

### MECHANICAL SITE SERVICING KEYNOTES

- 1 > CONNECT NEW GAS SERVICE TO EXISTING GAS UTILITY AT APPROXIMATE LOCATION SHOWN. CONTRACTOR TO DETERMINE EXACT LOCATION OF EXISTING GAS UTILITY ON SITE AND COORDINATE APPLICATION AND INSTALLATION OF NEW GAS SERVICE WITH OWNER AND GAS UTILITY.
- (2) NEW GAS METER/REGULATOR SET WITH A CAPACITY OF 51m³/hr(1800ft³/hr) AT 34.5kPA (5psi) OPERATING PRESSURE. CONTRACTOR TO CO-ORDINATE APPLICATION AND INSTALLATION OF NEW GAS SERVICE WITH OWNER AND GAS UTILITY.
- $\langle 3 \rangle$  GAS LINE UP ABOVE GRADE TIGHT TO BUILDING FOUNDATION. COORDINATE INSTALLATION WITH GAS UTILITY.
- (4) PROVIDE 600mmx900mm CONCRETE PAD FOR GAS METER. COORDINATE INSTALLATION WITH GENERAL CONTRACTOR AND GAS
- 5 PIPE BOLLARD PROTECTION AROUND GAS METER PROVIDED BY GAS UTILITY.
- 6 SEE MAIN FLOOR PLUMBING PLAN 1/M6.2 FOR CONTINUATION OF GAS UTILITY.
- 7 CONNECT NEW 19mm WATER SERVICE TO EXISTING 100mm WATER SERVICE AT APPROXIMATE LOCATION SHOWN. CONTRACTOR TO DETERMINE EXACT LOCATION ON SITE.
- $\langle$  8  $\rangle$  NEW UNDERGROUND ISOLATION VALVE. SEE DETAIL 2/M6.1.
- $\langle$  9  $\rangle$  see main floor plumbing plan 1/m6.2 for continuation OF WATER LINE INTO BUILDING.
- 10) CONNECT NEW 100mm SANITARY SEWER SERVICE TO EXISTING MANHOLE AT APPROXIMATE LOCATION SHOWN BELOW FROST LEVEL. CONTRACTOR TO DETERMINE EXACT LOCATION ON SITE.
- 11 SEE MAIN FLOOR PLUMBING PLAN 1/M6.1 FOR CONTINUATION OF SANITARY SEWER SERVICE WITHIN BUILDING.

SIT	E SERVICING	LEGEND
<u>EXISTING</u>	<u>PROPOSED</u>	
		WATER
	<del></del>	SANITARY SEWER
G	—— <b>c</b> ——	GAS LINE
0	0	U/G ISOLATION VALVE
$\otimes$		MANHOLE
	<b>©</b>	GAS METER
	®	GAS REGULATOR
	⋫	GAS ISOLATION VALVE
MHR = XXX.XXX		MANHOLE RIM

INV. = XXX.XXX

PIPE INVERT

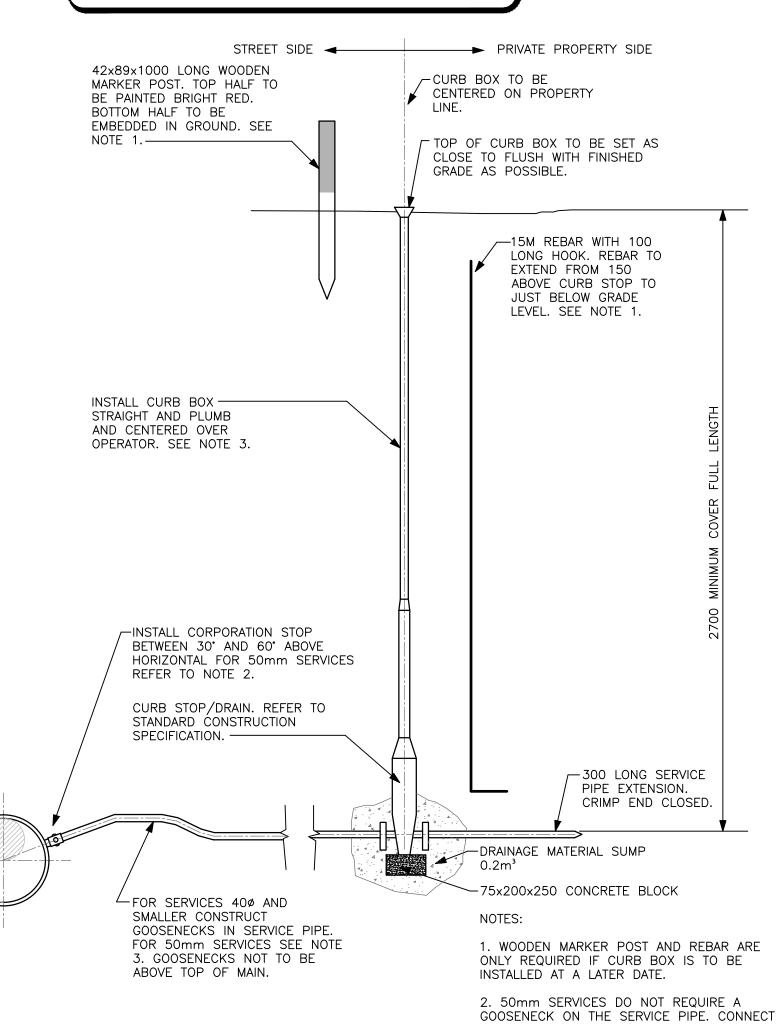
## MECHANICAL SITE SERVICING GENERAL NOTES

. SITE SERVICES CONTRACTOR TO CO-ORDINATE ALL UNDERGROUND PIPING WITH THE OWNER, GENERAL CONTRACTOR, GAS UTILITY, ELECTRICAL UTILITY, TELEPHONE UTILITY, ETC.

- ALL SERVICES TO BE INSTALLED AS PER THE NATIONAL PLUMBING CODE OF CANADA, PROVINCIAL CODE, AND MUNICIPAL STANDARDS & REQUIREMENTS.
- 6. ALL NATURAL GAS PIPING TO BE INSTALLED AS PER THE CANADIAN GAS INSTALLATION CODE AND NATURAL GAS UTILITY
- STANDARDS & REQUIREMENTS. . UTILITY INFORMATION SHOWN WAS OBTAINED FROM OWNER INFORMATION. CONTRACTOR TO FIELD DETERMINE EXACT LOCATIONS & INVERTS OF ALL EXISTING SITE AND UTILITY
- 5. ALL PIPING IS SHOWN SCHEMATICALLY.

SERVICES PRIOR TO EXCAVATION.

- CONTRACTOR IS RESPONSIBLE FOR ALL MUNICIPAL AND UTILITY PERMIT FEES, INSPECTION FEES, CONNECTION FEES, BONDING,
- . CONTRACTOR TO MAKE GOOD AND LEVEL TO SURROUNDINGS AS PER MUNICIPAL STANDARDS AND REQUIREMENTS, ALL SURFACES ON TOWN AND/OR ADJACENT PROPERTY DISTURBED AS A RESULT OF UNDERGROUND UTILITY INSTALLATION INCLUDING ASPHALT SURFACES, GRAVEL SURFACES, CONCRETE CURBS, CONCRETE SIDEWALKS, LANDSCAPED AREAS, ETC.
- 8. PROTECT ALL EXISTING UNDERGROUND UTILITIES FROM DAMAGE DURING CONSTRUCTION.
- 9. ON COMPLETION OF UTILITY INSTALLATION PERFORM ALL LEAKAGE AND PRESSURE TEST ON WATER AND SEWER SERVICES AS PER MUNICIPAL STANDARDS AND REQUIREMENTS AND AS PER AWWA
- 10. ALL NEW PIPING, FITTINGS, AND EQUIPMENTS TO BE INSTALLED AS PER THE MANUFACTURER'S SPECIFICATIONS AND RECOMMENDATIONS.
- 1. STERILIZE NEW WATER SERVICES WITH CHLORINE AS PER THE SASKATCHEWAN PLUMBING CODE & MUNICIPAL STANDARDS AND PROVIDE DETAILED WRITTEN RECORDS. FLUSH SYSTEM AND HAVE BACTERIOLOGICAL TESTS COMPLETED AT A CERTIFIED LABORATORY. RESULTS TO CONFORM TO SASKATCHEWAN ENVIRONMENT AND MUNICIPALITY PRIOR TO WATER USAGE.
- 12. ALL MATERIALS AND CONSTRUCTION TO MEET MUNICIPALITY STANDARD CONSTRUCTION SPECIFICATIONS.
- 13. CONTRACTOR IS RESPONSIBLE FOR THE COST OR REPAIR OF ANY DAMAGE TO ADJACENT PROPERTY OR WORKS LOCATED THEREON THAT MAY OCCUR AS A REULT OF UNDERTAKING WORK FOR WHICH THE PERMIT IS REQUIRED.



TO MAIN AT HORIZONTAL.

BUILDING.

3. INSTALL THE CURB BOX WHEN THE

SERVICE LINE IS BEILING EXTENDED TO THE

ALL DIMENSIONS ARE IN MILLIMETRES UNLESS SPECIFICALLY DENOTED OTHERWISE.

U/G WATER ISOLATION VALVE **INSTALLATION DETAIL** 

M6.1 SCALE: NTS

## Carcoana ARCHITECTURE LTD

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A DIVISION OF McGINN GROUP 1457 ALBERT STREET, REGINA,

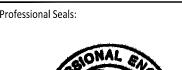
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ENGINEERING LTD. ASSOCIATION OF PROFESSIONAL ENGINEERS OF SASKATCHEWAN **CERTIFICATE OF AUTHORIZATION** McGINN ENGINEERING LTD. No.: 124

DISCIPLINE SASK. REG. No.

Permission to Consult held by:





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## **HEADER BUILDING GREENHOUSES**

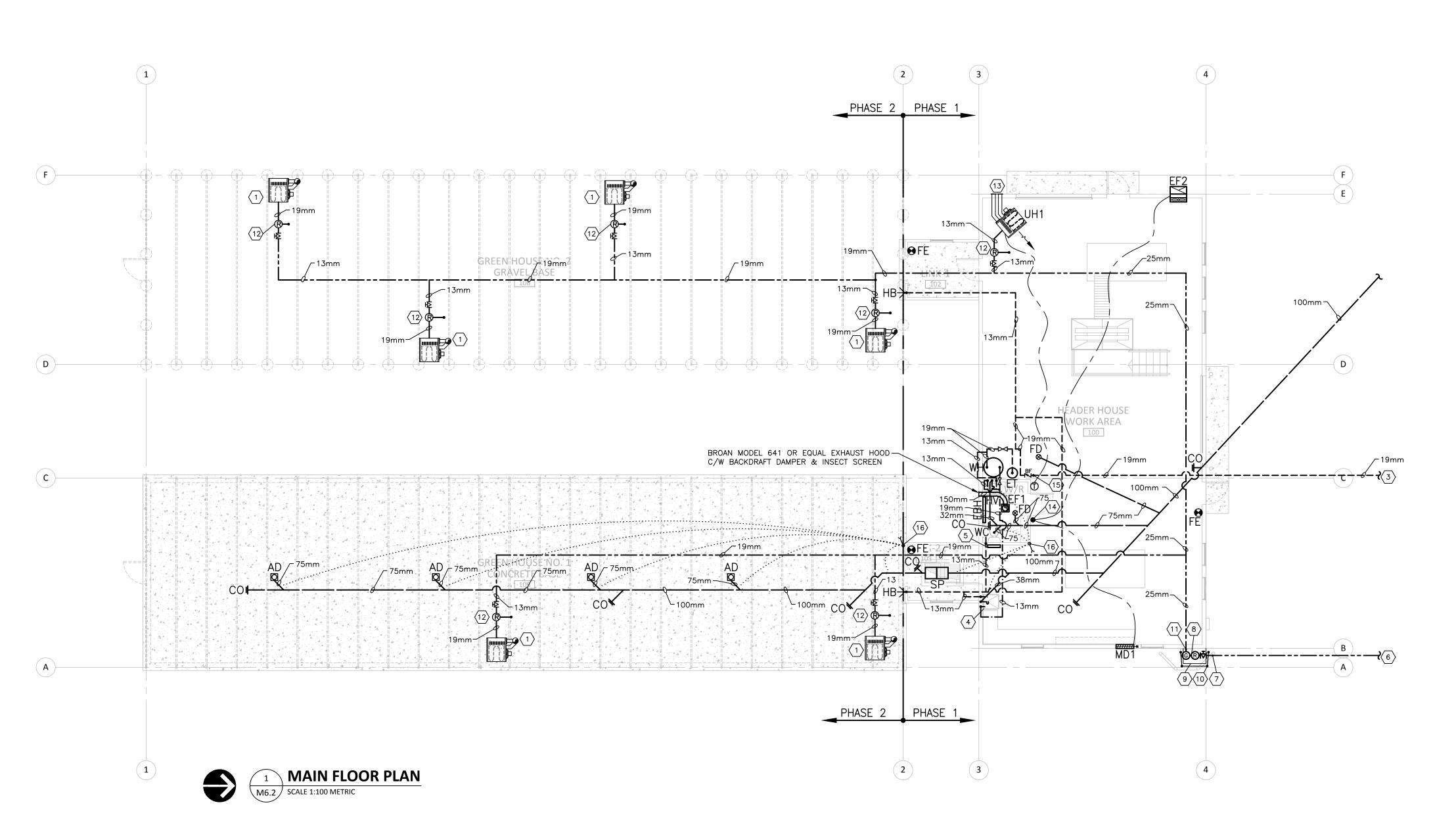
INDIAN HEAD, SASKATCHEWAN Issue Record:

**MECHANICAL SITE SERVICING PLAN** 

Scale: AS NOTED Designed By: GAS Date: 2015.11.30 Drawn By: **DAN** Checked By: GAS Date: NOV. 2015 Project No.: **4859** 

Issued For: **TENDER** 

Date Issued: 2016.01.06 Date Plotted: 2016.01.06



## H.V.A.C. LEGEND

THERMOSTAT

FLEXIBLE DUCT

SUPPLY AIR DUCT UP

SUPPLY AIR DUCT DOWN

RETURN AIR DUCT UP

RETURN AIR DUCT DOWN

EXHAUST AIR DUCT UP

EXHAUST AIR DUCT DOWN

## PLUMBING LEGEND

I LOMDIN	O LLOLIND
PROPOSED	
<del></del>	NATURAL GAS
	COLD WATER
	VENT LINE
	HOT WATER
<del></del>	SANITARY SEWER
⊗	FLOOR DRAIN
<del> </del>	CLEANOUT
● OR ID	PIPE UP
©	NATURAL GAS METER
®	NATURAL GAS REGULATOR
⋫	GAS ISOLATION VALVE
<b>№</b> BF	REDUCED PRESSURE TYPE BACKFLOW PREVENTER
\	

## H.V.A.C. GENERAL NOTES

- 1. ALL DUCTING SHOWN SCHEMATICALLY
- 2. ALL DUCT SIZES ARE NET SIZES.
- 3. ALL DUCT TAKE-OFFS TO BE 45° CONICAL WITH BALANCING DAMPERS.
- 4. DUCTING TO BE CONNECTED TO ALL FAN UNITS WITH CANVAS CONNECTIONS.
- 5. ALL MAIN SUPPLY PLENUM ELBOWS TO BE MITERED WITH TURNING VANES.
- 6. DUCT ELBOW RADII TO BE MINIMUM 1.5 TIMES THE TURNING DIMENSION.
- ALL DUCTING TO BE INSTALLED IN A GOOD WORKMANSHIP LIKE MANNER AS PER SMACNA STANDARDS. ALL EXPOSED DUCTWORK TO BE PAINTED TO MATCH ARCHITECTURAL.
- 8. COORDINATE ROUTING OF DUCTWORK IN CEILING WITH ELECTRICAL TO ENSURE ADEQUATE ACCESS TO ELECTRICAL SYSTEMS IS MAINTAINED AT THE HIGHEST POSSIBLE LEVEL.
- INSULATE ALL EXHAUST DUCTWORK FOR A DISTANCE OF 10ft. FROM THE BUILDING OUTLET COMPLETE WITH 1" FOILBACK FIBREGLASS INSULATION TO BE CANVAS WRAPPED IN FINISHED AREAS ONLY.
- 10. ENSURE ALL FLUE GAS AND EXHAUST OUTLETS ARE AT LEAST 10ft. AWAY FROM THE NEAREST FRESH AIR INTAKE.
- 11. ALL EQUIPMENT TO BE INSTALLED AS PER THE MANUFACTURER'S SPECIFICATIONS AND RECOMMENDATIONS.

## PLUMBING GENERAL NOTES

- ALL PLUMBING LINES SHOWN SCHEMATICALLY.
- 2. ALL WATER PIPING TO RUN CONCEALED IN FINISHED AREAS WITHIN CEILING SPACE, CRAWLSPACE, AND WALLS. PAINT ALL EXPOSED PIPING AS PER ARCHITECTURAL. ALL SEWER LINES TO RUN CONCEALED BELOW SLAB AND IN WALLS.
- ALL WATER LINES TO BE COVERED WITH 13mm (1/2") INSULATION AND WITH PVC JACKET IN EXPOSED AREAS.
- 4. ALL EQUIPMENT TO BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS AND RECOMMENDATIONS.
- 5. ALL PIPING TO FIXTURES AND EQUIPMENT TO RUN CONCEALED WHERE POSSIBLE.
- 5. ALL PIPING TO FIXTURES AND EQUIPMENT TO RUN CONCEALED WHERE POSSIBLE.
- 6. ALL WATER CONNECTIONS TO FIXTURES TO BE 13mm (1/2") UNLESS OTHERWISE SPECIFIED.
- 7. CONTRACTOR TO SUPPLY AND INSTALL PLUMBING VENTS, TRAP SEAL PRIMERS, CLEANOUTS, AND ISOLATION VALVES AS PER CODE.
- 8. INSTALL ALL GAS FIRED EQUIPMENT AND PIPING IN ACCORDANCE WITH THE CANADIAN GAS CODE AND GAS UTILITY REQUIREMENTS.
- 9. SOLDERS AND FLUXES HAVING A LEAD CONTENT IN EXCESS OF 0.2% SHALL NOT
- BE USED.

  10. CONTRACTOR TO FIELD DETERMINE THE EXACT LOCATION OF ALL EXISTING BUILDING
- 11. PVC AND PLASTIC PIPING MAY BE USED WHERE PERMITTED BY CODE. NO EXPOSED
- PLASTIC PIPING AT WATER CLOSETS. EXPOSED PIPING TO BE CHROME.
- 12. ALL PLUMBING TO BE INSTALLED IN ACCORDANCE WITH THE CANADIAN PLUMBING CODE, PROVINCIAL PLUMBING CODES, AND MUNICIPAL BYLAWS.
- 13. PROVIDE FIRESTOPS AT ALL PIPING THAT PASSES THROUGH FIRE SEPARATIONS.
- 14. PROVIDE TRUEBRO PREFABRICATED INSULATION PACKAGE OVER ALL EXPOSED WATER SUPPLIES AND WASTES AT BARRIER FREE SINKS DESIGNATED AS "HV".

## PLUMBING KEYNOTES (XXX) — DENOTES KEYNOTE ON DRAWING

- T) GREENHOUSE GAS FIRED UNIT HEATER SUPPLIED BY OTHERS. CONTRACTOR TO INSTALL
- COMPLETE WITH VENTING THRU ROOF/WALL & GAS PIPING. UNITS ARE 250 MBH INPUT.

  2 SEE MECHANICAL SITE SERVICES PLAN 1/M6.1 FOR CONTINUATION OF 100mm SANITARY
- SEWER SERVICE.
- SEE MECHANICAL SITE SERVICES PLAN 1/M6.1 FOR CONTINUATION OF 19mm WATER SERVICE.
- (4) EXISTING SINK RELOCATED BY OWNER. CONTRACTOR TO INSTALL & CONNECT.
- (5) TEMPERED WATER EYE WASH STATION SUPPLIED BY OWNER. HANG UNIT ON WALL.
- $\langle 6 \rangle$  SEE MECHANICAL SITE SERVICES PLAN 1/M6.1 FOR CONTINUATION OF NEW GAS SERVICE. COORDINATE APPLICATION & INSTALLATION OF GAS SERVICE WITH OWNER & GAS UTILITY.
- GAS LINE UP ABOVE GRADE TIGHT TO BUILDING FOUNDATION. CONTRACTOR TO CO-ORDINATE WITH GAS UTILITY.
- 8 NEW GAS METER/REGULATOR SET WITH A CAPACITY OF 51m³/hr (1800ft³/hr) @ 34Kpa (5psi) PRESSURE. CONTRACTOR TO COORDINATE APPLICATION AND INSTALLATION OF GAS
- (5psi) PRESSURE. CONTRACTOR TO COORDINATE APPLICATION AND INSTALLATION OF GA SERVICE WITH OWNER & GAS UTILITY.
- 9 PROVIDE 600mm X 900mm CONCRETE PAD FOR GAS METER. CO-ORDINATE INSTALLATION WITH GENERAL CONTRACTOR AND GAS UTILITY.
- PIPE BOLLARD PROTECTION AROUND GAS METER PROVIDED BY GAS UTILITY.
- GAS SERVICE UP ALONG WALL & SUPPORTED ALONG WALL @ 5ft CENTERS. RUN PIPE THRU WALL UP HIGH & SEAL @ WALL PENETRATION WEATHER TIGHT WITH CAULKING &
- TYPICAL GAS REGULATOR FROM 5psi BUILDING GAS PRESSURE TO OUNCE GAS
- EQUIPMENT OPERATING PRESSURE. VENT THRU ROOF OR WALL & SEAL VENT @ WALL PENETRATION WEATHER TIGHT.
- 13 TYPICAL UNIT HEATER VENT AND INTAKE OUT THRU EXTERIOR WALL. SEAL @ PIPE PENETRATION THRU WALL WEATHER TIGHT.
- VENTILATION SYSTEM ON/OFF SWITCH.
- WATER SERVICE UP ABOVE GRADE TO REDUCE PRESSURE TYPE BACKFLOW PREVENTER. PIPE BACKFLOW PREVENTER DRAIN TO NEAREST DRAIN.

### MECHANICAL EQUIPMENT SCHEDULE

<u>EF1 - EXHAUST FAN #1</u>

SUPPLY AND INSTALL A BROAN QT SERIES CEILING EXHAUST FAN MODEL QTXE090C OR EQUAL. UNIT TO PROVIDE 23.6 I/s EXHAUST @ 63kPA S.P. W/A FRACTIONAL H.P. MOTOR @ 115 VOLT, SINGLE PHASE, AND A 0.60 SONE SOUND RATING. UNIT TO BE COMPLETE WITH BACKDRAFT DAMPER, VIBRATION ISOLATORS, AND INSECT SCREEN. DUCT UNIT OUT THRU WALL TO WALL EXHAUST OUTLET. UNIT TO OPERATE FROM A SEPARATE SWITCH WITHIN WASHROOM.

<u>EF2 — EXHAUST FAN #2</u>

SUPPLY AND INSTALL A GREENHECK MODEL SBF-20 WALL PROPELLER TYPE BELT DRIVEN EXHAUST FAN OR EQUAL. UNIT TO EXHAUST 850 I/s @ 63Kpa S.P. WITH A ¼ H.P. MOTOR AT 115 VOLT, SINGLE PHASE, 1445 rpm. UNIT TO BE COMPLETE WITH INSECT SCREEN, VIBRATION ISOLATORS, BACKDRAFT DAMPER, WALL SLEEVE, MOTOR GUARD & WEATHERHOOD. SEE DETAIL 2/M6.3.

<u>UH1 – UNIT HEATER #1</u>

SUPPLY AND INSTALL A LENNOX MODEL TUA150SNSF1 GAS—FIRED, HORIZONTAL, SEPARATED COMBUSTION UNIT HEATER OR EQUAL. UNIT TO PROVIDE 44kW HEATING INPUT, 35 kW HEATING OUTPUT AND 1395 I/s W/A 1/8 H.P. MOTOR @ 115 VOLT, SINGLE PHASE. HANG UNIT AS HIGH AS POSSIBLE, TIGHT TO UNDERSIDE OF ROOF STRUCTURE c/w 125mmø VENT AND 100mmø COMBUSTION AIR INTAKE THRU WALL, HORIZONTAL TERMINATION, ELECTRONIC IGNITION, AND DIGITAL THERMOSTAT. UNIT WEIGHT IS APPROXIMATELY 118kg.

MD1— MOTORIZED DAMPER #1

SUPPLY AND INSTALL A GREENHECK MODEL WD—320, 711x711 MOTORIZED DAMPER OR EQUAL. UNIT TO BE C/W 115 VOLT DAMPER MOTOR. MOUNT UNIT UP HIGH IN WALL COMPLETE WITH 711x711 AIROLITE K666 EXTERIOR LOUVRE. UNIT 'MD1' TO OPERATE WITH

EXHAUST FAN 'EF2' THRU AN ON/OFF SWITCH. SEE DETAIL 1/M6.3.

CO — CLEANOUT (MEDIUM LOAD TRAFFIC — FINISHED AREAS)

SUPPLY AND INSTALL A WADE MODEL 6000-1 FLOOR CLEANOUT C/W ALL DUCO COATED CAST IRON BODY W/ FLASHING FLANGE, REMOVABLE POSITIVE GASKET SEAL CLOSURE PLUG AND HEAVY DUTY 6" (150mm) ROUND ADJUSTABLE NICKEL BRONZE FRAME AND COVER. FOR WATER PROOFED AREAS PROVIDE FC FLANGE WITH FLASHING CLAMP.

HW — BARRIER FREE WATER CLOSET (BARRIER FREE FLUSH TANK,

4.8Lpf)
SUPPLY AND INSTALL AN AMERICAN STANDARD "CHAMPION PRO" MODEL 211AA.154 LOW FLUSH, HIGH EFFICIENCY, ELONGATED RIM, BARRIER FREE WATER CLOSET OR EQUAL. UNIT TO BE C/W 16½" HIGH BOWL, INSULATED TANK, 4.8 LITRES/FLUSH (1.07gpf), LEED QUALIFIED, FULLY GLAZED TRAPWAY, OVERSIZED 3" FLUSH VALVE WITH CHEMICAL RESISTANT FLAPPER, AND BOLT DOWN TANK COVER. SUPPLY TO BE TECK 47T316 RIGID/FLEX CLOSET SUPPLY WITH LOCKSHIELD ANGLE STOPS AND FLEXIBLE RISER. PROVIDE AMERICAN STANDARD

MODEL 5901.100 HEAVY DUTY OPEN FRONT SEAT LESS COVER.

HV — COUNTER MOUNTED LAVATORY (BARRIER FREE DESIGN)

SUPPLY AND INSTALL A CRANE "ACCESS PRO" LAVATORY 1580 OR EQUAL. FAUCET TO BE DELTA 500WF 100mm (4") CENTER SET SINGLE HANDLE FAUCET WITH 100mm (4") BLADE HANDLE. SUPPLY TO BE TECK 47T312 RIGID/FLEX SUPPLIES WITH LOCKSHIELD STOPS AND FLEXIBLE RISERS. TRAP TO BE TECK 33T301 32mm (1½") CAST BRASS P-TRAP. WASTE TO BE TECK 33T290 32mm (1½") OFFSET BRASS OPEN GRID.

WH — WATER HEATER

SUPPLY AND INSTALL A BRADFORD WHITE COMMERCIAL ELECTRIC—FLEX MODEL CE—24053—3

ELECTRIC WATER HEATER OR EQUAL. UNIT TO PROVIDE 40 GPM US STORAGE CAPACITY,

3000/3000 WATT SIMULTANEOUS HEATING CAPACITY AT 240 VOLT, SINGLE PHASE, AND A 24

USGALLON PER HOUR RECOVERY AT 100°F TEMPERATURE RISE. UNIT TO BE COMPLETE WITH

T&P RELIEF VALVE, FULLY AUTOMATIC CONTROLS, AND 3/4" HOT AND COLD WATER

CONNECTIONS. SEE WATER HEATER PIPING SCHEMATIC 4/M6.3.

ET — POTABLE EXPANSION TANK

SUPPLY AND INSTALL A WATTS MODEL PLT5 POTABLE WATER EXPANSION TANK OR EQUAL.

SEE DETAIL 4/M6.3.

SP — 2—COMPARTMENT SEPARATION PIT
2—COMPARTMENT SEPARATION PIT. SEE DETAIL 3/M6.3 & STRUCTURAL DRAWINGS FOR DETAILS.

HB - INTERIOR HOSEBIB

<u>AD - AREA DRAIN</u>

SUPPLY & INSTALL A TYPICAL 13mm INTERIOR HOSEBIB WITH VACUUM BREAKER.

EBH — ELECTRIC BASEBOARD HEATER

SUPPLY & INSTALL A 500 WATT CHROMALOX OR EQUAL ELECTRIC BASEBOARD HEATER

COMPLETE WITH BUILT—IN THERMOSTAT CONTROL.

SUPPLY AND INSTALL A WADE MODEL 1000—C—R5 75mm (3") FLOOR DRAIN. ALL EPOXY COATED CAST IRON BODY, TRAP GUARD, ANCHOR FLANGE W/ SEEPAGE OPENINGS AND ADJUSTABLE ROUND HEAVY DUTY STAINLESS STEEL STRAINER.

FE — FIRE EXTINGUISHER
SUPPLY AND INSTALL A NATIONAL FIRE EQUIPMENT MODEL ABC—10G LB. DRY CHEMICAL
FIRE EXTINGUISHER OR EQUAL. EXTINGUISHER WITH A RATING OF 4—A, 60—B.C. UNIT TO BE
MOUNTED ON WALL WITH STEEL MOUNTING BRACKET.

SUPPLY & INSTALL A MIFAB MODEL F1100-S-5 CAST IRON SQUARE FLOOR DRAIN WITH

ANCHOR FLANGE, WEEPHOLES, SEDIMENT BUCKET, & SQUARE STRAINER.

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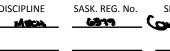
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Professional Seals:



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utilities as set out by governing authorities.

## HEADER BUILDING AND GREENHOUSES

INDIAN HEAD, SASKATCHEWAN

Issue Record:

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HVAC AND PLUMBING LAYOUT

 Designed By: GAS
 Scale: AS NOTED

 Drawn By: DAN
 Date: 2015.11.30

 Checked By: GAS
 Date: NOV 2015

 Project No.: 4859

M6.2

Revision No.: Date:

Issued For: **TENDER** 

Date Issued: 2016.01.06

Date Plotted: 2016.01.06

M:\Current Projects\4859 Header Building - Indian Head Research Farm\4859 DRAWINGS\4859 WORKING DRAWINGS\4859602

## MECHANICAL SPECIFICATIONS

1.1 GENERAL PROVISIONS

THE CONTRACTOR SHALL PROVIDE A COMPLETE AND FULLY OPERATIONAL MECHANICAL SYSTEM.

1.1.2 THE CONTRACTOR SHALL EXAMINE THE SITE PRIOR TO SUBMITTING THEIR

QUOTE TO FAMILIARIZE THEMSELVES WITH THE WORK INVOLVED.

1.1.3 ANY DISCREPANCIES AND OMISSIONS DISCOVERED SHALL BE REPORTED TO THE ENGINEER IMMEDIATELY AND PRIOR TO TENDER CLOSING FOR

RECERTIFICATION BY ADDENDUM. 1.1.4 EACH CONTRACTOR SHALL ASSUME FULL RESPONSIBILITY FOR LAYING OUT THEIR WORK AND FOR ANY DAMAGE CAUSED BY IMPROPER EXECUTION OF THEIR WORK. CONTRACTOR TO CARRY ALL NECESSARY INSURANCE

COVERAGE. 1.2.0 WARRANTY

1.2.1 THE MECHANICAL CONTRACTOR AS A CONDITION PRECEDENT TO FINAL PAYMENT AFTER COMPLETION OF THIS WORK SHALL PROVIDE THE OWNER WITH A WRITTEN GUARANTEE WARRANTING ALL MATERIALS, LABOUR, AND EQUIPMENT FOR ONE (1) FULL YEAR FROM DATE OF ACCEPTANCE. 1.3.0 WORK, PRODUCTS, AND QUALITY

1.3.1 EQUIPMENT AND MATERIALS TO BE NEW AND FREE FROM DEFECTS AND HAVE DESIGN CHARACTERISTICS AS SPECIFIED. 1.3.2

ALL WORK AND MATERIALS SHALL BE INSTALLED AS SHOWN AND IN ACCORDANCE WITH THE NATIONAL BUILDING CODE AND ALL LOCAL CODES AND BUILDING REGULATIONS.

#### 1.3.3 ALL EQUIPMENT SHALL BE C.S.A. APPROVED.

1.4.0 FEES AND PERMITS

THE MECHANICAL CONTRACTOR WILL OBTAIN AND PAY FEES FOR ALL PERMITS NECESSARY FOR COMPLETION OF THIS CONTRACT. 1.4.2

CONTRACTOR TO FURNISH ALL CERTIFICATES NECESSARY AS EVIDENCE THAT THE WORK CONFORMS WITH STANDARDS AND REQUIREMENTS OF THE AUTHORITIES HAVING JURISDICTION.

1.5.0 TESTING

1.5.1 TEST ALL EQUIPMENT AND MATERIALS WHERE REQUIRED BY THE SPECIFICATIONS OR AUTHORITIES HAVING JURISDICTION TO DEMONSTRATE ITS PROPER OPERATION TO THE OWNER.

1.5.2

CARRY OUT ALL HYDRAULIC TESTS PRIOR TO COVERING PIPE IN ANY WAY. - TEST DOMESTIC WATER PIPING AT 700 kPA (100 psi) PRESSURE FOR A PERIOD OF TWO (2) HOURS WITH NO APPRECIABLE PRESSURE DROP. - TEST DRAINAGE SYSTEMS BY FILLING SYSTEMS WITH WATER TO PRODUCE PRESSURE OF 3.0m (10ft.) OF WATER COLUMN. KEEP SYSTEM FILLED WITH WATER FOR 15 MINUTES.

- TEST GAS PIPING AS REQUIRED BY THE AUTHORITIES HAVING JURISDICTION.

1.5.3 TEST LOW VELOCITY DUCTWORK FOR TIGHTNESS AND LEAKAGE. ALL LEAKS SHALL BE REPAIRED BEFORE THE SYSTEM IS BALANCED. 1.6.0 EXCAVATION AND BACKFILLING

1.6.1 THE MECHANICAL CONTRACTOR SHALL DO ALL NECESSARY EXCAVATION. BACKFILL WITH SAND OR OTHER APPROVED MATERIAL TO A MINIMUM OF 300mm (12") OVER ALL PIPING OR AS NECESSARY TO PROTECT THEIR WORK AND THEN COMPACT WITH A MECHANICAL TAMPER. THE REMAINDER OF THE BACKFILL TO BE DONE BY THE MECHANICAL CONTRACTOR AS PER THE REQUIREMENTS OF THR GENERAL CONTRACTOR. COORDINATE ELEVATIONS AND LOCATION OF GAS, WATER, AND SEWER SERVICES AND PROVIDE 2.0m (79") OF SEPARATION FROM GAS, ELECTRICAL, AND TELEPHONE SERVICE

#### BEFORE INSTALLING. 1.7.0 CUTTING AND PATCHING

1.7.1 THE MECHANICAL CONTRACTOR SHALL CONFER WITH THE GENERAL CONTRACTOR IN REGARDS TO THIS WORK AND SHALL GIVE LOCATIONS FOR ALL HOLES FOR PIPE AND DUCTS ETC. AND PROVIDE SLEEVES 200mm (8") DIAMETER AND SMALLER AS REQUIRED TO EXECUTE THE MECHANICAL

## 1.8.0 FLASHING AND COUNTERFLASHING

ALL MECHANICAL WORK PASSING THROUGH THE ROOF SHALL BE FLASHED BY THE MECHANICAL CONTRACTOR. COUNTERFLASHING TO BE DONE BY THE ROOFING CONTRACTOR.

1.9.1

REQUEST FOR APPROVAL OF EQUIVALENT EQUIPMENT FROM MANUFACTURER'S NOT SPECIFIED ON DRAWINGS SHALL BE MADE IN WRITING SEVEN DAYS

PRIOR TO TENDER CLOSING. 1.10.0 SHOP DRAWINGS

1.9.0 APPROVALS

1.10.1 PRIOR TO THE FABRICATION OF ANY MATERIALS AND EQUIPMENT, SUBMIT A MINIMUM OF SEVEN (7) COMPLETE SETS OF SHOP DRAWINGS AND DATA

CONTRACT FOR REVIEW BY THE ENGINEER. 1.11.0 ELECTRIC MOTORS AND WIRING

1.11.1 SUPPLY ALL MECHANICAL EQUIPMENT WITH ELECTRIC MOTORS AS REQUIRED.

SHEETS COVERING ALL ITEMS OF MECHANICAL EQUIPMENT UNDER THIS

1.11.2 THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE TO SUPPLY ALL MOTOR STARTERS AND DISCONNECT SWITCHES FOR ALL MOTORS FOR THIS PROJECT AND INSTALL LINE VOLTAGE WIRING TO STARTERS AND FROM STARTERS TO MOTORS, EXCEPT WHERE PRE-WIRED IN PACKAGED EQUIPMENT.

1.11.3 ELECTRICAL CONTROLS CONNECTED TO MECHANICAL EQUIPMENT SHALL BE SUPPLIED BY THE MECHANICAL CONTRACTOR AND SHALL BE INSTALLED, WIRED, AND CONNECTED BY THE MECHANICAL CONTROLS SUBCONTRACTOR.

MECHANICAL SHALL CONFIRM ALL EQUIPMENT ELECTRICAL RATINGS WITH ELECTRICAL DRAWINGS AND REPORT ANY DISCREPANCIES TO THE ENGINEER

#### PRIOR TO ORDERING EQUIPMENT. 1.12.0 MAINTENANCE MANUALS

1.12.1 FURNISH THREE (3) SETS OF MAINTENANCE MANUALS WITH INFORMATION OUTLINED BELOW TO THE ENGINEER PRIOR TO FINAL INSPECTION FOR APPROVAL.

1.12.2 MAINTENANCE MANUALS SHALL CONTAIN THE FOLLOWING:

 WARRANTY CERTIFICATE DESCRIPTION OF ALL SYSTEMS

- DESCRIPTION OF COMPONENTS OF EACH PIECE OF EQUIPMENT - DESCRIPTION OF CONTROL SYSTEM

 COMPLETE SET OF DRAWINGS - DETAILED MAINTENANCE AND LUBRICATION SCHEDULE - OPERATING AND MAINTENANCE INSTRUCTIONS FOR MAJOR EQUIPMENT

- LIST OF EQUIPMENT SUPPLIERS AND MANUFACTURERS DATA TO BE ASSEMBLED IN HARD COVER BINDERS - IDENTIFY FRONT COVER WITH PROJECT NAME & PROJECT LOCATION

LIST OF CONTRACTORS AND CONSULTANTS

 PROVIDE INDEX AND INDEX LABELS 1.13.0 OPERATING INSTRUCTIONS

1.13.1 ARRANGE AND PAY FOR THE SERVICE OF FULLY QUALIFIED PERSONNEL INCLUDING MANUFACTURER'S REPRESENTATIVES TO INSTRUCT THE OWNER IN OPERATION AND PREVENTIVE MAINTENANCE OF EACH PIECE OF EQUIPMENT AND SYSTEM SUPPLIED AND INSTALLED.

1.14.0 SUPPORTS, ANCHORS, AND SLEEVES

INSTALL SUPPORTS OF STRENGTH AND RIGIDITY TO SUIT LOADING WITHOUT UNDULY STRESSING OF BUILDING. LOCATE ADJACENT TO EQUIPMENT TO PREVENT UNDUE STRESS IN PIPING AND EQUIPMENT. 1.14.2

PROVIDE CHROME PLATED FLOOR, CEILING, AND WALL ESCUTCHEONS AS REQUIRED FOR PIPING IN FINISHED AREAS. 1.14.3 SEISMIC RESTRAINTS SHALL BE PROVIDED AS REQUIRED BY LOCAL CODE.

WHEN LOCAL CODE HAS NO STANDARDS, SEISMIC RESTRAINTS SHALL BE PROVIDED AND INSTALLED PER SMACNA STANDARDS. 1.15.0 IDENTIFICATION 1.15.1

LAMACOIDS TO PROVIDE IDENTIFICATION OF ALL INSTALLED EQUIPMENT LIKE UNIT HEATERS, EXHAUST FANS, AND THEIR SWITCHES.

THE MECHANICAL CONTRACTOR SHALL SUPPLY AND PERMANENTLY INSTALL

IDENTIFY ALL PIPING BY MEANS OF COLORED, SELF-ADHESIVE LABELS AND DIRECTIONAL ARROWS USING 19mm (3/4") HIGH LETTERING. 1.15.3

LABEL ALL VALVES LARGER THAN 25mm (1").

1.16.0 RECORD DRAWINGS

THE MECHANICAL CONTRACTOR SHALL KEEP ON SITE EXTRA SETS OF PRINTS AND SPECIFICATIONS ON WHICH ALL CHANGES AND DEVIATIONS FROM THE ORIGINAL DESIGN SHALL BE RECORDED DAILY. THESE CHANGES MUST BE NEATLY ADDED TO A CLEAN SET OF DRAWINGS AND SUBMITTED TO THE CONSULTANT MARKED "AS-BUILT"

1.17.0 EQUIPMENT AND MATERIALS CLEAN-UP

PIPING, FIXTURES, DUCTS, AND EQUIPMENT SHALL BE THOROUGHLY CLEANED OF DIRT, GREASE, ADHESIVE LABELS, AND FOREIGN MATERIALS. 1.18.0 GAS

1.18.1 MECHANICAL CONTRACTOR SHALL INSTALL GAS PIPING FROM NEW BUILDING GAS SERVICE TO ALL NEW GAS FIRED EQUIPMENT COMPLETE WITH ALUMINIZED PAINT COATING ON PIPE WHERE EXPOSED TO OUTDOORS. LINES CONCEALED SHALL BE BRAZED SEAMLESS COPPER K OR L (UP TO 32mm OR 11/4") OR BLACK STEEL SCHEDULE 40 THREADED (UP TO 63mm OR

1.18.2 ALL GAS PIPING FITTINGS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH CSA STANDARD B-149 INSTALLATION CODE.

CONTRACTOR TO COORDINATE APPLICATION AND INSTALLATION OF NEW GAS SERVICE WITH GAS UTILITY AND OWNER.

## 2.0 PLUMBING

2.1.0 GENERAL 2.1.1

PROVIDE COMPLETE DOMESTIC WATER, DRAINAGE, AND VENT PIPING SERVING ALL NEW PLUMBING FIXTURES. ALL WATER AND SEWER PIPING SHALL EXTEND TO THE EXISTING SITE SERVICES AS SHOWN. ENSURE THAT SEWER SERVICES ARE RUN WITH SUFFICIENT SLOPE FOR DRAINAGE WITH ADEQUATE COVER TO PREVENT FREEZING.

2.1.2 PROVIDE MANUFACTURED SHOCK ABSORBERS ANCON MODEL SG OR AIR CHAMBERS TO PREVENT WATER HAMMER. INSTALL ON ALL HOT AND COLD WATER SUPPLIES TO EACH FIXTURE OR EACH GROUP OF FIXTURES. AIR CHAMBERS SHALL BE A MINIMUM OF 19mm (3/4") DIAMETER AND 450mm (18") LONG.

2.1.3 INSTALL OVERSIZED CLAMPS AND 13mm (1/2") "ARMAFLEX" FOAM RUBBER INSULATION, 75mm (3") LONG AROUND EACH PLUMBING DRAINAGE STACK AND EACH DOMESTIC WATER PIPE AT EACH SUPPORT POINT THROUGH WOODEN STRUCTURE.

PROVIDE VACUUM BREAKERS ON LINES SERVING EQUIPMENT OR FIXTURES WHERE CONTAMINATION OF DOMESTIC WATER MAY OCCUR.

INSTALL WATTS SERIES 900 BACKFLOW PREVENTER OR APPROVED EQUAL ON ALL POTABLE WATER WHERE BACKFLOW AND CROSS CONNECTION MAY

2.1.6 INSTALL AUTOMATIC TRAP SEAL PRIMERS ANCON MS-810 COMPLETE WITH INTEGRAL VACUUM BREAKER FOR FLOOR DRAINS AS REQUIRED BY PLUMBING CODE OR PLUMBING INSPECTOR.

PROVIDE ALL VALVES AS SHOWN ON THE DRAWINGS OR AS REQUIRED BY THE AUTHORITIES HAVING JURISDICTION. INSTALL ISOLATION VALVES AT ALL CONNECTIONS TO EQUIPMENT, AND IN ALL BRANCHES, FIXTURES, OR GROUPS OF FIXTURES.

ISOLATE EACH PLUMBING FIXTURE WITH SHUT-OFF VALVES. USE QUICK OPENING "HENDERSON NEWMAN SUPERBALL" VALVES FOR WATER AND GAS.

PLUMBING FIXTURES SHALL BE AS SPECIFIED, OR APPROVED EQUAL, ON DRAWING M6.2.

2.1.10 STERILIZE WATER SERVICE WITH CHLORINE AS PER TOWN AND PROVINCIAL PLUMBING CODE STANDARDS AND PROVIDE A WRITTEN REPORT FLUSH SYSTEM AND HAVE BACTERIOLOGICAL TESTS COMPLETED AT A RECOGNIZED CERTIFIED LABORATORY.

2.2.0 PIPE AND FITTINGS

2.2.1 ALL PIPING SHALL MEET THE REQUIREMENTS OF THE PROVINCIAL PLUMBING CODE AND NATIONAL BUILDING CODE.

2.2.2 DOMESTIC WATER ABOVE GROUND: TYPE K OR TYPE L, HARD COPPER, 95/5 SOLDER JOINTS, WROUGHT COPPER OR BRONZE FITTINGS. OVER 75mm (3"): GALVANIZED STEEL, SCREWED JOINTS. AQUAPEX PIPING IS ALSO ACCEPTABLE.

DOMESTIC WATER BELOW GRADE: TYPE K SOFT COPPER, FLARED JOINTS. OVER 50mm (2"): CAST IRON PIPE, CAST IRON FITTINGS, MECHANICAL JOINTS. PVC AND HDPE IS ALSO ACCEPTABLE.

WASTE AND VENT PIPING ABOVE GROUND: TYPE DWV OR HARD DRAWN DRAINAGE TUBE, CAST BRASS FITTINGS, 50/50 SOLDER JOINTS. CAST IRON SOIL PIPE AND FITTINGS, MECHANICAL JOINTS. PVC AND ABS PIPING IS ALSO ACCEPTABLE EXCEPT FOR CONDENSATE DRAIN FROM EVAPORATOR COILS AND OVEN DRAIN PIPING: PLASTIC FITTINGS, SOLVENT WELD.

WASTE AND VENT PIPING BELOW GRADE: 150mm (6") AND SMALLER, CAST IRON PIPE, CAST IRON FITTINGS, MECHANICAL JOINTS. PVC AND ABS PIPING ACCEPTABLE. 2.3.0 VALVES

2.3.1 VALVES ON HOT AND COLD WATER PIPING SHALL BE AS FOLLOWS:

- GATE VALVES 50mm (2") AND SMALLER: CRANE No. 1320C - GATE VALVES 65mm (2½") AND LARGER: CRANE No. 465 1/2C

- GLOBE VALVES 50mm (2") AND SMALLER: CRANE No. 1310 - GLOBE VALVES 65mm (2½") AND LARGER: CRANE No. 351 - CHECK VALVES 50mm (2") AND SMALLER: CRANE No. 1342

- CHECK VALVES 65mm (2½") AND LARGER: CRANE No. 373 - BALL VALVES 6mm (1/4") THRU 50mm (2"): GRINNELL FIG. 1550 3.0 HEATING/VENTILATION

3.1.0 GENERAL

3.1.1 DUCTWORK SHALL BE GALVANIZED STEEL AND LOCK FORMING QUALITY. ALL DUCTWORK SHALL BE CONSTRUCTED BRACED, CONNECTED, JOINTED, AND INSTALLED IN ACCORDANCE WITH THE LATEST ISSUE OF ASHRAE GUIDE AND DUCT CONSTRUCTION STANDARDS ISSUED BY SMACNA, NFPA 90 AND 90A, PROVINCIAL CODE, AND LOCAL REGULATIONS. INSTALL ALL SUPPLY, RETURN, AND EXHAUST DUCTS COMPLETE WITH GRILLES AND DIFFUSERS AS SHOWN ON THE DRAWINGS.

3.1.2 ALL EQUIPMENT SHALL BE AS SPECIFIED ON DRAWING M6.2 OR APPROVED

3.1.5 ALL EXPOSED DUCTWORK TO BE SPIRAL ROUND.

3.1.6 PROVIDE SHEET METAL FIRE STOPS TIGHT AROUND DUCTS PASSING THROUGH FIRE SEPARATIONS AND CEILINGS.

3.1.7 ALL DUCTWORK SHALL BE GALVANIZED STEEL: 28 GUAGE FOR UP TO 305mm (12") WIDE OR 205mm (8") DIAMETER, 24 GUAGE FOR 330mm (13") TO 760mm (30") WIDE OR 230mm (9") TO 760mm (30") DIAMETER. ALL FITTINGS TO MEET SMACNA DESIGN STANDARDS.

PROVIDE FLEX CONNECTIONS, 6mm (1/4") DURODYNE CONFLEX PCV COATED POLYESTER AT INLET AND OUTLETS OF ALL FAN UNITS. 4.0 INSULATION

4.1.0 GENERAL

4.1.1 ALL INSULATION AND MATERIALS ASSOCIATED WITH INSULATION SHALL HAVE A FLAME SPREAD RATING OF NOT MORE THAN 25 AND A SMOKE DEVELOPED CLASSIFICATION OF NOT MORE THAN 50.

4.1.2 ALL PIPING INSULATION SHALL BE FIBROUS GLASS WITH K VALUE MAXIMUM 0.3 W/m DEGREES CELSIUS AT 24 DEGREES CELSIUS WITH FACTORY APPLIED JACKET - MANSON AK PIPE INSULATION OR APPROVED EQUAL. APPLY PAINTABLE PVC JACKET ON ALL EXPOSED PIPING IN FINISHED AREAS.

4.1.3 RECOVERING JACKET ON DUCTWORK SHALL BE ULC LISTED "THERMO CANVAS" TREATED COTTON FABRIC, SUITABLE FOR PAINTING. PROVIDE RECOVERING JACKET ON ALL EXPOSED INSULATION THROUGHOUT, INCLUDING EQUIPMENT ROOM. INSULATION LOCATED IN PIPE SHAFTS AND SUSPENDED CEILING SPACES IS NOT CONSIDERED EXPOSED.

4.1.4 ENSURE INSULATION IS CONTINUOUS THROUGH INSIDE WALLS. PACK AROUND PIPES WITH FIRE-PROOF, SELF SUPPORTING INSULATION MATERIALS.

INSULATE DUCTWORK WITH MANSON ALLEY WRAP INSULATION OR EQUIVALENT FACED WITH FSK FOR AN EFFECTIVE VAPOUR BARRIER.

4.1.6 INSULATION SCHEDULE: EXHAUST DUCTS WITHIN 3.0m (10'-0") OF ATTIC OR COLD ROOF OR COLD WALL COMPLETE WITH FOIL FACED VAPOUR BARRIER - 25mm (1"); HOT AND COLD WATER LINES -13mm (1/2"); EXHAUST DUCTS FROM CEILING MOUNTED FANS TO ROOF OR WALL DISCHARGE - EXTERNAL 25mm (1");

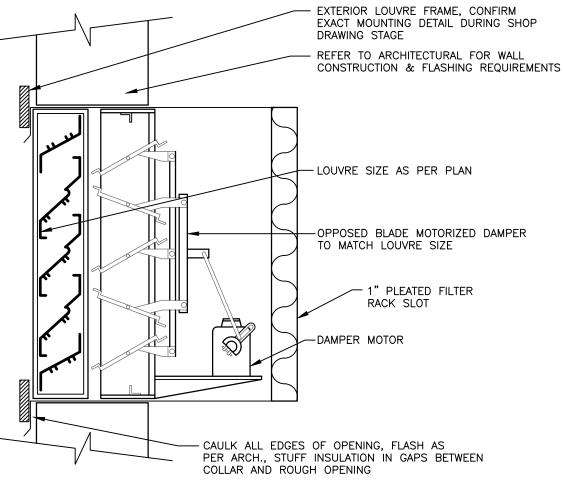
5.0 FIRE PROTECTION 5.1.0 GENERAL

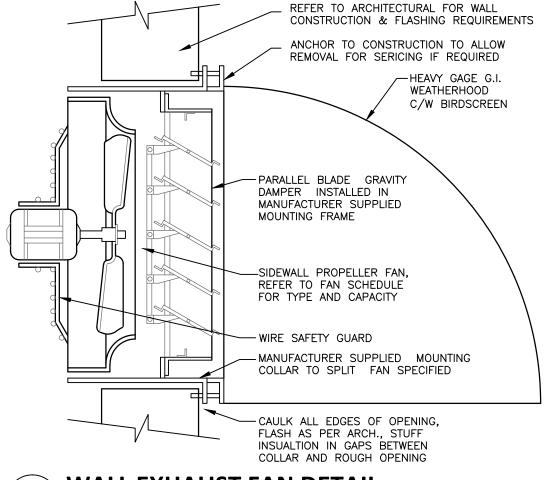
5.1.1 FIRE EXTINGUISHERS FIRE EXTINGUISHERS: CONTRACTOR SHALL PROVIDE PORTABLE FIRE EXTINGUISHERS AS PER PLAN, IN ACCORDANCE WITH NFPA #10. 6.0 CONTROLS

6.1.0 GENERAL

ALL THERMOSTATS, THERMOMETERS, AND CONTROLLERS SHALL BE RATED IN CELSIUS DEGREES. ALL THERMOSTATS SHALL BE SUPPLIED BY THE MECHANICAL CONTRACTOR AND INSTALLED BY THE MECHANICAL CONTROLS SUB CONTRACTOR.

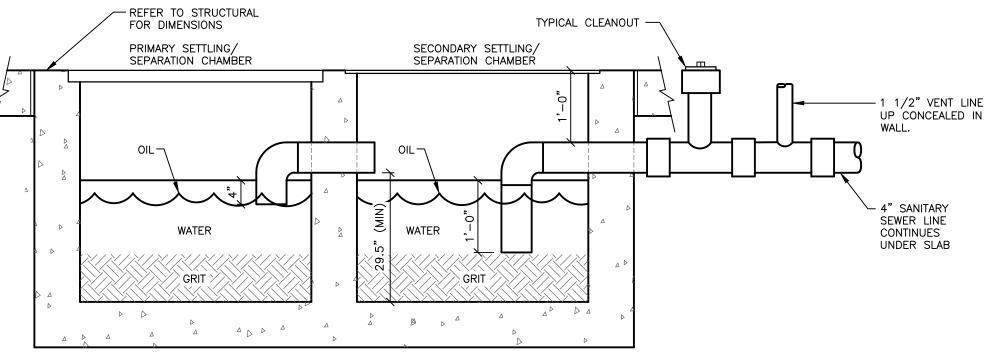
6.1.2 REFER TO ELECTRICAL DRAWINGS AND SPECIFICATIONS FOR POWER TO MECHANICAL EQUIPMENT BY THE ELECTRICAL CONTRACTOR.



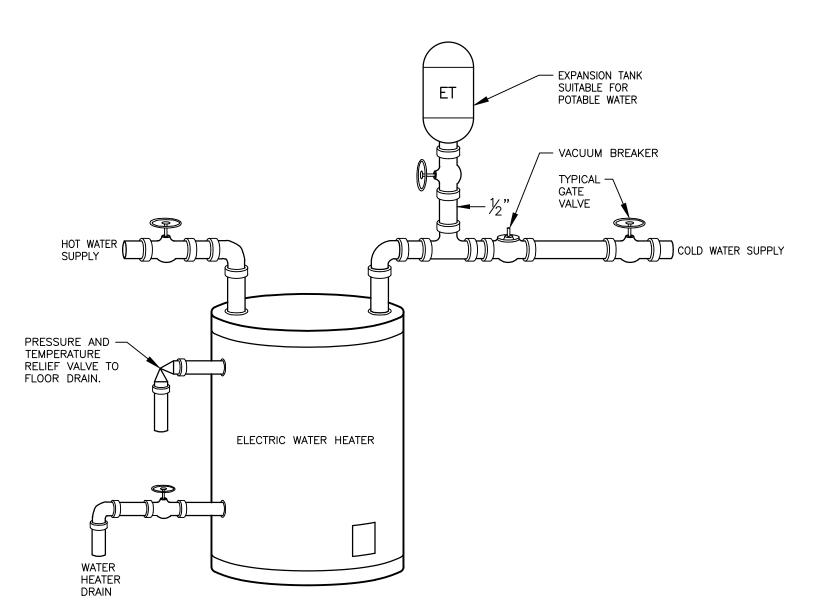


MOTORIZED LOUVRE DETAIL





2-COMPARTMENT SEPARATION PIT PIPING DETAIL SCALE: NTS



WATER HEATER PIPING SCHEMATIC SCALE: NTS

SAA, AAA, MAA, AIA, NCARB 1457 ALBERT STREET, REGINA, SASKATCHEWAN S4R 2R8

Lawrence N. Carcoana, Principal



McGinn Engineering Ltd. A DIVISION OF McGINN GROUP

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1457 ALBERT STREET, REGINA,

McGINN ENGINEERING LTD. ASSOCIATION OF PROFESSIONAL ENGINEERS OF SASKATCHEWAN CERTIFICATE OF AUTHORIZATION McGINN ENGINEERING LTD

> No.: 124 Permission to Consult held by SASK. REG. No.

**Professional Seals:** 



Any representations in the tender documents are for the general information of bidders and are not in any way warranted or guaranteed by or on behalf of the owner or the owner's consultants and its subconsult's employees, and neither the owner nor its consultants or its employees, shall be liable for any representations negligent or otherwise contained in the documents. These design documents are prepared solely for the use by the party with whom the design professional has entered into a contract and there are no representations of any kind made by the design professional to any party with whom the design professional has not entered into a contract. The contractor shall check all dimensions, elevations and other data as represented on all drawings in the set for onsistency and correctness and report to the consultant any discrepancies prior to proceeding with construction. Any costs to the contractor arising from failure to execute this requirement is a cost to the contractor and not to the owner nor the consultant. This term supercedes the specifications. All construction work to be completed in accordance with all applicable code and requirements of all utilities as set out by governing authorities

**HEADER BUILDING GREENHOUSES** 

INDIAN HEAD. SASKATCHEWAN

Issue Record:

**MECHANICAL** SPECIFICATIONS AND

DETAILS Designed By: GAS Scale: AS NOTED Drawn By: DAN Date: 2015.11.30 Checked By: GAS Date: NOV 2015

Revision No.: Issued For: **TENDER** 

Project No.: **4859** 

Date Issued: 2016.01.06 Date Plotted: 2016.01.06

M:\Current Projects\4859 Header Building - Indian Head Research Farm\4859 DRAWINGS\4859 WORKING DRAWINGS\4859603

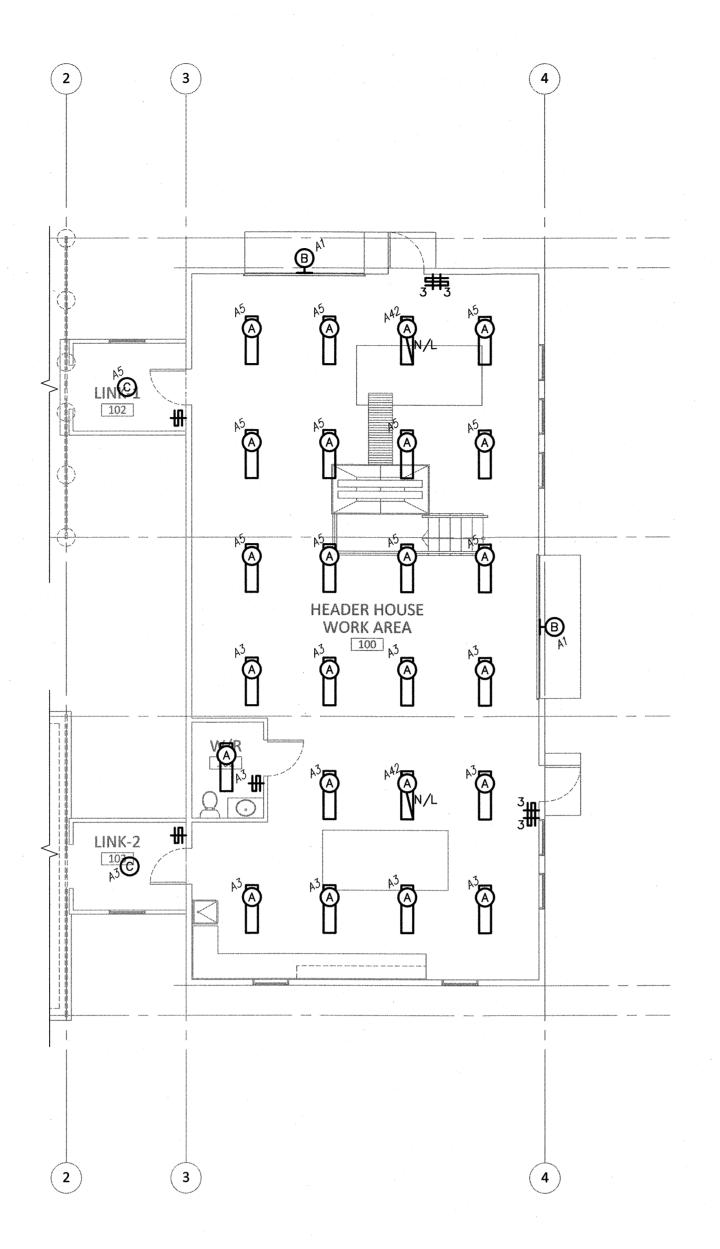
PANEL 'A' NOUNTING SURFACE OCATION HEADER HOUSE				MAII	TAGE 120/240V-1PH-3W N BUS 200A IARKS C/W DOOR
		BKR CIR		BKR	
EXTERIOR LIGHTING	15	1-	2	20	O/H DOOR
LIGHTING	15	3	4	20	O/H DOOR
LIGHTING	15	5 —	<u> 6</u>	15	ELECTRIC BASEBOARD HEATER
SPARE	15	7	8	15	UH1, MOTORIZED DAMPER
RECEPTACLES	15	9 —	10	15	EF-2
RECEPTACLES	15	11	12	40 -	¬ wн
RECEPTACLES	15	13—	14		☐ #8 WIRE
SC RECEPTACLES	15	15-	16	_	SPACE
GF RECEPTACLE, EF1	15	17-	18	_	SPACE
EXTERIOR RECEPTACLE	15	19	20	_	SPACE
T-SLOT GF RECEPTACLE	20	21—	22	_	SPACE
T-SLOT GF RECEPTACLE	20	23—	24	,-	SPACE
T-SLOT RECEPTACLE	20	25—	26	15	UH1(PHASE 2)
T-SLOT RECEPTACLE	20	27	28	15	UH1(PHASE 2)
SPARE	15	29	30	15	UH1(PHASE 2)
MIXER	15	31	32	15	SPARE
	Ц	33-	34	15	SPARE
BAGGER	70	35	36	15	SPARE
#4 WIRE	Ц	37—	38	15	SPARE
CONVEYOR	15	39	40	15	TELEPHONE PANEL
	+	41—	42	15	NIGHTLIGHTING/EMERGENCY LIGHTING

## SPECIFIC ELECTRICAL NOTES

RECOMMENDATIONS.

WIRE AND CONNECT OVERHEAD DOOR OPERATOR AND ALL RELATED CONTROLS AS PRE MANUFACTURERS

SPECIAL RECEPTACLE FOR OWNERS EQUIPMENT. CONFIRM EXACT REQUIREMENTS ON SITE. SUSPENDED RECEPTACLE FROM CEILING.





## **MAIN FLOOR PLAN - LIGHTING**

	LUMINAIRE SCHEDULE						
TYPE	DESCRIPTION	MOUNTING	CATALOG NUMBER	LAMPS			
· A	4' LED LUMINAIRE	SURFACE	LITHONIA LIGHTING LBL4 60L EZ1 LP840	55W LED			
В	LED FLOOD LIGHT	SURFACE	LITHONIA LIGHTING DSXW1 LED 20C 700 40K T3M MVOLT	47W LED			
C	LED DOWNLIGHT	SURFACE	LITHONIA LIGHTING FMML 7 840	10W LED			

LUMINAIRE SCHEDULE NOTES:

1. ALL FLUORESCENT BALLAST TO BE ELECTRONIC. MB HYDRO "POWER SMART" APPROVED. 2. ALL FLUORESCENT LAMPS TO BE 3500K & 85 CRI, UNLESS OTHERWISE NOTED. 3. PROVIDE PHOTOCELL CONTROL FOR ALL OUTDOOR LUMINAIRES.

	4.	MOTO	R SCHED	<u>ULE</u>				
NO.	DESCRIPTION	LOCATION	VOLTAGE	HP/W/MCA	C.B.	COND.	STARTER	NOTES
UH1	RADIANT HEATER	WORK AREA	120V-1PH	1/8 HP	15A-1P	#12	·	1
EF1	EXHAUST FAN	WASHROOM	120V-1PH	FRAC.	15A-1P	#12	_	. 1
EF2	EXHAUST FAN	WORK AREA	120V-1PH	1/4 HP	15A-1P	#12	-	1
MD1	MOTORIZED DAMPER	WORK AREA	120V-1PH	FRAC.	15A-1P	#12	_	1
WH	WATER HEATER	WORK AREA	240V-1PH	6000W	40A-2P	#8	_	1

SPECIFIC NOTES

1. WIRE AND CONNECT AS REQUIRED. REFER TO MECHANICAL.

2. MAGNETIC STARTER BY ELECTRICAL CONTRACTOR. . MANUAL STARTER BY ELECTRICAL CONTRACTOR.

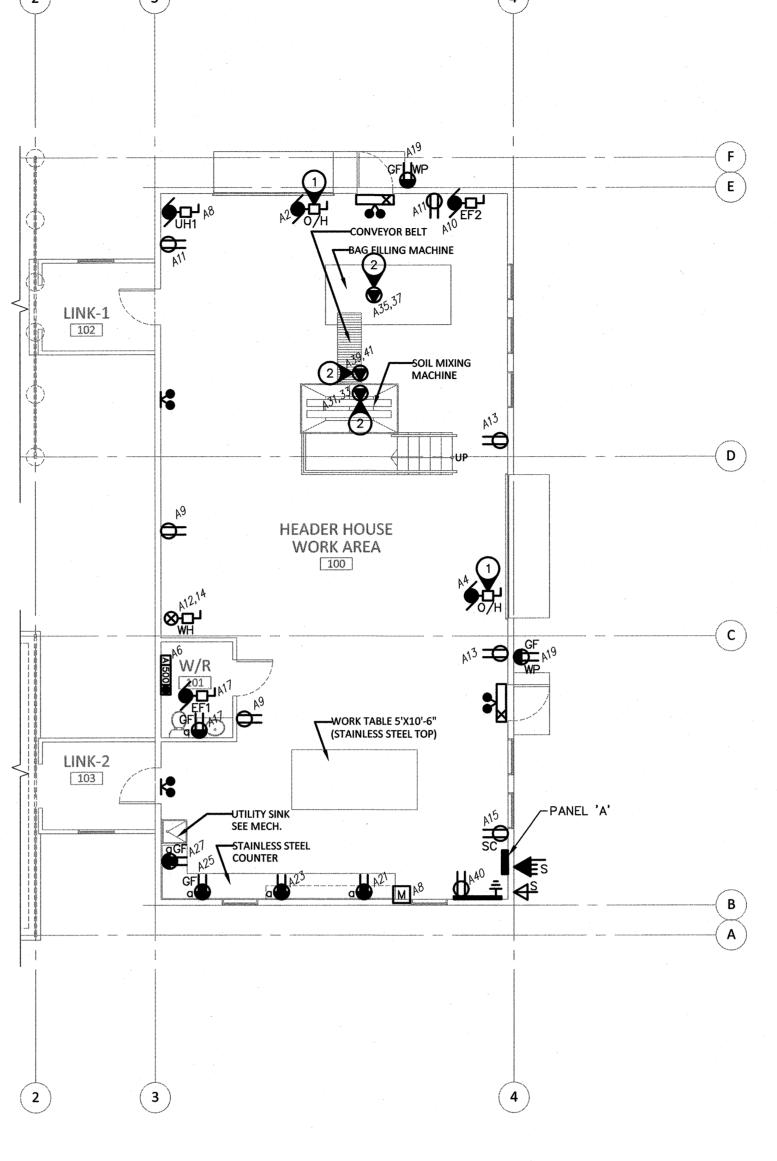
4. COORDINATE INSTALLATION OF PATHWAYS TO PIT FOR SUMP PUMP WIRING. 5. WIRE AND CONNECT INDOOR UNIT TO TERMINALS S1 AND S2 ON OUTDOOR UNIT.

A. MANUAL STARTERS TO BE C/W OVERCURRENT PROTECTION.
B. ALL DISCONNECT SWITCHES TO BE SUPPLIED BY ELECTRICAL CONTRACTOR.

C. ELECTRICAL CONTRACTOR TO PROVIDE CIRCUIT BREAKERS AND WIRING ACCORDING TO THE FINAL NAMEPLATES OF ALL

D. ALL LOW VOLTAGE CONTROL WIRING BY MECHANICAL CONTRACTOR.

E. ALL LINE VOLTAGE CONTROL WIRING BY ELECTRICAL CONTRACTOR — REFER TO MECHANICAL SECTION. CO—ORDINATE EXACT REQUIREMENTS WITH MECHANICAL CONTRACTOR.





# MAIN FLOOR PLAN - POWER AND SYSTEMS SCALE 1/4" = 1'0"

HEATING SCHEDULE							
TYPE	WATTS	VOLTAGE	DESCRIPTION	MANUFACTURER	CATALOGUE NO.	NOTES	
Α	500	120	BASEBOARD	OUELLET	ODI0502	1	
1. C/W BUILT-IN THERMOSTAT OR WIRED TO REMOTE THERMOSTAT AS SHOWN ON DRAWINGS. 2. RECESSED UNLESS OTHERWISE INDICATED. C/W BUILT-IN THERMOSTAT UNLESS OTHERWISE INDICATED 3. C/W BUILT-IN THERMOSTAT. MOUNT SECURELY WHERE INDICATED TO THE SATISFACTION OF THE ENGINEER.							

A. VOLTAGE TO BE AS INDICATED ABOVE UNLESS OTHERWISE NOTED ON DRAWINGS.

### SYMBOL SCHEDULE

Big Linear luminaire, 'B1-a' denotes panel circuit # and switch.

Night light luminaire.

Wall mounted luminaire. 'A' denotes type.

Single pole switch.

Single pole switches in multiple.

Photocell by electrical contractor.

Duplex receptacle.

Duplex receptacle on separate circuit. Provide lamacoid label indicating "SC".

Duplex receptacle weather proof.

30A-2P dryer receptacle, verify location.

Ground fault duplex receptacle.

20A T-slot duplex receptacle.

Special outlet to match owners equipment. Confirm voltage, amperage, poles and configuration prior to installation.

Combination voice/data outlet c/w cover plate. Run one(1) 3/4" conduit to accessible ceiling space or crawlspace.

Motor. Refer to mechanical for exact location. For roof mounted equipment, supply and install wire and connect a separate circuit GFI receptacle in accordance with C.E.C. rule

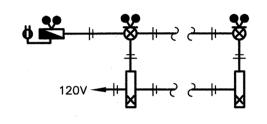
Disconnect switch to suit application. By electrical contractor. Motorized damper control wiring by mechanical contractor, 120V power supply by electrical

C1000 Electric heater, "C" denotes type, see electric heating schedule. "1000" denotes watts. ● denotes heater c/w built in thermostat. ○ denotes heater controlled by remote thermostat. Provide low voltage relays if required. Refer to mechanical for details. LED Emergency double head fixture c/w two(2) 6W (540 lumen) LED heads. Wire to battery

Combination LED pictogram egress sign/emergency double head fixture c/w two(2) 6W (540 lumen) LED lamps and integral battery backup (minimum 30 minutes). Lumacell.

Underground service point. Co-ordinate location with SaskPower prior to rough-in. Run main feeders to utility preferred location. Provide weatherproof customer service termination enclosure, protection shield, trenching, backfilling, etc. Obtain utility contribution charges

Underground service point. Co-ordinate location with SaskTel prior to rough-in. Relocate distribution to utility preferred location. Run 4" conduit from service head to telephone



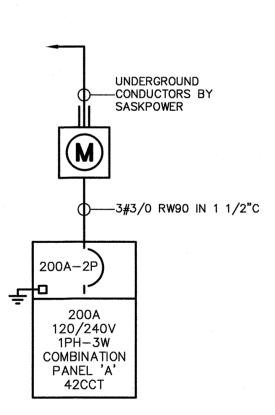
## **EMERGENCY LIGHTING AND SIGNAGE**

1. CONDUCTORS SIZED TO MANUFACTURERS RECOMMENDATIONS. MAXIMUM 5% VOLTAGE DROP.

2. WIRE AND CONNECT DC TO ALL COMPONENTS.

3. PROVIDE 30 MINUTE CAPACITY UNDER FULL LOAD. 4. INTERLOCK WITH NORMAL LIGHTING CIRCUIT TO ACTIVATE

EMERGENCY LIGHTING UPON LOSS OF NORMAL LIGHTING IN THE AREA, FOR EACH EMERGENCY LIGHTING HEAD. PROVIDE ZONE SENSING RELAYS AS REQUIRED.



SINGLE LINE DIAGRAM

\* SIZE CIRCUIT BREAKER AND WIRING ACCORDING TO THE FINAL NAMEPLATE RATING ON THE EQUIPMENT.

> ASSOCIATION OF PROFESSIONAL ENGINEERS OF SASKATCHEWAN CERTIFICATE OF AUTHORIZATION NOVA 3 ENGINEERING LTD. NUMBER 752 PERMISSION TO CONSULT HELD BY: DECFLARE SARK REQ No. // CHICANDER ELELT. 8006 V. Shir/ma

NOVA 3 ENGINEERING LTD. CONSULTING ENGINEERS 201–120 FORT STREET TEL.: (204) 943–6142 WINNIPEG, MANITOBA R3C 1C7 FAX.: (204) 942–1276 WWW.NOVA3.CA THIS DRAWING IS THE EXCLUSIVE PROPERTY OF NOVA 3 ENGINEERING LTD. AND MAY ONLY BE REPRODUCED WITH THE WRITTEN PERMISSION OF NOVA 3 ENGINEERING LTD.

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Carcoana ARCHITECTURE LTD.

Lawrence N. Carcoana, Principal SAA, AAA, MAA, AIA, NCARB

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**HEADER BUILDING** AND **GREENHOUSES** 

INDIAN HEAD, SASKATCHEWAN

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Issue Record: YY.MM.DD/Issued For/Issued To/Issued By

R# Brief Description/YY.MM.DD/Revised By

**ELECTRICAL** -**FLOOR PLANS** 

PHASE 1

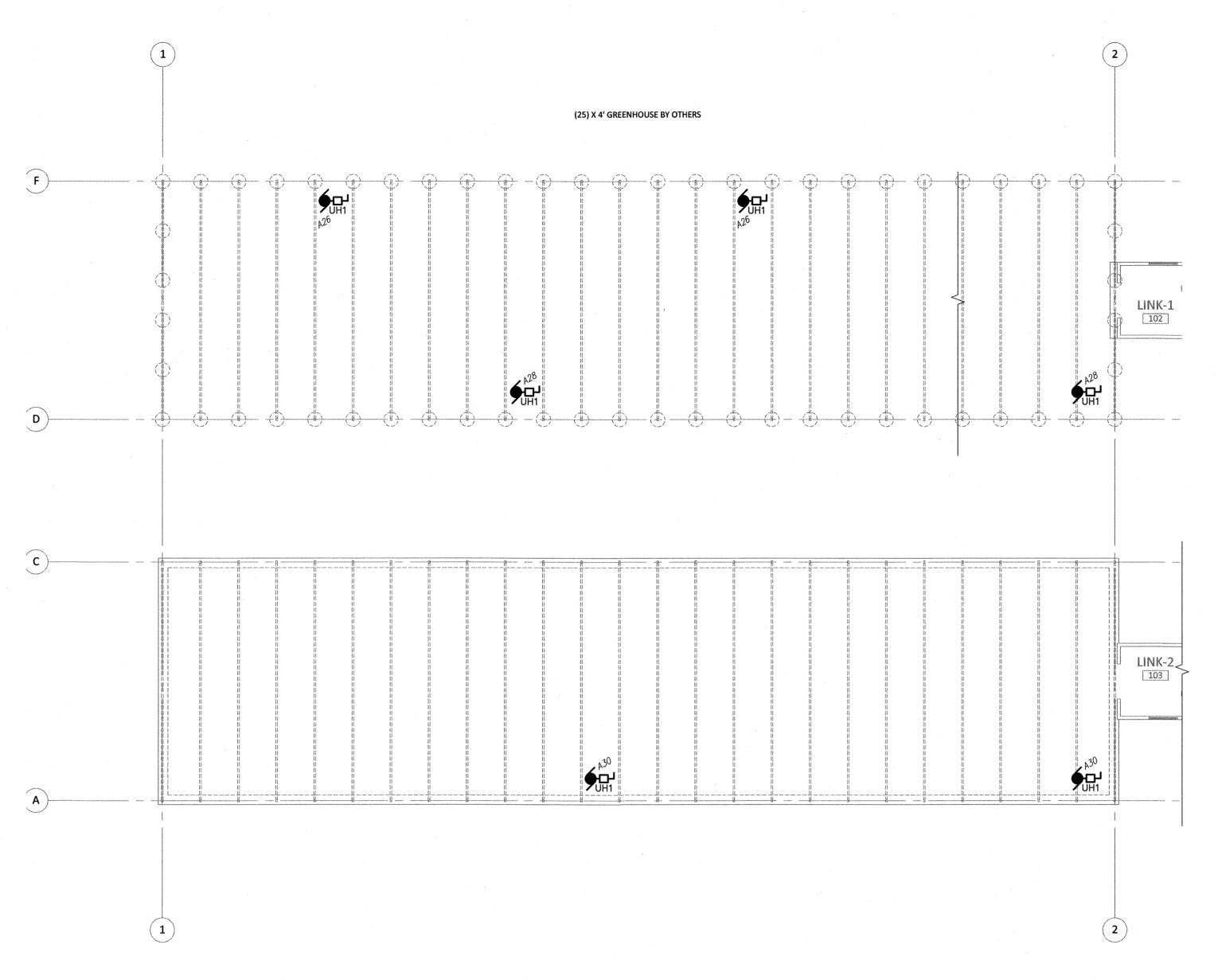
Designed By: AJT Scale: AS INDICATED Date: 2016.01.06 Drawn By: AJT Checked By: VJT Date: 2016.01.06 Project No.: **4859** 

Revision No.: R# Date: 2016.01.06

Date Issued: 2016.01.06

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MAIN FLOOR PLAN - POWER AND SYSTEMS

SCALE 1/4" = 1'0"

MOTOR SCHEDULE | VOLTAGE | HP/W/MCA | C.B. | COND. | STARTER | NOTES NO. DESCRIPTION LOCATION 120V-1PH 1/8 HP 15A-1P #12 RADIANT HEATER WORK AREA

SPECIFIC NOTES

1. WIRE AND CONNECT AS REQUIRED. REFER TO MECHANICAL.

2. MAGNETIC STARTER BY ELECTRICAL CONTRACTOR.

3. MANUAL STARTER BY ELECTRICAL CONTRACTOR.

4. COORDINATE INSTALLATION OF PARTY TO TENHANDES OF AND SO

5. WIRE AND CONNECT INDOOR UNIT TO TERMINALS S1 AND S2 ON OUTDOOR UNIT.

GENERAL NOTES

A. MANUAL STARTERS TO BE C/W OVERCURRENT PROTECTION.
B. ALL DISCONNECT SWITCHES TO BE SUPPLIED BY ELECTRICAL CONTRACTOR.
C. ELECTRICAL CONTRACTOR TO PROVIDE CIRCUIT BREAKERS AND WIRING ACCORDING TO THE FINAL NAMEPLATES OF ALL THE MECHANICAL EQUIPMENT.

D. ALL LOW VOLTAGE CONTROL WIRING BY MECHANICAL CONTRACTOR.

E. ALL LINE VOLTAGE CONTROL WIRING BY ELECTRICAL CONTRACTOR — REFER TO MECHANICAL SECTION. CO—ORDINATE EXACT REQUIREMENTS WITH MECHANICAL CONTRACTOR.

ARCHITECTURE LTD.

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## **HEADER BUILDING** AND GREENHOUSES

INDIAN HEAD, SASKATCHEWAN

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Issue Record: YY.MM.DD/Issued For/Issued To/Issued By

R# Brief Description/YY.MM.DD/Revised By

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PERMISSION TO CONSULT HELD BY:
DISCPLINE SASK REQ. No. / SIGNATURE
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**ELECTRICAL** -**FLOOR PLANS** PHASE 2

Scale: AS INDICATED Designed By: AJT Drawn By: AJT Date: 2016.01.06 Date: 2016.01.06 Checked By: VJT

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