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:** 2503 OPT 2ND **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 Division 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 | OPT 2ND | DATE: Jun-24 | WINTER NATURAL AIR CHANGE RATE 0.308 | HEAT LOSS ΔT °F. 74 | CSA-F280-12
BUILDER: ROYAL PINE HOMES | TYPE: 2503 | GFA: 2049 | LO# 105278 | SUMMER NATURAL AIR CHANGE RATE 0.097 | HEAT GAIN ΔT °F. 11 | PERFORMANCE

ROOM USE			MBR			ENS				BED-2			BED-3			BED-4			BATH					ENS-2					
EXP. WALL			30			7				25			14			16			6					0					
CLG. HT.			9			9				9			9			9			9					9					
	FACTORS																												
GRS.WALL AREA	LOSS	GAIN	270			63				225			126			144			54					0					
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	0	0	0	0	0	0		26	540	856	47	976	1547	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	13	270	258	0	0	0			0	0	0			
WEST	20.8	32.9	35	727	1152	17	353	560		0	0	0	0	0	0	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	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	0	0	0			0	0	0			
NET EXPOSED WALL	3.5	0.5	235	815	121	46	159	24		199	690	102	79	274	41	131	454	67	54	187	28			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			
EXPOSED CLG	1.3	0.6	378	474	211	130	163	72		155	194	86	140	175	78	155	194	86	100	125	56			90	113	50			
NO ATTIC EXPOSED CLG	2.7	1.2	0	0	0	0	0	0		25	67	30	50	134	60	0	0	0	0	0	0			0	0	0			
EXPOSED FLOOR	2.5	0.4	0	0	0	0	0	0		150	373	55	0	0	0	0	0	0	100	249	37			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				2016			676				1865			1560			919			562					113				
SUB TOTAL HT GAIN					1483			656				1130			1725			411			120					50			
LEVEL FACTOR / MULTIPLIER			0.20	0.29		0.20	0.29			0.20	0.29		0.20	0.29		0.20	0.29		0.20	0.29				0.20	0.29				
AIR CHANGE HEAT LOSS				590			198				546			457			269			164					33				
AIR CHANGE HEAT GAIN					110			49				84			128			31			9					4			
DUCT LOSS				0			0				241			0			0			73					0				
DUCT GAIN					0			0				230			0			0			13					0			
HEAT GAIN PEOPLE	240		2		480	0		0		1		240	1		240	1		240	0		0			0		0			
HEAT GAIN APPLIANCES/LIGHTS					847			0				847			847			847			0					0			
TOTAL HT LOSS BTU/H				2606			873				2652			2017			1187			798					146				
TOTAL HT GAIN x 1.3 BTU/H					3796			916				3289			3822			1987			185					70			

ROOM USE				LV/DN			K/B/F							FOY			MUD						WOD			BAS		
EXP. WALL				29			45							10			12						28			98		
CLG. HT.				10			10							11			10						9			9		
	FACTORS																											
GRS.WALL AREA	LOSS	GAIN		290			450							110			120						252			672		
GLAZING				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
EAST	20.8	32.9		34	706	1119	0	0	0					3	62	99	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				0	0	0	0	0	0
WEST	20.8	32.9		0	0	0	73	1517	2403					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
DOORS	19.6	2.9		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		256	888	132	377	1307	194					87	302	45	100	347	51				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				161	566	84	210	738	109
EXPOSED CLG	1.3	0.6		0	0	0	0	0	0					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
EXPOSED FLOOR	2.5	0.4		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									3279	
SLAB ON GRADE HEAT LOSS					0			0							0			0						0				
SUBTOTAL HT LOSS					1594			2824							756			738						711			4408	
SUB TOTAL HT GAIN						1251			2596							202			109						314			167
LEVEL FACTOR / MULTIPLIER				0.30	0.57		0.30	0.57						0.30	0.57		0.30	0.57								0.50	1.10	
AIR CHANGE HEAT LOSS					913			1617							433			423									5642	
AIR CHANGE HEAT GAIN						93			193							15			8									36
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	0		0
HEAT GAIN APPLIANCES/LIGHTS						847			847							0			0						0			847
TOTAL HT LOSS BTU/H					2507			4441							1188			1161						711			10050	
TOTAL HT GAIN x 1.3 BTU/H						2847			4727							281			153						409			1365

TOTAL HEAT GAIN BTU/H: 24084 TONS: 2.01 LOSS DUE TO VENTILATION LOAD BTU/H: 1593 STRUCTURAL HEAT LOSS: 30337 TOTAL COMBINED HEAT LOSS BTU/H: 31929

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 — OPT 2ND
BUILDER: ROYAL PINE HOMES — TYPE: 2503 — DATE: Jun-24 — GFA: 2049 — LO# 105278

HEATING CFM	770	COOLING CFM	770	furnace pressure	0.6								
TOTAL HEAT LOSS	30,337	TOTAL HEAT GAIN	23,848	furnace filter	0.00	FACTORY INSTALLED				**CARRIER**		AFUE =	96 %
AIR FLOW RATE CFM	25.38	AIR FLOW RATE CFM	32.29	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	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	10	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	8	10	13	14	15	17	19	20	21	22	23
ROOM NAME	MBR	ENS	BED-2	BED-2	BED-3	BED-3	BATH	BED-4	MBR	LV/DN	K/B/F	K/B/F	ENS-2	FOY	MUD	BAS	BAS	BAS
RM LOSS MBH.	1.30	0.87	1.33	1.33	1.01	1.01	0.80	1.19	1.30	2.51	2.22	2.22	0.15	1.19	1.16	3.59	3.59	3.59
CFM PER RUN HEAT	33	22	34	34	26	26	20	30	33	64	56	56	4	30	29	91	91	91
RM GAIN MBH.	1.90	0.92	1.64	1.64	1.91	1.91	0.18	1.99	1.90	2.85	2.36	2.36	0.07	0.28	0.15	0.59	0.59	0.59
CFM PER RUN COOLING	61	30	53	53	62	62	6	64	61	92	76	76	2	9	5	19	19	19
ADJUSTED PRESSURE	0.17	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.	44	49	53	57	63	70	36	33	35	49	26	18	46	40	17	17	20	45
EQUIVALENT LENGTH	130	200	120	130	150	170	150	180	190	120	110	120	130	120	150	130	100	140
TOTAL EFFECTIVE LENGTH	174	249	173	187	213	240	186	213	225	169	136	138	176	160	167	147	120	185
ADJUSTED PRESSURE	0.1	0.07	0.1	0.09	0.08	0.07	0.09	0.08	0.07	0.09	0.12	0.12	0.09	0.1	0.1	0.11	0.13	0.08
ROUND DUCT SIZE	5	4	5	5	5	5	4	**6**	5	**6**	5	5	4	4	4	**6**	**6**	**6**
HEATING VELOCITY (ft/min)	242	252	250	250	191	191	229	153	242	326	411	411	46	344	333	464	464	464
COOLING VELOCITY (ft/min)	448	344	389	389	455	455	69	326	448	469	558	558	23	103	57	97	97	97
OUTLET GRILL SIZE	3X10	3X10	3X10	3X10	3X10	3X10	3X10	4X10	3X10	4X10	3X10	3X10	3X10	3X10	3X10	4X10	4X10	4X10
TRUNK	A	A	C	C	B	B	C	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	382	0.07	10.1	12	x	8	573	TRUNK G	0	0.00	0	0	x	8	0
TRUNK B	237	0.07	8.5	10	x	8	427	TRUNK H	0	0.00	0	0	x	8	0
TRUNK C	388	0.07	10.2	14	x	8	499	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	369	0.05	10.9	14	x	8	474
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	65	180	134	0	0	0	0	0	0	0	0	0	136
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.	44	57	63	54	15	39	1	1	1	1	1	1	1	1	1	14
EQUIVALENT LENGTH	155	260	245	205	175	270	0	0	0	0	0	0	0	0	0	135
TOTAL EFFECTIVE LH	199	317	308	259	190	309	1	1	1	1	1	1	1	1	1	149
ADJUSTED PRESSURE	0.07	0.05	0.05	0.06	0.08	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	5.8	6	6	5.4	7.4	7.4	0	0	0	0	0	0	0	0	0	6
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: 2503 LO # 105278
SITE NAME: SUMMER RIDGE ESTATES OPT 2ND

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	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
ENS-2	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#: 105278 Model: 2503 Builder: ROYAL PINE HOMES Date: 6/10/2024

Volume Calculation

House Volume

Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)
Bsmt	914	9	8226
First	914	10	9140
Second	1135	9	10215
Third	0	9	0
Fourth	0	9	0
		Total:	27,581.0 ft³
		Total:	781.0 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 216.95 x 41 °C x 1.2 = 3307 W

= **11283 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 216.95 x 6 °C x 1.2 = 154 W

= **524 Btu/h**

5.2.3.2 Heat Loss due to Mechanical Ventilation

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

80 CFM x 74 °F x 1.08 x 0.25 = **1593 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 11 °F x 1.08 x 0.25 = **236 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	11,283	5,119	1.102
2	0.3		5,912	0.573
3	0.2		7,709	0.293
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: 2503 OPT 2ND **BUILDER:** ROYAL PINE HOMES
SFQT: 2049 **LO#** 105278 **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):	27581.0	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	5
INTERIOR LIGHTING LOAD ($Btu/h/ft^2$):	2.00	DC BRUSHLESS MOTOR (Y/N):	Y
FOUNDATION CONFIGURATION	BCIN_1	DEPTH BELOW GRADE:	6.0 ft
LENGTH: 51.0 ft	WIDTH: 23.0 ft	EXPOSED PERIMETER:	98.0 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

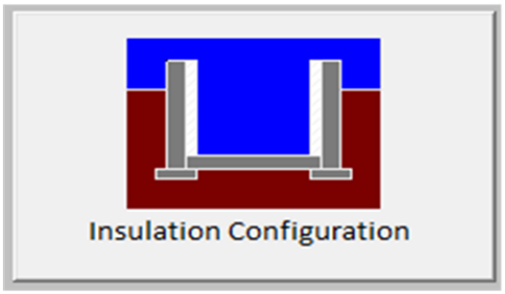
Michael O'Rourke

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):	**15.5**	 Insulation Configuration
Floor Width (m):	**7.0**	
Exposed Perimeter (m):	**29.9**	
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):	**961**	

TYPE: 2503 OPT 2ND
LO# 105278

Michael O'Rourke BCIN #19669

HVAC Designs Ltd.
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Ajax ON, L1S 2E2
905-619-2300

Air Infiltration Residential Load Calculator

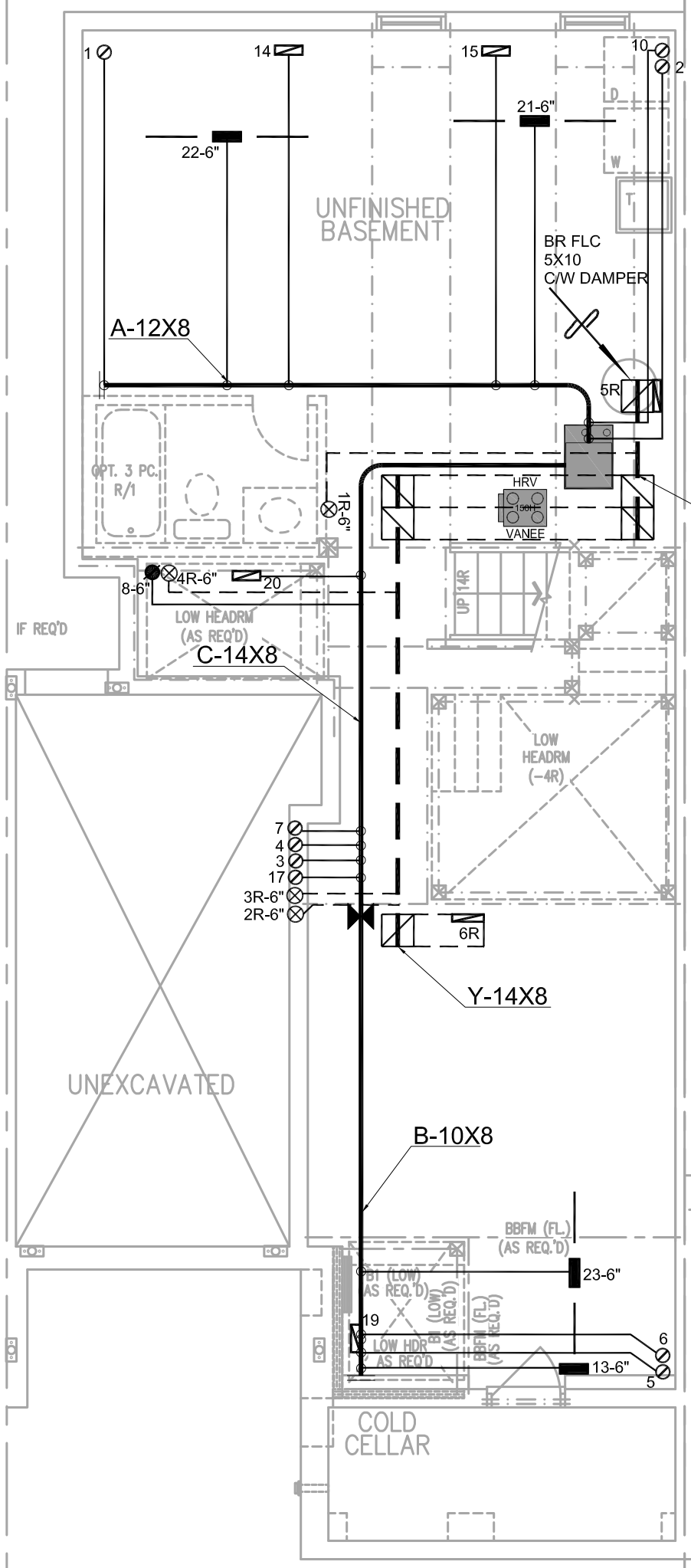
Supplemental tool for CAN/CSA-F280

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):	7.62
Building Configuration	
Type:	Semi
Number of Stories:	Two
Foundation:	Full
House Volume (m^3):	781.0
Air Leakage/Ventilation	
Air Tightness Type:	Attached (3.0 ACH)
Custom BDT Data:	ELA @ 10 Pa. 874.9 cm^2
	3.00 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):	**0.308**
Cooling Air Leakage Rate (ACH/H):	**0.097**

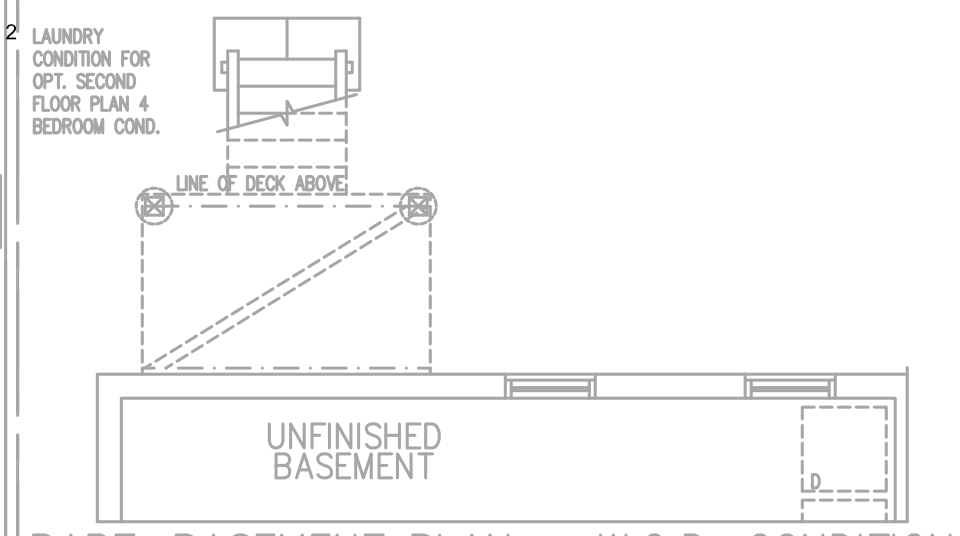
TYPE: 2503 OPT 2ND

LO# 105278

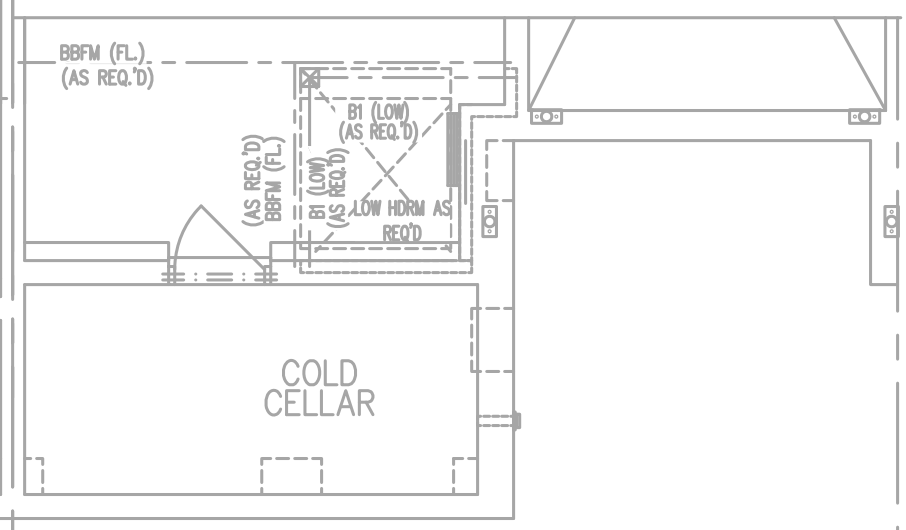
Michael O'Rourke BCIN# 19669



BASEMENT PLAN ELEV 'A1'&'B1' (REV)



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



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

OPT 2ND
2503 2049 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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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.

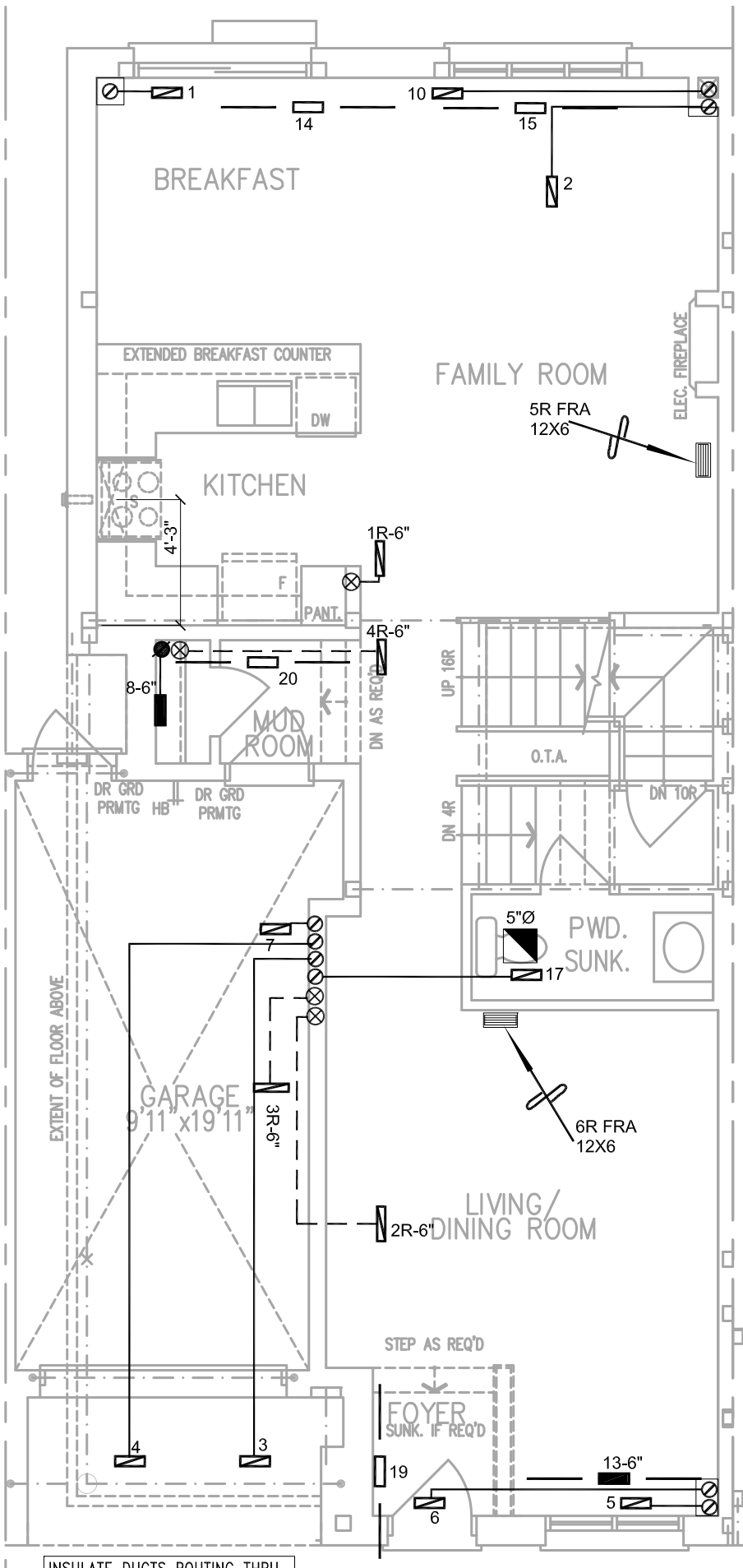
HEAT LOSS 31929 BTU/H	
UNIT DATA	
MAKE	CARRIER
MODEL	59SC6A040M14--10
INPUT	40 MBTU/H
OUTPUT	39 MBTU/H
COOLING	2.0 TONS
FAN SPEED	770 cfm @ 0.6" w.c.

# OF RUNS	S/A	R/A	FANS
3RD FLOOR			
2ND FLOOR	10	4	3
1ST FLOOR	5	2	2
BASEMENT	3	1	0

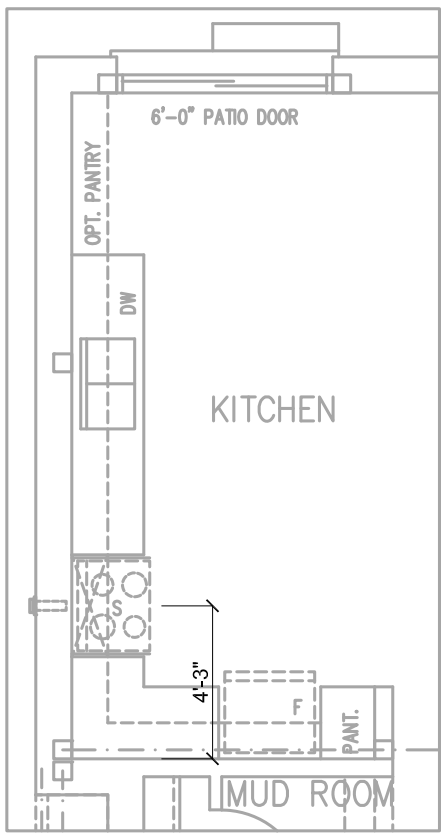
ALL S/A DIFFUSERS 4 "x10" UNLESS NOTED OTHERWISE ON LAYOUT. ALL S/A RUNS 5"Ø UNLESS NOTED OTHERWISE ON LAYOUT. UNDERCUT DOORS 1" min. FOR R/A

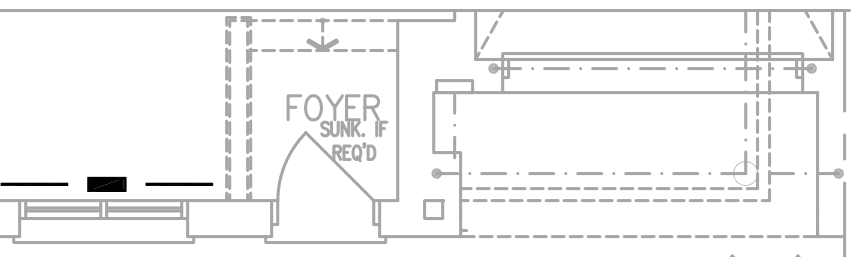
Sheet Title
BASEMENT HEATING LAYOUT

Date JUNE/2024
Scale 3/16" = 1'-0"
BCIN# 19669
LO# 105278



PARTIAL GROUND FLOOR PLAN, ELEV 'A1' (REV) (W/ OPT. KITCHEN LAYOUT)
(ELEV. 'B1' REV. & 'B2' SIMILAR)





PART. GROUND FLOOR PLAN ELEV 'A2'

GROUND FLOOR PLAN ELEV 'A1' (REV)

PART. GROUND FLOOR PLAN ELEV 'B2'

PARTIAL GROUND FLOOR PLAN ELEV 'B1' (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.		
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1.		

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HVAC Designs Ltd.

SB-12 PERFORMANCE

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ROYAL PINE HOMES

Project Name
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BRAMPTON, ONTARIO

OPT 2ND
2503 2049 sqft

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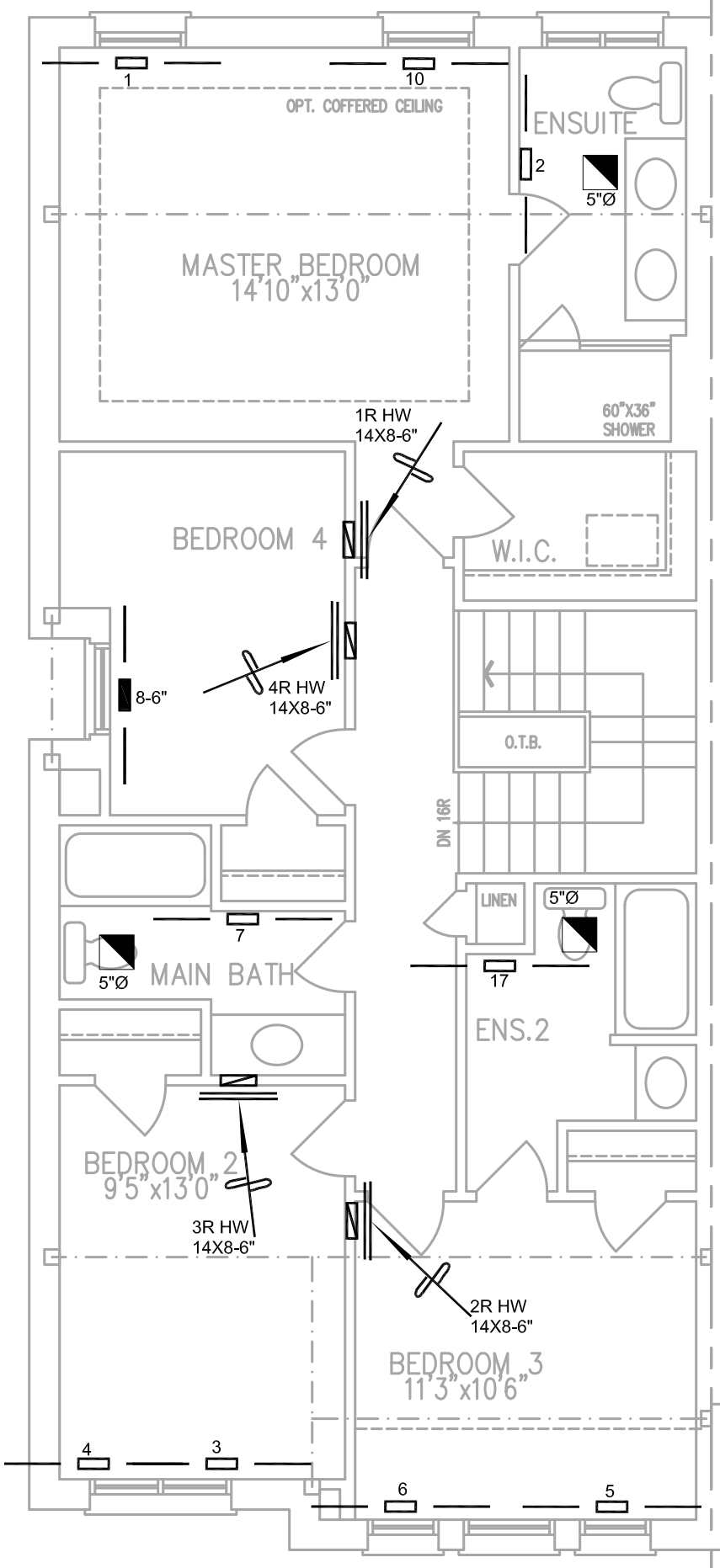
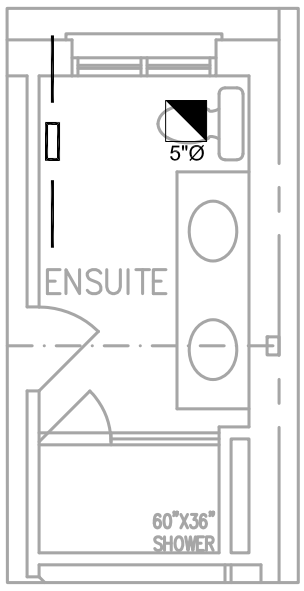
Sheet Title
FIRST FLOOR HEATING LAYOUT

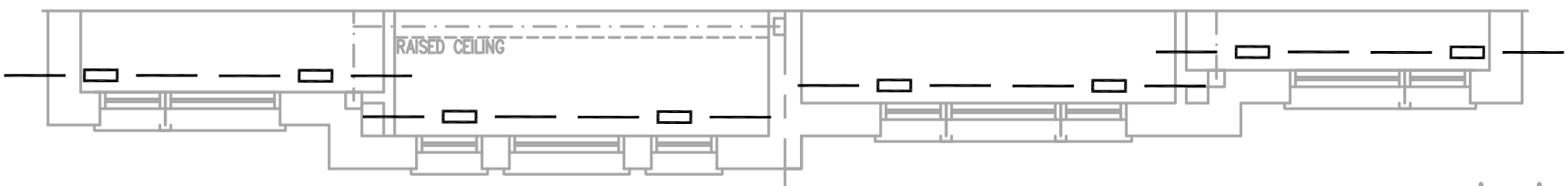
Date JUNE/2024
Scale 3/16" = 1'-0"
BCIN# 19669
LO# 105278



SECOND FLOOR PLAN, 'A1' (REV.)



PARTIAL SECOND FLR PLAN,
ELEV 'A1' (REV)
(W/ OPT. ENSUITE LAYOUT)
(ELEV. 'B1' REV. & 'B2' SIMILAR)



PARTIAL SECOND FLR PLAN, 'A2'

PARTIAL SECOND FLR PLAN, ELEV 'B1' (REV)

PARTIAL SECOND FLR PLAN, ELEV '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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HVAC Designs Ltd.

SB-12 PERFORMANCE

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Project Name
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Sheet Title
SECOND FLOOR HEATING LAYOUT

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LO# 105278