


## Schedule 1: Designer Information

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

<b>A. Project Information</b>			
Building number, street name		Unit no.	Lot/con.
Municipality INNINFILL	Postal code	Plan number/ other description	
<b>B. Individual who reviews and takes responsibility for design activities</b>			
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 ( )	
<b>C. Design activities undertaken by individual identified in Section B. [Building Code Table 3.5.2.1 OF Division C]</b>			
<input type="checkbox"/> House <input type="checkbox"/> Small Buildings <input type="checkbox"/> Large Buildings <input type="checkbox"/> Complex Buildings <input checked="" type="checkbox"/> HVAC – House <input type="checkbox"/> Building Services <input type="checkbox"/> Detection, Lighting and Power <input type="checkbox"/> Fire Protection <input type="checkbox"/> Building Structural <input type="checkbox"/> Plumbing – House <input type="checkbox"/> Plumbing – All Buildings <input type="checkbox"/> 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: RL-2  BLK 3  Project: ALCONA	
<b>D. Declaration of Designer</b>			
I, <u>MICHAEL O'ROURKE</u> declare that (choose one as appropriate): (print name)			
<input type="checkbox"/> 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: _____			
<input checked="" type="checkbox"/> 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>			
<input type="checkbox"/> 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.			
July 8, 2022		 Signature of Designer	
Date			

**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				BLK 3		DATE: Jul-22		WINTER NATURAL AIR CHANGE RATE 0.439			HEAT LOSS ΔT °F. 83		CSA-F280-12								
BUILDER: BAYVIEW WELLINGTON HOMES				TYPE: RL-2		GFA: 1925		LO# 97831		SUMMER NATURAL AIR CHANGE RATE 0.097			HEAT GAIN ΔT °F. 9		SB-12 PACKAGE A1						
ROOM USE				MBR		ENS		BED-2		BED-3				WIC2		ENS3					
EXP. WALL				22		25		16		10				6		11					
CLG. HT.				9		9		9		9				9		9					
FACTORS																					
GRS.WALL AREA		LOSS GAIN		198		225		144		90				54		99					
GLAZING				LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN				LOSS GAIN		LOSS GAIN					
NORTH		23.3	15.0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	
EAST		23.3	40.5	33	769	1338	0	0	0	22	513	892	0	0	0	11	256	446	0	0	0
SOUTH		23.3	23.9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WEST		23.3	40.5	0	0	0	27	629	1095	0	0	0	24	559	973	0	0	0	24	559	973
SKYLT.		40.8	99.8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DOORS		22.0	2.4	20	439	49	0	0	0	20	439	49	0	0	0	0	0	0	0	0	0
NET EXPOSED WALL		4.9	0.5	145	708	78	198	967	107	102	498	55	66	322	36	43	210	23	75	366	41
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
EXPOSED CLG		1.4	0.5	375	527	198	156	219	82	0	0	0	0	0	0	0	0	0	0	0	0
NO ATTIC EXPOSED CLG		3.0	1.1	0	0	0	0	0	0	0	0	0	130	391	147	0	0	0	0	0	0
EXPOSED FLOOR		2.8	0.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BASEMENT/CRAWL HEAT LOSS				0		0		0		0		0		0		0		0		0	
SLAB ON GRADE HEAT LOSS				0		0		0		0		0		0		0		0		0	
SUBTOTAL HT LOSS				2443		1815		1450		1273				466		926					
SUB TOTAL HT GAIN						1662				996		1155		469		1014					
LEVEL FACTOR / MULTIPLIER		0.10		0.36		0.10		0.36		0.20		0.74		0.20		0.74					
AIR CHANGE HEAT LOSS				874		650		1074		943				346		686					
AIR CHANGE HEAT GAIN				77		60		46		54				22		47					
DUCT LOSS				0		0		0		0				0		0					
DUCT GAIN				0		0		0		0				0		0					
HEAT GAIN PEOPLE		240		2		480	0		0	1		240	1		240	0		0		0	
HEAT GAIN APPLIANCES/LIGHTS				647		0		647		647				647		0				0	
TOTAL HT LOSS BTU/H				3318		2465		2524		2216				812		1611					
TOTAL HT GAIN x 1.3 BTU/H				3727		1747		2508		2726				1480		1379					

ROOM USE				GRT		KT/BR		FOY		MUD		BAS	
EXP. WALL				13		17		9		5		44	
CLG. HT.				10		10		10		10		9	
FACTORS													
GRS.WALL AREA		LOSS GAIN		130		170		90		50		264	
GLAZING				LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN	
NORTH		23.3	15.0	0	0	0	0	0	0	0	0	0	0
EAST		23.3	40.5	39	909	1581	0	0	0	20	466	811	4
SOUTH		23.3	23.9	0	0	0	0	0	0	0	0	0	0
WEST		23.3	40.5	0	0	0	43	1002	1743	0	0	0	4
SKYLT.		40.8	99.8	0	0	0	0	0	0	0	0	0	0
DOORS		22.0	2.4	0	0	0	0	0	0	10	220	24	20
NET EXPOSED WALL		4.9	0.5	91	445	49	127	620	69	60	293	32	30
NET EXPOSED BSMT WALL ABOVE GR		3.9	0.4	0	0	0	0	0	0	0	0	0	0
EXPOSED CLG		1.4	0.5	0	0	0	0	0	0	0	0	0	0
NO ATTIC EXPOSED CLG		3.0	1.1	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	0
BASEMENT/CRAWL HEAT LOSS				0		0		0		0		1455	
SLAB ON GRADE HEAT LOSS				0		0		0		0			
SUBTOTAL HT LOSS				1353		1622		979		586		2601	
SUB TOTAL HT GAIN						1812				65		430	
LEVEL FACTOR / MULTIPLIER		0.30		1.01		0.30		1.01		0.30		1.01	
AIR CHANGE HEAT LOSS				1363		1634		986		590		6097	
AIR CHANGE HEAT GAIN				76		84		40		3		20	
DUCT LOSS				0		0		0		0		0	
DUCT GAIN				0		0		0		0		0	
HEAT GAIN PEOPLE		240		0		0	0	0	0	0	0	0	0
HEAT GAIN APPLIANCES/LIGHTS				647		647		0		0		647	
TOTAL HT LOSS BTU/H				2716		3256		1964		1176		8698	
TOTAL HT GAIN x 1.3 BTU/H				3060		3307		1180		88		1427	

TOTAL HEAT GAIN BTU/H: 22788

TONS: 1.90

LOSS DUE TO VENTILATION LOAD BTU/H: 1429

STRUCTURAL HEAT LOSS: 30756

TOTAL COMBINED HEAT LOSS BTU/H: 32184

SITE NAME: ALCONA  
BUILDER: BAYVIEW WELLINGTON HOMES

BLK 3  
TYPE: RL-2

DATE: Jul-22

GFA: 1925 LO# 97831

HEATING CFM 980 COOLING CFM 980  
TOTAL HEAT LOSS 30,756 TOTAL HEAT GAIN 22,630  
AIR FLOW RATE CFM 31.86 AIR FLOW RATE CFM 43.31

furnace pressure 0.6  
furnace filter 0.05  
a/c coil pressure 0.2  
available pressure  
for s/a & r/a 0.35

\$LENNOX  
ML196UH045XE36B 45  
FAN SPEED  
LOW 620  
MEDLOW 685  
MEDIUM 980  
MEDIUM HIGH 1110  
HIGH 0

AFUE = 96 %  
INPUT (BTU/H) = 44,000  
OUTPUT (BTU/H) = 42,800

DESIGN CFM = 980  
CFM @ .6" E.S.P.

TEMPERATURE RISE 40 °F

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	3	6	6	3
R/A	0	1	2	1	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	8	10	11	12	13	14	15	16	19	21	23	24
ROOM NAME	MBR	ENS	BED-2	BED-2	BED-3	BED-3	WIC2	MBR	ENS3	GRT	GRT	MUD	KT/BR	KT/BR	FOY	BAS	BAS	BAS
RM LOSS MBH.	1.66	2.47	1.26	1.26	1.11	1.11	0.81	1.66	1.61	1.36	1.36	1.18	1.63	1.63	1.96	2.90	2.90	2.90
CFM PER RUN HEAT	53	79	40	40	35	35	26	53	51	43	43	37	52	52	63	92	92	92
RM GAIN MBH.	1.86	1.75	1.25	1.25	1.36	1.36	1.48	1.86	1.38	1.53	1.53	0.09	1.65	1.65	1.18	0.48	0.48	0.48
CFM PER RUN COOLING	81	76	54	54	59	59	64	81	60	66	66	4	72	72	51	21	21	21
ADJUSTED PRESSURE	0.16	0.17	0.17	0.17	0.17	0.17	0.17	0.16	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.16	0.16	0.16
ACTUAL DUCT LGH.	57	60	51	55	58	52	47	67	42	24	30	28	14	17	27	21	13	24
EQUIVALENT LENGTH	210	190	140	130	130	140	150	220	160	120	120	110	90	120	120	110	130	120
TOTAL EFFECTIVE LENGTH	267	250	191	185	188	192	197	287	202	144	150	138	104	137	147	131	143	144
ADJUSTED PRESSURE	0.06	0.07	0.09	0.09	0.09	0.09	0.09	0.06	0.09	0.12	0.11	0.12	0.17	0.13	0.12	0.12	0.11	0.11
ROUND DUCT SIZE	6	6	5	5	5	5	5	6	5	5	5	4	5	5	5	6	6	6
HEATING VELOCITY (ft/min)	270	403	294	294	257	257	191	270	374	316	316	424	382	382	463	469	469	469
COOLING VELOCITY (ft/min)	413	388	396	396	433	433	470	413	441	485	485	46	529	529	374	107	107	107
OUTLET GRILL SIZE	4X10	4X10	3X10	3X10	3X10	3X10	3X10	4X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	4X10	4X10	4X10
TRUNK	B	A	A	A	B	B	B	B	A	E	E	D	F	D	E	D	E	E

RUN #	
ROOM NAME	
RM LOSS MBH.	
CFM PER RUN HEAT	
RM GAIN MBH.	
CFM PER RUN COOLING	
ADJUSTED PRESSURE	
ACTUAL DUCT LGH.	
EQUIVALENT LENGTH	
TOTAL EFFECTIVE LENGTH	
ADJUSTED PRESSURE	
ROUND DUCT SIZE	
HEATING VELOCITY (ft/min)	
COOLING VELOCITY (ft/min)	
OUTLET GRILL SIZE	
TRUNK	

SUPPLY AIR TRUNK SIZE								RETURN AIR TRUNK SIZE							
TRUNK	STATIC	ROUND	RECT	VELOCITY				TRUNK	STATIC	ROUND	RECT	VELOCITY			
CFM	PRESS.	DUCT	DUCT	(ft/min)				CFM	PRESS.	DUCT	DUCT	(ft/min)			
TRUNK A	210	0.07	8.1	8	x	8	473	TRUNK G	0	0.00	0	0	x	8	0
TRUNK B	202	0.06	8.3	8	x	8	455	TRUNK H	0	0.00	0	0	x	8	0
TRUNK C	412	0.06	10.8	14	x	8	530	TRUNK I	0	0.00	0	0	x	8	0
TRUNK D	181	0.12	6.7	8	x	8	407	TRUNK J	0	0.00	0	0	x	8	0
TRUNK E	333	0.11	8.6	8	x	8	749	TRUNK K	0	0.00	0	0	x	8	0
TRUNK F	566	0.11	10.5	14	x	8	728	TRUNK L	0	0.00	0	0	x	8	0

RETURN AIR #	1	2	3	4												BR
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
AIR VOLUME	230	145	115	360	0	0	0	0	0	0	0	0	0	0	0	130
PLENUM PRESSURE	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15
ACTUAL DUCT LGH.	66	51	75	24	1	1	1	1	1	1	1	1	1	1	1	14
EQUIVALENT LENGTH	220	175	205	160	0	0	0	0	0	0	0	0	0	0	0	135
TOTAL EFFECTIVE LH	286	226	280	184	1	1	1	1	1	1	1	1	1	1	1	149
ADJUSTED PRESSURE	0.05	0.07	0.05	0.08	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	0.10
ROUND DUCT SIZE	9.1	7	7	9.6	0	0	0	0	0	0	0	0	0	0	0	6.2
INLET GRILL SIZE	8	8	8	8	0	0	0	0	0	0	0	0	0	0	0	8
	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
INLET GRILL SIZE	30	14	14	30	0	0	0	0	0	0	0	0	0	0	0	14

TRUNK O	0	0.05	0	0	x	8	0
TRUNK P	0	0.05	0	0	x	8	0
TRUNK Q	0	0.05	0	0	x	8	0
TRUNK R	0	0.05	0	0	x	8	0
TRUNK S	0	0.05	0	0	x	8	0
TRUNK T	0	0.05	0	0	x	8	0
TRUNK U	0	0.05	0	0	x	8	0
TRUNK V	0	0.05	0	0	x	8	0
TRUNK W	0	0.05	0	0	x	8	0
TRUNK X	980	0.05	15.7	28	x	8	630
TRUNK Y	475	0.05	11.9	16	x	8	534
TRUNK Z	0	0.05	0	0	x	8	0
DROP	980	0.05	15.7	24	x	10	588

TYPE: RL-2  
SITE NAME: ALCONA

LO # 97831  
BLK 3

# RESIDENTIAL MECHANICAL VENTILATION DESIGN SUMMARY

COMBUSTION APPLIANCES		9.32.3.1(1)
a)	<input checked="" type="checkbox"/> Direct vent (sealed combustion) only	
b)	<input type="checkbox"/> Positive venting induced draft (except fireplaces)	
c)	<input type="checkbox"/> Natural draft, B-vent or induced draft gas fireplace	
d)	<input type="checkbox"/> Solid Fuel (including fireplaces)	
e)	<input type="checkbox"/> No Combustion Appliances	

HEATING SYSTEM	
<input checked="" type="checkbox"/> Forced Air	<input type="checkbox"/> Non Forced Air
<input type="checkbox"/> Electric Space Heat	

HOUSE TYPE		9.32.1(2)
<input checked="" type="checkbox"/> I	Type a) or b) appliance only, no solid fuel	
<input type="checkbox"/> II	Type I except with solid fuel (including fireplaces)	
<input type="checkbox"/> III	Any Type c) appliance	
<input type="checkbox"/> IV	Type I, or II with electric space heat	
<input type="checkbox"/>	Other: Type I, II or IV no forced air	

SYSTEM DESIGN OPTIONS		O.N.H.W.P.
<input type="checkbox"/> 1	Exhaust only/Forced Air System	
<input type="checkbox"/> 2	HRV with Ducting/Forced Air System	
<input checked="" type="checkbox"/> 3	HRV Simplified/connected to forced air system	
<input type="checkbox"/> 4	HRV with Ducting/non forced air system	
<input type="checkbox"/>	Part 6 Design	

TOTAL VENTILATION CAPACITY		9.32.3.3(1)
Basement + Master Bedroom	<u>2</u> @ 21.2 cfm <u>42.4</u> cfm	
Other Bedrooms	<u>2</u> @ 10.6 cfm <u>21.2</u> cfm	
Kitchen & Bathrooms	<u>5</u> @ 10.6 cfm <u>53</u> cfm	
Other Rooms	<u>4</u> @ 10.6 cfm <u>42.4</u> cfm	
Table 9.32.3.A.	TOTAL <u>159.0</u> 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	<b>63.6 cfm</b>	

SUPPLEMENTAL VENTILATION CAPACITY		9.32.3.5.
Total Ventilation Capacity	<u>159</u> cfm	
Less Principal Ventil. Capacity	<u>63.6</u> cfm	
Required Supplemental Capacity	<u>95.4</u> cfm	

PRINCIPAL EXHAUST FAN CAPACITY	
Model: VANEE V150H	Location: BSMT
<u>63.6</u> cfm	<input checked="" type="checkbox"/> HVI Approved

PRINCIPAL EXHAUST HEAT LOSS CALCULATION			
CFM	ΔT °F	FACTOR	% LOSS
63.6 CFM	X 83 F	X 1.08	X 0.25

SUPPLEMENTAL FANS		BY INSTALLING CONTRACTOR	
Location	Model	cfm	HVI
ENS	BY INSTALLING CONTRACTOR	50	<input checked="" type="checkbox"/>
ENS3	BY INSTALLING CONTRACTOR	50	<input checked="" type="checkbox"/>


HEAT RECOVERY VENTILATOR		9.32.3.11.
Model: VANEE V150H		
<u>150</u> cfm high	<u>35</u> cfm low	
<u>75</u> % Sensible Efficiency	<input checked="" type="checkbox"/> HVI Approved	
@ 32 deg F ( 0 deg C)		

LOCATION OF INSTALLATION	
Lot:	Concession
Township	Plan:
Address	
Roll #	Building Permit #

BUILDER:	
BAYVIEW WELLINGTON HOMES	
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:	<i>Michael O'Rourke</i>
HRAI #	001820
Date:	July-22

CSA F280-12 Residential Heat Loss and Heat Gain Calculations																																																												
Formula Sheet (For Air Leakage / Ventilation Calculation)																																																												
LO#: 97831		Model: RL-2		Builder: BAYVIEW WELLINGTON HOMES																																																								
				Date: 2022-07-08																																																								
Volume Calculation			Air Change & Delta T Data																																																									
<div>House Volume</div> <table><tr><th>Level</th><th>Floor Area (ft²)</th><th>Floor Height (ft)</th><th>Volume (ft³)</th></tr><tr><td>Bsmt</td><td>661</td><td>9</td><td>5949</td></tr><tr><td>First</td><td>661</td><td>10</td><td>6610</td></tr><tr><td>Second</td><td>661</td><td>9</td><td>5949</td></tr><tr><td>Third</td><td>535</td><td>9</td><td>4815</td></tr><tr><td>Fourth</td><td>0</td><td>9</td><td>0</td></tr><tr><td colspan="2"></td><td>Total:</td><td>23,323.0 ft³</td></tr><tr><td colspan="2"></td><td>Total:</td><td>660.4 m³</td></tr></table>			Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)	Bsmt	661	9	5949	First	661	10	6610	Second	661	9	5949	Third	535	9	4815	Fourth	0	9	0			Total:	23,323.0 ft³			Total:	660.4 m³	<table><tr><td>WINTER NATURAL AIR CHANGE RATE</td><td>0.439</td></tr><tr><td>SUMMER NATURAL AIR CHANGE RATE</td><td>0.097</td></tr></table> <table><tr><th colspan="5">Design Temperature Difference</th></tr><tr><td></td><td>Tin °C</td><td>Tout °C</td><td>ΔT °C</td><td>ΔT °F</td></tr><tr><td>Winter DTDh</td><td>22</td><td>-24</td><td>46</td><td>83</td></tr><tr><td>Summer DTDc</td><td>24</td><td>29</td><td>5</td><td>9</td></tr></table>		WINTER NATURAL AIR CHANGE RATE	0.439	SUMMER NATURAL AIR CHANGE RATE	0.097	Design Temperature Difference						Tin °C	Tout °C	ΔT °C	ΔT °F	Winter DTDh	22	-24	46	83	Summer DTDc	24	29	5	9
Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)																																																									
Bsmt	661	9	5949																																																									
First	661	10	6610																																																									
Second	661	9	5949																																																									
Third	535	9	4815																																																									
Fourth	0	9	0																																																									
		Total:	23,323.0 ft³																																																									
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Winter DTDh	22	-24	46	83																																																								
Summer DTDc	24	29	5	9																																																								
5.2.3.1 Heat Loss due to Air Leakage			6.2.6 Sensible Gain due to Air Leakage																																																									
<div><math display="block">HL_{airb} = LR_{airh} \times \frac{V_b}{3.6} \times DTD_h \times 1.2</math><div>0.439 x 183.45 x 46 °C x 1.2 = 4467 W</div><div>= 15243 Btu/h</div></div>			<div><math display="block">HG_{salb} = LR_{airc} \times \frac{V_b}{3.6} \times DTD_c \times 1.2</math><div>= 0.097 x 183.45 x 5 °C x 1.2 = 109 W</div><div>= 372 Btu/h</div></div>																																																									
5.2.3.2 Heat Loss due to Mechanical Ventilation			6.2.7 Sensible heat Gain due to Ventilation																																																									
<div><math display="block">HL_{vairb} = PVC \times DTD_h \times 1.08 \times (1 - E)</math><div>64 CFM x 83 °F x 1.08 x 0.25 = 1429 Btu/h</div></div>			<div><math display="block">HL_{vairb} = PVC \times DTD_h \times 1.08 \times (1 - E)</math><div>64 CFM x 9 °F x 1.08 x 0.25 = 158 Btu/h</div></div>																																																									
5.2.3.3 Calculation of Air Change Heat Loss for Each Room (Floor Multiplier Section)																																																												
<div><math display="block">HL_{airr} = Level\ Factor \times HL_{airbv} \times \{ (HL_{agcr} + HL_{bgcr}) \div (HL_{agclevel} + HL_{bgclevel}) \}</math><table><tr><th>Level</th><th>Level Factor (LF)</th><th>HLairve Air Leakage + Ventilation Heat Loss (Btu/h)</th><th>Level Conductive Heat Loss: (HL<sub>clevel</sub>)</th><th>Air Leakage Heat Loss Multiplier (LF x HLairbv / HL<sub>clevel</sub>)</th></tr><tr><td>1</td><td>0.4</td><td rowspan="5">15,243</td><td>2,601</td><td>2.344</td></tr><tr><td>2</td><td>0.3</td><td>4,540</td><td>1.007</td></tr><tr><td>3</td><td>0.2</td><td>4,114</td><td>0.741</td></tr><tr><td>4</td><td>0.1</td><td>4,259</td><td>0.358</td></tr><tr><td>5</td><td>0</td><td>0</td><td>0.000</td></tr></table><div>*HLairbv = Air leakage heat loss + ventilation heat loss *For a balanced or supply only ventilation system HLairve = 0</div></div>					Level	Level Factor (LF)	HLairve Air Leakage + Ventilation Heat Loss (Btu/h)	Level Conductive Heat Loss: (HL <sub>clevel</sub> )	Air Leakage Heat Loss Multiplier (LF x HLairbv / HL <sub>clevel</sub> )	1	0.4	15,243	2,601	2.344	2	0.3	4,540	1.007	3	0.2	4,114	0.741	4	0.1	4,259	0.358	5	0	0	0.000																														
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				<div>Michael O'Rourke BCIN# 19669 </div>																																																								

## HEAT LOSS AND GAIN SUMMARY SHEET

<b>MODEL:</b>	RL-2	BLK 3	<b>BUILDER:</b>	BAYVIEW WELLINGTON HOMES
<b>SFQT:</b>	1925	<b>LO#</b>	97831	<b>SITE:</b> 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	0.50

### BUILDING DATA

ATTACHMENT:	ATTACHED	# OF STORIES (+BASEMENT):	4
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):	23323.0	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	4
INTERIOR LIGHTING LOAD (Btu/h/ft²):	1.80	DC BRUSHLESS MOTOR (Y/N):	Y
FOUNDATION CONFIGURATION	BCIN_1	DEPTH BELOW GRADE:	6.0 ft
LENGTH: 31.0 ft	WIDTH: 22.0 ft	EXPOSED PERIMETER:	44.0 ft

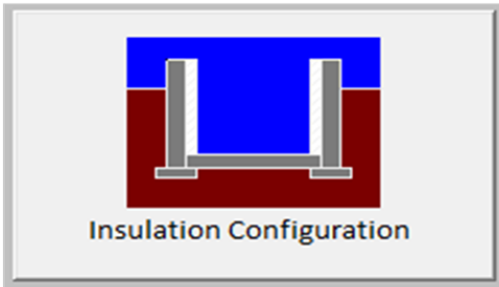
2012 OBC - COMPLIANCE PACKAGE		Compliance Package A1	
Component		Nominal	Min. Eff.
Ceiling with Attic Space Minimum RSI (R)-Value		60	59.22
Ceiling Without Attic Space Minimum RSI (R)-Value		31	27.65
Exposed Floor Minimum RSI (R)-Value		31	29.80
Walls Above Grade Minimum RSI (R)-Value		22	17.03
Basement 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

*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):	9.4	 <p>Insulation Configuration</p>
Floor Width (m):	6.7	
Exposed Perimeter (m):	13.4	
Wall Height (m):	2.7	
Depth Below Grade (m):	1.83	
Window Area (m <sup>2</sup> ):	0.7	
Door Area (m <sup>2</sup> ):	1.9	
Radiant Slab		
Heated Fraction of the Slab:	0	
Fluid Temperature (°C):	33	
Design Months		
Heating Month	1	
Foundation Loads		
Heating Load (Watts):		426

TYPE: RL-2  
LO# 97831

BLK 3

Michael O'Rourke BCIN #19669





HVAC Designs Ltd.  
375 Finley Ave, Suite 202  
Ajax ON, L1S 2E2  
905-619-2300

# Air Infiltration Residential Load Calculator

Supplemental tool for CAN/CSA-F280

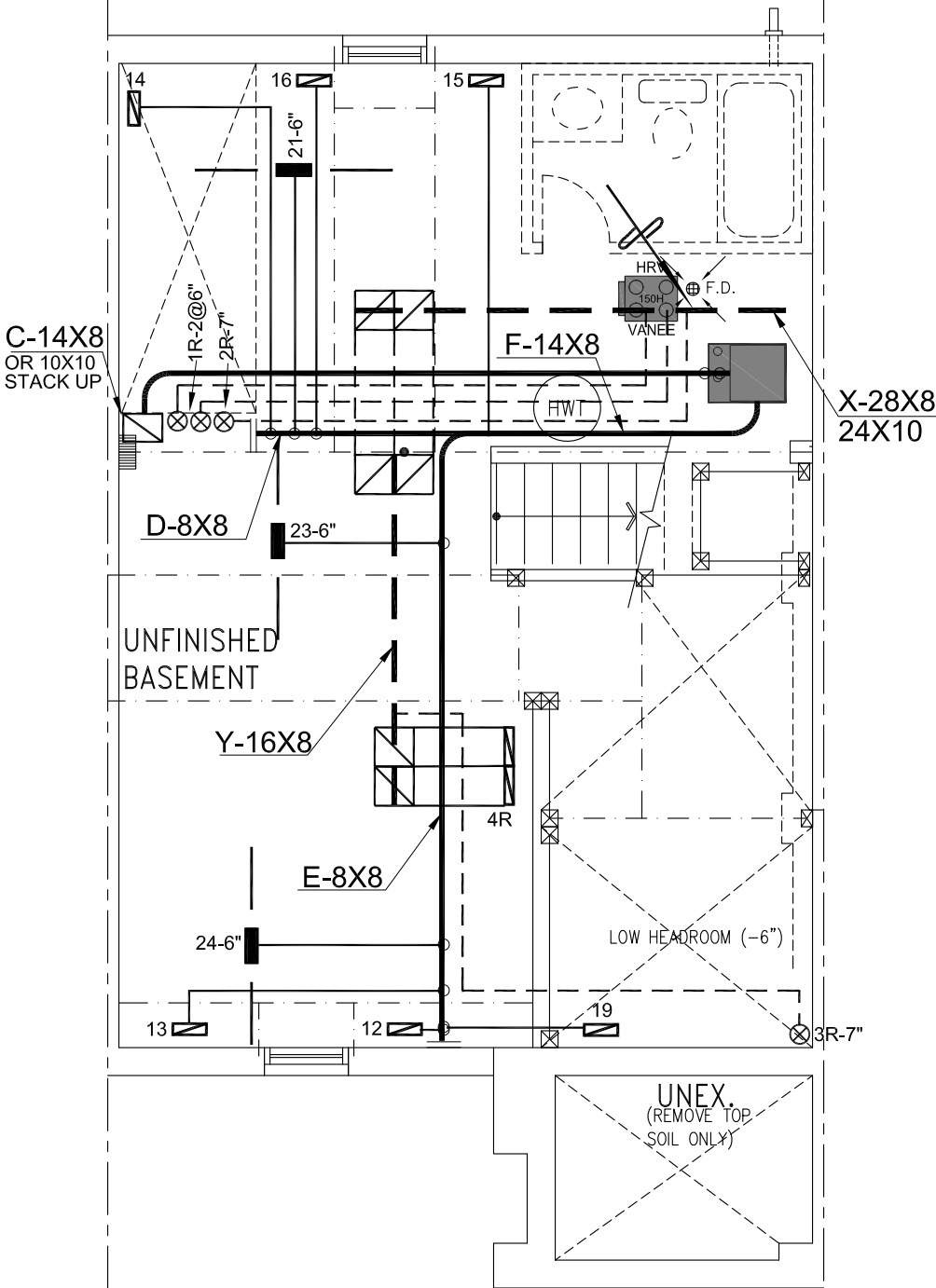
Weather Station Description				
Province:	Ontario			
Region:	Barrie			
Weather Station Location:	Open flat terrain, grass			
Anemometer height (m):	10			
Local Shielding				
Building Site:	Suburban, forest			
Walls:	Heavy			
Flue:	Heavy			
Highest Ceiling Height (m):	9.45			
Building Configuration				
Type:	Semi			
Number of Stories:	Three			
Foundation:	Full			
House Volume (m <sup>3</sup> ):	660.4			
Air Leakage/Ventilation				
Air Tightness Type:	Present (1961-) (3.57 ACH)			
Custom BDT Data:	ELA @ 10 Pa.	880.4 cm <sup>2</sup>		
	3.57	ACH @ 50 Pa		
Mechanical Ventilation (L/s):	Total Supply	Total Exhaust		
	30.0	30.0		
Flue Size				
Flue #:	#1	#2	#3	#4
Diameter (mm):	0	0	0	0
Natural Infiltration Rates				
Heating Air Leakage Rate (ACH/H):	0.439			
Cooling Air Leakage Rate (ACH/H):	0.097			

TYPE: RL-2  
LO# 97831

BLK 3

Michael O'Rourke BCIN# 19669





BASEMENT PLAN 'B'  
(BLOCKS ON SOUTH SIDE)

I MICHAEL O'ROURKE HAVE REVIEWED AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED UNDER DIVISION C, 3.2.5 OF THE BUILDING CODE.

*Michael O'Rourke*  
Michael O'Rourke, BCIN# 19669  
HVAC DESIGNS LTD.

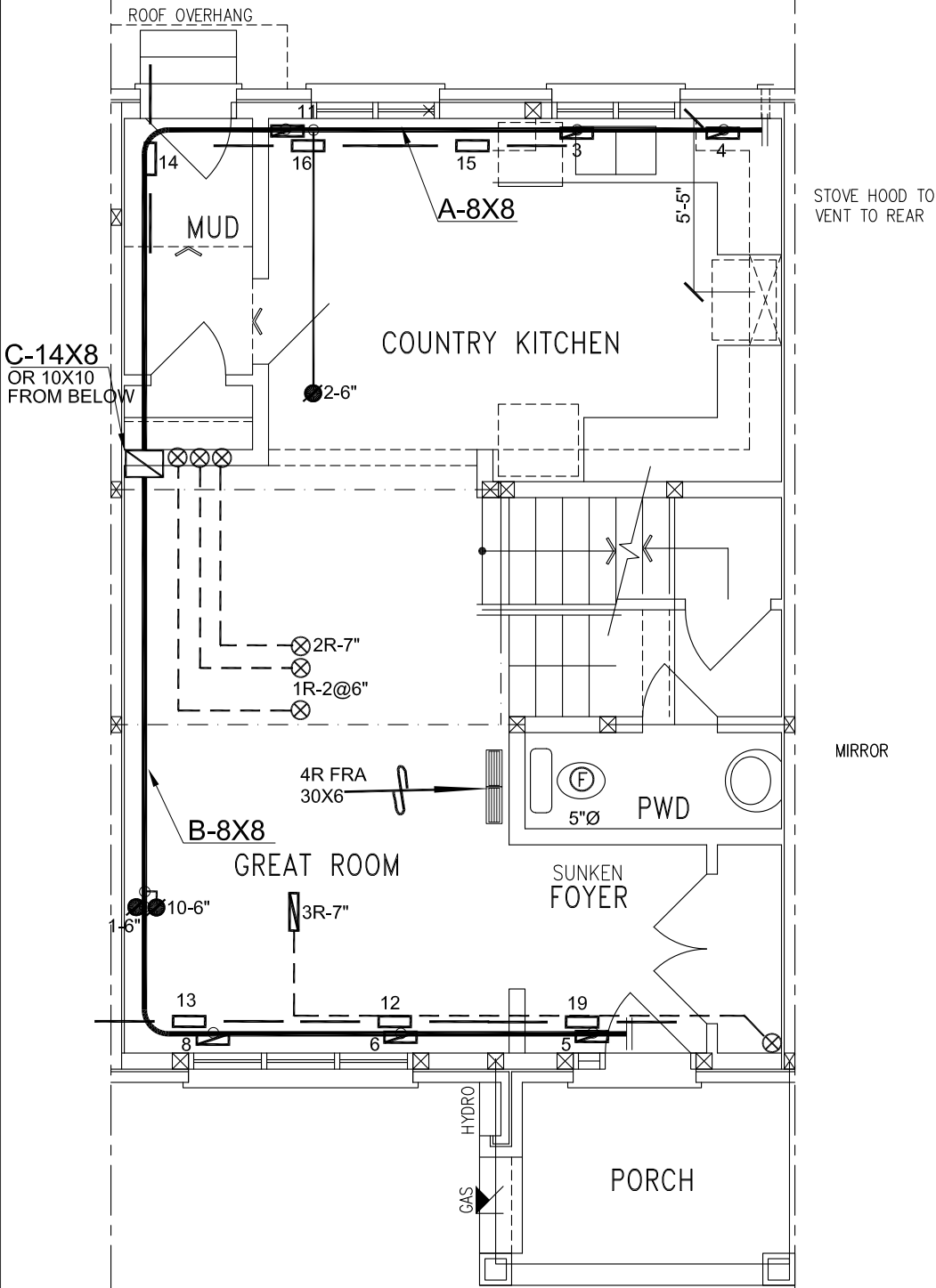
CSA-F280-12

PACKAGE A1

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		<div><div><div>HVACDESIGNS LTD.</div><div>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</div></div><div>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.</div></div>	HEAT LOSS 32184 BTU/H UNIT DATA		# OF RUNS S/A R/A FANS				Sheet Title	
BAYVIEW WELLINGTON HOMES			MAKE LENNOX	3RD FLOOR	3	1	1	BASEMENT HEATING LAYOUT		
Project Name ALCONA INNISFIL, ONTARIO			MODEL ML 196UH045XE36B	2ND FLOOR	6	2	3			
BLK 3 RL-2			INPUT 44 MBTU/H	1ST FLOOR	6	1	2			
1925 sqft			OUTPUT 42.8 MBTU/H	BASEMENT 3 1 0				Date	JUNE/2022	
			COOLING 2.0 TONS	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"	
			FAN SPEED 980 cfm @ 0.6" w.c.					BCIN# 19669		
							LO#	97831		



GROUND FLOOR PLAN 'B'  
(BLOCKS ON SOUTH SIDE)

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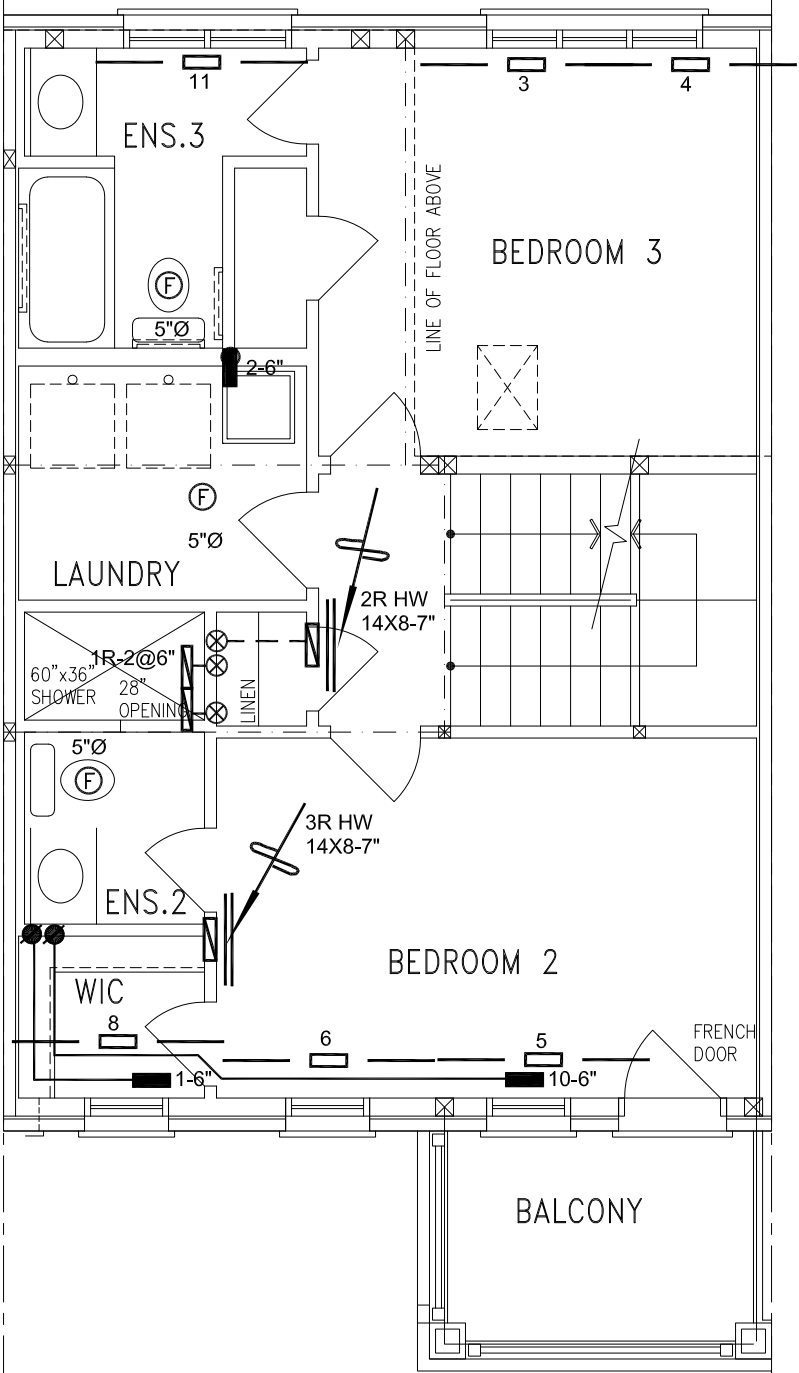
*Michael O'Rourke*  
Michael O'Rourke, BCIN# 19669  
HVAC DESIGNS LTD.

CSA-F280-12  
PACKAGE A1

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 BAYVIEW WELLINGTON HOMES		<div></div> <div>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</div>	Sheet Title FIRST FLOOR HEATING LAYOUT	
Project Name ALCONA INNISFIL, ONTARIO			Date JUNE/2022	
BLK 3 RL-2			Scale 3/16" = 1'-0"	
1925 sqft			BCIN# 19669	
			LO#	97831



SECOND FLOOR PLAN 'B'  
(BLOCKS ON SOUTH SIDE)

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*Michael O'Rourke*  
Michael O'Rourke, BCIN# 19669  
HVAC DESIGNS LTD.

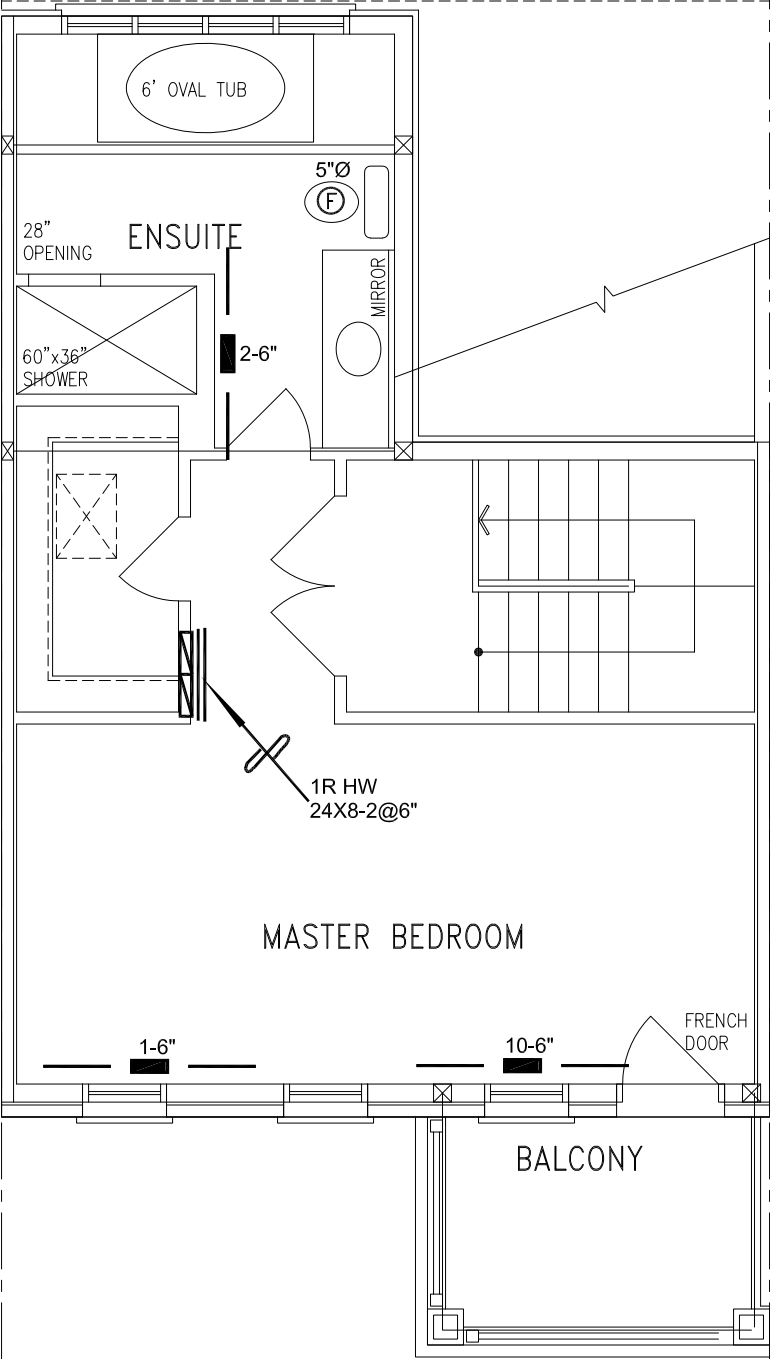
CSA-F280-12

PACKAGE A1

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		<div></div> <div>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</div> <div>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.</div>	Sheet Title	
BAYVIEW WELLINGTON HOMES			SECOND FLOOR HEATING LAYOUT	
Project Name			Date	JUNE/2022
ALCONA INNISFIL, ONTARIO			Scale	3/16" = 1'-0"
BLK 3 RL-2			BCIN# 19669	
1925 sqft			LO#	97831



THIRD FLOOR PLAN 'B'  
(BLOCKS ON SOUTH SIDE)

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*Michael O'Rourke*  
Michael O'Rourke, BCIN# 19669  
HVAC DESIGNS LTD.

CSA-F280-12  
PACKAGE A1

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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BAYVIEW WELLINGTON HOMES			THIRD FLOOR HEATING LAYOUT	
Project Name ALCONA INNISFIL, ONTARIO			Date	JUNE/2022
BLK 3 RL-2			Scale	3/16" = 1'-0"
1925 sqft			BCIN# 19669	
		LO#	97831	