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:** 1802 **Project:** FORESTVIEW

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 19, 2018
Date

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: FORESTVIEW | DATE: Apr-19 | WINTER NATURAL AIR CHANGE RATE 0.424 | HEAT LOSS ΔT °F. 74 | CSA-F280-12
BUILDER: ROYAL PINE HOMES | TYPE: 1802 | GFA: 1912 | LO# 78926 | SUMMER NATURAL AIR CHANGE RATE 0.132 | HEAT GAIN ΔT °F. 11 | SB-12 PACKAGE A1

ROOM USE			MBR			ENS			WIC			BED-2			BED-3				BATH								
EXP. WALL			25			12			0			9			9				0								
CLG. HT.			9			9			9			9			9				9								
FACTORS																											
GRS.WALL AREA	LOSS	GAIN	225			108			0			81			81				0								
GLAZING				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						
EAST	20.8	41.0	32	665	1314	19	395	780	0	0	0	0	0	0	0	0	0		0	0	0						
SOUTH	20.8	24.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0						
WEST	20.8	41.0	0	0	0	0	0	0	0	0	0	25	519	1026	25	519	1026		0	0	0						
SKYLT.	36.4	100.7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0						
DOORS	24.7	3.7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0						
NET EXPOSED WALL	4.4	0.6	193	841	125	89	388	57	0	0	0	56	244	36	56	244	36		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						
EXPOSED CLG	1.3	0.6	218	273	121	80	100	45	65	81	36	153	192	85	153	192	85		70	88	39						
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			0				0								
SLAB ON GRADE HEAT LOSS				0			0			0			0			0				0								
SUBTOTAL HT LOSS				1779			883			82			955			955				88								
SUB TOTAL HT GAIN					1560			882			36			1148			1148				39							
LEVEL FACTOR / MULTIPLIER			0.10	0.26		0.10	0.26		0.10	0.26		0.10	0.26		0.10	0.26			0.10	0.26							
AIR CHANGE HEAT LOSS				457			227			21			246			246				23								
AIR CHANGE HEAT GAIN					91			52			2			67			67				2							
DUCT LOSS				224			111			10			0			0				0								
DUCT GAIN					257			93			4			0			0				0							
HEAT GAIN PEOPLE	240		2		480	0		0	0		0	1		240	1		240		0		0						
HEAT GAIN APPLIANCES/LIGHTS					436			0			0			436			436				0							
TOTAL HT LOSS BTU/H				2460			1221			113			1201			1201				110								
TOTAL HT GAIN x 1.3 BTU/H					3671			1335			55			2458			2458				54							

ROOM USE				DIN			K/B/F			OFF			LAUN				FOY			MUD						BAS		
EXP. WALL				22			18			18			10				28			5						61		
CLG. HT.				10			10			9			10				10			10						9		
FACTORS																												
GRS.WALL AREA	LOSS	GAIN		220			180			162			100				280			50						366		
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	0
EAST	20.8	41.0		51	1060	2093	0	0	0	0	0	0	0	0			5	104	205	0	0	0				0	0	0
SOUTH	20.8	24.4		0	0	0	0	0	0	0	0	0	0	0			0	0	0	0	0	0				0	0	0
WEST	20.8	41.0		0	0	0	74	1537	3038	40	831	1642	0	0			0	0	0	0	0	0				3	62	123
SKYLT.	36.4	100.7		0	0	0	0	0	0	0	0	0	0	0			0	0	0	0	0	0				0	0	0
DOORS	24.7	3.7		0	0	0	0	0	0	0	0	0	20	493	73		40	986	146	20	493	73				0	0	0
NET EXPOSED WALL	4.4	0.6		169	736	109	106	462	68	122	532	79	80	349	52		235	1024	152	30	131	19				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				183	643	95
EXPOSED CLG	1.3	0.6		0	0	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	0	0
EXPOSED FLOOR	2.5	0.4		170	423	63	48	120	18	0	0	0	0	0			0	0	0	0	0	0				0	0	0
BASEMENT/CRAWL HEAT LOSS					0			0			0			0				0			0						1982	
SLAB ON GRADE HEAT LOSS					0			0			0			0				0			0							
SUBTOTAL HT LOSS					2219			2119			1363			842				2114			624						2687	
SUB TOTAL HT GAIN						2265			3124			1721			125				503			92							218
LEVEL FACTOR / MULTIPLIER				0.20	0.56		0.20	0.56		0.30	0.74		0.30	0.74			0.30	0.74		0.30	0.74					0.40	1.81	
AIR CHANGE HEAT LOSS					1247			1191			1008			623				1564			462						4876	
AIR CHANGE HEAT GAIN						133			183			101			7				29			5							13
DUCT LOSS					347			331			0			0				0			0						0	
DUCT GAIN						283			374			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						436			436			436			436				0			0							436
TOTAL HT LOSS BTU/H					3813			3641			2371			1464				3678			1085						7563	
TOTAL HT GAIN x 1.3 BTU/H						4052			5352			2934			738				692			127							867

TOTAL HEAT GAIN BTU/H: 24982 TONS: 2.08 LOSS DUE TO VENTILATION LOAD BTU/H: 1274 STRUCTURAL HEAT LOSS: 29921 TOTAL COMBINED HEAT LOSS BTU/H: 31195

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: FORESTVIEW
BUILDER: ROYAL PINE HOMES TYPE: 1802 DATE: Apr-19 GFA: 1912 LO# 78926

				furnace pressure	0.6				
HEATING CFM	710	COOLING CFM	710	furnace filter	0.05		#CARRIER		AFUE = 97 %
TOTAL HEAT LOSS	29,921	TOTAL HEAT GAIN	24,793	a/c coil pressure	0.2		59SP5A-40-10	40	INPUT (BTU/H) = 40,000
AIR FLOW RATE CFM	23.73	AIR FLOW RATE CFM	28.64	available pressure			FAN SPEED		OUTPUT (BTU/H) = **39,000**
				for s/a & r/a	0.35		LOW	0	
							MEDLOW	0	DESIGN CFM = 710
				plenum pressure s/a	0.18	r/a pressure 0.17	MEDIUM	0	CFM @ .6 " E.S.P.
				max s/a dif press. loss	0.02	r/a grille press. Loss 0.02	MEDIUM HIGH	710	
				min adjusted pressure s/a	0.16	adjusted pressure r/a 0.15	HIGH	875	TEMPERATURE RISE 51 °F

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	6	4	4	3
R/A	0	3	1	1	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	7	12	13	14	15	16	17	19	20	21	22	23
ROOM NAME	MBR	ENS	WIC	BED-2	BED-3	BATH	DIN	DIN	K/B/F	K/B/F	OFF	LAUN	FOY	MUD	BAS	BAS	BAS
RM LOSS MBH.	2.46	1.22	0.11	1.20	1.20	0.11	1.91	1.91	1.82	1.82	2.37	1.46	3.68	1.09	2.52	2.52	2.52
CFM PER RUN HEAT	58	29	3	28	28	3	45	45	43	43	56	35	87	26	60	60	60
RM GAIN MBH.	3.67	1.34	0.05	2.46	2.46	0.05	2.03	2.03	2.68	2.68	2.93	0.74	0.69	0.13	0.29	0.29	0.29
CFM PER RUN COOLING	105	38	2	70	70	2	58	58	77	77	84	21	20	4	8	8	8
ADJUSTED PRESSURE	0.16	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.16	0.17	0.16	0.17	0.17	0.17	0.17
ACTUAL DUCT LGH.	56	57	42	38	46	28	39	51	26	34	14	14	31	26	9	19	20
EQUIVALENT LENGTH	160	220	170	150	170	210	120	170	160	160	110	150	110	130	160	150	130
TOTAL EFFECTIVE LENGTH	216	277	212	188	216	238	159	221	186	194	124	164	141	156	169	169	150
ADJUSTED PRESSURE	0.08	0.06	0.08	0.09	0.08	0.07	0.11	0.08	0.09	0.09	0.13	0.1	0.11	0.11	0.1	0.1	0.11
ROUND DUCT SIZE	**6**	5	4	**6**	**6**	4	5	5	5	5	**6**	4	**6**	4	5	5	5
HEATING VELOCITY (ft/min)	296	213	34	143	143	34	330	330	316	316	286	402	444	298	441	441	441
COOLING VELOCITY (ft/min)	535	279	23	357	357	23	426	426	565	565	428	241	102	46	59	59	59
OUTLET GRILL SIZE	4X10	3X10	3X10	4X10	4X10	3X10	3X10	3X10	3X10	3X10	4X10	3X10	4X10	3X10	3X10	3X10	3X10
TRUNK	B	B	B	A	A	B	B	B	A	A	E	D	D	E	E	E	D

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 A	142	0.08	6.8	10	x	8	256
TRUNK B	183	0.06	8	10	x	8	329
TRUNK C	325	0.06	9.9	16	x	8	366
TRUNK D	182	0.10	7	8	x	8	410
TRUNK E	202	0.10	7.3	8	x	8	455
TRUNK F	0	0.00	0	0	x	8	0
TRUNK G	0	0.00	0	0	x	8	0
TRUNK H	0	0.00	0	0	x	8	0
TRUNK I	0	0.00	0	0	x	8	0
TRUNK J	0	0.00	0	0	x	8	0
TRUNK K	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	0	0.05	0	0	x	8	0
TRUNK Z	0	0.05	0	0	x	8	0
DROP	710	0.05	13.9	24	x	10	426

RETURN AIR #	1	2	3	4	5											BR
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
AIR VOLUME	70	70	210	205	80	0	0	0	0	0	0	0	0	0	0	75
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.	57	54	30	15	47	1	1	1	1	1	1	1	1	1	1	14
EQUIVALENT LENGTH	215	220	135	140	185	0	0	0	0	0	0	0	0	0	0	180
TOTAL EFFECTIVE LH	272	274	165	155	232	1	1	1	1	1	1	1	1	1	1	194
ADJUSTED PRESSURE	0.05	0.05	0.09	0.10	0.06	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	0.08
ROUND DUCT SIZE	5.8	5.8	7.6	7.3	5.9	0	0	0	0	0	0	0	0	0	0	5.3
INLET GRILL SIZE	8	8	8	8	8	0	0	0	0	0	0	0	0	0	0	8
	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
INLET GRILL SIZE	14	14	24	14	14	0	0	0	0	0	0	0	0	0	0	14

I REVIEW AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED IN THE APPROPRIATE CATEGORY AS AN "OTHER DESIGNER" UNDER DIVISION C, 3.2.5 OF THE BUILDING CODE. INDIVIDUAL BCIN: 19669 MICHAEL O'ROURKE

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TYPE: 1802 LO # 78926
SITE NAME: FORESTVIEW

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	5	@ 10.6 cfm	53	cfm
Other Rooms	5	@ 10.6 cfm	53.0	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	**63.6**	**cfm**

SUPPLEMENTAL VENTILATION CAPACITY 9.32.3.5.

Total Ventilation Capacity	169.6	cfm
Less Principal Ventil. Capacity	63.6	cfm
Required Supplemental Capacity	106.0	cfm

PRINCIPAL EXHAUST FAN CAPACITY

Model: VANEE 65H Location: BSMT

63.6 cfm 3.0 sones [✓] 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 NUTONE

Location	Model	cfm	HVI	Sones
ENS	QTXEN050C	50	✓	0.3
BATH	QTXEN050C	50	✓	0.3
PWD-2	QTXEN050C	50	✓	0.3
PWD	QTXEN050C	50	✓	0.3

HEAT RECOVERY VENTILATOR 9.32.3.11.

Model: VANEE 65H

155 cfm high 64 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-19

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

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CSA F280-12 Residential Heat Loss and Heat Gain Calculations

Formula Sheet (For Air Leakage / Ventiliation Calculation)

LO#: 78926 Model: 1802 Builder: ROYAL PINE HOMES Date: 4/22/2019

Volume Calculation

House Volume

Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)
Bsmt	412	9	3708
First	412	9	3708
Second	750	10	7500
Third	750	9	6750
Fourth	0	9	0
		Total:	21,666.0 ft³
		Total:	613.5 m³

Air Change & Delta T Data

WINTER NATURAL AIR CHANGE RATE	0.424
SUMMER NATURAL AIR CHANGE RATE	0.132

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

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

0.424 x 170.42 x 41 °C x 1.2 = 3573 W

= **12190 Btu/h**

6.2.6 Sensible Gain due to Air Leakage

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

= 0.132 x 170.42 x 6 °C x 1.2 = 165 W

= **564 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	0.4	12,190	2,687	1.815
2	0.3		4,942	0.740
3	0.2		4,338	0.562
4	0.1		4,742	0.257
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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Tel: 905.619.2300 Fax: 905.619.2375
Web: www.hvacdesigns.ca E-mail: info@hvacdesigns.ca

HEAT LOSS AND GAIN SUMMARY SHEET

MODEL: 1802 **BUILDER:** ROYAL PINE HOMES
SFQT: 1912 **LO#** 78926 **SITE:** FORESTVIEW

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

BUILDING DATA

ATTACHMENT:	ATTACHED	# OF STORIES (+BASEMENT):	4
FRONT FACES:	EAST	ASSUMED (Y/N):	Y
AIR CHANGES PER HOUR:	3.57	ASSUMED (Y/N):	Y
AIR TIGHTNESS CATEGORY:	AVERAGE	ASSUMED (Y/N):	Y
WIND EXPOSURE:	SHELTERED	ASSUMED (Y/N):	Y
HOUSE VOLUME (ft^3):	21666.0	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	4
INTERIOR LIGHTING LOAD (Btu/h/ft^2):	1.50	DC BRUSHLESS MOTOR (Y/N):	Y
FOUNDATION CONFIGURATION	BCIN_1	DEPTH BELOW GRADE:	6.0 ft
LENGTH: 44.0 ft	WIDTH: 18.0 ft	EXPOSED PERIMETER:	61.0 ft

2012 OBC - COMPLIANCE PACKAGE **Component**	**Compliance Package A1**	
	Nominal	**Min. Eff.**
Ceiling with Attic Space Minimum RSI (R)-Value	60	59.22
Ceiling Without Attic Space Minimum RSI (R)-Value	31	27.65
Exposed Floor Minimum RSI (R)-Value	31	29.80
Walls Above Grade Minimum RSI (R)-Value	22	17.03
Basement Walls Minimum RSI (R)-Value	20 ci	21.12
Below Grade Slab Entire surface > 600 mm below grade Minimum RSI (R)-Value	-	-
Edge of Below Grade Slab ≤ 600 mm Below Grade Minimum RSI (R)-Value	10	10
Heated Slab or Slab ≤ 600 mm below grade Minimum RSI (R)-Value	10	11.13
Windows and Sliding Glass Doors Maximum U-Value	0.28	-
Skylights Maximum U-Value	0.49	-
Space Heating Equipment Minimum AFUE	0.96	-
HRV Minimum Efficiency	75%	-
Domestic Hot Water Heater Minimum EF	0.8	-

INDIVIDUAL BCIN: 19669
MICHAEL O'ROURKE

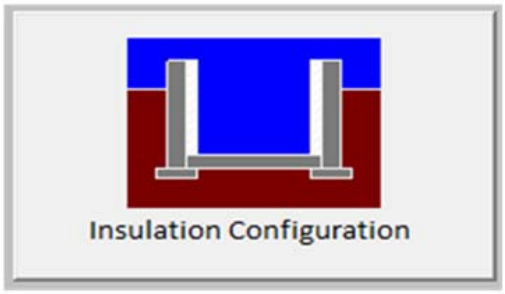
Michael O'Rourke

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):	**13.4**	 Insulation Configuration
Floor Width (m):	**5.5**	
Exposed Perimeter (m):	**18.6**	
Wall Height (m):	**2.7**	
Depth Below Grade (m):	**1.83**	
Window Area (m^2):	**0.3**	
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):	**581**	

TYPE: 1802
LO# 78926

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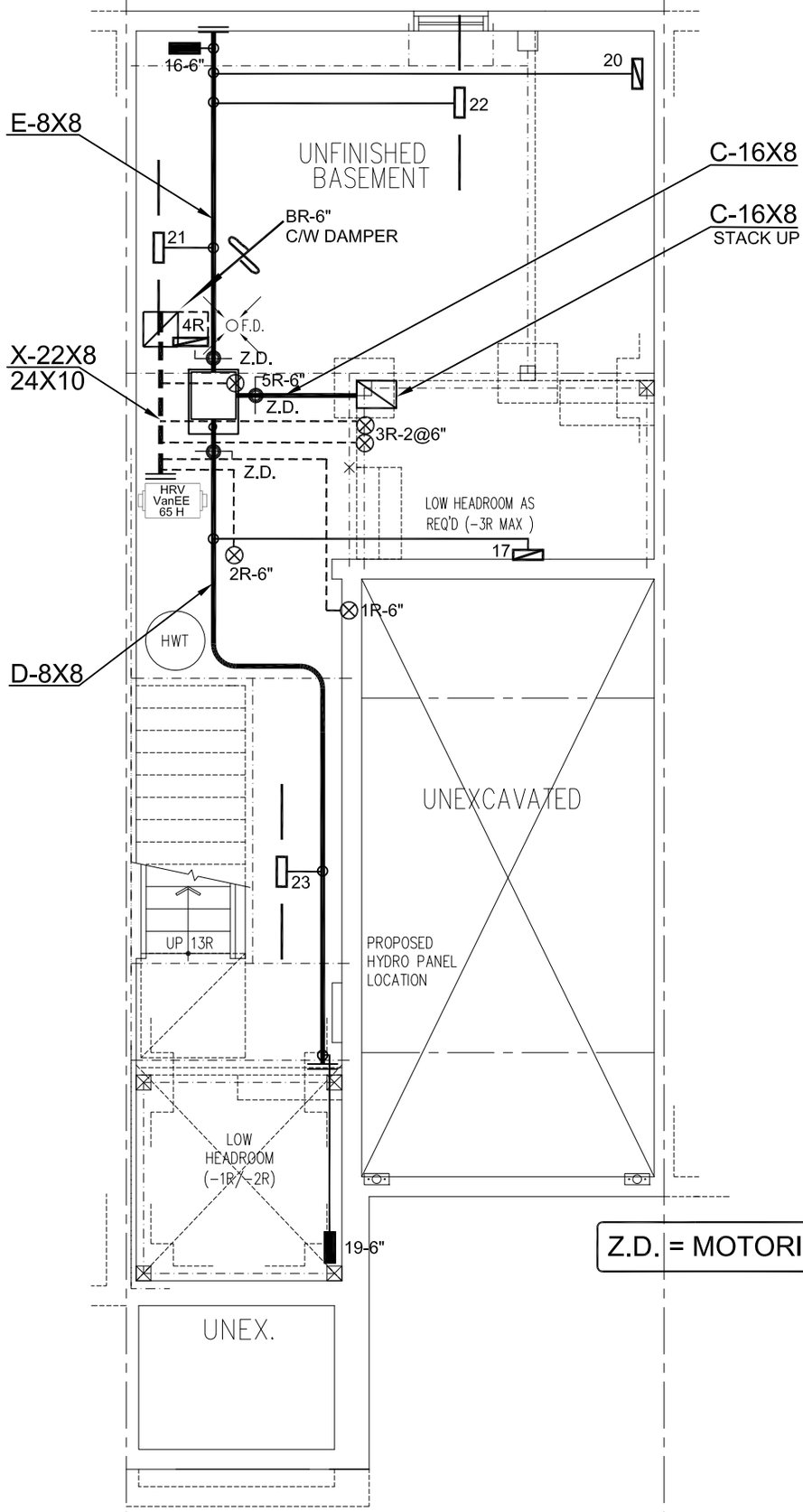
Ajax ON, L1S 2E2
905-619-2300

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):	9.45
Building Configuration	
Type:	Semi
Number of Stories:	Three
Foundation:	Full
House Volume (m^3):	613.5
Air Leakage/Ventilation	
Air Tightness Type:	Present (1961-) (3.57 ACH)
Custom BDT Data:	ELA @ 10 Pa. 817.8 cm^2
	3.57 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):	**0.424**
Cooling Air Leakage Rate (ACH/H):	**0.132**

TYPE: 1802
LO# 78926



Z.D. = MOTORIZED ZONE DAMPER

BASEMENT PLAN EL. '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

PACKAGE A1

HVAC LEGEND

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

No.	Description	Date
3.		
2.		
1.	REVISED AS PER ARCHITECTURALS	APR/2019

REVISIONS

Client
ROYAL PINE HOMES

Project Name
FORESTSIDE
BRAMPTON, ONTARIO

1802 1912 sqft

HVAC DESIGNS LTD.
375 Finley Ave. Suite 202 - Ajax, Ontario
L1S 2E2 Tel. 905.619.2300 - 905.420.5300 Fax 905.619.2375
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Specializing in Residential Mechanical Design Services

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

HEAT LOSS 31195 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	6	3	2(3)
2ND FLOOR	4	1	2
1ST FLOOR	4	1	2(1)
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

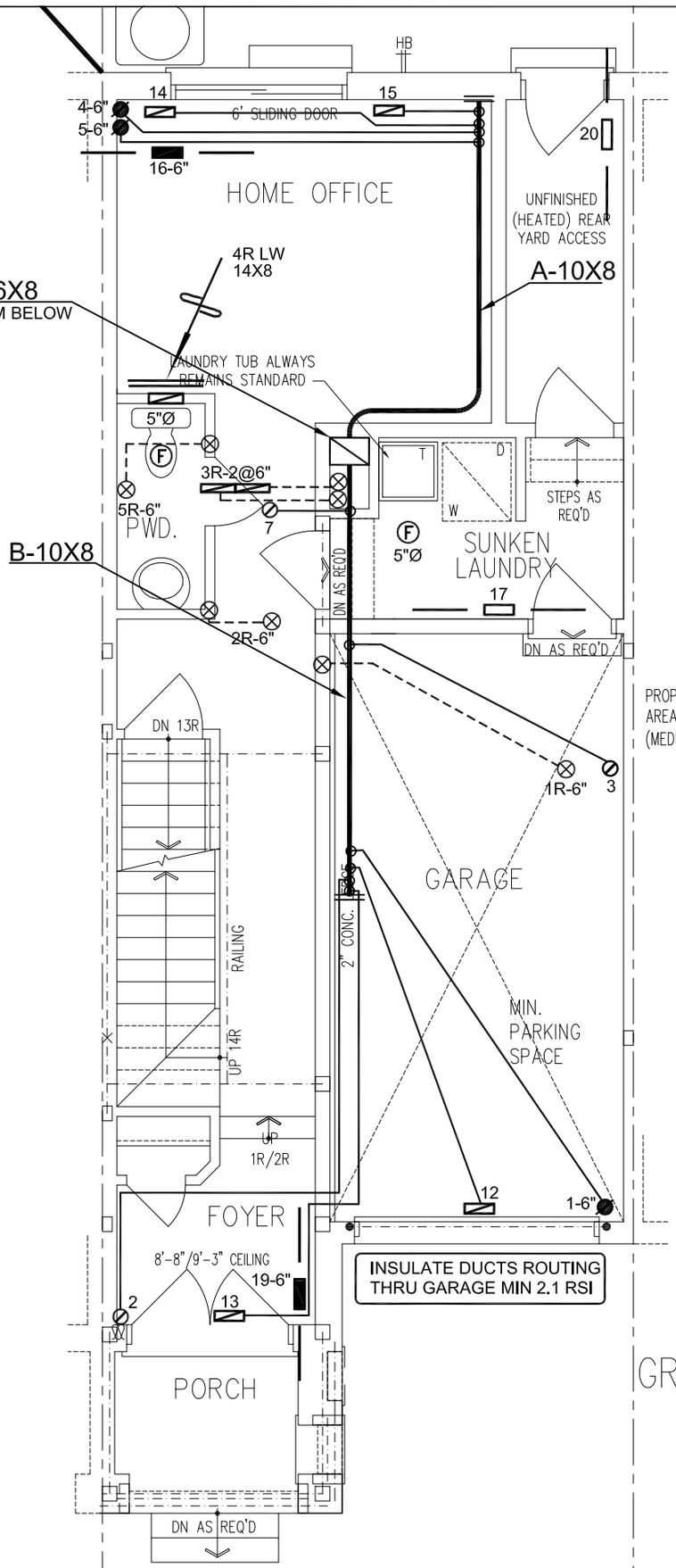
Sheet Title
BASEMENT HEATING LAYOUT

Date JAN/2018

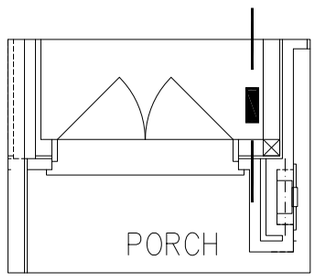
Scale 3/16" = 1'-0"

BCIN# 19669

LO# 78926



GROUND FLOOR PLAN EL. 'A'



GROUND FLOOR PLAN EL. 'B'

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HVAC DESIGNS LTD.

CSA-F280-12

PACKAGE A1

HVAC LEGEND

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	SUPPLY AIR BOOT ABOVE		6" SUPPLY AIR STACK 2nd FLOOR		FRA- FLOOR RETURN AIR GRILLE		REDUCER

No.	Description	Date
3.		
2.		
1.	REVISED AS PER ARCHITECTURALS	APR/2019

REVISIONS

Client
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Project Name
FORESTSIDE
BRAMPTON, ONTARIO

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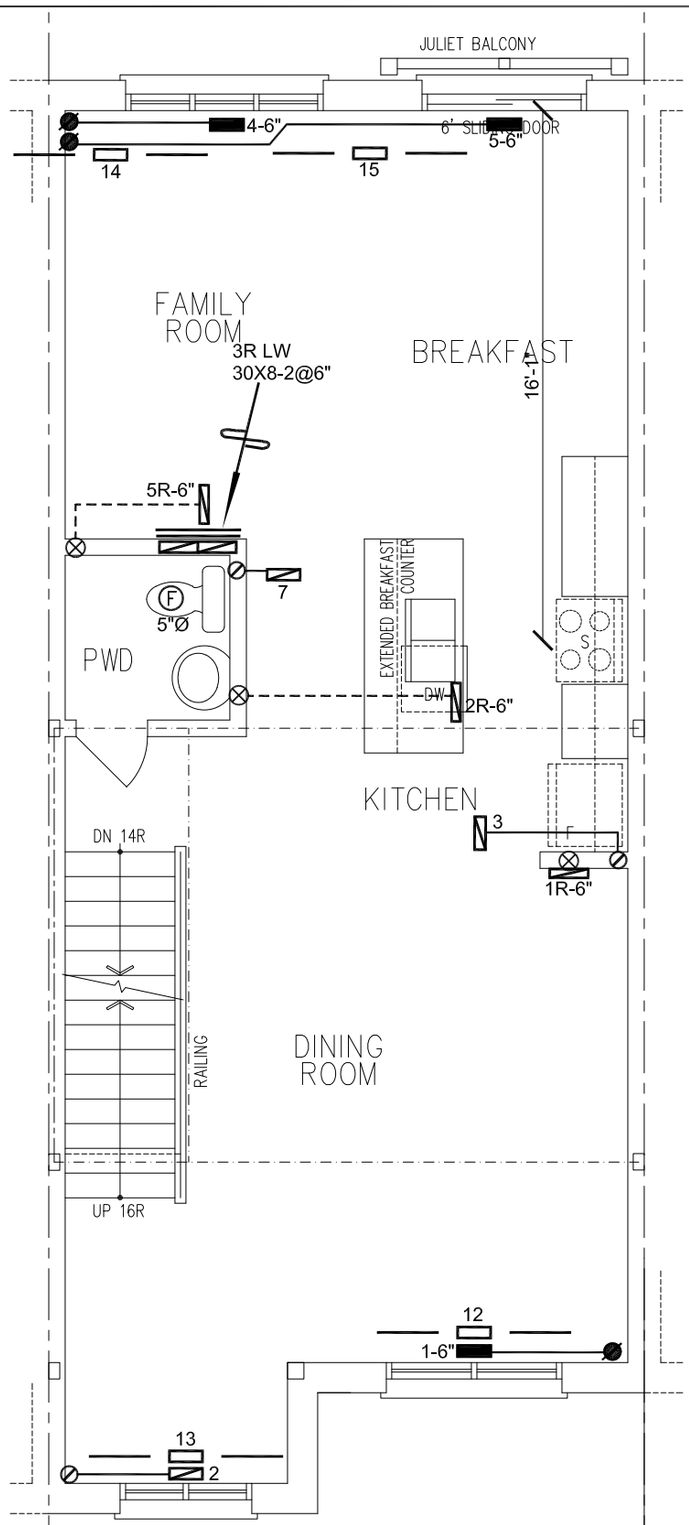
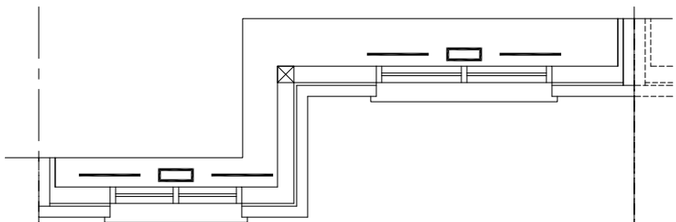
Sheet Title
FIRST FLOOR
HEATING
LAYOUT

Date JAN/2018
Scale 3/16" = 1'-0"
BCIN# 19669
LO# 78926



MAIN FLOOR PLAN EL. 'A'



MAIN FLOOR PLAN, EL. B

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CSA-F280-12

PACKAGE A1

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

No.	Description	Date
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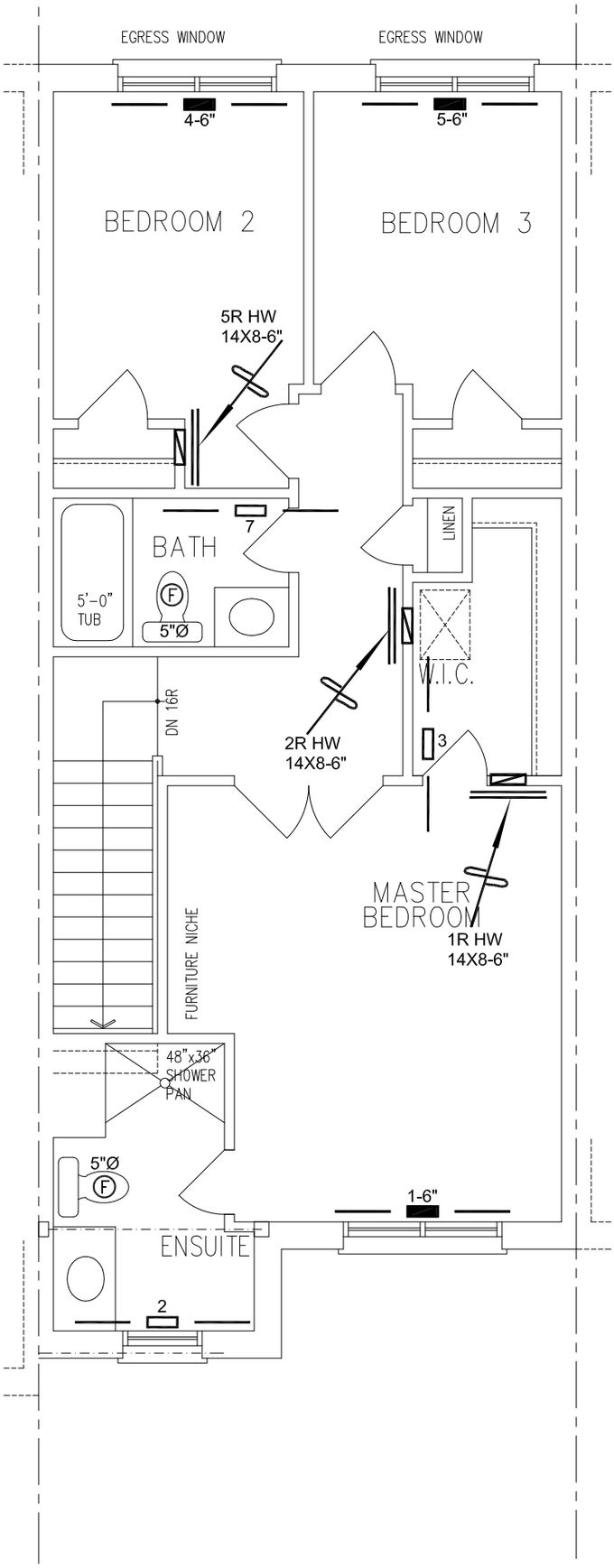
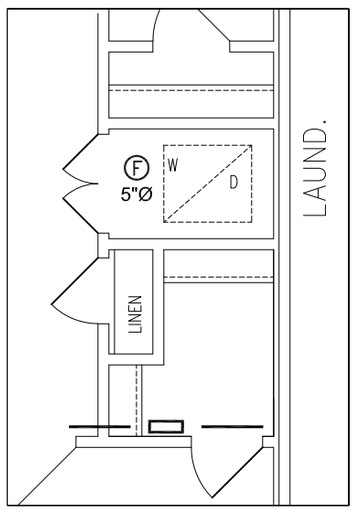
Sheet Title
SECOND FLOOR HEATING LAYOUT

Date JAN/2018
Scale 3/16" = 1'-0"
BCIN# 19669
LO# 78926





OPT. LAUNDRY

(FOR OPT. MUDROOM ON GROUND FLOOR)

THIRD FLOOR PLAN EL. 'A' & 'B'

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

CSA-F280-12

PACKAGE A1

HVAC LEGEND											
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	3.			
	SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		14"x8" RETURN AIR GRILLE		RETURN AIR STACK ABOVE	2.			
	SUPPLY AIR GRILLE 6" BOOT		SUPPLY AIR STACK FROM 2nd FLOOR		30"x8" RETURN AIR GRILLE		RETURN AIR STACK 2nd FLOOR	1.	REVISED AS PER ARCHITECTURALS		APR/2019
	SUPPLY AIR BOOT ABOVE		6" SUPPLY AIR STACK 2nd FLOOR		FRA- FLOOR RETURN AIR GRILLE		REDUCER	No.	Description		Date
								REVISIONS			

Client

ROYAL PINE HOMES

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Sheet Title

THIRD FLOOR HEATING LAYOUT

Date JAN/2018

Scale 3/16" = 1'-0"

BCIN# 19669

LO# 78926