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	**Postal code**	**Plan number/ other description**	
INNINFILL			

B. Individual who reviews and takes responsibility for design activities

Name		Firm	
MICHAEL O'ROURKE		**HVAC DESIGNS LTD.**	
Street address		**Unit no.**	**Lot/con.**
375 FINLEY AVE		**202**	**N/A**
Municipality	**Postal code** / **Province**		**E-mail**
AJAX	**L1S 2E2** / **ONTARIO**		**info@hvacdesigns.ca**
Telephone number	**Fax number**		**Cell number**
(905) 619-2300	**(905) 619-2375**		( )

C. Design activities undertaken by individual identified in Section B. [Building Code Table 3.5.2.1 OF Division C]

☐ House	☒ HVAC – House	☐ Building Structural
☐ Small Buildings	☐ Building Services	☐ Plumbing – House
☐ Large Buildings	☐ Detection, Lighting and Power	☐ Plumbing – All Buildings
☐ Complex Buildings	☐ Fire Protection	☐ 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-4 **Project:** ALCONA

D. Declaration of Designer

I **MICHAEL O'ROURKE** declare that (choose one as appropriate):
(print name)

☐ 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 Di vision C, of the Building Code.

Individual BCIN: 19669
Basis for exemption from registration and qualification: O.B.C SENTENCE 3.2.4.1 (4)

☐ 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 6, 2022
Date

Michael O'Rourke
Signature of Designer

NOTE:

1. 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.
2. 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.

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

SITE NAME: ALCONA — DATE: Jul-22 — WINTER NATURAL AIR CHANGE RATE 0.439 — HEAT LOSS ΔT °F. 83 — CSA-F280-12

BUILDER: BAYVIEW WELLINGTON HOMES — TYPE: RL-4 — GFA: 2507 — LO# 97833 — SUMMER NATURAL AIR CHANGE RATE 0.097 — HEAT GAIN ΔT °F. 9 — SB-12 PACKAGE A1

ROOM USE			MBR			ENS				BED-2			BED-3			BED-4				LOFT			ENS3				
EXP. WALL			20			21				16			11			12				16			10				
CLG. HT.			9			9				9			9			9				9			9				
	FACTORS																										
GRS.WALL AREA	LOSS	GAIN	180			189				144			99			108				144			90				
GLAZING			LOSS	GAIN		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	0	0	0	0	0		
EAST	23.3	40.5	25	582	1014	0	0	0		11	256	446	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	0	0	0		
WEST	23.3	40.5	0	0	0	23	536	933		0	0	0	0	0	0	28	652	1135		0	0	0	19	443	770		
SKYLT.	40.8	99.8	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		20	439	49	0	0	0	0	0	0		20	439	49	0	0	0		
NET EXPOSED WALL	4.9	0.5	155	757	84	166	811	90		113	552	61	77	376	42	80	391	43		113	552	61	71	347	38		
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	396	556	209	110	155	58		0	0	0	0	0	0	20	28	11		198	278	104	100	140	53		
NO ATTIC EXPOSED CLG	3.0	1.1	0	0	0	0	0	0		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	0	0	0	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				1896			1501				1247			889			1071				1526			930			
SUB TOTAL HT GAIN					1306			1080				556			934			1189				660			861		
LEVEL FACTOR / MULTIPLIER			0.10	0.42		0.10	0.42			0.20	0.99		0.20	0.99		0.20	0.99			0.10	0.42		0.20	0.99			
AIR CHANGE HEAT LOSS				788			624				1233			879			1059				634			919			
AIR CHANGE HEAT GAIN					77			63				33			55			70				39			51		
DUCT LOSS				0			0				0			0			0				0			0			
DUCT GAIN					0			0				0			0			0				0			0		
HEAT GAIN PEOPLE	240		2		480	0		0		1		240	1		240	1		240		0		0	0		0		
HEAT GAIN APPLIANCES/LIGHTS					939			0				939			939			939				939			0		
TOTAL HT LOSS BTU/H				2684			2125				2481			1767			2130				2159			1849			
TOTAL HT GAIN x 1.3 BTU/H					3642			1487				2297			2818			3169				2129			1186		

ROOM USE			MUD			GRT			KIT			FOY			BAS		
EXP. WALL			5			10			17			16			47		
CLG. HT.			10			10			10			10			9		
	FACTORS																
GRS.WALL AREA	LOSS	GAIN	50			100			170			160			282		
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	0	0	0	0	0
EAST	23.3	40.5	0	0	0	42	978	1703	0	0	0	20	466	811	3	70	122
SOUTH	23.3	23.9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WEST	23.3	40.5	0	0	0	0	0	0	53	1235	2149	0	0	0	3	70	122
SKYLT.	40.8	99.8	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	0	0	0	10	220	24	20	439	49
NET EXPOSED WALL	4.9	0.5	30	147	16	58	283	31	117	572	63	130	635	70	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	141	555	61
EXPOSED CLG	1.4	0.5	0	0	0	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	0	0	0
EXPOSED FLOOR	2.8	0.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BASEMENT/CRAWL HEAT LOSS				0			0			0			0			1597	
SLAB ON GRADE HEAT LOSS				0			0			0			0				
SUBTOTAL HT LOSS				586			1262			1806			1321			2732	
SUB TOTAL HT GAIN					65			1734			2212			905			353
LEVEL FACTOR / MULTIPLIER			0.30	1.23		0.30	1.23		0.30	1.23		0.30	1.23		0.40	2.99	
AIR CHANGE HEAT LOSS				722			1556			2228			1629			8181	
AIR CHANGE HEAT GAIN					4			102			130			53			21
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		0
HEAT GAIN APPLIANCES/LIGHTS					939			939			939			0			939
TOTAL HT LOSS BTU/H				1308			2818			4034			2949			10912	
TOTAL HT GAIN x 1.3 BTU/H					1310			3608			4265			1246			1707

TOTAL HEAT GAIN BTU/H: 29060 — TONS: 2.42 — LOSS DUE TO VENTILATION LOAD BTU/H: 1786 — STRUCTURAL HEAT LOSS: 37218 — TOTAL COMBINED HEAT LOSS BTU/H: 39004

I REVIEW AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED IN THE APPROPRIATE CATEGORY AS AN "OTHER DESIGNER" UNDER DIVISION C, 3.2.5 OF THE BUILDING CODE.

Michael O'Rourke

INDIVIDUAL BCIN: 19669 MICHAEL O'ROURKE

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SITE NAME: ALCONA
BUILDER: BAYVIEW WELLINGTON HOMES

TYPE: RL-4 DATE: Jul-22 GFA: 2507 LO# 97833

HEATING CFM	980	COOLING CFM	980	furnace pressure	0.6
TOTAL HEAT LOSS	37,218	TOTAL HEAT GAIN	28,863	furnace filter	0.05
AIR FLOW RATE CFM	26.33	AIR FLOW RATE CFM	33.95	a/c coil pressure	0.2
				available pressure for s/a & r/a	0.35

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	4	5	6	4
R/A	0	2	2	1	1

plenum 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

$LENNOX
ML196UH045XE36B 45
AFUE = 96 %
INPUT (BTU/H) = 44,000
OUTPUT (BTU/H) = 42,800

FAN SPEED	
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	4	5	6	8	9	10	11	12	13	14	15	16	19	21	22	23	24
ROOM NAME	MBR	ENS	BED-2	BED-3	BED-4	BED-4	LOFT	MBR	ENS3	MUD	GRT	KIT	KIT	GRT	FOY	BAS	BAS	BAS	BAS
RM LOSS MBH.	1.34	2.13	2.48	1.77	1.07	1.07	2.16	1.34	1.85	1.31	1.41	2.02	2.02	1.41	2.95	2.73	2.73	2.73	2.73
CFM PER RUN HEAT	35	56	65	47	28	28	57	35	49	34	37	53	53	37	78	72	72	72	72
RM GAIN MBH.	1.82	1.49	2.30	2.82	1.58	1.58	2.13	1.82	1.19	1.31	1.80	2.13	2.13	1.80	1.25	0.43	0.43	0.43	0.43
CFM PER RUN COOLING	62	50	78	96	54	54	72	62	40	44	61	72	72	61	42	14	14	14	14
ADJUSTED PRESSURE	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	0.17	0.17	0.17	0.17	0.17
ACTUAL DUCT LGH.	76	72	69	53	61	66	80	72	54	32	20	35	29	15	14	38	24	7	18
EQUIVALENT LENGTH	190	210	200	130	190	180	210	170	140	110	110	100	100	90	100	110	120	130	110
TOTAL EFFECTIVE LENGTH	266	282	269	183	251	246	290	242	194	142	130	135	129	105	114	148	144	137	128
ADJUSTED PRESSURE	0.06	0.06	0.06	0.09	0.07	0.07	0.06	0.07	0.09	0.12	0.13	0.13	0.13	0.16	0.15	0.12	0.12	0.13	0.13
ROUND DUCT SIZE	6	6	6	6	5	5	6	6	5	4	5	5	5	5	5	5	5	5	5
HEATING VELOCITY (ft/min)	178	286	331	240	206	206	291	178	360	390	272	389	389	272	573	529	529	529	529
COOLING VELOCITY (ft/min)	316	255	398	489	396	396	367	316	294	505	448	529	529	448	308	103	103	103	103
OUTLET GRILL SIZE	4X10	4X10	4X10	4X10	3X10	3X10	4X10	4X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10
TRUNK	B	A	B	B	A	A	B	B	A	D	E	D	D	E	E	D	D	D	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

	TRUNK CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT			VELOCITY (ft/min)		TRUNK CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT			VELOCITY (ft/min)
TRUNK A	161	0.06	7.6	8	x	8	362	TRUNK G	0	0.00	0	0	x	8	0
TRUNK B	239	0.06	8.8	10	x	8	430	TRUNK H	0	0.00	0	0	x	8	0
TRUNK C	400	0.06	10.7	16	x	8	450	TRUNK I	0	0.00	0	0	x	8	0
TRUNK D	356	0.12	8.6	8	x	8	801	TRUNK J	0	0.00	0	0	x	8	0
TRUNK E	224	0.13	7.1	8	x	8	504	TRUNK K	0	0.00	0	0	x	8	0
TRUNK F	0	0.00	0	0	x	8	0	TRUNK L	0	0.00	0	0	x	8	0

RETURN AIR TRUNK SIZE

	TRUNK CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT			VELOCITY (ft/min)
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	360	0.05	10.8	14	x	8	463
TRUNK Z	0	0.05	0	0	x	8	0
DROP	980	0.05	15.7	24	x	10	588

RETURN AIR #	1	2	3	4	5											BR
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
AIR VOLUME	125	125	115	120	360	0	0	0	0	0	0	0	0	0	0	135
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.	67	70	56	52	16	1	1	1	1	1	1	1	1	1	1	14
EQUIVALENT LENGTH	165	175	220	205	140	0	0	0	0	0	0	0	0	0	0	135
TOTAL EFFECTIVE LH	232	245	276	257	156	1	1	1	1	1	1	1	1	1	1	149
ADJUSTED PRESSURE	0.06	0.06	0.05	0.06	0.09	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	6.9	6.9	7	6.8	9.3	0	0	0	0	0	0	0	0	0	0	6.3
INLET GRILL SIZE	8	8	8	8	8	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	14	14	14	14	30	0	0	0	0	0	0	0	0	0	0	14

I REVIEW AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED IN THE APPROPRIATE CATEGORY AS AN "OTHER DESIGNER" UNDER DIVISION C, 3.2.5 OF THE BUILDING CODE.

Michael O'Rourke INDIVIDUAL BCIN: 19669 MICHAEL O'ROURKE

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

TYPE: RL-4 LO # 97833
SITE NAME: ALCONA

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	4	@ 10.6 cfm	42.4	cfm
Table 9.32.3.A.		TOTAL	169.6	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	169.6	cfm
Less Principal Ventil. Capacity	79.5	cfm
Required Supplemental Capacity	90.1	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
ENS3	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 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

I REVIEW AND TAKE RESPONIBILITY FOR THE DESIGN WORK AND AM QUALIFIED IN THE APPROPRIATE CATEGORY AS AN "OTHER DESIGNER" UNDER DIVISION C, 3.2.5 OF THE BUILDING CODE.

INDIVIDUAL BCIN: 19669 Michael O'Rourke. MICHAEL O'ROURKE

HVAC DESIGNS LTD.

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CSA F280-12 Residential Heat Loss and Heat Gain Calculations

Formula Sheet (For Air Leakage / Ventiliation Calculation)

LO#: 97833 Model: RL-4 Builder: BAYVIEW WELLINGTON HOMES Date: 2022-07-06

Volume Calculation

House Volume

Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)
Bsmt	874	9	7866
First	874	10	8740
Second	874	9	7866
Third	758	9	6822
Fourth	0	9	0
		Total:	31,294.0 ft³
		Total:	886.1 m³

Air Change & Delta T Data

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

5.2.3.1 Heat Loss due to Air Leakage

$$HL_{airb} = LR_{airh} \times \frac{V_b}{3.6} \times DTD_h \times 1.2$$

0.439 x 246.15 x 46 °C x 1.2 = 5994 W

= **20452 Btu/h**

6.2.6 Sensible Gain due to Air Leakage

$$HG_{salb} = LR_{airc} \times \frac{V_b}{3.6} \times DTD_c \times 1.2$$

= 0.097 x 246.15 x 5 °C x 1.2 = 146 W

= **499 Btu/h**

5.2.3.2 Heat Loss due to Mechanical 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**

6.2.7 Sensible heat Gain due to Ventilation

$$HL_{vairb} = PVC \times DTD_h \times 1.08 \times (1 - E)$$

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)	HLairve Air Leakage + Ventilation Heat Loss (Btu/h)	Level Conductive Heat Loss: (HL_{clevel})	Air Leakage Heat Loss Multiplier (LF x HLairbv / HLlevel)
1	0.4	20,452	2,732	2.995
2	0.3		4,974	1.233
3	0.2		4,137	0.989
4	0.1		4,923	0.415
5	0		0	0.000

*HLairbv = Air leakage heat loss + ventilation heat loss
*For a balanced or supply only ventilation system HLairve = 0

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HEAT LOSS AND GAIN SUMMARY SHEET

MODEL: RL-4
SFQT: 2507 **LO#** 97833
BUILDER: BAYVIEW WELLINGTON HOMES
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 (ft^3):	31294.0	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	5
INTERIOR LIGHTING LOAD (Btu/h/ft^2):	2.50	DC BRUSHLESS MOTOR (Y/N):	Y
FOUNDATION CONFIGURATION	BCIN_1	DEPTH BELOW GRADE:	6.0 ft
LENGTH: 42.0 ft	WIDTH: 22.0 ft	EXPOSED PERIMETER:	47.0 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

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Ajax ON, L1S 2E2
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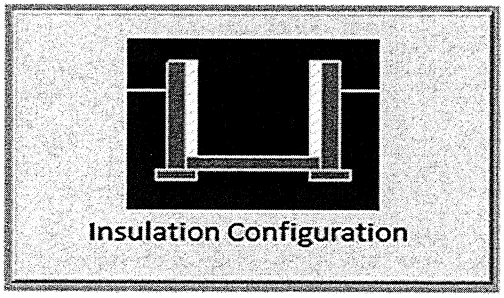
Residential Foundation Thermal Load Calculator

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):	12.8	
Floor Width (m):	6.7	
Exposed Perimeter (m):	14.3	
Wall Height (m):	2.7	
Depth Below Grade (m):	1.83	
Window Area (m^2):	0.6	
Door Area (m^2):	1.9	


Insulation Configuration

Radiant Slab		
Heated Fraction of the Slab:	0	
Fluid Temperature (°C):	33	
Design Months		
Heating Month	1	
Foundation Loads		
Heating Load (Watts):	**468**	

TYPE: RL-4
LO# 97833

Michael O'Rourke BCIN #19669

HVAC Designs Ltd.
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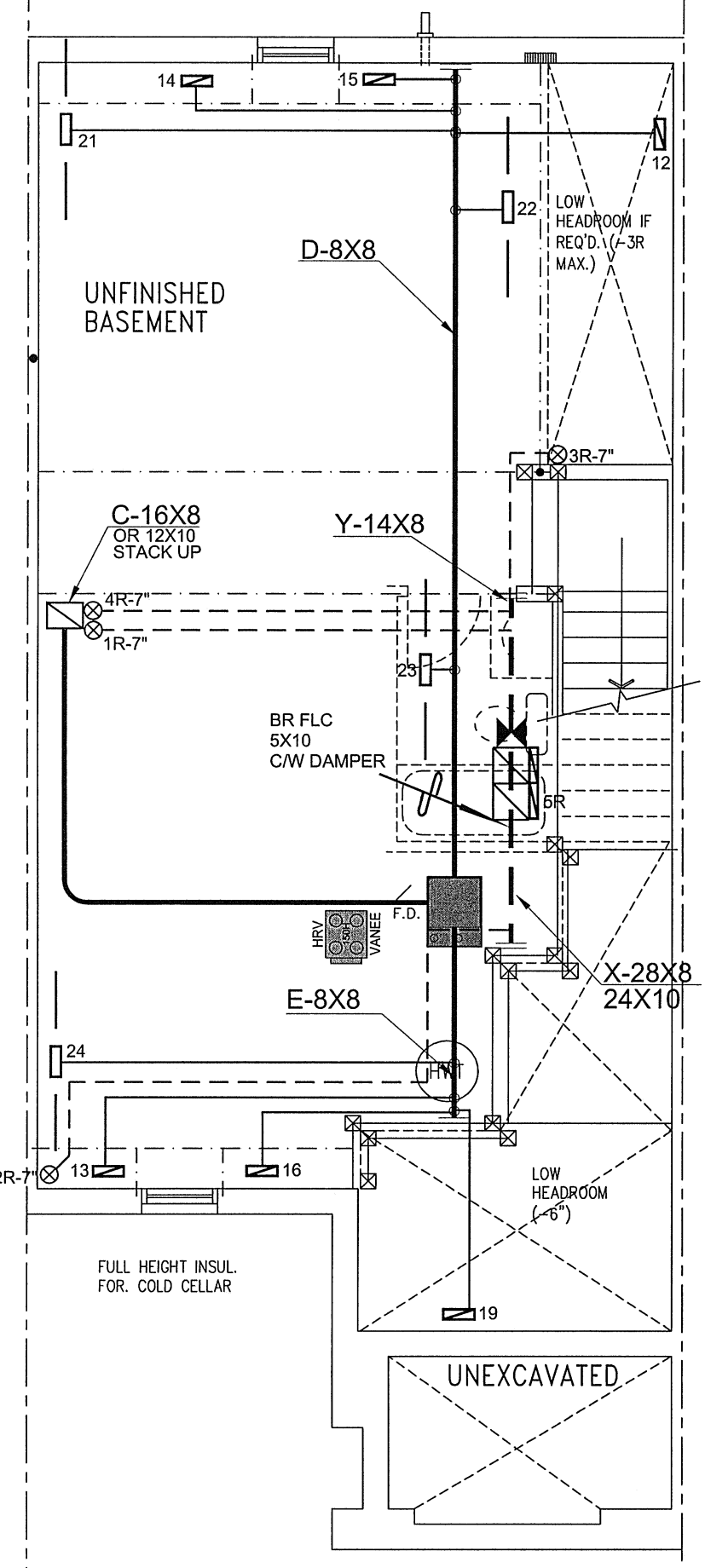
Air Infiltration Residential Load Calculator

Supplemental tool for CAN/CSA-F280

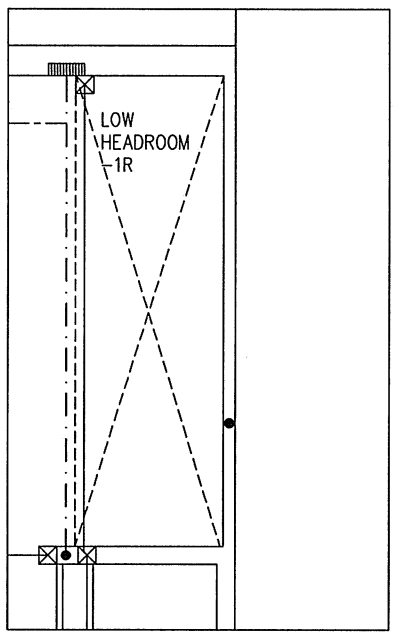
Weather Station Description	
Province:	Ontario
Region:	Barrie
Weather Station Location:	Open flat terrain, grass
Anemometer height (m):	10
Local Shielding	
Building Site:	Suburban, forest
Walls:	Heavy
Flue:	Heavy
Highest Ceiling Height (m):	9.45
Building Configuration	
Type:	Semi
Number of Stories:	Three
Foundation:	Full
House Volume (m^3):	886.1
Air Leakage/Ventilation	
Air Tightness Type:	Present (1961-) (3.57 ACH)
Custom BDT Data:	ELA @ 10 Pa. 1181.3 cm^2
	3.57 ACH @ 50 Pa
Mechanical Ventilation (L/s):	Total Supply 37.5 / Total Exhaust 37.5
Flue Size	
Flue #:	#1 #2 #3 #4
Diameter (mm):	0 0 0 0
Natural Infiltration Rates	
Heating Air Leakage Rate (ACH/H):	**0.439**
Cooling Air Leakage Rate (ACH/H):	**0.097**

TYPE: RL-4
LO# 97833

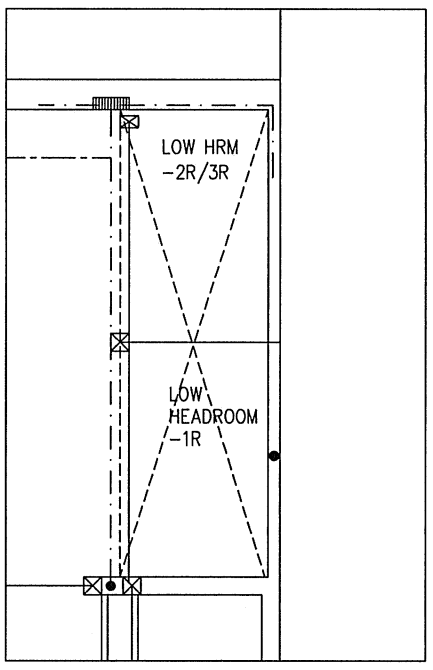
Michael O'Rourke BCIN# 19669



BASEMENT PLAN 'A'/'A2' & 'B'/'B2'



PARTIAL PLAN SUNKEN 1R



PARTIAL PLAN SUNKEN 2R OR MORE

I MICHAEL O'ROURKE HAVE REVIEW 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

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		14"x8" RETURN AIR GRILLE		RETURN AIR STACK ABOVE
	SUPPLY AIR GRILLE 6" BOOT		SUPPLY AIR STACK FROM 2nd FLOOR		30"x8" RETURN AIR GRILLE		RETURN AIR STACK 2nd FLOOR
	SUPPLY AIR BOOT ABOVE		6" SUPPLY AIR STACK 2nd FLOOR		FRA- FLOOR RETURN AIR GRILLE		REDUCER

No.	Description	Date
3.		
2.		
1.		

REVISIONS

Client
BAYVIEW WELLINGTON HOMES

Project Name
ALCONA
INNISFIL, ONTARIO

RL-4 2507 sqft

HVAC DESIGNS LTD.
375 Finley Ave. Suite 202 - Ajax, Ontario
L1S 2E2 Tel. 905.619.2300 - 905.420.5300 Fax 905.619.2375
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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.

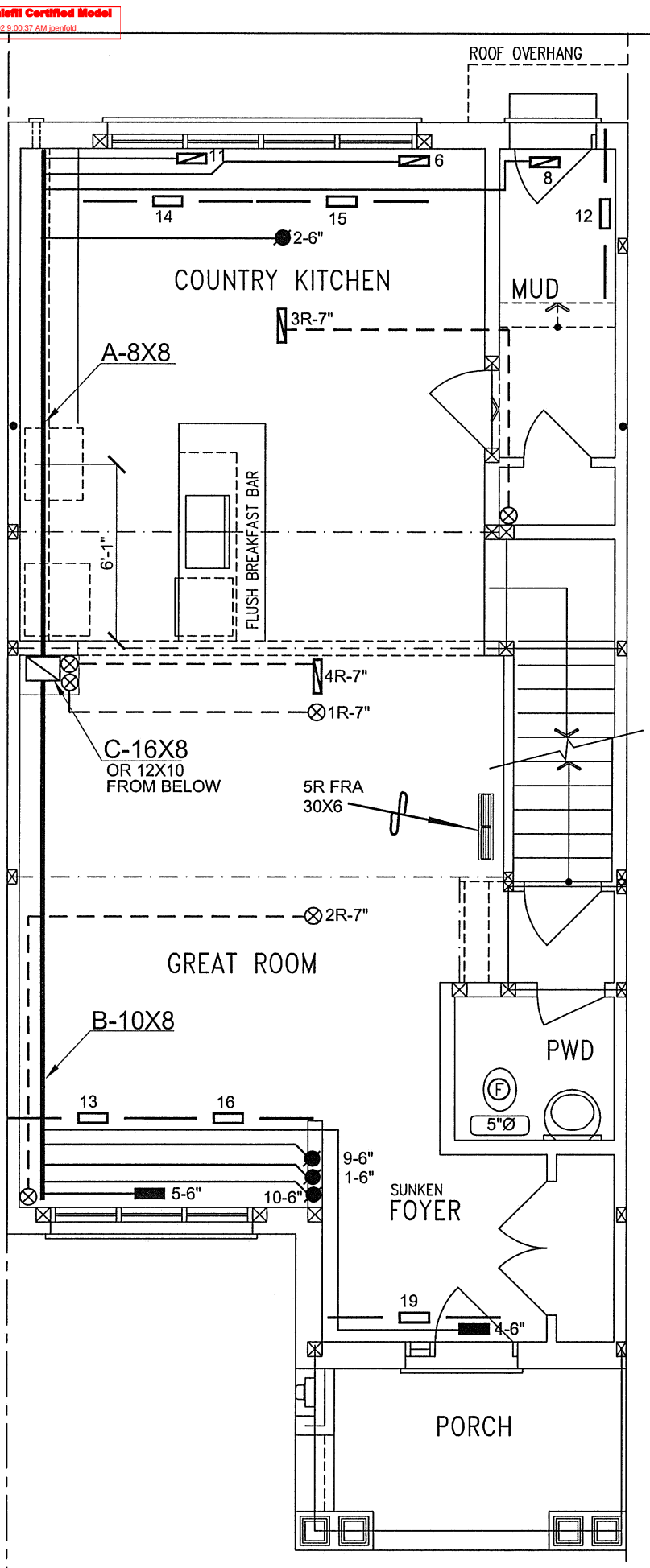
HEAT LOSS 39004 BTU/H		
UNIT DATA		
MAKE	LENNOX	
MODEL	ML196UH045XE36B	
INPUT	44	MBTU/H
OUTPUT	42.8	MBTU/H
COOLING	2.5	TONS
FAN SPEED	980	cfm @ 0.6" w.c.

# OF RUNS	S/A	R/A	FANS
3RD FLOOR	4	2	1
2ND FLOOR	5	2	3
1ST FLOOR	6	1	2
BASEMENT	4	1	0

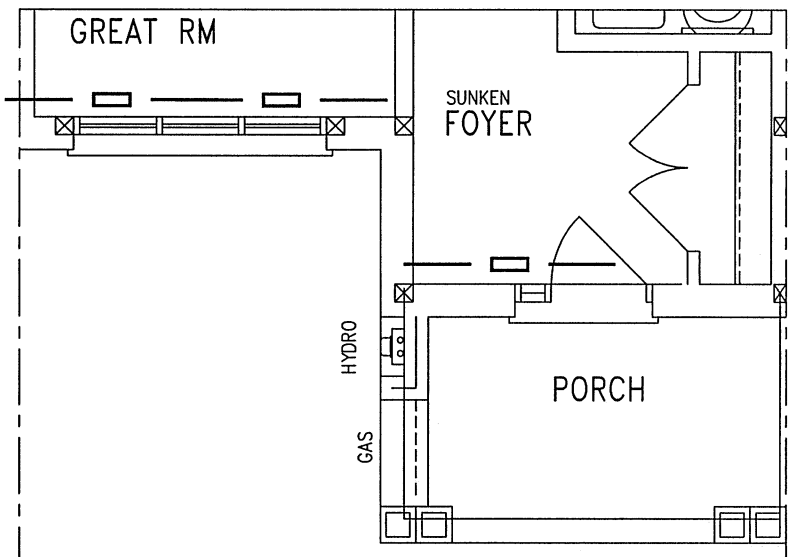
ALL S/A DIFFUSERS 4 "x10" UNLESS NOTED OTHERWISE ON LAYOUT. ALL S/A RUNS 5"Ø UNLESS NOTED OTHERWISE ON LAYOUT. UNDERCUT DOORS 1" min. FOR R/A

Sheet Title
BASEMENT HEATING LAYOUT

Date JUNE/2022
Scale 3/16" = 1'-0"
BCIN# 19669
LO# 97833



GROUND FLOOR PLAN 'A'/'A2'



PARTIAL GROUND FLOOR
PLAN 'B'/'B2'

I MICHAEL O'ROURKE HAVE REVIEW 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

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
— ▭ —	SUPPLY AIR GRILLE	▬	6" SUPPLY AIR BOOT ABOVE	▭	14"x8" RETURN AIR GRILLE	▭	RETURN AIR STACK ABOVE
— ▬ —	SUPPLY AIR GRILLE 6" BOOT	⊘	SUPPLY AIR STACK FROM 2nd FLOOR	▭	30"x8" RETURN AIR GRILLE	⊠	RETURN AIR STACK 2nd FLOOR
▭	SUPPLY AIR BOOT ABOVE	●	6" SUPPLY AIR STACK 2nd FLOOR	▤	FRA- FLOOR RETURN AIR GRILLE	⧗	REDUCER

No.	Description	Date
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REVISIONS

Client
BAYVIEW WELLINGTON HOMES

Project Name
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INNISFIL, ONTARIO

RL-4 2507 sqft

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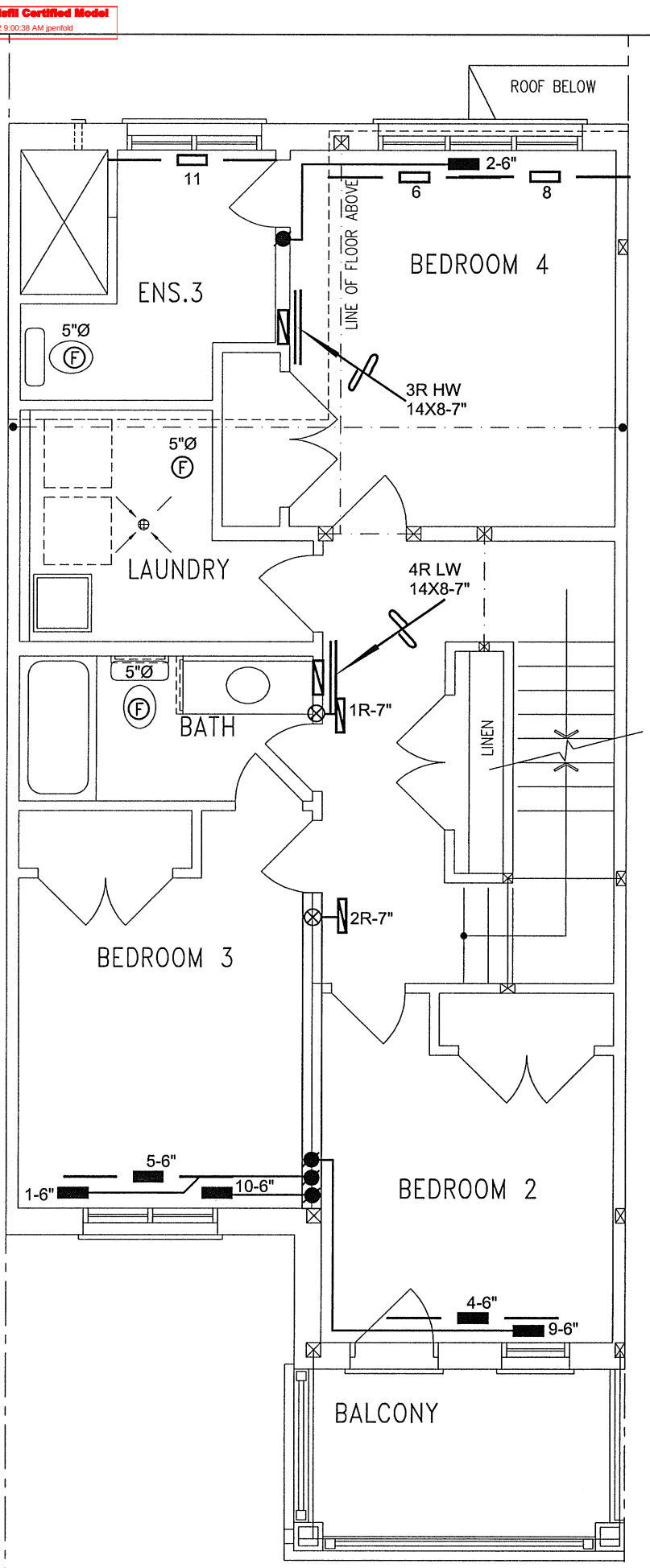
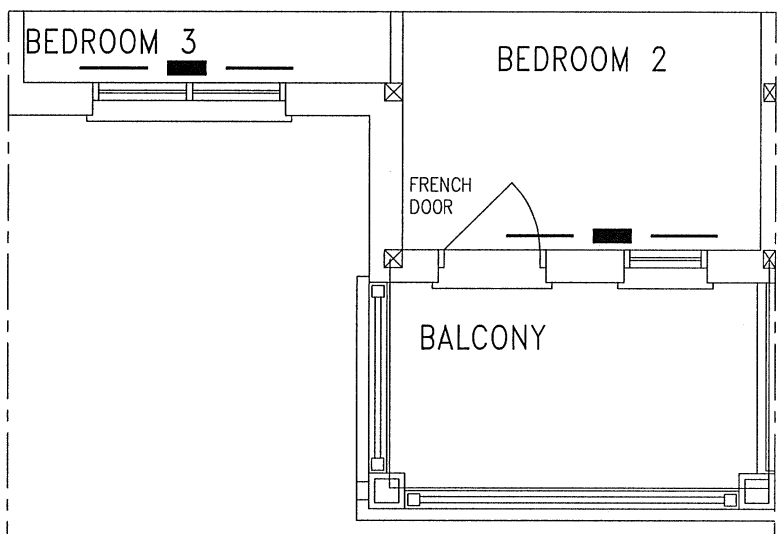
Installation to comply with the latest Ontario Building Code. All supply branch outlets shall be equipped with a manual balancing damper. Ductwork which passes through the garage or unheated spaces shall be adequately insulated and be gas-proofed.

Sheet Title
FIRST FLOOR HEATING LAYOUT

Date JUNE/2022
Scale 3/16" = 1'-0"
BCIN# 19669
LO# 97833



SECOND FLOOR PLAN 'A'/'A2'



PARTIAL SECOND FLOOR PLAN 'B'/'B2'

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CSA-F280-12
PACKAGE A1

HVAC LEGEND

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
— ▭ —	SUPPLY AIR GRILLE	▬	6" SUPPLY AIR BOOT ABOVE	▱	14"x8" RETURN AIR GRILLE	▱	RETURN AIR STACK ABOVE
— ▬ —	SUPPLY AIR GRILLE 6" BOOT	⊘	SUPPLY AIR STACK FROM 2nd FLOOR	▱▱	30"x8" RETURN AIR GRILLE	⊠	RETURN AIR STACK 2nd FLOOR
▱	SUPPLY AIR BOOT ABOVE	●	6" SUPPLY AIR STACK 2nd FLOOR	▤	FRA- FLOOR RETURN AIR GRILLE	⧗	REDUCER

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Sheet Title
SECOND FLOOR HEATING LAYOUT

Date JUNE/2022
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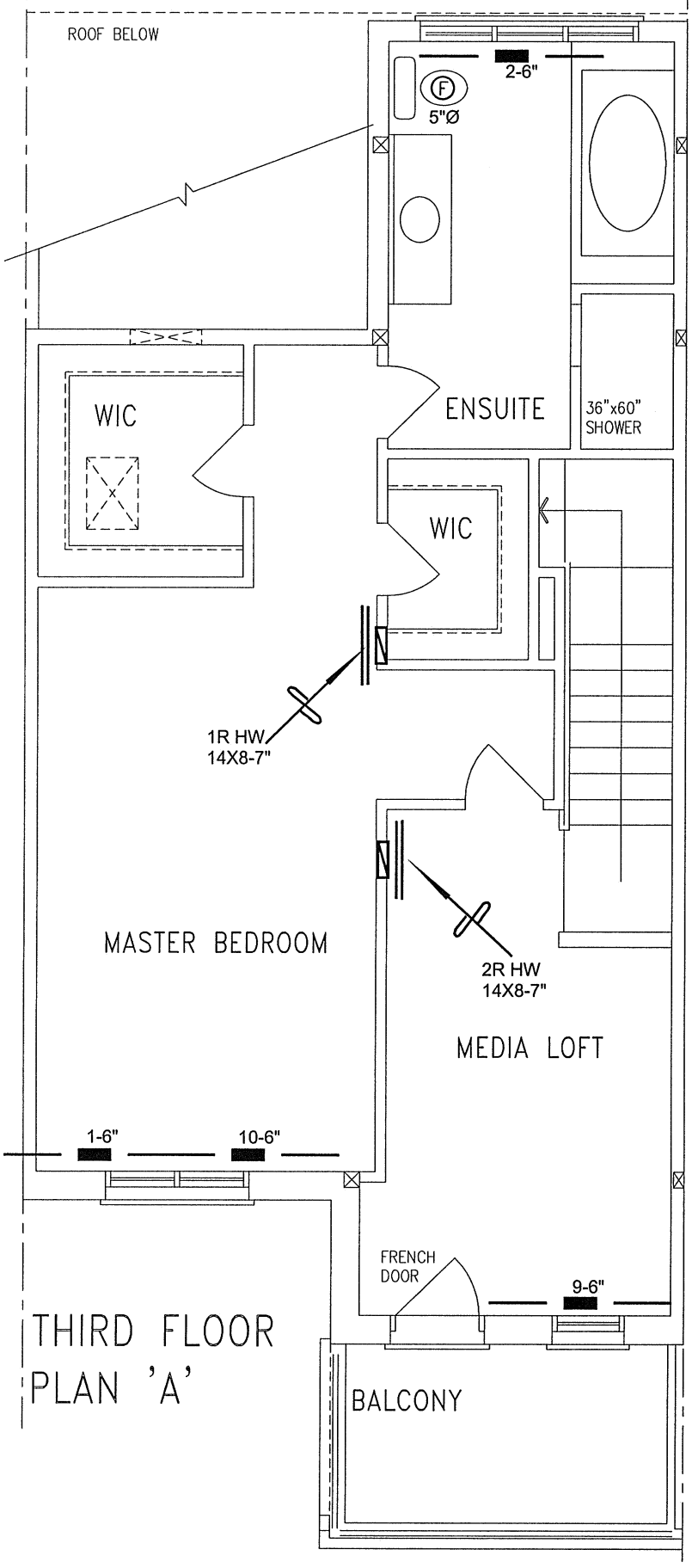
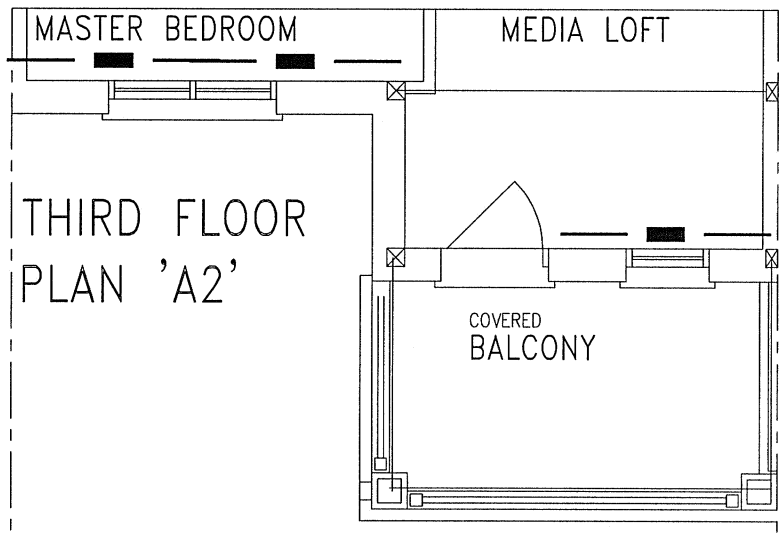
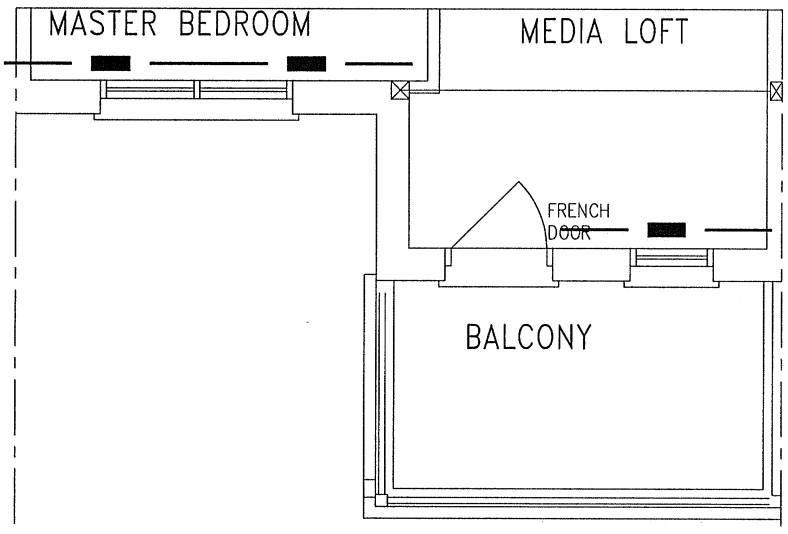
BCIN# 19669
LO# 97833



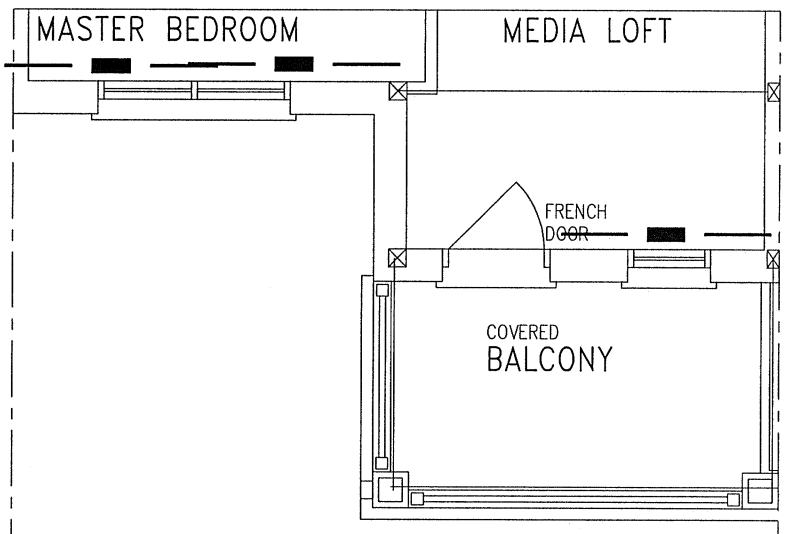
THIRD FLOOR
PLAN 'A'



THIRD FLOOR
PLAN 'A2'



PARTIAL THIRD FLOOR PLAN 'B'



PARTIAL THIRD FLOOR
PLAN 'B2'

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

CSA-F280-12
PACKAGE A1

HVAC LEGEND

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No.	Description	Date
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Sheet Title
THIRD FLOOR
HEATING
LAYOUT

Date JUNE/2022
Scale 3/16" = 1'-0"
BCIN# 19669
LO# 97833