


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 INNISFILL	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]			
<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-1 Project: ALCONA	
D. Declaration of Designer			
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										DATE: Jul-22										WINTER NATURAL AIR CHANGE RATE 0.495										HEAT LOSS ΔT °F. 83										CSA-F280-12																													
BUILDER: BAYVIEW WELLINGTON HOMES										TYPE: RL-1										GFA: 1883										LO# 97829										SUMMER NATURAL AIR CHANGE RATE 0.109										HEAT GAIN ΔT °F. 9										SB-12 PACKAGE A									
ROOM USE				MBR				ENS				BED-2				BED-3																																																					
EXP. WALL				32				23				24				12																																																					
CLG. HT.				9				9				9				9																																																					
FACTORS																																																																					
GRS.WALL AREA		LOSS GAIN		288				207				216				108																																																					
GLAZING				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																																																					
EAST		23.3 40.5		40 932 1622				0 0 0				33 769 1338				0 0 0																																																					
SOUTH		23.3 23.9		0 0 0				0 0 0				0 0 0				0 0 0																																																					
WEST		23.3 40.5		0 0 0				24 559 973				0 0 0				29 676 1176																																																					
SKYLT.		40.8 99.8		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																																																					
NET EXPOSED WALL		4.9 0.5		228 1114 123				183 894 99				163 796 88				79 386 43																																																					
NET EXPOSED BSMT WALL ABOVE GR		3.9 0.4		0 0 0				0 0 0				0 0 0				0 0 0																																																					
EXPOSED CLG		1.4 0.5		425 597 224				132 185 70				0 0 0				0 0 0																																																					
NO ATTIC EXPOSED CLG		3.0 1.1		0 0 0				0 0 0				0 0 0				110 331 124																																																					
EXPOSED FLOOR		2.8 0.3		0 0 0				0 0 0				0 0 0				0 0 0																																																					
BASEMENT/CRAWL HEAT LOSS				0				0				0				0																																																					
SLAB ON GRADE HEAT LOSS				0				0				0				0																																																					
SUBTOTAL HT LOSS				3082				1639				2004				1393																																																					
SUB TOTAL HT GAIN				2017				1141				1475				1343																																																					
LEVEL FACTOR / MULTIPLIER		0.10 0.36						0.10 0.36				0.20 0.85				0.20 0.85																																																					
AIR CHANGE HEAT LOSS				1100				585				1695				1178																																																					
AIR CHANGE HEAT GAIN				94				53				69				63																																																					
DUCT LOSS				0				0				0				0																																																					
DUCT GAIN				0				0				0				0																																																					
HEAT GAIN PEOPLE		240		2		480		0				1		240		1		240																																																			
HEAT GAIN APPLIANCES/LIGHTS						479		479						479		479																																																					
TOTAL HT LOSS BTU/H				4182				2224				3700				2571																																																					
TOTAL HT GAIN x 1.3 BTU/H				3992				2176				2941				2761																																																					

ROOM USE				ENS3				GRT				BR/KT				FOY										
EXP. WALL				10				16				22				9										
CLG. HT.				9				10				10				10										
FACTORS																										
GRS.WALL AREA	LOSS	GAIN		90				160				220				90										
GLAZING				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								
EAST	23.3	40.5		0	0	0		38	885	1541		0	0	0		20	466	811								
SOUTH	23.3	23.9		0	0	0		0	0	0		0	0	0		0	0	0								
WEST	23.3	40.5		8	186	324		0	0	0		50	1165	2027		0	0	0								
SKYLT.	40.8	99.8		0	0	0		0	0	0		0	0	0		0	0	0								
DOORS	22.0	2.4		0	0	0		0	0	0		20	439	49		10	220	24								
NET EXPOSED WALL	4.9	0.5		82	401	44		122	596	66		150	733	81		60	293	32								
NET EXPOSED BSMT WALL ABOVE GR	3.9	0.4		0	0	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	0	0								
NO ATTIC EXPOSED CLG	3.0	1.1		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		0	0	0								
BASEMENT/CRAWL HEAT LOSS				0				0				0				0										
SLAB ON GRADE HEAT LOSS				0				0				0				0										
SUBTOTAL HT LOSS				587				1481				2337				979										
SUB TOTAL HT GAIN					369				1607				2157				868									
LEVEL FACTOR / MULTIPLIER				0.20	0.85			0.30	1.05			0.30	1.05			0.30	1.05									
AIR CHANGE HEAT LOSS				497				1561				2463				1031										
AIR CHANGE HEAT GAIN					17				75				101				41									
DUCT LOSS				0				0				0				0										
DUCT GAIN					0				0				0				0									
HEAT GAIN PEOPLE	240			0		0		0		0		0		0		0		0								
HEAT GAIN APPLIANCES/LIGHTS						479			479					479				0								
TOTAL HT LOSS BTU/H				1084				3042				4799				2010										
TOTAL HT GAIN x 1.3 BTU/H					1124				2809				3557				1181									

TOTAL HEAT GAIN BTU/H:

22909

TONS: 1.91

LOSS DUE TO VENTILATION LOAD BTU/H: 1429

STRUCTURAL HEAT LOSS: 34103

TOTAL COMBINED HEAT LOSS BTU/H: 35531



SITE NAME: ALCONA

BUILDER: BAYVIEW WELLINGTON HOMES

TYPE: RL-1

DATE: Jul-22

GFA: 1883

LO# 97829

HEATING CFM 980 COOLING CFM 980
TOTAL HEAT LOSS 34,103 TOTAL HEAT GAIN 22,751
AIR FLOW RATE CFM 28.74 AIR FLOW RATE CFM 43.08

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
FAN SPEED 45

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

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	3	5	5	4
R/A	0	1	2	1	1

plenium pressure s/a 0.18 r/a pressure 0.17
max s/a dif press. loss 0.02 r/a grille press. Loss 0.02
min adjusted pressure s/a 0.16 adjusted pressure r/a 0.15

LOW 620
MEDLOW 685
MEDIUM 980
MEDIUM HIGH 1110
HIGH 0

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

TEMPERATURE RISE 40 °F

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	10	11	12	13	14	15	19	21	22	23	24
ROOM NAME	MBR	ENS	BED-2	BED-2	BED-3	BED-3	MBR	GRT	ENS3	GRT	BR/KT	BR/KT	FOY	BAS	BAS	BAS	BAS
RM LOSS MBH.	2.09	2.22	1.85	1.85	1.29	1.29	2.09	1.52	1.08	1.52	2.40	2.40	2.01	2.62	2.62	2.62	2.62
CFM PER RUN HEAT	60	64	53	53	37	37	60	44	31	44	69	69	58	75	75	75	75
RM GAIN MBH.	2.00	2.18	1.47	1.47	1.38	1.38	2.00	1.40	1.12	1.40	1.78	1.78	1.18	0.55	0.55	0.55	0.55
CFM PER RUN COOLING	86	94	63	63	59	59	86	60	48	60	77	77	51	24	24	24	24
ADJUSTED PRESSURE	0.16	0.16	0.17	0.17	0.17	0.17	0.16	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17
ACTUAL DUCT LGH.	94	54	52	62	53	58	80	32	51	28	20	16	25	19	18	31	23
EQUIVALENT LENGTH	200	170	160	170	140	130	210	120	150	120	90	100	140	110	130	130	140
TOTAL EFFECTIVE LENGTH	294	224	212	232	193	188	290	152	201	148	110	116	165	129	148	161	163
ADJUSTED PRESSURE	0.06	0.07	0.08	0.07	0.09	0.09	0.06	0.11	0.09	0.12	0.16	0.15	0.1	0.13	0.12	0.11	0.11
ROUND DUCT SIZE	6	6	6	6	5	5	6	5	5	5	5	5	5	5	5	5	5
HEATING VELOCITY (ft/min)	306	326	270	270	272	272	306	323	228	323	507	507	426	551	551	551	551
COOLING VELOCITY (ft/min)	438	479	321	321	433	433	438	441	352	441	565	565	374	176	176	176	176
OUTLET GRILL SIZE	4X10	4X10	4X10	4X10	3X10	3X10	4X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10
TRUNK	B	A	B	B	A	A	B	E	A	E	D	D	E	F	F	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
1	MBR	2.09	60	2.00	86	0.16	94	200	294	0.06	6	306	438	4X10	B
2	ENS	2.22	64	2.18	94	0.16	54	170	224	0.07	6	326	479	4X10	A
3	BED-2	1.85	53	1.47	63	0.17	52	160	212	0.08	6	270	321	4X10	B
4	BED-2	1.85	53	1.47	63	0.17	62	170	232	0.07	6	270	321	4X10	B
5	BED-3	1.29	37	1.38	59	0.17	53	140	193	0.09	5	272	433	3X10	A
6	BED-3	1.29	37	1.38	59	0.17	58	130	188	0.09	5	272	433	3X10	A
10	MBR	2.09	60	2.00	86	0.16	80	210	290	0.06	6	306	438	4X10	B
11	GRT	1.52	44	1.40	60	0.17	32	120	152	0.11	5	323	441	3X10	E
12	ENS3	1.08	31	1.12	48	0.17	51	150	201	0.09	5	228	352	3X10	A
13	GRT	1.52	44	1.40	60	0.17	28	120	148	0.12	5	323	441	3X10	E
14	BR/KT	2.40	69	1.78	77	0.17	20	90	110	0.16	5	507	565	3X10	D
15	BR/KT	2.40	69	1.78	77	0.17	16	100	116	0.15	5	507	565	3X10	D
19	FOY	2.01	58	1.18	51	0.17	25	140	165	0.1	5	426	374	3X10	E
21	BAS	2.62	75	0.55	24	0.17	19	110	129	0.13	5	551	176	3X10	F
22	BAS	2.62	75	0.55	24	0.17	18	130	148	0.12	5	551	176	3X10	F
23	BAS	2.62	75	0.55	24	0.17	31	130	161	0.11	5	551	176	3X10	E
24	BAS	2.62	75	0.55	24	0.17	23	140	163	0.11	5	551	176	3X10	E

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	169	0.07	7.5	8	x	8	380	TRUNK G	0	0.00	0	0	x	8	0	TRUNK O	0	0.05	0	0	x	8	0
TRUNK B	226	0.06	8.6	8	x	8	509	TRUNK H	0	0.00	0	0	x	8	0	TRUNK P	0	0.05	0	0	x	8	0
TRUNK C	395	0.06	10.6	16	x	8	444	TRUNK I	0	0.00	0	0	x	8	0	TRUNK Q	0	0.05	0	0	x	8	0
TRUNK D	138	0.15	5.7	8	x	8	311	TRUNK J	0	0.00	0	0	x	8	0	TRUNK R	0	0.05	0	0	x	8	0
TRUNK E	296	0.10	8.4	8	x	8	666	TRUNK K	0	0.00	0	0	x	8	0	TRUNK S	0	0.05	0	0	x	8	0
TRUNK F	584	0.10	10.8	14	x	8	751	TRUNK L	0	0.00	0	0	x	8	0	TRUNK T	0	0.05	0	0	x	8	0

RETURN AIR #	1	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
AIR VOLUME	220	0	130	125	360	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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	0.15	0.15	0.15	0.15	0.15	0.15	0.15
ACTUAL DUCT LGH.	106	1	44	48	23	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
EQUIVALENT LENGTH	195	0	160	180	155	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL EFFECTIVE LH	301	1	204	228	178	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
ADJUSTED PRESSURE	0.05	14.80	0.07	0.06	0.08	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80
ROUND DUCT SIZE	8.9	0	6.8	6.9	9.6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
INLET GRILL SIZE	8	0	8	8	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
INLET GRILL SIZE	30	0	14	14	30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

TYPE: RL-1
SITE NAME: ALCONA

LO # 97829

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	2	@ 10.6 cfm	21.2	cfm
Kitchen & Bathrooms	5	@ 10.6 cfm	53	cfm
Other Rooms	2	@ 10.6 cfm	21.2	cfm
Table 9.32.3.A.	TOTAL			137.8 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		63.6	cfm

SUPPLEMENTAL VENTILATION CAPACITY 9.32.3.5.

Total Ventilation Capacity	137.8	cfm
Less Principal Ventil. Capacity	63.6	cfm
Required Supplemental Capacity	74.2	cfm

PRINCIPAL EXHAUST FAN CAPACITY

Model: VANEE V150H Location: BSMT

63.6 cfm ☒ 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	Sones
ENS	BY INSTALLING CONTRACTOR	50	<input checked="" type="checkbox"/>	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 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: *Michael O'Rourke*

HRAI # 001820

Date: July-22

CSA F280-12 Residential Heat Loss and Heat Gain Calculations																																																							
Formula Sheet (For Air Leakage / Ventilation Calculation)																																																							
LO#: 97829		Model: RL-1		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>646</td><td>9</td><td>5814</td></tr><tr><td>First</td><td>646</td><td>10</td><td>6460</td></tr><tr><td>Second</td><td>646</td><td>9</td><td>5814</td></tr><tr><td>Third</td><td>533</td><td>9</td><td>4797</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>22,885.0 ft³</td></tr><tr><td colspan="2"></td><td>Total:</td><td>648.0 m³</td></tr></table>			Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)	Bsmt	646	9	5814	First	646	10	6460	Second	646	9	5814	Third	533	9	4797	Fourth	0	9	0			Total:	22,885.0 ft³			Total:	648.0 m³	<table><tr><td>WINTER NATURAL AIR CHANGE RATE</td><td>0.495</td></tr><tr><td>SUMMER NATURAL AIR CHANGE RATE</td><td>0.109</td></tr></table> <div>Design Temperature Difference</div> <table><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	0.495	SUMMER NATURAL AIR CHANGE RATE	0.109		Tin °C	Tout °C	ΔT °C	ΔT °F	Winter DTDh	22	-24	46	83	Summer DTDc	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																																																				
<div>$HL_{airb} = LR_{airh} \times \frac{V_b}{3.6} \times DTD_h \times 1.2$<div>0.495 x 180.01 x 46 °C x 1.2 = 4938 W</div><div>= 16850 Btu/h</div></div>			<div>$HG_{salb} = LR_{airc} \times \frac{V_b}{3.6} \times DTD_c \times 1.2$<div>= 0.109 x 180.01 x 5 °C x 1.2 = 120 W</div><div>= 410 Btu/h</div></div>																																																				
5.2.3.2 Heat Loss due to Mechanical Ventilation			6.2.7 Sensible heat Gain due to Ventilation																																																				
<div>$HL_{vairb} = PVC \times DTD_h \times 1.08 \times (1 - E)$<div>64 CFM x 83 °F x 1.08 x 0.25 = 1429 Btu/h</div></div>			<div>$HL_{vairb} = PVC \times DTD_h \times 1.08 \times (1 - E)$<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>$HL_{airr} = Level\ Factor \times HL_{airbv} \times \{ (HL_{agcr} + HL_{bgcr}) \div (HL_{agclevel} + HL_{bgclevel}) \}$</div> <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_{clevel})</th><th>Air Leakage Heat Loss Multiplier (LF x HLairbv / HL_{clevel})</th></tr><tr><td>1</td><td>0.4</td><td rowspan="5">16,850</td><td>3,752</td><td>1.796</td></tr><tr><td>2</td><td>0.3</td><td>4,797</td><td>1.054</td></tr><tr><td>3</td><td>0.2</td><td>3,984</td><td>0.846</td></tr><tr><td>4</td><td>0.1</td><td>4,720</td><td>0.357</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>					Level	Level Factor (LF)	HLairve Air Leakage + Ventilation Heat Loss (Btu/h)	Level Conductive Heat Loss: (HL _{clevel})	Air Leakage Heat Loss Multiplier (LF x HLairbv / HL _{clevel})	1	0.4	16,850	3,752	1.796	2	0.3	4,797	1.054	3	0.2	3,984	0.846	4	0.1	4,720	0.357	5	0	0	0.000																									
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				<div>Michael O'Rourke BCIN# 19669</div> <div>Michael O'Rourke</div>																																																			



375 Finley Ave. Suite 202 Ajax, ON L1S 2E2

Tel: 905.619.2300 Fax: 905.619.2375

Web: www.hvacdesigns.ca E-mail: info@hvacdesigns.ca

HEAT LOSS AND GAIN SUMMARY SHEET

MODEL:	RL-1	BUILDER:	BAYVIEW WELLINGTON HOMES
SFQT:	1883	LO#	97829
		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	0.50

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):	22885.0	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	4
INTERIOR LIGHTING LOAD (Btu/h/ft²):	1.55	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:	46.0 ft
WOB INSULATION CONFIGURATION	SCB_9	WOB EXPOSED PERIMETER	22.0 ft

2012 OBC - COMPLIANCE PACKAGE

Component

Compliance Package A1

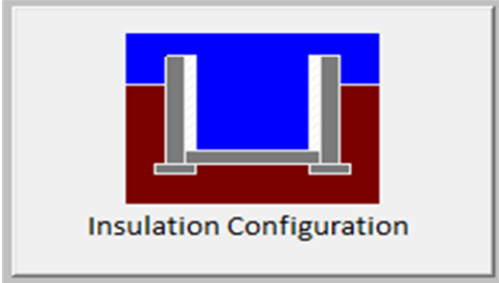
	Nominal	Min. Eff.
Ceiling with Attic Space Minimum RSI (R)-Value	60	59.22
Ceiling Without Attic Space Minimum RSI (R)-Value	31	27.65
Exposed Floor Minimum RSI (R)-Value	31	29.80
Walls Above Grade Minimum RSI (R)-Value	22	17.03
Basement Walls Minimum RSI (R)-Value	20 ci	21.12
Below Grade Slab Entire surface > 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

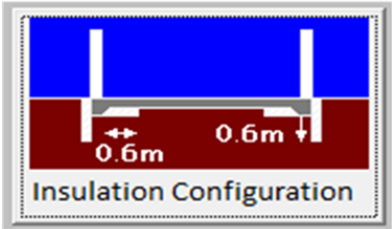
Supplemental tool for CAN/CSA-F280

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):	4.6	 <p>Insulation Configuration</p>
Floor Width (m):	6.7	
Exposed Perimeter (m):	14.0	
Wall Height (m):	2.7	
Depth Below Grade (m):	1.48	
Window Area (m ²):	0.4	
Door Area (m ²):	0.0	
Radiant Slab		
Heated Fraction of the Slab:	0	
Fluid Temperature (°C):	33	
Design Months		
Heating Month	1	
Foundation Loads		
Heating Load (Watts):		349

TYPE: RL-1
LO# 97829

Residential Slab on Grade 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		
Length (m):	1.5	
Width (m):	6.7	
Exposed Perimeter (m):	6.7	
Radiant Slab		
Heated Fraction of the Slab:	0	
Fluid Temperature (°C):	33	
Design Months		
Heating Month	1	
Results		
Heating Load (Watts):		72

TYPE: RL-1
LO# 97829



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

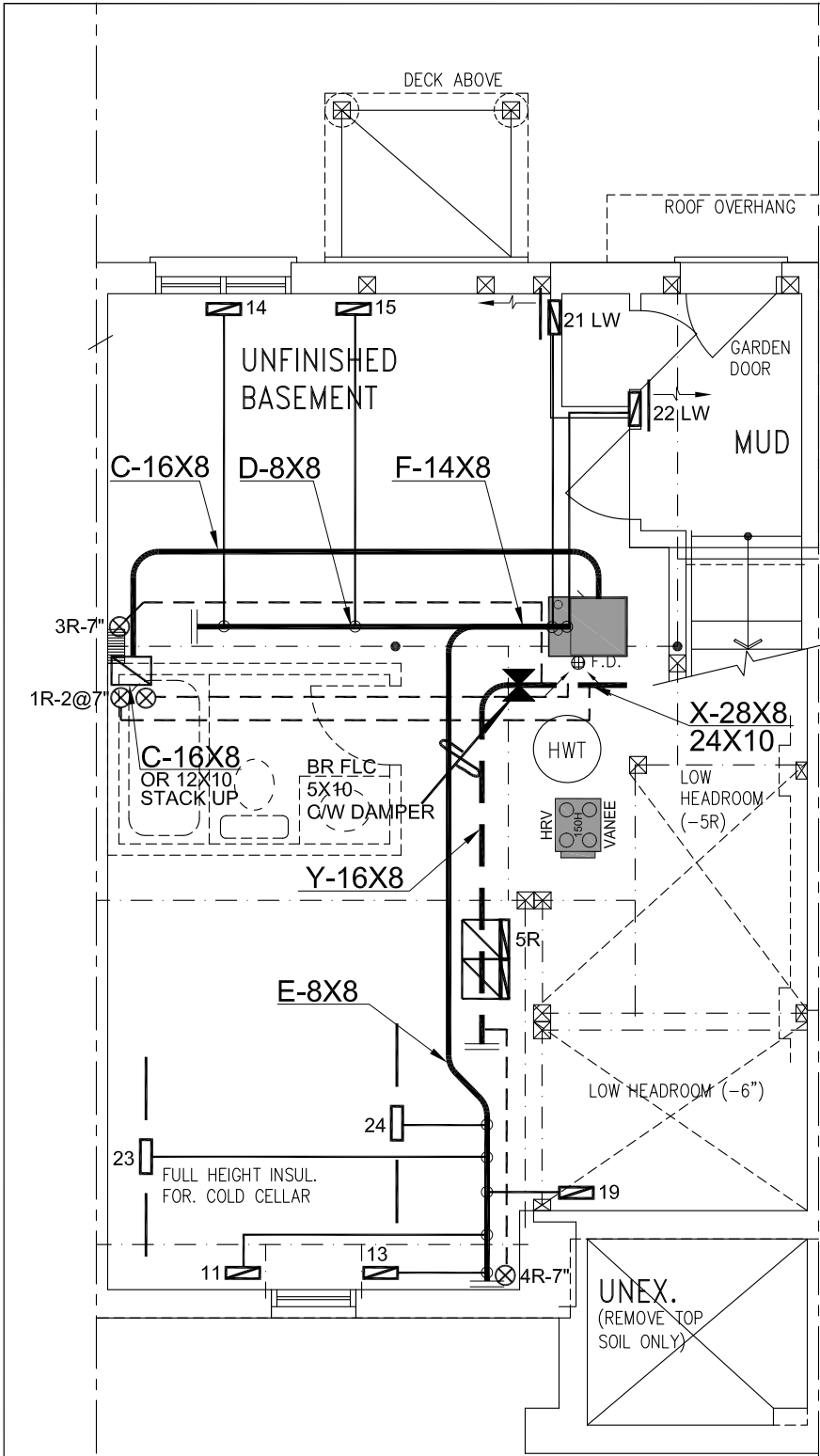
Air Infiltration Residential Load Calculator

Supplemental tool for CAN/CSA-F280

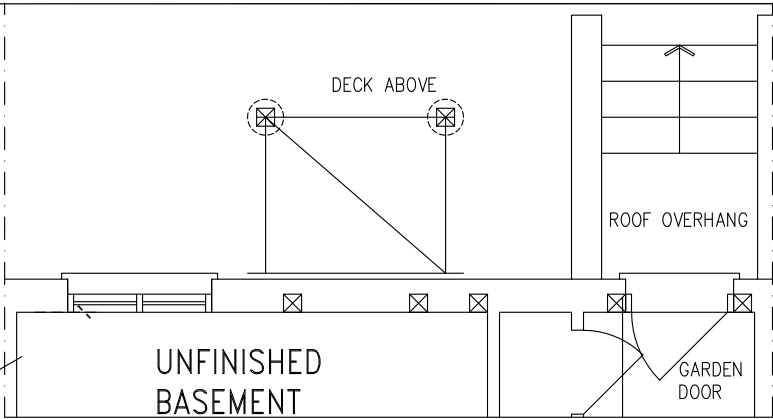
Weather Station Description				
Province:	Ontario			
Region:	Barrie			
Weather Station Location:	Open flat terrain, grass			
Anemometer height (m):	10			
Local Shielding				
Building Site:	Suburban, forest			
Walls:	Heavy			
Flue:	Heavy			
Highest Ceiling Height (m):	11.28			
Building Configuration				
Type:	Semi			
Number of Stories:	Three			
Foundation:	Full			
House Volume (m ³):	648.0			
Air Leakage/Ventilation				
Air Tightness Type:	Present (1961-) (3.57 ACH)			
Custom BDT Data:	ELA @ 10 Pa.	863.8 cm ²		
	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):	0.495			
Cooling Air Leakage Rate (ACH/H):	0.109			

TYPE: RL-1
LO# 97829

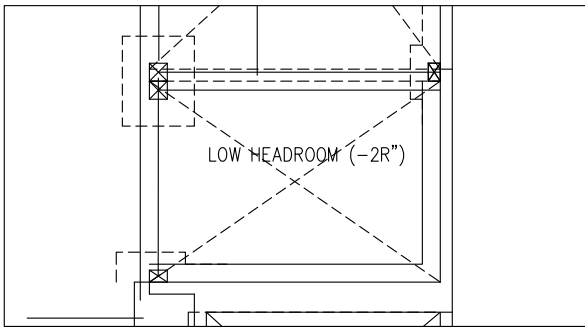
Michael O'Rourke BCIN# 19669



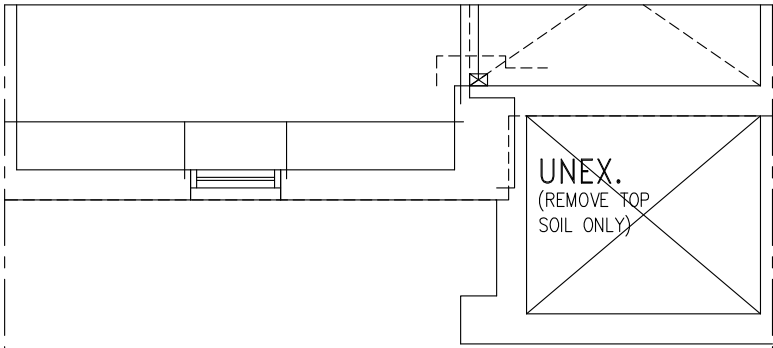
BASEMENT PLAN 'A'/'A2' FOR WOB CONDITION



PARTIAL GROUND FLOOR PLAN 'B' FOR WALK-UP CONDITION



PART. PLAN SUNKEN FOYER 2R OR MORE COND.



PARTIAL BASEMENT PLAN 'B'

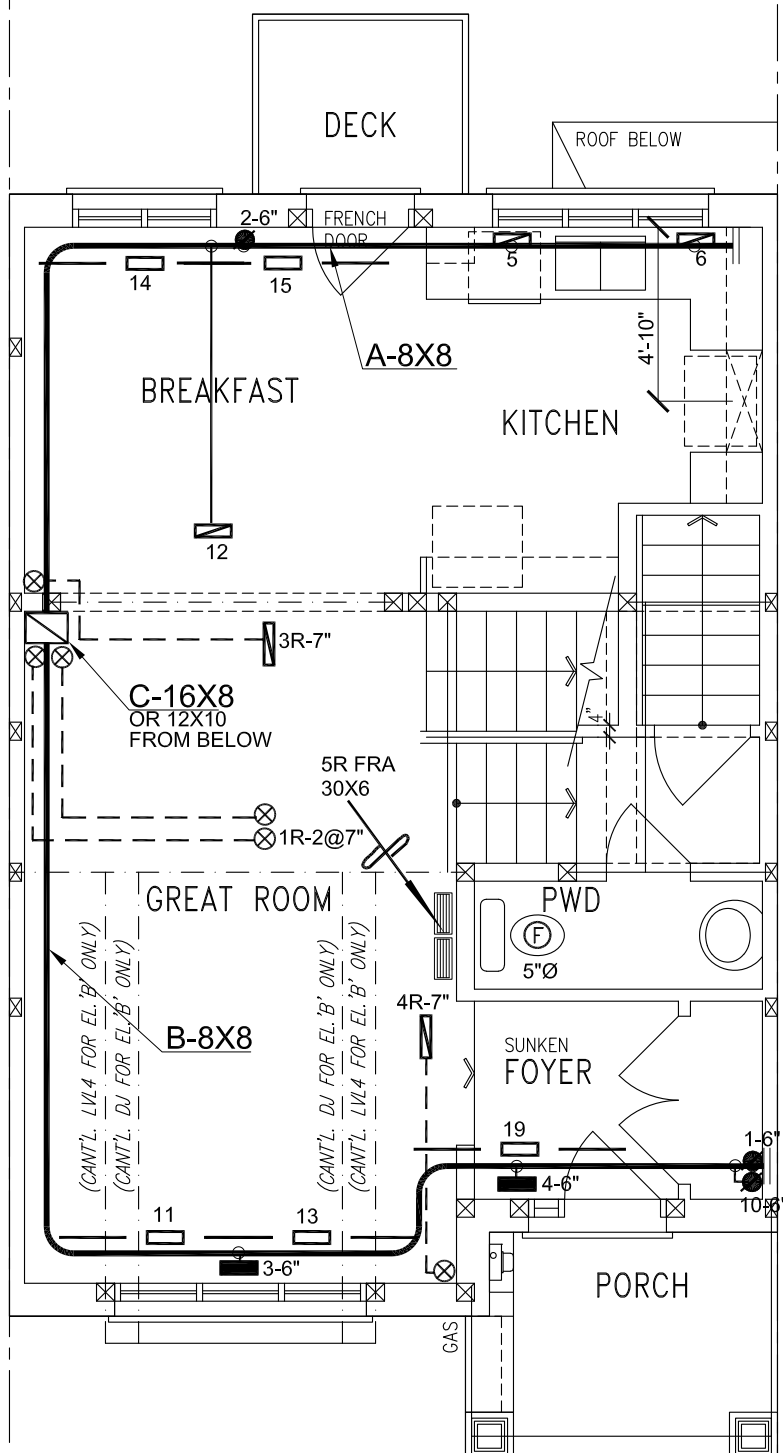
I MICHAEL O'ROURKE HAVE REVIEWED AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED UNDER DIVISION C, 3.2.5 OF THE BUILDING CODE.
 Michael O'Rourke, BCIN# 19669
 HVAC DESIGNS LTD.

CSA-F280-12
 PACKAGE A1

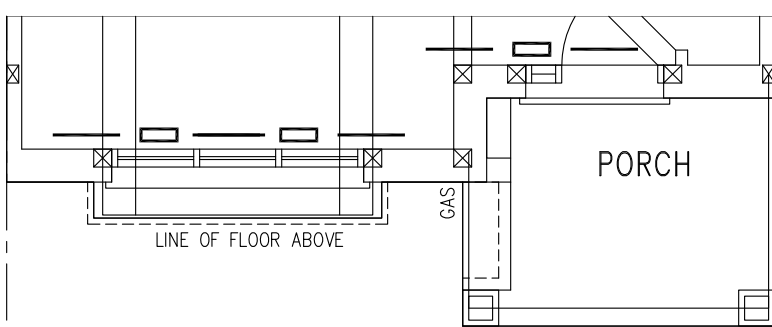
HVAC LEGEND							3.		
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	2.	
	SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		14"x8" RETURN AIR GRILLE		RETURN AIR STACK ABOVE	1.	
	SUPPLY AIR GRILLE 6" BOOT		SUPPLY AIR STACK FROM 2nd FLOOR		30"x8" RETURN AIR GRILLE		RETURN AIR STACK 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>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>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 35531 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 ML196UH045XE36B		2ND FLOOR	5	2	3		
			INPUT 44 MBTU/H		1ST FLOOR	5	1	2		
RL-11825 sqft			OUTPUT 42.8 MBTU/H		BASEMENT	4	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#	97829	



GROUND FLOOR PLAN 'A'/'A2'



PARTIAL GROUND FLOOR PLAN 'B'

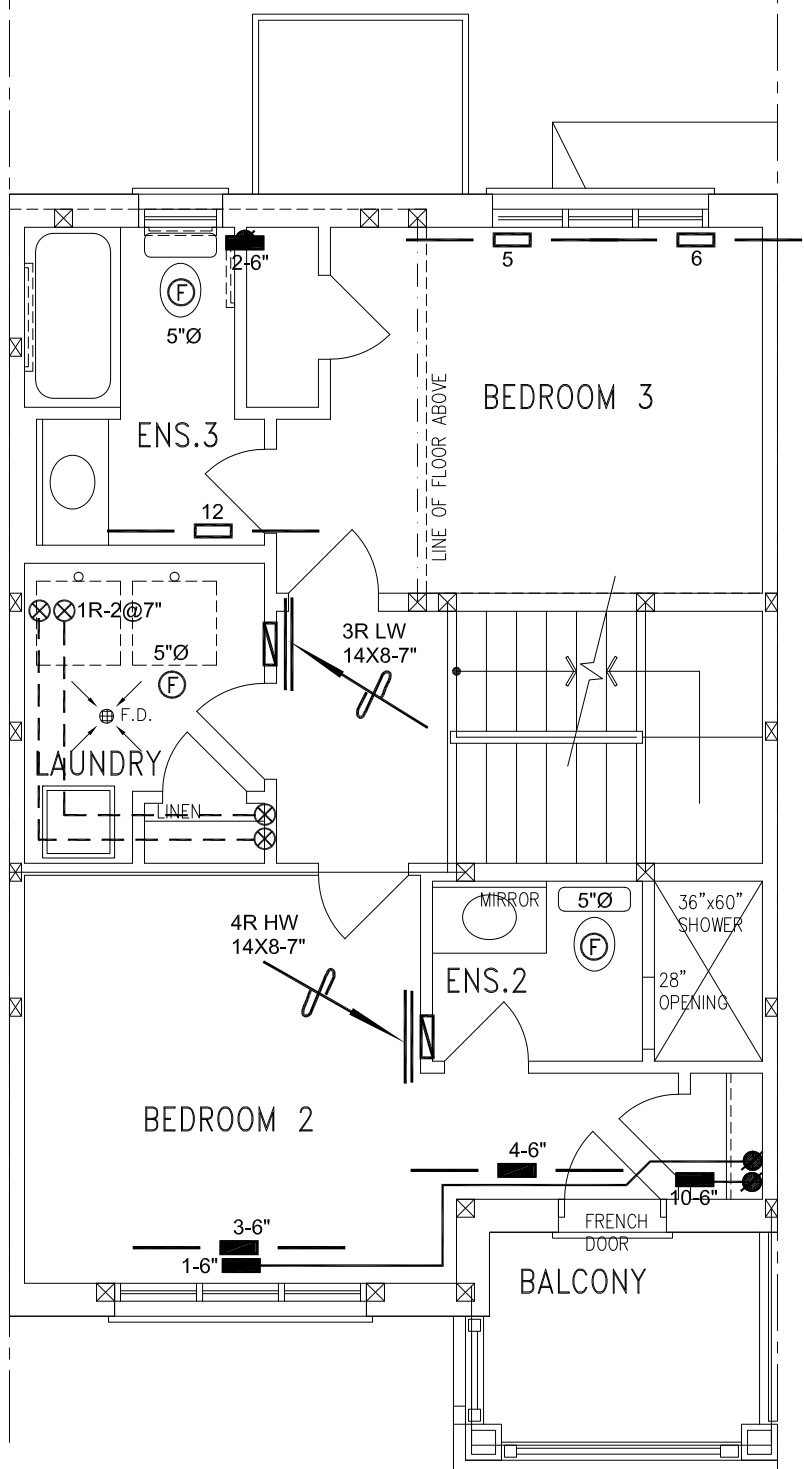
I MICHAEL O'ROURKE HAVE REVIEWED AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED UNDER DIVISION C, 3.2.5 OF THE BUILDING CODE.
Michael O'Rourke
Michael O'Rourke, BCIN# 19669
HVAC DESIGNS LTD.

CSA-F280-12
PACKAGE A1

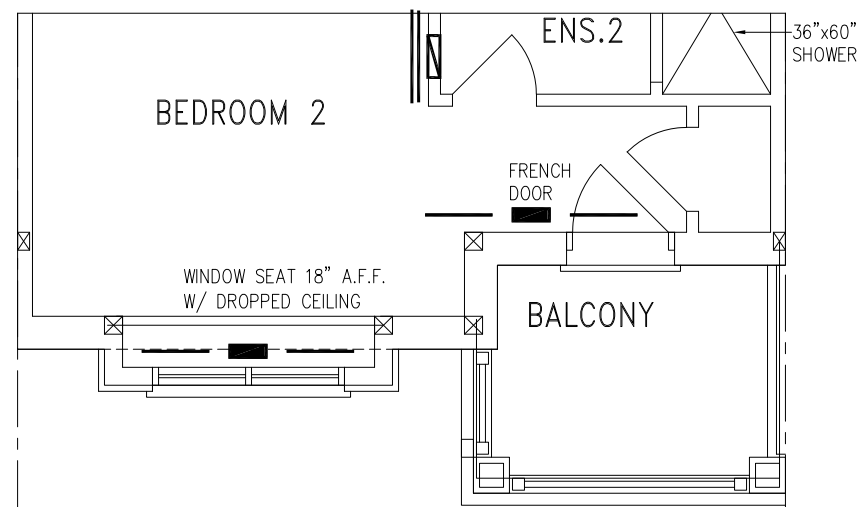
HVAC LEGEND								3.		
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	2.		
	SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		14"x8" RETURN AIR GRILLE		RETURN AIR STACK ABOVE	1.		
	SUPPLY AIR GRILLE 6" BOOT		SUPPLY AIR STACK FROM 2nd FLOOR		30"x8" RETURN AIR GRILLE		RETURN AIR 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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BAYVIEW WELLINGTON HOMES			FIRST FLOOR HEATING LAYOUT	
Project Name			Date	JUNE/2022
ALCONA INNISFIL, ONTARIO		Scale	3/16" = 1'-0"	
		BCIN# 19669		
RL-1	1825 sqft	LO# 97829		



SECOND FLOOR PLAN 'A'/'A2'



PARTIAL SECOND FLOOR PLAN 'B'

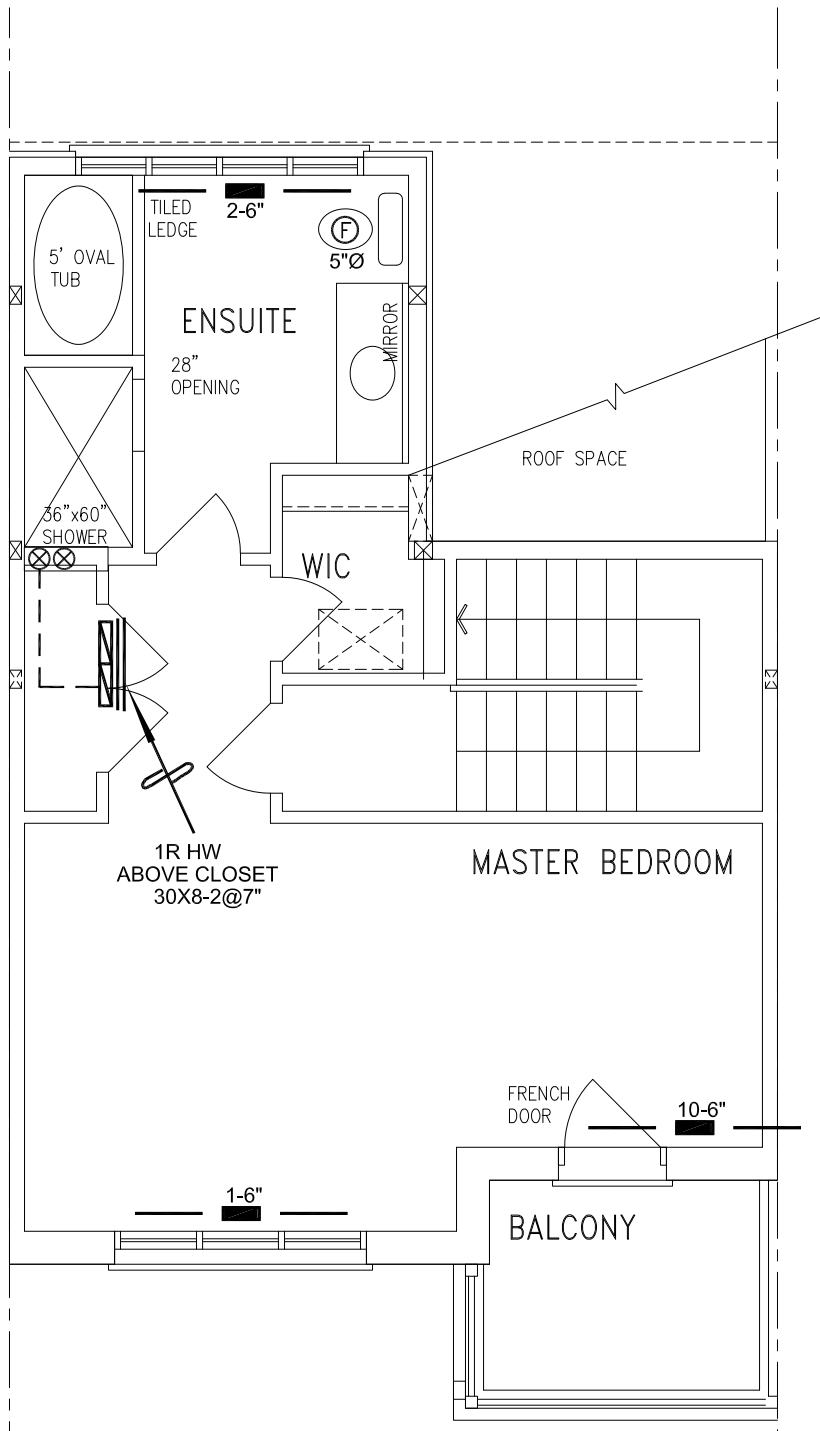
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Michael O'Rourke
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HVAC DESIGNS LTD.

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PACKAGE A1

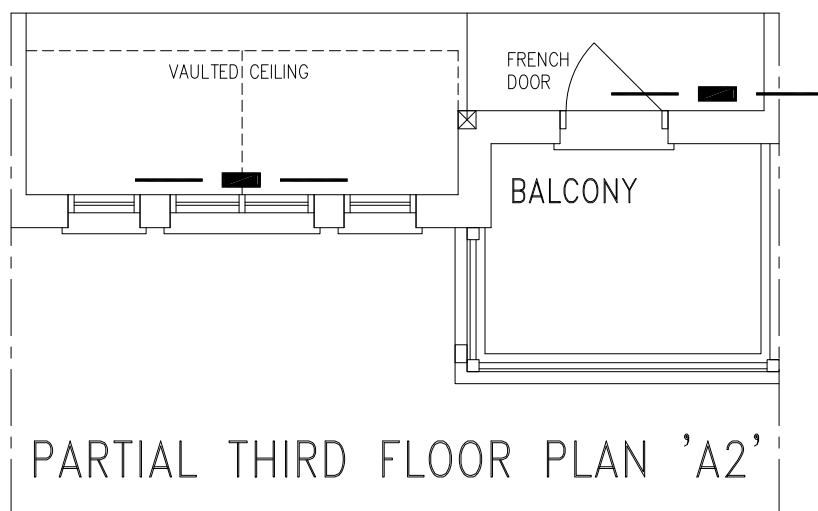
HVAC LEGEND								3.		
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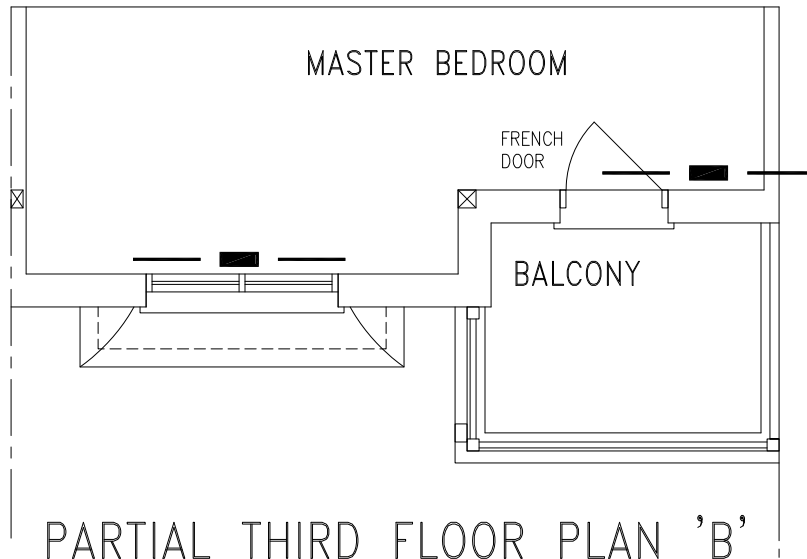
Client		<div><p>375 Finley Ave. Suite 202 - Ajax, Ontario L1S 2E2 Tel. 905.619.2300 - 905.420.5300 Fax 905.619.2375 Email: info@hvacdesigns.ca Web: www.hvacdesigns.ca Specializing in Residential Mechanical Design Services</p><p>Installation to comply with the latest Ontario Building Code. All supply 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.</p></div>	Sheet Title	
BAYVIEW WELLINGTON HOMES			SECOND FLOOR HEATING LAYOUT	
Project Name			Date	JUNE/2022
ALCONA INNISFIL, ONTARIO			Scale	3/16" = 1'-0"
			BCIN# 19669	
RL-1	1825 sqft	LO#	97829	



THIRD FLOOR PLAN 'A'



PARTIAL THIRD FLOOR PLAN 'A2'



PARTIAL THIRD FLOOR PLAN 'B'

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, BCIN# 19669
 HVAC DESIGNS LTD.

CSA-F280-12
 PACKAGE A1

HVAC LEGEND								3.		
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	2.		
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BAYVIEW WELLINGTON HOMES			THIRD FLOOR HEATING LAYOUT	
Project Name		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.	Date JUNE/2022	
ALCONA INNISFIL, ONTARIO			Scale 3/16" = 1'-0"	
RL-1			BCIN# 19669	
1825 sqft			LO#	97829