ROOFTOP UNIT SCHEDULE

TAG	RTU-1	RTU-2
SERVICE	A503A UPS ROOM	A503B ELECTRICAL ROOM
SUPPLY FAN		
AIR FLOW RATE (L/s)	1,381	1,794
E.S.P. (Pa / in.WC)	187	187
FAN TYPE	FC CENTRIFUGAL	FC CENTRIFUGAL
FAN SIZE	12 X 12	15 X 15
FAN SPEED (RPM)	1,144	1,112
FAN BRAKE HORSEPOWER	1.77	2.58
MOTOR SIZE (kW / HP)	1.49	3.73
MOTOR SPEED (RPM)	1,725	1,725
SPEED CONTROL	CONSTANT VOLUME	CONSTANT VOLUME
HEATING SECTION		
TYPE	NONE	NONE
COOLING SECTION		
TYPE	DX, R-410A	DX, R-410A
CAPACITY CONTROL METHOD	2 STEPS - 50% / 100%	2 STEPS - 50% / 100%
TOTAL CAPACITY (kW)	23.7	44.4
SENSIBLE CAPACITY (kW)	20.2	37.3
ENTERING AIR DB TEMPERATURE (°C)	23.9	29.4
ENTERING AIR WB TEMPERATURE (°C)	16.1	18.1
NUMBER OF COMPRESSORS	2	2
IEER (AHRI STANDARD 340/360)	12.8	12.8
ECONOMIZER		
TYPE	HORIZONTAL	HORIZONTAL
MINIMUM O.A. FLOW RATE (L/s)	24	42
MAXIMUM O.A. FLOW RATE (L/s)	1,381	1,794
CHANGEOVER CONTROL TYPE	BY EMCS	BY EMCS
POWER EXHAUST FAN WITH HOOD	YES	YES
FILTERS		
TYPE / DEPTH (mm)	PLEATED / 51	PLEATED / 51
EFFICIENCY	MERV 7	MERV 7
PHYSICAL DATA		
WEIGHT (kg)	454	635
LENGTH (m)	2.26	3.04
WIDTH (m)	1.50	1.50
HEIGHT (m)	1.07	1.29
NOTES:	1. COMPLETE WITH 'OUT-OF-PHASE' PROTECTION, CONDENSER COIL HAIL GUARDS, ADJUSTABLE LOW AMBIENT COMPRESSOR LOCKOUT, AND 356 mm HIGH INSULATED ROOF CURB. 2. PROVIDE DUCT-MOUNTED POWER EXHAUST FAN WITH LOW LEAKAGE BACKDRAFT DAMPER AND WEATHER HOOD. 3. PROVIDE POWERED WEATHER-PROOF 120 VAC DUPLEX GFCI OUTLET.	

FAN SCHEDULE

TAG	SERVICE	LOCATION	TOTAL AIRFLOW RATE (L/s)	MAX. BYPASS AIRFLOW RATE (L/s)	DESIGN AIR TEMPERATURE (C)	NOZZLE OUTLET VELOCITY (m/s)	E.S.P. (Pa)	FAN CHARACTERISTICS TYPE	CLASS	CONFIG	(BHP)	(RPM)	FAN MOTOR(S) (kW)	(HP)	(RPM)	FAN ASSEMBLY WEIGHT (kg)	DISCHARGE SOUND LEVEL (dBA)	ACCESSORIES	NOTES
EF-LAB-1/2/3	L3 & L4 LAB AREAS	ROOF	28,320	21,240	-9.4	17.5	996	MF	III	UB	38.1	887	29.83	40.00	1,725	9,389	43	1, 2, 3, 4, 8, 9, 12, 13, 14, 15, 16	1, 2, 6
EF-BSC-1/2	L3 & L4 LAB AREAS	ROOF	2,266	1,982	-20.6	17.4	996	MF	III	UB	6.1	1,803	5.59	7.50	1,725	2,268	33	1, 2, 3, 5, 8, 9, 12, 13, 14, 15, 17	1, 3, 6
EF-RAD-1/2	A341C	ROOF	444	N/A	21.1	17.7	374	IC	III	UB	1.1	2,481	1.12	1.50	1,725	499	40	1, 2, 6, 8, 9, 12, 13, 15, 17	1, 4, 6
EF-HFA-1	A430	ROOF	1,104	N/A	21.1	21.8	374	C	III	UB	4.5	1,952	3.73	5.00	1,800	227	33	1, 2, 7, 9, 10, 11, 12, 13, 15, 17	1, 5, 6
EF-HFA-2	A430	ROOF	1,104	N/A	21.1	21.8	374	C	III	UB	4.5	1,952	3.73	5.00	1,800	227	33	1, 2, 7, 9, 10, 11, 12, 13, 15, 17	1, 5, 6

FAN TYPES: C CENTRIFUGAL IC IN-LINE CENTRIFUGAL MF MIXED FLOW CU CENTRIFUGAL UP BLAST TA TUBE AXIAL VS VENT SET

ACCESSORIES:
1. WEATHERPROOF DISCONNECT SWITCH FOR EACH FAN.
2. FAN(S) AND MOTOR(S) SHALL BE RATED FOR INVERTER DUTY.
3. INLINE STAINLESS STEEL DISCHARGE SILENCER COMPLETE WITH COATED SLEEVE AND GUY WIRE SUPPORTS FOR EACH FAN.
4. FAN ASSEMBLY SHALL BE PROVIDED WITH A DOUBLE WALL INSULATED BYPASS AIR PLENUM WITH SIDE EXHAUST DUCT INLET CONNECTION, MOTORIZED ISOLATION DAMPER FOR EACH FAN, AND BYPASS AIR INTAKE FOR EACH FAN COMPLETE WITH WEATHERHOOD AND MOTORIZED DAMPER.
5. FAN ASSEMBLY SHALL BE PROVIDED WITH A DOUBLE WALL INSULATED BYPASS AIR PLENUM WITH BOTTOM EXHAUST DUCT INLET CONNECTION, MOTORIZED ISOLATION DAMPER FOR EACH FAN, AND BYPASS AIR INTAKE FOR EACH FAN COMPLETE WITH WEATHERHOOD AND MOTORIZED DAMPER.
6. FAN ASSEMBLY SHALL BE PROVIDED WITH A 610 mm HIGH ROOF CURB COMPLETE WITH 25 mm THICK INSULATION, FIELD INSULATED PLENUM WITH BOTTOM EXHAUST DUCT CONNECTION, AND MOTORIZED ISOLATION DAMPER FOR EACH FAN.
7. PROVIDE DUCT MOUNTED MOTORIZED FIBREGLASS-REINFORCED RESIN LOW LEAKAGE ISOLATION DAMPER, AND INLINE 316 STAINLESS STEEL DISCHARGE SILENCER WITH GUY WIRE SUPPORTS AND PHENOLIC COATING, SUITABLE FOR LONG TERM USE WITH UP TO 5% HYDROFLOURIC ACID VAPOUR (BY VOLUME) IN THE EXHAUST AIRSTREAM.
8. PIEZOMETER AIRFLOW MEASURING RING, COMPLETE WITH PRESSURE TAPS FOR CONNECTION TO EMCS, FOR EACH FAN.
9. WEATHERPROOF HOUSING FOR EACH FAN.
10. 50 mm DEFLECTION RESTRAINED SPRING VIBRATION ISOLATORS.
11. FLANGED INLET AND OUTLET CONNECTIONS COMPLETE WITH COMPANION FLANGES.
12. ONE SET OF SPARE BELTS FOR EACH FAN.
13. PREMIUM EFFICIENCY TEFC MOTOR FOR EACH FAN.
14. FAN ASSEMBLY SHALL BE PROVIDED WITH JIB CRANE(S) COMPLETE WITH SUPPORTS AND MOUNTING SOCKET(S) ON BYPASS AIR PLENUM AS INDICATED ON DRAWING DETAILS.
15. FAN ASSEMBLY AND ALL ACCESSORIES SHALL BE PROVIDED WITH A CUSTOM BROWN EXTERIOR FINISH IN ACCORDANCE WITH NATIONAL CAPITOL COMMISSION REQUIREMENTS. CONFIRM COLOUR WITH DEPARTMENTAL REPRESENTATIVE ON SHOP DRAWING SUBMITTAL.
16. DISCHARGE SOUND LEVEL CORRESPONDS TO MAXIMUM FAN ASSEMBLY SOUND PRESSURE AT 77.4 m DISTANCE AND DESIGN CONDITIONS. INCLUDES ADJUSTMENTS FOR OPERATION OF BYPASS DAMPERS AND MULTIPLE FANS.
17. DISCHARGE SOUND LEVEL CORRESPONDS TO MAXIMUM FAN ASSEMBLY SOUND PRESSURE AT 68.6 m DISTANCE AND DESIGN CONDITIONS. INCLUDES ADJUSTMENTS FOR OPERATION OF BYPASS DAMPERS AND MULTIPLE FANS.

NOTES:
1. OUTDOOR APPLICATION. FAN(S) AND ALL ACCESSORIES (DAMPERS, ACTUATORS, ETC.) SHALL BE CONSTRUCTED/RATED FOR CONTINUOUS OPERATION IN A -28.9°C (-20°F) ENVIRONMENT.
2. LABORATORY EXHAUST FAN ASSEMBLY IS A TRIPLEX ARRANGEMENT WITH EACH FAN SIZED FOR 50%/50%/STANDBY DUTY.
3. LABORATORY EXHAUST FAN ASSEMBLY IS A DUPLEX ARRANGEMENT SIZED FOR FUTURE ALLOWANCE OF ONE CLASS 2 B2 BSC. EACH FAN IS SIZED FOR 100% OF SYSTEM CAPACITY. BOTH FANS RUN SIMULTANEOUSLY WITH EXCESS BYPASS AIR TO ENABLE QUICK RESPONSE TO FAN FAILURE.
4. LABORATORY EXHAUST FAN ASSEMBLY IS A DUPLEX ARRANGEMENT SIZED FOR 100%/STANDBY DUTY.
5. FIBREGLASS-REINFORCED RESIN LABORATORY EXHAUST FAN RATED FOR USE WITH UP TO 5% HYDROFLOURIC ACID VAPOUR (BY VOLUME) IN THE AIRSTREAM; ALL COMPONENTS SUSCEPTABLE TO HYDROFLOURIC ACID CORROSION SHALL BE ISOLATED AND PROTECTED FROM THE AIRSTREAM.
6. REFER ALSO TO SPECIFICATIONS.

CONDENSATE RETURN UNIT SCHEDULE

TAG	LOCATION	MINIMUM CAPACITY (kg/hr)	CONDENSATE PUMPS (DUPLEX - DATA PER PUMP) FLOW RATE (L/s)	TOTAL HEAD (kPa)	MAX. INLET TEMP. (°C)	NPSHA (kPa)	RPM	DISCH. SIZE (mm)	MOTOR HP (HP)	ELECT. VOLTS (V)	PHASE	RECEIVER DATA CAPACITY (L)	COND. INLET (mm)	OVERFLOW CONN. (mm)	TANK VENT (mm)	NOTES
CRU-1	PENTHOUSE	1,021	0.57	104	98.9	6.0	3,500	38	1/3	120	1	87	51	51	51	1

NOTES:
1. CAST IRON RECEIVER ON WELDED STEEL STAND COMPLETE WITH LIFTING EYES, LEVEL GAUGE WITH SHUTOFF VALVES, DIAL THERMOMETER, INLET BASKET STRAINER, PUMP DISCHARGE PRESSURE GAUGES, PUMP INLET SHUTOFF VALVES, HIGH LEVEL SWITCH, 2 FLOAT SWITCHES, CONTROL PANEL, AND TRANSFORMER. CONTROL PANEL TO INCLUDE ELECTRIC ALTERNATOR, MAGNETIC STARTERS, CIRCUIT BREAKERS, CONTROL POWER SWITCHING RELAY, PUMP "OFF-HAND-LEAD-LAG" SELECTOR SWITCHES, PUMP RUNNING PILOT LIGHTS, AND AUDIBLE HIGH LEVEL ALARM WITH DRY CONTACT FOR REMOTE MONITORING BY EMCS.

EXPANSION TANK SCHEDULE

TAG	LOCATION	SERVES	TANK VOLUME (Litres)	ACCEPTANCE VOLUME (Litres)	PRE-CHARGE PRESSURE (kPa)	MAXIMUM RATED CHARACTERISTICS TEMPERATURE (C)	MAXIMUM RATED CHARACTERISTICS PRESSURE (kPa)	ASME RATED	NOTES
EX-1	PENTHOUSE	AHU GLYCOL HEATING COIL LOOP	500	174	83	116	862	YES	1, 3, 4
EX-2	PENTHOUSE	HOT WATER HEATING LOOP	257	129	83	116	862	YES	2, 3, 4
EX-3	PENTHOUSE	GLYCOL HEAT RECLAIM SYSTEM	500	174	83	116	862	YES	1, 3, 4

NOTES:
1. CONSTRUCTION SUITABLE FOR 50% PROPYLENE GLYCOL / 50% WATER (BY VOLUME) WORKING FLUID.
2. CONSTRUCTION SUITABLE FOR 100% TREATED WATER WORKING FLUID.
3. REMOVABLE HEAVY DUTY BUTYL RUBBER DIAPHRAGM.
4. REFER ALSO TO SPECIFICATIONS.

DUCT SILENCER SCHEDULE

TAG	SYSTEM	TYPE	DIMENSIONS WIDTH/DIA. (mm)	HEIGHT/DIA. (mm)	LENGTH (mm)	AIRSIDE DESIGN CONDITIONS FLOW RATE (L/s)	PRESSURE DROP (Pa)	FAN SOUND LEVELS (dB) OCTAVE BAND (Hz) 63	125	250	500	1000	2000	4000	8000	DYNAMIC INSERTION LOSS (dB) OCTAVE BAND (Hz) 63	125	250	500	1000	2000	4000	8000
S-1	AH-LAB-L3	RECT., FILM LINED	1,219	1,219	1,524	13,877	55	93	89	87	89	84	81	78	68	3	3	7	16	24	20	14	6
S-2	AH-LAB-L4	RECT., FILM LINED	914	457	1,524	4,373	67	94	90	88	90	86	82	79	70	4	6	8	11	8	5	3	3
S-3	AH-LAB-L4	RECT., FILM LINED	914	457	1,524	4,342	65	94	90	88	90	86	82	79	70	4	6	8	11	8	5	3	3
S-4	AH-LAB-L4	RECT., FILM LINED	914	457	1,524	4,626	62	94	90	88	90	86	82	79	70	4	3	8	17	29	29	21	12
S-5	AH-LAB-L4	RECT., FILM LINED	914	457	1,524	3,519	50	94	90	88	90	86	82	79	70	4	5	11	20	34	33	25	15

NOTES: 1. FILM LINED: BoPET FILM.
2. FAN SOUND LEVEL IS THE INITIAL BASELINE ASSUMTION FOR SILENCER SELECTION FOR THE ASSOCIATED SYSTEM.

PWGSC A1 (841x594)

0 10 20mm 40 60 80 100 120 140 160 180 200mm

Publics Works and Government Services Canada / Travaux publics et services gouvernementaux Canada

Canada

Smith Carter Architects and Engineers Incorporated
1600 Buffalo Place
Winnipeg, Manitoba
Canada, R3T 6B8
T: 204.477.1260
F: 204.477.6346
www.smithcarter.com

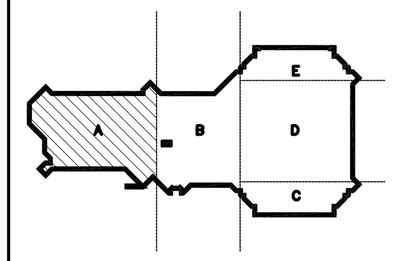
Smith Carter

SC Proj. #12C-00081-00

stamp

LICENSED PROFESSIONAL ENGINEER
SIB.W. DIACHUN
100147589
07-JAN-2014
PROVINCE OF ONTARIO

key plan / plan repère



Contractor to verify all dimensions & conditions on site and immediately notify the engineer of all discrepancies.

revisions	description	date
5	ISSUED FOR ADDENDUM No.01	2013/12/20
4	ISSUED FOR 100% CONSTRUCTION DOCUMENTS	2013/10/10
3	ISSUED FOR 99% CONSTRUCTION DOCUMENTS (VOL 2)	2013/08/29
2	ISSUED FOR 99% CONSTRUCTION DOCUMENTS (VOL 1)	2013/08/15
1	ISSUED FOR 66% CONSTRUCTION DOCUMENTS (RS4)	2013/05/30
0	ISSUED FOR DESIGN DEVELOPMENT	2013/03/22

A detail no. / no. du detail
B location drawing no. / sur dessin no.
C drawing no. / dessin no.

project / projet

SIR FREDERICK BANTING RESEARCH CENTRE
ANIMAL TO WET LAB CONVERSION

251 SIR FREDERICK BANTING WAY, ON

drawing / dessin

MECHANICAL SCHEDULES

Designed By W. CURRIE / Conçu par
Date (yyyy/mm/dd)
Drawn By W. CURRIE / Dessiné par
Date (yyyy/mm/dd)
Reviewed By S. DIACHUN / Examiné par
Date (yyyy/mm/dd)
Approved By S. DIACHUN / Approuvé par
Date (yyyy/mm/dd)
Tender / Soumission
Project Manager / Administrateur de projets

Project no. / No. du projet
R.044033.002

Drawing no. / No. du dessin
M604-X1