

March 12, 2015

ADDENDUM – INVITATION TO TENDER
FOR
INDIAN HEAD RESEARCH FARM
CONTRACT NO. 22 – BUILDING RENOVATIONS
CONTRACT #465-1-4-C22

Addendum No. 1

1. Addendum #1 as detailed in the attached document prepared by Carcoana Architecture Ltd dated March 12, 2015 (11 pages)
2. There is no change to the date of receipt of tenders which is 2:00 pm Local Regina Time, Thursday March 19, 2015.
3. **Instructions to Tenderers: The tenderer shall acknowledge receipt of this Addendum #1 on the first page of the Bid and Acceptance Form.**

Melissa Smith
Procurement Officer AAFC
Regina, Saskatchewan S4P 0M3

Carcoana

ARCHITECTURE LTD.

ADDENDUM #1

Project : Indian Head Research Farm Maintenance Building B017 Remodeling
Project No. : 4748
Date : March 12, 2015

The following amendments to plans and specifications shall be incorporated into and form part of the Contract the same as if these had been written into the original plans and specifications: Reference to specifications also applies to drawings with or without specific reference thereto and vice versa. All bidders shall read the entire Addendum and take into account items affecting their respective responsibilities.

SUBSTITUTIONS APPROVALS

The following products / product lines have been approved as equals to the ones specified. *The Contractor shall ensure that the equal product meets or exceeds the performance in all respects of the original product specified* (refer to MECHANICAL):

1. MOEN / MOEN COMMERCIAL - Plumbing Trim / Brass / Mixing Valves
2. BEECO PREVENTORS - Backflow Preventors
3. NEO VALVES – Valves
4. MIFAB PRODUCTS – Access Doors / Access Covers / Cleanouts, Hose Bibbs / Water hammer / Arrestors / Interceptors, Wall Mounts / Carriers / rap Seal Primers, Floor / Roof Drains.
5. NAILOR – Grilles / Diffusers
6. LENNOX ML SERIES FURNACE (Armstrong Air Furnace Specified)
7. LENNOX TSA SERIES CONDENSER (Allied Commercial TSA Series Condenser Specified).
8. EH PRICE – Grilles, Registers and Diffusers (Titus Grilles, Registers and Diffusers Specified).
9. WADE – CO'S /Roof Drain / Floor Drain (Watts Ancon Specified).
10. KRUEGER – Grilles, Registers and Diffusers.

See also the Mechanical Engineer signed approval sheets attached to this Addendum No. 1.

The following revisions shall be made to the DRAWINGS. See revised drawings in Addendum No. 1:

MECHANICAL DRAWINGS

The following revisions shall be made to the MECHANICAL DRAWINGS:

1. Replace the (5) Five Mechanical Drawings Sheets (M6.1 through M6.5) in the set, with the Updated Drawings issued under this Addendum No. 1. NOTE: additional key notes and information have been added on each mechanical drawing sheet, to offer better clarifications on the scope of work.

END OF ADDENDUM #1

FAXED

CYPRESS SALES PARTNERSHIP

REQUEST FOR EQUALS

1145 8th Avenue
Regina, SK
S4S 1E1
Phone: (306) 757-5656
Fax: (306) 757-8024

Submittal Date: March 10, 2015
Closing Date: March 19, 2015

To:

McGinn Engineering Limited
1457 Albert Street
Regina, SK S4R 2R8
Canada

Fax (306) 757-9471
David Thomas

Project:

Indian Head Research Facility

Indian Head

We request your approval that the following materials be considered as **EQUAL** to the specified items.

<i>Specified</i>	<i>Equal</i>	<i>Approved</i>
Grilles, Registers, & Diffusers	Price Krueger	✓

*Approved as equal
by
McGinn Engineering Ltd.
March 11, 2015
Guy [Signature]*

Ensuring equal product meets or exceeds the performance in all respects of the original product specified.




FAXED

Date: March 9, 2015
 To: McGinn Engineering Ltd.
 Project Name: Indian Head Research Farm

We submit for your approval the following Quality equipment as equal to that specified:

Nailor – Grills/Diffusers ✓

*Approved as equal
 by
 McGinn Engineering Ltd
 March 9, 2015*



Regards,



Gurbinder Uppal
 HVAC Sales (1997) Ltd.
 1362 Lorne Street
 Regina, Saskatchewan
 S4R 2K1
gurbinder@skhvac.com
 Phone: 306-721-7980
 Fax: 306-721-7982

Ensure equal product meets or exceeds the performance in all respects of the original product specifications.



FAXED

ECCO SUPPLY™

1600 ROSS AVE. E

REGINA, SK. S4N 5W2

FAX : [306] 721-5535

TO: McGinn Engineering
FAX: 306-757-9471
ATT:
PROJECT: Indian Head Research Farm

DATE: 9-Mar-15

We respectfully request approval to quote the following equipment as equal to that specified.

SPECIFIED	APPROVAL REQUESTED
Lennox ML Series Furnace	Armstrong Air Furnace ✓
Lennox TSA Series Condenser	Allied Commercial TSA Series Condenser ✓
EH Price Grilles, Registers & Diffusers	Titus Grilles, Registers & Diffuser ✓
	<p>Approved as equal by McGinn Engineering Ltd. March 9, 2015 <i>[Signature]</i> Ensure equal product meets or exceeds the performance in all respects of the original product specified.</p>

Please fax back a signed copy of this approval request or email to dholmngren@eccosupply.ca

Yours truly,

ECCO SUPPLY.CA

WOLSELEY

Mechanical Group

FXED

TO: McGinn Engineering Ltd.

DATE: MARCH 9/15

RE: DILAWRI NISSAN & INFINITY NEW FACILITY

Your consideration for Equals on the above-mentioned project would be appreciated on the following:

Spec.	Equal
WADE (CO'S/ROOF DRAIN/FLOOR DRAIN)	WATTS(ANCON) ✓

Approved as equal
 by
 McGinn Engineering Ltd.
 March 9, 2015
 Ensure equal product
 meets or exceeds the
 performance in all respects
 of the original product
 specified

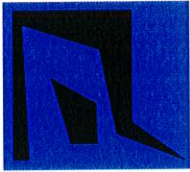
Thanks
 Cory Toderan
cory.toderan@wolseleyinc.ca

a division of Wolseley Canada Inc.

1176 Hamilton St. • Regina • SK • S4R 2B2 • Phone: (306) 525-6581 • Fax: (306) 525-2919

Plumbing • Waterworks • PVF • Hydronics • HVAC

FAXED



RNG Sales Ltd.

REQUEST FOR EQUAL

509 - 6th Avenue East, Regina Saskatchewan S4N 5A3
Phone: (306) 359-7185 Fax: (306) 757-5031
Email: info@rngsalesltd.com

To: Agriculture and Agri-Food Canada	Date: March 5 2015
Closing Date: March 19 2015	Job: Indian Head Research Farm Indian Head SK
Fax #: (306) 523-6560	
Phone #: (306) 523-6600	Our File #: 13932

Your consideration is requested that the equipment listed below be approved as an equal to the equipment specified for the above job.

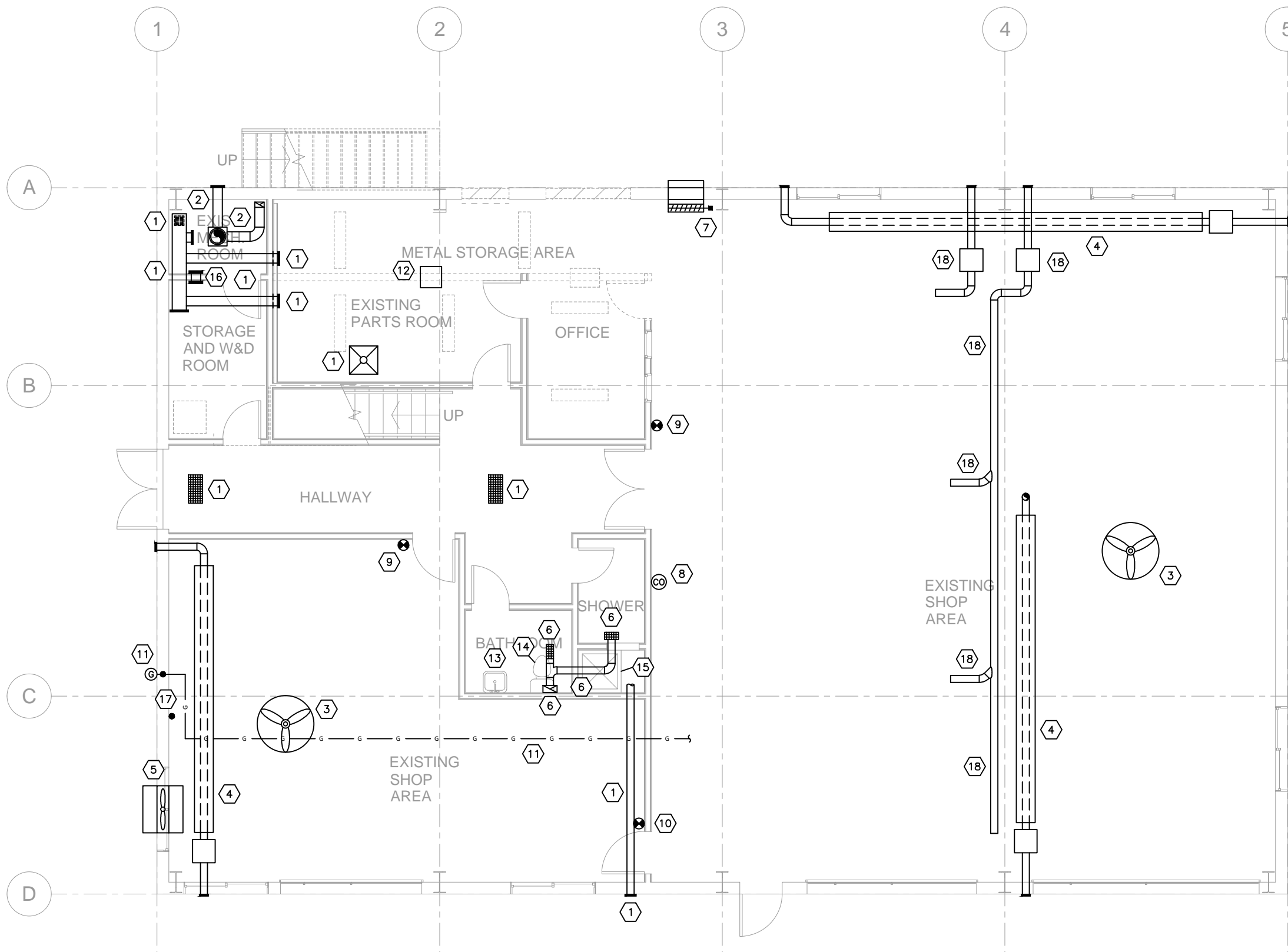
SPECIFIED EQUIPMENT

MATERIAL AS EQUAL

Plumbing Trim / Brass / Mixing Valves	Moen / Moen Commercial ✓
Pipe	Aquatherm ✓
Backflow Preventors	Beeco Preventors ✓
Valves	Neo Valves ✓
Access Doors / Access Covers / Cleanouts	Mifab Products ✓
Hose Bibbs / Water Hammer / Arrestors / Interceptors	Mifab Products ✓
Wall Mounts / Carriers / Trap Seal Primers	Mifab Products ✓
Floor / Roof Drains	Mifab Products ✓
	Approved as equal
	by
	Hcburn Engineering Ltd.
	March 5, 2015
	Ensure equal product meets
	or exceeds the performance in
	all respects of the original
	product specified

Requested by: PAM GROHS

If you have any concerns with this request please contact us and we would be happy to discuss our products with you. Also if you feel you don't have the necessary information needed to make the comparisons, we will gladly provide the information to update your files. Thank you for your time and consideration. RNG Sales Ltd.



MECHANICAL DEMOLITION NOTES

1. THE CONTRACTOR IS RESPONSIBLE FOR THE COMPLETE REMOVAL AND DISPOSAL OF ALL EXISTING MECHANICAL EQUIPMENT INCLUDING DUCTWORK, GRILLES, PIPING, INSULATION, FANS, PLUMBING FIXTURES, PIPING, ETC. AS NOTED.
2. COORDINATE WITH GENERAL CONTRACTOR TO PATCH ALL SURFACES DISTURBED AS A RESULT OF DEMOLITION INCLUDING CEILING, ROOF, FLOOR, WALLS, ETC. AND MAKE GOOD AND LEVEL TO EXISTING SURROUNDINGS.
3. THE CONTRACTOR IS RESPONSIBLE FOR FINAL CLEANING OF THE AFFECTED AREAS.
4. 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 GENERAL CONTRACTOR.
5. ALL HAZARDOUS WASTE SUCH AS REFRIGERANT, OIL, CHEMICALS, ETC. TO BE DISPOSED OF IN ACCORDANCE WITH SASKATCHEWAN MINISTRY OF ENVIRONMENT AND THE TOWN OF INDIAN HEAD.
6. LOCATION AND CONFIGURATION OF EXISTING EQUIPMENT, DUCTWORK, PIPING, ETC. IS APPROXIMATE AND WAS OBTAINED FROM EXISTING DRAWINGS AND SITE VISITS. CONTRACTOR TO DETERMINE AND VERIFY EXACT CONFIGURATION AND LOCATION OF EXISTING EQUIPMENT ON SITE.

MECHANICAL KEYNOTES (XX) — DENOTES KEYNOTE ON DRAWING

- 1 EXISTING SUPPLY AIR DUCT/DIFFUSER/GRILLE/FIRE DAMPER TO BE REMOVED. PATCH WALL AND CEILING AND MAKE GOOD AND LEVEL TO EXISTING SURROUNDINGS.
- 2 EXISTING EXHAUST FAN TO REMAIN C/W DUCTWORK, ELECTRICAL, ETC. PATCH WALL AND CEILING AND MAKE GOOD AND LEVEL TO EXISTING SURROUNDINGS.
- 3 EXISTING ANTI-STRATIFICATION FAN TO REMAIN.
- 4 EXISTING GAS-FIRED RADIANT HEATER TO REMAIN.
- 5 EXISTING EXHAUST FAN TO REMAIN.
- 6 EXISTING EXHAUST AIR GRILLE/DUCT TO REMAIN. SEE MEZZANINE MECHANICAL DEMO PLAN 1/M6.2 FOR CONTINUATION.
- 7 EXISTING MOTORIZED DAMPER/AIR INTAKE TO REMAIN.
- 8 EXISTING CO SENSOR TO REMAIN.
- 9 EXISTING FIRE EXTINGUISHER TO REMAIN.
- 10 EXISTING FIRE EXTINGUISHER TO BE RELOCATED. SEE MAIN FLOOR MECHANICAL RENOVATION PLAN 1/M6.3.
- 11 EXISTING GAS METER AND GAS LINE TO REMAIN.
- 12 EXISTING WALL AC UNIT TO BE REMOVED C/W ELECTRICAL.
- 13 EXISTING SINK TO REMAIN.
- 14 EXISTING WATER CLOSET TO REMAIN.
- 15 EXISTING SHOWER TO REMAIN.
- 16 EXISTING TRANSFER DUCT TO REMAIN.
- 17 EXISTING WATER SERVICE UP ABOVE FLOOR TO REMAIN.
- 18 EXISTING EXHAUST EXTRACTION SYSTEM TO REMAIN.

MECHANICAL GENERAL NOTES

1. SEE DRAWING M6.3 FOR MECHANICAL LEGEND AND GRILLE/LOUVRE SCHEDULE.
2. SEE DRAWING M6.4 FOR MECHANICAL EQUIPMENT SCHEDULE AND MECHANICAL GENERAL NOTES.
3. SEE DRAWING M6.5 FOR MECHANICAL SPECIFICATIONS AND DETAILS.

1 MAIN FLOOR PLAN
M6.1 SCALE: 1/8" = 1'-0"

Lawrence N. Carcoana, Principal
SASKATCHEWAN SAR 288
1457 ALBERT STREET, REGINA,
SASKATCHEWAN S4R 2R8
TEL 306.565.0411 | FAX 306.757.9471
email address

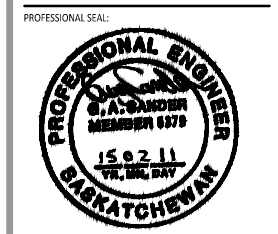


1457 ALBERT STREET,
REGINA,
SASKATCHEWAN S4R 2R8
TEL 306.565.0411
FAX 306.757.9471
mcginn@mcginngroup.ca
www.mcginngroup.ca

Project Title:
RESEARCH FARM

INDIAN HEAD, SASKATCHEWAN

McGINN ENGINEERING LTD.
ASSOCIATION OF PROFESSIONAL ENGINEERS OF SASKATCHEWAN
CERTIFICATE OF AUTHORIZATION
McGINN ENGINEERING LTD.
No. 124
Permission to Consult held by:
DISCIPLINE SASK. REG. No. SIGNATURE



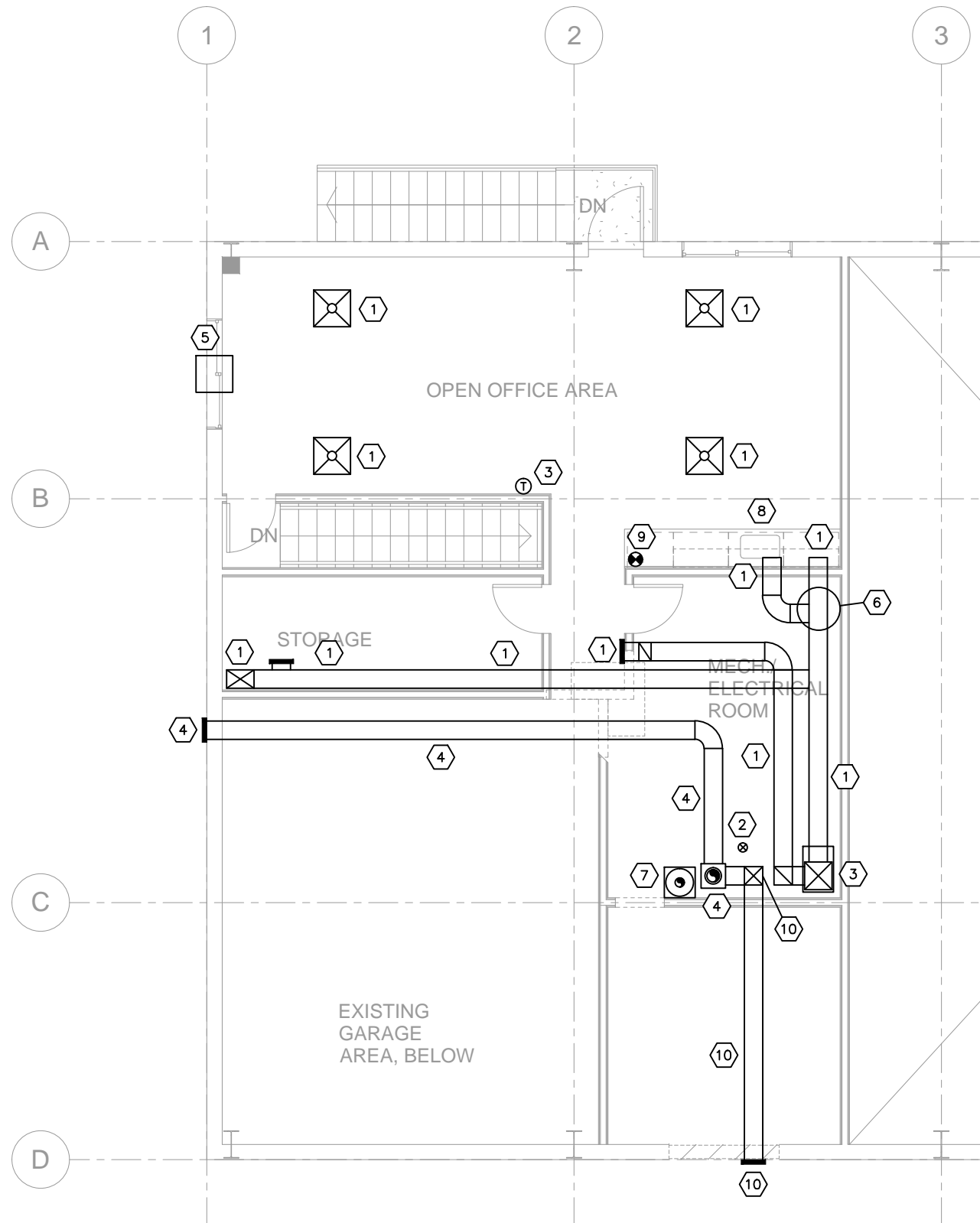
Issue Record:
Revisions:

MAIN FLOOR MECHANICAL DEMO PLAN

Designed By: DJT Scale: AS NOTED
Drawn By: SMH Date: DEC 2014
Checked By: GAS Date: 2015.02.11
Project No.: 4748

M6.1

Revision No.: Date:
Issued For:
Date Issued: -
Date Plotted:



1 MEZZANINE PLAN
 M6.2 SCALE 1/8" = 1' 0"

MECHANICAL GENERAL NOTES

1. SEE DRAWING M6.1 FOR MECHANICAL DEMOLITION NOTES.
2. SEE DRAWING M6.3 FOR MECHANICAL LEGEND AND GRILLE/LOUVRE SCHEDULE.
3. SEE DRAWING M6.4 FOR MECHANICAL EQUIPMENT SCHEDULE AND MECHANICAL GENERAL NOTES.
4. SEE DRAWING M6.5 FOR MECHANICAL SPECIFICATIONS AND DETAILS.

MECHANICAL KEYNOTES

(XX) ← DENOTES KEYNOTE ON DRAWING

- 1** EXISTING SUPPLY/RETURN AIR DUCT/DIFFUSER/GRILLE TO BE REMOVED. PATCH WALL AND CEILING AND MAKE GOOD AND LEVEL TO EXISTING SURROUNDINGS.
- 2** EXISTING FLOOR DRAIN TO REMAIN.
- 3** EXISTING GAS-FIRED FURNACE TO BE REMOVED C/W VENTING, ELECTRICAL, ETC. PATCH FLOOR, WALLS, AND/OR CEILING AND MAKE GOOD AND LEVEL TO EXISTING SURROUNDINGS.
- 4** EXISTING EXHAUST FAN TO REMAIN C/W DUCTWORK. SEE MAIN FLOOR MECHANICAL DEMO PLAN 1/M6.1.
- 5** EXISTING WALL AC UNIT TO BE REMOVED C/W ELECTRICAL, ETC. PATCH WALL AND MAKE GOOD AND LEVEL TO EXISTING SURROUNDINGS WEATHER TIGHT.
- 6** EXISTING AIR COMPRESSOR TO BE RELOCATED TO SHOP. SEE MAIN FLOOR RENOVATED MECHANICAL PLAN 1/M6.3.
- 7** EXISTING RHEEM 50 GALLON WATER HEATER ON METAL PAN TO REMAIN.
- 8** EXISTING SINK TO REMAIN.
- 9** EXISTING FIRE EXTINGUISHER TO REMAIN.
- 10** EXISTING COMBUSTION AIR INTAKE DUCT TO BE REMOVED. PATCH WALL AND/OR ROOF AND MAKE GOOD AND LEVEL TO EXISTING SURROUNDINGS.



Project Title:

RESEARCH FARM

INDIAN HEAD, SASKATCHEWAN

McGINN
 ENGINEERING LTD.
 ASSOCIATION OF PROFESSIONAL ENGINEERS
 OF SASKATCHEWAN
 CERTIFICATE OF AUTHORIZATION
 MCGINN ENGINEERING LTD.
 No.: 124
 Permission to Consult held by:

DISCIPLINE	SASK. REG. No.	SIGNATURE

PROFESSIONAL SEAL:



Issue Record:

Revisions:

MEZZANINE MECHANICAL DEMO PLAN

Designed By: DJT	Scale: AS NOTED
Drawn By: SMH	Date: DEC 2014
Checked By: GAS	Date: 2015.02.11
Project No.: 4748	

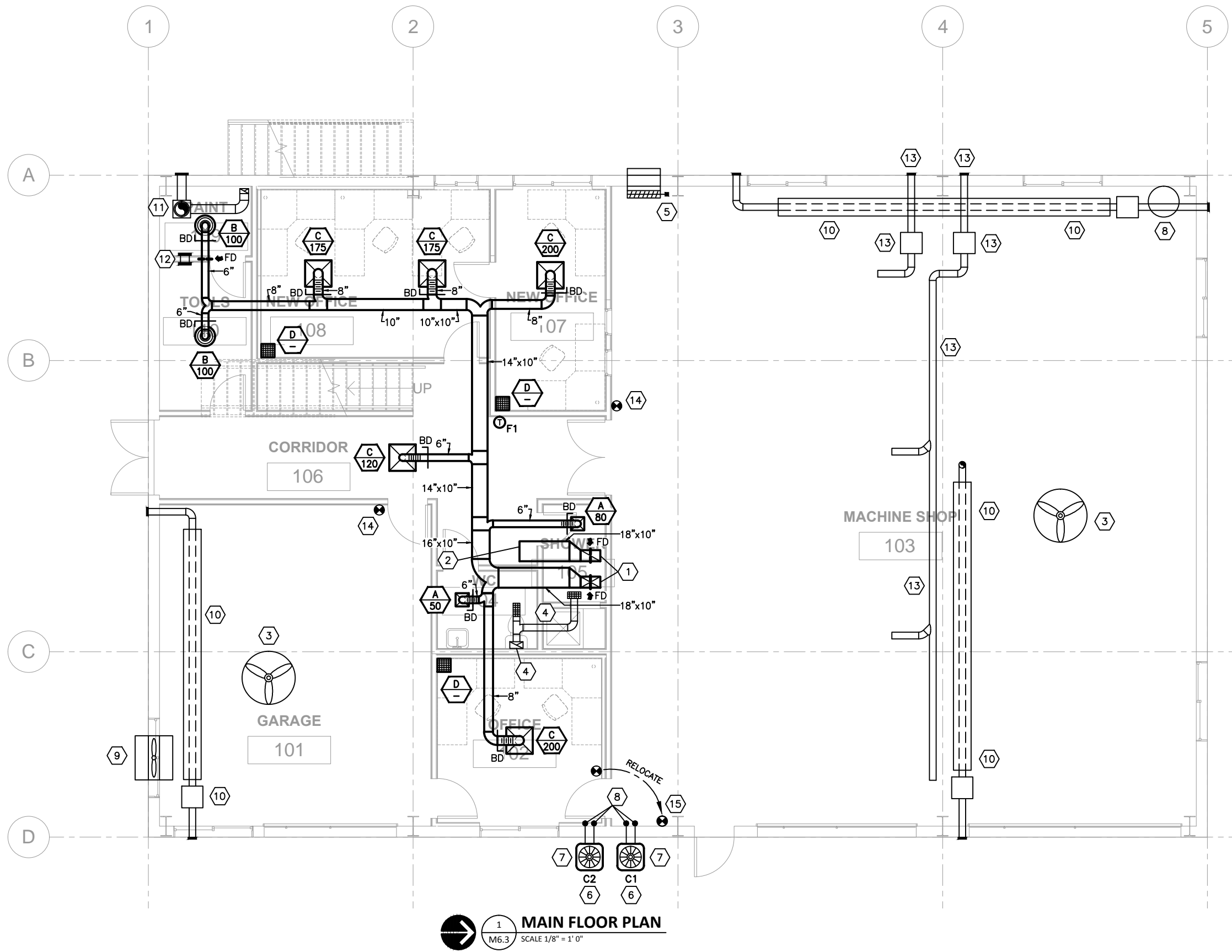
M6.2

Revision No.: Date:

Issued For:

Date Issued: -

Date Plotted:



1 MAIN FLOOR PLAN
 M6.3 SCALE 1/8" = 1' 0"

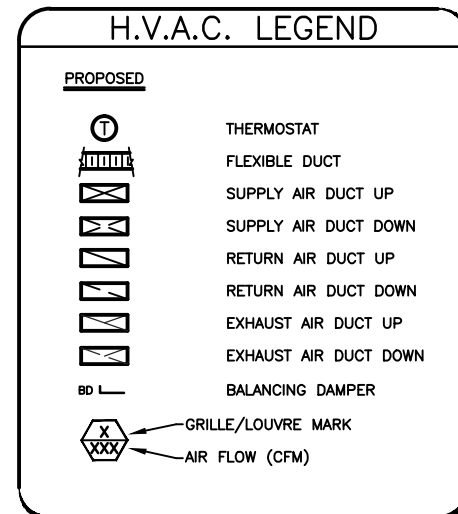
MECHANICAL GENERAL NOTES

- SEE DRAWING M6.4 FOR HVAC EQUIPMENT SCHEDULE AND HVAC GENERAL NOTES.
- SEE DRAWING M6.5 FOR MECHANICAL SPECIFICATIONS AND DETAILS.

MECHANICAL KEYNOTES

XX ← DENOTES KEYNOTE ON DRAWING

- 18"x10" SUPPLY AND RETURN AIR DUCTS DOWN FROM SECOND FLOOR INTO MAIN FLOOR CEILING SPACE C/W FIRE DAMPER AT RATED FLOOR ASSEMBLY PENETRATION. SEE SECOND FLOOR RENOVATED MECHANICAL PLAN 1/M6.4 FOR CONTINUATION.
- STUB 18"x10" RETURN AIR DUCT INTO MAIN FLOOR CEILING SPACE.
- EXISTING ANTI-STRATIFICATION FAN TO REMAIN.
- EXISTING EXHAUST AIR GRILLE AND DUCTWORK TO REMAIN. SEE SECOND FLOOR RENOVATED MECHANICAL PLAN 1/M6.4 FOR CONTINUATION.
- EXISTING MOTORIZED DAMPER/INTAKE AIR TO REMAIN.
- MOUNT CONDENSING UNIT ON GRADE ON CONCRETE PAD.
- REFRIGERANT LINE KIT THRU WALL AND UP TO U/S OF ROOF. SEAL AT WALL PENETRATION WEATHER TIGHT WITH CAULKING AND ESCUTCHEON. SEE SECOND FLOOR RENOVATED MECHANICAL PLAN 1/M6.4 FOR CONTINUATION.
- EXISTING AIR COMPRESSOR TO BE RELOCATED FROM SECOND FLOOR MECH ROOM TO THIS LOCATION. EXTEND ELECTRICAL AND COMPRESSED AIR PIPING TO SUIT BY OWNERS.
- EXISTING EXHAUST FAN TO REMAIN.
- EXISTING GAS-FIRED RADIANT HEATER TO REMAIN.
- EXISTING EXHAUST FAN TO REMAIN.
- EXISTING TRANSFER AIR DUCT TO REMAIN.
- EXISTING EXHAUST EXTRACTION SYSTEM TO REMAIN.
- EXISTING FIRE EXTINGUISHER TO REMAIN.
- EXISTING FIRE EXTINGUISHER TO BE RELOCATED TO NEW LOCATION SHOWN.



GRILLE / LOUVRE SCHEDULE						
MARK	MAKE	MODEL	SIZE	FLOW RATE	DESCRIPTION	REMARKS
Ⓐ	E.H. PRICE	12"x12"/SPD/31/B12	12"x12"	AS NOTED	SUPPLY AIR DIFFUSER	OR EQUAL. THROAT SIZE TO MATCH DUCT SIZE.
Ⓑ	E.H. PRICE	6"/RCD/B12	6"ø	AS NOTED	ROUND S/A DIFFUSER	OR EQUAL.
Ⓒ	E.H. PRICE	24"x24"/SPD/31/B12	24"x24"	AS NOTED	SUPPLY AIR DIFFUSER	OR EQUAL. THROAT SIZE TO MATCH DUCT SIZE.
Ⓓ	E.H. PRICE	10"x10"/80/TB/12"x12"/B12	12"x12"	-	RETURN AIR GRILLE	OR EQUAL. ALUMINUM EGGCRATE RETURN AIR GRILLE. LAU-IN T-BAR CEILING.



Project Title:

RESEARCH FARM

INDIAN HEAD, SASKATCHEWAN

McGINN
 ENGINEERING LTD.
 ASSOCIATION OF PROFESSIONAL ENGINEERS
 OF SASKATCHEWAN
 CERTIFICATE OF AUTHORIZATION
 McGINN ENGINEERING LTD.
 No.: 124
 Permission to Consult held by:

DISCIPLINE SASK. REG. No. SIGNATURE

PROFESSIONAL SEAL:



Issue Record:

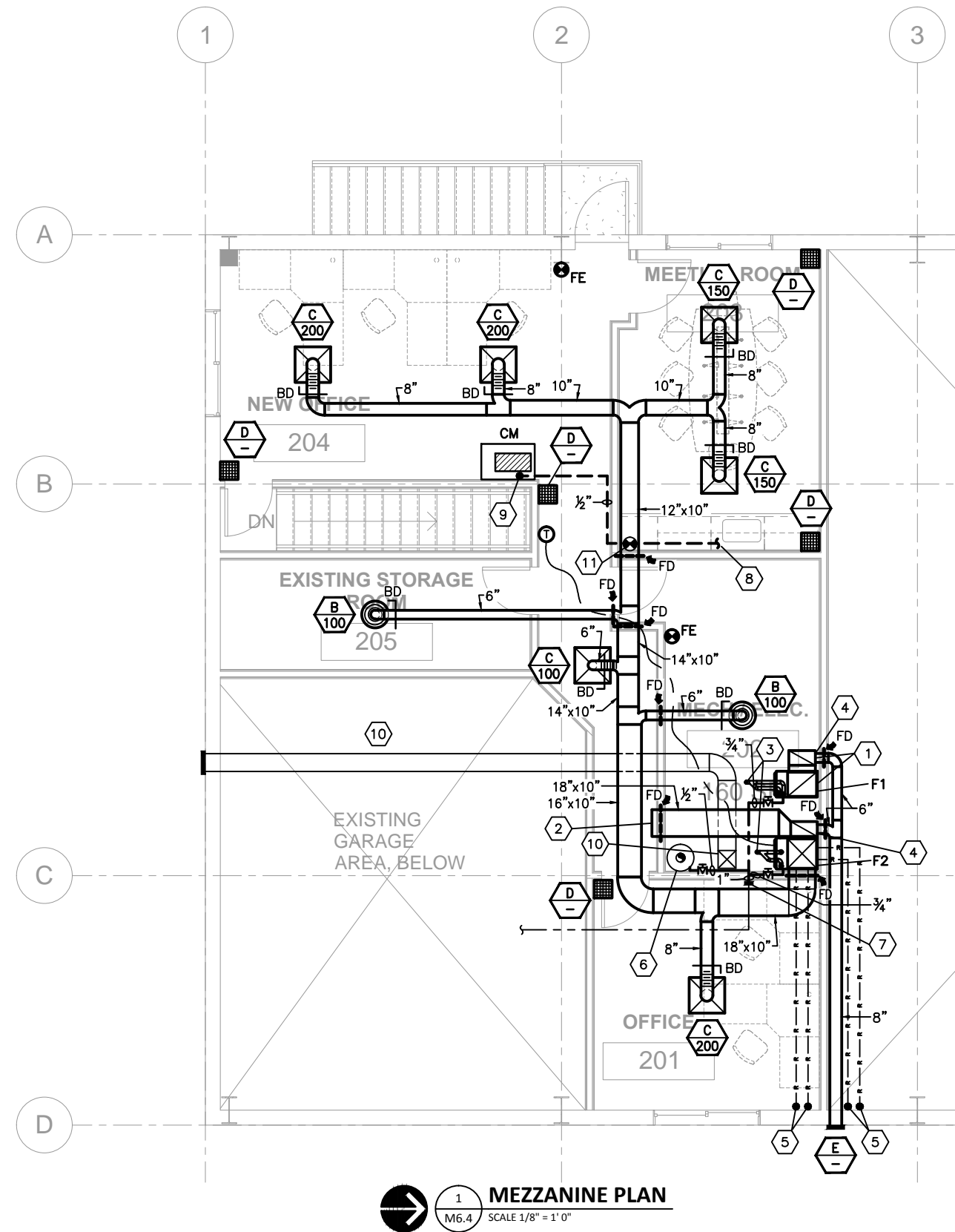
Revisions:

MAIN FLOOR RENOVATED MECHANICAL PLAN

Designed By: DJT Scale: AS NOTED
 Drawn By: SMH Date: DEC 2014
 Checked By: GAS Date: 2015.02.11
 Project No.: 4748

M6.3

Revision No.: Date:
 Issued For:
 Date Issued: -
 Date Plotted:



MEZZANINE PLAN
 1 M6.4 SCALE 1/8" = 1' 0"

MECHANICAL 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 FURNACE UNITS AND FAN UNITS WITH CANVAS CONNECTIONS, EXCEPT KITCHEN CANOPY EXHAUST FANS.
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.
7. ALL DUCTING TO BE INSTALLED CONCEALED WITHIN CEILING SPACE IN A GOOD WORKMANSHIP LIKE MANNER AS PER SMACNA STANDARDS. ALL EXPOSED DUCTWORK TO BE PAINTED TO MATCH ARCHITECTURAL.
8. DUCTWORK WITHIN FURNACE SUPPLY PLENUMS AND/OR RETURN SHALL BE LINED WITH 1" OF ACOUSTIC INSULATION. INCREASE DUCT SIZE TO MAINTAIN INDICATED DIMENSIONS.
9. COORDINATE ROUTING OF DUCTWORK IN CEILING WITH ELECTRICAL TO ENSURE ADEQUATE ACCESS TO ELECTRICAL SYSTEMS IS MAINTAINED AT THE HIGHEST POSSIBLE LEVEL.
10. 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.
11. ENSURE ALL FLUE GAS AND EXHAUST OUTLETS ARE AT LEAST 10ft. AWAY FROM THE NEAREST FRESH AIR INTAKE.
12. ALL EQUIPMENT TO BE INSTALLED AS PER THE MANUFACTURER'S SPECIFICATIONS AND RECOMMENDATIONS.
13. ALL DUCTING TO BE FIRE DAMPERED AT ALL FIRE SEPARATIONS COMPLETE WITH QUICK CLOSING HINGED ACCESS DOORS FOR MAINTENANCE OF FUSIBLE LINK.
14. RUN ALL DUCTWORK UP AS HIGH AS POSSIBLE TO UNDERSIDE OF ROOF STRUCTURE AND WITHIN ROOF JOIST WEB WHERE POSSIBLE IN EXPOSED CEILING AREAS.
15. 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.

MECHANICAL EQUIPMENT SCHEDULE

F1 - GAS-FIRED FURNACE #1

SUPPLY AND INSTALL LENNOX MODEL ML193UH070XP36B GAS-FIRED, MERIT SERIES, DOWNFLOW FURNACE OR EQUAL. UNIT TO PROVIDE 66 MBH HEATING INPUT, 61 MBH HEATING OUTPUT, 93% AFUE AND 1200 cfm @ 0.5" S.P. WITH A 1/2 H.P. DIRECT DRIVE BLOWER MOTOR. UNIT TO BE COMPLETE WITH AIR FILTER AND RACK KIT, CONCENTRIC VENT KIT WITH VERTICAL VENT/AIR INTAKE TERMINATION THROUGH ROOF, CR33-30/36B-F DOWNFLOW EVAPORATOR COIL WITH FACTORY TXV, AND 7DAY/24HR PROGRAMMABLE NIGHT SETBACK THERMOSTAT WITH LOCKABLE PLASTIC COVER. UNIT ELECTRICAL TO BE 120 VOLT, SINGLE PHASE WITH A MAXIMUM OVERCURRENT PROTECTION OF 15 AMPS. SEE DETAIL 1/M6.7.

F2 - GAS-FIRED FURNACE #2

SUPPLY AND INSTALL LENNOX MODEL ML193UH090XP36C GAS-FIRED, MERIT SERIES, UPFLOW FURNACE OR EQUAL. UNIT TO PROVIDE 88 MBH HEATING INPUT, 83 MBH HEATING OUTPUT, 93% AFUE AND 1200 cfm @ 0.5" S.P. WITH A 1/2 H.P. DIRECT DRIVE BLOWER MOTOR. UNIT TO BE COMPLETE WITH AIR FILTER AND RACK KIT, CONCENTRIC VENT KIT WITH VERTICAL VENT/AIR INTAKE TERMINATION THROUGH ROOF, CX34-36C-6F UPFLOW EVAPORATOR COIL WITH FACTORY TXV, AND 7DAY/24HR PROGRAMMABLE NIGHT SETBACK THERMOSTAT WITH LOCKABLE PLASTIC COVER. UNIT ELECTRICAL TO BE 120 VOLT, SINGLE PHASE WITH A MAXIMUM OVERCURRENT PROTECTION OF 15 AMPS. SEE DETAIL 2/M6.7.

C1 & C2 - CONDENSING UNIT #1 & #2

SUPPLY AND INSTALL A LENNOX MODEL TSO36H4N41Y CONDENSING UNIT OR EQUAL. UNIT TO PROVIDE 3 TONS TOTAL COOLING WITH A SEER OF 14.50. UNIT TO BE C/W REFRIGERANT LINE KIT, R-410A REFRIGERANT CHARGE, HAIL GUARD, AND LOW AMBIENT KIT DOWN TO 30°F WITH FREEZESTAT CRANKCASE HEATER AND COMPRESSOR LOCKOUT THERMOSTAT. UNIT ELECTRICAL TO BE 208 VOLT, THREE PHASE WITH AN MCA OF 18.7 AMPS AND A MAXIMUM OVERCURRENT PROTECTION OF 30 AMPS. UNIT 'C1' TO BE PIPED TO FURNACE 'F1' DOWNFLOW EVAPORATOR COIL AND UNIT 'C2' TO BE PIPED TO FURNACE 'F2' UPFLOW EVAPORATOR COIL.

CM - COFFEE MACHINE

COFFEE MACHINE TO BE SUPPLIED BY OWNER. CONTRACTOR TO PROVIDE 1/2" COLD WATER CONNECTION.

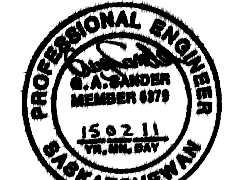
FE - FIRE EXTINGUISHER

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.

16. COORDINATE INSTALLATION OF ALL DIFFUSERS AND GRILLES WITH CEILING GRID AND LIGHTING LAYOUT.
17. ALL PLUMBING LINES SHOWN SCHEMATICALLY.
18. ALL WATER PIPING TO RUN CONCEALED IN FINISHED AREAS WITHIN CEILING SPACE, AND WALLS. PAINT ALL EXPOSED PIPING AS PER ARCHITECTURAL. ALL SEWER LINES TO RUN CONCEALED BELOW CONCRETE SLAB, IN CRAWLSPACE, AND/OR IN WALLS.
19. ALL WATER LINES TO BE COVERED WITH 13mm (1/2") INSULATION AND WITH PVC JACKET IN EXPOSED AREAS.
20. ALL EQUIPMENT TO BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS AND RECOMMENDATIONS.
21. ALL PIPING TO FIXTURES AND EQUIPMENT TO RUN CONCEALED WHERE POSSIBLE.
22. ALL WATER CONNECTIONS TO FIXTURES TO BE 13mm (1/2") UNLESS OTHERWISE SPECIFIED.
23. CONTRACTOR TO SUPPLY AND INSTALL PLUMBING VENTS, TRAP SEAL PRIMERS, CLEANOUTS, AND ISOLATION VALVES AS PER CODE.
24. INSTALL ALL GAS FIRED EQUIPMENT AND PIPING IN ACCORDANCE WITH THE CANADIAN GAS CODE AND GAS UTILITY REQUIREMENTS.
25. SOLDERS AND FLUXES HAVING A LEAD CONTENT IN EXCESS OF 0.2% SHALL NOT BE USED.
26. CONTRACTOR TO FIELD DETERMINE THE EXACT LOCATION OF ALL EXISTING BUILDING SERVICES.
27. PVC AND PLASTIC PIPING MAY BE USED WHERE PERMITTED BY CODE. ALL PVC PIPING WITHIN RETURN AIR CEILING PLENUMS TO BE XFR RATED.
28. ALL PLUMBING TO BE INSTALLED IN ACCORDANCE WITH THE CANADIAN PLUMBING CODE, PROVINCIAL PLUMBING CODES, AND CITY BYLAWS.
29. PROVIDE FIRESTOPS AT ALL PIPING THAT PASSES THROUGH FIRE SEPARATIONS.

MECHANICAL KEYNOTES (XX) ← DENOTES KEYNOTE ON DRAWING

- 1 SUPPLY AND RETURN AIR DUCTS DOWN INTO MAIN FLOOR C/W FIRE DAMPER AT RATED FLOOR ASSEMBLY PENETRATION. SEE MAIN FLOOR RENOVATED HVAC PLAN 1/M6.3 FOR CONTINUATION.
- 2 STUB 18"x10" RETURN AIR DUCT WITHIN SECOND FLOOR CEILING SPACE.
- 3 FURNACE CONCENTRIC VENT/AIR INTAKE UP THRU ROOF C/W CONCENTRIC VENT AND VERTICAL TERMINATION KIT. FLASH AND SEAL AT ROOF PENETRATION WEATHER TIGHT.
- 4 CONNECT FRESH AIR DUCT TO FURNACE RETURN AIR PLENUM C/W MANUAL DAMPER.
- 5 REFRIGERANT LINE KIT UP FROM MAIN FLOOR TIGHT ALONG WALL TO U/S OF ROOF. SEE MAIN FLOOR RENOVATED MECHANICAL PLAN 1/M6.3 FOR CONTINUATION.
- 6 EXISTING RHEEM GAS-FIRED WATER HEATER TO REMAIN C/W VENTING. UNIT PROVIDES 50 GALLON STORAGE AND 45 MBH HEATING.
- 7 CONNECT NEW 1" GAS LINE TO EXISTING GAS LINE STUB ALONG U/S OF ROOF.
- 8 CONNECT NEW 1/2" COLD WATER LINE TO EXISTING SINK COLD WATER SUPPLY LINE WITHIN CEILING SPACE. CONTRACTOR TO DETERMINE EXACT LOCATION ON SITE.
- 9 1/2" COLD WATER LINE DOWN WITHIN FURR-IN TO COFFEE MACHINE 'CM'.
- 10 EXISTING EXHAUST DUCT TO REMAIN. SEE MAIN FLOOR PLAN 1/M6.3 FOR CONTINUATION.
- 11 EXISTING FIRE EXTINGUISHER TO REMAIN.



MEZZANINE RENOVATED MECHANICAL PLAN

M6.4

MECHANICAL SPECIFICATIONS

1.0 GENERAL

1.1 GENERAL PROVISIONS

1.1.1 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

1.4.1 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 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 GENERAL CONTRACTOR'S REQUIREMENTS. 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 INSTALLATION.

1.8.0 FLASHING AND COUNTERFLASHING

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

1.9.0 APPROVALS

1.9.1 REQUEST FOR APPROVAL OF EQUIVALENT EQUIPMENT FROM MANUFACTURERS NOT SPECIFIED ON DRAWINGS SHALL BE MADE IN WRITING SEVEN DAYS PRIOR TO TENDER CLOSING.

1.10.0 SHOP DRAWINGS

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 SHEET COVERING ALL ITEMS OF MECHANICAL EQUIPMENT UNDER THIS 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.

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 SUB-CONTRACTOR.

1.11.4 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 OWNER ON COMPLETION.

1.12.2 MAINTENANCE MANUALS SHALL CONTAIN THE FOLLOWING:

- WARRANTY CERTIFICATE, BALANCING REPORT
- 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

1.14.1 INSTALL SUPPORTS OF STRENGTH AND RIGIDITY TO SUIT LOADING WITHOUT UNDUPLY 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 THE MECHANICAL CONTRACTOR SHALL SUPPLY AND PERMANENTLY INSTALL LAMACOIDS TO PROVIDE IDENTIFICATION OF ALL INSTALLED EQUIPMENT, FURNACES, CONDENSING UNITS, AND THEIR SWITCHES.

1.15.2 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

1.16.1 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 GIVEN TO THE OWNERS MARKED "AS-BUILT".

1.17.0 EQUIPMENT AND MATERIALS

CLEAN-UP

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

1.18.0 BALANCING

1.18.1 BALANCING OF ALL VENTILATION SYSTEMS AS INDICATED SHALL BE DONE BY THE MECHANICAL CONTRACTOR WHEN ALL EQUIPMENT IS OPERATING UNDER FULL LOAD. THE CONTRACTOR SHALL ALLOW SUFFICIENT FUNDS TO CHANGE THE PULLEYS ON MOTORS OR FANS TO PROPERLY BALANCE THE SYSTEM AT THE LOWEST FAN RPM.

1.18.2 BALANCING CONTRACTOR SHALL BALANCE ALL AIR OUTLETS AND EQUIPMENT VOLUMES TO WITHIN 5% OF DESIGNED VALUES.

1.18.3 BALANCING CONTRACTOR SHALL SUBMIT FOR REVIEW THREE (3) COPIES OF THE REPORT CONTAINING THE FOLLOWING:

- SUPPLY AND RETURN AIR VOLUMES, SUCTION, DISCHARGE AIR PRESSURE, RPM, AND AMPS OF ALL SUPPLY AND EXHAUST FANS.
- SUPPLY AND RETURN AIR VOLUMES OF ALL GRILLES AND DIFFUSERS.
- SKETCH LAYOUT OF DUCT SYSTEMS SHOWING DETAIL OF BALANCE.

1.19.0 GAS

1.19.1 MECHANICAL CONTRACTOR SHALL INSTALL GAS SERVICE FROM EXISTING UPGRADED BUILDING GAS SERVICE TO ALL 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 1 1/4") OR WELDED STEEL.

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

1.19.3 CONTRACTOR TO COORDINATE UPGRADE OF EXISTING GAS SERVICE IF NECESSARY WITH OWNERS AND GAS UTILITY IF REQUIRED.

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 BUILDING SERVICES. ENSURE THAT SEWER SERVICES ARE RUN WITH SUFFICIENT SLOPE FOR DRAINAGE.

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.

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

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

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.

2.1.7 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.

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

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. PVC PIPING AND AQUA PEX IS ALSO ACCEPTABLE.

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

2.2.4 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 ACCEPTABLE.

2.2.5 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 (2 1/2") AND LARGER: CRANE No. 465 1/2C
- GLOBE VALVES 50mm (2") AND SMALLER: CRANE No. 1310
- GLOBE VALVES 65mm (2 1/2") AND LARGER: CRANE No. 351
- CHECK VALVES 50mm (2") AND SMALLER: CRANE No. 1342
- CHECK VALVES 65mm (2 1/2") 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 FIRE DAMPERS AND FIRE STOPS SHALL BE ULC LABELED. INSTALL WHERE SHOWN AND/OR REQUIRED BY AUTHORITIES HAVING JURISDICTION. PROVIDE ACCESS FOR SERVICING AND INSPECTION. FIRE DAMPERS SHALL BE TYPE 'B' WITH DAMPER BLADES FULLY CLEAR OF THE AIR STREAM, SEAL WITH DOW CORNING RTV SILICONE FOAM.

3.1.3 BALANCING DAMPERS SHALL BE INSTALLED IN ALL BRANCHES AS REQUIRED.

3.1.4 ALL EQUIPMENT SHALL BE AS SPECIFIED ON DRAWING M6.4 OR APPROVED EQUAL.

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 GAUGE FOR UP TO 305mm (12") WIDE OR 205mm (8") DIAMETER, 24 GAUGE FOR 330mm (13") TO 760mm (30") WIDE OR 230mm (9") TO 760mm (30") DIAMETER. ALL FITTINGS TO MEET SMACNA DESIGN STANDARDS.

3.1.8 PROVIDE FLEX CONNECTIONS, 6mm (1/4") DURODYNE CONIFLEX PCV COATED POLYESTER AT INLET AND OUTLETS OF MAKE-UP AIR UNITS AND FAN UNITS EXCEPT KITCHEN CANOPY EXHAUST FANS.

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.

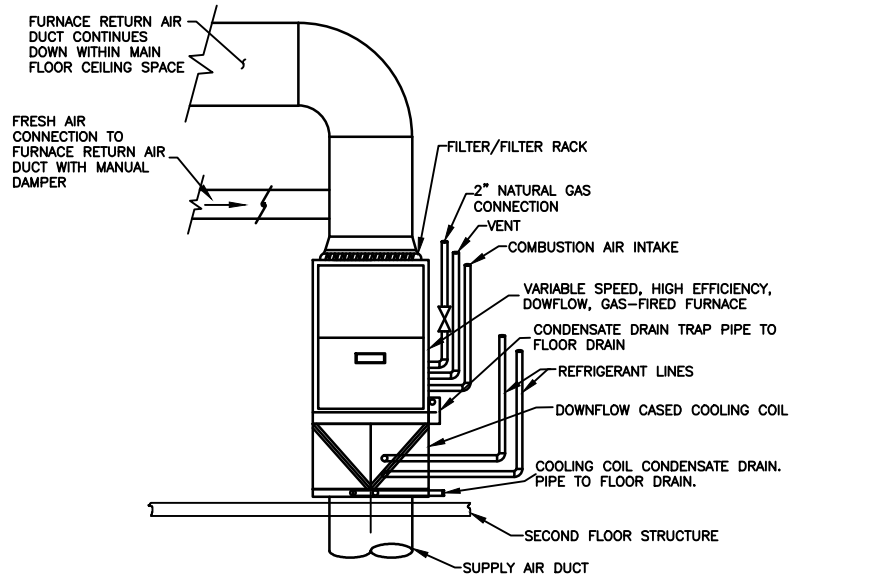
4.1.3 RECOVERING JACKET ON DUCTWORK SHALL BE ULC LISTED "THERMO CANVAS" TREATED COTTON FABRIC, SUITABLE FOR PAINTING. PROVIDE RECOVERING JACKET ON ALL EXPOSED INSULATION THROUGHOUT, INCLUDING EQUIPMENT ROOM. INSULATION LOCATED IN PIPE SHAFTS, AND SUSPENDED CEILING SPACES IS NOT CONSIDERED EXPOSED. ALL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

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

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

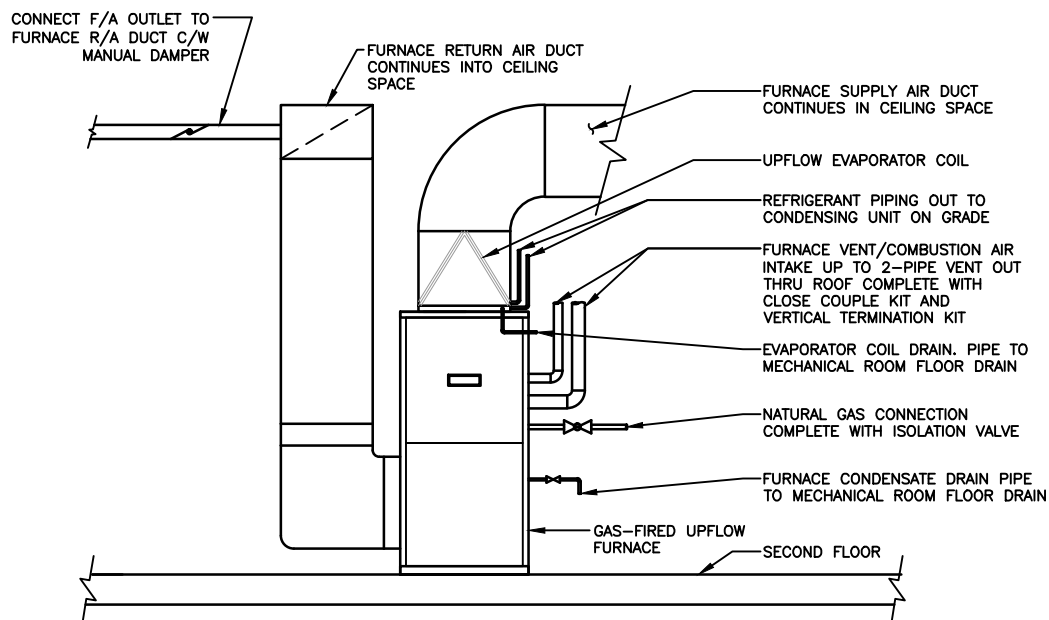
4.1.6 LINE DUCTWORK WITH MANSON ACOUSTIC-LINER, 0.68 kg (1.5 lbs.) DENSITY COATED SURFACE SHALL FACE AIR STREAM. ALL DUCTWORK IN SUPPLY AND RETURN AIR PLENUMS SHALL BE INSULATED. DUCT SIZES SHOWN ARE CLEAR INSIDE.

4.1.7 INSULATION SCHEDULE:
COLD WATER LINES - 13mm (1/2"); SUPPLY AND RETURN AIR PLENUMS OF FURNACE UNITS - INTERNAL - 25mm (1").



1 DOWNFLOW FURNACE DETAIL

SCALE: NTS



2 UPFLOW FURNACE DETAIL

SCALE: NTS

5.0 FIRE PROTECTION

5.1.0 GENERAL

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

6.0 CONTROLS

6.1.0 GENERAL

6.1.1 ALL THERMOSTATS, THERMOMETERS, AND CONTROLLERS SHALL BE RATED IN CELSIUS DEGREES. ALL THERMOSTATS AND CONTROLS 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.

Carcoana

ARCHITECTURE LTD.

Lawrence N. Carcoana, Principal
S.A.A. M.A.A. A.I.A. N.CARB

1457 ALBERT STREET, REGINA,
SASKATCHEWAN S4R 2R8
TEL 306.565.0411 | FAX
306.757.9471
email address



McGinn Engineering Ltd.
A DIVISION OF MCGINN GROUP

1457 ALBERT STREET,
REGINA,
SASKATCHEWAN S4R 2R8
TEL 306.565.0411
FAX 306.757.9471
mcginn@mcginngroup.ca
www.mcginngroup.ca

Project Title:

RESEARCH FARM

INDIAN HEAD, SASKATCHEWAN

McGINN
ENGINEERING LTD.
ASSOCIATION OF PROFESSIONAL ENGINEERS
OF SASKATCHEWAN
CERTIFICATE OF AUTHORIZATION
McGINN ENGINEERING LTD.
No.: 124
Permission to Consult held by:
DISCIPLINE SASK. REG. No. SIGNATURE
M.E.P. M.E.P. G.P.

PROFESSIONAL SEAL:



Issue Record:

Revisions:

MECHANICAL SPECIFICATIONS AND DETAILS

Designed By: DJT Scale: AS NOTED

Drawn By: SMH Date: DEC 2014

Checked By: GAS Date: 2015.02.10

Project No.: 4748

M6.5

Revision No.: Date:

Issued For:

Date Issued: -

Date Plotted: