



Schedule 1: Designer Information

Use one form for each individual who reviews and takes responsibility for design activities with respect to the project.

A. Project Information				
Building number, street name			Unit no.	Lot/con.
Municipality INNISFIL	Postal code	Plan number/ other description		
B. Individual who reviews and takes responsibility for design activities				
Name MICHAEL O'ROURKE		Firm HVAC DESIGNS LTD.		
Street address 375 FINLEY AVE		Unit no. 202	Lot/con. N/A	
Municipality AJAX	Postal code L1S 2E2	Province ONTARIO	E-mail info@hvacdesigns.ca	
Telephone number (905) 619-2300	Fax number (905) 619-2375	Cell number ()		
C. Design activities undertaken by individual identified in Section B. [Building Code Table 3.5.2.1 OF Division C]				
☐ House ☐ Small Buildings ☐ Large Buildings ☐ Complex Buildings				
☒ HVAC – House ☐ Building Services ☐ Detection, Lighting and Power ☐ Fire Protection				
☐ Building Structural ☐ Plumbing – House ☐ Plumbing – All Buildings ☐ On-site Sewage Systems				
Description of designer's work HEAT LOSS / GAIN CALCULATIONS DUCT SIZING RESIDENTIAL MECHANICAL VENTILATION DESIGN SUMMARY RESIDENTIAL SYSTEM DESIGN per CSA-F280-12		Model: 45-4C Project: ALCONA		
D. Declaration of Designer				
I, <u>MICHAEL O'ROURKE</u> (print name)		declare that (choose one as appropriate):		
☐ I review and take responsibility for the design work on behalf of a firm registered under subsection 3.2.4. of Division C, of the Building Code. I am qualified, and the firm is registered, in the appropriate classes/categories. Individual BCIN: _____ Firm BCIN: _____				
☒ I review and take responsibility for the design and am qualified in the appropriate category as an "other designer" under subsection 3.2.5. of Division C, of the Building Code. Individual BCIN: <u>19669</u> Basis for exemption from registration and qualification: <u>O.B.C SENTENCE 3.2.4.1 (4)</u>				
☐ The design work is exempt from the registration and qualification requirements of the Building Code. Basis for exemption from registration and qualification: _____				
I certify that:				
1. The information contained in this schedule is true to the best of my knowledge.				
2. I have submitted this application with the knowledge and consent of the firm.				
December 8, 2023				
Date		Signature of Designer		

NOTE:

- For the purposes of this form, "individual" means the "person" referred to in Clause 3.2.4.7(1) d) of Division C, Article 3.2.5.1. of Division C, and all other persons who are exempt from qualification under Subsections 3.2.4. and 3.2.5. of Division C.
- Schedule 1 is not required to be completed by a holder of a license, temporary license, or a certificate of authorization, issued by the Ontario Association of Architects. Schedule 1 is also not required to be completed by a holder of a license to practise, a limited license to practise, or a certificate of authorization, issued by the Association of Professional Engineers of Ontario.

Application for a Permit Construct or Demolish – Effective January 1, 2015



SITE NAME: ALCONA		BUILDER: BAYVIEW WELLINGTON		TYPE: 45-4C		GFA: 3135		DATE: Dec-23 LO# 103450		WINTER NATURAL AIR CHANGE RATE 0.362		HEAT LOSS ΔT °F. 83		CSA-F280-12	
										SUMMER NATURAL AIR CHANGE RATE 0.082		HEAT GAIN ΔT °F. 9		SB-12 PACKAGE A1	
ROOM USE		MBR		ENS		WIC		BED-2		BED-3		BED-4		BATH	
EXP. WALL		33		31		7		26		32		12		6	
CLG. HT.		10		9		9		10		10		10		9	
FACTORS															
GRS.WALL AREA	LOSS GAIN	330		279		63		247		320		114		54	
GLAZING		LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN	
NORTH	23.3 12.3	0 0 0		0 0 0		0 0 0		0 0 0		0 0 0		0 0 0		0 0 0	
EAST	23.3 32.4	37 862 1199		28 652 907		0 0 0		0 0 0		0 0 0		0 0 0		7 163 227	
SOUTH	23.3 19.3	0 0 0		15 349 290		0 0 0		0 0 0		45 1048 870		20 466 386		0 0 0	
WEST	23.3 32.4	0 0 0		0 0 0		0 0 0		29 676 940		45 1048 1458		0 0 0		0 0 0	
SKYLT.	40.8 131.5	0 0 0		0 0 0		0 0 0		0 0 0		0 0 0		0 0 0		0 0 0	
DOORS	22.0 2.4	0 0 0		0 0 0		0 0 0		0 0 0		0 0 0		0 0 0		0 0 0	
NET EXPOSED WALL	4.9 0.5	293 1431 158		236 1153 127		63 308 34		218 1065 118		230 1124 124		94 459 51		47 230 25	
NET EXPOSED BSMT WALL ABOVE GR	3.9 0.4	0 0 0		0 0 0		0 0 0		0 0 0		0 0 0		0 0 0		0 0 0	
EXPOSED CLG	1.4 0.5	270 379 142		234 329 123		105 148 55		138 194 73		141 198 74		126 177 66		90 126 47	
NO ATTIC EXPOSED CLG	3.0 1.1	0 0 0		0 0 0		0 0 0		30 90 34		169 509 191		30 90 34		0 0 0	
EXPOSED FLOOR	2.8 0.3	0 0 0		0 0 0		0 0 0		168 469 52		0 0 0		0 0 0		90 251 28	
BASEMENT/CRAWL HEAT LOSS		0		0		0		0		0		0		0	
SLAB ON GRADE HEAT LOSS		0		0		0		0		0		0		0	
SUBTOTAL HT LOSS		2673		2483		455		2494		3927		1192		770	
SUB TOTAL HT GAIN			1500		1448		89		1216		2717		537		1259
LEVEL FACTOR / MULTIPLIER	0.20 0.27			0.20 0.27		0.20 0.27		0.20 0.27		0.20 0.27		0.20 0.27		0.20 0.27	
AIR CHANGE HEAT LOSS		716		665		122		668		1052		319		206	
AIR CHANGE HEAT GAIN			60		58		4		48		108		21		13
DUCT LOSS		0		0		0		316		0		0		98	
DUCT GAIN			0		0		0		214		0		0		34
HEAT GAIN PEOPLE	240	2	480	0	0	0	0	1	240	1	240	1	240	0	0
HEAT GAIN APPLIANCES/LIGHTS			640		0		0		640		640		640		0
TOTAL HT LOSS BTU/H		3389		3149		577		3478		4979		1512		1074	
TOTAL HT GAIN x 1.3 BTU/H			3483		1957		121		3066		4816		1870		487

ROOM USE		LIV		KT/FM		DIN		LAUN		W/R		FOY			
EXP. WALL		36		77		12		7		13		34			
CLG. HT.		11		10		10		9		10		10			
FACTORS															
GRS.WALL AREA	LOSS GAIN	396		770		120		63		130		340			
GLAZING		LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN			
NORTH	23.3 12.3	0 0 0		10 233 123		0 0 0		0 0 0		0 0 0		0 0 0		26 606 320	
EAST	23.3 32.4	0 0 0		131 3052 4245		0 0 0		0 0 0		0 0 0		0 0 0		0 0 0	
SOUTH	23.3 19.3	36 839 696		36 839 696		36 839 696		0 0 0		0 0 0		14 326 271		0 0 0	
WEST	23.3 32.4	36 839 1167		0 0 0		0 0 0		0 0 0		14 326 454		0 0 0		0 0 0	
SKYLT.	40.8 131.5	0 0 0		0 0 0		0 0 0		0 0 0		0 0 0		0 0 0		0 0 0	
DOORS	22.0 2.4	0 0 0		0 0 0		0 0 0		0 0 0		0 0 0		64 1405 155		0 0 0	
NET EXPOSED WALL	4.9 0.5	324 1583 175		593 2897 320		84 410 45		63 308 34		116 567 63		262 1280 142		0 0 0	
NET EXPOSED BSMT WALL ABOVE GR	3.9 0.4	0 0 0		0 0 0		0 0 0		0 0 0		0 0 0		0 0 0		244 961 106	
EXPOSED CLG	1.4 0.5	0 0 0		0 0 0		0 0 0		119 167 63		0 0 0		0 0 0		0 0 0	
NO ATTIC EXPOSED CLG	3.0 1.1	0 0 0		8 24 9		0 0 0		0 0 0		0 0 0		0 0 0		0 0 0	
EXPOSED FLOOR	2.8 0.3	0 0 0		0 0 0		0 0 0		102 285 31		0 0 0		0 0 0		0 0 0	
BASEMENT/CRAWL HEAT LOSS		0		0		0		0		0		0		0	
SLAB ON GRADE HEAT LOSS		0		0		0		0		0		0		0	
SUBTOTAL HT LOSS		3260		7045		1249		760		893		3011		0	
SUB TOTAL HT GAIN			2037		5394		741		128		516		567		1567
LEVEL FACTOR / MULTIPLIER	0.30 0.44			0.30 0.44		0.30 0.44		0.20 0.27		0.30 0.44		0.30 0.44		0.30 0.44	
AIR CHANGE HEAT LOSS		1439		3110		551		204		394		1329		0	
AIR CHANGE HEAT GAIN			81		215		30		5		21		23		0
DUCT LOSS		0		0		0		96		0		0		0	
DUCT GAIN			0		0		0		77		0		0		0
HEAT GAIN PEOPLE	240	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HEAT GAIN APPLIANCES/LIGHTS			640		640		640		640		640		640		0
TOTAL HT LOSS BTU/H		4699		10154		1800		1060		1287		4340		1567	
TOTAL HT GAIN x 1.3 BTU/H			3585		8122		1833		1105		698		767		554

TOTAL HEAT GAIN BTU/H: 35705

TONS: 2.98

LOSS DUE TO VENTILATION LOAD BTU/H: 1786

STRUCTURAL HEAT LOSS: 66138

TOTAL COMBINED HEAT LOSS BTU/H: 67924

SITE NAME: ALCONA
BUILDER: BAYVIEW WELLINGTON

TYPE: 45-4C

DATE: Dec-23

GFA: 3135

LO# 103450

HEATING CFM 1170 COOLING CFM 1170
TOTAL HEAT LOSS 66,138 TOTAL HEAT GAIN 35,507
AIR FLOW RATE CFM 17.69 AIR FLOW RATE CFM 32.95

furnace pressure 0.6
furnace filter 0.14
a/c coil pressure 0.21
available pressure
for s/a & r/a 0.25

\$LENNOX

AFUE = 96 %
INPUT (BTU/H) = 88,000
OUTPUT (BTU/H) = 85,600

FAN SPEED 90
LOW 0
MEDLOW 0
MEDIUM 0
MEDIUM HIGH 1170
HIGH 1300

DESIGN CFM = 1170
CFM @ .6" E.S.P.

TEMPERATURE RISE 68 °F

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	16	10	6
R/A	0	0	4	2	1

All S/A diffusers 4"x10" unless noted otherwise on layout.

All S/A runs 5"Ø unless noted otherwise on layout.

RUN #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
ROOM NAME	MBR	ENS	WIC	BED-2	BED-3	BED-4	BATH	HALL	ENS	MBR	ENS-3	LIV	LIV	KT/FM	KT/FM	DIN	LAUN	W/R	FOY	FOY	BAS	BAS	BAS	BAS
RM LOSS MBH.	1.69	1.57	0.58	1.74	1.66	1.51	0.54	2.71	1.57	1.69	0.11	2.35	2.35	2.54	2.54	1.80	1.06	1.29	2.17	2.17	3.64	3.64	3.64	3.64
CFM PER RUN HEAT	30	28	10	31	29	27	10	48	28	30	2	42	42	45	45	32	19	23	38	38	64	64	64	64
RM GAIN MBH.	1.74	0.98	0.12	1.53	1.61	1.87	0.24	1.70	0.98	1.74	0.04	1.79	1.79	2.03	2.03	1.83	1.11	0.70	0.38	0.38	0.31	0.31	0.31	0.31
CFM PER RUN COOLING	57	32	4	51	53	62	8	56	32	57	1	59	59	67	67	60	36	23	13	13	10	10	10	10
ADJUSTED PRESSURE	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12
ACTUAL DUCT LGH.	46	60	52	52	74	56	45	52	50	54	44	60	52	50	44	51	56	48	41	37	42	22	38	10
EQUIVALENT LENGTH	120	150	180	180	180	140	160	120	180	160	175	130	130	130	150	120	190	170	190	140	100	120	100	130
TOTAL EFFECTIVE LENGTH	166	210	232	232	254	196	205	172	230	214	219	190	182	180	194	171	246	218	231	177	142	142	138	140
ADJUSTED PRESSURE	0.07	0.06	0.05	0.05	0.05	0.06	0.06	0.07	0.05	0.06	0.05	0.06	0.07	0.07	0.06	0.07	0.05	0.06	0.05	0.07	0.08	0.08	0.09	0.09
ROUND DUCT SIZE	6	5	4	6	6	6	4	5	5	6	4	6	6	6	6	5	5	4	5	4	5	5	5	5
HEATING VELOCITY (ft/min)	153	206	115	158	148	138	115	352	206	153	23	214	214	229	229	235	140	264	279	436	470	470	470	470
COOLING VELOCITY (ft/min)	291	235	46	260	270	316	92	411	235	291	11	301	301	342	342	441	264	264	95	149	73	73	73	73
OUTLET GRILL SIZE	4X10	3X10	3X10	4X10	4X10	4X10	3X10	3X10	3X10	4X10	3X10	4X10	4X10	4X10	4X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10
TRUNK	F	A	B	D	C	A	D	D	B	F	B	C	C	A	B	A	D	C	C	D	B	F	B	F

RUN #	25	26	27	28	29	30	31	32
ROOM NAME	BAS	BAS	BED-2	BED-3	BATH	KT/FM	KT/FM	BED-3
RM LOSS MBH.	3.64	3.64	1.74	1.66	0.54	2.54	2.54	1.66
CFM PER RUN HEAT	64	64	31	29	10	45	45	29
RM GAIN MBH.	0.31	0.31	1.53	1.61	0.24	2.03	2.03	1.61
CFM PER RUN COOLING	10	10	51	53	8	67	67	53
ADJUSTED PRESSURE	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12
ACTUAL DUCT LGH.	41	53	57	63	49	31	19	65
EQUIVALENT LENGTH	160	150	180	140	170	120	110	200
TOTAL EFFECTIVE LENGTH	201	203	237	203	219	151	129	265
ADJUSTED PRESSURE	0.06	0.06	0.05	0.06	0.05	0.08	0.09	0.05
ROUND DUCT SIZE	6	6	6	6	4	5	5	6
HEATING VELOCITY (ft/min)	326	326	158	148	115	330	330	148
COOLING VELOCITY (ft/min)	51	51	260	270	92	492	492	270
OUTLET GRILL SIZE	4X10	4X10	4X10	4X10	3X10	3X10	3X10	4X10
TRUNK	C	C	D	C	D	F	F	C

SUPPLY AIR TRUNK SIZE													RETURN AIR TRUNK SIZE												
	TRUNK CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT		VELOCITY (ft/min)		TRUNK CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT		VELOCITY (ft/min)		TRUNK CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT		VELOCITY (ft/min)					
TRUNK A	132	0.06	7.1	8	x	8	297	TRUNK G	0	0.00	0	0	x	8	0	TRUNK O	0	0.05	0	0	x	8	0		
TRUNK B	345	0.05	10.6	14	x	8	444	TRUNK H	0	0.00	0	0	x	8	0	TRUNK P	0	0.05	0	0	x	8	0		
TRUNK C	360	0.05	10.8	14	x	8	463	TRUNK I	0	0.00	0	0	x	8	0	TRUNK Q	0	0.05	0	0	x	8	0		
TRUNK D	547	0.05	12.6	18	x	8	547	TRUNK J	0	0.00	0	0	x	8	0	TRUNK R	0	0.05	0	0	x	8	0		
TRUNK E	892	0.05	15.1	26	x	8	618	TRUNK K	0	0.00	0	0	x	8	0	TRUNK S	0	0.05	0	0	x	8	0		
TRUNK F	278	0.06	9.3	10	x	8	500	TRUNK L	0	0.00	0	0	x	8	0	TRUNK T	0	0.05	0	0	x	8	0		

RETURN AIR #	1	2	3	4	5	7	BR
FLOOR	2	2	2	2	1	1	B
AIR VOLUME	150	130	120	120	373	0	192
PLENUM PRESSURE	0.10	0.10	0.10	0.10	0.10	0.10	0.10
ACTUAL DUCT LGH.	45	66	57	67	44	1	14
EQUIVALENT LENGTH	135	155	135	140	175	0	150
TOTAL EFFECTIVE LH	180	221	192	207	219	1	164
ADJUSTED PRESSURE	0.06	0.05	0.05	0.05	0.05	10.00	0.06
ROUND DUCT SIZE	7.4	7.3	7	7	10.9	0	8
INLET GRILL SIZE	8	8	8	8	8	0	8
	X	X	X	X	X	X	X
INLET GRILL SIZE	14	14	14	14	30	0	24

TYPE: 45-4C
SITE NAME: ALCONA

LO # 103450

RESIDENTIAL MECHANICAL VENTILATION DESIGN SUMMARY

COMBUSTION APPLIANCES 9.32.3.1(1)

a) ☒ Direct vent (sealed combustion) only

b) ☐ Positive venting induced draft (except fireplaces)

c) ☐ Natural draft, B-vent or induced draft gas fireplace

d) ☐ Solid Fuel (including fireplaces)

e) ☐ No Combustion Appliances

HEATING SYSTEM

☒ Forced Air ☐ Non Forced Air

☐ Electric Space Heat

HOUSE TYPE 9.32.1(2)

☒ I Type a) or b) appliance only, no solid fuel

☐ II Type I except with solid fuel (including fireplaces)

☐ III Any Type c) appliance

☐ IV Type I, or II with electric space heat

☐ Other: Type I, II or IV no forced air

SYSTEM DESIGN OPTIONS O.N.H.W.P.

☐ 1 Exhaust only/Forced Air System

☐ 2 HRV with Ducting/Forced Air System

☒ 3 HRV Simplified/connected to forced air system

☐ 4 HRV with Ducting/non forced air system

☐ Part 6 Design

TOTAL VENTILATION CAPACITY 9.32.3.3(1)

Basement + Master Bedroom	2	@ 21.2 cfm	42.4	cfm
Other Bedrooms	3	@ 10.6 cfm	31.8	cfm
Kitchen & Bathrooms	5	@ 10.6 cfm	53	cfm
Other Rooms	5	@ 10.6 cfm	53.0	cfm
Table 9.32.3.A.	TOTAL			180.2 cfm

PRINCIPAL VENTILATION CAPACITY REQUIRED 9.32.3.4.(1)

1	Bedroom	31.8	cfm
2	Bedroom	47.7	cfm
3	Bedroom	63.6	cfm
4	Bedroom	79.5	cfm
5	Bedroom	95.4	cfm
TOTAL		79.5	cfm

SUPPLEMENTAL VENTILATION CAPACITY 9.32.3.5.

Total Ventilation Capacity	180.2	cfm
Less Principal Ventil. Capacity	79.5	cfm
Required Supplemental Capacity	100.7	cfm

PRINCIPAL EXHAUST FAN CAPACITY

Model: VANEE V150H Location: BSMT

79.5 cfm ☒ HVI Approved

PRINCIPAL EXHAUST HEAT LOSS CALCULATION

CFM	ΔT °F	FACTOR	% LOSS
79.5 CFM	X 83 F	X 1.08	X 0.25

SUPPLEMENTAL FANS BY INSTALLING CONTRACTOR

Location	Model	cfm	HVI	Sones
ENS	BY INSTALLING CONTRACTOR	50	✓	3.5
BATH	BY INSTALLING CONTRACTOR	50	✓	3.5
ENS-3	BY INSTALLING CONTRACTOR	50	✓	3.5
W/R	BY INSTALLING CONTRACTOR	50	✓	3.5

HEAT RECOVERY VENTILATOR 9.32.3.11.

Model: VANEE V150H

150 cfm high 35 cfm low

75 % Sensible Efficiency @ 32 deg F (0 deg C) ☒ HVI Approved

LOCATION OF INSTALLATION

Lot: Concession

Township: Plan:

Address:

Roll # Building Permit #

BUILDER: BAYVIEW WELLINGTON

Name:

Address:

City:

Telephone #: Fax #:

INSTALLING CONTRACTOR

Name:

Address:

City:

Telephone #: Fax #:

DESIGNER CERTIFICATION

I hereby certify that this ventilation system has been designed in accordance with the Ontario Building Code.

Name: HVAC Designs Ltd.

Signature: *Michael O'Rourke*

HRAI # 001820

Date: December-23



CSA F280-12 Residential Heat Loss and Heat Gain Calculations																																																								
Formula Sheet (For Air Leakage / Ventilation Calculation)																																																								
LO#: 103450	Model: 45-4C	Builder: BAYVIEW WELLINGTON	Date: 2023-12-08																																																					
Volume Calculation			Air Change & Delta T Data																																																					
House Volume			<table border="1" style="width: 100%; border-collapse: collapse;"><tr><td style="width: 70%;">WINTER NATURAL AIR CHANGE RATE</td><td style="width: 30%;">0.362</td></tr><tr><td>SUMMER NATURAL AIR CHANGE RATE</td><td>0.082</td></tr></table>		WINTER NATURAL AIR CHANGE RATE	0.362	SUMMER NATURAL AIR CHANGE RATE	0.082																																																
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<table border="1" style="width: 100%; border-collapse: collapse;"><thead><tr><th>Level</th><th>Floor Area (ft²)</th><th>Floor Height (ft)</th><th>Volume (ft³)</th></tr></thead><tbody><tr><td>Bsmt</td><td>1397</td><td>9</td><td>12573</td></tr><tr><td>First</td><td>1397</td><td>10</td><td>13970</td></tr><tr><td>Second</td><td>1738</td><td>9</td><td>15642</td></tr><tr><td>Third</td><td>0</td><td>9</td><td>0</td></tr><tr><td>Fourth</td><td>0</td><td>9</td><td>0</td></tr><tr><td colspan="2" style="text-align: right;">Total:</td><td></td><td>42,185.0 ft³</td></tr><tr><td colspan="2" style="text-align: right;">Total:</td><td></td><td>1194.5 m³</td></tr></tbody></table>			Level	Floor Area (ft ²)	Floor Height (ft)	Volume (ft ³)	Bsmt	1397	9	12573	First	1397	10	13970	Second	1738	9	15642	Third	0	9	0	Fourth	0	9	0	Total:			42,185.0 ft ³	Total:			1194.5 m ³	<table border="1" style="width: 100%; border-collapse: collapse;"><thead><tr><th colspan="5" style="text-align: center;">Design Temperature Difference</th></tr><tr><th></th><th>T_{in} °C</th><th>T_{out} °C</th><th>ΔT °C</th><th>ΔT °F</th></tr></thead><tbody><tr><td>Winter DTD_h</td><td>22</td><td>-24</td><td>46</td><td>83</td></tr><tr><td>Summer DTD_c</td><td>24</td><td>29</td><td>5</td><td>9</td></tr></tbody></table>		Design Temperature Difference						T _{in} °C	T _{out} °C	ΔT °C	ΔT °F	Winter DTD _h	22	-24	46	83	Summer DTD _c	24	29	5	9
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5.2.3.1 Heat Loss due to Air Leakage			6.2.6 Sensible Gain due to Air Leakage																																																					
$HL_{airb} = LR_{airh} \times \frac{V_b}{3.6} \times DTD_h \times 1.2$ 0.362 x 331.82 x 46 °C x 1.2 = 6666 W = 22745 Btu/h			$HG_{salb} = LR_{airc} \times \frac{V_b}{3.6} \times DTD_c \times 1.2$ 0.082 x 331.82 x 5 °C x 1.2 = 167 W = 570 Btu/h																																																					
5.2.3.2 Heat Loss due to Mechanical Ventilation			6.2.7 Sensible heat Gain due to Ventilation																																																					
$HL_{vairb} = PVC \times DTD_h \times 1.08 \times (1 - E)$ 80 CFM x 83 °F x 1.08 x 0.25 = 1786 Btu/h			$HL_{vairb} = PVC \times DTD_h \times 1.08 \times (1 - E)$ 80 CFM x 9 °F x 1.08 x 0.25 = 197 Btu/h																																																					
5.2.3.3 Calculation of Air Change Heat Loss for Each Room (Floor Multiplier Section)																																																								
$HL_{airr} = Level\ Factor \times HL_{airbv} \times \{(HL_{agcr} + HL_{bgcr}) \div (HL_{agclevel} + HL_{bgclevel})\}$																																																								
Level	Level Factor (LF)	HL _{airve} Air Leakage + Ventilation Heat Loss (Btu/h)	Level Conductive Heat Loss: (HL _{clevel})	Air Leakage Heat Loss Multiplier (LF x HL _{airbv} / HL _{clevel})																																																				
1	0.5	22,745	10,445	1.089																																																				
2	0.3		15,458	0.441																																																				
3	0.2		16,980	0.268																																																				
4	0		0	0.000																																																				
5	0		0	0.000																																																				
*HL_{airbv} = Air leakage heat loss + ventilation heat loss *For a balanced or supply only ventilation system HL_{airve} = 0																																																								
				Michael O'Rourke BCIN# 19669																																																				



HEAT LOSS AND GAIN SUMMARY SHEET

MODEL: 45-4C BUILDER: BAYVIEW WELLINGTON
SFQT: 3135 LO# 103450 SITE: ALCONA

DESIGN ASSUMPTIONS

HEATING	°F	COOLING	°F
OUTDOOR DESIGN TEMP.	-11	OUTDOOR DESIGN TEMP.	84
INDOOR DESIGN TEMP.	72	INDOOR DESIGN TEMP. (MAX 75°F)	75
		WINDOW SHGC	0.60

BUILDING DATA

ATTACHMENT:	DETACHED	# OF STORIES (+BASEMENT):	3
FRONT FACES:	EAST	ASSUMED (Y/N):	Y
AIR CHANGES PER HOUR:	3.57	ASSUMED (Y/N):	Y
AIR TIGHTNESS CATEGORY:	AVERAGE	ASSUMED (Y/N):	Y
WIND EXPOSURE:	SHELTERED	ASSUMED (Y/N):	Y
HOUSE VOLUME (ft³):	42185.0	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	5
INTERIOR LIGHTING LOAD (Btu/h/ft²):	1.27	DC BRUSHLESS MOTOR (Y/N):	Y
FOUNDATION CONFIGURATION	BCIN_1	DEPTH BELOW GRADE:	6.0 ft
LENGTH: 55.0 ft	WIDTH: 37.0 ft	EXPOSED PERIMETER:	184.0 ft

2012 OBC - COMPLIANCE PACKAGE

Component

Compliance Package A1

Nominal Min. Eff.

Ceiling with Attic Space Minimum RSI (R)-Value	60	59.22
Ceiling Without Attic Space Minimum RSI (R)-Value	31	27.65
Exposed Floor Minimum RSI (R)-Value	31	29.80
Walls Above Grade Minimum RSI (R)-Value	22	17.03
Basement Walls Minimum RSI (R)-Value	20 ci	21.12
Below Grade Slab Entire surface > 600 mm below grade Minimum RSI (R)-Value	-	-
Edge of Below Grade Slab ≤ 600 mm Below Grade Minimum RSI (R)-Value	10	10
Heated Slab or Slab ≤ 600 mm below grade Minimum RSI (R)-Value	10	11.13
Windows and Sliding Glass Doors Maximum U-Value	0.28	-
Skylights Maximum U-Value	0.49	-
Space Heating Equipment Minimum AFUE	96%	-
HRV/ERV Minimum Efficiency	75%	-
Domestic Hot Water Heater Minimum EF	0.8	-

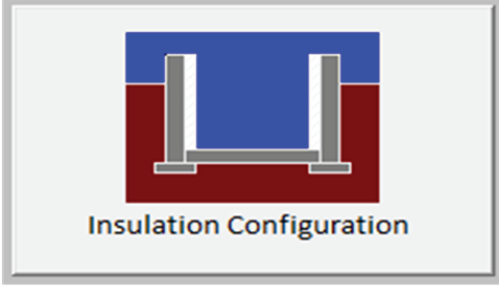
INDIVIDUAL BCIN: 19669

MICHAEL O'ROURKE



Residential Foundation Thermal Load Calculator

Supplemental tool for CAN/CSA-F280

Weather Station Description		
Province:	Ontario	
Region:	Barrie	
Site Description		
Soil Conductivity:	Normal conductivity: dry sand, loam, clay	
Water Table:	Normal (7-10 m, 23-33 ft)	
Foundation Dimensions		
Floor Length (m):	16.8	
Floor Width (m):	11.3	
Exposed Perimeter (m):	0.0	
Wall Height (m):	2.7	
Depth Below Grade (m):	1.83	
Window Area (m ²):	3.2	
Door Area (m ²):	1.9	
Radiant Slab		
Heated Fraction of the Slab:	0	
Fluid Temperature (°C):	33	
Design Months		
Heating Month	1	
Foundation Loads		
Heating Load (Watts):		1937

TYPE: 45-4C
LO# 103450



Air Infiltration Residential Load Calculator

Supplemental tool for CAN/CSA-F280

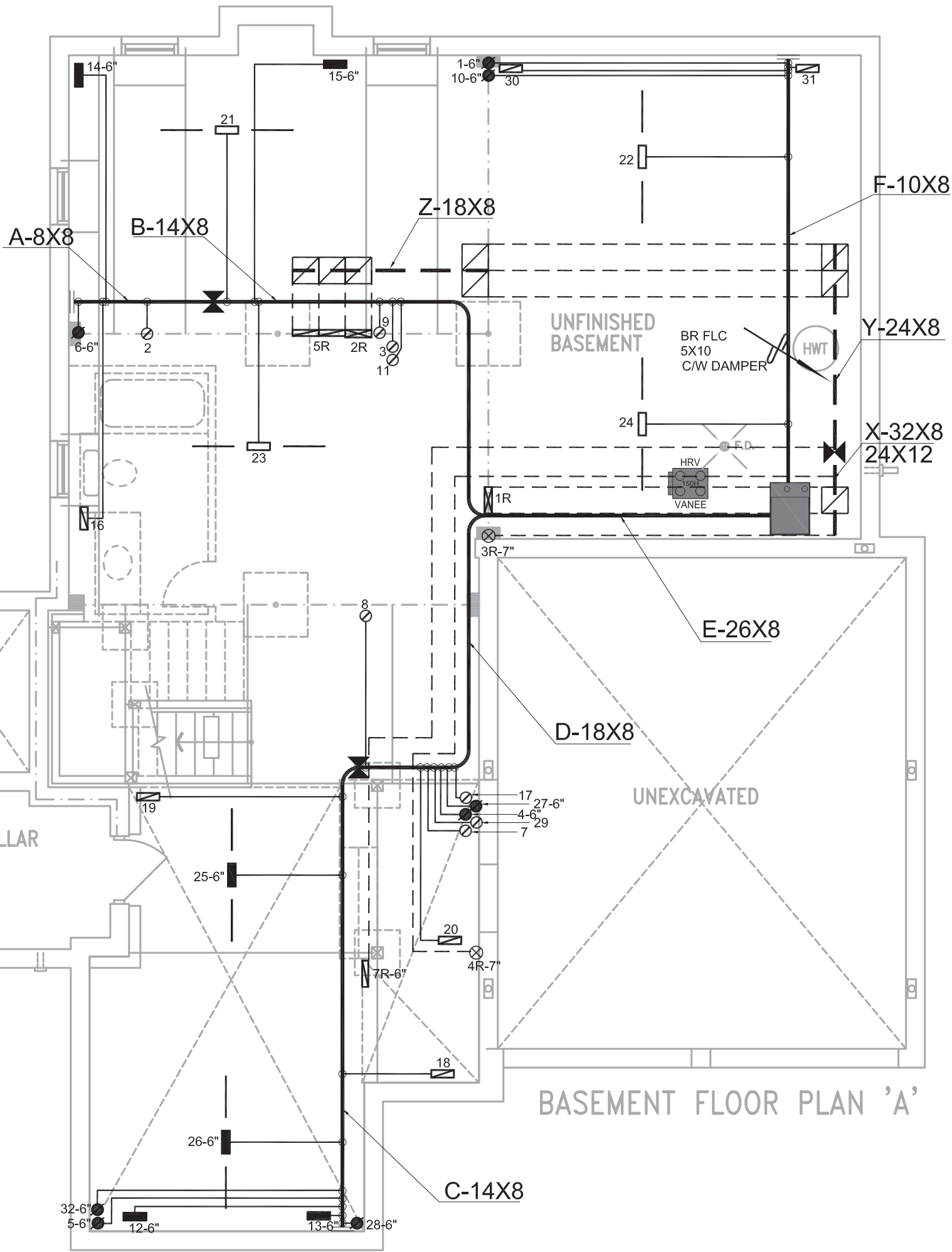
Weather Station Description				
Province:	Ontario			
Region:	Barrie			
Weather Station Location:	Open flat terrain, grass			
Anemometer height (m):	10			
Local Shielding				
Building Site:	Suburban, forest			
Walls:	Heavy			
Flue:	Heavy			
Highest Ceiling Height (m):	7.62			
Building Configuration				
Type:	Detached			
Number of Stories:	Two			
Foundation:	Full			
House Volume (m ³):	1194.5			
Air Leakage/Ventilation				
Air Tightness Type:	Present (1961-) (3.57 ACH)			
Custom BDT Data:	ELA @ 10 Pa.	1592.4 cm ²		
	3.57	ACH @ 50 Pa		
Mechanical Ventilation (L/s):	Total Supply	Total Exhaust		
	37.5	37.5		
Flue Size				
Flue #:	#1	#2	#3	#4
Diameter (mm):	0	0	0	0
Natural Infiltration Rates				
Heating Air Leakage Rate (ACH/H):	0.362			
Cooling Air Leakage Rate (ACH/H):	0.082			

TYPE: 45-4C
LO# 103450

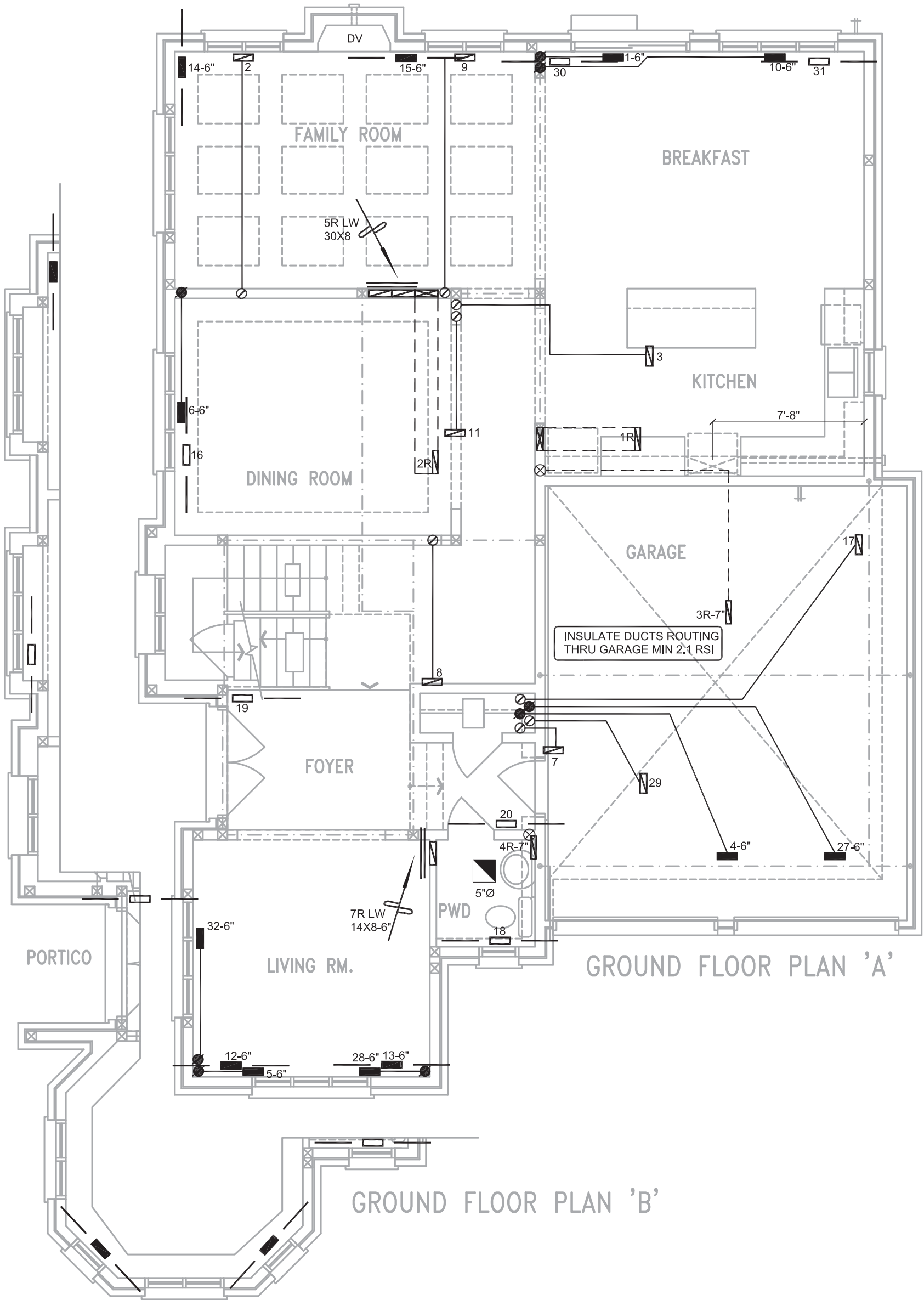
Michael O'Rourke BCIN# 19669



PARTIAL BASEMENT FLOOR PLAN W.O.D.
9R AND MORE COND.



HVAC LEGEND								3.			
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	2.			
	SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		14"x8" RETURN AIR GRILLE		RETURN AIR STACK ABOVE	1.			
	SUPPLY AIR GRILLE 6" BOOT		SUPPLY AIR STACK FROM 2nd FLOOR		30"x8" RETURN AIR GRILLE		RETURN AIR STACK 2nd FLOOR	No.	Description	Date	
	SUPPLY AIR BOOT ABOVE		6" SUPPLY AIR STACK 2nd FLOOR		FRA- FLOOR RETURN AIR GRILLE		REDUCER	REVISIONS			
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Client		375 Finley Ave. Suite 202 - Ajax, Ontario L1S 2E2 Tel. 905.619.2300 - 905.420.5300 Fax 905.619.2375 Email: info@hvacdesigns.ca Web: www.hvacdesigns.ca Specializing in Residential Mechanical Design Services Installation to comply with the latest Ontario Building Code. All supply branch outlets shall be equipped with a manual balancing damper. Ductwork which passes through the garage or unheated spaces shall be adequately insulated and be gas-proofed.				HEAT LOSS 67924 BTU/H		# OF RUNS S/A R/A FANS		Sheet Title	
BAYVIEW WELLINGTON						UNIT DATA		3RD FLOOR		BASEMENT HEATING LAYOUT	
Project Name						LENNOX		2ND FLOOR		16 4 4	
ALCONA						MODEL		1ST FLOOR		10 2 2	
INNISFIL, ONTARIO						INPUT		BASEMENT		6 1 0	
						88 MBTU/H				Date DEC/2023	
						OUTPUT		ALL S/A DIFFUSERS 4 "x10" UNLESS NOTED OTHERWISE ON LAYOUT. ALL S/A RUNS 5"Ø UNLESS NOTED OTHERWISE ON LAYOUT. UNDERCUT DOORS 1" min. FOR R/A		Scale 3/16" = 1'-0"	
						85.6 MBTU/H				BCIN# 19669	
						COOLING				LO# 103450	
						3.0 TONS					
						FAN SPEED					
						1170 cfm @ 0.6" w.c.					



HVAC LEGEND								3.		
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	2.		
	SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		14"x8" RETURN AIR GRILLE		RETURN AIR STACK ABOVE	1.		
	SUPPLY AIR GRILLE 6" BOOT		SUPPLY AIR STACK FROM 2nd FLOOR		30"x8" RETURN AIR GRILLE		RETURN AIR STACK 2nd FLOOR	No.	Description	Date
	SUPPLY AIR BOOT ABOVE		6" SUPPLY AIR STACK 2nd FLOOR		FRA- FLOOR RETURN AIR GRILLE		REDUCER	REVISIONS		

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Michael O'Rourke
Michael O'Rourke BCIN # 19669
HVAC Designs Ltd.

PACKAGE A1

Client	BAYVIEW WELLINGTON
Project Name	ALCONA INNISFIL, ONTARIO
45-4C	3135 sqft

HVACDESIGNS LTD.
375 Finley Ave. Suite 202 - Ajax, Ontario
L1S 2E2 Tel. 905.619.2300 - 905.420.5300 Fax 905.619.2375
Email: info@hvacdesigns.ca
Web: www.hvacdesigns.ca
Specializing in Residential Mechanical Design Services

Installation to comply with the latest Ontario Building Code. All supply branch outlets shall be equipped with a manual balancing damper. Ductwork which passes through the garage or unheated spaces shall be adequately insulated and be gas-proofed.

Sheet Title	FIRST FLOOR HEATING LAYOUT
Date	DEC/2023
Scale	3/16" = 1'-0"
	BCIN# 19669
LO#	103450

