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**		
BRAMPTON				

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:** 2502 **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.

June 10, 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: Jun-24 | WINTER NATURAL AIR CHANGE RATE 0.308 | HEAT LOSS ΔT °F. 74 | CSA-F280-12
BUILDER: ROYAL PINE HOMES | TYPE: 2502 | GFA: 2034 | LO# 105276 | SUMMER NATURAL AIR CHANGE RATE 0.097 | HEAT GAIN ΔT °F. 11 | PERFORMANCE

ROOM USE			MBR			ENS				BED-2			BED-3				BATH								
EXP. WALL			37			7				24			19				8								
CLG. HT.			9			9				9			9				9								
	FACTORS																								
GRS.WALL AREA	LOSS	GAIN	333			63				216			171				72								
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		23	478	757	48	997	1580		0	0	0						
SOUTH	20.8	19.8	0	0	0	0	0	0		0	0	0	0	0	0		0	0	0						
WEST	20.8	32.9	26	540	856	17	353	560		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	307	1064	158	46	159	24		193	669	99	123	426	63		72	250	37						
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	336	421	187	125	157	70		175	219	98	136	170	76		95	119	53						
NO ATTIC EXPOSED CLG	2.7	1.2	0	0	0	0	0	0		45	121	54	45	121	54		0	0	0						
EXPOSED FLOOR	2.5	0.4	0	0	0	0	0	0		105	261	39	0	0	0		70	174	26						
BASEMENT/CRAWL HEAT LOSS				0			0				0			0				0							
SLAB ON GRADE HEAT LOSS				0			0				0			0				0							
SUBTOTAL HT LOSS				2026			669				1749			1715				543							
SUB TOTAL HT GAIN					1201			653				1046			1772				116						
LEVEL FACTOR / MULTIPLIER			0.20	0.33		0.20	0.33			0.20	0.33		0.20	0.33			0.20	0.33							
AIR CHANGE HEAT LOSS				673			222				581			570				180							
AIR CHANGE HEAT GAIN					89			48				77			131				9						
DUCT LOSS				0			0				233			0				72							
DUCT GAIN					0			0				234			0				12						
HEAT GAIN PEOPLE	240		2		480	0		0		1		240	1		240		0		0						
HEAT GAIN APPLIANCES/LIGHTS					974			0				974			974				0						
TOTAL HT LOSS BTU/H				2699			892				2562			2285				796							
TOTAL HT GAIN x 1.3 BTU/H					3566			911				3342			4052				178						

ROOM USE				LV/DN			K/B/F				LAUN				FOY			MUD				WOD			BAS		
EXP. WALL				35			38				0				10			13				28			92		
CLG. HT.				10			10				9				11			11				9			9		
	FACTORS																										
GRS.WALL AREA	LOSS	GAIN		350			380				0				110			143				252			636		
GLAZING					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
EAST	20.8	32.9		37	769	1218	0	0	0		0	0	0		0	0	0	0	0	0		0	0	0	0	0	0
SOUTH	20.8	19.8		0	0	0	0	0	0		0	0	0		0	0	0	8	166	159		0	0	0	0	0	0
WEST	20.8	32.9		0	0	0	73	1517	2403		0	0	0		0	0	0	0	0	0		7	145	230	0	0	0
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
DOORS	19.6	2.9		0	0	0	0	0	0		0	0	0		20	392	58	20	392	58		0	0	0	20	392	58
NET EXPOSED WALL	3.5	0.5		313	1085	161	307	1064	158		0	0	0		90	312	46	115	399	59		0	0	0	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		161	566	84	192	675	100
EXPOSED CLG	1.3	0.6		0	0	0	42	53	23		75	94	42		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
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
BASEMENT/CRAWL HEAT LOSS					0			0				0				0			0							3059	
SLAB ON GRADE HEAT LOSS					0			0				0				0			0				0				
SUBTOTAL HT LOSS					1854			2634				94				704			957				711			4126	
SUB TOTAL HT GAIN						1379			2584				42				104			276				314			158
LEVEL FACTOR / MULTIPLIER				0.30	0.55		0.30	0.55			0.20	0.33			0.30	0.55		0.30	0.55						0.50	1.17	
AIR CHANGE HEAT LOSS					1021			1451				31				388			527							5645	
AIR CHANGE HEAT GAIN						102			191				3				8			20							35
DUCT LOSS					0			0				0				0			0							0	
DUCT GAIN						0			0				0				0			0							0
HEAT GAIN PEOPLE	240			0		0	0		0		0		0		0		0	0		0		0		0	0		0
HEAT GAIN APPLIANCES/LIGHTS						974			974				974				0			0				0			974
TOTAL HT LOSS BTU/H					2875			4085				125				1091			1483				711			9770	
TOTAL HT GAIN x 1.3 BTU/H						3190			4873				1324				146			385				409			1516

TOTAL HEAT GAIN BTU/H: 24081 TONS: 2.01 LOSS DUE TO VENTILATION LOAD BTU/H: 1274 STRUCTURAL HEAT LOSS: 29374 TOTAL COMBINED HEAT LOSS BTU/H: 30648

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

HVAC DESIGNS LTD.

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SITE NAME: SUMMER RIDGE ESTATES
BUILDER: ROYAL PINE HOMES

TYPE: 2502 DATE: Jun-24 GFA: 2034 LO# 105276

HEATING CFM	770	COOLING CFM	770	furnace pressure	0.6						AFUE =	96 %
TOTAL HEAT LOSS	29,374	TOTAL HEAT GAIN	23,892	furnace filter	0.00	FACTORY INSTALLED			**CARRIER**		INPUT (BTU/H) =	40,000
AIR FLOW RATE CFM	26.21	AIR FLOW RATE CFM	32.23	a/c coil pressure	0.26				**59SC6A040M14--10**	**40**	OUTPUT (BTU/H) =	**39,000**
				available pressure					FAN SPEED			
				for s/a & r/a	0.34				LOW	0		
									MEDLOW	545	DESIGN CFM =	**770**
				plenum pressure s/a	0.18	r/a pressure	0.16		MEDIUM	770	CFM @ .6 " E.S.P.	
				max s/a dif press. loss	0.02	r/a grille press. Loss	0.02		MEDIUM HIGH	925		
				min adjusted pressure s/a	0.16	adjusted pressure r/a	0.14		HIGH	0	TEMPERATURE RISE	47 °F

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	9	5	3
R/A	0	0	4	2	1

All S/A diffusers 4"x10" unless noted otherwise on layout.
All S/A runs 5"Ø unless noted otherwise on layout.

RUN #	1	2	3	4	5	6	7	10	13	14	15	17	19	20	21	22	23
ROOM NAME	MBR	ENS	BED-2	BED-2	BED-3	BED-3	BATH	MBR	LV/DN	K/B/F	K/B/F	LAUN	FOY	MUD	BAS	BAS	BAS
RM LOSS MBH.	1.35	0.89	1.28	1.28	1.14	1.14	0.80	1.35	2.88	2.04	2.04	0.13	1.09	1.48	3.49	3.49	3.49
CFM PER RUN HEAT	35	23	34	34	30	30	21	35	75	54	54	3	29	39	92	92	92
RM GAIN MBH.	1.78	0.91	1.67	1.67	2.03	2.03	0.18	1.78	3.19	2.44	2.44	1.32	0.15	0.39	0.64	0.64	0.64
CFM PER RUN COOLING	57	29	54	54	65	65	6	57	103	79	79	43	5	12	21	21	21
ADJUSTED PRESSURE	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.16	0.17	0.17	0.17	0.17	0.17	0.16	0.16	0.16
ACTUAL DUCT LGH.	32	45	48	52	63	55	37	55	48	21	34	21	37	17	22	7	32
EQUIVALENT LENGTH	200	140	130	140	190	170	140	150	140	130	110	140	130	140	120	140	150
TOTAL EFFECTIVE LENGTH	232	185	178	192	253	225	177	205	188	151	144	161	167	157	142	147	182
ADJUSTED PRESSURE	0.07	0.09	0.09	0.09	0.07	0.07	0.09	0.08	0.08	0.11	0.12	0.1	0.1	0.11	0.11	0.11	0.09
ROUND DUCT SIZE	5	4	5	5	**6**	**6**	4	5	**6**	5	5	4	4	4	**6**	**6**	**6**
HEATING VELOCITY (ft/min)	257	264	250	250	153	153	241	257	382	396	396	34	333	447	469	469	469
COOLING VELOCITY (ft/min)	419	333	396	396	331	331	69	419	525	580	580	493	57	138	107	107	107
OUTLET GRILL SIZE	3X10	3X10	3X10	3X10	4X10	4X10	3X10	3X10	4X10	3X10	3X10	3X10	3X10	3X10	4X10	4X10	4X10
TRUNK	A	A	C	C	B	B	C	A	B	A	A	C	B	C	A	A	B

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	385	0.07	10.1	12	x	8	578	TRUNK G	0	0.00	0	0	x	8	0
TRUNK B	256	0.07	8.7	10	x	8	461	TRUNK H	0	0.00	0	0	x	8	0
TRUNK C	387	0.07	10.2	14	x	8	498	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	770	0.05	14.3	24	x	8	578
TRUNK Y	341	0.05	10.5	14	x	8	438
TRUNK Z	0	0.05	0	0	x	8	0
DROP	770	0.05	14.3	24	x	10	462

RETURN AIR #	1	2	3	4	5	6										**BR**
FLOOR	2	2	2	2	1	1										B
AIR VOLUME	85	85	85	85	206	86	0	0	0	0	0	0	0	0	0	138
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.	50	62	57	47	21	39	1	1	1	1	1	1	1	1	1	14
EQUIVALENT LENGTH	195	250	245	215	135	270	0	0	0	0	0	0	0	0	0	135
TOTAL EFFECTIVE LH	245	312	302	262	156	309	1	1	1	1	1	1	1	1	1	149
ADJUSTED PRESSURE	0.06	0.05	0.05	0.05	0.09	0.05	14.32	14.32	14.32	14.32	14.32	14.32	14.32	14.32	14.32	0.10
ROUND DUCT SIZE	6	6	6	6	7.5	6	0	0	0	0	0	0	0	0	0	6.3
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	14	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: 2502 LO # 105276
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	3	@ 10.6 cfm	31.8	cfm
Other Rooms	5	@ 10.6 cfm	53.0	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

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 PINE 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: June-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#: 105276 Model: 2502 Builder: ROYAL PINE HOMES Date: 6/10/2024

Volume Calculation

House Volume

Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)
Bsmt	929	9	8361
First	929	10	9290
Second	1105	9	9945
Third	0	9	0
Fourth	0	9	0
		Total:	27,596.0 ft³
		Total:	781.4 m³

Air Change & Delta T Data

WINTER NATURAL AIR CHANGE RATE	0.308
SUMMER NATURAL AIR CHANGE RATE	0.097

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

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

0.308 x 217.06 x 41 °C x 1.2 = 3309 W

= **11289 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 217.06 x 6 °C x 1.2 = 154 W

= **524 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	11,289	4,837	1.167
2	0.3		6,148	0.551
3	0.2		6,795	0.332
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

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HEAT LOSS AND GAIN SUMMARY SHEET

MODEL: 2502 **BUILDER:** ROYAL PINE HOMES
SFQT: 2034 **LO#** 105276 **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):	27596.0	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	4
INTERIOR LIGHTING LOAD (Btu/h/ft^2):	2.30	DC BRUSHLESS MOTOR (Y/N):	Y
FOUNDATION CONFIGURATION	BCIN_1	DEPTH BELOW GRADE:	6.0 ft
LENGTH: 47.0 ft	WIDTH: 23.0 ft	EXPOSED PERIMETER:	92.0 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

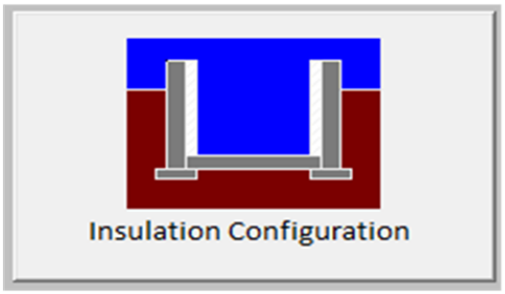
Michael O'Rourke

HVAC Designs Ltd.
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):	**14.3**	 Insulation Configuration
Floor Width (m):	**7.0**	
Exposed Perimeter (m):	**28.0**	
Wall Height (m):	**2.7**	
Depth Below Grade (m):	**1.83**	
Window Area (m^2):	**0.7**	
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):	**896**	

TYPE: 2502
LO# 105276

Michael O'Rourke BCIN #19669

HVAC Designs Ltd.
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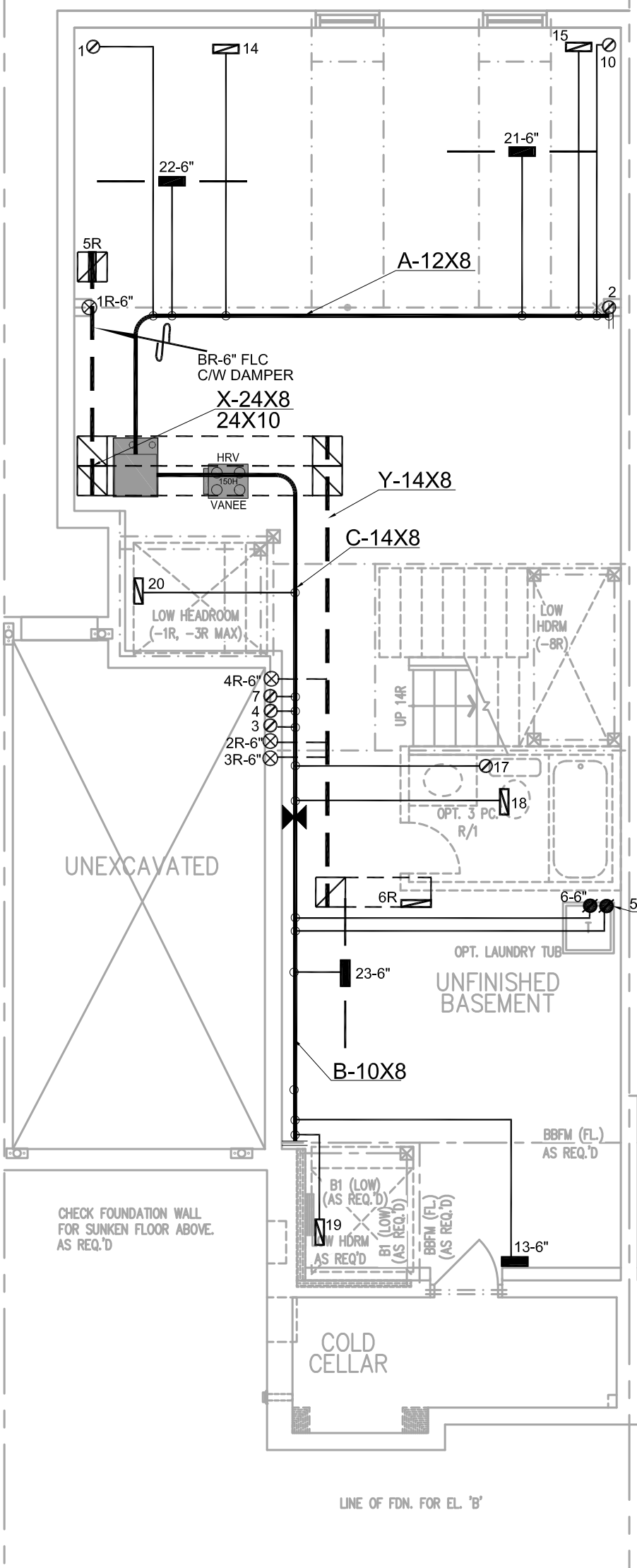
Air Infiltration Residential Load Calculator

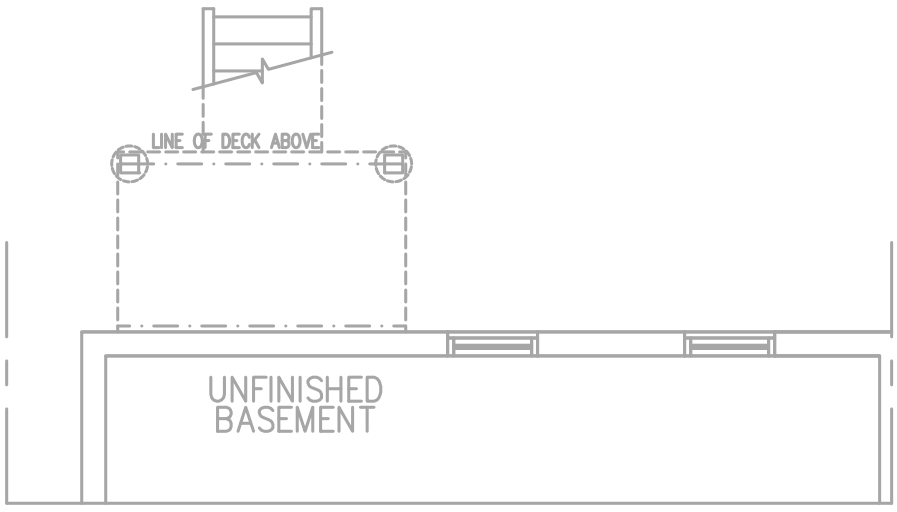
Supplemental tool for CAN/CSA-F280

Weather Station Description	
Province:	Ontario
Region:	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):	7.62
Building Configuration	
Type:	Semi
Number of Stories:	Two
Foundation:	Full
House Volume (m^3):	781.4
Air Leakage/Ventilation	
Air Tightness Type:	Attached (3.0 ACH)
Custom BDT Data:	ELA @ 10 Pa. 875.4 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):	**0.308**
Cooling Air Leakage Rate (ACH/H):	**0.097**

TYPE: 2502
LO# 105276

Michael O'Rourke BCIN# 19669





PART. BASEMENT PLAN ELEV. – W.O.D. CONDITION

BASEMENT PLAN ELEV 'A1' & 'B1' (REV) PARTIAL BASEMENT PLAN ELEV 'A2' & 'B2'

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.

SB-12 PERFORMANCE

Client
ROYAL PINE HOMES

Project Name
SUMMER RIDGE ESTATES
BRAMPTON, ONTARIO

2502 2034 sqft

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

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

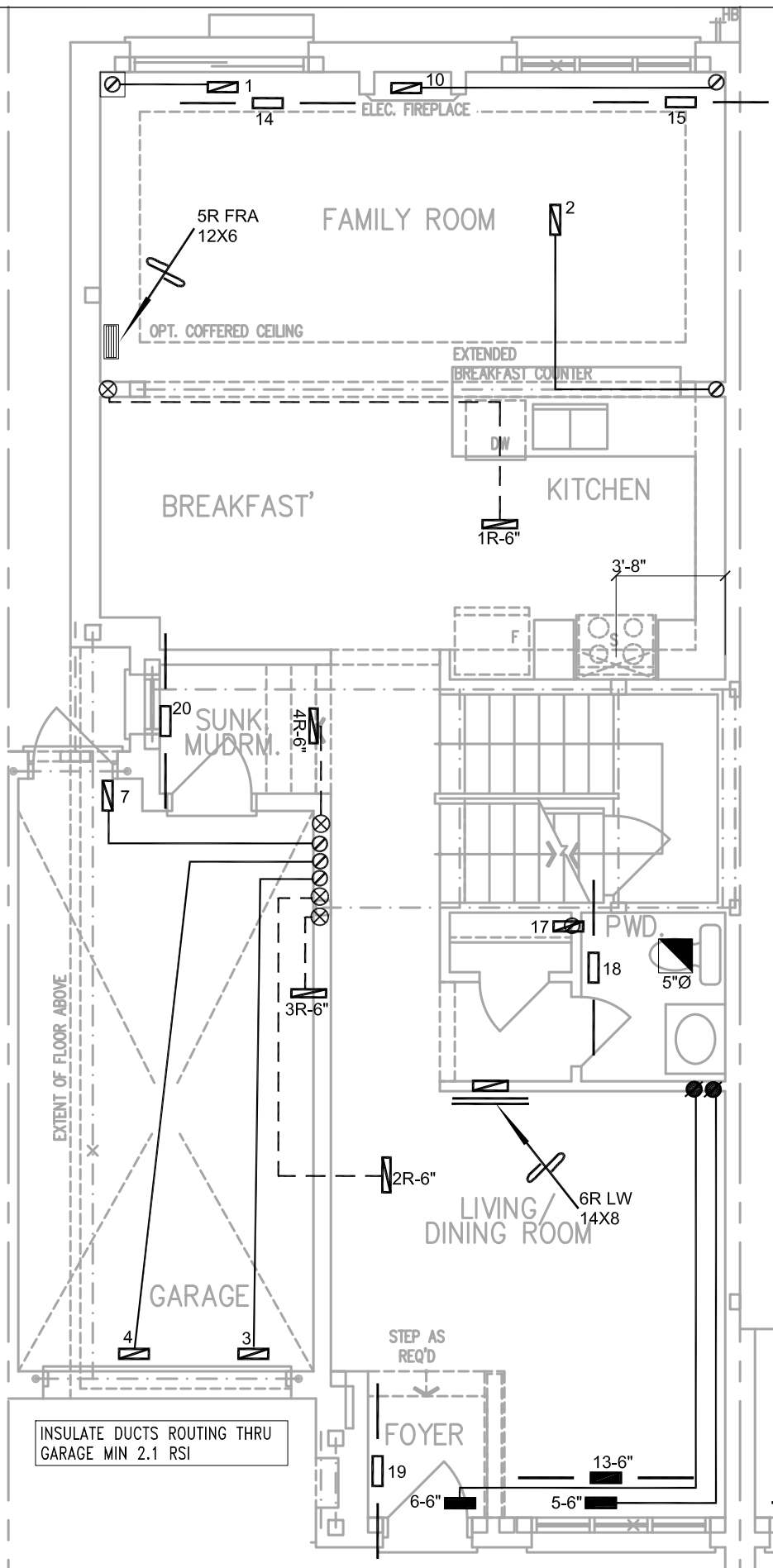
HEAT LOSS 30648 BTU/H	
UNIT DATA	
MAKE	CARRIER
MODEL	59SC6A040M14--10
INPUT	40 MBTU/H
OUTPUT	39 MBTU/H
COOLING	2.0 TONS
FAN SPEED	770 cfm @ 0.6" w.c.

# OF RUNS	S/A	R/A	FANS
3RD FLOOR			
2ND FLOOR	9	4	3
1ST FLOOR	5	2	2
BASEMENT	3	1	0

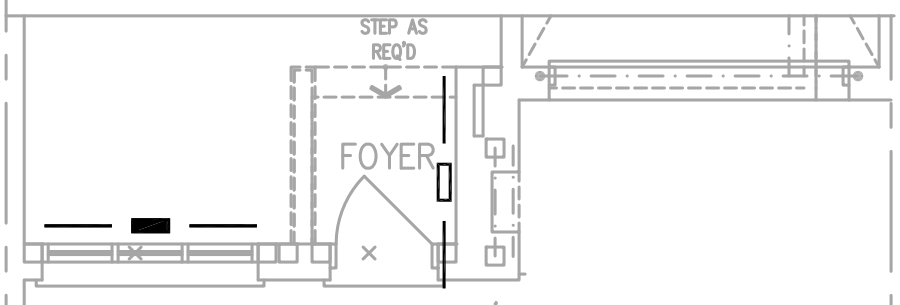
ALL S/A DIFFUSERS 4 "x10" UNLESS NOTED OTHERWISE ON LAYOUT. ALL S/A RUNS 5"Ø UNLESS NOTED OTHERWISE ON LAYOUT. UNDERCUT DOORS 1" min. FOR R/A

Sheet Title
BASEMENT HEATING LAYOUT

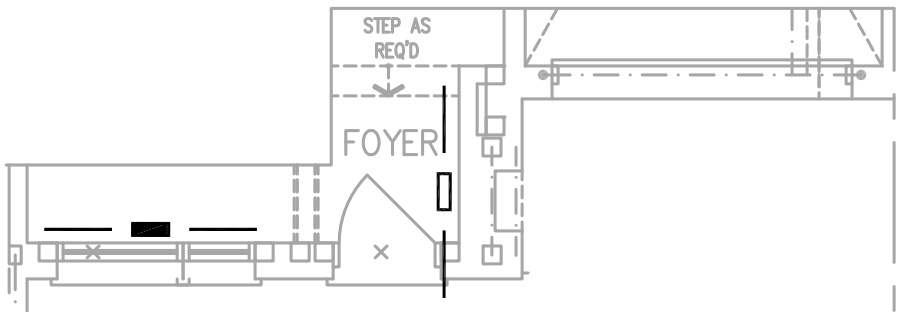
Date JUNE/2024
Scale 3/16" = 1'-0"
BCIN# 19669
LO# 105276



GROUND FLOOR PLAN ELEV 'A1' (REV)



PART. GROUND FLOOR PLAN ELEV 'A2'



PARTIAL GROUND FLR PLAN ELEV.
'B1' (REV) & 'B2'

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.		

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HVAC Designs Ltd.

SB-12 PERFORMANCE

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BRAMPTON, ONTARIO

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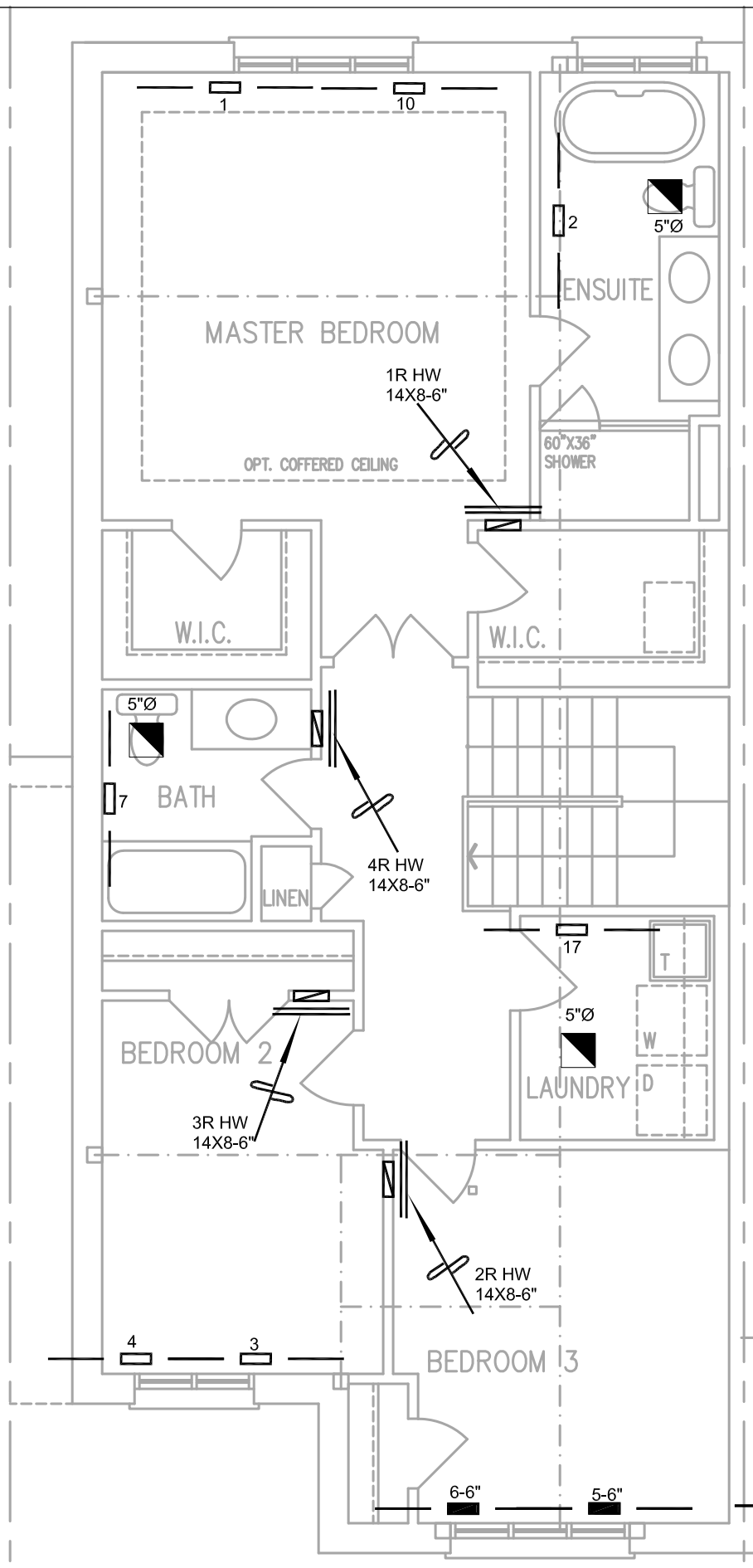
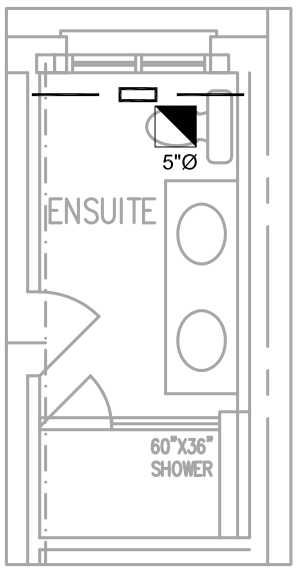
Sheet Title
FIRST FLOOR
HEATING
LAYOUT

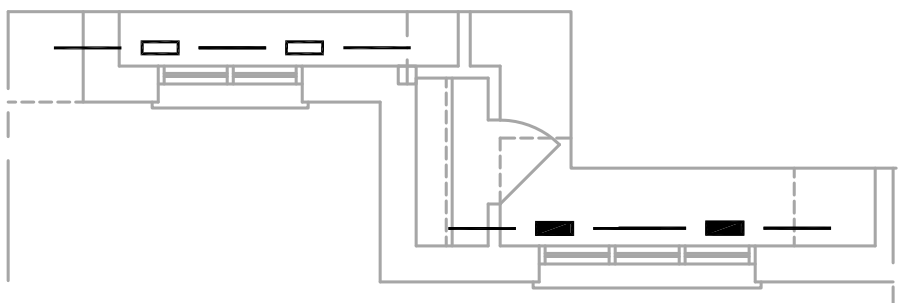
Date JUNE/2024
Scale 3/16" = 1'-0"
BCIN# 19669
LO# 105276



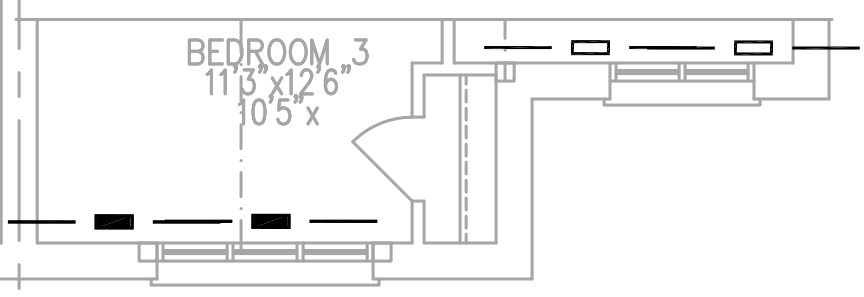
SECOND FLR PLAN ELEV 'A1' (REV)



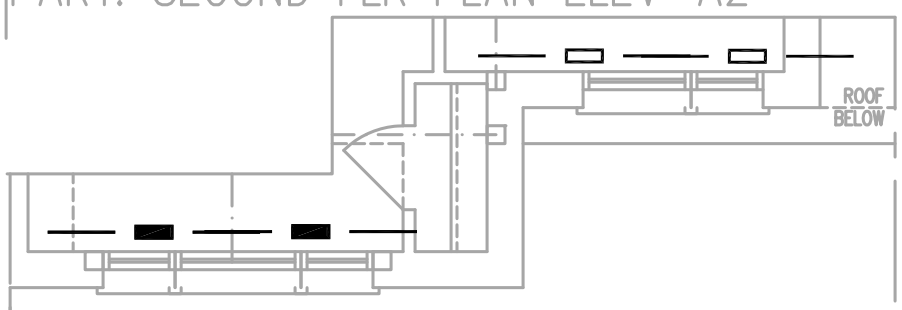
PARTIAL OPT. SECOND FLR. PLAN ELEV 'A1' (REV) (W/ 4-PC ENSUITE) (ELEV. 'B1' REV. & 'B2' SIMILAR)



SECOND FLR PLAN ELEV 'A3' (REV)



PART. SECOND FLR PLAN ELEV 'A2'



PARTIAL SECOND FLR PLAN ELEV. 'B1' (REV) & 'B2'

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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SB-12 PERFORMANCE

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ROYAL PINE HOMES

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Sheet Title
SECOND FLOOR HEATING LAYOUT

Date JUNE/2024
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BCIN# 19669
LO# 105276