

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]				
☐ 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: 2204.T4 Project: FORESTSIDE	
D. Declaration of Designer				
I, <u>MICHAEL O'ROURKE</u> (print name) declare that (choose one as appropriate):				
☐ 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 16, 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
BUILDER: ROYAL PINE HOMES
TYPE: 2204.14
DATE: May-18
LO# 78694
GFA: 2503
WINTER NATURAL AIR CHANGE RATE 0.336
HEAT LOSS AT °F. 74
SUMMER NATURAL AIR CHANGE RATE 0.116
HEAT GAIN AT °F. 14
CSA-F280-12
SB-12 PACKAGE A1

ROOM USE	IMBR	ENS	WIC	BED-2	BED-3	BED-4	EN3/4		
EXP. WALL CLG. HT.	31 9	6 9	0 9	13 9	30 10	19 10	13 9		
GRS.WALL AREA GLAZING	279	54	0	117	300	190	117		
NORTH	0	0	0	0	0	0	0	0	0
EAST	0	0	0	22	36	0	0	0	0
SOUTH	33	0	0	0	42	914	13	270	328
WEST	20	332	670	0	0	0	0	0	0
SKYLT.	36.4	102.1	0	0	0	0	0	0	0
DOORS	0	0	0	0	0	0	0	0	0
NET EXPOSED WALL	226	985	186	95	222	146	104	453	85
NET EXPOSED BSMT WALL ABOVE GR	0	0	0	0	0	0	0	0	0
EXPOSED CLG	346	434	210	154	180	123	110	138	67
NO ATTIC EXPOSED CLG	0	0	0	0	45	121	59	0	0
EXPOSED FLOOR	0	0	0	154	383	72	0	0	0
BASEMENT/CRAWL HEAT LOSS	0	0	0	0	0	0	0	0	0
SLAB ON GRADE HEAT LOSS	0	0	0	0	0	0	0	0	0
SUBTOTAL HT LOSS	2519	633	90	1447	2934	1825	861	480	
SUB TOTAL HT GAIN	2067	0.20	0.29	0.20	0.29	0.20	0.29	0.20	0.29
LEVEL FACTOR / MULTIPLIER	719	181	26	413	838	521	246	32	
AIR CHANGE HEAT LOSS	136	50	3	186	0	0	0	0	
AIR CHANGE HEAT GAIN	0	0	0	0	0	0	0	0	
DUCT LOSS	0	0	0	0	0	0	0	0	
HEAT GAIN PEOPLE	240	480	0	1	240	1	240	0	0
HEAT GAIN APPLIANCES/LIGHTS	518	518	0	518	518	518	518	0	0
TOTAL HT LOSS BTU/H	3239	814	116	2047	3772	2346	1107	666	
TOTAL HT GAIN x 1.3 BTU/H	4160	1063	61	2860	5028	2874			

ROOM USE	LIV	DIN	KT/FM	LAUN	WIR	FOY	BAS
EXP. WALL CLG. HT.	50 10	20 10	41 10	0 9	6 10	23 10	141 9
GRS.WALL AREA GLAZING	500	200	410	0	60	230	846
NORTH	0	0	0	0	0	0	0
EAST	935	0	0	0	0	0	0
SOUTH	45	52	45	0	0	5	12
WEST	0	1080	935	0	0	104	249
SKYLT.	0	0	73	0	0	0	83
DOORS	0	0	1517	0	0	0	168
NET EXPOSED WALL	410	645	122	0	60	60	20
NET EXPOSED BSMT WALL ABOVE GR	0	0	0	0	0	0	0
EXPOSED CLG	0	0	0	154	0	0	0
NO ATTIC EXPOSED CLG	26	0	13	0	0	0	0
EXPOSED FLOOR	0	0	0	72	0	0	0
BASEMENT/CRAWL HEAT LOSS	0	0	0	0	0	0	0
SLAB ON GRADE HEAT LOSS	0	0	0	0	0	0	0
SUBTOTAL HT LOSS	3726	1725	3759	372	261	2302	6972
SUB TOTAL HT GAIN	3391	0.30	0.39	0.20	0.30	0.30	0.50
LEVEL FACTOR / MULTIPLIER	1448	671	1461	106	102	895	7627
AIR CHANGE HEAT LOSS	223	0	293	48	0	0	55
AIR CHANGE HEAT GAIN	0	0	0	0	0	0	0
DUCT LOSS	0	0	0	0	0	0	0
HEAT GAIN PEOPLE	240	480	0	65	0	0	0
HEAT GAIN APPLIANCES/LIGHTS	518	518	518	518	0	0	0
TOTAL HT LOSS BTU/H	5174	2396	5220	526	363	3197	14599
TOTAL HT GAIN x 1.3 BTU/H	5372	2972	6889	935	68	749	1842

TOTAL HEAT GAIN BTU/H: 35789 TONS: 2.98 LOSS DUE TO VENTILATION LOAD BTU/H: 1593 STRUCTURAL HEAT LOSS: 44915 TOTAL COMBINED HEAT LOSS BTU/H: 46508

SITE NAME: FORESTSIDE
BUILDER: ROYAL PINE HOMES

TYPE: 2204.T4

DATE: May-18

GFA: 2503 LO# 78694

HEATING CFM 1030 COOLING CFM 1030
TOTAL HEAT LOSS 44,915 TOTAL HEAT GAIN 35,489
AIR FLOW RATE CFM 22.93 AIR FLOW RATE CFM 29.02

AFUE = 96 %
INPUT (BTU/H) = 60,000
OUTPUT (BTU/H) = 58,000

#CARRIER
59SP5A-60-12 60
FAN SPEED
LOW 0
MEDLOW 785
MEDIUM 845
HIGH 970

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	11	8	4
R/A	0	0	4	2	1

All S/A diffusers 4"x10" unless noted otherwise on layout.
All S/A runs 5'0" unless noted otherwise on layout.

RUN #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
ROOM NAME	MBR	ENS	WIC	BED-2	BED-3	BED-4	EN3/4	EN3/4	BED-3	MBR	LIV	LIV	DIN	DIN	KT/FM	KT/FM	LAUN	WIR	FOY	BAS	BAS	BAS	BAS	BAS
RM LOSS MBH	1.62	0.81	0.12	2.05	1.89	2.35	0.55	0.55	1.89	1.62	2.59	2.59	2.40	2.40	1.74	1.74	0.53	0.36	3.20	3.65	3.65	3.65	3.65	3.65
CFM PER RUN HEAT	37	19	3	47	43	54	13	13	43	37	59	59	55	55	40	40	12	8	73	84	84	84	84	84
RM GAIN MBH	2.08	1.06	0.06	2.86	2.51	2.87	0.33	0.33	2.51	2.08	2.69	2.69	2.97	2.97	2.28	2.28	0.93	0.07	0.75	0.46	0.46	0.46	0.46	0.46
CFM PER RUN COOLING	60	31	2	83	73	83	10	10	73	60	78	78	86	86	66	66	27	2	22	13	13	13	13	13
ADJUSTED PRESSURE	0.17	0.17	0.17	0.16	0.17	0.16	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.16	0.17	0.17	0.17	0.17	0.17	0.16	0.16	0.16	0.16	0.16
ACTUAL DUCT LGH.	55	59	19	65	55	45	39	34	67	45	56	52	33	34	32	26	40	36	25	34	25	25	25	25
EQUIVALENT LENGTH	220	200	160	190	180	200	120	130	200	160	140	120	140	140	140	200	140	160	130	130	160	120	110	110
TOTAL EFFECTIVE LENGTH	275	259	179	255	235	245	159	164	267	205	196	172	173	154	172	226	180	196	155	164	185	145	154	154
ADJUSTED PRESSURE	0.06	0.07	0.1	0.06	0.07	0.07	0.11	0.1	0.06	0.08	0.09	0.1	0.09	0.1	0.08	0.1	0.08	0.1	0.09	0.11	0.1	0.09	0.11	0.11
ROUND DUCT SIZE	5	4	4	6	6	6	4	4	6	5	5	5	6	6	5	5	4	4	5	6	6	6	6	6
HEATING VELOCITY (ft/min)	272	218	34	240	219	275	149	149	219	272	433	433	280	294	294	294	310	320	92	428	428	428	428	428
COOLING VELOCITY (ft/min)	441	356	23	423	372	423	115	115	372	441	573	573	438	485	485	485	310	320	162	66	66	66	66	66
OUTLET GRILL SIZE	3X10	3X10	3X10	4X10	4X10	4X10	3X10	3X10	4X10	3X10	3X10	3X10	4X10	4X10	3X10	3X10	3X10	3X10	3X10	4X10	4X10	4X10	4X10	4X10
TRUNK	D	D	B	A	A	D	B	B	A	C	A	A	B	C	C	D	B	A	B	C	D	B	A	A

ROOM NAME	RM LOSS MBH	CFM PER RUN HEAT	RM GAIN MBH	CFM PER RUN COOLING	ADJUSTED PRESSURE	ACTUAL DUCT LGH.	EQUIVALENT LENGTH	ADJUSTED PRESSURE	ROUND DUCT SIZE	HEATING VELOCITY (ft/min)	COOLING VELOCITY (ft/min)	OUTLET GRILL SIZE	TRUNK
TRUNK A	343	0.06	10.1	12	18	8	515	0.00	0	0	0	0	TRUNK G
TRUNK B	596	0.06	12.4	18	8	8	596	0.00	0	0	0	0	TRUNK H
TRUNK C	201	0.08	7.7	8	8	8	452	0.00	0	0	0	0	TRUNK I
TRUNK D	435	0.06	11	14	8	8	559	0.00	0	0	0	0	TRUNK J
TRUNK E	0	0.00	0	0	0	8	0	0.00	0	0	0	0	TRUNK K
TRUNK F	0	0.00	0	0	0	8	0	0.00	0	0	0	0	TRUNK L

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	CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT	VELOCITY (ft/min)
TRUNK A	343	0.06	10.1	12	18	8	TRUNK G	0	0.00	0	0	0	TRUNK O	0	0.05	0	0	8
TRUNK B	596	0.06	12.4	18	8	8	TRUNK H	0	0.00	0	0	0	TRUNK P	0	0.05	0	0	8
TRUNK C	201	0.08	7.7	8	8	8	TRUNK I	0	0.00	0	0	0	TRUNK Q	0	0.05	0	0	8
TRUNK D	435	0.06	11	14	8	8	TRUNK J	0	0.00	0	0	0	TRUNK R	0	0.05	0	0	8
TRUNK E	0	0.00	0	0	0	8	TRUNK K	0	0.00	0	0	0	TRUNK S	0	0.05	0	0	8
TRUNK F	0	0.00	0	0	0	8	TRUNK L	0	0.00	0	0	0	TRUNK T	0	0.05	0	0	8

RETURN AIR #	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	343	0.06	10.1	12	18	8	TRUNK G	0	0.00	0	0	0	TRUNK O	0	0.05	0	0	8
TRUNK B	596	0.06	12.4	18	8	8	TRUNK H	0	0.00	0	0	0	TRUNK P	0	0.05	0	0	8
TRUNK C	201	0.08	7.7	8	8	8	TRUNK I	0	0.00	0	0	0	TRUNK Q	0	0.05	0	0	8
TRUNK D	435	0.06	11	14	8	8	TRUNK J	0	0.00	0	0	0	TRUNK R	0	0.05	0	0	8
TRUNK E	0	0.00	0	0	0	8	TRUNK K	0	0.00	0	0	0	TRUNK S	0	0.05	0	0	8
TRUNK F	0	0.00	0	0	0	8	TRUNK L	0	0.00	0	0	0	TRUNK T	0	0.05	0	0	8

TYPE: 2204.T4
SITE NAME: FORESTSIDE

LO # 78694

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>3</u> @ 10.6 cfm	<u>31.8</u> cfm
Kitchen & Bathrooms	<u>4</u> @ 10.6 cfm	<u>42.4</u> cfm
Other Rooms	<u>5</u> @ 10.6 cfm	<u>53.0</u> cfm
Table 9.32.3.A.	TOTAL	<u>169.6</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	79.5	cfm

SUPPLEMENTAL VENTILATION CAPACITY		9.32.3.5.
Total Ventilation Capacity	<u>169.6</u>	cfm
Less Principal Ventil. Capacity	<u>79.5</u>	cfm
Required Supplemental Capacity	<u>90.1</u>	cfm

PRINCIPAL EXHAUST FAN CAPACITY	
Model: VANEE 65H	Location: BSMT
<u>79.5</u> cfm	<u>3.0</u> sones
☒	HVI Approved

PRINCIPAL EXHAUST HEAT LOSS CALCULATION			
CFM	ΔT °F	FACTOR	% LOSS
79.5 CFM	X 74 F	X 1.08	X 0.25

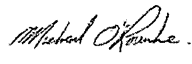
SUPPLEMENTAL FANS		NUTONE		
Location	Model	cfm	HVI	Sones
ENS	QTXEN050C	50	☒	0.3
EN3/4	QTXEN050C	50	☒	0.3
LAUN	QTXEN050C	50	☒	0.3
W/R	QTXEN050C	50	☒	0.3

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	☒ 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:	
HRAI #	001820
Date:	May-18

HEAT LOSS AND GAIN SUMMARY SHEET**MODEL:** 2204.T4**BUILDER:** ROYAL PINE HOMES**SFQT:** 2503**LO#** 78694**SITE:** FORESTSIDE**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):	3
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):	34187.0	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	5
INTERIOR LIGHTING LOAD (Btu/h/ft²):	1.27	DC BRUSHLESS MOTOR (Y/N):	Y
FOUNDATION CONFIGURATION	BCIN_1	DEPTH BELOW GRADE:	6.0 ft
LENGTH: 27.0 ft	WIDTH: 56.0 ft	EXPOSED PERIMETER:	141.0 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	-

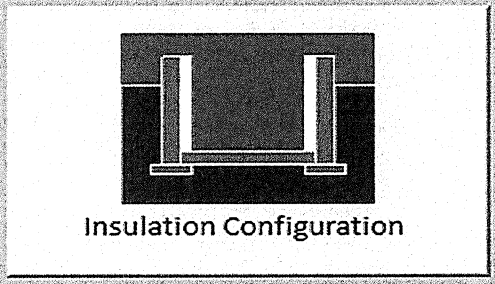
INDIVIDUAL BCIN: 19669

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):	8.2	 Insulation Configuration
Floor Width (m):	17.1	
Exposed Perimeter (m):	43.0	
Wall Height (m):	2.7	
Depth Below Grade (m):	1.83	
Window Area (m ²):	1.5	
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):		1365

TYPE: 2204.T4

LO# 78694

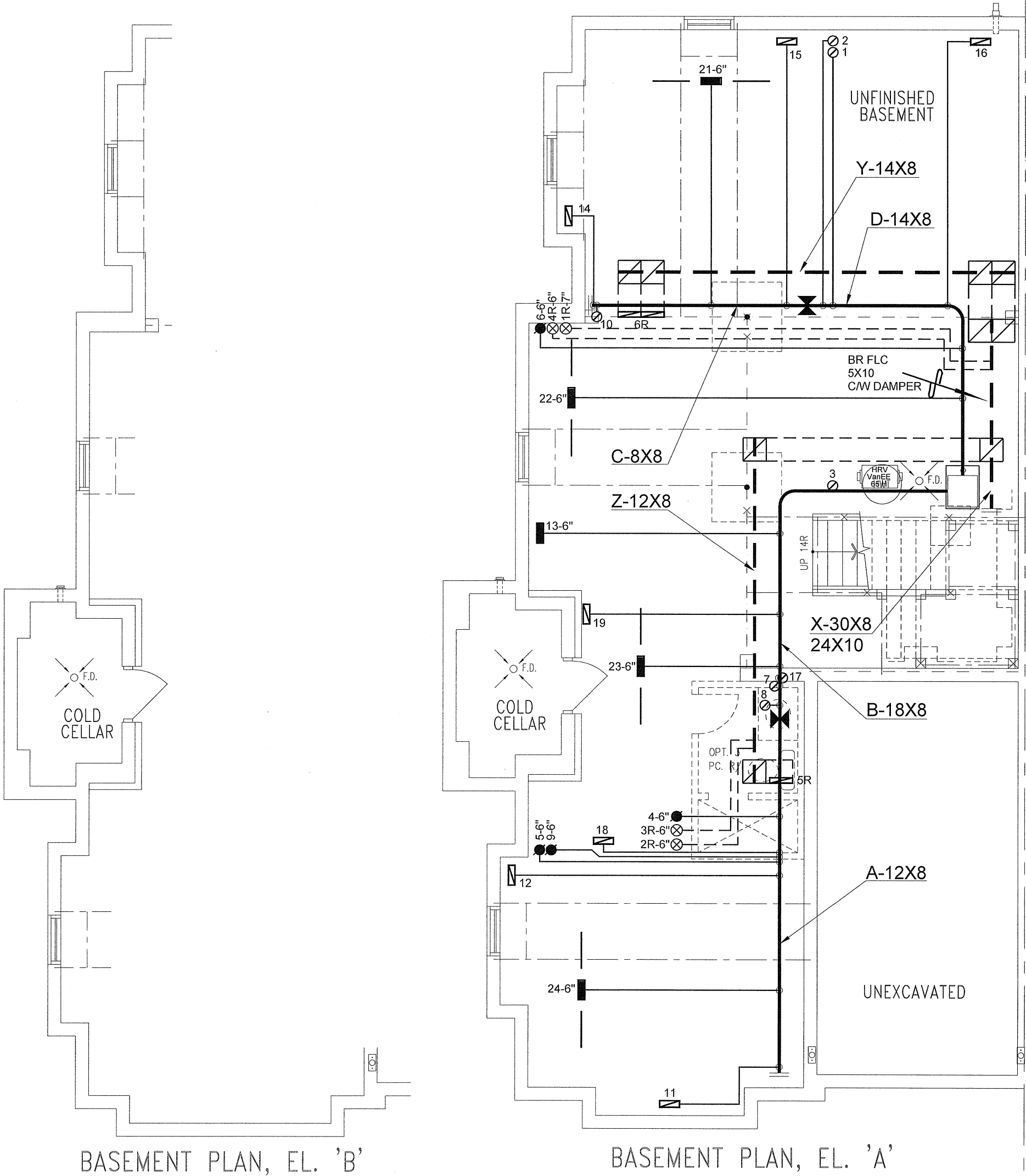
Air Infiltration Residential Load Calculator

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):	968.1			
Air Leakage/Ventilation				
Air Tightness Type:	Present (1961-) (3.57 ACH)			
Custom BDT Data:	ELA @ 10 Pa.	1290.5 cm ²		
	3.57	ACH @ 50 Pa		
Mechanical Ventilation (L/s):	Total Supply	Total Exhaust		
	37.5	37.5		
Flue Size				
Flue #:	#1	#2	#3	#4
Diameter (mm):	0	0	0	0
Natural Infiltration Rates				
Heating Air Leakage Rate (ACH/H):	0.336			
Cooling Air Leakage Rate (ACH/H):	0.116			

TYPE: 2204.T4

LO# 78694



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
PACKAGE A1

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

ALL DRAWINGS, CALCULATIONS AND SPECIFICATIONS ARE THE PROPERTY OF HVAC DESIGNS LTD.© AND MAY NOT BE REPRODUCED, MODIFIED OR ALTERED WITHOUT EXPRESSED WRITTEN CONSENT. THE DRAWINGS ARE DATED AND USE OF THESE DRAWINGS AFTER ONE YEAR FROM THE DATED NOTED IS NOT AUTHORIZED. CONTRACTOR SHALL CHECK ALL CONDITIONS BEFORE PROCEEDING WITH WORK. LATEST MUNICIPAL APPROVED DRAWINGS ONLY TO BE USED DURING INSTALLATION OF HEATING SYSTEM. HVAC DESIGNS LTD. IS NOT LIABLE FOR ANY CLAIMS ARISING FROM UNAUTHORIZED USE OF THE DRAWINGS OR FROM ANY CHANGES TO ACCEPTED STANDARDS AND/OR THE ONTARIO BUILDING CODE.

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	HEAT LOSS 46508 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			MODEL	59SP5A-60-12	2ND FLOOR	11	4	3		
FORESTSIDE BRAMPTON, ONTARIO			INPUT	60 MBTU/H	1ST FLOOR	8	2	2	Date	MAY/2018
			OUTPUT	58 MBTU/H	BASEMENT	4	1	0	Scale	3/16" = 1'-0"
		COOLING	3.0 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				BCIN# 19669		
		FAN SPEED	1030 cfm @ 0.6" w.c.					LO#		78694
2204.T4		2503 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.						

GROUND FLOOR PLAN, EL. 'B'

GROUND FLOOR PLAN, EL. 'A'

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.

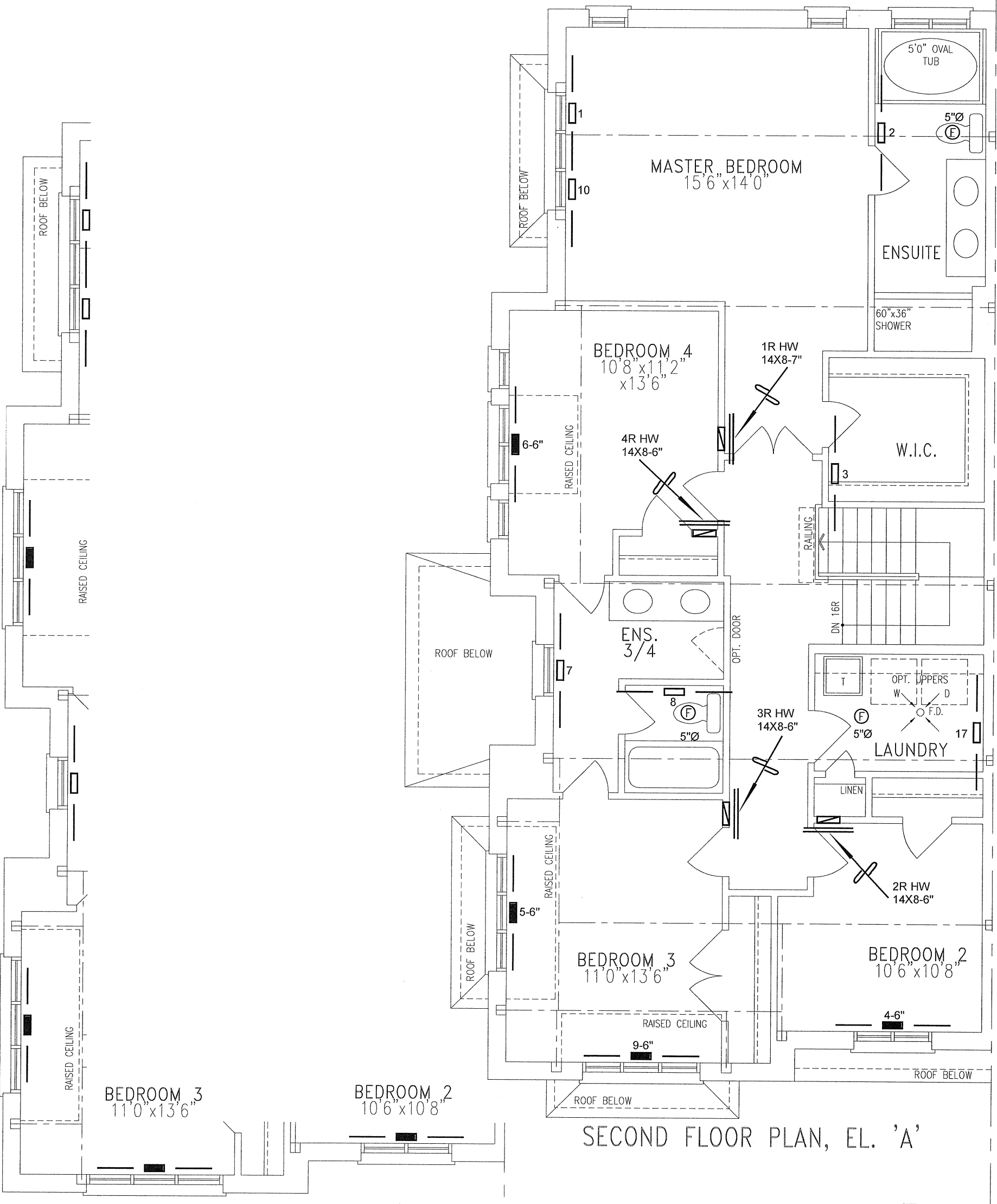
Michael O'Rourke
Michael O'Rourke, BCIN# 19669
HVAC DESIGNS LTD.

CSA-F280-12
PACKAGE A1

HVAC LEGEND								3.		
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	2.		
	FLOOR SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		14"x8" RETURN AIR GRILLE		RETURN AIR STACK ABOVE	1.		
	FLOOR 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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ROYAL PINE HOMES			FIRST FLOOR HEATING LAYOUT	
Project Name			Date	MAY/2018
FORESTSIDE BRAMPTON, ONTARIO			Scale	3/16" = 1'-0"
		BCIN# 19669		
2204.T4		LO#		
2503 sqft		78694		



SECOND FLOOR PLAN, EL. 'B'

SECOND FLOOR PLAN, EL. 'A'

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
PACKAGE A1

HVAC LEGEND							3.		
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	2.	
	FLOOR SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		14"x8" RETURN AIR GRILLE		RETURN AIR STACK ABOVE	1.	
	FLOOR 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	

ALL DRAWINGS, CALCULATIONS AND SPECIFICATIONS ARE THE PROPERTY OF HVAC DESIGNS LTD.© AND MAY NOT BE REPRODUCED, MODIFIED OR ALTERED WITHOUT EXPRESSED WRITTEN CONSENT. THE DRAWINGS ARE DATED AND USE OF THESE DRAWINGS AFTER ONE YEAR FROM THE DATED NOTED IS NOT AUTHORIZED. CONTRACTOR SHALL CHECK ALL CONDITIONS BEFORE PROCEEDING WITH WORK. LATEST MUNICIPAL APPROVED DRAWINGS ONLY TO BE USED DURING INSTALLATION OF HEATING SYSTEM. HVAC DESIGNS LTD. IS NOT LIABLE FOR ANY CLAIMS ARISING FROM UNAUTHORIZED USE OF THE DRAWINGS OR FROM ANY CHANGES TO ACCEPTED STANDARDS AND/OR THE ONTARIO BUILDING CODE.

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ROYAL PINE HOMES			SECOND FLOOR HEATING LAYOUT	
Project Name			Date	MAY/2018
FORESTSIDE BRAMPTON, ONTARIO			Scale	3/16" = 1'-0"
2204.T4			BCIN# 19669	
2503 sqft			LO#	78694

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.
Municipality BRAMPTON			Postal code
Plan number/ other description			Lot/con.
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: 2204.T4 OPT. 2ND 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 18, 2018		 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.

SITE NAME: FORESTSIDE BUILDER: ROYAL PINE HOMES										DATE: May-18 LO# 78695	WINTER NATURAL AIR CHANGE RATE 0.336 SUMMER NATURAL AIR CHANGE RATE 0.116	HEAT LOSS AT °F. 74 HEAT GAIN AT °F. 14	CSA-F280-12 SB-12 PACKAGE A1
ROOM USE	EXP. WALL CLG. HT.	FACTORS	GRS.WALL AREA	GLAZING	MBR	ENS	WIC	BED-2	BED-3	BED-4	ENS/4	ENS-2	
FACTORS													
GRS.WALL AREA													
GLAZING													
NORTH													
EAST													
SOUTH													
WEST													
SKYL.T.													
DOORS													
NET EXPOSED WALL													
NET EXPOSED BSMT WALL ABOVE GR													
EXPOSED CLG													
NO ATTIC EXPOSED CLG													
EXPOSED FLOOR													
BASEMENT/CRAWL HEAT LOSS													
SLAB ON GRADE HEAT LOSS													
SUBTOTAL HT LOSS													
SUB TOTAL HT GAIN													
LEVEL FACTOR / MULTIPLIER													
AIR CHANGE HEAT LOSS													
AIR CHANGE HEAT GAIN													
DUCT LOSS													
DUCT GAIN													
HEAT GAIN PEOPLE													
HEAT GAIN APPLIANCES/LIGHTS													
TOTAL HT LOSS BTU/H													
TOTAL HT GAIN x 1.3 BTU/H													

ROOM USE	EXP. WALL CLG. HT.	FACTORS	GRS.WALL AREA	GLAZING	LIV	DIN	KT/FM	WIR	FOY	WIR	FOY	BAS
FACTORS												
GRS.WALL AREA												
GLAZING												
NORTH												
EAST												
SOUTH												
WEST												
SKYL.T.												
DOORS												
NET EXPOSED WALL												
NET EXPOSED BSMT WALL ABOVE GR												
EXPOSED CLG												
NO ATTIC EXPOSED CLG												
EXPOSED FLOOR												
BASEMENT/CRAWL HEAT LOSS												
SLAB ON GRADE HEAT LOSS												
SUBTOTAL HT LOSS												
SUB TOTAL HT GAIN												
LEVEL FACTOR / MULTIPLIER												
AIR CHANGE HEAT LOSS												
AIR CHANGE HEAT GAIN												
DUCT LOSS												
DUCT GAIN												
HEAT GAIN PEOPLE												
HEAT GAIN APPLIANCES/LIGHTS												
TOTAL HT LOSS BTU/H												
TOTAL HT GAIN x 1.3 BTU/H												

TOTAL HEAT GAIN BTU/H: 35852 TONS: 2.99 LOSS DUE TO VENTILATION LOAD BTU/H: 1593 STRUCTURAL HEAT LOSS: 45107 TOTAL COMBINED HEAT LOSS BTU/H: 46700

Michael O'Rourke

SITE NAME: FORESTSIDE
BUILDER: ROYAL PINE HOMESOPT. 2ND
TYPE: 2204.14

DATE: May-18

GFA: 2503

LO# 78695

HEATING CFM 1030
TOTAL HEAT LOSS 45,107
AIR FLOW RATE CFM 22.83COOLING CFM 1030
furnace filter
a/c coil pressure 0.2
available pressure
for s/a & r/a 0.35AFUE = 96 %
INPUT (BTU/H) = 60,000
OUTPUT (BTU/H) = 58,000#CARRIER
59SP5A-60-12 60
FAN SPEED
LOW 0
MEDIUM 785
HIGH 845

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	11	8	4
R/A	0	0	4	2	1

plenum pressure s/a 0.18
max s/a dif press. loss 0.02
min adjusted pressure s/a 0.16r/a pressure 0.17
r/a grille press. loss 0.02
adjusted pressure r/a 0.15DESIGN CFM = 1030
CFM @ 5" E.S.P.
TEMPERATURE RISE 52 °F

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

All S/A runs 5'Ø unless noted otherwise on layout.

ROOM NAME	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
MBR	1.74	0.81	0.12	2.04	1.88	2.34	0.55	0.55	1.88	1.74	2.59	2.59	2.40	1.74	1.74	1.74	0.52	0.36	1.74	0.36	3.65	3.65	3.65	BAS
RM LOSS MBH	40	19	3	47	43	53	13	13	43	40	59	59	55	40	40	40	12	8	73	83	83	83	83	83
CFM PER RUN HEAT	2.19	1.06	0.06	2.95	2.56	2.96	0.33	0.33	2.56	2.19	2.73	2.73	3.06	2.31	2.31	2.31	0.19	0.07	0.75	0.48	0.48	0.48	0.48	0.48
RM GAIN MBH	63	31	2	86	74	86	10	10	74	63	79	79	89	67	67	67	6	2	22	14	14	14	14	14
CFM PER RUN COOLING	0.17	0.17	0.17	0.16	0.17	0.16	0.17	0.17	0.17	0.17	0.17	0.16	0.16	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.16	0.16	0.16	0.16
ADJUSTED PRESSURE	55	59	19	65	55	45	39	34	67	45	56	52	33	34	32	26	37	36	25	34	25	25	25	25
ACTUAL DUCT LGH.	220	200	160	190	180	200	120	130	200	220	140	120	140	120	140	200	140	160	130	130	160	120	120	110
EQUIVALENT LENGTH	275	259	179	255	235	245	159	164	267	265	196	172	173	154	172	226	177	196	155	164	185	145	154	
TOTAL EFFECTIVE LENGTH	0.06	0.07	0.1	0.06	0.07	0.07	0.11	0.1	0.06	0.06	0.09	0.1	0.09	0.11	0.1	0.08	0.1	0.09	0.11	0.1	0.09	0.11	0.11	
ADJUSTED PRESSURE	6	4	4	6	6	6	4	4	6	6	5	5	6	5	5	5	4	4	5	6	6	6	6	
ROUND DUCT SIZE	204	218	34	240	219	270	149	149	219	204	433	433	280	294	294	294	138	92	536	423	423	423	423	
HEATING VELOCITY (ft/min)	321	356	23	438	377	438	115	115	377	321	580	580	454	492	492	492	69	23	162	71	71	71	71	
COOLING VELOCITY (ft/min)	4X10	3X10	3X10	4X10	4X10	4X10	3X10	3X10	4X10	4X10	3X10	3X10	4X10	3X10	3X10	3X10	3X10	3X10	3X10	4X10	4X10	4X10	4X10	
OUTLET GRILL SIZE	TRUNK D	TRUNK D	TRUNK B	TRUNK A	TRUNK A	TRUNK A	TRUNK B	TRUNK B	TRUNK A	TRUNK C	TRUNK A	TRUNK A	TRUNK B	TRUNK B	TRUNK C	TRUNK D	TRUNK B	TRUNK A	TRUNK B	TRUNK C	TRUNK D	TRUNK B	TRUNK B	TRUNK A

ROOM NAME	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
RM LOSS MBH.	40	19	3	47	43	53	13	13	43	40	59	59	55	40	40	40	12	8	73	83	83	83	83	83
CFM PER RUN HEAT	2.19	1.06	0.06	2.95	2.56	2.96	0.33	0.33	2.56	2.19	2.73	2.73	3.06	2.31	2.31	2.31	0.19	0.07	0.75	0.48	0.48	0.48	0.48	0.48
RM GAIN MBH.	63	31	2	86	74	86	10	10	74	63	79	79	89	67	67	67	6	2	22	14	14	14	14	14
CFM PER RUN COOLING	0.17	0.17	0.17	0.16	0.17	0.16	0.17	0.17	0.17	0.17	0.17	0.17	0.16	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17
ADJUSTED PRESSURE	55	59	19	65	55	45	39	34	67	45	56	52	33	34	32	26	37	36	25	34	25	25	25	25
ACTUAL DUCT LGH.	220	200	160	190	180	200	120	130	200	220	140	120	140	120	140	200	140	160	130	130	160	160	120	110
EQUIVALENT LENGTH	275	259	179	255	235	245	159	164	267	265	196	172	173	154	172	226	177	196	155	164	185	145	154	154
TOTAL EFFECTIVE LENGTH	0.06	0.07	0.1	0.06	0.07	0.07	0.11	0.1	0.1	0.06	0.09	0.1	0.09	0.11	0.1	0.08	0.1	0.09	0.11	0.1	0.09	0.11	0.11	0.11
ADJUSTED PRESSURE	6	4	4	6	6	6	4	4	6	6	5	5	6	5	5	5	4	4	5	6	6	6	6	6
ROUND DUCT SIZE	204	218	34	240	219	270	149	149	219	204	433	280	294	294	294	294	138	92	536	423	423	423	423	423
HEATING VELOCITY (ft/min)	321	356	23	438	377	438	115	115	377	321	580	580	454	492	492	492	69	23	162	71	71	71	71	71
COOLING VELOCITY (ft/min)	4X10	3X10	3X10	4X10	4X10	4X10	3X10	3X10	4X10	4X10	3X10	3X10	4X10	3X10	3X10	3X10	3X10	3X10	3X10	4X10	4X10	4X10	4X10	4X10
OUTLET GRILL SIZE	TRUNK D	TRUNK D	TRUNK B	TRUNK A	TRUNK A	TRUNK A	TRUNK B	TRUNK B	TRUNK A	TRUNK C	TRUNK A	TRUNK A	TRUNK B	TRUNK B	TRUNK C	TRUNK D	TRUNK B	TRUNK A	TRUNK B	TRUNK C	TRUNK D	TRUNK B	TRUNK B	TRUNK A

SUPPLY AIR TRUNK SIZE											RETURN AIR TRUNK SIZE											VELOCITY
TRUNK	STATIC PRESS.	ROUND DUCT	RECT DUCT	VELOCITY (ft/min)	TRUNK CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT	VELOCITY (ft/min)	TRUNK	STATIC PRESS.	ROUND DUCT	RECT DUCT	VELOCITY (ft/min)	TRUNK	STATIC PRESS.	ROUND DUCT	RECT DUCT	VELOCITY (ft/min)			
TRUNK A	0.06	10.1	12	8	342	0.00	0	0	8	0	0.00	0	0	8	TRUNK O	0	0.05	0	0	8		
TRUNK B	0.06	12.4	18	8	594	0.00	0	0	8	0	0.00	0	0	8	TRUNK P	0	0.05	0	0	8		
TRUNK C	0.06	8.3	8	8	203	0.00	0	0	8	0	0.00	0	0	8	TRUNK Q	0	0.05	0	0	8		
TRUNK D	0.06	11.1	14	8	438	0.00	0	0	8	0	0.00	0	0	8	TRUNK R	0	0.05	0	0	8		
TRUNK E	0.00	0	0	8	0	0.00	0	0	8	0	0.00	0	0	8	TRUNK S	0	0.05	0	0	8		
TRUNK F	0.00	0	0	8	0	0.00	0	0	8	0	0.00	0	0	8	TRUNK T	0	0.05	0	0	8		
										TRUNK U	0	0.05	0	8	TRUNK V	0	0.05	0	0	8		
										TRUNK W	0	0.05	0	8	TRUNK X	1030	0.05	16	0	8		
										TRUNK Y	380	0.05	11	30	TRUNK Z	295	0.05	10	14	8		
															DROP	1030	0.05	12	8			
																	16	24	10	618		
RETURN AIR #	1	2	3	4	5	6			BR													
AIR VOLUME	0	0	0	0	0	0				0	0	0	0	0	0	0	0	0	0	0		
PLENUM PRESSURE	0.15	0.15	0.15	0.15	0.15	0.15				0	0	0	0	0	0	0	0	0	0	0		
ACTUAL DUCT LGH.	69	66	61	74	41	41				0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15		
EQUIVALENT LENGTH	255	225	185	215	230	150				1	1	1	1	1	1	1	1	1	1	1		
TOTAL EFFECTIVE LH	324	291	246	289	271	191				14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80		
ADJUSTED PRESSURE	0.05	0.05	0.06	0.05	0.05	0.08				1	1	1	1	1	1	1	1	1	1	1		
ROUND DUCT SIZE	7	6	6	6	7.5	9.8				0	0	0	0	0	0	0	0	0	0	0		
INLET GRILL SIZE	8	8	8	8	8	8				0	0	0	0	0	0	0	0	0	0	0		
INLET GRILL SIZE	14	14	14	14	14	30				X	X	X	X	X	X	X	X	X	X	X		

TYPE: 2204.T4
SITE NAME: FORESTSIDE

LO # 78695
OPT. 2ND

RESIDENTIAL MECHANICAL VENTILATION DESIGN SUMMARY

COMBUSTION APPLIANCES		9.32.3.1(1)
a)	☒ Direct vent (sealed combustion) only	
b)	☐ Positive venting induced draft (except fireplaces)	
c)	☐ Natural draft, B-vent or induced draft gas fireplace	
d)	☐ Solid Fuel (including fireplaces)	
e)	☐ No Combustion Appliances	

HEATING SYSTEM	
☒ Forced Air	☐ Non Forced Air
☐ Electric Space Heat	

HOUSE TYPE		9.32.1(2)
☒ I	Type a) or b) appliance only, no solid fuel	
☐ II	Type I except with solid fuel (including fireplaces)	
☐ III	Any Type c) appliance	
☐ IV	Type I, or II with electric space heat	
☐	Other: Type I, II or IV no forced air	

SYSTEM DESIGN OPTIONS		O.N.H.W.P.
☐ 1	Exhaust only/Forced Air System	
☐ 2	HRV with Ducting/Forced Air System	
☒ 3	HRV Simplified/connected to forced air system	
☐ 4	HRV with Ducting/non forced air system	
☐	Part 6 Design	

TOTAL VENTILATION CAPACITY		9.32.3.3(1)
Basement + Master Bedroom	2 @ 21.2 cfm	42.4 cfm
Other Bedrooms	3 @ 10.6 cfm	31.8 cfm
Kitchen & Bathrooms	5 @ 10.6 cfm	53 cfm
Other Rooms	4 @ 10.6 cfm	42.4 cfm
Table 9.32.3.A. TOTAL		169.6 cfm

PRINCIPAL VENTILATION CAPACITY REQUIRED		9.32.3.4.(1)
1 Bedroom	31.8	cfm
2 Bedroom	47.7	cfm
3 Bedroom	63.6	cfm
4 Bedroom	79.5	cfm
5 Bedroom	95.4	cfm
TOTAL		79.5 cfm

SUPPLEMENTAL VENTILATION CAPACITY		9.32.3.5.
Total Ventilation Capacity	169.6	cfm
Less Principal Ventil. Capacity	79.5	cfm
Required Supplemental Capacity	90.1	cfm

PRINCIPAL EXHAUST FAN CAPACITY	
Model: VANEE 65H	Location: BSMT
79.5 cfm	3.0 sones
☒ HVI Approved	

PRINCIPAL EXHAUST HEAT LOSS CALCULATION			
CFM	$\Delta T \cdot F$	FACTOR	% LOSS
79.5 CFM	X 74 F	X 1.08	X 0.25

SUPPLEMENTAL FANS		NUTONE	
Location	Model	cfm	HVI
ENS	QTXEN050C	50	☒
EN3/4	QTXEN050C	50	☒
LAUN	QTXEN050C	50	☒
W/R	QTXEN050C	50	☒

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:	<i>Michael O'Rourke</i>
HRAI #	001820
Date:	May-18

HEAT LOSS AND GAIN SUMMARY SHEET

MODEL: 2204.T4	OPT. 2ND	BUILDER: ROYAL PINE HOMES
SFQT: 2503	LO# 78695	SITE: FORESTSIDE

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):	3
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):	34187.0	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	5
INTERIOR LIGHTING LOAD (Btu/h/ft²):	1.27	DC BRUSHLESS MOTOR (Y/N):	Y
FOUNDATION CONFIGURATION	BCIN_1	DEPTH BELOW GRADE:	6.0 ft
LENGTH: 27.0 ft	WIDTH: 56.0 ft	EXPOSED PERIMETER:	141.0 ft

2012 OBC - COMPLIANCE PACKAGE		Compliance Package A1	
Component		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	-

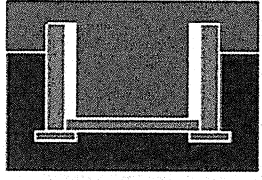
INDIVIDUAL BCIN: 19669

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):	8.2	 Insulation Configuration
Floor Width (m):	17.1	
Exposed Perimeter (m):	43.0	
Wall Height (m):	2.7	
Depth Below Grade (m):	1.83	
Window Area (m ²):	1.5	
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):		1365

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):	968.1			
Air Leakage/Ventilation				
Air Tightness Type:	Present (1961-) (3.57 ACH)			
Custom BDT Data:	ELA @ 10 Pa.	1290.5 cm ²		
	3.57	ACH @ 50 Pa		
Mechanical Ventilation (L/s):	Total Supply	Total Exhaust		
	37.5	37.5		
Flue Size				
Flue #:	#1	#2	#3	#4
Diameter (mm):	0	0	0	0
Natural Infiltration Rates				
Heating Air Leakage Rate (ACH/H):	0.336			
Cooling Air Leakage Rate (ACH/H):	0.116			

TYPE: 2204.T4

OPT. 2ND

LO# 78695

BASEMENT PLAN, EL. 'B'

BASEMENT PLAN, EL. 'A'

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
PACKAGE A1

HVAC LEGEND							3.		
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	2.	
	FLOOR SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		14"x8" RETURN AIR GRILLE		RETURN AIR STACK ABOVE	1.	
	FLOOR 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		HVACDESIGNS LTD. 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 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 46700 BTU/H UNIT DATA		# OF RUNS S/A R/A FANS			Sheet Title		
Project Name			MAKE	CARRIER	2ND FLOOR	11	4	4	BASEMENT HEATING LAYOUT	
FORESTSIDE BRAMPTON, ONTARIO			MODEL	59SP5A-60-12	1ST FLOOR	8	2	2		
OPT. 2ND 2204.T4			INPUT	60 MBTU/H	BASEMENT	4	1	0		
2503 sqft			OUTPUT	58 MBTU/H	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"
		COOLING	3.0 TONS					BCIN# 19669		
		FAN SPEED	1030 cfm @ 0.6" w.c.					LO#	78695	

GROUND FLOOR PLAN, EL. 'B'

GROUND FLOOR PLAN, EL. 'A'

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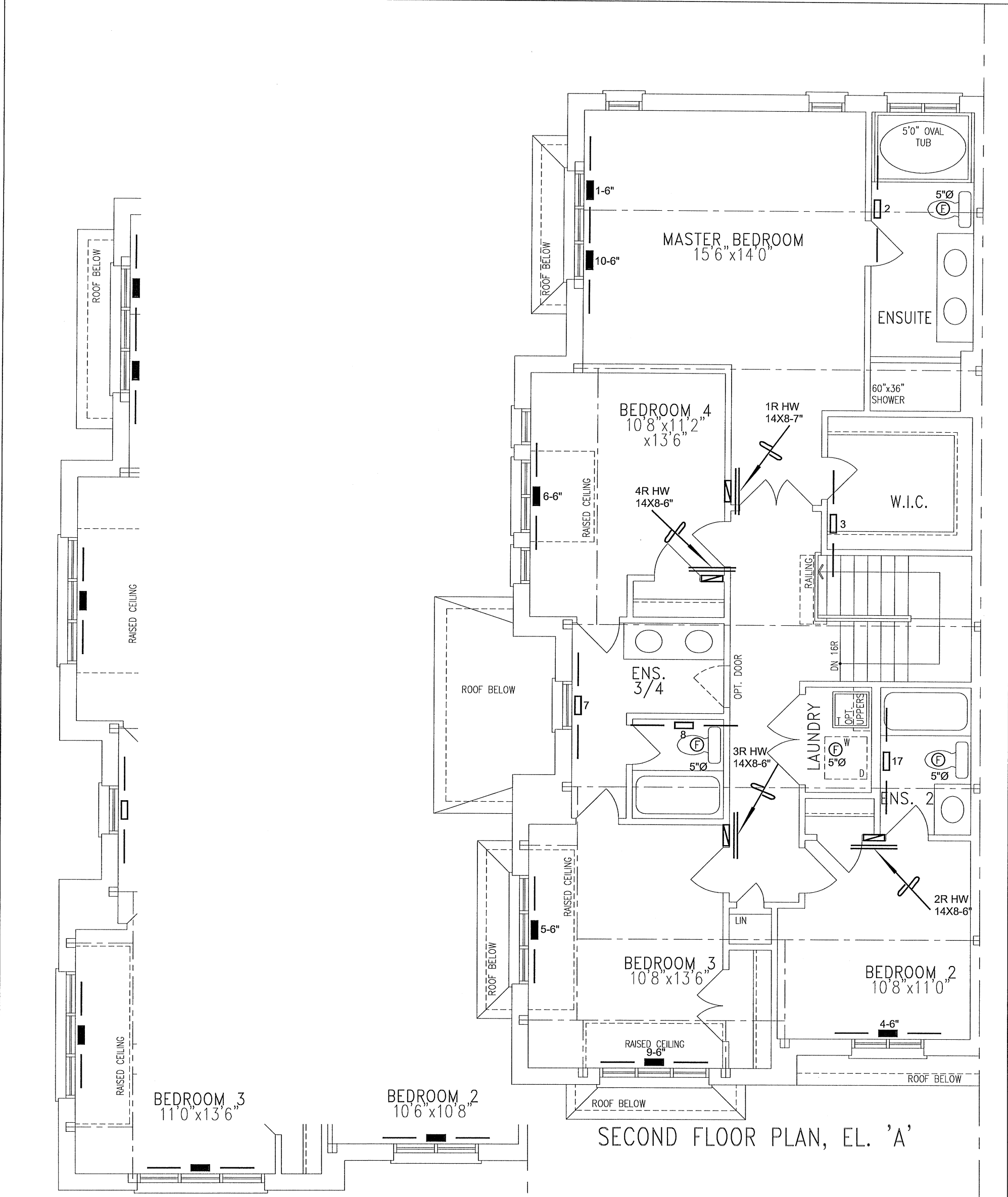
Michael O'Rourke
Michael O'Rourke, BCIN# 19669
HVAC DESIGNS LTD.

CSA-F280-12
PACKAGE A1

HVAC LEGEND								3.		
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	2.		
	FLOOR SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		14"x8" RETURN AIR GRILLE		RETURN AIR STACK ABOVE	1.		
	FLOOR 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 ROYAL PINE HOMES		 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 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 FIRST FLOOR HEATING LAYOUT	
Project Name FORESTSIDE BRAMPTON, ONTARIO			Date MAY/2018	
OPT. 2ND 2204.T4			Scale 3/16" = 1'-0"	
2503 sqft			BCIN# 19669	
			LO# 78695	



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

HVAC LEGEND								3.		
	FLOOR SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		14"x8" RETURN AIR GRILLE		RETURN AIR STACK ABOVE	2.		
	FLOOR SUPPLY AIR GRILLE 6" BOOT		SUPPLY AIR STACK FROM 2nd FLOOR		30"x8" RETURN AIR GRILLE		RETURN AIR STACK 2nd FLOOR	1.		
	SUPPLY AIR BOOT ABOVE		6" SUPPLY AIR STACK 2nd FLOOR		FRA- FLOOR RETURN AIR GRILLE		REDUCER	No.	Description	Date

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Client

ROYAL PINE HOMES

Project Name

FORESTSIDE
BRAMPTON, ONTARIO

OPT. 2ND
2204.T4

2503 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@hvacdesigns.ca

Web: www.hvacdesigns.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#

78695