AGRICULTURE & AGRI-FOOD CANADA SASKATOON RDC CRYOBANK DEHUMIDIFIER

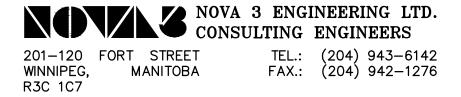
107 SCIENCE PLACE SASKATOON, SASKATCHEWAN

ISSUED FOR TENDER (2017.02.03)





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DRAWING INDEX

STRUCTURAL

S5.1 RTU SUPPORT FRAMING PLAN AND DETAILS & GENERAL NOTES

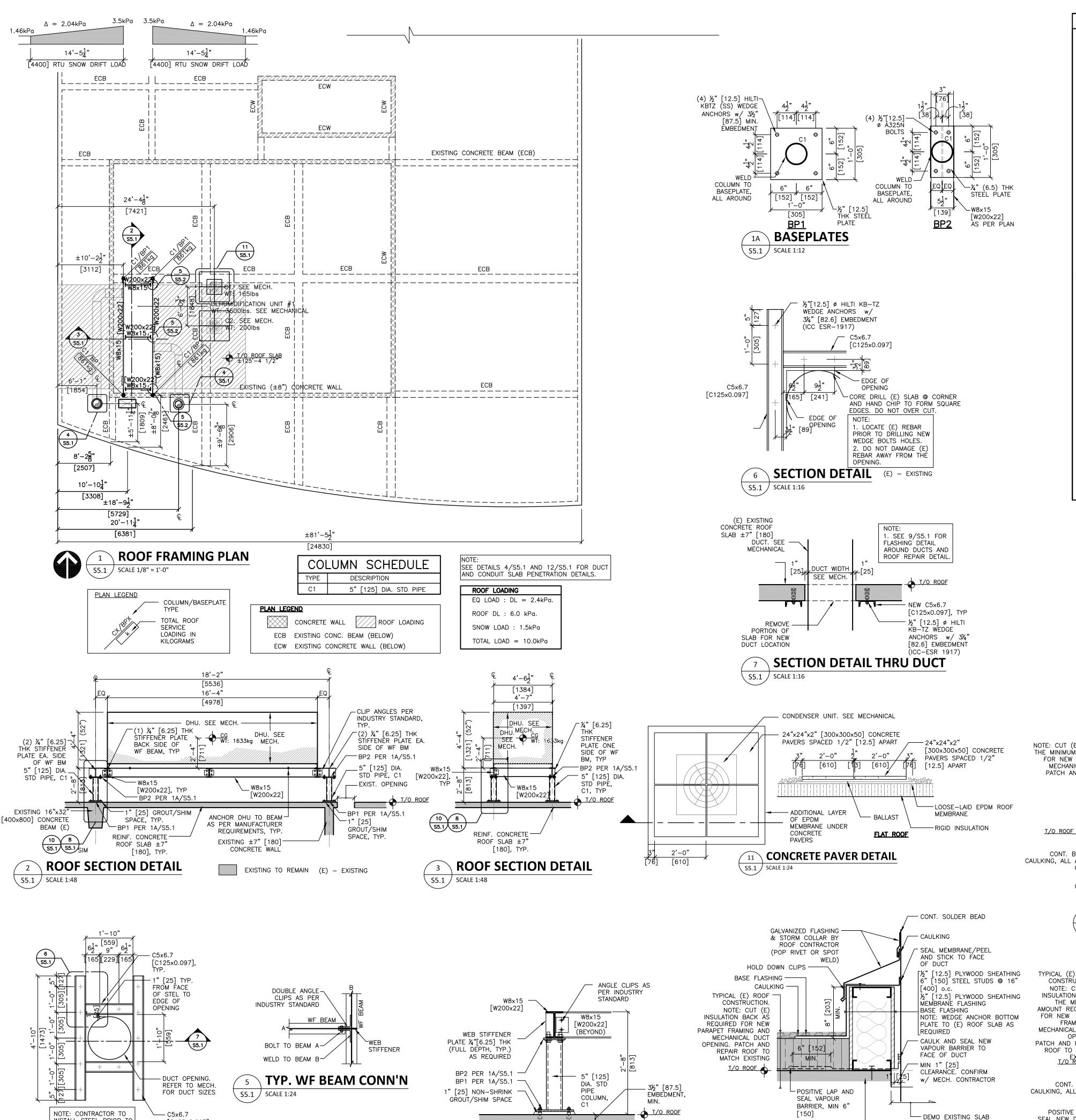
MECHANICAL

M6.1 MECHANICAL DEMOLITION PLANS
M6.2 RENOVATED MECHANICAL PLANS

M6.3 MECHANICAL DETAILS

ELECTRICAL

E1.0 ELECTRICAL - POWER AND SYSTEMS



8 TYP. COLUMN/PIPE CONN.

S5.1 ∫ SCALE 1:16

INSTALL STEEL PRIOR TO

CONCRETE ROOF SLAB

S5.1 *∫* SCALE 1:24

CORING HOLES IN

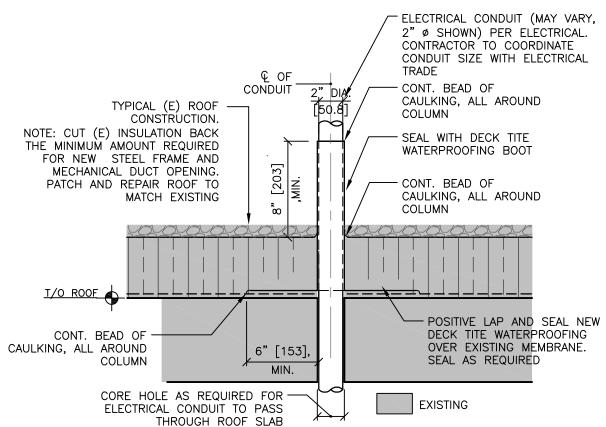
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M:\Current Projects\4874 ag canada saskatoon cryobank\4874 DRAWINGS\4874 WORKING DRAWINGS\4874501-METRIC-R1

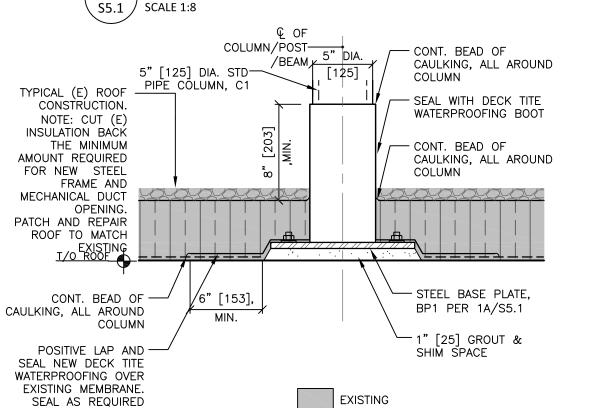
TYP. DUCT OPENING

THE DRAWINGS. CONTRACTOR IS TO OBTAIN APPROVAL FROM THE GOVERNING JURISDICTION AND OBTAIN A BUILDING PERMIT. CONSTRUCTION IS TO BE IN FULL COMPLIANCE WITH THE NATIONAL BUILDING CODE ENGINEER IS ENGAGED BY THE OWNER, TO PROVIDE PERIODIC INSPECTIONS AND IS THUS TAKING RESPONSIBILITY FOR DESIGN AND CONSTRUCTION IN PLACE. 6. ANY CHANGES TO THE FRAMING DESIGN OR LAYOUT REQUIRES THE ENGINEER'S REVIEV STRUCTURAL STEEL FABRICATE AND ERECT STRUCTURAL STEEL TO CSA S16.1. PROVIDE STRUCTURAL STEEL TO CSA G40.21 WITH THE FOLLOWING WIDE FLANGE BEAMS AND COLUMNS CHANNELS AND ANGLES HSS SECTIONS (CLASS C) STRUCTURAL BARS AND PLATES MISCELLANEOUS STEEL PIPE COLUMNS ERECTION BOLTS - MIN 3/4" SUBMIT SHOP DRAWINGS TO THE ENGINEER AND RECEIVE APPROVAL PRIOR TO FABRICATION. SHOW ALL DETAILS, INCLUDING FIELD WELDS, AND MATERIAL SPECIFICATIONS. SHOP DRAWINGS TO BE SEALED BY A PROFESSIONAL ENGINEER IN PROVINCE OF CONSTRUCTION SITE TOUCH UP ALL FIELD WELDS WITH PRIMER AFTER SLAG IS REMOVED. MINIMUM SIZE OF FIELD WELDS, 1/16" LESS THAN THE THICKNESS OF MATERIAL BUT NOT LESS THAN 1/4". WELD TO CSA W59 BY FABRICATORS QUALIFIED TO CSA W47.1. TIGHTEN ALL BOLTS WITH IMPACT WRENCH. PAINT STEEL SURFACES INTENDED FOR HEATED INTERIOR AREAS WITH ONE COAT OF PRIMER TO CISC/CPMA 1-73A.
USE ONE COAT OF CGSB 1-GP-40 PRIMER FOR ALL STEEL SURFACES EXPOSED DIRECTLY TO WEATHER STRUCTURAL STEEL SHALL CONFORM TO CSA STANDARD G40.21-M87 GRADE 350W - HSS 350W, CLASS C STEEL FABRICATOR TO BE CERTIFIED IN DIVISION 1 OR 2 BY THE CANADIAN WELDING BUREAU IN ACCORDANCE WITH CSA W47.1. FIELD WELDING BY COMPANIES CERTIFIED BY THE CWB AS PER W47.1 DIVISIONS 1,2 &3. STRUCTURAL STEEL BOLTS CONFORMING TO ASTM STANDARD A325 ANCHOR BOLTS UP TO 3/4" DIA TO CONFORM TO ASTM STANDARD A307 GROUT UNDER BASE PLATES TO BE A NON-SHRINKING, NON-METALLIC, PRE-BLENDED GROUTING COMPOUND CAPABLE OF A MIN. COMPRESSIVE STRENGTH OF 20MPa AT 3 DAYS AND 50 MPa AT 28 DAYS. WELDING ELECTRODES SHALL BE LOW HYDROGEN. REMOVE ALL WELDING SLAG BEFORE PAINTING. ALL AREAS TO RECEIVE WELDING TO BE CLEANED OF GREASE OR PAINT.

/NEW 2" [50.8] Ø CORE (MAY VARY). COORDINATE CONDUIT SIZE WITH ELECTRICAL TRADE 1. LOCATE EXISTING REBAR PRIOR TO CORING OPERATIONS 2. DO NOT DAMAGE EXISTING 3. DO NOT CORE THROUGH EXISTING CONCRETE BEAMS EXISTING 15M BARS @ 12"[300] o.c. T&B EA. WAY 12 SLAB PENETRATION DETAIL **S5.1** *SCALE* 1:24



13 WATERPROOFING AROUND CONDUIT



WATERPROOFING AROUND HSS COLUMNS \ S5.1 \int SCALE 1:8

AS REQUIRED FOR NEW

OPENING AS PER PLAN.

EXISTING

MECHANICAL DUCT

REINF. CONCRETE

ROOF SLAB ±7"

DUCT ROOF PENETRATION

GENERAL STRUCTURAL NOTES

(THE FOLLOWING APPLY UNLESS NOTED OTHERWISE ON DRAWINGS)

44W 36W OR 44W

ASTM A53 GR.B ASTM A325

CONTRACTOR IS TO CHECK AND VERIFY ALL SITE CONDITIONS AND DIMENSIONS. REPORT ANY VARIANCES ON OR AGAINST THE DRAWINGS TO THE ENGINEER. CONTRACTOR IS TO CONFIRM ALL BUILDING GRADE ELEVATIONS ON SITE AGAINST

GENERAL NOTES

ALL MATERIALS, WORKMANSHIP, DESIGN AND CONSTRUCTION SHALL CONFORM TO THE DRAWINGS, SPECIFICATIONS AND THE NATIONAL

BUILDING CODE OF CANADA (NBC). 2010 EDITION.

GENERAL CONDITIONS TRUCTURAL DRAWINGS SHALL BE USED IN CONJUNCTION WITH MECHANICAL DRAWINGS FOR BIDDING AND CONSTRUCTION. CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS WITH MECHANICAL DRAWINGS AND EXISTING CONDITIONS FOR COMPATIBILITY, AND SHALL NOTIFY THE STRUCTURAL ENGINEER OF ALL DISCREPANCIES PRIOR TO CONSTRUCTION.

IN THE EVENT OF CONFLICTS BETWEEN THE STRUCTURAL DRAWINGS AND THE PROJECT SPECIFICATIONS, THE STRUCTURAL DRAWINGS SHALL

SEE MECHANICAL DRAWINGS FOR SIZE AND LOCATION OF MISCELLANEOUS MECHANICAL OPENINGS THROUGH WALLS AND FLOORS. USE EXISTING OPENINGS THROUGH WALLS AND FLOORS IF POSSIBLE.

CONTRACTOR SHALL PROVIDE TEMPORARY BRACING FOR THE STRUCTURE AND STRUCTURAL COMPONENTS UNTIL ALL FINAL CONNECTIONS HAVE BEEN COMPLETED IN ACCORDANCE WITH THESE DRAWINGS. THE CONTRACTOR IS RESPONSIBLE FOR ALL SAFETY PRECAUTIONS AND THE METHODS, TECHNIQUES, SEQUENCES OR PROCEDURES REQUIRED TO PERFORM THE WORK.

DRAWINGS INDICATE GENERAL AND TYPICAL DETAILS OF CONSTRUCTION WHERE CONDITIONS ARE NOT SPECIFICALLY INDICATED BUT ARE OF SIMILAR CHARACTER TO DETAILS SHOWN, SIMILAR DETAILS OF CONSTRUCTION SHALL BE USED SUBJECT TO REVIEW AND APPROVAL BY THE MECHANICAL AND THE STRUCTURAL ENGINEERS.

MATERIAL SUBSTITUTIONS FOR PRODUCTS SPECIFIED IN THE PLANS AND NOTES MAY BE SUBMITTED BY THE CONTRACTOR FOR APPROVAL BY THE MECHANICAL AND STRUCTURAL ENGINEER. SUBSTITUTION SUBMITTALS SHALL IDENTIFY EXACTLY WHAT PRODUCTS ARE TO BE SUBSTITUTED, AND INCLUDE AN ICC EVALUATION SERVICE REPORT (OR EQUIVALENT) DEMONSTRATING EQUIVALENT OR GREATER LOAD CAPACITIES THAN THE SUBSTITUTED PRODUCT.

CONTRACTOR INITIATED CHANGES SHALL BE SUBMITTED IN WRITING TO THE MECHANICAL AND STRUCTURAL ENGINEERS FOR APPROVAL PRIOR TO FABRICATION OR CONSTRUCTION. CHANGES SHOWN ON SHOP DRAWINGS ONLY WILL NOT SATISFY THIS REQUIREMENT.

HE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE SAFETY REGULATIONS. SHORING AND RESHORING SHALL BE DESIGNED BY A QUALIFIED DESIGNER AND THE ERECTED SHORING SHALL BE INSPECTED BY A REGISTERED STRUCTURAL ENGINEER EXPERIENCED IN THE DESIGN OF SHORING SYSTEMS, WHO SHALL SUBMIT AN INSPECTION REPORT TO THE STRUCTURAL ENGINEER.

QUALITY CONTROL

SHOP DRAWINGS FOR THE FOLLOWING ITEMS SHALL BE SUBMITTED TO THE STRUCTURAL ENGINEER FOR REVIEW TWO WEEKS PRIOR TO FABRICATION.

SUBMITTAL	SUBMITTAL REQUIRED	REGISTERED ENGINEER	ENGINEERING CALCULATIONS
STRUCTURAL STEEL	YES	YES	NOT REQUIRED

SHOP DRAWINGS OF BIDDER-DESIGN AND PRE-ENGINEERED COMPONENTS SHALL INCLUDE THE DESIGNING PROFESSIONAL ENGINEER'S STAMP, AS INDICATED ABOVE. THE ENGINEER SHALL BE REGISTERED IN THE PROVINCE IN WHICH THE PROJECT IS LOCATED. THE SUBMITTAL WILL BE SUBJECT TO A CURSORY REVIEW BY THE ENGINEER OF RECORD FOR LOADS IMPOSED ON THE BASIC STRUCTURE. THE COMPONENT DESIGNER IS RESPONSIBLE FOR CODE CONFORMANCE AND ALL NECESSARY CONNECTIONS NOT SPECIFICALLY CALLED OUT ON THE ARCHITECTURAL OR STRUCTURAL DRAWINGS. THE FOLLOWING CERTIFICATION SHALL BE INCLUDED ADJACENT TO THE ENGINEER'S STAMP ON ALL SUBMITTALS.

A LICENSED ENGINEER IN THE PROVINCE IN WHICH THE PROJECT IS LOCATED DO HEREBY CERTIFY THAT I HAVE REVIEWED THE CONTRACT DOCUMENTS AND HAVE, TO THE BEST OF MY KNOWLEDGE, INCORPORATED ALL OF THE DESIGN CRITERIA CONTAINED HEREIN.

SHOP DRAWING REVIEW: DIMENSIONS AND QUANTITIES ARE NOT REVIEWED BY THE ENGINEER OF RECORD AND THEREFORE MUST BE VERIFIED BY THE CONTRACTOR. THE CONTRACTOR SHALL REVIEW AND STAMP DRAWINGS PRIOR TO REVIEW BY ENGINEER OF RECORD. SUBMITTALS SHALL INCLUDE A REPRODUCIBLE AND ONE COPY. THE REPRODUCIBLE WILL BE MARKED AND RETURNED.

IN THE EVENT OF DEVIATIONS, DISCREPANCIES OR CONFLICTS BETWEEN APPROVED SHOP DRAWING SUBMITTALS AND THE CONTRACT DOCUMENTS, THE DESIGN DRAWINGS AND SPECIFICATIONS SHALL CONTROL.

<u>ALL STRUCTURAL SYSTEMS</u> COMPOSED OF COMPONENTS TO BE FIELD ERECTED SHALL BE SUPERVISED BY THE SUPPLIER DURING MANUFACTURING, DELIVERY, HANDLING, STORAGE AND ERECTION, IN

ACCORDANCE WITH INSTRUCTIONS PREPARED BY THE SUPPLIER.

RANSPORTATION AND SETTING, AND STRUCTURAL LOADING ASSOCIATED THEREWITH SHALL BE DETERMINED AND ACCOUNTED FOR BY THE MANUFACTURER.

<u>ANCHORAGE TO CONCRETE</u>

EXPANSION BOLTS INTO CONCRETE SHALL BE 'KWIK BOLT TZ' AS MANUFACTURED BY HILTI CORPORATION. INSTALL IN STRICT ACCORDANCE WITH ICC-ES REPORT ESR-1917, INCLUDING MINIMUM EMBEDMENT REQUIREMENTS.

TYPE OF ANCHORAGE	TYPE OF ANCHOR
EQUIPMENT ANCHORAGE	STAINLESS STEEL EXPANSION
POST & COLUMN BASES	STAINLESS STEEL EXPANSION
CHANNELS TO CONCRETE WALL	EXPANSION
CHANNELS TO CONCRETE JOISTS	EXPANSION

McGinn Engineering Ltd.

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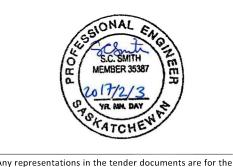
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www.mcginngroup.ca

McGINN ENGINEERING LTD. ASSOCIATION OF PROFESSIONAL ENGINEERS OF SASKATCHEWAN CERTIFICATE OF AUTHORIZATION W.T. McGINN & ASSOCIATES

Permission to Consult held by DISCIPLINE SASK. REG. No.

Professional Seal:



general information of bidders and are not in any way arranted or guaranteed by or on behalf of the owner or ne owner's consultants and its subconsult's employees shall be liable for any representations negligent (therwise contained in the documents. These desig with whom the design professional has entered into ontract and there are no representations of any kind made y the design professional to any party with whom the design professional has not entered into a contract. Th ontractor shall check all dimensions, elevations and other ata as represented on all drawings in the set fo ny discrepancies prior to proceeding with construction nis requirement is a cost to the contractor and not to th wner nor the consultant. This term supercedes the ccordance with all applicable code and requirements of all utilities as set out by governing authorities

AGRICULTURE & AGRI-FOOD CANADA SASKATOON RDC **CRYOBANK DEHUMIDIFIER**

107 SCIENCE PLACE SASKATOON, SASKATCHEWAN

ssue Record:

YY.MM.DD/Issued For/Issued To/Issued By

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

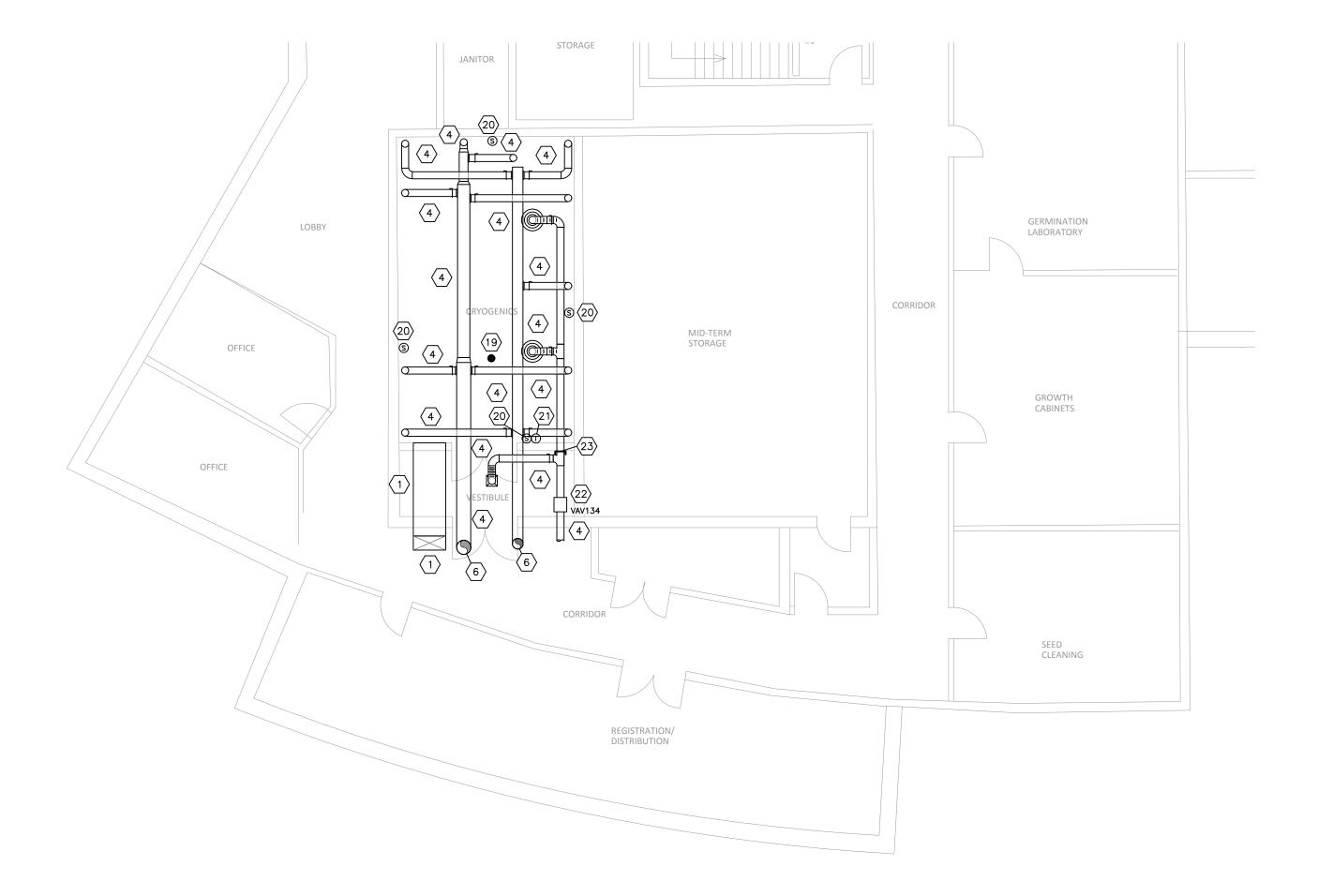
RTU SUPPORT FRAMING PLAN AND DETAILS

Scale: AS INDICATED Designed By: SS Date: 2016.12 Checked By: PTM/SS Date: 2016.12.23

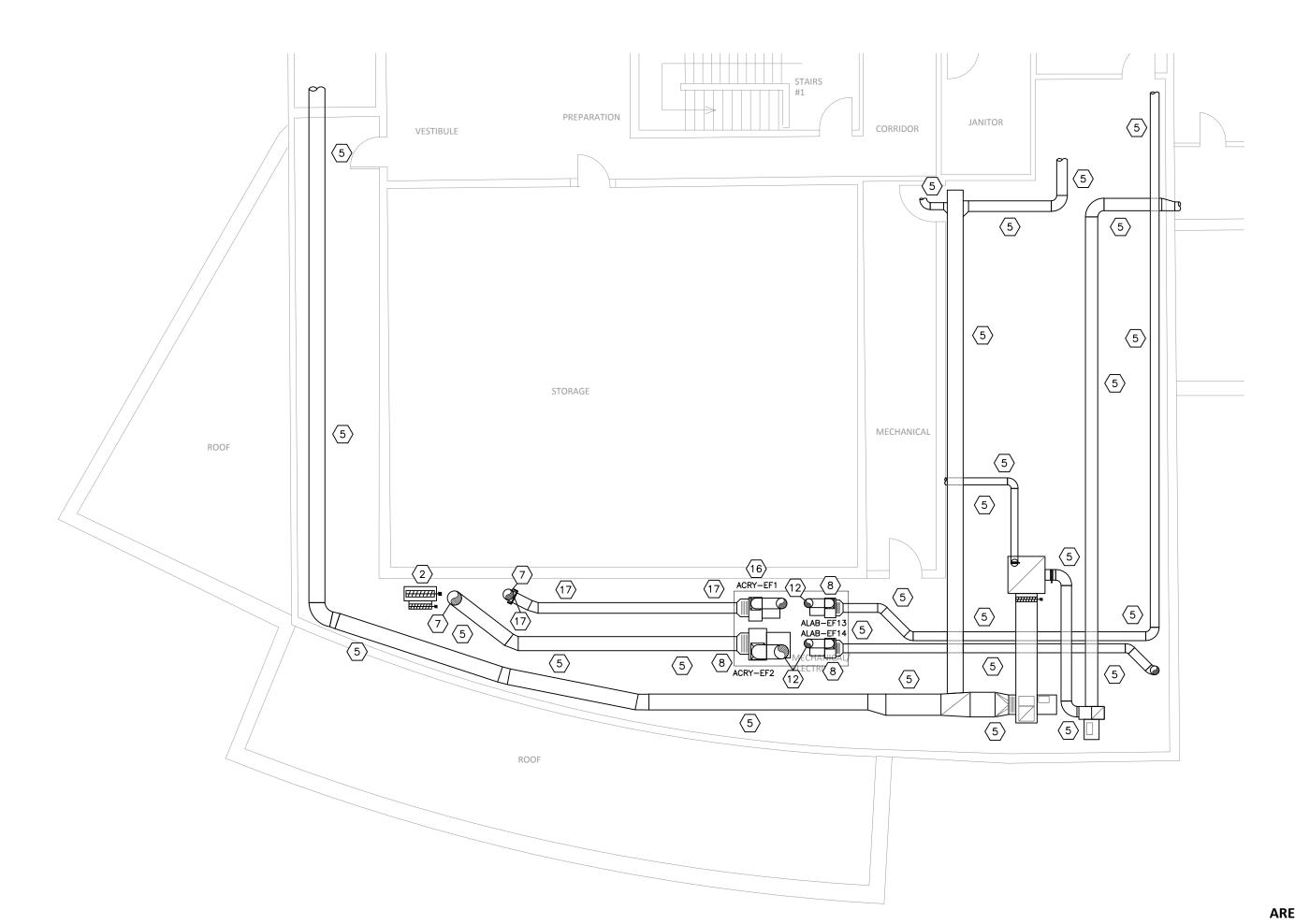
Date: YYYY.MM.DD

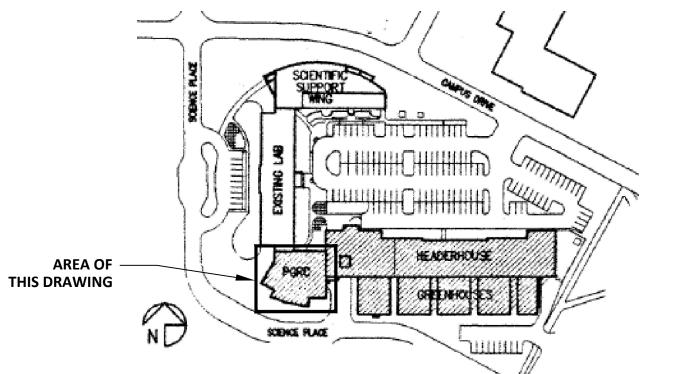
ssued For: FOR TENDER

Date Issued: 02/03/2017 Date Plotted: 26/01/2017













ROOF DEMOLITION PLAN SCALE: 1:100

MECHANICAL DEMOLITION GENERAL NOTES

- 1. THE CONTRACTOR IS RESPONSIBLE FOR THE COMPLETE REMOVAL AND DISPOSAL OF ALL EXISTING MECHANICAL EQUIPMENT INCLUDING DUCTWORK, GRILLES, DIFFUSERS, PIPING, FITTINGS, INSULATION, VENTING, ETC. AS NOTED.
- COORDINATE WITH GENERAL CONTRACTOR TO PATCH ALL SURFACES DISTURBED AS A RESULT OF DEMOLITION INCLUDING CEILINGS, ROOF, FLOORS, WALLS, ETC. AND MAKE GOOD AND LEVEL TO EXISTING SURROUNDINGS.
- 3. THE CONTRACTOR IS RESPONSIBLE FOR FINAL CLEANING OF THE AFFECTED AREAS.
- 4. COORDINATE ALL WORK WITH THE OWNER AND GENERAL CONTRACTOR'S PHASING PLAN TO MINIMIZE INTERRUPTION DURING BUSINESS HOURS.
- 5. THE CONTRACTOR SHALL PROTECT ALL OCCUPIED AREAS WITH BOARDING, DUST BARRIERS, ETC. AND CLEAN UP WORK SPACES ON A DAILY BASIS.
- 6. THE CONTRACTOR WILL BE RESPONSIBLE FOR COORDINATION OF THE REMOVAL, REINSTALLATION, AND/OR REPLACEMENT OF EXISTING LIGHTING, SPRINKLER HEADS, ETC.. DISTURBED AS A RESULT OF THE DEMOLITION AND INSTALLATION OF NEW MECHANICAL SYSTEMS WITH THE GENERAL CONTRACTOR WHERE NECESSARY.
- 7. THE CONTRACTOR SHALL MAINTAIN A CLEAN, ORGANIZED WORK AND DISPOSAL STAGING AREA. PROVIDE GARBAGE/REFUSE CONTAINER FOR DEMOLITION MATERIAL AND INCLUDE ALL COSTS FOR REMOVAL AND DISPOSAL. COORDINATE STAGING AREA WITH
- 8. ALL HAZARDOUS WASTE SUCH AS REFRIGERANT, OIL, CHEMICALS, ETC. TO BE DISPOSED OF IN ACCORDANCE WITH THE MINISTRY OF ENVIRONMENT AND THE CITY OF SASKATOON REQUIREMENTS.
- 9. LOCATION AND CONFIGURATION OF EXISTING EQUIPMENT, DUCTWORK, PIPE, ETC. WAS OBTAINED FROM EXISTING DRAWINGS AND SITE VISITS. CONTRACTOR TO DETERMINE AND VERIFY EXACT CONFIGURATION AND LOCATION OF EXISTING MECHANICAL SYSTEMS
- 10. TO OUR KNOWLEDGE AND BASED ON OUR INITIAL SITE INSPECTION. THERE DOES NOT APPEAR TO BE ANY ASBESTOS MATERIAL IN THE DEMOLITION AREA. SHOULD THE CONTRACTOR ENCOUNTER POTENTIAL ASBESTOS MATERIAL, ADVISE CONSULTANT
- 11. SEE DRAWING M6.2 FOR PROPOSED WORK STAGING PLAN.

- DEMOLITION KEYNOTES (XX) --- DENOTES KEYNOTE ON DRAWING 1) EXISTING FRESH AIR INTAKE DUCT TO REMAIN. SEE SECOND FLOOR PLAN 2/M6.2 FOR CONTINUATION.
- 2 EXISTING FRESH AIR INTAKE THROUGH ROOF DOWN TO MAIN FLOOR TO REMAIN C/W DUCT STUBBED INTO 2ND FLOOR MECHANICAL ROOM AND MOTORIZED DAMPERS. SEE ROOF PLAN 3/M6.2 AND MAIN FLOOR PLAN 1/M6.2 FOR CONTINUATION.
- (3) EXISTING FRESH AIR INTAKE TO REMAIN C/W ROOF TOP LOUVERED PENTHOUSE. SEE SECOND FLOOR PLAN 2/M6.2 FOR CONTINUATION.
- 4 EXISTING DUCTWORK TO REMAIN C/W GRILLES/DIFFUSERS.
- $\langle 5 \rangle$ EXISTING DUCTWORK TO REMAIN.
- (6) EXISTING EXHAUST AIR DUCT UP TO SECOND FLOOR MECHANICAL ROOM TO REMAIN. SEE SECOND FLOOR PLAN 2/M6.2 FOR
- $\langle 7 \rangle$ EXISTING EXHAUST AIR DUCT UP FROM MAIN FLOOR TO REMAIN. SEE MAIN FLOOR PLAN 1/M6.2 FOR CONTINUATION.
- 8 EXISTING EXHAUST FAN TO REMAIN. MODIFY CONTROLS TO SUIT REVISED SEQUENCE OF OPERATIONS AS SHOWN ON DRAWING M6.2.
- $\langle 9 \rangle$ EXISTING ROOF TOP CONDENSER TO REMAIN.
- (10) EXISTING ROOF TOP INTAKE TO REMAIN C/W LOUVERED PENTHOUSE. (11) EXISTING ROOF TOP EXHAUST STACK TO REMAIN. SEE SECOND FLOOR
- PLAN 2/M6.2 FOR CONTINUATION. (12) EXISTING EXHAUST DUCT UP THROUGH ROOF TO REMAIN. SEE ROOF
- PLAN 3/M6.2 FOR CONTINUATION. (13) EXISTING ROOF TOP EXHAUST FAN TO REMAIN.
- (14) REMOVE EXISTING EXHAUST AIR STACK AND BLANK OFF DUCT AT ROOF PENETRATION WEATHER TIGHT WITH AN INSULATED PREFINISHED METAL COVER TO MATCH EXISTING. SEE DETAIL 4/M6.3.
- (15) EXISTING ROOF DRAIN TO REMAIN.
- (16) EXISTING EXHAUST FAN TO BE REMOVED C/W ELECTRICAL, CONTROLS, ETC. PATCH FLOOR AND MAKE GOOD AND LEVEL TO EXISTING SURROUNDINGS. REFER TO WORK STAGING PLAN ON DRAWING M6.2.
- EXISTING EXHAUST AIR DUCT TO BE REMOVED. CAP-OFF DUCT AT APPROXIMATE LOCATION SHOWN. REFER TO WORK STAGING PLAN ON
- DRAWING M6.2. $\langle 18 \rangle$ EXISTING ROOF TOP EQUIPMENT TO REMAIN.
- (19) EXISTING OXYGEN LEVEL INDICATOR LIGHT HANGING FROM U/S OF CEILING TO REMAIN.
- (20) EXISTING OXYGEN LEVEL SENSOR TO REMAIN.
- 21) EXISTING VAV BOX 'VAV134' THERMOSTAT TO BE RELOCATED. SEE RENOVATED MAIN FLOOR PLAN 1/M6.2.
- (22) EXISTING VAV BOX 'VAV134' TO REMAIN. AIR FLOW TO BE ADJUSTED. SEE DRAWING M6.2.
- CAP OFF DUCT AT APPROXIMATE LOCATION SHOWN AND DISCONNECT FROM CRYOGENICS ROOM SUPPLY AIR DUCT. SEE DRAWING M6.2.

Revision No.: Issued For: FOR TENDER

Date Issued: 2017.02.03 Date Plotted: 2017.02.03

Checked By: GAS

Project No.: **4874**



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1457 ALBERT STREET, REGINA, SASKATCHEWAN S4R 2R8 FAX 306.757.9471 mcginn@mcginngroup.ca www.mcginngroup.ca McGINN ENGINEERING LTD. ASSOCIATION OF PROFESSIONAL ENGINEERS OF SASKATCHEWAN **CERTIFICATE OF AUTHORIZATION**

Permission to Consult held by:

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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 consistency and correctness and report to the consultant 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. AGRICULTURE &

AGRI-FOOD CANADA **SASKATOON RDC** CRYOBANK DEHUMIDIFIER

107 SCIENCE PLACE SASKATOON, SASKATCHEWAN

Issue Record:

MECHANICAL

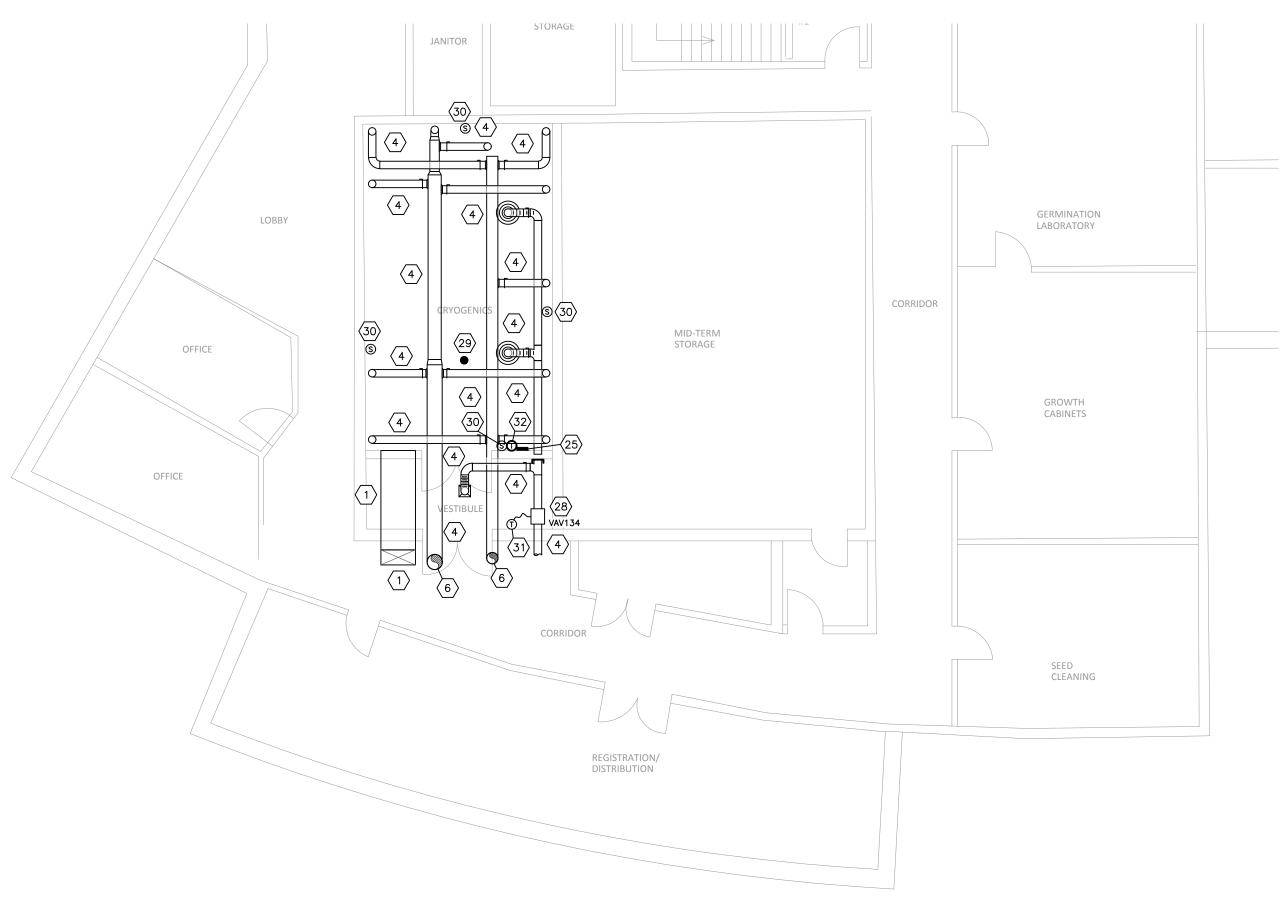
DEMOLITION PLANS

Designed By: DJT Scale: AS INDICATED

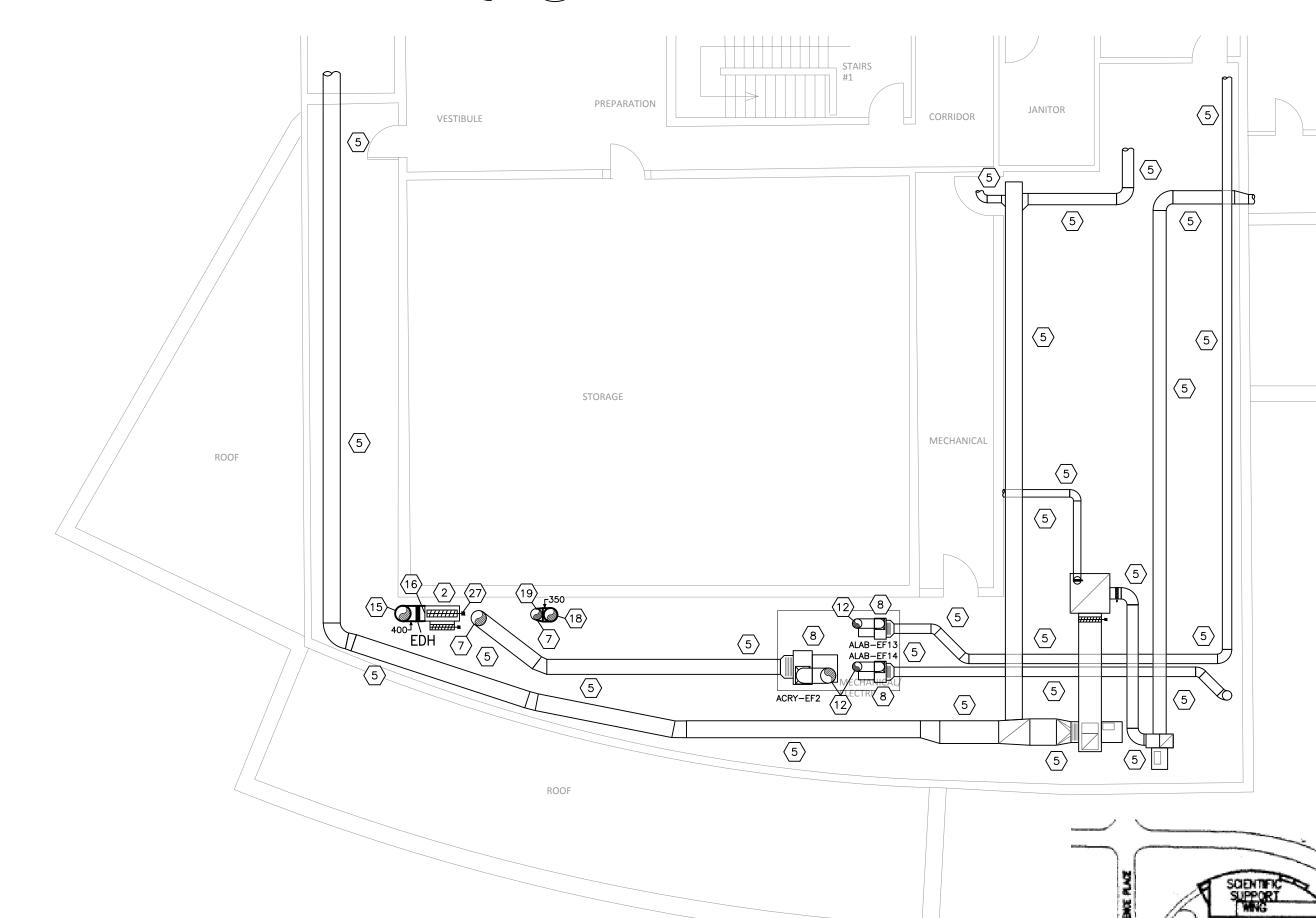
Date: 2016.12.09

Drawn By: CGW Date: DEC 2016

SECOND FLOOR DEMOLITION PLAN

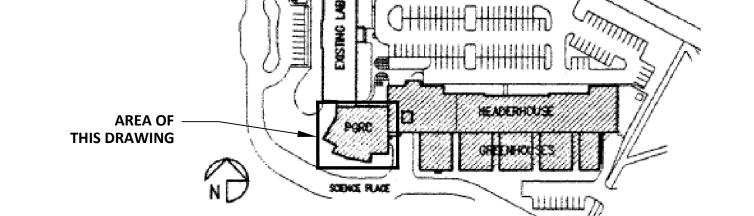






SECOND FLOOR PLAN

SCALE: 1:100





WORK STAGING PLAN

STAGING PLAN IS PROPOSED.

STAGE 5 - COMMISSION UNIT.

 $>\!\!<$

STAGE 3

FACILITY WILL BE IN OPERATION THROUGHOUT THE DURATION OF

(AAFC). AS WELL AS THE UNIVERSITY OF SASKATCHEWAN SECURITY,

- REMOVE EXISTING EXHAUST FAN AND DUCTWORK AS SHOWN.

STAGE 4
- TIE-IN NEW DUCTWORK TO EXISTING DUCTWORK AS SHOWN.

CAP-OFF VAV134 DUCT INTO CRYOGENICS ROOM AND

MODIFY VAV134 AIR FLOW TO 70 L/s (148 cfm)

H.V.A.C. LEGEND

REFRIGERANT LINE

CONDENSATE DRAIN LINE

SUPPLY AIR DUCT UP

SUPPLY AIR DUCT DOWN

EXHAUST AIR DUCT UP

BALANCING DAMPER

EXHAUST AIR DUCT DOWN

CRYOGENICS ROOM VENTILATION SYSTEM, THE FOLLOWING WORK

MAINTENANCE AND OPERATIONS STAFF.

3. CONTRACTOR TO FOLLOW AGRICULTURE AND AGRIFOOD CANADA

THE CONSTRUCTION WORK.

2. CONTRACTOR TO CO-ORDINATE ALL WORK WITH FACILITY

4. TO MINIMIZE THE DISRUPTION TO THE OPERATION OF THE

B. STAGE 2
- PLACE UNIT ON ROOF AND RUN NEW DUCTWORK.

SITE ACCESS, AND SAFETY PROCEDURES.

STAGE 1
- ROOF STRUCTURE AND CURB WORK.

MECHANICAL GENERAL NOTES

DHU

- 1. ALL DUCTING SHOWN SCHEMATICALLY
- 2. ALL DUCT SIZES ARE NET SIZES.
- 3. ALL DUCT TAKE-OFFS TO BE 45° CONICAL WITH BALANCING
- 4. DUCTING TO BE CONNECTED TO HVAC UNIT WITH CANVAS
- CONNECTIONS. 5. ALL MAIN SUPPLY PLENUM ELBOWS TO BE MITERED WITH TURNING
- 6. DUCT ELBOW RADII TO BE MINIMUM 1.5 TIMES THE TURNING
- DIMENSION. COORDINATE ROUTING OF DUCTWORK IN CEILING WITH ELECTRICAL
- D ENSURE ADEQUATE ACCESS TO ELECTRICAL SYSTEMS IS MAINTAINED AT THE HIGHEST POSSIBLE LEVEL.
- 8. ENSURE ALL EXHAUST OUTLETS ARE AT LEAST 3m (10ft) AWAY FROM THE NEAREST FRESH AIR INTAKE.
- 9. ALL EQUIPMENT TO BE INSTALLED AS PER THE MANUFACTURER'S SPECIFICATIONS AND RECOMMENDATIONS.
- 10. ALL DUCTING TO BE FIRE DAMPERED AT ALL FIRE SEPARATIONS COMPLETE WITH QUICK CLOSE HINGED ACCESS DOORS FOR MAINTENANCE OF FUSIBLE LINK.
- 11. CONTRACTOR TO CHANGE ALL UNIT FILTERS ON BUILDING HAND OVER COMPLETION AND PROVIDE 1 SET OF SPARE FILTERS HANDED OVER TO OWNERS TO BE STORED ON SITE.
- 12. SEE DRAWING M6.1 FOR MECHANICAL DEMOLITION PLANS. 13. SEE DRAWING M6.3 FOR MECHANICAL SPECIFICATIONS AND DETAILS.

H.V.A.C. EQUIPMENT SCHEDULE

<u>DHU1 - DEHUMIDIFICATION UNIT #1</u> SUPPLY AND INSTALL A DEHUMIDIFICATION UNIT TO PROVIDE 425 L/s (900 cfm) FRESH AIR INTAKE FOR ENTHALPY WHEEL SECTION, 378 L/s (800 cfm) EXHAUST FOR ENTHALPY WHEEL SECTION, 708 L/s (1500 cfm) RECIRC AIR FOR ENTAHLPY WHEEL SECTION, 165 L/s (350 cfm) FRESH AIR INTAKE FOR DESICCANT WHEEL SECTION, 165 L/s (350 cfm) EXHAUST FROM DESICCANT WHEEL SECTION, AND 708 L/s (1500 cfm) SUPPLY AIR @ 1.0" E.S.P. (SUPPLY AND EXHAUST) WITH A 1 HP REGEN MOTOR, 3 HP SUPPLY MOTOR, AND 1.5 HP EXHAUST MOTOR. UNIT TO PROVIDE 15.06 kg/hr (33.2 lb/hr) H₂O REDUCTION IN SUMMER VENTILATION MODE AND 3.63 kg/hr (8.00 lb/hr) H₂O REDUCTION IN RECIRCULATION MODE. UNIT TO BE COMPLETE WITH 20 GAUGE G-90 GALVANIZED STEEL 50mm (2") EXTERIOR CABINET WITH 50mm (2") FIBREGLASS INSULATION BOARD, UV TOP COAT, MECHANICALLY FASTENED GALVANIZED STEEL BASE FRAME, CORRUGATED SYNTHETIC FIBROUS MEDIA ENTHALPY WHEEL, CORRUGATED SYNTHETIC MEDIA DESICCANT WHEEL, 50mm (2") PLEATED DISPOSABLE MERV 8 FILTERS, INTERNAL VIBRATION ISOLATION, INTAKE AIR AND EXHAUST AIR HOODS, 3-TON AND 4-TON EVAPORATOR COILS, 30kW ELECTRIC HEATER, INTEGRAL MOTORIZED DAMPERS, AND MICROPROCESSOR CONTROL (BACNET COMPATIBLE). PROVIDE AN OEMCTRL EQUIPMENT TOUCH USER INTERFACE PANEL IN CRYOGENICS ROOM TO DISPLAY SPACE RELATIVE HUMIDITY, UNIT DISCHARGE AIR TEMPERATURE, UNIT GRAPHIC, RELATIVE HUMIDITY SET POINT, OUTSIDE AIR VENTILATION MODE, AND RELATIVE HUMIDITY SET POINT ADJUSTMENT CONTROL. PANEL TO BE PROGRAMMED TO CONTROL UNIT AS PER SEQUENCE OF OPERATIONS ON THIS DRAWING. UNIT ELECTRICAL TO BE 575 VOLT, 3 PHASE WITH AN MCA OF 56 AMPS AND AN MOP OF 75 AMPS. UNIT WEIGHT IS APPROXIMATELY 1633 kg (3600 lbs).

<u>C1 - CONDENSING UNIT #1</u>

SUPPLY AND INSTALL A LENNOX MODEL TSA036H4N41Y CONDENSING UNIT OR EQUAL. UNIT TO PROVIDE 3 TONS TOTAL COOLING. UNIT TO BE MOUNTED ON ROOF ON PRECAST CONCRETE SIDEWALK PAD WITH RUBBER MATT ADHERED TO BOTTOM TO PROTECT ROOF MEMBRANE C/W REFRIGERANT LINE KIT, R-410A REFRIGERANT CHARGE, HAIL GUARD, LOW AMBIENT KIT DOWN TO -17.8° C (0°F) WITH FREEZESTAT AND COMPRESSOR LOCKOUT THERMOSTAT, WEATHER PROOF KIT, OUTDOOR FAN MOTOR 69H75, AND CAPACITOR WITH BRACKET. UNIT ELECTRICAL TO BE 208 VOLT, 3 PHASE WITH AN MCA OF 12.35 AMPS AND A MAXIMUM OVERCURRENT PROTECTION OF 20 AMPS. UNIT TO BE PIPED TO DEHUMIDIFICATION UNIT 'DHU' EVAPORATOR COIL #1. WIRE UNIT TO BE CONTROLLED VIA DEHUMIDIFICATION UNIT CÖNTROLS. UNIT WEIGHT IS APPROXIMATELY 75 kg (165 lbs). SEE DETAIL 2/M6.3.

<u>C2 – CONDENSING UNIT #2</u> SUPPLY AND INSTALL A LENNOX MODEL TSA048H4N41Y CONDENSING UNIT OR EQUAL. UNIT TO PROVIDE 4 TONS TOTAL COOLING. UNIT TO BE MOUNTED ON ROOF ON PRECAST CONCRETE SIDEWALK PAD WITH RUBBER MATT ADHERED TO BOTTOM TO PROTECT ROOF MEMBRANE C/W REFRIGERANT LINE KIT, R-410A REFRIGERANT CHARGE, HAIL GUARD, LOW AMBIENT KIT DOWN TO -17.8°C (0°F) WITH FREEZESTAT AND COMPRESSOR LOCKOUT THERMOSTAT, WEATHER PROOF KIT, OUTDOOR FAN MOTOR 69H75, AND CAPACITOR WITH BRACKET. UNIT ELECTRICAL TO BE 208 VOLT, 3 PHASE WITH AN MCA OF 18.2 AMPS AND A MAXIMUM OVERCURRENT PROTECTION OF 30 AMPS. UNIT TO BE PIPED TO DEHUMIDIFICATION UNIT 'DHU' EVAPORATOR COIL #2. WIRE UNIT TO BE CONTROLLED VIA DEHUMIDIFICATION UNIT CONTROLS. UNIT WEIGHT IS APPROXIMATELY 91 kg (200 lbs). SEE DETAIL 2/M6.3.

<u>DH – ELECTRIC DÚCT HEATER</u> SUPPLY AND INSTALL A CALORITECH MODEL DIF16X14-01-575 VOLT, THREE PHASE ELECTRIC DUCT HEATER COMPLETE WITH 7 HEATING ELEMENTS, WALL THERMOSTAT AND SAIL SWITCH. UNIT TO FIT IN A 16"x14" DUCT TRANSITION AND PROVIDE 15Kw HEATING @ 575 VOLT,

MECHANICAL KEYNOTES (XX) - DENOTES KEYNOTE ON DRAWING

- (1) EXISTING FRESH AIR INTAKE DUCT TO REMAIN. SEE SECOND FLOOR PLAN 2/M6.2 FOR CONTINUATION.
- $\langle 2 \rangle$ EXISTING FRESH AIR INTAKE THROUGH ROOF DOWN TO MAIN FLOOR TO REMAIN C/W DUCT STUBBED INTO 2ND FLOOR MECHANICAL ROOM AND MOTORIZED DAMPERS. SEE ROOF PLAN 3/M6.2 AND MAIN FLOOR PLAN 1/M6.2 FOR CONTINUATION.
- $\langle 3 \rangle$ EXISTING FRESH AIR INTAKE TO REMAIN C/W ROOF TOP LOUVERED PENTHOUSE. SEE SECOND FLOOR PLAN 2/M6.2 FOR CONTINUATION.
- (4) EXISTING DUCTWORK TO REMAIN C/W GRILLES/DIFFUSERS.
- $\langle 5 \rangle$ EXISTING DUCTWORK TO REMAIN.

(11) (11)

- (6) EXISTING EXHAUST AIR DUCT UP TO SECOND FLOOR MECHANICAL ROOM TO REMAIN. SEE SECOND FLOOR PLAN 2/M6.2 FOR
- (7) EXISTING EXHAUST AIR DUCT UP FROM MAIN FLOOR TO REMAIN. SEE MAIN FLOOR PLAN 1/M6.2 FOR CONTINUATION. $\langle 8 \rangle$ EXISTING EXHAUST FAN TO REMAIN.
- (9) EXISTING ROOF TOP CONDENSER TO REMAIN.
- (10) EXISTING ROOF TOP INTAKE TO REMAIN C/W LOUVERED PENTHOUSE. (11) EXISTING ROOF TOP EXHAUST STACK TO REMAIN. SEE SECOND FLOOR
- PLAN 2/M6.2 FOR CONTINUATION. (12) EXISTING EXHAUST DUCT UP THROUGH ROOF TO REMAIN. SEE ROOF
- PLAN 3/M6.2 FOR CONTINUATION.
- $\langle 13 \rangle$ EXISTING ROOF TOP EXHAUST FAN TO REMAIN.
- (14) NEW 400mm (16") DIAMETER SUPPLY AIR DUCT DOWN THROUGH ROOF. FLASH AND SEAL AT ROOF PENETRATION WEATHER TIGHT. SEE SECOND FLOOR PLAN 2/M6.2 FOR CONTINUATION. SEE STRUCTURAL
- $\langle 15 \rangle$ NEW 400mm (16") DIAMETER SUPPLY AIR DUCT DOWN THROUGH ROOF. SEE ROOF PLAN 3/M6.2 FOR CONTINUATION.
- (16) CONNECT NEW 400mm (16") SUPPLY DUCT TO EXISTING FRESH AIR INTAKE DUCT DOWN TO MAIN FLOOR DOWNSTREAM OF EXISTING MOTORIZED DAMPER 'ACRY-OAD'.
- (17) NEW 350mm (14") RECIRC AIR DUCT DOWN THROUGH ROOF. FLASH AND SEAL AT ROOF PENETRATION WEATHER TIGHT. SEE SECOND FLOOR PLAN 2/M6.2 FOR CONTINUATION. SEE STRUCTURAL DRAWINGS.
- (18) NEW 350mm (14") RECIRC AIR DUCT DOWN THROUGH ROOF. SEE ROOF PLAN 3/M6.2 FOR CONTINUATION.
- (19) CONNECT NEW 350mm (14") RECIRC AIR DUCT TO EXISTING DUCT THROUGH FLOOR TO MAIN FLOOR.
- (20) INSULATE ALL EXTERIOR DUCTWORK WITH 75mm (3") OF RIGID DUCT INSULATION C/W STUCCO EMBOSSED ALUMINUM JACKET SEALED WEATHER TIGHT. MOUNT DUCTS ON ROOF ON DUCT SUPPORTS ON 1.5m (5ft) CENTRES. SEE DETAIL 3/M6.3.
- $\langle 21 \rangle$ mount new condensing unit on roof on precast concrete SIDEWALK PAD WITH RUBBER MATT ADHERED TO BOTTOM TO PROTECT ROOF MEMBRANE. SEE DETAIL 2/M6.3.
- (22) EXISTING EXHAUST AIR DUCT BLANKED OFF AT ROOF WEATHER TIGHT. (23) EXISTING ROOF DRAIN TO REMAIN.
- (24) EXISTING ROOF TOP EQUIPMENT TO REMAIN.
- 25 DEHUMIDIFICATION UNIT 'DHU' REMOTE CONTROL PANEL MOUNTED ON
- (26) RUN CONDENSATE DRAIN FROM DEHUMIDIFICATION UNIT TO EXISTING ROOF DRAIN. PIPE CONDENSATE DRAIN INTO ROOF DRAIN HOPPER ABOVE ROOF. EXTEND CONDENSATE DRAIN LINE DOWN INTO ROOF DRAIN HOPPER AS MUCH AS POSSIBLE. INSULATE DRAIN LINE WITH 50mm (2") EXTERIOR PIPE INSULATION AND PROVIDE SELF-REGULATING HEAT TRACING AT 10W/ft. SEE ELECTRICAL
- (27) EXISTING OUTDOOR AIR DAMPER 'ACRY-OAD' TO REMAIN. SEE DETAIL
- (28) EXISTING VAV BOX 'VAV134' AIR FLOW TO BE MODIFIED TO PROVIDE A NEW CONSTANT AIR FLOW OF 70 L/s (148 cfm).
- EXISTING OXYGEN LEVEL INDICATOR LIGHT HANGING FROM U/S OF CEILING TO REMAIN.
- (30) EXISTING OXYGEN LEVEL SENSOR TO REMAIN.

- (31) EXISTING VAV BOX 'VAV134' THERMOSTAT RELOCATED TO NEW LOCATION SHOWN.
- 32 NEW HEAT-ONLY THERMOSTAT FOR NEW ELECTRIC DUCT HEATER 'EDH' MOUNTED ON WALL WHERE EXISTING RELOCATED VAV134 THERMOSTAT WAS LOCATED.

SEQUENCE OF OPERATIONS

SUMMER OPERATION

- WHEN OXYGEN SENSORS IN CRYOGENICS ROOM INDICATE SATISFACTORY OXYGEN LEVEL IS BEING MAINTAINED (GREATER THAN 22.2% - GREEN LIGHT), THE NEW DEHUMIDIFICATION UNIT 'DHU' WILL OPERATE IN STAGE 1 VENTILATION MODE. THE EXISTING EMERGENCY PURGE EXHAUST FAN "ACRY-EF2" WILL NOT OPERATE. THE DEHUMIDIFICATION TO OPERATE ON CALL FROM THE CRYOGENICS ROOM ADJUSTABLE RELATIVE HUMIDITY SENSOR TO MAINTAIN A ROOM RELATIVE HUMIDITY SETPOINT OF 30% (ADJUSTABLE). UNIT SUPPLY AIR TEMPERATURE TO BE
- 2. WHEN OXYGEN SENSORS IN CRYOGENICS ROOM INDICATE THE OXYGEN LEVEL IS LESS THAN OR EQUAL TO 22.2% (WHITE LIGHT), THE NEW DEHUMIDIFICATION UNIT 'DHU' WILL OPERATE IN STAGE 2 VENTILATION (SEE BELOW FOR DESCRIPTION OF OPERATIONS). THE EXISTING EMERGENCY PURGE EXHAUST FAN "ACRY-EF2" WILL NOT OPERATE. THE EXISTING OUTDOOR AIR DAMPER "ACRY-OAD" WILL REMAIN
- 3. WHEN OXYGEN SENSORS IN CRYOGENICS ROOM INDICATE THE OXYGEN LEVEL IS LESS THAN 19.5% (AMBER LIGHT), THE NEW DEHUMIDIFICATION UNIT 'DHU' WILL OPERATE IN STAGE 2 VENTILATION (SEE BELOW FOR DESCRIPTION OF OPERATIONS). THE EXISTING OUTDOOR AIR DAMPER "ACRY-OAD" WILL OPEN. ONCE THE OUTDOOR AIR DAMPER IS PROVEN OPEN THROUGH ITS RESPECTIVE END SWITCH, THE EXISTING EMERGENCY PURGE EXHAUST FAN "ACRY-EF2" WIL OPERATE AND EXHAUST 3000 cfm FROM THE CRYOGENICS ROOM TO OUTSIDE.

WINTER OPERATION

- . WHEN OXYGEN SENSORS IN CRYOGENICS ROOM INDICATE SATISFACTORY OXYGEN LEVEL IS BEING MAINTAINED (GREATER THAN 22.2% — GREEN LIGHT), THE NEW DEHUMIDIFICATION UNIT 'DHU' WILL OPERATE IN STAGE 1 VENTILATION MODE. THE EXISTING EMERGENCY PURGE EXHAUST FAN "ACRY-EF2" WILL NOT OPERATE. THE EXISTING OUTDOOR AIR DAMPER "ACRY-OAD" WILL REMAIN CLOSED. DEHUMIDIFICATION TO OPERATE ON CALL FROM THE CRYOGENICS ROOM ADJUSTABLE RELATIVE HUMIDITY SENSOR TO MAINTAIN A ROOM RELATIVE HUMIDITY SETPOINT OF 30% (ADJUSTABLE). UNIT SUPPLY AIR TEMPERATURE TO BE ADJUSTABLE (19°C).
- 2. WHEN OXYGEN SENSORS IN CRYOGENICS ROOM INDICATE THE OXYGEN LEVEL IS LESS THAN OR EQUAL TO 22.2% (WHITE LIGHT), THE NEW DEHUMIDIFICATION UNIT 'DHU' WILL OPERATE IN STAGE 2 VENTILATION (SEE BELOW FOR DESCRIPTION OF OPERATIONS). THE EXISTING EMERGENCY PURGE EXHAUST FAN "ACRY-EF2" WILL NOT OPERATE. THE EXISTING OUTDOOR AIR DAMPER "ACRY-OAD" WILL REMAIN
- . WHEN OXYGEN SENSORS IN CRYOGENICS ROOM INDICATE THE OXYGEN LEVEL IS LESS THAN 19.5% (AMBER LIGHT), THE NEW DEHUMIDIFICATION UNIT 'DHU' WILL OPERATE IN STAGE 2 VENTILATION (SEE BELOW FOR DESCRIPTION OF OPERATIONS). THE EXISTING OUTDOOR AIR DAMPER "ACRY-OAD" WILL OPEN. ONCE THE OUTDOOR AIR DAMPER IS PROVEN OPEN THROUGH ITS RESPECTIVE END SWITCH. THE EXISTING EMERGENCY PURGE EXHAUST FAN "ACRY-EF2" WILL OPERATE AND EXHAUST 3000 cfm FROM THE CRYOGENICS ROOM TO OUTSIDE.

DEHUMIDIFICATION UNIT OPERATING MODE DESCRIPTIONS

- 212 L/s (450 cfm) FRESH AIR IS BROUGHT INTO THE ENTHALPY WHEEL SECTION OF THE UNIT FROM OUTSIDE. - 708 L/s (1500 cfm) IS BROUGHT INTO THE UNIT FROM THE CRYOGENICS ROOM THROUGH THE ENTHALPY WHEEL SECTION. - 212 L/s (450 cfm) IS EXHAUSTED TO OUTSIDE FROM THE 708 L/s (1500 cfm) CRYOGENICS ROOM EXHAUST AIR THAT ENTERS THE UNIT THE REMAINING 496 L/s (1050 cfm) JOINS WITH THE 212 L/s (450 cfm) FRESH AIR AND RUNS THROUGH THE EVAPORATOR COILS AND DESICCANT WHEEL TO REMOVE MOISTURE FROM THE AIR, AND IS THEN SUPPLIED INTO THE CRYOGENICS ROOM. 165 L/s (350 cfm) FRESH AIR IS BROUGHT IN FROM OUTSIDE THROUGH THE DESICCANT WHEEL SECTION. THE AIR PASSES THROUGH THE ELECTRIC HEATER AND DESICCANT WHEEL TO DRY THE WHEEL. THIS 165
- L/s (350 cfm) IS THEN EXHAUSTED TO OUTSIDE. 2. STAGE 2 VENTILATION: - 425 L/s (900 cfm) FRESH AIR IS BROUGHT INTO THE ENTHALPY WHEEL SECTION OF THE UNIT FROM OUTSIDE. - 708 L/s (1500 cfm) IS BROUGHT INTO THE UNIT FROM THE CRYOGENICS ROOM THROUGH THE ENTHALPY WHEEL SECTION. - 425 L/s (900 cfm) IS EXHAUSTED TO OUTSIDE THROUGH THE ENTHALPY WHEEL FROM THE 708 L/s (1500 cfm) CRYOGENICS ROOM EXHAUST AIR THAT ENTERS THE UNIT. THE REMAINING 283 L/s (600 cfm) JOINS WITH THE 425 L/s (900 cfm) FRESH AIR AND RUNS THROUGH THE
 - EVAPORATOR COILS AND DESICCANT WHEEL TO REMOVE MOISTURE FROM THE AIR, AND IS THEN SUPPLIED TO THE CRYOGENICS ROOM. · 165 L/s (350 cfm) FRESH AIR IS BROUGHT IN FROM OUTSIDE THROUGH THE DESICCANT WHEEL SECTION. THE AIR PASSES THROUGH THE ELECTRIC HEATER AND DESICCANT WHEEL TO DRY THE WHEEL. THIS 165 L/s (350 cfm) IS THEN EXHAUSTED TO OUTSIDE.

- 15kW ELECTRIC DUCT HEATER ON DEHUMIDIFICATION UNIT SUPPLY AIR DUCT TO

OPERATE VIA SIGNAL FROM HEATING ONLY THERMOSTAT IN CRYOBANK ROOM.

HEATER THERMOSTAT TO BE MONITORED AND CONTROLLED BY BUILDING CONTROL

DESIRED TEMPERATURE TO BE SET BY CRYOBANK OPERATIONS STAFF. DUCT

SYSTEM (JOHNSON CONTROLS).

Checked By: GAS

roject No.: **4874**

ssued For: FOR TENDER

Date Plotted: 2017.02.03

1457 ALBERT STREET, REGINA SASKATCHEWAN S4R 2R8 FAX 306.757.9471 mcginn@mcginngroup.ca www.mcginngroup.ca

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ENGINEERING LTD. ASSOCIATION OF PROFESSIONAL ENGINEERS OF SASKATCHEWAN

CERTIFICATE OF AUTHORIZATION Permission to Consult held by

Professional Seal/s:

DISCIPLINE SASK, REG. No.



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AGRICULTURE & AGRI-FOOD CANADA SASKATOON RDC **CRYOBANK DEHUMIDIFIER**

utilities as set out by governing authorities

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Issue Record:

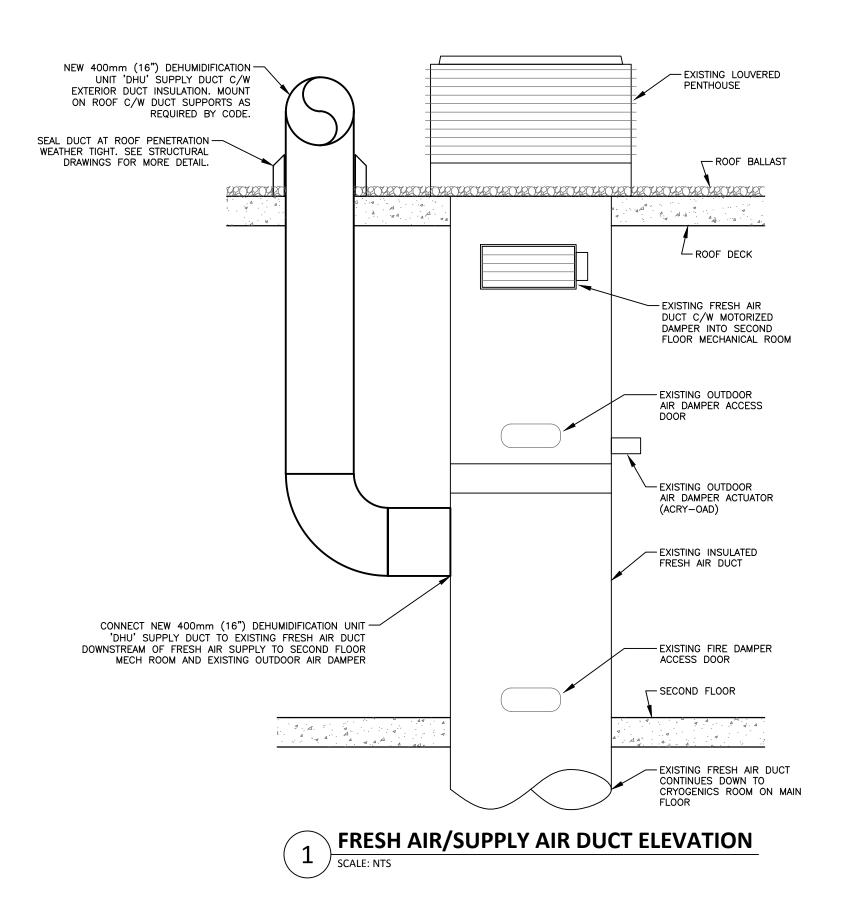
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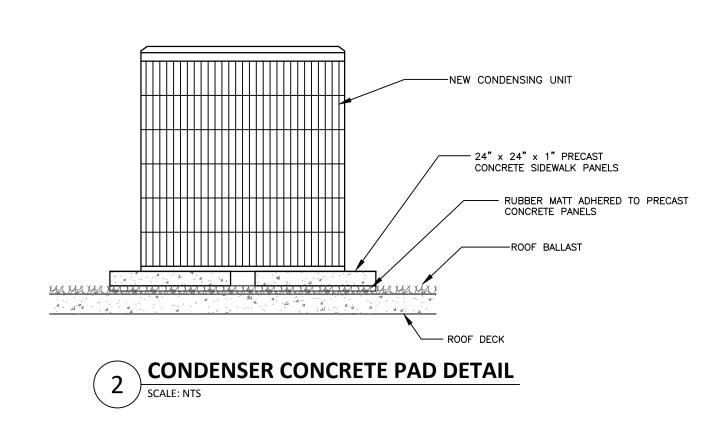
MECHANICAL PLANS Designed By: DJT Scale: AS INDICATED Drawn By: CGW/DJT Date: DEC 2016

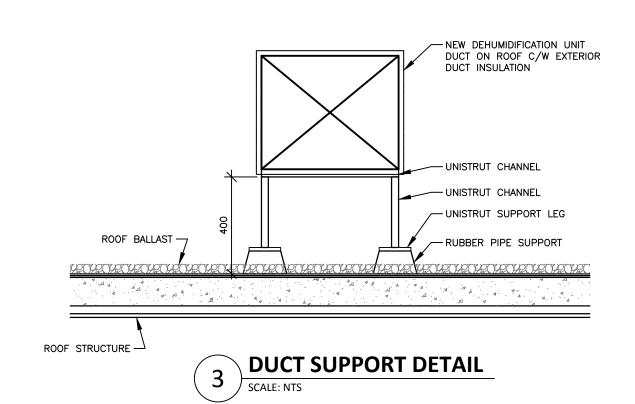
Date: 2016.12.09

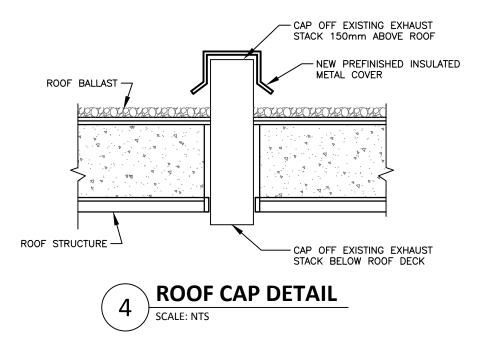
M6.2

Date Issued: 2017.02.03











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Project Title:

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DEHUMIDIFIER

107 SCIENCE PLACE
SASKATOON, SASKATCHEWAN
NOTES:

Issue Record:

Revisions:

MECHANICAL DETAILS

Designed By: DJT Scale: AS INDICATED
Drawn By: DJT Date: DEC 2016
Checked By: GAS Date: 2016.12.09

Project No.: **4874**

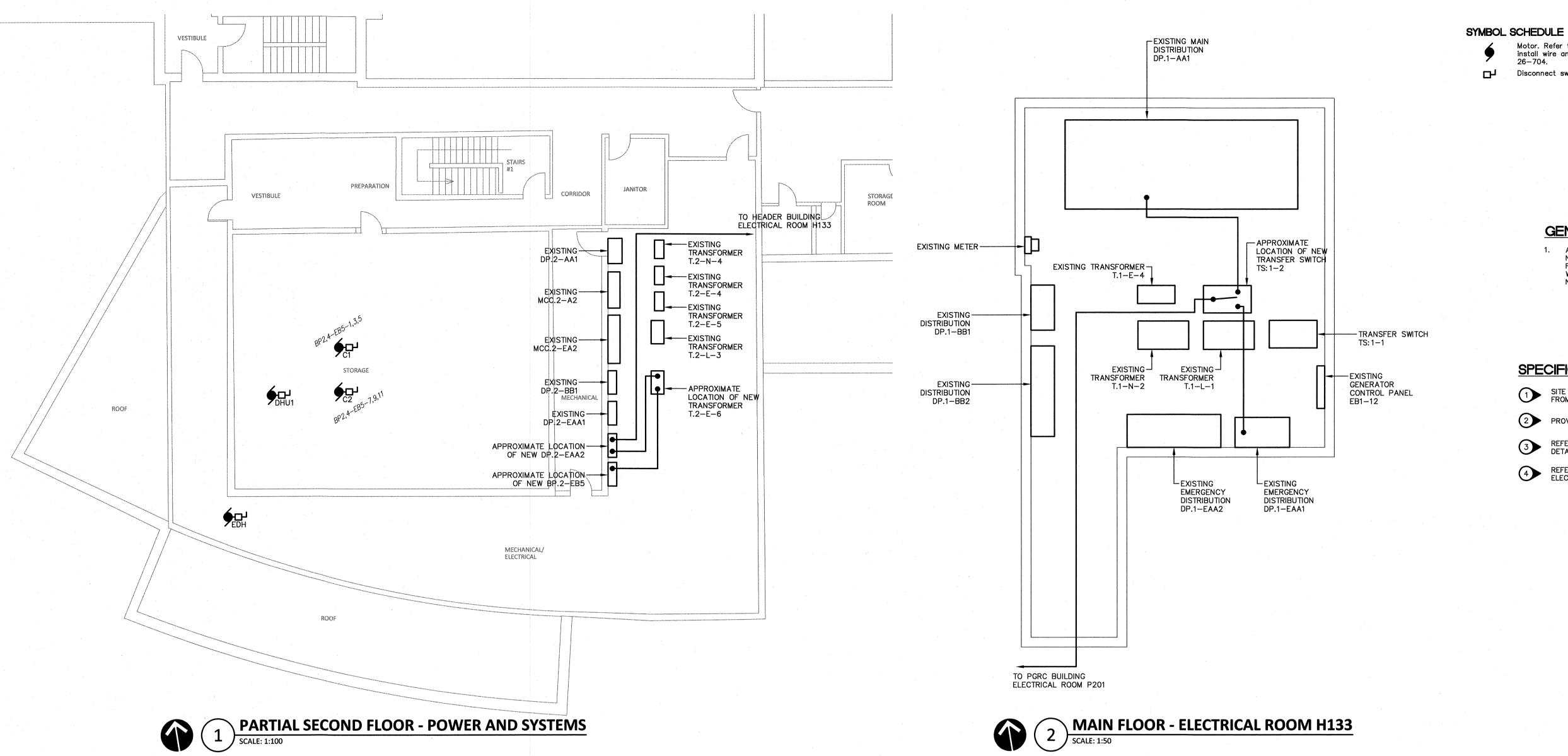
Revision No.: - Date: -

Issued For: FOR TENDER

Date Issued: 2017.02.03

Date Plotted: 2017.02.03

M:\Current Projects\4874 ag canada saskatoon cryobank\4874 DRAWINGS\4874 WORKING DRAWINGS\4874603



MOTOR SCHEDULE

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

E. ALL LINE VOLTAGE CONTROL WIRING BY ELECTRICAL CONTRACTOR - REFER TO MECHANICAL SECTION. CO-ORDINATE

LOCATION

ROOF

ROOF

ROOF

DESCRIPTION

DEHUMIDIFICATION

CONDENSING UNIT

CONDENSING UNIT

ELECTRIC DUCT HEATER

THE MECHANICAL EQUIPMENT.

SPECIFIC NOTES

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

4. COORDINATE INSTALLATION OF PATHWAYS TO PIT FOR SUMP PUMP WIRING.

D. ALL LOW VOLTAGE CONTROL WIRING BY MECHANICAL CONTRACTOR.

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

EXACT REQUIREMENTS WITH MECHANICAL CONTRACTOR.

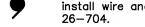
VOLTAGE HP/W/MCA C.B. COND. STARTER NOTES

600V-3PH 56MCA 75A-3P #4 PACKAGED 1

208V-3PH 18.2MCA 30A-3P #10 PACKAGED 1

208V-3PH 12.35MCA 20A-3P #12 PACKAGED

600V-3PH 15KW 20A-3P #12



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 26-704.

Disconnect switch to suit application. By electrical contractor.

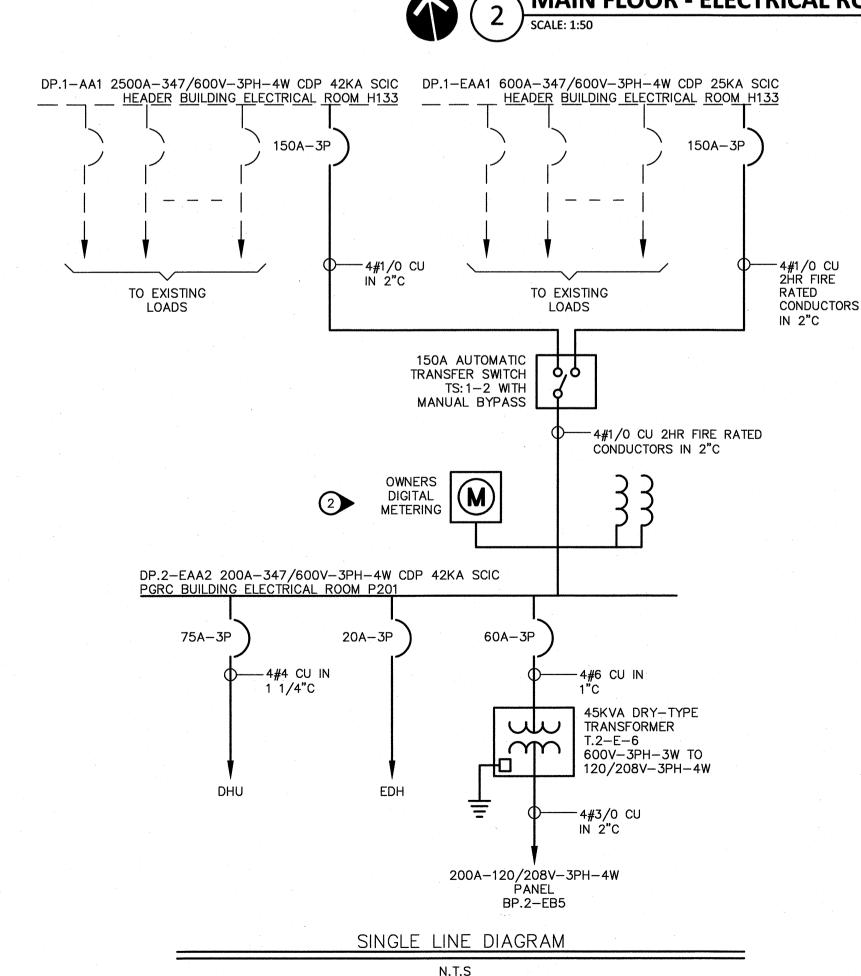
GENERAL ELECTRICAL NOTES

1. ALL ITEMS REQUIRED TO BE DEMOLISHED ARE NOT NECESSARILY SHOWN. THOSE INDICATED ARE FOR REFERENCE ONLY. ALL ITEMS INTERFERING WITH NEW CONSTRUCTION SHALL BE REMOVED AT NO ADDITIONAL COST.

SPECIFIC ELECTRICAL NOTES

- SITE LOCATE 4#1/0 CU 2HR FIRE RATED CONDUCTORS IN 2"C FROM TRANSFER SWITCH TO PANEL DP.2-EAA2.
- 2 PROVIDE DIGITAL METERING IN PANEL DP.2—EAA2.
- REFER TO MAIN FLOOR ELECTRICAL ROOM H133 FOR DETAILS.
- REFER TO PARTIAL SECOND FLOOR POWER AND SYSTEMS ELECTRICAL FOR DETAILS.

MAIN FLOOR - ELECTRICAL ROOM H133



PANEL MOUNTING LOCATION	SURFACE	P201			MAII	TAGE N BUS ARKS	C/W DOOR
DE	SCRIPTION	BKR	CIF	RCUIT	BKR		DESCRIPTION
C1		20	1-	 	_	SPACE	
		 	3	4	_	SPACE	
		Ц	5 —	6	-	SPACE	
C2		30	7 -	 8	_	SPACE	
#10 WIRE			9 -	10	-	SPACE	
			11 -	12		SPACE	
SPACE		_	13-	14	_	SPACE	
SPACE		T -	15	16	_	SPACE	
SPACE		_	17-	18	_	SPACE	
SPACE		_	19-	1 20	_	SPACE	
SPACE		_	21-	22	_	SPACE	
SPACE			23	24		SPACE	
SPACE		-	25-	26	_	SPACE	
SPACE		-	27	28		SPACE	the state of the s
SPACE			29	30	_	SPACE	
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SPACE	The state of the s		33	34	_	SPACE	
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NOVA 3 ENGINEERING LTD. CONSULTING ENGINEERS

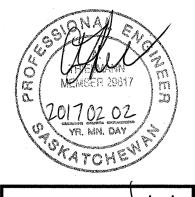
201–120 FORT STREET TEL.: (204) 943–6142 WINNIPEG, MANITOBA R3C 1C7 FAX.: (204) 942–1276 WWW.NOVA3.CA THIS DRAWING IS THE EXCLUSIVE PROPERTY OF NOVA 3 ENGINEERING LTD. AND MAY ONLY BE REPRODUCED WITH THE WRITTEN PERMISSION OF NOVA 3 ENGINEERING LTD.

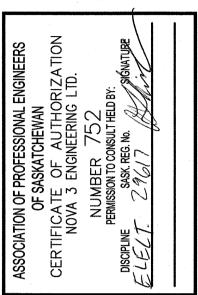
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107 SCIENCE PLACE SASKATOON, SASKATCHEWAN NOTES:

Issue Record:

ELECTRICAL - POWER AND SYSTEMS

Designed By:	AJT/VJT	Scale:	AS INDICATED
Drawn By:	TLA	Date:	FEB 2017
Checked By:	AJT	Date:	2017-02-02
Project No.:	4874		

Issued For: TENDER

NAMEPLATE RATING ON THE EQUIPMENT. NOTE: DASHED INDICATES EXISTING.

* SIZE CIRCUIT BREAKER AND WIRING ACCORDING TO THE FINAL