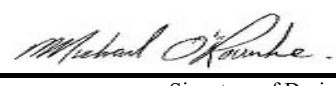


Schedule 1: Designer Information

Use one form for each individual who reviews and takes responsibility for design activities with respect to the project.

A. Project Information			
Building number, street name		Unit no.	Lot/con.
Municipality BRAMPTON	Postal code	Plan number/ other description	
B. Individual who reviews and takes responsibility for design activities			
Name MICHAEL O'ROURKE		Firm HVAC DESIGNS LTD.	
Street address 375 FINLEY AVE		Unit no. 202	Lot/con. N/A
Municipality AJAX	Postal code L1S 2E2	Province ONTARIO	E-mail info@hvacdesigns.ca
Telephone number (905) 619-2300	Fax number (905) 619-2375	Cell number ()	
C. Design activities undertaken by individual identified in Section B. [Building Code Table 3.5.2.1 OF Division C]			
<input type="checkbox"/> House <input type="checkbox"/> Small Buildings <input type="checkbox"/> Large Buildings <input type="checkbox"/> Complex Buildings <input checked="" type="checkbox"/> HVAC – House <input type="checkbox"/> Building Services <input type="checkbox"/> Detection, Lighting and Power <input type="checkbox"/> Fire Protection <input type="checkbox"/> Building Structural <input type="checkbox"/> Plumbing – House <input type="checkbox"/> Plumbing – All Buildings <input type="checkbox"/> 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 INC.	
D. Declaration of Designer			
I, <u>MICHAEL O'ROURKE</u> declare that (choose one as appropriate): (print name)			
<input type="checkbox"/> 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: _____			
<input checked="" type="checkbox"/> 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: <u>19669</u> Basis for exemption from registration and qualification: <u>O.B.C SENTENCE 3.2.4.1 (4)</u>			
<input type="checkbox"/> 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		 Signature of Designer	
Date			

NOTE:

- 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.
- 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.

Application for a Permit Construct or Demolish – Effective January 1, 2015

SITE NAME: SUMMER RIDGE ESTATES INC.

BUILDER: ROYAL PINE HOMES

TYPE: 2502

GFA: 2034

DATE: Apr-22

LO# 95318

WINTER NATURAL AIR CHANGE RATE 0.282

SUMMER NATURAL AIR CHANGE RATE 0.088

HEAT LOSS ΔT °F. 74

HEAT GAIN ΔT °F. 11

CSA-F280-12

SB-12 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	15.5	0	0	0	0	0	0	0	0	0	0			
EAST	20.8	41.0	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			
WEST	20.8	41.0	26	540	1067	17	353	698	0	0	0	0			
SKYLT.	34.1	100.3	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			
NET EXPOSED WALL	3.5	0.5	307	1064	158	46	159	24	193	669	99	123	426	63	
NET EXPOSED BSMT WALL ABOVE GR	3.5	0.5	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	
NO ATTIC EXPOSED CLG	2.7	1.2	0	0	0	0	0	0	45	121	54	45	121	54	
EXPOSED FLOOR	2.5	0.4	0	0	0	0	0	0	105	261	39	0	0	0	
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				1412		791		1233		2163		116			
LEVEL FACTOR / MULTIPLIER	0.20	0.30			0.20	0.30	0.20	0.30	0.20	0.30	0.20	0.30			
AIR CHANGE HEAT LOSS			617		204		532		522		165				
AIR CHANGE HEAT GAIN				83		46		72		127		7			
DUCT LOSS			0		0		228		0		71				
DUCT GAIN				0		0		214		0		12			
HEAT GAIN PEOPLE	240		2		480	0		0	1		240		0		
HEAT GAIN APPLIANCES/LIGHTS					593	0		593		593		0			
TOTAL HT LOSS BTU/H			2642		873		2509		2237		779				
TOTAL HT GAIN x 1.3 BTU/H				3338		1089		3058		4059		175			

ROOM USE			LV/DN		K/B/F		LAUN		FOY		MUD				BAS
EXP. WALL			35		38		0		10		0				92
CLG. HT.			10		10		9		11		11				9
FACTORS															
GRS.WALL AREA	LOSS	GAIN	350		380		0		110		0				552
GLAZING			LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN			LOSS
NORTH	20.8	15.5	0	0	0	0	0	0	0	0	0	0			0
EAST	20.8	41.0	37	769	1519	0	0	0	0	0	0	0			0
SOUTH	20.8	24.4	0	0	0	0	0	0	0	0	8	166	195		0
WEST	20.8	41.0	0	0	0	73	1517	2997	0	0	0	0	0		6
SKYLT.	34.1	100.3	0	0	0	0	0	0	0	0	0	0	0		125
DOORS	19.6	2.9	0	0	0	0	0	0	0	0	0	0	0		246
NET EXPOSED WALL	3.5	0.5	313	1085	161	307	1064	158	90	312	46	-28	-97	-14	0
NET EXPOSED BSMT WALL ABOVE GR	3.5	0.5	0	0	0	0	0	0	0	0	0	0	0	0	0
EXPOSED CLG	1.3	0.6	0	0	0	42	53	23	0	0	0	0	0	0	276
NO ATTIC EXPOSED CLG	2.7	1.2	0	0	0	0	0	0	0	0	0	0	0	0	970
EXPOSED FLOOR	2.5	0.4	0	0	0	0	0	0	0	0	0	0	0	0	144
BASEMENT/CRAWL HEAT LOSS			0		0		0		0		0				0
SLAB ON GRADE HEAT LOSS			0		0		0		0		0				0
SUBTOTAL HT LOSS			1854		2634		94		704		461				3062
SUB TOTAL HT GAIN				1680		3178		42		104		239			4548
LEVEL FACTOR / MULTIPLIER	0.30	0.55			0.30	0.55	0.20	0.30	0.30	0.55	0.30	0.55			448
AIR CHANGE HEAT LOSS			1018		1446		29		386		253				0.50
AIR CHANGE HEAT GAIN				99		186		2		6		14			1.14
DUCT LOSS			0		0		0		0		0				5173
DUCT GAIN				0		0		0		0		0			26
HEAT GAIN PEOPLE	240		0		0	0		0	0		0		0		0
HEAT GAIN APPLIANCES/LIGHTS					593	593		593	0		0		0		0
TOTAL HT LOSS BTU/H			2872		4080		123		1090		714				9722
TOTAL HT GAIN x 1.3 BTU/H				3082		5144		828		144		329			1387

TOTAL HEAT GAIN BTU/H:

22821

TONS: 1.90

LOSS DUE TO VENTILATION LOAD BTU/H: 1274

STRUCTURAL HEAT LOSS: 27641

TOTAL COMBINED HEAT LOSS BTU/H: 28915

GFA: 2034 LO# 95318

AFUE = 97 %
INPUT (BTU/H) = 40,000
OUTPUT (BTU/H) = **39,000**

TEMPERATURE RISE 51 °F

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

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.	1.32	0.87	1.25	1.25	1.12	1.12	0.78	1.32	2.87	2.04	2.04	0.12	1.09	0.71	3.24	3.24	3.24
CFM PER RUN HEAT	34	22	32	32	29	29	20	34	74	52	52	3	28	18	83	83	83
RM GAIN MBH.	1.67	1.09	1.53	1.53	2.03	2.03	0.18	1.67	3.08	2.57	2.57	0.83	0.14	0.33	0.46	0.46	0.46
CFM PER RUN COOLING	52	34	48	48	64	64	5	52	97	81	81	26	5	10	15	15	15
ADJUSTED PRESSURE	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.16	0.16	0.16	0.17	0.17	0.17	0.16	0.16	0.16
ACTUAL DUCT L.G.H.	32	45	48	52	63	55	37	55	48	21	34	21	37	17	22	7	32
EQUIVALENT LENGTH	170	160	130	140	190	170	140	200	140	100	110	140	130	140	100	110	150
TOTAL EFFECTIVE LENGTH	202	205	178	192	253	225	177	255	188	121	144	161	167	157	122	117	182
ADJUSTED PRESSURE	0.09	0.08	0.1	0.09	0.07	0.08	0.1	0.07	0.09	0.13	0.11	0.11	0.1	0.11	0.13	0.14	0.09
ROUND DUCT SIZE	5	4	4	5	6	6	4	5	6	5	5	4	4	4	6	6	6
HEATING VELOCITY (ft/min)	250	252	367	235	148	148	229	250	377	382	382	34	321	207	423	423	423
COOLING VELOCITY (ft/min)	382	390	551	352	326	326	57	382	495	595	595	298	57	115	76	76	76
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																	RETURN 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 CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT			VELOCITY (ft/min)			
	TRUNK A	360	0.07	9.9	12	x	8	540	TRUNK G	0	0.00	0	0	x	8	0	TRUNK O	0	0.05	0	0	x	8	0		
	TRUNK B	243	0.07	8.5	8	x	8	547	TRUNK H	0	0.00	0	0	x	8	0	TRUNK P	0	0.05	0	0	x	8	0		
	TRUNK C	348	0.07	9.8	12	x	8	522	TRUNK I	0	0.00	0	0	x	8	0	TRUNK Q	0	0.05	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 R	0	0.05	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 S	0	0.05	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	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		
RETURN AIR #	1	2	3	4	5	6										BR	TRUNK X	710	0.05	13.9	22	x	8	581		
AIR VOLUME	85	75	75	85	205	75	0	0	0	0	0	0	0	0	0	110	TRUNK Y	310	0.05	10.2	12	x	8	465		
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	TRUNK Z	0	0.05	0	0	x	8	0		
ACTUAL DUCT LGH.	50	62	57	47	21	39	1	1	1	1	1	1	1	1	1	14	DROP	710	0.05	13.9	24	x	10	426		
EQUIVALENT LENGTH	195	260	245	215	135	270	0	0	0	0	0	0	0	0	0	135										
TOTAL EFFECTIVE LH	245	322	302	262	156	309	1	1	1	1	1	1	1	1	1	149										
ADJUSTED PRESSURE	0.06	0.05	0.05	0.06	0.09	0.05	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	0.10										
ROUND DUCT SIZE	6	6	6	6	7.5	6	0	0	0	0	0	0	0	0	0	5.8										
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										

TYPE: 2502
SITE NAME: SUMMER RIDGE ESTATES INC.

LO # 95318

RESIDENTIAL MECHANICAL VENTILATION DESIGN SUMMARY

COMBUSTION APPLIANCES		9.32.3.1(1)
a)	<input checked="" type="checkbox"/> Direct vent (sealed combustion) only	
b)	<input type="checkbox"/> Positive venting induced draft (except fireplaces)	
c)	<input type="checkbox"/> Natural draft, B-vent or induced draft gas fireplace	
d)	<input type="checkbox"/> Solid Fuel (including fireplaces)	
e)	<input type="checkbox"/> No Combustion Appliances	

HEATING SYSTEM	
<input checked="" type="checkbox"/> Forced Air	<input type="checkbox"/> Non Forced Air
<input type="checkbox"/> Electric Space Heat	

HOUSE TYPE		9.32.1(2)
<input checked="" type="checkbox"/> I	Type a) or b) appliance only, no solid fuel	
<input type="checkbox"/> II	Type I except with solid fuel (including fireplaces)	
<input type="checkbox"/> III	Any Type c) appliance	
<input type="checkbox"/> IV	Type I, or II with electric space heat	
<input type="checkbox"/>	Other: Type I, II or IV no forced air	

SYSTEM DESIGN OPTIONS		O.N.H.W.P.
<input type="checkbox"/> 1	Exhaust only/Forced Air System	
<input type="checkbox"/> 2	HRV with Ducting/Forced Air System	
<input checked="" type="checkbox"/> 3	HRV Simplified/connected to forced air system	
<input type="checkbox"/> 4	HRV with Ducting/non forced air system	
<input type="checkbox"/>	Part 6 Design	

TOTAL VENTILATION CAPACITY		9.32.3.3(1)
Basement + Master Bedroom	<u>2</u> @ 21.2 cfm	<u>42.4</u> cfm
Other Bedrooms	<u>2</u> @ 10.6 cfm	<u>21.2</u> cfm
Kitchen & Bathrooms	<u>3</u> @ 10.6 cfm	<u>31.8</u> cfm
Other Rooms	<u>5</u> @ 10.6 cfm	<u>53.0</u> cfm
Table 9.32.3.A.	TOTAL	<u>148.4</u> 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		<u>63.6</u> cfm

SUPPLEMENTAL VENTILATION CAPACITY		9.32.3.5.
Total Ventilation Capacity	<u>148.4</u>	cfm
Less Principal Ventil. Capacity	<u>63.6</u>	cfm
Required Supplemental Capacity	<u>84.8</u>	cfm

PRINCIPAL EXHAUST FAN CAPACITY	
Model: VANEE V150H	Location: BSMT
<u>63.6</u> cfm	<input checked="" type="checkbox"/> 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	<input checked="" type="checkbox"/>	3.5
BATH	BY INSTALLING CONTRACTOR	50	<input checked="" type="checkbox"/>	3.5

HEAT RECOVERY VENTILATOR		9.32.3.11.
Model: VANEE V150H		
<u>150</u> cfm high	<u>35</u> cfm low	
<u>75</u> % Sensible Efficiency	<input checked="" type="checkbox"/> HVI Approved	
@ 32 deg F (0 deg C)		

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:	<i>Michael O'Rourke</i>
HRAI #	001820
Date:	April-22

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

Michael O'Rourke

CSA F280-12 Residential Heat Loss and Heat Gain Calculations																																																												
Formula Sheet (For Air Leakage / Ventilation Calculation)																																																												
LO#: 95318	Model: 2502	Builder: ROYAL PINE HOMES SUMMER RIDGE ESTATES INC.		Date: 2022-04-25																																																								
Volume Calculation			Air Change & Delta T Data																																																									
House Volume <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Level</th> <th>Floor Area (ft²)</th> <th>Floor Height (ft)</th> <th>Volume (ft³)</th> </tr> </thead> <tbody> <tr> <td>Bsmt</td> <td>929</td> <td>9</td> <td>8361</td> </tr> <tr> <td>First</td> <td>929</td> <td>10</td> <td>9290</td> </tr> <tr> <td>Second</td> <td>1105</td> <td>9</td> <td>9945</td> </tr> <tr> <td>Third</td> <td>0</td> <td>9</td> <td>0</td> </tr> <tr> <td>Fourth</td> <td>0</td> <td>9</td> <td>0</td> </tr> <tr> <td colspan="2" style="text-align: right;">Total:</td> <td></td> <td>27,596.0 ft³</td> </tr> <tr> <td colspan="2" style="text-align: right;">Total:</td> <td></td> <td>781.4 m³</td> </tr> </tbody> </table>			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	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 80%;">WINTER NATURAL AIR CHANGE RATE</td> <td style="width: 20%;">0.282</td> </tr> <tr> <td>SUMMER NATURAL AIR CHANGE RATE</td> <td>0.088</td> </tr> </table> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th colspan="5" style="text-align: center;">Design Temperature Difference</th> </tr> <tr> <th></th> <th>Tin °C</th> <th>Tout °C</th> <th>ΔT °C</th> <th>ΔT °F</th> </tr> <tr> <td>Winter DTDh</td> <td>22</td> <td>-19</td> <td>41</td> <td>74</td> </tr> <tr> <td>Summer DTDc</td> <td>24</td> <td>30</td> <td>6</td> <td>11</td> </tr> </table>		WINTER NATURAL AIR CHANGE RATE	0.282	SUMMER NATURAL AIR CHANGE RATE	0.088	Design Temperature Difference						Tin °C	Tout °C	ΔT °C	ΔT °F	Winter DTDh	22	-19	41	74	Summer DTDc	24	30	6	11
Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)																																																									
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Summer DTDc	24	30	6	11																																																								
5.2.3.1 Heat Loss due to Air Leakage			6.2.6 Sensible Gain due to Air Leakage																																																									
$HL_{airb} = LR_{airh} \times \frac{V_b}{3.6} \times DTD_h \times 1.2$ <p>0.282 x 217.06 x 41 °C x 1.2 = 3032 W</p> <p>= 10347 Btu/h</p>			$HG_{salb} = LR_{airc} \times \frac{V_b}{3.6} \times DTD_c \times 1.2$ <p>= 0.088 x 217.06 x 6 °C x 1.2 = 141 W</p> <p>= 480 Btu/h</p>																																																									
5.2.3.2 Heat Loss due to Mechanical Ventilation			6.2.7 Sensible heat Gain due to Ventilation																																																									
$HL_{vairb} = PVC \times DTD_h \times 1.08 \times (1 - E)$ <p>64 CFM x 74 °F x 1.08 x 0.25 = 1274 Btu/h</p>			$HL_{vairb} = PVC \times DTD_h \times 1.08 \times (1 - E)$ <p>64 CFM x 11 °F x 1.08 x 0.25 = 189 Btu/h</p>																																																									
5.2.3.3 Calculation of Air Change Heat Loss for Each Room (Floor Multiplier Section)																																																												
$HL_{airr} = Level\ Factor \times HL_{airbv} \times \{(HL_{agcr} + HL_{bgcr}) \div (HL_{agclevel} + HL_{bgclevel})\}$ <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Level</th> <th>Level Factor (LF)</th> <th>HLairve Air Leakage + Ventilation Heat Loss (Btu/h)</th> <th>Level Conductive Heat Loss: (HL_{clevel})</th> <th>Air Leakage Heat Loss Multiplier (LF x HLairbv / HLlevel)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>0.5</td> <td rowspan="5" style="text-align: center; vertical-align: middle;">10,347</td> <td>4,548</td> <td>1.137</td> </tr> <tr> <td>2</td> <td>0.3</td> <td>5,652</td> <td>0.549</td> </tr> <tr> <td>3</td> <td>0.2</td> <td>6,795</td> <td>0.305</td> </tr> <tr> <td>4</td> <td>0</td> <td>0</td> <td>0.000</td> </tr> <tr> <td>5</td> <td>0</td> <td>0</td> <td>0.000</td> </tr> </tbody> </table>					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	10,347	4,548	1.137	2	0.3	5,652	0.549	3	0.2	6,795	0.305	4	0	0	0.000	5	0	0	0.000																														
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<p>*HLairbv = Air leakage heat loss + ventilation heat loss</p> <p>*For a balanced or supply only ventilation system HLairve = 0</p>																																																												

Michael O'Rourke
BCIN# 19669



HEAT LOSS AND GAIN SUMMARY SHEET

MODEL: 2502	BUILDER: ROYAL PINE HOMES
SFQT: 2034	SITE: SUMMER RIDGE ESTATES INC.
LO# 95318	

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:	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):	1.40	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
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	-

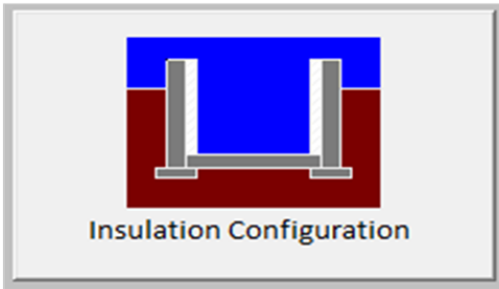
INDIVIDUAL BCIN: 19669

MICHAEL O'ROURKE



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):	0.6	
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):		897

TYPE: 2502
LO# 95318

Air Infiltration Residential Load Calculator

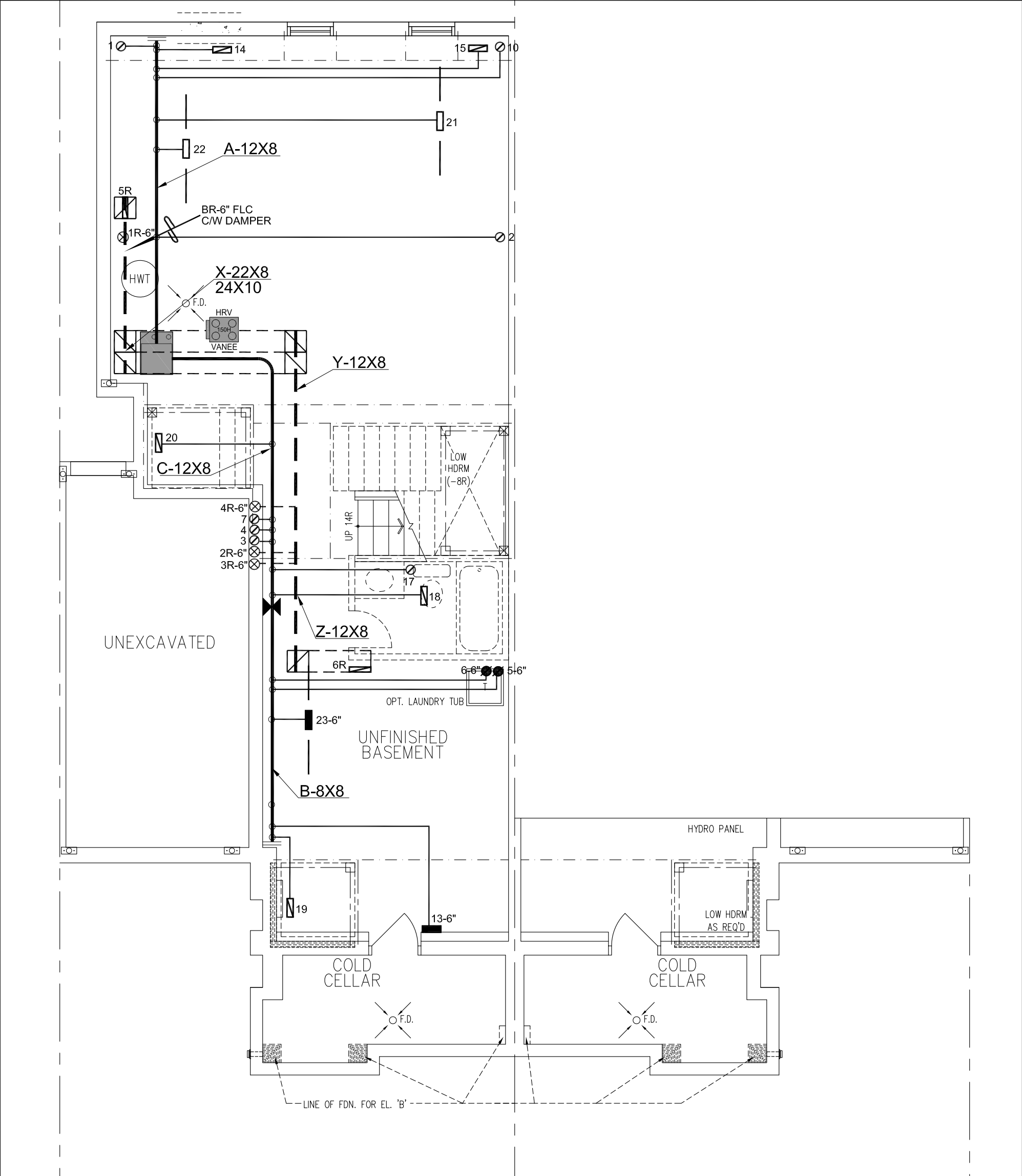
Supplemental tool for CAN/CSA-F280

Weather Station Description				
Province:	Ontario			
Region:	Brampton			
Weather Station Location:	Open flat terrain, grass			
Anemometer height (m):	10			
Local Shielding				
Building Site:	Suburban, forest			
Walls:	Heavy			
Flue:	Heavy			
Highest Ceiling Height (m):	6.71			
Building Configuration				
Type:	Semi			
Number of Stories:	Two			
Foundation:	Full			
House Volume (m ³):	781.4			
Air Leakage/Ventilation				
Air Tightness Type:	Energy Star 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	Total Exhaust		
	30.0	30.0		
Flue Size				
Flue #:	#1	#2	#3	#4
Diameter (mm):	0	0	0	0
Natural Infiltration Rates				
Heating Air Leakage Rate (ACH/H):	0.282			
Cooling Air Leakage Rate (ACH/H):	0.088			

TYPE: 2502
LO# 95318

Michael O'Rourke BCIN# 19669





BASEMENT PLAN ELEV 'A1' (REV)

PARTIAL BASEMENT PLAN ELEV 'A2'

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

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

CSA-F280-12

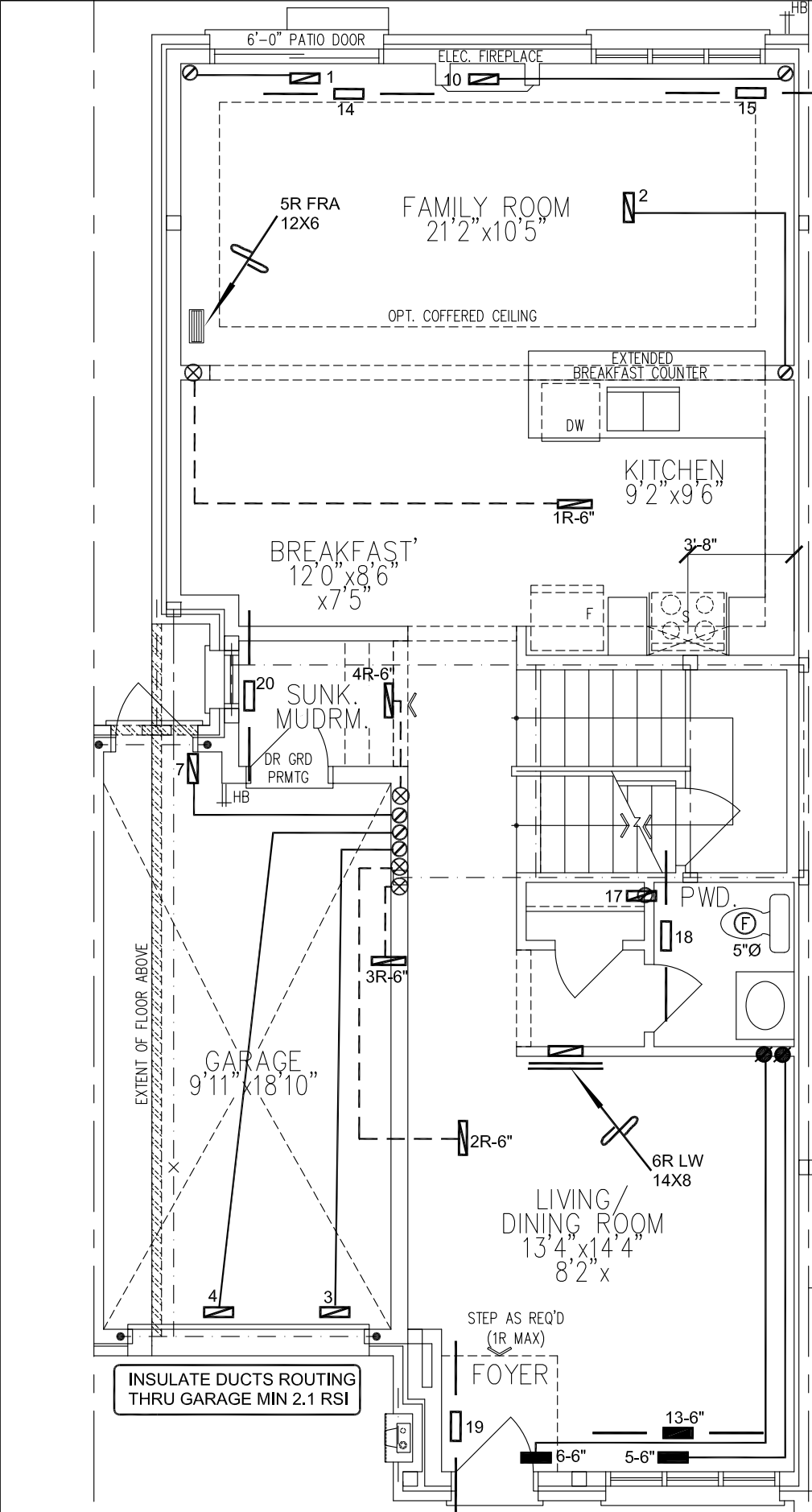
SB-12 PERFORMANCE

HVAC LEGEND								3.		
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	2.		
	SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		14"x8" RETURN AIR GRILLE		RETURN AIR STACK ABOVE	1.	REVISED TO PERFORMANCE PATH	APR/2022
	SUPPLY AIR GRILLE 6" BOOT		SUPPLY AIR STACK FROM 2nd FLOOR		30"x8" RETURN AIR GRILLE		RETURN AIR STACK 2nd FLOOR	No.	Description	Date
	SUPPLY AIR BOOT ABOVE		6" SUPPLY AIR STACK 2nd FLOOR		FRA- FLOOR RETURN AIR GRILLE		REDUCER	REVISIONS		

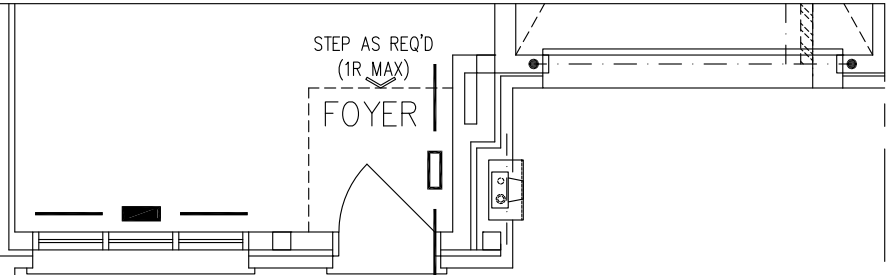
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Client		<div><p>375 Finley Ave. Suite 202 - Ajax, Ontario L1S 2E2 Tel. 905.619.2300 - 905.420.5300 Fax 905.619.2375 Email: info@hvacdesigns.ca Web: www.hvacdesigns.ca Specializing in Residential Mechanical Design Services</p><p>Installation to comply 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.</p></div>	HEAT LOSS 28915 BTU/H UNIT DATA		# OF RUNS S/A R/A FANS				Sheet Title	
ROYAL PINE HOMES			MAKE CARRIER		3RD FLOOR				BASEMENT HEATING LAYOUT	
Project Name SUMMER RIDGE ESTATES INC. BRAMPTON, ONTARIO			MODEL 59SP5A-40-10		2ND FLOOR 9 4 3					
			INPUT 40 MBTU/H		1ST FLOOR 5 2 2					
			OUTPUT 39 MBTU/H		BASEMENT 3 1 0				Date	MAR/2022
			COOLING 2.0 TONS		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				Scale	3/16" = 1'-0"
			FAN SPEED 710 cfm @ 0.6" w.c.						BCIN# 19669	
2502			2034 sqft						LO#	95318

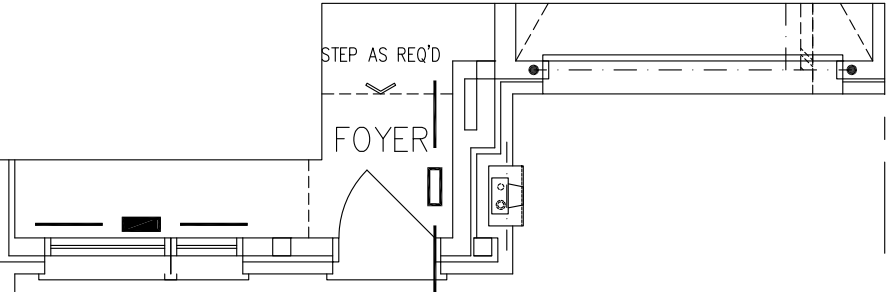
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GROUND FLOOR PLAN ELEV 'A1' (REV)



PART. GROUND FLOOR PLAN ELEV 'A2'



PARTIAL GROUND FLR PLAN ELEV. 'B1' & 'B2'

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.

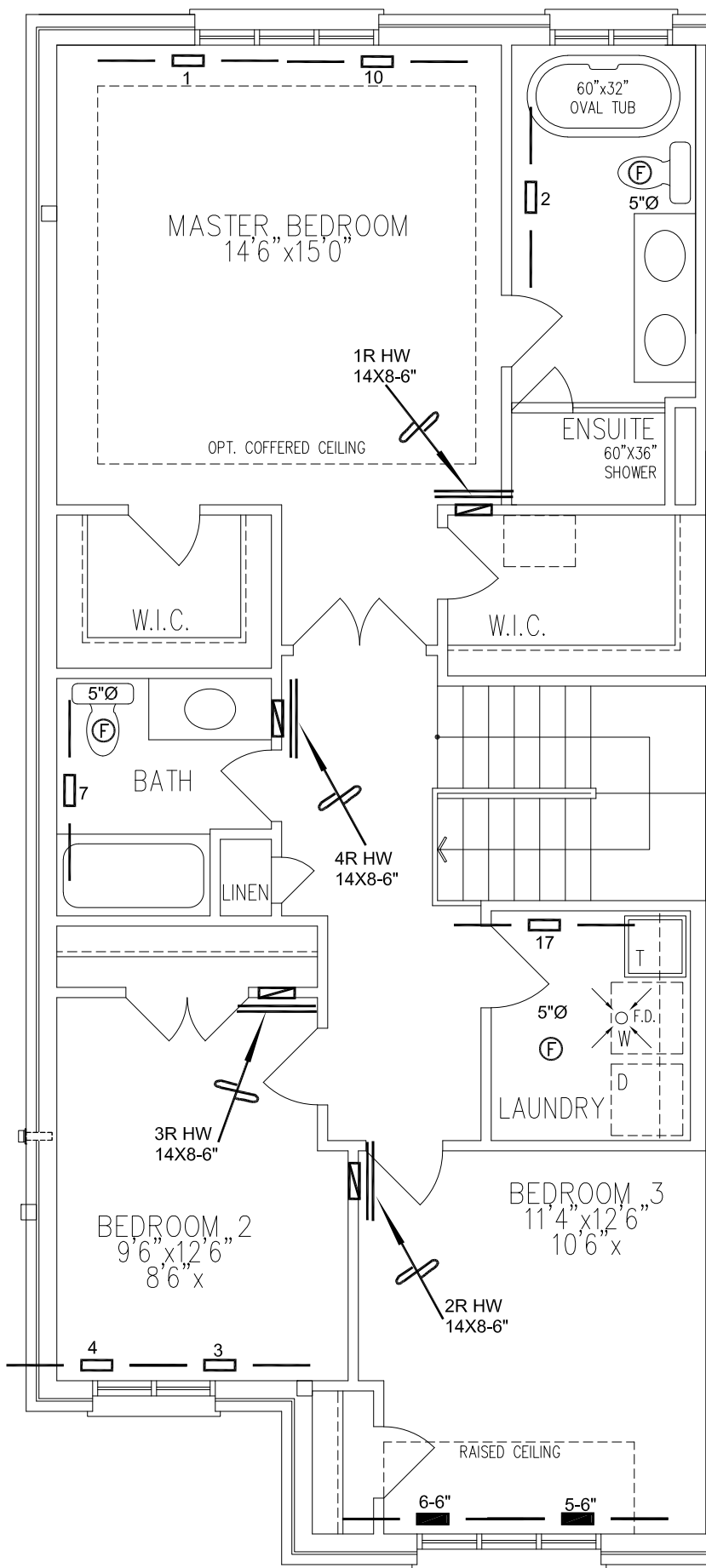
Michael O'Rourke, BCIN# 19669
HVAC DESIGNS LTD.

CSA-F280-12
SB-12 PERFORMANCE

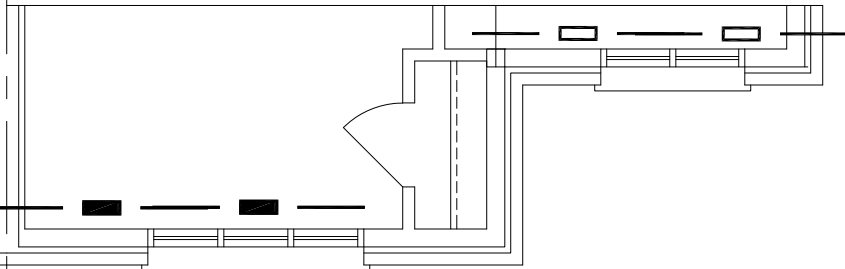
HVAC LEGEND								3.		
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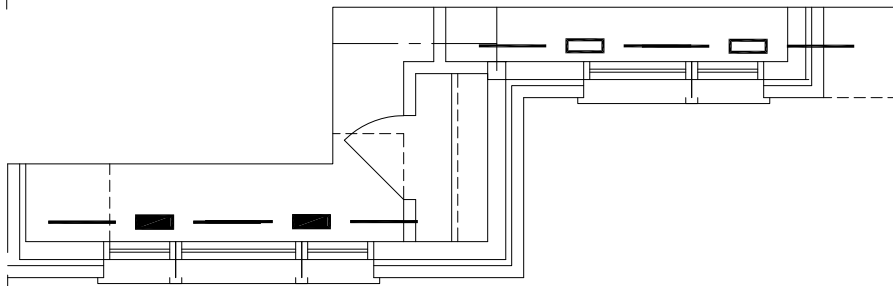
Client		<div></div> <div>375 Finley Ave. Suite 202 - Ajax, Ontario L1S 2E2 Tel. 905.619.2300 - 905.420.5300 Fax 905.619.2375 Email: info@hvacdesigns.ca Web: www.hvacdesigns.ca Specializing in Residential Mechanical Design Services</div>	Sheet Title	
ROYAL PINE HOMES			FIRST FLOOR HEATING LAYOUT	
Project Name SUMMER RIDGE ESTATES INC. BRAMPTON, ONTARIO			Date	MAR/2022
25022034 sqft			Scale	3/16" = 1'-0"
		BCIN# 19669		
		LO#	95318	



SECOND FLR PLAN ELEV 'A1' (REV)



PART. SECOND FLR PLAN ELEV 'A2'



PARTIAL SECOND FLR PLAN ELEV 'B2'

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

CSA-F280-12

SB-12 PERFORMANCE

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Client	ROYAL PINE HOMES
Project Name	SUMMER RIDGE ESTATES INC. BRAMPTON, ONTARIO
2502	2034 sqft

HVACDESIGNS 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.

Sheet Title	SECOND FLOOR HEATING LAYOUT
Date	MAR/2022
Scale	3/16" = 1'-0"
	BCIN# 19669
LO#	95318