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:** 2504 **Project:** LEAFTRAIL HOLDINGS

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.

April 25, 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: LEAFTRAIL HOLDINGS | DATE: Apr-22 | WINTER NATURAL AIR CHANGE RATE 0.273 | HEAT LOSS ΔT °F. 74 | CSA-F280-12
BUILDER: ROYAL PINE HOMES | TYPE: 2504 | GFA: 2027 | LO# 95321 | SUMMER NATURAL AIR CHANGE RATE 0.089 | HEAT GAIN ΔT °F. 11 | SB-12 PERFORMANCE

ROOM USE			MBR			ENS				BED-2			BED-3				BATH							
EXP. WALL			43			25				23			30				0							
CLG. HT.			9			9				9			9				9							
	FACTORS																							
GRS.WALL AREA	LOSS	GAIN	387			225				207			270				0							
GLAZING				LOSS	GAIN		LOSS	GAIN			LOSS	GAIN		LOSS	GAIN			LOSS	GAIN					
NORTH	20.8	15.5	0	0	0	0	0	0		0	0	0	0	0	0		0	0	0					
EAST	20.8	41.0	0	0	0	0	0	0		32	665	1314	35	727	1437		0	0	0					
SOUTH	20.8	24.4	0	0	0	0	0	0		0	0	0	0	0	0		0	0	0					
WEST	20.8	41.0	26	540	1067	17	353	698		0	0	0	0	0	0		0	0	0					
SKYLT.	34.1	100.3	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	361	1252	186	208	721	107		175	607	90	235	815	121		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	391	490	218	132	165	74		155	194	86	110	138	61		115	144	64					
NO ATTIC EXPOSED CLG	2.7	1.2	0	0	0	0	0	0		0	0	0	50	134	60		0	0	0					
EXPOSED FLOOR	2.5	0.4	0	0	0	0	0	0		120	299	44	0	0	0		100	249	37					
BASEMENT/CRAWL HEAT LOSS				0			0				0			0				0						
SLAB ON GRADE HEAT LOSS				0			0				0			0				0						
SUBTOTAL HT LOSS				2282			1240				1765			1814				393						
SUB TOTAL HT GAIN					1471			878				1534			1678				101					
LEVEL FACTOR / MULTIPLIER			0.20	0.24		0.20	0.24			0.20	0.24		0.20	0.24			0.20	0.24						
AIR CHANGE HEAT LOSS				537			292				416			427				93						
AIR CHANGE HEAT GAIN					77			46				81			88				5					
DUCT LOSS				0			0				218			0				49						
DUCT GAIN					0			0				239			0				11					
HEAT GAIN PEOPLE	240		2		480	0		0		1		240	1		240		0		0					
HEAT GAIN APPLIANCES/LIGHTS					534			0				534			534				0					
TOTAL HT LOSS BTU/H				2819			1532				2398			2241				534						
TOTAL HT GAIN x 1.3 BTU/H					3330			1202				3415			3302				152					

ROOM USE				LV/DN			K/B/F				LAUN			PWD			FOY			MUD					BAS		
EXP. WALL				50			60				11			10			10			0					148		
CLG. HT.				10			10				9			10			10			10					9		
	FACTORS																										
GRS.WALL AREA	LOSS	GAIN		500			600				99			100			100			0					888		
GLAZING				LOSS	GAIN		LOSS	GAIN			LOSS	GAIN		LOSS	GAIN		LOSS	GAIN		LOSS	GAIN				LOSS	GAIN	
NORTH	20.8	15.5		0	0	0	0	0			0	0	0	0	0	0	0	0	0	0	0				0	0	0
EAST	20.8	41.0		34	706	1396	0	0	0		0	0	0	0	0	0	0	0	0	0	0				0	0	0
SOUTH	20.8	24.4		21	436	512	0	0	0		28	582	683	7	145	171	0	0	0	0	0				6	125	146
WEST	20.8	41.0		0	0	0	73	1517	2997		0	0	0	0	0	0	0	0	0	0	0				3	62	123
SKYLT.	34.1	100.3		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	0	0	0	20	392	58			0	0	0
NET EXPOSED WALL	3.5	0.5		445	1543	229	527	1827	271		71	246	36	73	253	38	100	347	51	-20	-69	-10			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			444	1560	231
EXPOSED CLG	1.3	0.6		0	0	0	0	0	0		80	100	45	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			0					5032	
SLAB ON GRADE HEAT LOSS					0			0				0			0			0			0						
SUBTOTAL HT LOSS					2686			3344				928			790			347			322					6779	
SUB TOTAL HT GAIN						2137			3267				764			266			51			48					501
LEVEL FACTOR / MULTIPLIER				0.30	0.40		0.30	0.40			0.20	0.24		0.30	0.40		0.30	0.40		0.30	0.40				0.50	0.73	
AIR CHANGE HEAT LOSS					1067			1329				219			314			138			128					4959	
AIR CHANGE HEAT GAIN						112			172				40			14			3			3					26
DUCT LOSS					0			0				0			0			0			0					0	
DUCT GAIN						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
HEAT GAIN APPLIANCES/LIGHTS						534			534				534			0			0			0					534
TOTAL HT LOSS BTU/H					3753			4673				1147			1104			484			450					11738	
TOTAL HT GAIN x 1.3 BTU/H						3617			5164				1739			364			70			65					1379

TOTAL HEAT GAIN BTU/H: 23990 TONS: 2.00 LOSS DUE TO VENTILATION LOAD BTU/H: 1274 STRUCTURAL HEAT LOSS: 32874 TOTAL COMBINED HEAT LOSS BTU/H: 34148

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: LEAFTRAIL HOLDINGS
BUILDER: ROYAL PINE HOMES
TYPE: 2504
DATE: Apr-22
GFA: 2027 LO# 95321

HEATING CFM	710	COOLING CFM	710	furnace pressure	0.6
TOTAL HEAT LOSS	32,874	TOTAL HEAT GAIN	23,801	furnace filter	0.05
AIR FLOW RATE CFM	21.6	AIR FLOW RATE CFM	29.83	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	0	9	7	3
R/A	0	0	4	2	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

#CARRIER

59SP5A-40-10 **40**

FAN SPEED	
LOW	0
MEDLOW	0
MEDIUM	0
MEDIUM HIGH	710
HIGH	875

AFUE = 97 %
INPUT (BTU/H) = 40,000
OUTPUT (BTU/H) = **39,000**
DESIGN CFM = **710**
CFM @ .6 " E.S.P.
TEMPERATURE RISE 51 °F

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

RUN #	1	2	3	4	5	6	7	10	12	13	14	15	17	18	19	20	21	22	23
ROOM NAME	MBR	ENS	BED-2	BED-2	BED-3	BED-3	BATH	MBR	LV/DN	LV/DN	K/B/F	K/B/F	LAUN	PWD	FOY	MUD	BAS	BAS	BAS
RM LOSS MBH.	1.41	1.53	1.20	1.20	1.12	1.12	0.53	1.41	1.88	1.88	2.34	2.34	1.15	1.10	0.48	0.45	3.91	3.91	3.91
CFM PER RUN HEAT	30	33	26	26	24	24	12	30	41	41	50	50	25	24	10	10	85	85	85
RM GAIN MBH.	1.66	1.20	1.71	1.71	1.65	1.65	0.15	1.66	1.81	1.81	2.58	2.58	1.74	0.36	0.07	0.07	0.46	0.46	0.46
CFM PER RUN COOLING	50	36	51	51	49	49	5	50	54	54	77	77	52	11	2	2	14	14	14
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	0.16	0.16	0.16
ACTUAL DUCT LGH.	50	44	48	45	66	62	27	44	41	45	32	22	48	20	38	12	27	16	34
EQUIVALENT LENGTH	170	190	140	120	210	210	140	200	120	120	100	100	190	120	110	150	110	100	130
TOTAL EFFECTIVE LENGTH	220	234	188	165	276	272	167	244	161	165	132	122	238	140	148	162	137	116	164
ADJUSTED PRESSURE	0.08	0.07	0.09	0.1	0.06	0.06	0.1	0.07	0.11	0.1	0.13	0.14	0.07	0.12	0.12	0.11	0.12	0.14	0.1
ROUND DUCT SIZE	5	4	5	5	5	5	4	5	5	5	5	5	5	4	4	4	**6**	**6**	**6**
HEATING VELOCITY (ft/min)	220	379	191	191	176	176	138	220	301	301	367	367	184	275	115	115	433	433	433
COOLING VELOCITY (ft/min)	367	413	374	374	360	360	57	367	396	396	565	565	382	126	23	23	71	71	71
OUTLET GRILL SIZE	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	4X10	4X10	4X10
TRUNK	A	C	C	C	B	B	C	C	B	B	A	A	B	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	300	0.08	8.9	10	x	8	540	TRUNK G	0	0.00	0	0	x	8	0
TRUNK B	250	0.06	9	10	x	8	450	TRUNK H	0	0.00	0	0	x	8	0
TRUNK C	411	0.06	10.8	14	x	8	528	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	710	0.05	13.9	22	x	8	581
TRUNK Y	330	0.05	10.4	12	x	8	495
TRUNK Z	150	0.05	7.8	8	x	8	338
DROP	710	0.05	13.9	24	x	10	426

RETURN AIR #	1	2	3	4	5	6										**BR**
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
AIR VOLUME	85	60	60	60	180	150	0	0	0	0	0	0	0	0	0	115
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.	36	64	70	58	36	49	1	1	1	1	1	1	1	1	1	14
EQUIVALENT LENGTH	155	205	245	270	155	160	0	0	0	0	0	0	0	0	0	135
TOTAL EFFECTIVE LH	191	269	315	328	191	209	1	1	1	1	1	1	1	1	1	149
ADJUSTED PRESSURE	0.08	0.06	0.05	0.05	0.08	0.07	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	0.10
ROUND DUCT SIZE	5.6	5.3	5.5	5.5	7.4	7.1	0	0	0	0	0	0	0	0	0	5.9
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: 2504 LO # 95321
SITE NAME: LEAFTRAIL HOLDINGS

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	2	@ 10.6 cfm	21.2	cfm
Table 9.32.3.A.		TOTAL	127.2	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	127.2	cfm
Less Principal Ventil. Capacity	63.6	cfm
Required Supplemental Capacity	63.6	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
PWD	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: April-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#: 95321 Model: 2504 Builder: ROYAL PINE HOMES Date: 2022-04-25

Volume Calculation

House Volume

Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)
Bsmt	914	9	8226
First	914	10	9140
Second	1113	9	10017
Third	0	9	0
Fourth	0	9	0
		Total:	27,383.0 ft³
		Total:	775.4 m³

Air Change & Delta T Data

WINTER NATURAL AIR CHANGE RATE	0.273
SUMMER NATURAL AIR CHANGE RATE	0.089

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

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

0.273 x 215.39 x 41 °C x 1.2 = 2907 W

= **9918 Btu/h**

6.2.6 Sensible Gain due to Air Leakage

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

= 0.089 x 215.39 x 6 °C x 1.2 = 140 W

= **478 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	9,918	6,779	0.732
2	0.3		7,489	0.397
3	0.2		8,421	0.236
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: 2504 **BUILDER:** ROYAL PINE HOMES
SFQT: 2027 **LO#** 95321 **SITE:** LEAFTRAIL HOLDINGS

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	0.50

BUILDING DATA

ATTACHMENT:	DETACHED	# 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):	27383.0	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	4
INTERIOR LIGHTING LOAD (Btu/h/ft^2):	1.27	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:	148.0 ft

2012 OBC - COMPLIANCE PACKAGE **Component**	**Compliance Package SB-12 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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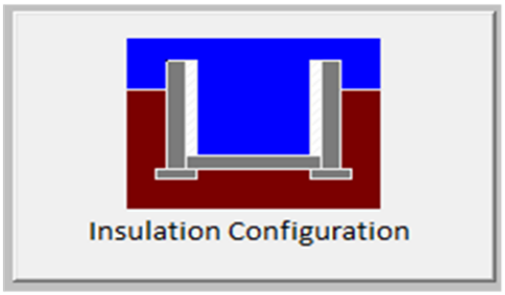
905-619-2300

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):	**0.0**	
Wall Height (m):	**2.7**	
Depth Below Grade (m):	**1.83**	
Window Area (m^2):	**0.8**	
Door Area (m^2):	**0.0**	
Radiant Slab		
Heated Fraction of the Slab:	**0**	
Fluid Temperature (°C):	**33**	
Design Months		
Heating Month	**1**	
Foundation Loads		
Heating Load (Watts):		**1474**

TYPE: 2504
LO# 95321

Michael O'Rourke BCIN #19669

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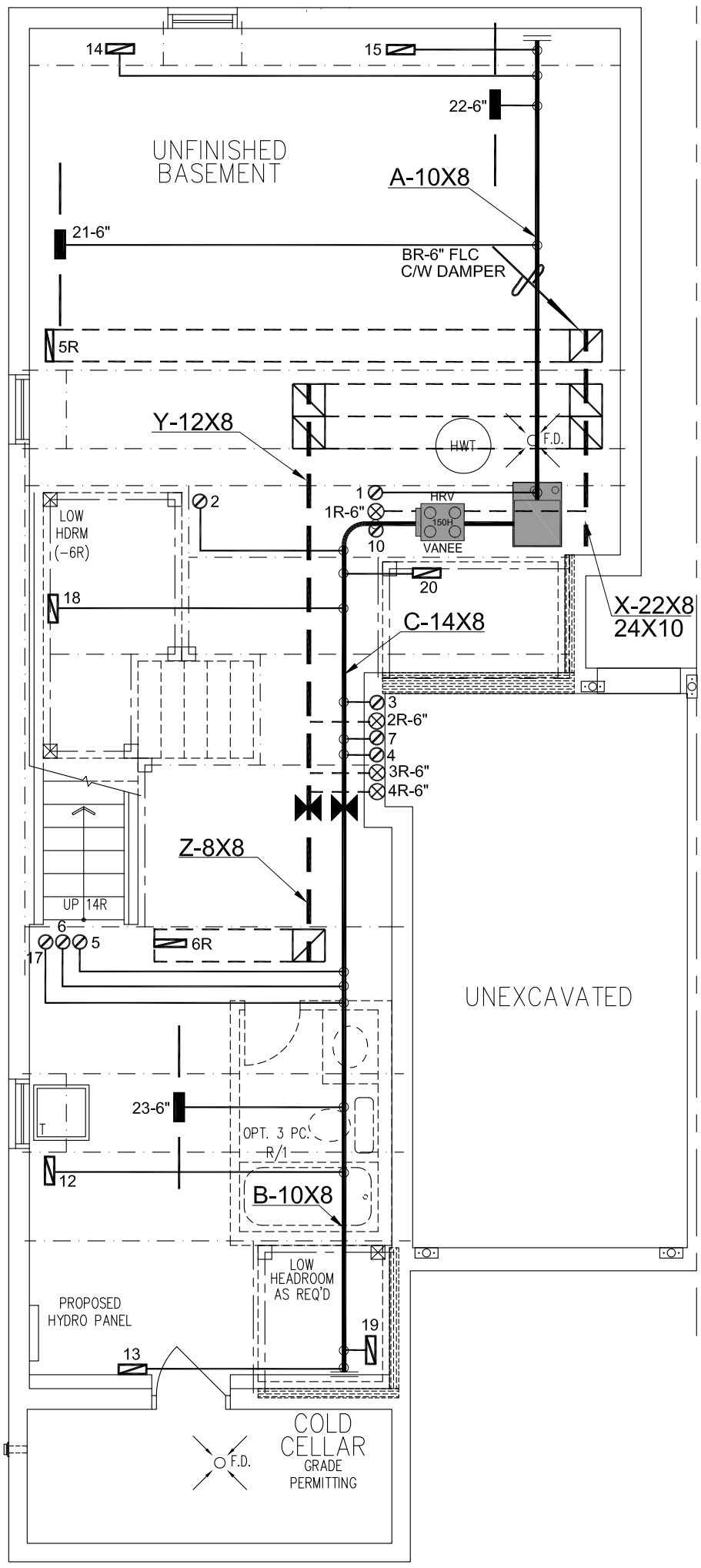
Air Infiltration Residential Load Calculator

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):	6.71
Building Configuration	
Type:	Detached
Number of Stories:	Two
Foundation:	Full
House Volume (m^3):	775.4
Air Leakage/Ventilation	
Air Tightness Type:	Energy Star Attached (3.0 ACH)
Custom BDT Data:	ELA @ 10 Pa. 868.6 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):	**0.273**
Cooling Air Leakage Rate (ACH/H):	**0.089**

TYPE: 2504
LO# 95321

Michael O'Rourke BCIN# 19669



BASEMENT PLAN ELEV 'A' & 'B'

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

SB-12 PERFORMANCE

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.	REVISED TO PERFORMANCE PATH	APR/2022

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Client
ROYAL PINE HOMES

Project Name
LEAFTRAIL HOLDINGS
BRAMPTON, ONTARIO

2504 2027 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.

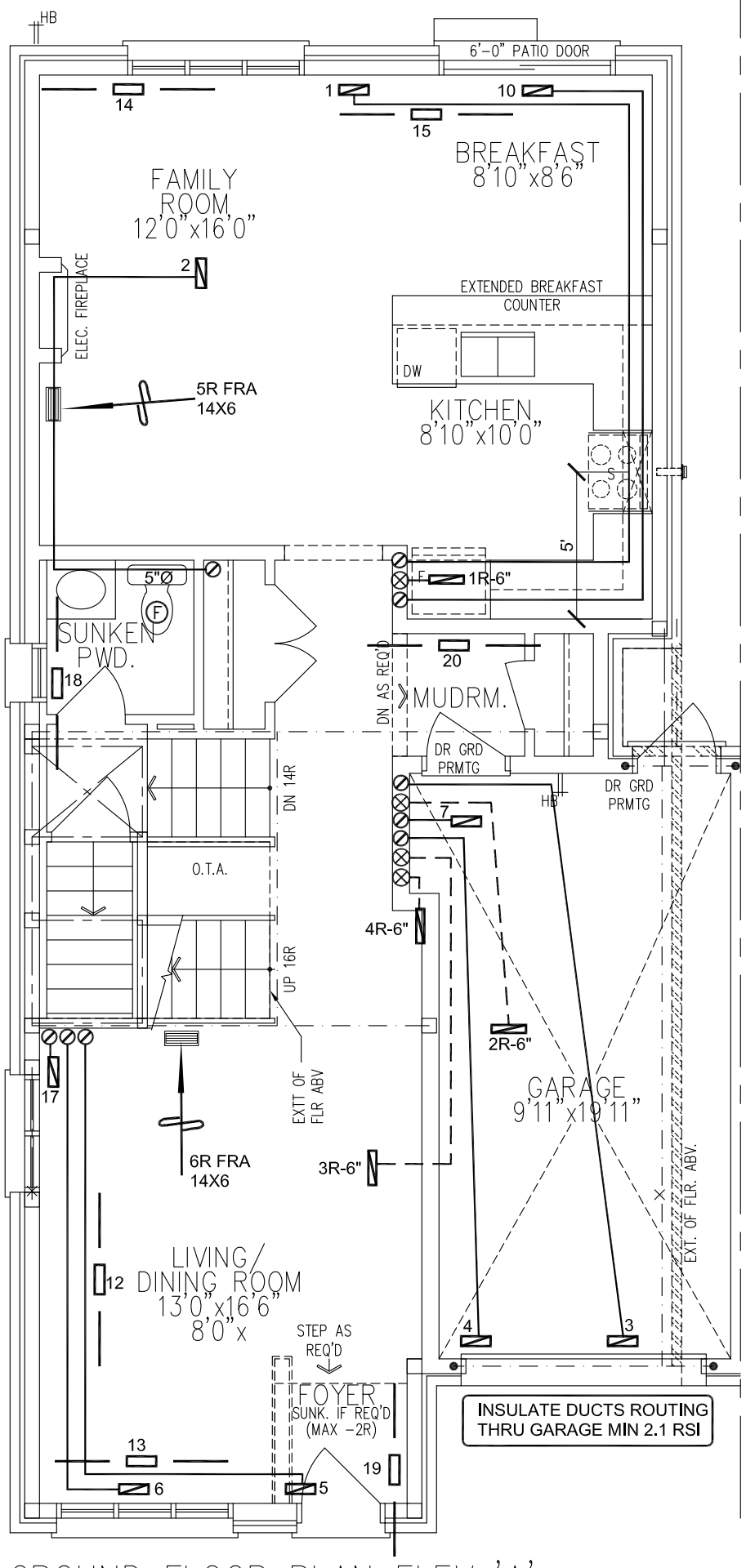
HEAT LOSS 34148 BTU/H		
UNIT DATA		
MAKE	CARRIER	
MODEL	59SP5A-40-10	
INPUT	40	MBTU/H
OUTPUT	39	MBTU/H
COOLING	2.0	TONS
FAN SPEED	710	cfm @ 0.6" w.c.

# OF RUNS	S/A	R/A	FANS
3RD FLOOR			
2ND FLOOR	9	4	2
1ST FLOOR	7	2	2
BASEMENT	3	1	0

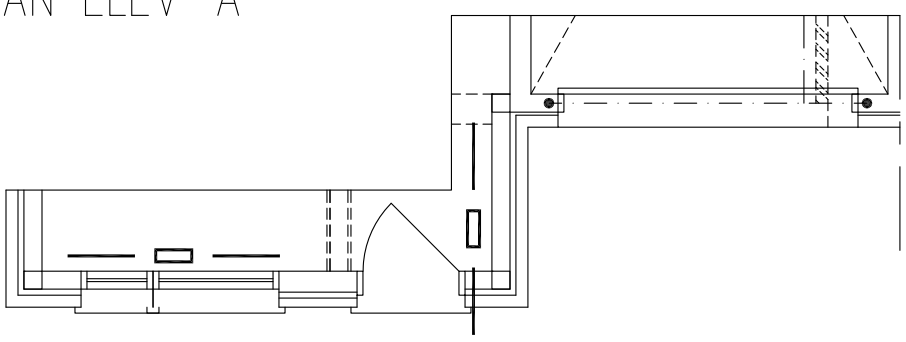
ALL S/A DIFFUSERS 4 "x10" UNLESS NOTED OTHERWISE ON LAYOUT. ALL S/A RUNS 5"Ø UNLESS NOTED OTHERWISE ON LAYOUT. UNDERCUT DOORS 1" min. FOR R/A

Sheet Title
BASEMENT HEATING LAYOUT

Date MAR/2022
Scale 3/16" = 1'-0"
BCIN# 19669
LO# 95321



GROUND FLOOR PLAN ELEV 'A'



PARTIAL GROUND FLOOR PLAN, ELEV 'B' (REV)

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HVAC DESIGNS LTD.

CSA-F280-12

SB-12 PERFORMANCE

HVAC LEGEND

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— ▬ —	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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Client

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Sheet Title

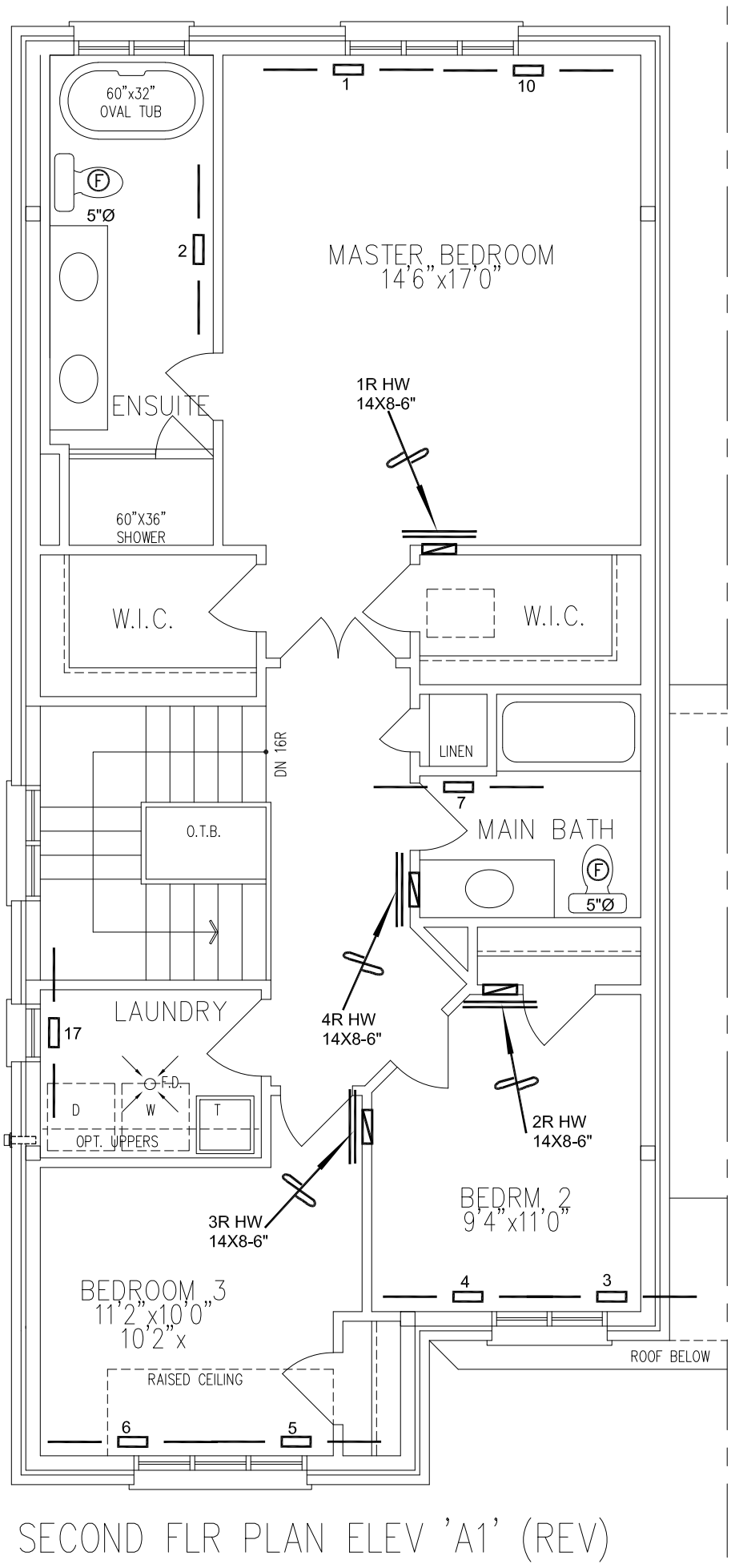
FIRST FLOOR HEATING LAYOUT

Date MAR/2022

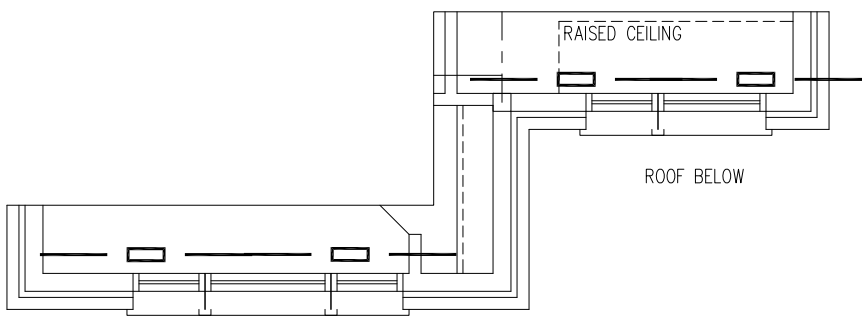
Scale 3/16" = 1'-0"

BCIN# 19669

LO# 95321



SECOND FLR PLAN ELEV 'A1' (REV)



PALATIAL SECOND FLR PLAN, ELEV 'B'

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HVAC DESIGNS LTD.

CSA-F280-12

SB-12 PERFORMANCE

HVAC LEGEND

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	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 MAR/2022

Scale 3/16" = 1'-0"

BCIN# 19669

LO# 95321