
- CTWS — COOLING WATER SUPPLY
- CTWR — COOLING WATER RETURN
- HPST — HIGH PRESSURE STEAM
- LPST — HIGH PRESSURE STEAM
- S.COND — STEAM CONDENSATE
- S.COND-P — PUMPED STEAM CONDENSATE
- RefL — REFRIGERANT LIQUID
- RefG — REFRIGERANT GAS
- FUEL — FUEL PIPE
- FOS — FUEL OIL SUPPLY
- FOR — FUEL OIL RETURN
- FOV — FUEL OIL VENT
- H — HUMIDIFIER LINE
- ENGINE OIL — ENGINE OIL
- N.GAS — NATURAL GAS
- PR — PROPANE
- CA — COMPRESSED AIR
- VACU — VACUUM PIPE
- MDG — MEDICAL GAS PIPE
- O2 — OXYGEN
- NO — NITROUS OXIDE
- N — NITROGEN
- CO2 — CARBON DIOXIDE
- CO — CARBON MONOXIDE
- He — HELIUM
- H2 — HYDROGEN
- ARGON — ARGON
- DIRECTION OF FLOW
- NEW PIPING / DUCTWORK
- EXISTING PIPING / DUCTWORK TO REMAIN
- X X X X — NEW PIPING / DUCTWORK

VALVES, FITTINGS AND SPECIALTIES

- GATE VALVE
- GLOBE VALVE
- CHECK VALVE
- PLUG VALVE
- BUTTERFLY VALVE
- BALL VALVE
- D — DIAPHRAM VALVE
- HOSE END VALVE
- BOILER BLOWDOWN VALVE
- FS — FIRE STOP VALVE
- RUPTURE DISC
- VALVE IN RISER
- PRESSURE REDUCING VALVE
- PRESSURE RELIEF VALVE -ELEVATION
- PRESSURE RELIEF VALVE
- PRESSURE RELIEF VALVE -PLAN
- FLOAT ACTIVATED SIGNAL TRANSMITTER
- FLOAT OPERATED VALVE
- BACK PRESSURE VALVE
- DIFFERENTIAL BACK PRESSURE VALVE
- NEEDLE VALVE
- BALANCING VALVE
- FLOW METERING FITTING (UNDER 75mm)
- FLOW METERING FITTING (75mm AND LARGER)
- CONTROL VALVE -ELECTRIC
- CONTROL VALVE -PNEUMATIC
- THREE-WAY CONTROL VALVE -ELECTRIC
- THREE-WAY CONTROL VALVE -PNEUMATIC
- M — MOTORIZED VALVE
- S — PUMP CONTROL VALVE
- GLOBE CONTROL VALVE -PNEUMATIC
- BUTTERFLY CONTROL VALVE -PNEUMATIC
- PNEUMATIC ACTUATOR
- M — ELECTRIC ACTUATOR
- (M) — ELECTRIC MOTOR
- (S) — ELECTRIC SOLENOID
- (T) — ROOM THERMOSTAT
- FS — FLOW SWITCH (HARD WIRED)
- HLS — HIGH LIMIT HUMIDITY SENSOR
- DPS — DIFFERENTIAL PRESSURE SENSOR
- MS — MEDIA RUN-OUT SWITCH
- ELBOW TURNED TOWARD
- ELBOW TURNED AWAY
- TEE TURNED AWAY
- TEE TURNED TOWARD
- CONCENTRIC REDUCER
- ECCENTRIC REDUCER
- PIPE CAP THREADED
- PIPE CAP WELDED
- PLUG
- FLEXIBLE CONNECTION
- UNION
- FLANGE CONNECTION
- BLIND FLANGE
- ORIFICE FLANGES
- QUICK CONNECTION FITTING
- PIPE ANCHOR
- PIPE LINE GUIDE
- PIPE LINE TRAPEZE HANGER
- EJ — PIPE LINE EXPANSION JOINT
- EXPANSION LOOP
- Y-TYPE STRAINER
- BASKET TYPE STRAINER
- DUPLEX BASKET TYPE STRAINER
- IN-LINE SIGHT GLASS
- GAUGE GLASS
- DRIP PAN ELBOW
- THERMOMETER-STEM TYPE
- OR P — PRESSURE GAUGE
- T — THERMOSTAT GAUGE

VALVES, FITTINGS AND SPECIALTIES

- M — METER
- WM — WATER METER
- GM — N.GAS METER
- CAM — COMPRESSED AIR METER
- PUMP
- F&T — STEAM TRAP -FLOAT & THERMOSTATIC
- B — STEAM TRAP -INVERTED BUCKET
- T — STEAM TRAP -THERMOSTATIC
- TH — STEAM TRAP -THERMODYNAMIC
- ADT — AUTOMATIC DRAIN TRAP -COMPRESSED AIR
- AE — AIR ELIMINATOR
- WATER HAMMER ARRESTOR
- HS — HYDRAULIC SEPERATOR
- AAV — AUTOMATIC AIR VENT

HEATING, VENTILATION AND AIR CONDITIONING

- DUCTWORK (RECTANGULAR)
- DUCTWORK (ROUND)
- M — MOTORIZED DAMPER
- ACOUSTIC DUCT INSULATION -INTERNAL
- OPPOSED BLADE DAMPER
- PARALLEL BLADE DAMPER
- FD — FIRE DAMPER
- SD — SMOKE DAMPER
- VD — VOLUME DAMPER
- FD/SD — COMBINATION FIRE & SMOKE DAMPER
- VOLUME EXTRACTOR
- REDUCER
- TURNING VANES
- ELBOW
- TAP-IN FITTING
- CONICAL TEE FITTING
- WYE-TEE
- SPLITTER DAMPER
- ROUND DUCT TURNING TOWARD
- ROUND DUCT TURNING AWAY
- SUPPLY DUCT TURNING TOWARD
- RETURN DUCT TURNING TOWARD
- SUPPLY DUCT TURNING AWAY
- RETURN DUCT TURNING AWAY
- ACOUSTIC DUCT INSULATION INTERNAL - SINGLE LINE
- SILENCER
- FLEXIBLE DUCTWORK
- FLEXIBLE CONNECTION
- VAV BOX WITH ATTENUATOR
- VAV BOX WITH RHC & ATTENUATOR
- VAV BOX
- CV — CONSTANT VOLUME BOX
- SUPPLY AIR DIFFUSER (SEE SPECIFICATION FOR TYPE)
- RETURN AIR GRILLE (SEE SPECIFICATION FOR TYPE)
- 100 — DOOR GRILLE - FIGURE INDICATES L/s
- AIR FLOW MEASURING STATION
- FAN
- CC — COOLING COIL
- HUMIDIFIER
- PHC — PREHEAT COIL
- DP — DEW POINT SENSOR & TRANSMITTER
- RHC — REHEAT COIL
- T — THERMOSTAT
- P — PRESSURE SENSOR & TRANSMITTER
- H — HUMIDISTAT
- HS — EF FMN SWITCH
- LS — LEVEL SWITCH
- CO — CO SENSOR
- M — DAMPER ACTUATOR
- VOC — VOC SENSOR
- T — TEMPERATURE SENSOR
- NO2 — NO2 SENSOR

REFRIGERATION PIPE IDENTIFICATION LEGEND

CBS	COLD BRINE SUPPLY	CBR	COLD BRINE RETURN
HBS	HOT BRINE SUPPLY	HBR	HOT BRINE RETURN
WS	WATER SUPPLY	WR	WATER RETURN
TSS	THERMOSYPHON SUPPLY	TSR	THERMOSYPHON RETURN
GS	GLYCOL SUPPLY	GR	GLYCOL RETURN
WGS	WARM GLYCOL SUPPLY	WGR	WARM GLYCOL RETURN
CWS	CONDENSER WATER SUPPLY	CWR	CONDENSER WATER RETURN
HPL	HIGH PRESSURE LIQUID	LPL	LOW PRESSURE LIQUID
CW	CITY WATER	EQ	EQUALIZER
LSD	LOW STAGE DISCHARGE	HSD	HIGH STAGE DISCHARGE
SSS	SINGLE STAGE SUCTION	SSD	SINGLE STAGE DISCHARGE
RV	RELIEF VENT	TSV	THERMOSYPHON VENT
P	PURGE LINE	WRS	WET RETURN SUCTION
HG	HOT GAS	D	DRAIN
BB	BRINE BALANCE	BP	BY-PASS
OF	OVERFLOW	V	VENT
CD	CONDENSER DRAIN	F	FIRE
CC	CAPACITY CONTROL	CR	COMPRESSION RATION
FS	FLOAT SWITCH	EX	EXHAUST AIR
LTRL	LOW TEMP RECIRCULATING LIQUID	HTRL	HIGH TEMP RECIRCULATING LIQUID
LTRS	LOW TEMP RECIRCULATING SUCTION	HTRS	HIGH TEMP RECIRCULATING SUCTION

REFRIGERATION SYMBOL LEGEND

FE	FLOW ELEMENT	M	MOTOR	TE	TEMPERATURE ELEMENT
LPC	LOW PRESSURE CONTROL	HPC	HIGH PRESSURE CONTROL	TS	TEMPERATURE SENSOR
LI	LEVEL INDICATOR		PRESSURE CONTROL VALVE	TI	TEMPERATURE INDICATOR
LSH	LEVEL SWITCH HIGH	PI	PRESSURE INDICATOR	TT	TEMPERATURE TRANSMITTER
LSL	LEVEL SWITCH LOW	PSV	PRESSURE SAFETY VALVE	SV	SOLENOID VALVE
LT	LEVEL TRANSMITTER	PT	PRESSURE TRANSMITTER		PRESSURE GAUGE
PSH	PRESSURE SW HIGH	PSL	PRESSURE SW LOW	OFS	OIL FAILURE CONTROL
HT	HUMIDITY TRANSMITTER	T	THERMOSTAT	M	MOTOR ACTUATOR
	GLOBE VALVE		CONTROL VALVE		NORMALLY CLOSED
	NEEDLE VALVE		GATE VALVE		PUMP
	CHECK VALVE		REDUCER		BALL VALVE
	CHECK VALVE w/ MANUAL LIFT STEM		UNION		ATMOSPHERIC RELIEF VALVE
	PLUGGED VALVE		FLANGE	S	SOLENOID VALVE
	PRESSURE CONTROL VALVE		PRESSURE CONTROL VALVE		BUTTERFLY VALVE
	STRAINER		STARAINER		DEADMAN VALVE
	STRAINER w/ BLOWDOWN		PIPE CAP		DIFFUSER
	3 WAY VALVE		4 WAY VALVE		ANGLE VALVE
	RELIEF VALVE		RELIEF ANGLE VALVE		OPEN TANK
	BUTTERFLY VALVE		REFRIGERATION GLOBE VALVE		FILTER
	BACKFLOW PREVENTER		LIQUID DRAINER		
	END CAP		BLIND FLANGE		

Extropic Energy Inc.

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EMAIL: makeitbetter@extropic.ca
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REVISION SCHEDULE

NO.	DATE	DESCRIPTION	BY
1	2025-01-31	IFT REVIEW	DN
2	2025-02-12	ISSUED FOR TENDER	DN

PROFESSIONAL ENGINEER — PROVINCE OF BRITISH COLUMBIA — D. L. NAKATSU — # 53819 — ENGINEERING SEAL — 2025-02-25

PERMIT TO PRACTICE NUMBER	1001005

CITY OF SALMON ARM
CLIENT

CLIENT PROJECT NUMBER

ECM UPGRADE FOR SHAW CENTRE
2600 - 10 AVENUE N.E.
SALMON ARM, BC, V1E 2S4
PROJECT NAME & ADDRESS

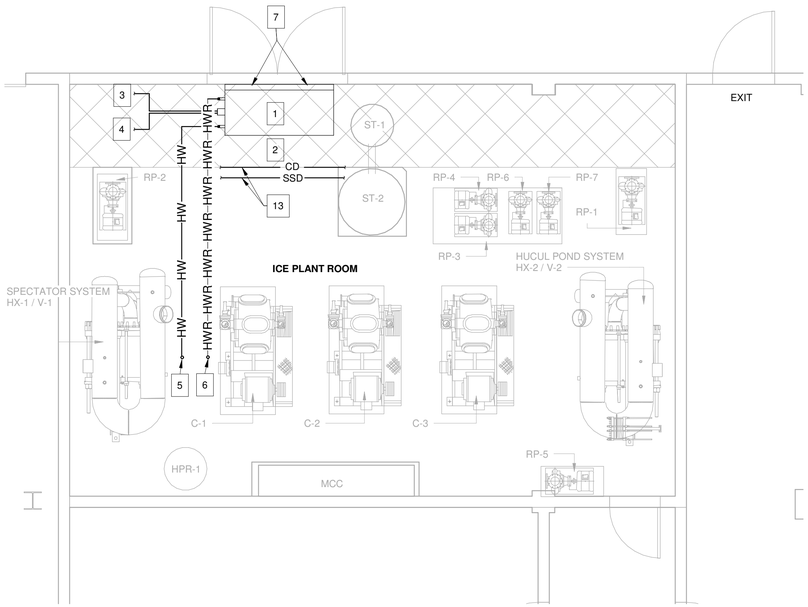
HUCUL POND ARENA LEGEND AND SYMBOLS
DRAWING TITLE

PROJECT NUMBER	24E010
DRAWN BY	PH
DESIGNER	GL/SW
ENGINEER	DN
SCALE: NTS	DRAWING NO.: M100

DATE PRINTED: 2025-02-12 1:28:36 PM

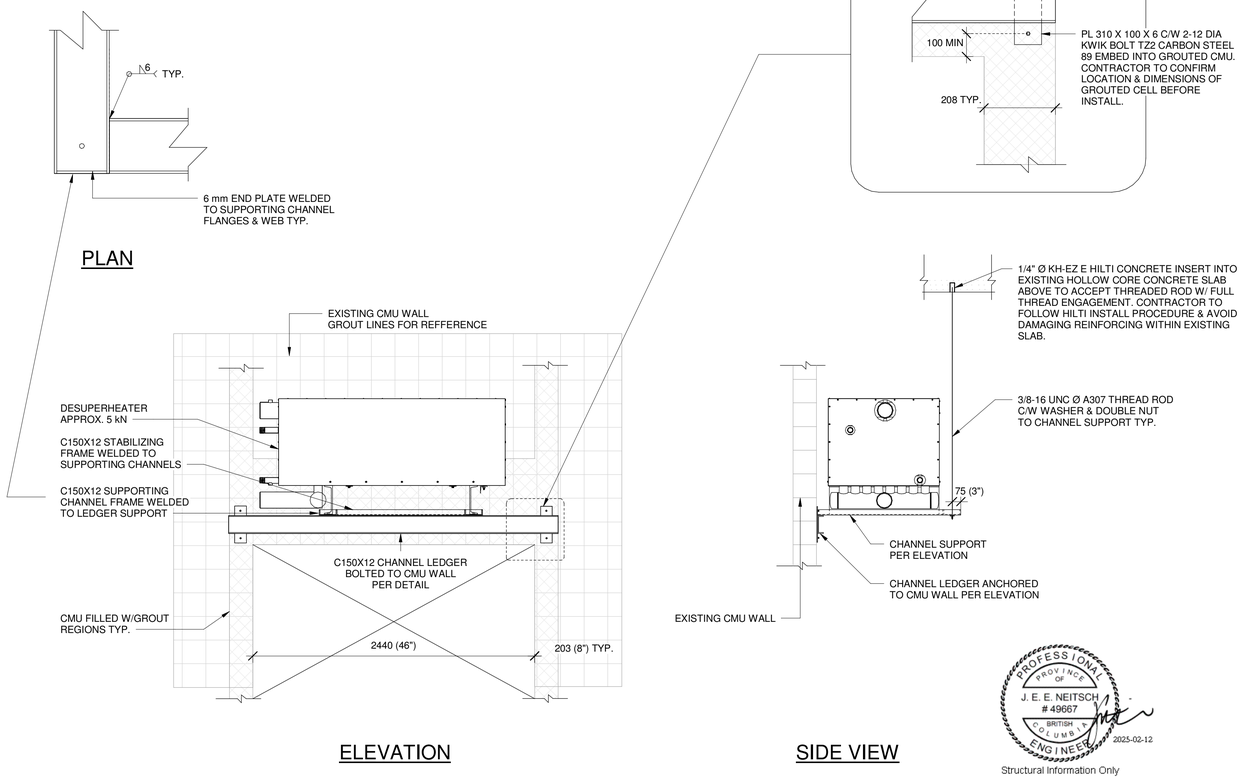
ORIGINAL SHEET SIZE: 24"x36" (ARCH D)

DRAWING NOTES	
NOTE #	DESCRIPTION
1	DESUPERHEATER DSPH-1
2	DESUPERHEATER, DEVICES, REFRIGERANT LINES, AND CONNECTIONS TO ICE PLANT BY REFRIGERATION CONTRACTOR
3	HOT GAS LINE, SIZING, AND CONNECTIONS TOTHE ICE PLANT BY REFRIGERATION CONTRACTOR
4	LOW-PRESSURE LIQUID LINE, SIZING, AND CONNECTIONS TOTHE ICE PLANT BY REFRIGERATION CONTRACTOR
5	40 mm (1.5") HOT WATER PREHEAT SUPPLY LINE FROM THE DESUPERHEATER UP TO MECH. ROOM ABOVE
6	40 mm (1.5") HOT WATER RETURN LINE FROM THE DESUPERHEATER UP TO MECH. ROOM ABOVE
7	MOUNTING COMPONENTS FOR DESUPERHEATER: REFER TO STRUCTURAL DRAWING FOR DETAILS
8	RELOCATE AMMONIA LINES TO PROVIDE CLEARANCE FOR INSTALLATION OF DESUPERHEATER



1 ICE PLANT FLOOR PLAN

1 : 50



2 DESUPERHEATER SUPPORT DETAIL

N.T.S.

PROFESSIONAL ENGINEER PROVINCE OF BRITISH COLUMBIA J. E. E. NEITSCH # 49667
2025-02-12
Structural Information Only

PROFESSIONAL ENGINEER PROVINCE OF BRITISH COLUMBIA D. L. NAKATSU # 53519
2025-02-25

Extropic Energy Inc.

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PHONE: 236-361-9304
EMAIL: makeitbetter@extropic.ca
WEBSITE: https://www.extropic.ca/

REVISION SCHEDULE

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PERMIT TO PRACTICE NUMBER	1001005

CITY OF SALMON ARM
CLIENT

CLIENT PROJECT NUMBER

ECM UPGRADE FOR SHAW CENTRE

2600 - 10 AVENUE N.E.
SALMON ARM, BC, V1E 2S4

PROJECT NAME & ADDRESS

HUCUL POND ARENA LOWER LEVEL FLOOR PLAN

DRAWING TITLE

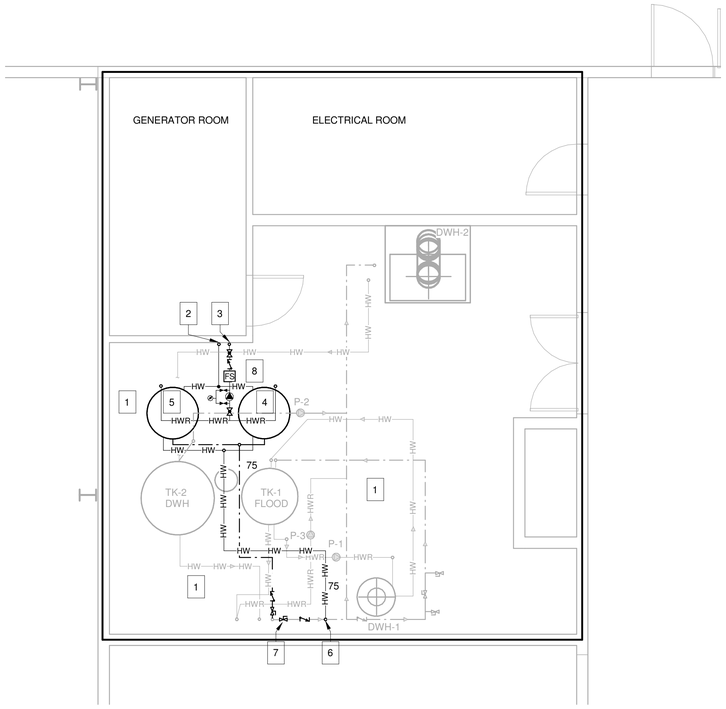
PROJECT NUMBER	24E010
DRAWN BY	PH
DESIGNER	GL/SW
ENGINEER	DN

AS NOTED	M101
SCALE	DRAWING NO.

DATE PRINTED: 2025-02-12 1:28:37 PM

ORIGINAL SHEET SIZE: 24"x36" (ARCH D)

DRAWING NOTES	
NOTE #	DESCRIPTION
1	REFER TO SCHEMATIC DRAWING M-103 FOR ALL VALVES AND DEVICES
2	40 mm (1.5") HOT WATER PRE-HEAT SUPPLY LINE FROM THE DESUPERHEATER IN THE ICE PLANT ROOM
3	40 mm (1.5") HOT WATER RETURN LINE TO THE DESUPERHEATER IN THE ICE PLAN ROOM
4	NEW PRE-HEAT WATER STORAGE TANK -PHTK-1
5	NEW PRE-HEAT WATER STORAGE TANK -PHTK-2
6	CONNECT THE NEW 75 mm (3") HOT WATER PRE-HEAT LINE TO THE EXISTING 75 mm (3") COLD WATER SYPPLY LINE
7	INSTALL NEW CHECK VALVE AND ISOLATION VALVE INTO EXISTING 75 mm (3") COLD WATER SUPLY LINE
8	NEW PREHEAT HOT WATER RETURN PUMP PHP-1. FOR ALL VALVES AND DEVICES, REFER TO SCHEMATIC DRAWING M-103



1 MECHANICAL & EL. ROOM

1 : 50

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CONTRACTOR TO REFER TO ENTIRE DESIGN PACKAGE INCLUDING DRAWINGS AND SPECIFICATIONS. REPORT ANY ERRORS OR DESIGN ISSUES BEFORE STARTING WORK. COORDINATE WORK WITH OTHER DISCIPLINES. CONTRACTOR IS RESPONSIBLE TO VERIFY ALL DIMENSIONS, DO NOT SCALE DRAWINGS. CONTRACTOR IS REPONSIBLE FOR EQUIPMENT SIZE SHOP DRAWINGS AND ENSURING IT FITS ON SITE.

REVISION SCHEDULE

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PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
D. L. NAKATSU
53819
2025-02-25

PERMIT TO PRACTICE NUMBER	1001005

CITY OF SALMON ARM

CLIENT

CLIENT PROJECT NUMBER

ECM UPGRADE FOR SHAW CENTRE

2600 - 10 AVENUE N.E.
SALMON ARM, BC, V1E 2S4

PROJECT NAME & ADDRESS

HUCUL POND ARENA
UPPER LEVEL FLOOR PLAN

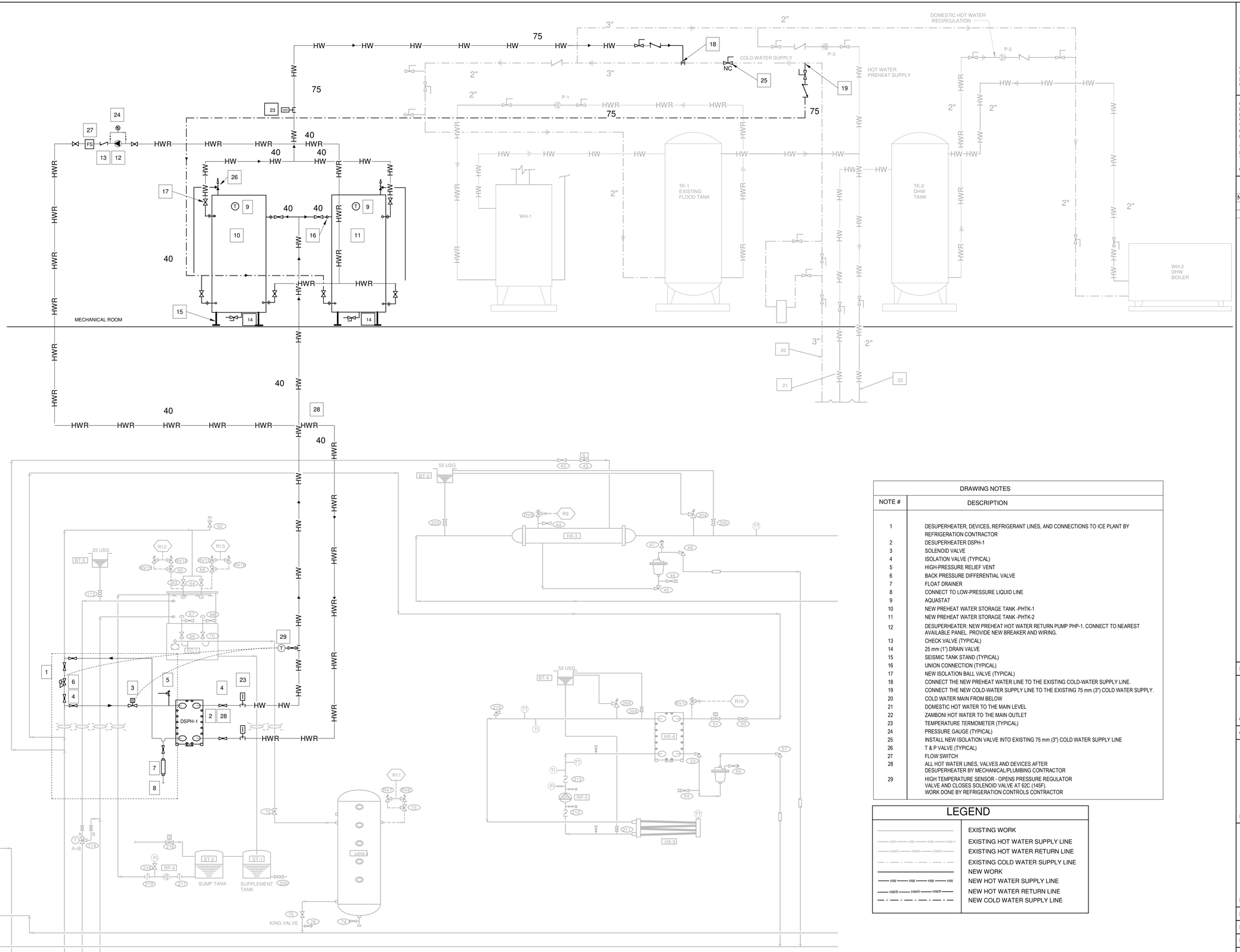
DRAWING TITLE

PROJECT NUMBER	24E010
DRAWN BY	PH
DESIGNER	GL/SW
ENGINEER	DN

AS NOTED	M102
SCALE	DRAWING NO.

DATE PRINTED: 2025-02-12 1:28:38 PM

ORIGINAL SHEET SIZE: 24"x36" (ARCH D)



DRAWING NOTES

NOTE #	DESCRIPTION
1	DESUPERHEATER, DEVICES, REFRIGERANT LINES, AND CONNECTIONS TO ICE PLANT BY REFRIGERATION CONTRACTOR
2	DESUPERHEATER DSPH-1
3	SOLENOID VALVE
4	ISOLATION VALVE (TYPICAL)
5	HIGH-PRESSURE RELIEF VENT
6	BACK PRESSURE DIFFERENTIAL VALVE
7	FLOAT DRAINER
8	CONNECT TO LOW-PRESSURE LIQUID LINE
9	AQUASTAT
10	NEW PREHEAT WATER STORAGE TANK -PHTK-1
11	NEW PREHEAT WATER STORAGE TANK -PHTK-2
12	DESUPERHEATER: NEW PREHEAT HOT WATER RETURN PUMP PHP-1. CONNECT TO NEAREST AVAILABLE PANEL. PROVIDE NEW BREAKER AND WIRING.
13	CHECK VALVE (TYPICAL)
14	25 mm (1") DRAIN VALVE
15	SEISMIC TANK STAND (TYPICAL)
16	UNION CONNECTION (TYPICAL)
17	NEW ISOLATION BALL VALVE (TYPICAL)
18	CONNECT THE NEW PREHEAT WATER LINE TO THE EXISTING COLD-WATER SUPPLY LINE.
19	CONNECT THE NEW COLD-WATER SUPPLY LINE TO THE EXISTING 75 mm (3") COLD WATER SUPPLY.
20	COLD WATER MAIN FROM BELOW
21	DOMESTIC HOT WATER TO THE MAIN LEVEL
22	ZAMBONI HOT WATER TO THE MAIN OUTLET
23	TEMPERATURE TERMOMETER (TYPICAL)
24	PRESSURE GAUGE (TYPICAL)
25	INSTALL NEW ISOLATION VALVE INTO EXISTING 75 mm (3") COLD WATER SUPPLY LINE
26	T & P VALVE (TYPICAL)
27	FLOW SWITCH
28	ALL HOT WATER LINES, VALVES AND DEVICES AFTER DESUPERHEATER BY MECHANICAL/PLUMBING CONTRACTOR
29	HIGH TEMPERATURE SENSOR - OPENS PRESSURE REGULATOR VALVE AND CLOSES SOLENOID VALVE AT 62C (145F). WORK DONE BY REFRIGERATION CONTROLS CONTRACTOR

LEGEND

	EXISTING WORK
HW HW HW HW	EXISTING HOT WATER SUPPLY LINE
HWR HWR HWR	EXISTING HOT WATER RETURN LINE
	EXISTING COLD WATER SUPPLY LINE
	NEW WORK
HW HW HW HW	NEW HOT WATER SUPPLY LINE
HWR HWR HWR	NEW HOT WATER RETURN LINE
	NEW COLD WATER SUPPLY LINE

1 DOMESTIC HOT WATER PREHEAT SCHEMATIC

NTS

DATE PRINTED: 2025-02-12 1:28:39 PM

ORIGINAL SHEET SIZE: 24"x36" (ARCH D)

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PROFESSIONAL ENGINEER — PROVINCE OF BRITISH COLUMBIA — D. L. NAKATSU — # 53919
2025-02-25

PERMIT TO PRACTICE NUMBER	1001005

CITY OF SALMON ARM
CLIENT

CLIENT PROJECT NUMBER

ECM UPGRADE FOR SHAW CENTRE
2600 - 10 AVENUE N.E.
SALMON ARM, BC, V1E 2S4
PROJECT NAME & ADDRESS

DOMESTIC HOT WATER PREHEAT SCHEMATIC
DRAWING TITLE

PROJECT NUMBER	24E010
DRAWN BY	PH
DESIGNER	GL/SW
ENGINEER	DN
NTS (SCALE)	M103 (DRAWING NO.)

GENERAL NOTES FOR STRUCTURAL DESIGN

GENERAL

1. THESE DRAWINGS SHOW THE COMPLETED STRUCTURAL WORK FOR THE INSTALLATION OF THE DESUPERHEATER AT THE SHAW CENTRE IN SALMON ARM.

2. BUILDING AND STRUCTURAL ELEMENTS NOT SHOWN ON THESE DRAWINGS BUT NECESSARY FOR THE COMPLETION OF THE BUILDING SHALL BE DESIGNED BY THE GENERAL CONTRACTOR.

3. THE CONTRACTOR IS TO READ AND VERIFY ALL DIMENSIONS AND INFORMATION ON THESE DOCUMENTS PRIOR TO COMMENCING WORK.

4. THE GENERAL CONTRACTOR IS RESPONSIBLE FOR CONSTRUCTION AND DESIGN OF TEMPORARY BRACING OR SHORING FOR STABILITY DURING EXCAVATION AND CONSTRUCTION TO ENSURE SAFETY AT THE JOB SITE AND ADHERENCE TO WORK SAFE REGULATION.

ABBREVIATIONS
T.O. ----- TOP OF
U/S ------- UNDERSIDE
E/F ------- EACH FACE
E/S ------- EACH SIDE
U.N.O. --- UNLESS NOTED OTHERWISE
CLR ------ CLEAR
C/W ------ COMPLETE WITH
PL -------- PLATE

FIELD REVIEW BY EXTROPIC

EXTROPIC PROVIDES FIELD REVIEW ONLY FOR THE WORK SHOWN ON THESE STRUCTURAL DRAWINGS. THIS REVIEW IS NOT A "FULL TIME" REVIEW BUT IS CONDUCTED WITH SUCH FREQUENCY AS EXTROPIC DEEMS APPROPRIATE TO OBSERVE VARIOUS STAGES OF THE WORK AND TO ASCERTAIN THAT THE WORK IS IN GENERAL CONFORMANCE WITH THE PLANS AND SUPPORTING DOCUMENTS PREPARED BY EXTROPIC. FIELD REVIEW BY EXTROPIC IS NOT CARRIED OUT FOR THE CONTRACTOR'S BENEFIT, NOR DOES IT MAKE EXTROPIC GUARANTORS OF THE CONTRACTOR'S WORK. IT REMAINS THE CONTRACTOR'S RESPONSIBILITY TO BUILD THE WORK IN CONFORMANCE WITH THE CONTRACT DOCUMENTS. EXTROPIC SHALL NOT BE RESPONSIBLE FOR THE ACTS OR OMISSIONS OF THE CONTRACTOR, SUB-CONTRACTOR, OR ANY OTHER PERSONS PERFORMING ANY OF THE WORK OR FOR THE FAILURE OF ANY OF THEM TO CARRY OUT THE WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.

EXTROPIC WILL REVIEW SHOP DRAWINGS PERTAINING TO WORK SHOWN ON EXTROPIC'S DRAWINGS. THE EXTENT OF THIS REVIEW IS AT THE SOLE DISCRETION OF EXTROPIC'S ENGINEER AND IS FOR THE SOLE PURPOSE OF ASCERTAINING GENERAL CONFORMANCE WITH THE STRUCTURAL DESIGN CONCEPT. THE REVIEW IS NOT AN APPROVAL OF THE DESIGN, DETAILS, AND DIMENSIONS INHERENT IN THE SHOP DRAWINGS, RESPONSIBILITY FOR WHICH SHALL REMAIN WITH THE CONTRACTOR OR SUBCONTRACTOR SUBMITTING THEM. SUCH REVIEW SHALL NOT RELIEVE THE CONTRACTOR OR SUBCONTRACTOR OF HIS OR HER RESPONSIBILITY FOR ERRORS AND OMISSIONS IN THE SHOP DRAWINGS OR FOR MEETING ALL REQUIREMENTS OF THE CONTRACT DOCUMENTS.

PROVIDE 24 HOURS ADVANCE NOTICE OF EACH REQUIRED FIELD REVIEW. FIELD REVIEWS SHALL BE SCHEDULED TO BE CARRIED OUT DURING NORMAL BUSINESS HOURS UNLESS SPECIAL ARRANGEMENTS ARE MADE WITH EXTROPIC.

THE WORK TO BE REVIEWED SHALL BE GENERALLY COMPLETE.

DESIGN LOADS & CODES

1. THE GOVERNING BUILDING CODE SHALL BE: THE BRITISH COLUMBIA BUILDING CODE, 2024 EDITION AND ALL REFERENCE CODES AND STANDARDS LISTED WITHIN.

2. AS APPROPRIATE, THE SUPPLEMENT TO THE NATIONAL BUILDING CODE OF CANADA SHALL BE USED WHERE IT COMPLIMENTS THE ABOVE MENTIONED GOVERNING CODES.

3. THE FOLLOWING DESIGN ITEMS CONFORM TO THE GIVEN CODES:
   - CONCRETE DESIGN: CAN/CSA A23.3-14
   - STRUCTURAL STEEL: CAN/CSA S16-14
   - MASONRY: CAN/CSA S304.1

DESIGN PARAMETERS & CLIMATIC DATA

LOCATION: SALMON ARM, BC
IMPORTANCE CATEGORY = POST DISASTER
SITE CLASS: D (ASSUMED)
SEISMIC LOAD CALCULATED PER CATEGORY 11 OF TABLE 4.1.8.18
Sa (0.2) = 0.24
Sa (0.5) = 0.22
Sa (1.0) = 0.17

STRUCTURAL STEEL

STRUCTURAL STEEL SECTIONS SHALL BE NEW AND CONFORM TO THE FOLLOWING:

- MISCELLANEOUS ROLLED SECTIONS, INCLUDING CHANNELS AND ANGLES ---------- CSA G40.21 GRADE 300W
- HOLLOW STRUCTURAL SECTIONS (CLASS C U.N.O.) --- CSA G40.21 GRADE 350W
- ROLLED PLATES ---------- CSA G40.21 GRADE 300W
- BOLTS (SEE PLANS AND DETAILS) -------- ASTM A325 OR ASTM A490
- STRUCTURAL STEEL ANCHOR RODS (U.N.O.) ---------- ASTM F1554 GRADE 36 MINIMUM
- REINFORCING BAR ANCHOR BOLTS -------- CSA G30.18 GRADE 400R

PRIOR TO SUBMITTING SHOP DRAWINGS THE CONTRACTOR SHALL NOTIFY EXTROPIC IN WRITING THAT THE FABRICATOR IS CERTIFIED TO A MINIMUM OF DIVISION 2 OF CSA W47.1.

SUBMIT SHOP DRAWINGS FOR REVIEW PRIOR TO START OF STEEL FABRICATION.

FABRICATION, ERECTION, STRUCTURAL DESIGN AND DETAILING OF ALL STEEL SHALL BE IN ACCORDANCE WITH CSA S16.

FILLET WELDS SHALL BE 3/16" MINIMUM U.N.O.

STEEL TO BE EXPOSED IN FINISHED WORK SHALL BE CLEANED, PREPARED, PRIMED AND PAINTED IN ACCORDANCE WITH CSA S16 AND THE ARCHITECTURAL DRAWINGS AND PAINTING SPECIFICATION.

UNLESS NOTED OTHERWISE, DO NOT OVERSIZE HOLES IN STEEL TO FIT ANY ANCHOR LOCATIONS.

TOP FLANGES OF BEAMS TO BE FREE OF ALL PAINT, DIRT, HEAVY RUST, MILL SCALE, SAND AND OTHER MATERIALS WHICH WILL INTERFERE WITH WELDING OF STUD SHEAR CONNECTIONS AND STEEL DECK TO BEAMS.

GENERAL SEISMIC REQUIREMENTS:

- WELDS AND WELD MATERIAL SHALL SATISFY CSA S16 CLAUSE 27.1.5.3 (CHARPY REQUIREMENTS).

POST-INSTALLED ADHESIVE AND MECHANICAL ANCHORS

PRODUCTS

MECHANICAL ANCHORS TO MEET THE ASSESSMENT CRITERIA OF ACI 355.2.

ADHESIVE ANCHORS TO MEET THE ASSESSMENT CRITERIA OF ACI 355.4.

EXCEPT WHERE NOTED OTHERWISE ON THE DRAWINGS, ANCHORS SHALL CONSIST OF THE FOLLOWING ANCHOR TYPES AS PROVIDED BY HILTI (CANADA) LTD. CONTACT HILTI AT (800) 363-4458 FOR PRODUCT RELATED QUESTIONS.

ANCHOR CAPACITY USED IN DESIGN IS BASED ON ICC TEST REPORT DATA AND GUIDELINES PUBLISHED BY HILTI.

ALTERNATE FASTENING SYSTEMS PROPOSED BY THE CONTRACTOR SHALL BE SUBMITTED TO THE STRUCTURAL ENGINEER FOR REVIEW AND APPROVAL. ALTERNATE ADHESIVE OR MECHANICAL ANCHORS MUST BE EQUAL CONSIDERING LOAD RESISTANCE, USE IN CRACKED OR UNCRACKED CONCRETE, IN SERVICE AND INSTALLATION TEMPERATURE, AVAILABILITY OF COMPREHENSIVE INSTALLATION INSTRUCTIONS, CREEP TESTING, SEISMIC TESTING, AND APPROPRIATE ON SITE TRAINING. PERFORMANCE OF ALTERNATE SYSTEMS MUST BE VALIDATED BY ICC ESR TEST REPORTS AND MUST BE QUALIFIED UNDER ACI 355.2 OR ACI 355.4 AS APPROPRIATE.

REDESIGN OR REVIEW OF CONNECTIONS BY EXTROPIC TO UTILIZE ANCHOR SYSTEMS BY OTHER MANUFACTURERS AND REQUESTED BY THE CONTRACTOR TO BE PAID FOR BY THE CONTRACTOR.

INSTALLATION

INSTALL ANCHORS PER THE MANUFACTURER'S INSTRUCTIONS, AS INCLUDED IN THE ANCHOR PACKAGING.

ADHESIVE OR MECHANICAL ANCHOR CAPACITY IS DEPENDENT UPON SPACING BETWEEN ADJACENT ANCHORS AND PROXIMITY OF ANCHORS TO THE EDGE OF THE CONCRETE. INSTALL ANCHORS IN ACCORDANCE WITH SPACING AND EDGE CLEARANCES INDICATED ON THE DRAWINGS.

ADHESIVE OR MECHANICAL ANCHOR CAPACITY IS DEPENDENT ON THE HOLE DRILLING METHOD AND HOLE CLEANING TECHNIQUE. UNLESS NOTED OTHERWISE, ALL ANCHOR CAPACITIES ARE BASED ON HAMMER-DRILLED HOLES USING CARBIDE-TIPPED BITS AND STANDARD HOLE CLEANING USING MULTIPLE BRUSHING AND AIR BLAST STEPS. UNLESS NOTED OTHERWISE ON THE STRUCTURAL DRAWINGS, DO NOT SUBSTITUTE OTHER HOLE DRILLING METHODS (DIAMOND CORING, SAFESET, ETC.) OR HOLE CLEANING METHODS (SAFESET, ETC.) WITHOUT PRIOR WRITTEN APPROVAL BY EXTROPIC.

DO NOT CUT REINFORCING BARS TO INSTALL ANCHORS UNLESS THE STRUCTURAL DRAWINGS SPECIFICALLY NOTE A PARTICULAR DETAIL THAT THE REINFORCING BARS IN THE CONCRETE OR MASONRY CAN BE CUT.

EXISTING REINFORCING BARS IN THE CONCRETE OR MASONRY STRUCTURE MAY CONFLICT WITH SPECIFIC ANCHOR LOCATIONS. UNLESS NOTED ON THE DRAWINGS THAT THE BARS CAN BE CUT, THE CONTRACTOR SHALL REVIEW THE EXISTING STRUCTURAL DRAWINGS AND SHALL UNDERTAKE TO LOCATE THE POSITION OF THE REINFORCING BARS AT THE LOCATIONS OF CONCRETE ANCHORS, BY HILTI FERROSCAN, HILTI PS 1000, GPR, X-RAY, OR OTHER MEANS, BEFORE ANY HOLES ARE DRILLED.

AT LOCATIONS OF INTERFERENCE BETWEEN CONCRETE ANCHORS AND EXISTING REINFORCEMENT, ADJUST PROPOSED LOCATIONS OF ANCHORS AS REQUIRED TO AVOID CUTTING REINFORCEMENT. SUBMIT A PROPOSED ANCHOR LAYOUT TO EXTROPIC FOR REVIEW AND APPROVAL BEFORE INSTALLING ANCHORS.

WHEN ANCHORS ARE USED TO ATTACH STRUCTURAL STEEL, THE CONTRACTOR SHALL USE A TEMPLATE TO LOCATE THE ANCHOR HOLES. IF THIS IS NOT DONE OR IF ANCHORS ARE RE-LOCATED DUE TO CONFLICTS, THE CONTRACTOR SHALL PREPARE TEMPLATES OF THE AS-BUILT ANCHOR POSITIONS UPON COMPLETION OF ANCHOR INSTALLATION. THE CONTRACTOR SHALL REFER TO THESE TEMPLATES FOR THE FABRICATION OF THE STEEL STRUCTURE.

DO NOT OVERSIZE HOLES IN STEEL MATERIAL TO FIT ANCHOR LOCATIONS.

THE EXPOSED PORTION OF ANCHORS INCLUDES MANUFACTURER'S MARKINGS THAT DESIGNATE ANCHOR TYPE, MATERIAL GRADE, LENGTH, ETC. CUTTING OFF OF THESE MARKINGS PRIOR TO REVIEW OF ANCHOR INSTALLATION IN CONFORMANCE WITH THE STRUCTURAL DRAWINGS WILL RESULT IN REJECTION OF THE ANCHORS.

ON-SITE TRAINING AND CERTIFICATION

THE CONTRACTOR SHALL RETAIN AN ANCHOR MANUFACTURER'S REPRESENTATIVE TO PROVIDE ON-SITE INSTALLATION TRAINING FOR ALL OF THE ANCHORING PRODUCTS SPECIFIED.

ALL PERSONNEL WHO INSTALL ANCHORS MUST HAVE RECEIVED TRAINING WITHIN THE PREVIOUS 12 MONTHS FOR THE SPECIFIC ANCHOR SYSTEM TO BE UTILIZED.

SUBMIT CERTIFICATION OF TRAINING FOR ALL OF THE CONTRACTOR'S PERSONNEL WHO MAY BE INSTALLING ANCHORS TO THE ENGINEER OF RECORD PRIOR TO THE COMMENCEMENT OF INSTALLING ANCHORS.

Extropic Energy Inc.
ADDRESS: 361 BEACH AVENUE, KELOWNA, BC, V1Y 5R7
PHONE: 236-361-9304
EMAIL: makeitbetter@extropic.ca
WEBSITE: https://www.extropic.ca/

REVISION SCHEDULE

NO.	DATE	DESCRIPTION	BY
1	2025-01-31	IFT REVIEW	DN
2	2025-02-12	ISSUED FOR TENDER	DN

PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
J. E. E. NEITSCH
49667
2025-02-12

PERMIT TO PRACTICE NUMBER 1001005

CITY OF SALMON ARM
CLIENT
CLIENT PROJECT NUMBER

ECM UPGRADE FOR SHAW CENTRE
2600 - 10 AVENUE N.E.
SALMON ARM, BC, V1E 2S4
PROJECT NAME & ADDRESS

HUCUL POND ARENA GENERAL NOTES FOR STRUCTURAL DESIGN
DRAWING TITLE

PROJECT NUMBER	24E010
DRAWN BY	PH
DESIGNER	GL/SW
ENGINEER	DN

SCALE	DRAWING NO.
NTS	M104

DATE PRINTED: 2025-02-12 1:28:39 PM

ORIGINAL SHEET SIZE: 24"x36" (ARCH D)