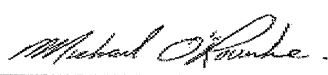


Schedule 1: Designer Information

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@hvacdsgns.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]			
☐ House ☐ Small Buildings ☐ Large Buildings ☐ Complex Buildings ☒ HVAC – House ☐ Building Services ☐ Detection, Lighting and Power ☐ Fire Protection ☐ Building Structural ☐ Plumbing – House ☐ Plumbing – All Buildings ☐ 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: 1701 Project: FORESTSIDE	
D. Declaration of Designer			
I, <u>MICHAEL O'ROURKE</u> 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: <u>19669</u> Basis for exemption from registration and qualification: <u>O.B.C SENTENCE 3.2.4.1 (4)</u>			
☐ 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.			
May 22, 2018			
Date		Signature of Designer	

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: FORESTSIDE				TYPE: 1701				GFA: 2472				DATE: Apr-19				WINTER NATURAL AIR CHANGE RATE 0.433				HEAT LOSS ΔT °F. 74				CSA-F280-12			
BUILDER: ROYAL PINE HOMES								LO# 78681				SUMMER NATURAL AIR CHANGE RATE 0.149				HEAT GAIN ΔT °F. 14				SB-12 PACKAGE A1							
ROOM USE				MBR				BED-2		BED-3			BATH														
EXP. WALL				17				14		7			0														
CLG. HT.				9				9		9			0														
FACTORS																											
GRS.WALL AREA	LOSS	GAIN		153				126		63			0														
GLAZING				LOSS	GAIN			LOSS	GAIN	LOSS	GAIN		LOSS	GAIN													
NORTH	20.8	16.3		0	0	0		0	0	0	0		0	0	0												
EAST	20.8	41.9		0	0	0		51	1060	2136	14		0	0	0												
SOUTH	20.8	25.2		0	0	0		0	0	0	0		0	0	0												
WEST	20.8	41.9		57	1184	2388		0	0	0	0		0	0	0												
SKYLT.	36.4	102.1		0	0	0		0	0	0	0		0	0	0												
DOORS	24.7	4.7		0	0	0		0	0	0	0		0	0	0												
NET EXPOSED WALL	4.4	0.8		96	418	79		75	327	62	49		0	0	0												
NET EXPOSED BSMT WALL ABOVE GR	3.5	0.7		0	0	0		0	0	0	0		0	0	0												
EXPOSED CLG	1.3	0.6		0	0	0		0	0	0	0		0	0	0												
NO ATTIC EXPOSED CLG	2.7	1.3		311	835	405		216	580	281	213		221	593	288												
EXPOSED FLOOR	2.5	0.5		102	254	48		0	0	0	0		0	0	0												
BASEMENT/CRAWL HEAT LOSS				0				0					0														
SLAB ON GRADE HEAT LOSS				0				0					0														
SUBTOTAL HT LOSS				2691				1966		1076			593														
SUB TOTAL HT GAIN					2919		104		2479		904			288													
LEVEL FACTOR / MULTIPLIER				0.10	0.25		0.10	0.10	0.25	0.10	0.25		0.10	0.25													
AIR CHANGE HEAT LOSS				678			54		495		271			149													
AIR CHANGE HEAT GAIN					247		9		209		76			24													
DUCT LOSS				337			0		246		0			74													
DUCT GAIN					429		0		358		0			31													
HEAT GAIN PEOPLE	240			2		480	0		1		240		0		0												
HEAT GAIN APPLIANCES/LIGHTS						648	0				648				0												
TOTAL HT LOSS BTU/H				3706			269		2708		1347			817													
TOTAL HT GAIN x 1.3 BTU/H				6140			147		5114		2429			446													

ROOM USE				LV/DN				KIT		DEN			FOY		MUD												
EXP. WALL				19				17		12			6		17												
CLG. HT.				10				12		10			10		10												
FACTORS																											
GRS.WALL AREA	LOSS	GAIN		190				204		120			60		170												
GLAZING				LOSS	GAIN			LOSS	GAIN	LOSS	GAIN		LOSS	GAIN	LOSS	GAIN											
NORTH	20.8	16.3		0	0	0		0	0	0	0		0	0	0	0											
EAST	20.8	41.9		55	1143	2304		0	0	42	873	1759	4	83	168	0	0										
SOUTH	20.8	25.2		0	0	0		0	0	0	0	0	0	0	0	0	0										
WEST	20.8	41.9		0	0	0		75	1558	3142	0	0	0	0	0	0	0										
SKYLT.	36.4	102.1		0	0	0		0	0	0	0	0	0	0	0	0	0										
DOORS	24.7	4.7		0	0	0		20	493	93	0	0	20	493	93	20	493	93									
NET EXPOSED WALL	4.4	0.8		135	588	111		109	475	90	78	340	36	157	30	150	654	123									
NET EXPOSED BSMT WALL ABOVE GR	3.5	0.7		0	0	0		0	0	0	0	0	0	0	0	0	0	0									
EXPOSED CLG	1.3	0.6		0	0	0		0	0	0	0	0	0	0	0	0	0	0									
NO ATTIC EXPOSED CLG	2.7	1.3		0	0	0		0	0	0	0	0	0	0	0	0	0	0									
EXPOSED FLOOR	2.5	0.5		0	0	0		306	762	144	0	0	0	0	0	0	0	0									
BASEMENT/CRAWL HEAT LOSS				0				0					0														
SLAB ON GRADE HEAT LOSS				0				0					0														
SUBTOTAL HT LOSS				1731				3288		1212			733		1147												
SUB TOTAL HT GAIN					2415				3468		1823			290		216											
LEVEL FACTOR / MULTIPLIER				0.20	0.66			0.20	0.66	0.30	1.60		0.30	1.60	0.30	1.60											
AIR CHANGE HEAT LOSS				1136				2158		1938			1172		1833												
AIR CHANGE HEAT GAIN					204				293		154			25		18											
DUCT LOSS				0				545		0			0		0												
DUCT GAIN					0				441		0			0		0											
HEAT GAIN PEOPLE	240			0		0		0		0	0		0		0		0										
HEAT GAIN APPLIANCES/LIGHTS						648			648		648				0		0										
TOTAL HT LOSS BTU/H				2867				5991		3150			1905		2979												
TOTAL HT GAIN x 1.3 BTU/H				4247				6304		3413			409		305												

TOTAL HEAT GAIN BTU/H: 30846 TONS: 2.57 LOSS DUE TO VENTILATION LOAD BTU/H: 1274 STRUCTURAL HEAT LOSS: 34082 TOTAL COMBINED HEAT LOSS BTU/H: 35356

SITE NAME: FORESTSIDE
BUILDER: ROYAL PINE HOMES

TYPE: 1701

DATE: Apr-19

GFA: 2472 LO# 78681

HEATING CFM 875 COOLING CFM 875
TOTAL HEAT LOSS 34,082 TOTAL HEAT GAIN 30,606
AIR FLOW RATE CFM 25.67 AIR FLOW RATE CFM 28.59

furnace pressure 0.6
furnace filter 0.05
a/c coil pressure 0.2
available pressure
for s/a & r/a 0.35

#CARRIER

AFUE = 97 %

59SP5A-40-10

40

INPUT (BTU/H) = 40,000

OUTPUT (BTU/H) = 39,000

FAN SPEED

LOW 0

MEDLOW 0

MEDIUM 0

MEDIUM HIGH 710

HIGH 875

DESIGN CFM = 875

CFM @ .6" E.S.P.

TEMPERATURE RISE 41 °F

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	7	5	3	3
R/A	0	4	2	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	4	5	6	7	10	11	12	13	14	15	16	19	20	21	22	23
ROOM NAME	MBR	ENS	BED-2	BED-3	BED-2	BATH	MBR	LV/DN	LV/DN	KIT	KIT	KIT	DEN	FOY	MUD	BAS	BAS	BAS
RM LOSS MBH.	1.85	0.27	1.35	1.35	1.35	0.82	1.85	1.43	1.43	2.00	2.00	2.00	3.15	1.90	2.98	2.78	2.78	2.78
CFM PER RUN HEAT	48	7	35	35	35	21	48	37	37	51	51	51	81	49	76	71	71	71
RM GAIN MBH.	3.07	0.15	2.56	2.43	2.56	0.45	3.07	2.12	2.12	2.10	2.10	2.10	3.41	0.41	0.30	0.55	0.55	0.55
CFM PER RUN COOLING	88	4	73	69	73	13	88	61	61	60	60	60	98	12	9	16	16	16
ADJUSTED PRESSURE	0.16	0.17	0.17	0.17	0.17	0.17	0.16	0.17	0.17	0.17	0.17	0.17	0.16	0.17	0.17	0.17	0.17	0.17
ACTUAL DUCT LGH.	77	68	94	101	91	62	77	62	63	72	59	67	23	25	38	23	28	34
EQUIVALENT LENGTH	200	210	220	220	200	260	210	160	130	160	140	130	100	110	150	90	100	160
TOTAL EFFECTIVE LENGTH	277	278	314	321	291	322	287	222	193	232	199	197	123	135	188	113	128	194
ADJUSTED PRESSURE	0.06	0.06	0.05	0.05	0.06	0.05	0.06	0.08	0.09	0.07	0.09	0.09	0.13	0.13	0.09	0.15	0.13	0.09
ROUND DUCT SIZE	6	4	6	6	6	4	6	5	5	5	5	5	6	5	5	5	5	5
HEATING VELOCITY (ft/min)	245	80	178	178	178	241	245	272	272	374	374	374	413	360	558	521	521	521
COOLING VELOCITY (ft/min)	449	46	372	352	372	149	449	448	448	441	441	441	500	88	66	117	117	117
OUTLET GRILL SIZE	4X10	3X10	4X10	4X10	4X10	3X10	4X10	3X10	3X10	3X10	3X10	3X10	4X10	3X10	3X10	3X10	3X10	3X10
TRUNK	B	B	A	A	A	B	B	A	A	B	B	B	D	D	D	D	D	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													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	193	0.05	8.5	10	x	8	347	TRUNK G	0	0.00	0	0	x	8	0	TRUNK O	0	0.05	0	0	x	8	0		
TRUNK B	263	0.05	9.6	12	x	8	395	TRUNK H	0	0.00	0	0	x	8	0	TRUNK P	0	0.05	0	0	x	8	0		
TRUNK C	456	0.05	11.8	18	x	8	456	TRUNK I	0	0.00	0	0	x	8	0	TRUNK Q	0	0.05	0	0	x	8	0		
TRUNK D	419	0.09	9.8	12	x	8	629	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		

RETURN AIR #	1	2	3	4	5	6	7								BR
AIR VOLUME	75	75	75	75	130	235	115	0	0	0	0	0	0	0	95
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
ACTUAL DUCT LGH.	69	70	51	58	41	25	69	1	1	1	1	1	1	1	14
EQUIVALENT LENGTH	250	175	165	205	215	185	255	0	0	0	0	0	0	0	190
TOTAL EFFECTIVE LH	319	245	216	263	256	210	324	1	1	1	1	1	1	1	204
ADJUSTED PRESSURE	0.05	0.06	0.07	0.06	0.06	0.07	0.05	14.80	14.80	14.80	14.80	14.80	14.80	14.80	0.07
ROUND DUCT SIZE	6	5.7	5.5	5.7	7	8.4	7	0	0	0	0	0	0	0	6
INLET GRILL SIZE	8	8	8	8	8	8	8	0	0	0	0	0	0	0	8
	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
INLET GRILL SIZE	14	14	14	14	14	24	14	0	0	0	0	0	0	0	14

TYPE: 1701
SITE NAME: FORESTSIDE

LO # 78681

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	<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>5</u> @ 10.6 cfm <u>53</u> cfm	
Other Rooms	<u>4</u> @ 10.6 cfm <u>42.4</u> cfm	
Table 9.32.3.A.	TOTAL <u>159.0</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 63.6 cfm		

SUPPLEMENTAL VENTILATION CAPACITY		9.32.3.5.
Total Ventilation Capacity	<u>159</u> cfm	
Less Principal Ventil. Capacity	<u>63.6</u> cfm	
Required Supplemental Capacity	<u>95.4</u> cfm	

PRINCIPAL EXHAUST FAN CAPACITY	
Model: VANEE 65H	Location: BSMT
<u>63.6</u> cfm	<u>3.0</u> 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		
<u>155</u> cfm high	<u>64</u> cfm low	
<u>75</u> % 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:	
HRAI #	001820
Date:	April-19

CSA F280-12 Residential Heat Loss and Heat Gain Calculations																																																												
Formula Sheet (For Air Leakage / Ventilation Calculation)																																																												
LO#: 78681	Model: 1701	Builder: ROYAL PINE HOMES	Date: 4/22/2019																																																									
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>549</td> <td>9</td> <td>4941</td> </tr> <tr> <td>First</td> <td>549</td> <td>10</td> <td>5490</td> </tr> <tr> <td>Second</td> <td>909</td> <td>10</td> <td>9090</td> </tr> <tr> <td>Third</td> <td>1016</td> <td>9</td> <td>9144</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>28,665.0 ft³</td> </tr> <tr> <td colspan="2" style="text-align: right;">Total:</td> <td></td> <td>811.7 m³</td> </tr> </tbody> </table>			Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)	Bsmt	549	9	4941	First	549	10	5490	Second	909	10	9090	Third	1016	9	9144	Fourth	0	9	0	Total:			28,665.0 ft³	Total:			811.7 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%; text-align: center;">0.433</td> </tr> <tr> <td>SUMMER NATURAL AIR CHANGE RATE</td> <td style="text-align: center;">0.149</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>22</td> <td>30</td> <td>8</td> <td>14</td> </tr> </table>		WINTER NATURAL AIR CHANGE RATE	0.433	SUMMER NATURAL AIR CHANGE RATE	0.149	Design Temperature Difference						Tin °C	Tout °C	ΔT °C	ΔT °F	Winter DTDh	22	-19	41	74	Summer DTDc	22	30	8	14
Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)																																																									
Bsmt	549	9	4941																																																									
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5.2.3.1 Heat Loss due to Air Leakage			6.2.6 Sensible Gain due to Air Leakage																																																									
$HL_{airb} = LR_{airh} \times \frac{V_b}{3.6} \times DTD_h \times 1.2$ 0.433 x 225.47 x 41 °C x 1.2 = 4828 W = 16474 Btu/h			$HG_{salb} = LR_{airc} \times \frac{V_b}{3.6} \times DTD_c \times 1.2$ = 0.149 x 225.47 x 8 °C x 1.2 = 313 W = 1067 Btu/h																																																									
5.2.3.2 Heat Loss due to Mechanical Ventilation			6.2.7 Sensible heat Gain due to Ventilation																																																									
$HL_{vairb} = PVC \times DTD_h \times 1.08 \times (1 - E)$ 64 CFM x 74 °F x 1.08 x 0.25 = 1274 Btu/h			$HL_{vairb} = PVC \times DTD_h \times 1.08 \times (1 - E)$ 64 CFM x 14 °F x 1.08 x 0.25 = 240 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	16,474	1,754	3.757																																																								
2	0.3		3,092	1.598																																																								
3	0.2		5,019	0.656																																																								
4	0.1		6,541	0.252																																																								
5	0		0	0.000																																																								
*HLairbv = Air leakage heat loss + ventilation heat loss *For a balanced or supply only ventilation system HLairve = 0																																																												

HEAT LOSS AND GAIN SUMMARY SHEET

MODEL: 1701	BUILDER: ROYAL PINE HOMES
SFQT: 2472	SITE: FORESTSIDE
LO# 78681	

DESIGN ASSUMPTIONS

HEATING	°F	COOLING	°F
OUTDOOR DESIGN TEMP.	-2	OUTDOOR DESIGN TEMP.	86
INDOOR DESIGN TEMP.	72	INDOOR DESIGN TEMP. (MAX 75°F)	72

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 (ft³):	28665.0	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	4
INTERIOR LIGHTING LOAD (Btu/h/ft²):	1.50	DC BRUSHLESS MOTOR (Y/N):	Y
FOUNDATION CONFIGURATION	BCIN_1	DEPTH BELOW GRADE:	6.0 ft
LENGTH: 33.0 ft	WIDTH: 17.0 ft	EXPOSED PERIMETER:	36.0 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	-

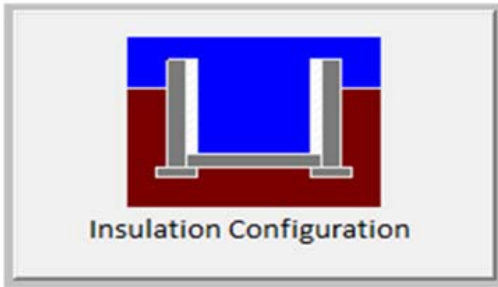
INDIVIDUAL BCIN: 19669

MICHAEL O'ROURKE

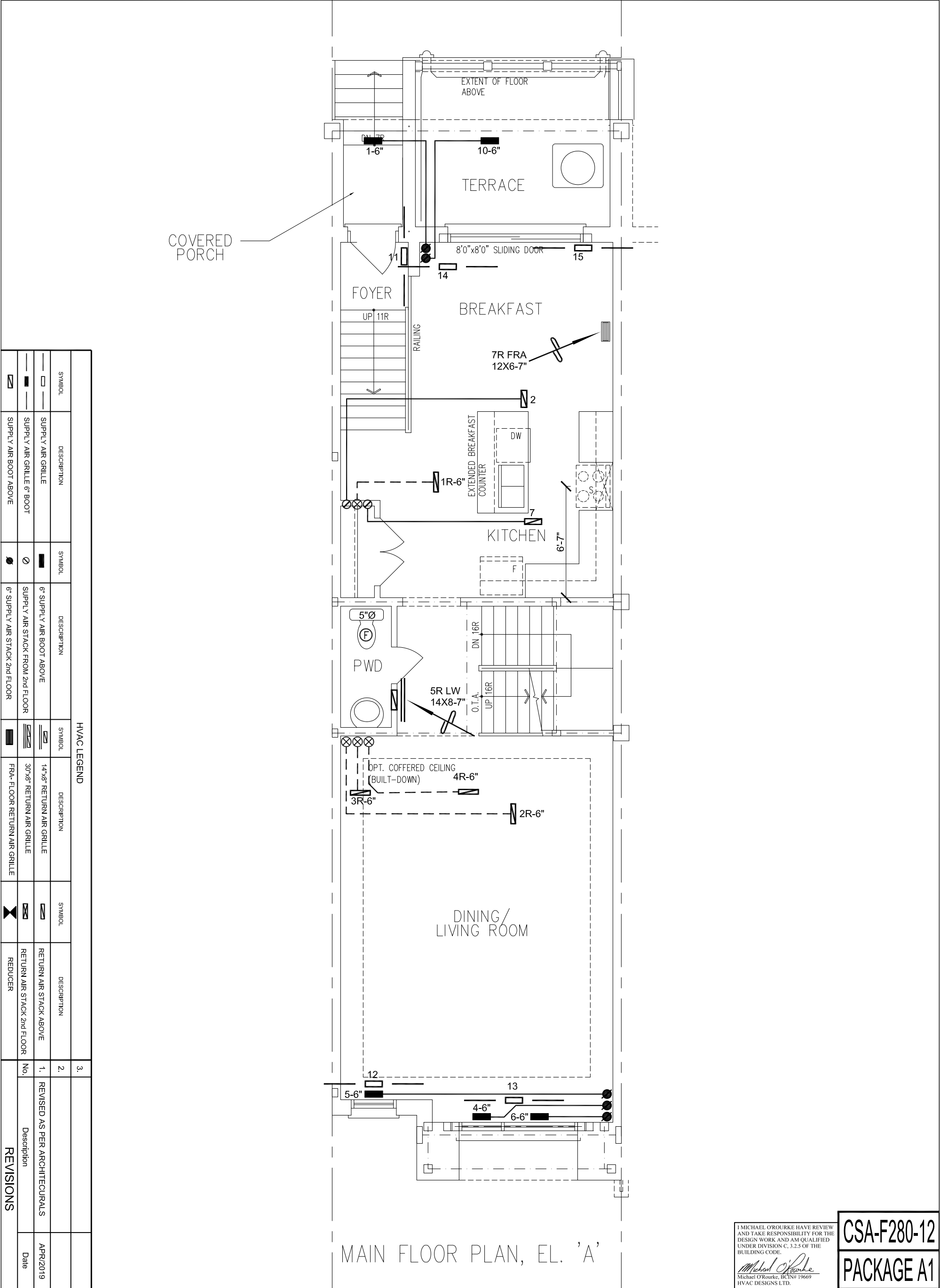


Residential Foundation Thermal Load Calculator

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):	10.1	 Insulation Configuration
Floor Width (m):	5.2	
Exposed Perimeter (m):	11.0	
Wall Height (m):	2.7	
Depth Below Grade (m):	1.83	
Window Area (m ²):	1.1	
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):		330

TYPE: 1701
LO# 78681



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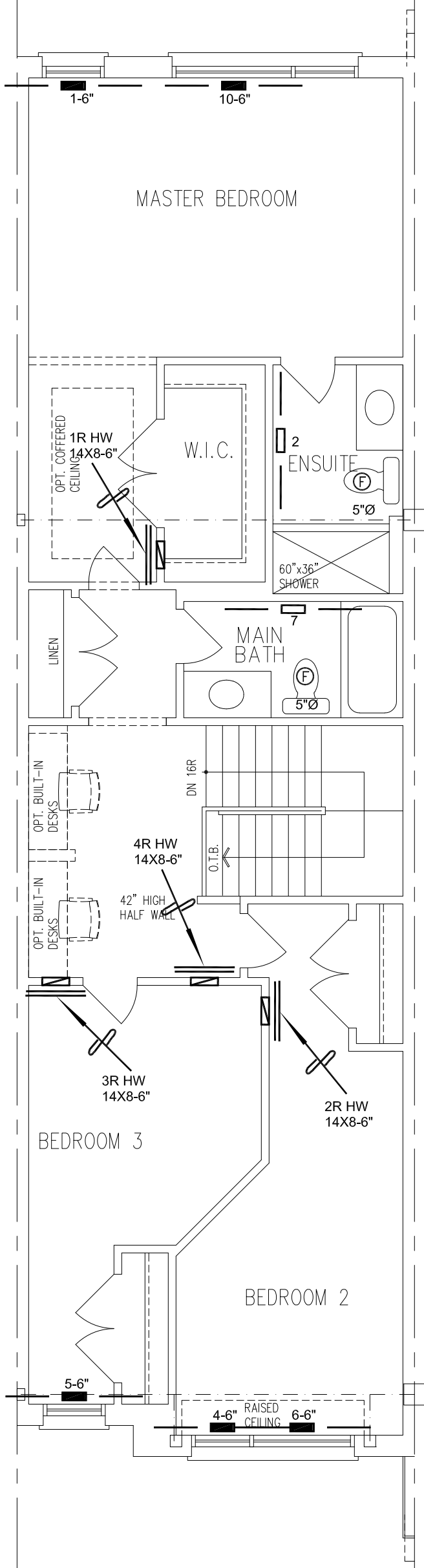
Client	ROYAL PINE HOMES
Project Name	FORESTSIDE BRAMPTON, ONTARIO
1701	2472 sqft

HVACDESIGNS LTD.

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

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

Sheet Title	SECOND FLOOR HEATING LAYOUT
Date	MAY/2018
Scale	3/16" = 1'-0"
BCIN#	19669
LO#	78681



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 AS PER ARCHITECTURALS	APR/2019		
	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				

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
PACKAGE A1

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Client		 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	Sheet Title		
ROYAL PINE HOMES			THIRD FLOOR HEATING LAYOUT		
Project Name			Date	MAY/2018	
FORESTSIDE BRAMPTON, ONTARIO			Scale	3/16" = 1'-0"	
			BCIN# 19669		
1701	2472 sqft	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.		LO#	78681