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 BRAMPTON	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	☒ 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:** 3001 **Project:** SUMMER RIDGE ESTATES

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.

May 15, 2024
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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SITE NAME: SUMMER RIDGE ESTATES | DATE: May-24 | WINTER NATURAL AIR CHANGE RATE 0.282 | HEAT LOSS ΔT °F. 74 | CSA-F280-12
BUILDER: ROYAL PIE HOMES | TYPE: 3001 | GFA: 2277 | LO# 105055 | SUMMER NATURAL AIR CHANGE RATE 0.088 | HEAT GAIN ΔT °F. 11 | PERFORMANCE

ROOM USE			PRI			ENS				BED-2			BED-3				BATH							
EXP. WALL			39			24				25			42				0							
CLG. HT.			9			9				9			9				9							
	FACTORS																							
GRS.WALL AREA	LOSS	GAIN	351			216				225			378				0							
GLAZING			LOSS	GAIN		LOSS	GAIN			LOSS	GAIN		LOSS	GAIN			LOSS	GAIN						
NORTH	20.8	12.8	0	0	0	0	0	0		0	0	0	0	0	0		0	0	0					
EAST	20.8	32.9	0	0	0	0	0	0		50	1039	1646	52	1080	1711		0	0	0					
SOUTH	20.8	19.8	0	0	0	0	0	0		0	0	0	11	229	218		0	0	0					
WEST	20.8	32.9	36	748	1185	18	374	592		0	0	0	0	0	0		0	0	0					
SKYLT.	34.1	132.1	0	0	0	0	0	0		0	0	0	0	0	0		0	0	0					
DOORS	19.6	2.9	0	0	0	0	0	0		0	0	0	0	0	0		0	0	0					
NET EXPOSED WALL	3.5	0.5	315	1092	162	198	687	102		175	607	90	315	1092	162		0	0	0					
NET EXPOSED BSMT WALL ABOVE GR	3.5	0.5	0	0	0	0	0	0		0	0	0	0	0	0		0	0	0					
EXPOSED CLG	1.3	0.6	428	536	239	129	162	72		179	224	100	306	383	171		114	143	64					
NO ATTIC EXPOSED CLG	2.7	1.2	0	0	0	0	0	0		0	0	0	0	0	0		0	0	0					
EXPOSED FLOOR	2.5	0.4	0	0	0	0	0	0		179	446	66	0	0	0		56	139	21					
BASEMENT/CRAWL HEAT LOSS				0			0				0			0				0						
SLAB ON GRADE HEAT LOSS				0			0				0			0				0						
SUBTOTAL HT LOSS				2376			1222				2316			2784				282						
SUB TOTAL HT GAIN					1585			766				1901			2262				84					
LEVEL FACTOR / MULTIPLIER			0.20	0.23		0.20	0.23			0.20	0.23		0.20	0.23			0.20	0.23						
AIR CHANGE HEAT LOSS				557			286				543			652				66						
AIR CHANGE HEAT GAIN					87			42				104			124				5					
DUCT LOSS				0			0				286			0				35						
DUCT GAIN					0			0				328			0				9					
HEAT GAIN PEOPLE	240		2		480	0		0		1		240	1		240		0		0					
HEAT GAIN APPLIANCES/LIGHTS					1037			0				1037			1037				0					
TOTAL HT LOSS BTU/H				2933			1508				3144			3437				383						
TOTAL HT GAIN x 1.3 BTU/H					4145			1050				4693			4761				127					

ROOM USE			DEN				KT/FM			ENTRY			LAUN			W/R			FOY			MUD				BAS		
EXP. WALL			18				50			16			12			13			20			11				128		
CLG. HT.			10				10			10			9			10			10			10				9		
	FACTORS																											
GRS.WALL AREA	LOSS	GAIN	180				500			160			108			130			200			110				768		
GLAZING			LOSS	GAIN			LOSS	GAIN		LOSS	GAIN		LOSS	GAIN		LOSS	GAIN		LOSS	GAIN		LOSS	GAIN			LOSS	GAIN	
NORTH	20.8	12.8	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0
EAST	20.8	32.9	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	34	706	1119	0	0	0		0	0	0
SOUTH	20.8	19.8	20	416	397		20	416	397	0	0	0	20	416	397	10	208	198	0	0	0	0	0	0		8	166	159
WEST	20.8	32.9	0	0	0		83	1724	2732	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		4	83	132
SKYLT.	34.1	132.1	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0
DOORS	19.6	2.9	0	0	0		10	196	29	20	392	58	0	0	0	0	0	0	21	411	61	20	392	58		20	392	58
NET EXPOSED WALL	3.5	0.5	160	555	82		387	1342	199	140	485	72	88	305	45	120	416	62	145	503	75	90	312	46		0	0	0
NET EXPOSED BSMT WALL ABOVE GR	3.5	0.5	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		384	1349	200
EXPOSED CLG	1.3	0.6	0	0	0		0	0	0	0	0	0	100	125	56	0	0	0	0	0	0	0	0	0		0	0	0
NO ATTIC EXPOSED CLG	2.7	1.2	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0
EXPOSED FLOOR	2.5	0.4	0	0	0		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				4344		
SLAB ON GRADE HEAT LOSS				0				0			0			0			0			0			0						
SUBTOTAL HT LOSS				970				3678			877			846			624			1620			704				6334		
SUB TOTAL HT GAIN					479				3356			130			498			260			1254			104					548
LEVEL FACTOR / MULTIPLIER			0.30	0.41			0.30	0.41		0.30	0.41		0.20	0.23		0.30	0.41		0.30	0.41		0.30	0.41			0.50	0.91	
AIR CHANGE HEAT LOSS				396				1499			357			198			254			660			287				5756		
AIR CHANGE HEAT GAIN					26				183			7			27			14			69			6					30
DUCT LOSS				0				0			0			0			0			0			0				0		
DUCT GAIN					0				0			0			0			0			0			0					0
HEAT GAIN PEOPLE	240		0		0		0		0	0		0	0		0	0		0	0		0	0		0		0		0
HEAT GAIN APPLIANCES/LIGHTS					1037				1037			0			1037			0			0			0					1037
TOTAL HT LOSS BTU/H				1366				5177			1234			1044			878			2281			990				12089		
TOTAL HT GAIN x 1.3 BTU/H					2004				5949			178			2030			356			1720			143					2099

TOTAL HEAT GAIN BTU/H: 29445 | TONS: 2.45 | LOSS DUE TO VENTILATION LOAD BTU/H: 1274 | STRUCTURAL HEAT LOSS: 36465 | TOTAL COMBINED HEAT LOSS BTU/H: 37739

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: SUMMER RIDGE ESTATES
BUILDER: ROYAL PIE HOMES

TYPE: 3001 DATE: May-24 GFA: 2277 LO# 105055

HEATING CFM	925	COOLING CFM	925	furnace pressure	0.6									
TOTAL HEAT LOSS	36,465	TOTAL HEAT GAIN	29,256	furnace filter	0.00	FACTORY INSTALLED					**CARRIER**		AFUE =	96 %
AIR FLOW RATE CFM	25.37	AIR FLOW RATE CFM	31.62	a/c coil pressure	0.26						**59SC6A040M14--10**	**40**	INPUT (BTU/H) =	40,000
				available pressure							FAN SPEED		OUTPUT (BTU/H) =	**39,000**
				for s/a & r/a	0.34						LOW	0		
											MEDLOW	0	DESIGN CFM =	**925**
				plenum pressure s/a	0.18	r/a pressure	0.16				MEDIUM	0	CFM @ .6 " E.S.P.	
				max s/a dif press. loss	0.01	r/a grille press. Loss	0.02				MEDIUM HIGH	925		
				min adjusted pressure s/a	0.17	adjusted pressure r/a	0.14				HIGH	0	TEMPERATURE RISE	39 °F

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	9	8	4
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	4	5	7	8	9	10	12	13	14	15	16	17	18	19	20	21	22	23	24
ROOM NAME	PRI	ENS	BED-2	BED-3	BATH	BED-2	BED-3	PRI	DEN	KT/FM	KT/FM	KT/FM	ENTRY	LAUN	W/R	FOY	MUD	BAS	BAS	BAS	BAS
RM LOSS MBH.	1.47	1.51	1.57	1.72	0.38	1.57	1.72	1.47	1.37	1.73	1.73	1.73	1.23	1.04	0.88	2.28	0.99	3.02	3.02	3.02	3.02
CFM PER RUN HEAT	37	38	40	44	10	40	44	37	35	44	44	44	31	26	22	58	25	77	77	77	77
RM GAIN MBH.	2.07	1.05	2.35	2.38	0.13	2.35	2.38	2.07	2.00	1.98	1.98	1.98	0.18	2.03	0.36	1.72	0.14	0.52	0.52	0.52	0.52
CFM PER RUN COOLING	66	33	74	75	4	74	75	66	63	63	63	63	6	64	11	54	5	17	17	17	17
ADJUSTED PRESSURE	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	0.17	0.17	0.17	0.17	0.17	0.17
ACTUAL DUCT LGH.	70	77	31	25	41	34	29	62	6	41	56	47	24	33	14	22	29	41	24	10	15
EQUIVALENT LENGTH	160	160	160	120	150	170	150	180	180	120	170	140	160	150	120	110	110	160	100	140	140
TOTAL EFFECTIVE LENGTH	230	237	191	145	191	204	179	242	186	161	226	187	184	183	134	132	139	201	124	150	155
ADJUSTED PRESSURE	0.07	0.07	0.09	0.12	0.09	0.08	0.09	0.07	0.09	0.1	0.07	0.09	0.09	0.09	0.12	0.13	0.12	0.08	0.13	0.11	0.11
ROUND DUCT SIZE	**6**	5	5	5	4	5	5	**6**	5	**6**	**6**	5	4	5	4	5	4	**6**	5	5	5
HEATING VELOCITY (ft/min)	189	279	294	323	115	294	323	189	257	224	224	323	356	191	252	426	287	393	565	565	565
COOLING VELOCITY (ft/min)	337	242	543	551	46	543	551	337	463	321	321	463	69	470	126	396	57	87	125	125	125
OUTLET GRILL SIZE	4X10	3X10	3X10	3X10	3X10	3X10	3X10	4X10	3X10	4X10	4X10	3X10	3X10	3X10	3X10	3X10	3X10	4X10	3X10	3X10	3X10
TRUNK	A	A	C	C	B	C	C	A	B	B	A	A	B	B	C	C	B	A	B	B	A

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	354	0.07	9.8	12	x	8	531	TRUNK G	0	0.00	0	0	x	8	0
TRUNK B	679	0.07	12.5	18	x	8	679	TRUNK H	0	0.00	0	0	x	8	0
TRUNK C	248	0.08	8.3	8	x	8	558	TRUNK I	0	0.00	0	0	x	8	0
TRUNK D	0	0.00	0	0	x	8	0	TRUNK J	0	0.00	0	0	x	8	0
TRUNK E	0	0.00	0	0	x	8	0	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	925	0.05	15.3	28	x	8	595
TRUNK Y	574	0.05	12.8	20	x	8	517
TRUNK Z	399	0.05	11.2	14	x	8	513
DROP	925	0.05	15.3	24	x	10	555

RETURN AIR #	1	2	3	4	5	6										**BR**
FLOOR	2	2	2	2	1	1										B
AIR VOLUME	115	75	95	100	105	284	0	0	0	0	0	0	0	0	0	151
PLENUM PRESSURE	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14
ACTUAL DUCT LGH.	65	61	44	73	17	18	1	1	1	1	1	1	1	1	1	14
EQUIVALENT LENGTH	215	215	155	220	155	210	0	0	0	0	0	0	0	0	0	135
TOTAL EFFECTIVE LH	280	276	199	293	172	228	1	1	1	1	1	1	1	1	1	149
ADJUSTED PRESSURE	0.05	0.05	0.07	0.05	0.08	0.06	14.32	14.32	14.32	14.32	14.32	14.32	14.32	14.32	14.32	0.10
ROUND DUCT SIZE	7	6	6	6.7	6	9.4	0	0	0	0	0	0	0	0	0	6.5
INLET GRILL SIZE	8	8	8	8	8	8	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	14	30	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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TYPE: 3001 LO # 105055
SITE NAME: SUMMER RIDGE ESTATES

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	4	@ 10.6 cfm	42.4	cfm
Other Rooms	4	@ 10.6 cfm	42.4	cfm
Table 9.32.3.A.		TOTAL	148.4	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	148.4	cfm
Less Principal Ventil. Capacity	63.6	cfm
Required Supplemental Capacity	84.8	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	74 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
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: ROYAL PIE 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: May-24

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#: 105055 Model: 3001 Builder: ROYAL PIE HOMES Date: 2024-05-15

Volume Calculation

House Volume

Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)
Bsmt	1021	9	9189
First	1021	10	10210
Second	1256	9	11304
Third	0	9	0
Fourth	0	9	0
		Total:	30,703.0 ft³
		Total:	869.4 m³

Air Change & Delta T Data

WINTER NATURAL AIR CHANGE RATE	0.282
SUMMER NATURAL AIR CHANGE RATE	0.088

Design Temperature Difference

	Tin °C	Tout °C	ΔT °C	ΔT °F
Winter DTDh	22	-19	41	74
Summer DTDc	24	30	6	11

5.2.3.1 Heat Loss due to Air Leakage

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

0.282 x 241.50 x 41 °C x 1.2 = 3374 W

= **11512 Btu/h**

6.2.6 Sensible Gain due to Air Leakage

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

= 0.088 x 241.50 x 6 °C x 1.2 = 157 W

= **534 Btu/h**

5.2.3.2 Heat Loss due to Mechanical Ventilation

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

64 CFM x 74 °F x 1.08 x 0.25 = **1274 Btu/h**

6.2.7 Sensible heat Gain due to Ventilation

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

64 CFM x 11 °F x 1.08 x 0.25 = **189 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	0.5	11,512	6,334	0.909
2	0.3		8,473	0.408
3	0.2		9,827	0.234
4	0		0	0.000
5	0		0	0.000

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

Michael O'Rourke
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HEAT LOSS AND GAIN SUMMARY SHEET

MODEL: 3001 **BUILDER:** ROYAL PIE HOMES
SFQT: 2277 **LO#** 105055 **SITE:** SUMMER RIDGE ESTATES

DESIGN ASSUMPTIONS

HEATING	°F	COOLING	°F
OUTDOOR DESIGN TEMP.	-2	OUTDOOR DESIGN TEMP.	86
INDOOR DESIGN TEMP.	72	INDOOR DESIGN TEMP. (MAX 75°F)	75
		WINDOW SHGC	0.60

BUILDING DATA

ATTACHMENT:	ATTACHED	# OF STORIES (+BASEMENT):	3
FRONT FACES:	EAST	ASSUMED (Y/N):	Y
AIR CHANGES PER HOUR:	3.00	ASSUMED (Y/N):	Y
AIR TIGHTNESS CATEGORY:	TIGHT	ASSUMED (Y/N):	Y
WIND EXPOSURE:	SHELTERED	ASSUMED (Y/N):	Y
HOUSE VOLUME (ft^3):	30703.0	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	4
INTERIOR LIGHTING LOAD ($Btu/h/ft^2$):	2.20	DC BRUSHLESS MOTOR (Y/N):	Y
FOUNDATION CONFIGURATION	BCIN_1	DEPTH BELOW GRADE:	6.0 ft
LENGTH: 51.0 ft	WIDTH: 26.0 ft	EXPOSED PERIMETER:	128.0 ft

2012 OBC - COMPLIANCE PACKAGE **Component**	**Compliance Package PERFORMANCE**	
	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+1.5	21.40
Basement Walls Minimum RSI (R)-Value	20	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	1.6	-
Skylights Maximum U-Value	2.6	-
Space Heating Equipment Minimum AFUE	96%	-
HRV/ERV Minimum Efficiency	75%	-
Domestic Hot Water Heater Minimum EF	0.9	-

INDIVIDUAL BCIN: 19669
MICHAEL O'ROURKE

Michael O'Rourke

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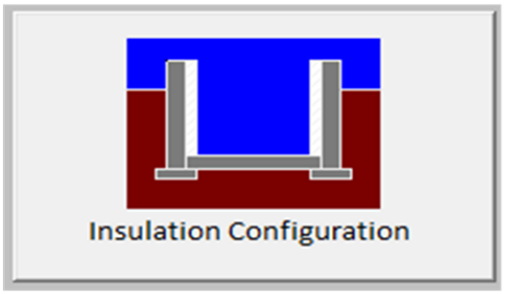
375 Finley Ave, Suite 202
Ajax ON, L1S 2E2
905-619-2300

Residential Foundation Thermal Load Calculator

Supplemental tool for CAN/CSA-F280

Weather Station Description	
Province:	Ontario
Region:	Brampton
Site Description	
Soil Conductivity:	Normal conductivity: dry sand, loam, clay
Water Table:	Normal (7-10 m, 23-33 ft)

Foundation Dimensions		
Floor Length (m):	**15.5**	 Insulation Configuration
Floor Width (m):	**7.9**	
Exposed Perimeter (m):	**39.0**	
Wall Height (m):	**2.7**	
Depth Below Grade (m):	**1.83**	
Window Area (m^2):	**1.1**	
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):		**1273**

TYPE: 3001
LO# 105055

Michael O'Rourke BCIN #19669

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

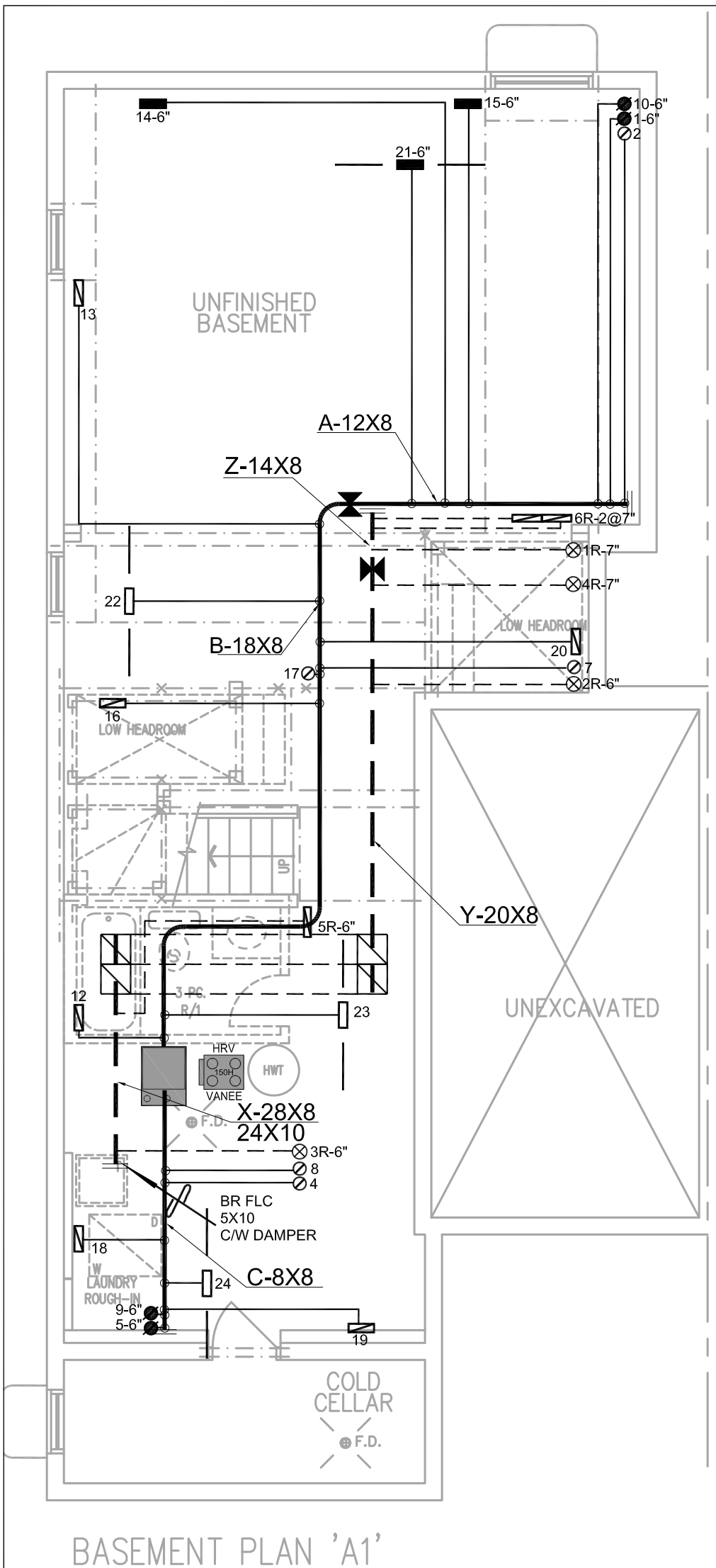
Air Infiltration Residential Load Calculator

Supplemental tool for CAN/CSA-F280

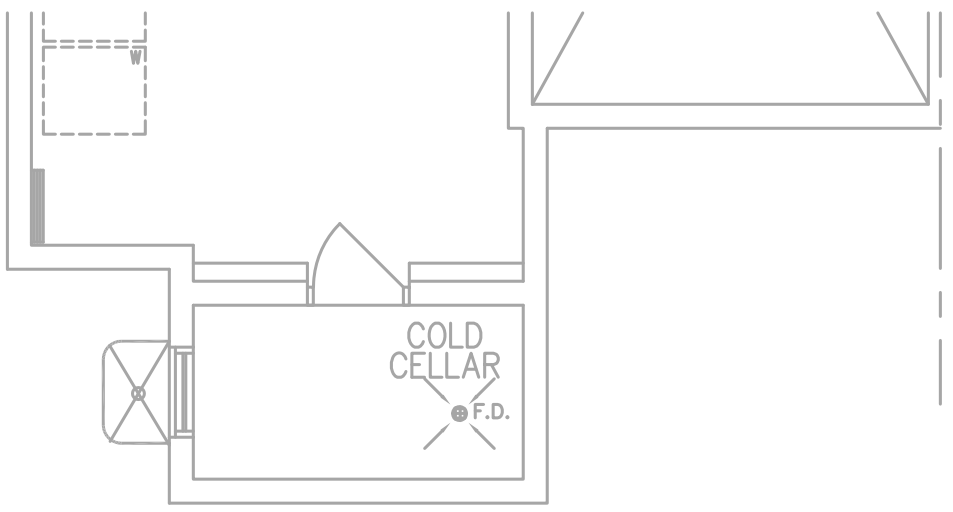
Weather Station Description	
Province:	Ontario
Region:	Brampton
Weather Station Location:	Open flat terrain, grass
Anemometer height (m):	10
Local Shielding	
Building Site:	Suburban, forest
Walls:	Heavy
Flue:	Heavy
Highest Ceiling Height (m):	6.71
Building Configuration	
Type:	Semi
Number of Stories:	Two
Foundation:	Full
House Volume (m^3):	869.4
Air Leakage/Ventilation	
Air Tightness Type:	Attached (3.0 ACH)
Custom BDT Data:	ELA @ 10 Pa. 973.9 cm^2
	3.00 ACH @ 50 Pa
Mechanical Ventilation (L/s):	Total Supply 30.0 / Total Exhaust 30.0
Flue Size	
Flue #:	#1 #2 #3 #4
Diameter (mm):	0 0 0 0
Natural Infiltration Rates	
Heating Air Leakage Rate (ACH/H):	**0.282**
Cooling Air Leakage Rate (ACH/H):	**0.088**

TYPE: 3001
LO# 105055

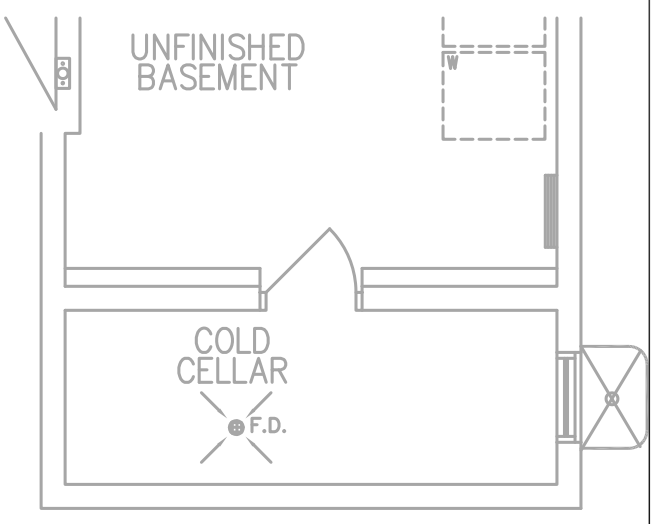
Michael O'Rourke BCIN# 19669



BASEMENT PLAN 'A1'



BASEMENT PLAN 'B1' & 'B2'



BASEMENT PLAN 'A2' (REV)

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

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.

PERFORMANCE

Client
ROYAL PINE HOMES

Project Name
SUMMER RIDGE ESTATES
BRAMPTON, ONTARIO

3001 2277 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.

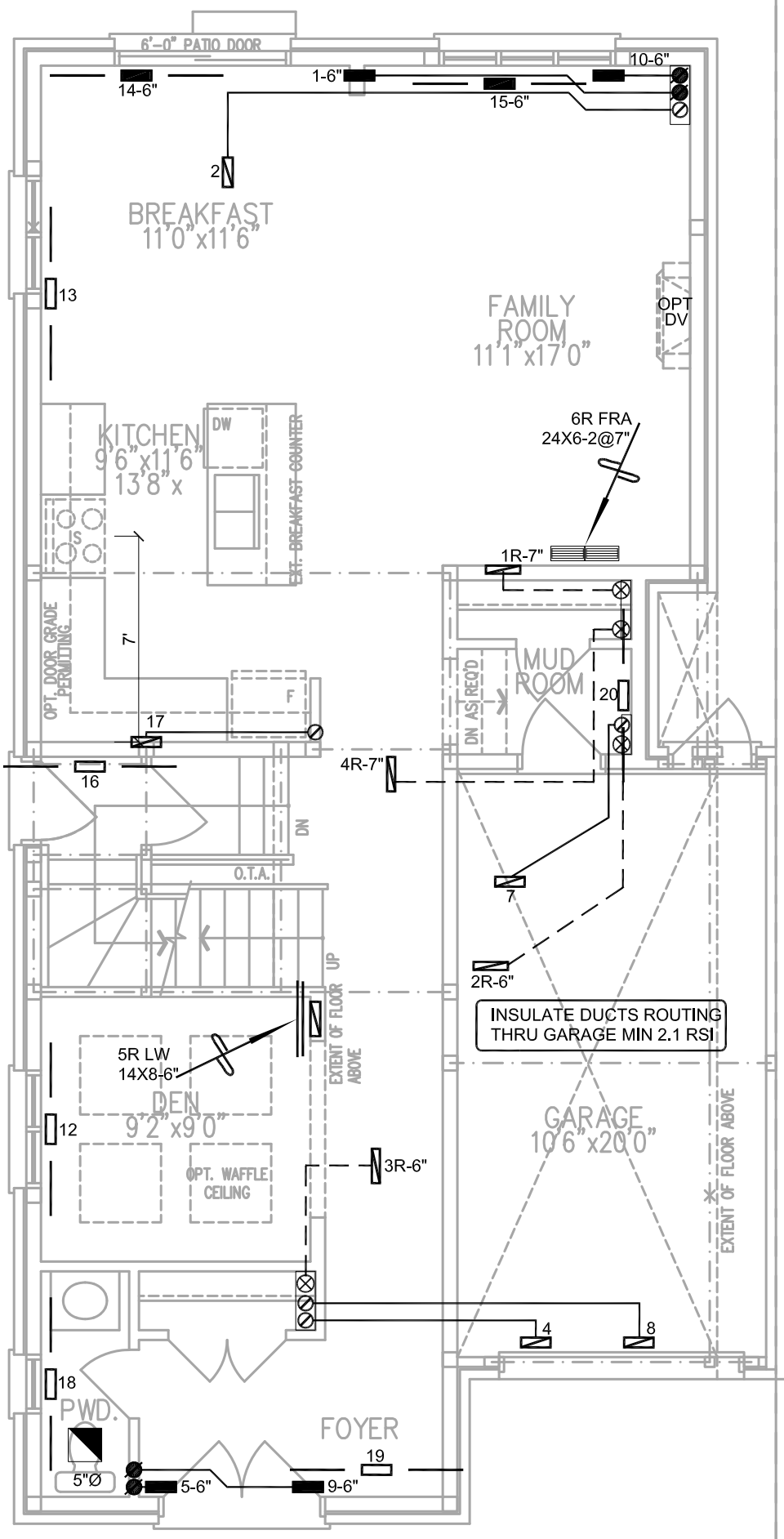
HEAT LOSS 37739 BTU/H	
UNIT DATA	
MAKE	CARRIER
MODEL	59SC6A040M14--10
INPUT	40 MBTU/H
OUTPUT	39 MBTU/H
COOLING	2.5 TONS
FAN SPEED	925 cfm @ 0.6" w.c.

# OF RUNS	S/A	R/A	FANS
3RD FLOOR			
2ND FLOOR	9	4	2
1ST FLOOR	8	2	2
BASEMENT	4	1	0

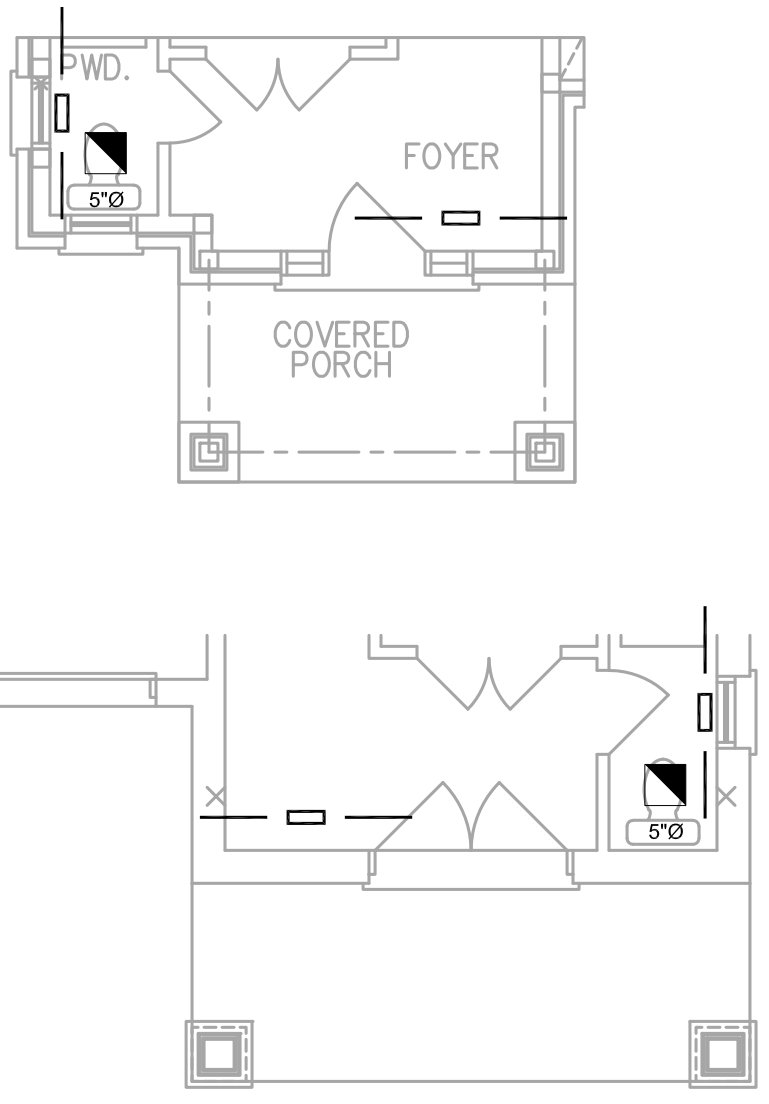
ALL S/A DIFFUSERS 4 "x10" UNLESS NOTED OTHERWISE ON LAYOUT. ALL S/A RUNS 5"Ø UNLESS NOTED OTHERWISE ON LAYOUT. UNDERCUT DOORS 1" min. FOR R/A

Sheet Title
BASEMENT HEATING LAYOUT

Date MAY/2024
Scale 3/16" = 1'-0"
BCIN# 19669
LO# 105055



GROUND FLOOR PLAN 'A1'



GROUND FLOOR PLAN 'B1'

GROUND FLOOR PLAN 'A2' (REV)

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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2.		
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Sheet Title

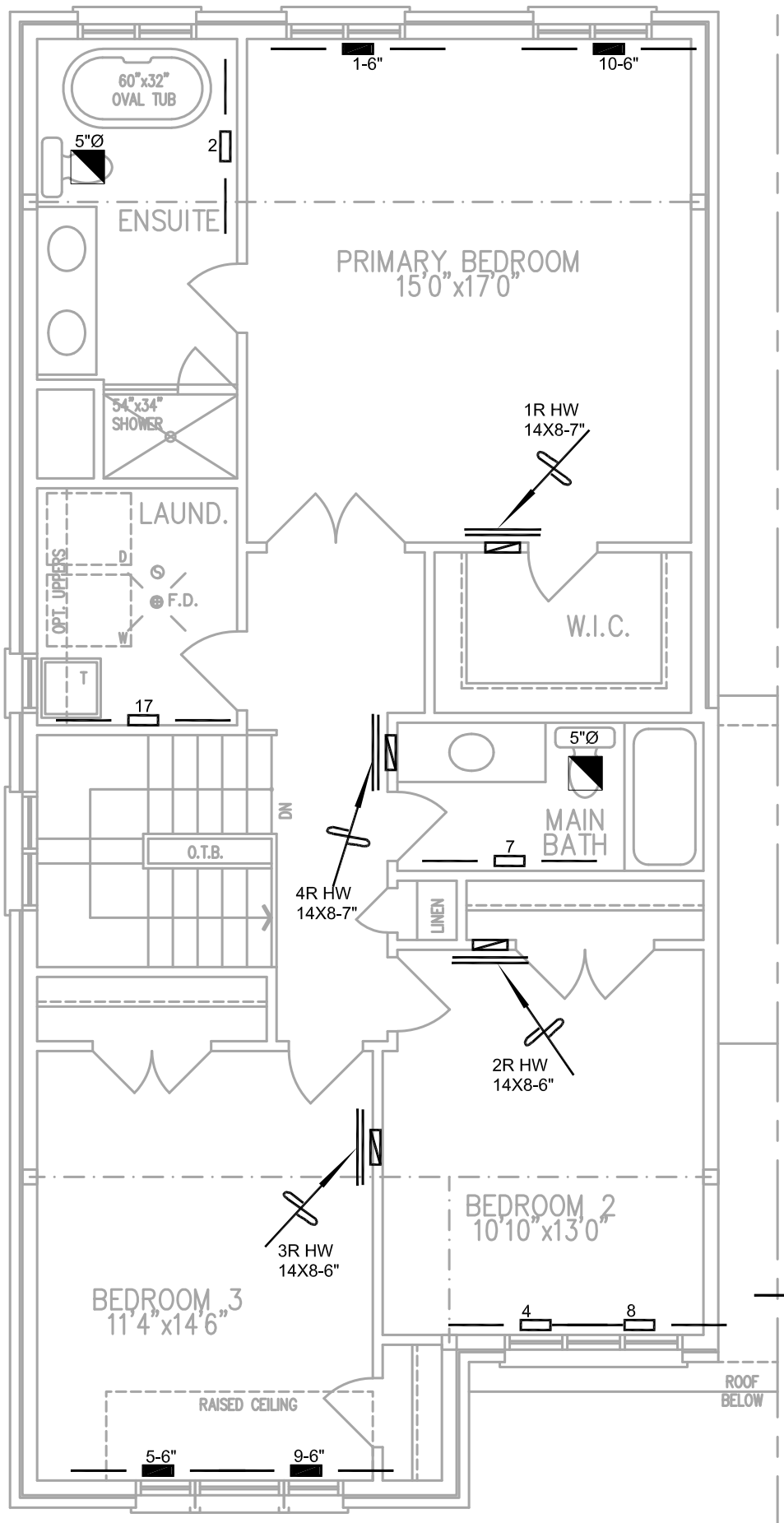
FIRST FLOOR
HEATING
LAYOUT

Date MAY/2024

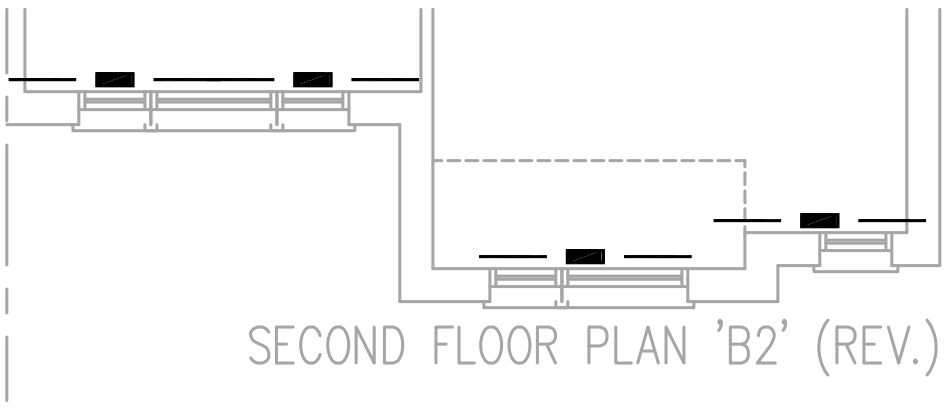
Scale 3/16" = 1'-0"

BCIN# 19669

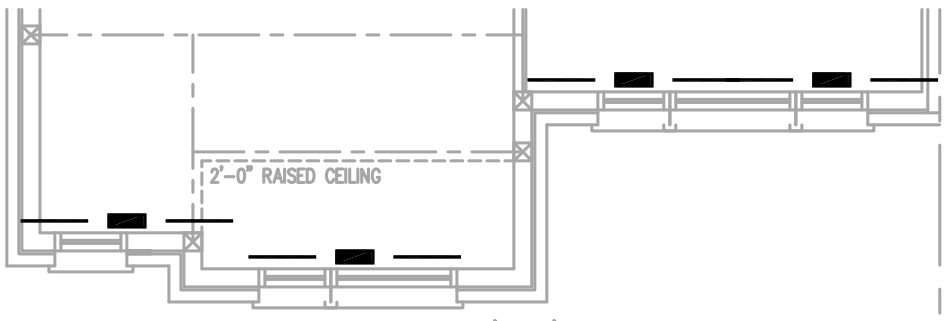
LO# 105055



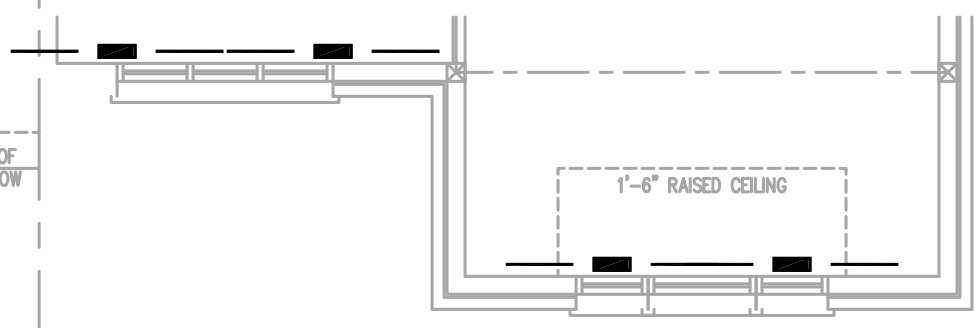
SECOND FLOOR PLAN 'A1'



SECOND FLOOR PLAN 'B2' (REV.)



SECOND FLOOR PLAN 'B1'



SECOND FLOOR PLAN 'A2' (REV)

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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Mlchael O'Rourke BCIN # 19669
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SECOND FLOOR HEATING LAYOUT

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