

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 RICHMOND HILL	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: 50-1 Project: CENTERFIELD	
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.			
August 24, 2022			
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

ROOM USE			GREAT			DEN			KT/BR			LV/DN			LAUN			FOY			BAS					
EXP. WALL			36			21			44			43			9			29			182					
CLG. HT.			11			11			11			11			11			11			10					
FACTORS																										
GRS.WALL AREA			396			231			484			473			99			319			1274					
GLAZING			LOSS GAIN			LOSS GAIN			LOSS GAIN			LOSS GAIN			LOSS GAIN			LOSS GAIN			LOSS GAIN					
NORTH			21.8	16.0	0	0	0	23	501	367	0	0	0	0	0	0	0	0	0	0	0	4	87	64		
EAST			21.8	41.6	0	0	0	0	0	0	0	0	0	52	1133	2161	0	0	0	28	610	1163	0	0	0	
SOUTH			21.8	24.9	0	0	0	0	0	0	0	0	0	28	610	697	0	0	0	0	0	0	4	87	100	
WEST			21.8	41.6	46	1002	1911	0	0	0	73	1590	3033	0	0	0	0	0	0	0	0	12	261	499		
SKYLT.			35.8	101.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
DOORS			20.5	3.4	0	0	0	0	0	0	20	411	68	0	0	0	20	411	68	20	411	68	20	411	68	
NET EXPOSED WALL			4.2	0.7	350	1472	242	208	875	144	391	1644	271	393	1653	272	79	332	55	271	1140	188	0	0	0	
NET EXPOSED BSMT WALL ABOVE GR			3.7	0.6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	546	2011	331		
EXPOSED CLG			1.3	0.6	0	0	0	0	0	0	0	0	0	6	8	4	0	0	0	0	0	0	0	0		
NO ATTIC EXPOSED CLG			2.8	1.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
EXPOSED FLOOR			2.6	0.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
BASEMENT/CRAWL HEAT LOSS			0			0			0			0			0			0			0			6213		
SLAB ON GRADE HEAT LOSS			0			0			0			0			0			0			0					
SUBTOTAL HT LOSS			2474			1376			3645			3404			743			2160			9070					
SUB TOTAL HT GAIN			2154			511			3371			3133			122			1419			1061					
LEVEL FACTOR / MULTIPLIER			0.30	0.50			0.30	0.50			0.30	0.50			0.30	0.50			0.30	0.50			0.50	1.28		
AIR CHANGE HEAT LOSS			1244			692			1833			1712			374			1086			11569					
AIR CHANGE HEAT GAIN			129			31			202			188			7			85			64					
DUCT LOSS			0			0			0			0			0			0			0					
DUCT GAIN			0			0			0			0			0			0			0					
HEAT GAIN PEOPLE			240	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
HEAT GAIN APPLIANCES/LIGHTS			639			639			639			639			639			0			639					
TOTAL HT LOSS BTU/H			3718			2068			5479			5115			1116			3247			20639					
TOTAL HT GAIN x 1.3 BTU/H			3798			1535			5476			5148			999			1955			2292					

TOTAL COMBINED HEAT LOSS BTU/H: 63402

SITE NAME: CENTERFIELD
BUILDER: ROYAL PINE HOMES

TYPE: 50-1

DATE: Aug-22

GFA: 3446

LO# 98677

HEATING CFM 1260 COOLING CFM 1260
TOTAL HEAT LOSS 61,732 TOTAL HEAT GAIN 44,051
AIR FLOW RATE CFM 20.41 AIR FLOW RATE CFM 28.6

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

****CARRIER**
59TN6B-080-14V
FAN SPEED 80

AFUE = 97 %
INPUT (BTU/H) = 80,000
OUTPUT (BTU/H) = **78,000**

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	15	9	5
R/A	0	0	5	2	1

plenium pressure s/a 0.18
max s/a dif press. loss 0.02
min adjusted pressure s/a 0.16
r/a pressure 0.17
r/a grille press. Loss 0.02
adjusted pressure r/a 0.15

LOW 1095
MEDLOW 0
MEDIUM 1260
MEDIUM HIGH 0
HIGH 1280
DESIGN CFM = **1260**
CFM @ .6" E.S.P.
TEMPERATURE RISE 57 °F

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

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

RUN #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	19	20	21	22	23	24
ROOM NAME	MBR	ENS	WIC	BED-2	BED-3	BED-4	ENS-2	ENS-3	ENS	MBR	ENS-4	GREAT	DEN	KT/BR	KT/BR	LV/DN	LAUN	FOY	LV/DN	BAS	BAS	BAS	BAS
RM LOSS MBH.	1.76	0.61	0.84	1.46	1.71	1.89	0.09	0.96	0.61	1.76	1.91	1.86	2.07	2.74	2.74	2.56	1.12	3.25	2.56	4.13	4.13	4.13	4.13
CFM PER RUN HEAT	36	12	17	30	35	39	2	20	12	36	39	38	42	56	56	52	23	66	52	84	84	84	84
RM GAIN MBH.	2.02	0.38	0.18	1.64	2.17	2.51	0.04	0.35	0.38	2.02	2.64	1.90	1.53	2.74	2.74	2.57	1.00	1.95	2.57	0.46	0.46	0.46	0.46
CFM PER RUN COOLING	58	11	5	47	62	72	1	10	11	58	75	54	44	78	78	74	29	56	74	13	13	13	13
ADJUSTED PRESSURE	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.16	0.16	0.16	0.16
ACTUAL DUCT LGH.	66	25	39	63	57	33	73	69	35	54	46	51	60	43	34	4	49	25	21	57	46	29	10
EQUIVALENT LENGTH	180	170	170	180	180	120	180	190	160	190	160	160	130	170	110	150	120	140	100	130	110	120	130
TOTAL EFFECTIVE LENGTH	246	195	209	243	237	153	253	259	195	244	206	211	190	213	144	154	169	165	121	187	156	149	140
ADJUSTED PRESSURE	0.07	0.09	0.08	0.07	0.07	0.11	0.07	0.07	0.09	0.07	0.08	0.08	0.09	0.08	0.12	0.11	0.1	0.1	0.14	0.09	0.1	0.11	0.12
ROUND DUCT SIZE	5	4	4	5	6	5	4	4	4	5	6	5	5	6	6	5	4	5	5	6	6	6	6
HEATING VELOCITY (ft/min)	264	138	195	220	178	286	23	229	138	264	199	279	308	286	286	382	264	485	382	428	428	428	428
COOLING VELOCITY (ft/min)	426	126	57	345	316	529	11	115	126	426	382	396	323	398	398	543	333	411	543	66	66	66	66
OUTLET GRILL SIZE	3X10	3X10	3X10	3X10	4X10	3X10	3X10	3X10	3X10	3X10	4X10	3X10	3X10	4X10	4X10	3X10	3X10	3X10	3X10	4X10	4X10	4X10	4X10
TRUNK	B	C	C	A	D	D	A	A	C	B	D	B	A	B	C	C	B	D	D	A	B	C	C

RUN #	25	26	27	28	29	30
ROOM NAME	BED-3	BED-4	BED-2	GREAT	BAS	BED-3
RM LOSS MBH.	1.71	1.89	1.46	1.86	4.13	1.71
CFM PER RUN HEAT	35	39	30	38	84	35
RM GAIN MBH.	2.17	2.51	1.64	1.90	0.46	2.17
CFM PER RUN COOLING	62	72	47	54	13	62
ADJUSTED PRESSURE	0.17	0.17	0.17	0.17	0.16	0.17
ACTUAL DUCT LGH.	69	39	71	62	21	61
EQUIVALENT LENGTH	200	150	150	120	140	190
TOTAL EFFECTIVE LENGTH	269	189	221	182	161	251
ADJUSTED PRESSURE	0.06	0.09	0.08	0.09	0.1	0.07
ROUND DUCT SIZE	6	5	5	5	6	6
HEATING VELOCITY (ft/min)	178	286	220	279	428	178
COOLING VELOCITY (ft/min)	316	529	345	396	66	316
OUTLET GRILL SIZE	4X10	3X10	3X10	3X10	4X10	4X10
TRUNK	D	D	A	A	D	D

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	246	0.07	8.6	8	x	8	554	TRUNK G	0	0.00	0	0	8	0	TRUNK O	0	0.05	0	0	x	8	0	
TRUNK B	519	0.07	11.3	14	x	8	667	TRUNK H	0	0.00	0	0	8	0	TRUNK P	0	0.05	0	0	x	8	0	
TRUNK C	836	0.07	13.6	22	x	8	684	TRUNK I	0	0.00	0	0	8	0	TRUNK Q	0	0.05	0	0	x	8	0	
TRUNK D	424	0.06	10.9	16	x	8	477	TRUNK J	0	0.00	0	0	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	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	8	0	TRUNK T	0	0.05	0	0	x	8	0	

RETURN AIR #	1	2	3	4	5	6	7									BR
AIR VOLUME	85	85	85	85	85	320	320	0	0	0	0	0	0	0	0	195
PLENUM PRESSURE	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15
ACTUAL DUCT LGH.	43	74	55	55	53	59	29	1	1	1	1	1	1	1	1	14
EQUIVALENT LENGTH	185	225	205	175	185	180	160	0	0	0	0	0	0	0	0	135
TOTAL EFFECTIVE LH	228	299	260	230	238	239	189	1	1	1	1	1	1	1	1	149
ADJUSTED PRESSURE	0.06	0.05	0.06	0.06	0.06	0.06	0.08	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	0.10
ROUND DUCT SIZE	6	6.3	6	6	6	9.8	9.2	0	0	0	0	0	0	0	0	7.2
INLET GRILL SIZE	8	8	8	8	8	8	8	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	30	30	0	0	0	0	0	0	0	0	14

TYPE: 50-1
SITE NAME: CENTERFIELD

LO # 98677

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>5</u> @ 10.6 cfm	<u>53</u> cfm
Other Rooms	<u>6</u> @ 10.6 cfm	<u>63.6</u> cfm
Table 9.32.3.A.	TOTAL	<u>190.8</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>79.5</u> cfm

SUPPLEMENTAL VENTILATION CAPACITY		9.32.3.5.
Total Ventilation Capacity	<u>190.8</u>	cfm
Less Principal Ventil. Capacity	<u>79.5</u>	cfm
Required Supplemental Capacity	<u>111.3</u>	cfm

PRINCIPAL EXHAUST FAN CAPACITY	
Model:	VANEE V150H
Location:	BSMT
<u>79.5</u> cfm	☒ HVI Approved

PRINCIPAL EXHAUST HEAT LOSS CALCULATION				
CFM	ΔT °F	FACTOR	% LOSS	
79.5 CFM	X 78 F	X 1.08	X	0.25

SUPPLEMENTAL FANS		BY INSTALLING CONTRACTOR		
Location	Model	cfm	HVI	Sones
ENS	BY INSTALLING CONTRACTOR	50	☒	3.5
ENS-2	BY INSTALLING CONTRACTOR	50	☒	3.5
ENS-4	BY INSTALLING CONTRACTOR	50	☒	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	☒ 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:	August-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

CSA F280-12 Residential Heat Loss and Heat Gain Calculations																																																																	
Formula Sheet (For Air Leakage / Ventilation Calculation)																																																																	
LO#: 98677		Model: 50-1		Builder: ROYAL PINE HOMES				Date: 8/24/2022																																																									
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>1582</td> <td>10</td> <td>15820</td> </tr> <tr> <td>First</td> <td>1582</td> <td>11</td> <td>17402</td> </tr> <tr> <td>Second</td> <td>1864</td> <td>9</td> <td>16776</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>49,998.0 ft³</td> </tr> <tr> <td colspan="2" style="text-align: right;">Total:</td> <td></td> <td>1415.8 m³</td> </tr> </tbody> </table>					Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)	Bsmt	1582	10	15820	First	1582	11	17402	Second	1864	9	16776	Third	0	9	0	Fourth	0	9	0	Total:			49,998.0 ft³	Total:			1415.8 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%;">0.332</td> </tr> <tr> <td>SUMMER NATURAL AIR CHANGE RATE</td> <td>0.104</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>-21</td> <td>43</td> <td>78</td> </tr> <tr> <td>Summer DTDc</td> <td>24</td> <td>31</td> <td>7</td> <td>13</td> </tr> </table>					WINTER NATURAL AIR CHANGE RATE	0.332	SUMMER NATURAL AIR CHANGE RATE	0.104	Design Temperature Difference						Tin °C	Tout °C	ΔT °C	ΔT °F	Winter DTDh	22	-21	43	78	Summer DTDc	24	31	7	13
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5.2.3.1 Heat Loss due to Air Leakage					6.2.6 Sensible Gain due to Air Leakage																																																												
$HL_{airb} = LR_{airh} \times \frac{V_b}{3.6} \times DTD_h \times 1.2$ 0.332 x 393.27 x 43 °C x 1.2 = 6781 W = 23137 Btu/h					$HG_{salb} = LR_{airc} \times \frac{V_b}{3.6} \times DTD_c \times 1.2$ = 0.104 x 393.27 x 7 °C x 1.2 = 348 W = 1187 Btu/h																																																												
5.2.3.2 Heat Loss due to Mechanical Ventilation					6.2.7 Sensible heat Gain due to Ventilation																																																												
$HL_{vairb} = PVC \times DTD_h \times 1.08 \times (1 - E)$ 80 CFM x 78 °F x 1.08 x 0.25 = 1670 Btu/h					$HL_{vairb} = PVC \times DTD_h \times 1.08 \times (1 - E)$ 80 CFM x 13 °F x 1.08 x 0.25 = 275 Btu/h																																																												
5.2.3.3 Calculation of Air Change Heat Loss for Each Room (Floor Multiplier Section)																																																																	
$HL_{airr} = Level\ Factor \times HL_{airbv} \times \{(HL_{agcr} + HL_{bgcr}) \div (HL_{agclevel} + HL_{bgclevel})\}$ <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 / HL_{clevel})</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>0.5</td> <td rowspan="5" style="text-align: center; vertical-align: middle;">23,137</td> <td>9,070</td> <td>1.275</td> </tr> <tr> <td>2</td> <td>0.3</td> <td>13,802</td> <td>0.503</td> </tr> <tr> <td>3</td> <td>0.2</td> <td>15,171</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> *HLairbv = Air leakage heat loss + ventilation heat loss *For a balanced or supply only ventilation system HLairve = 0										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 / HL _{clevel})	1	0.5	23,137	9,070	1.275	2	0.3	13,802	0.503	3	0.2	15,171	0.305	4	0	0	0.000	5	0	0	0.000																														
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					Michael O'Rourke BCIN# 19669 																																																												

HEAT LOSS AND GAIN SUMMARY SHEET

MODEL: 50-1	BUILDER: ROYAL PINE HOMES
SFQT: 3446	SITE: CENTERFIELD
LO# 98677	

DESIGN ASSUMPTIONS

HEATING	°F	COOLING	°F
OUTDOOR DESIGN TEMP.	-6	OUTDOOR DESIGN TEMP.	88
INDOOR DESIGN TEMP.	72	INDOOR DESIGN TEMP. (MAX 75°F)	75
		WINDOW SHGC	0.50

BUILDING DATA

ATTACHMENT:	DETACHED	# OF STORIES (+BASEMENT):	3
FRONT FACES:	EAST	ASSUMED (Y/N):	Y
AIR CHANGES PER HOUR:	3.57	ASSUMED (Y/N):	Y
AIR TIGHTNESS CATEGORY:	AVERAGE	ASSUMED (Y/N):	Y
WIND EXPOSURE:	SHELTERED	ASSUMED (Y/N):	Y
HOUSE VOLUME (ft³):	49998.0	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:	7.0 ft
LENGTH: 49.0 ft	WIDTH: 42.0 ft	EXPOSED PERIMETER:	182.0 ft

2012 OBC - COMPLIANCE PACKAGE**Component****Compliance Package
SB-12 PERFORMANCE****Nominal Min. Eff.**

Ceiling with Attic Space Minimum RSI (R)-Value	60	59.20
Ceiling Without Attic Space Minimum RSI (R)-Value	31	27.70
Exposed Floor Minimum RSI (R)-Value	31	29.80
Walls Above Grade Minimum RSI (R)-Value	22+1.5	18.50
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	TE=94%	-

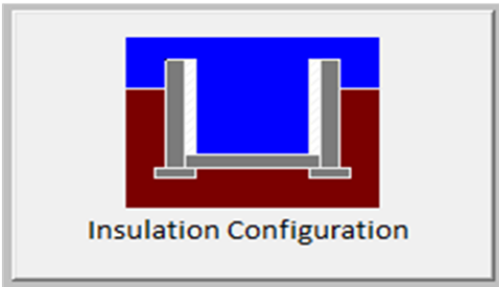
INDIVIDUAL BCIN: 19669

MICHAEL O'ROURKE



Residential Foundation Thermal Load Calculator

Supplemental tool for CAN/CSA-F280

Weather Station Description		
Province:	Ontario	
Region:	Richmond Hill	
Site Description		
Soil Conductivity:	Normal conductivity: dry sand, loam, clay	
Water Table:	Normal (7-10 m, 23-33 ft)	
Foundation Dimensions		
Floor Length (m):	14.9	
Floor Width (m):	12.8	
Exposed Perimeter (m):	0.0	
Wall Height (m):	3.0	
Depth Below Grade (m):	2.13	
Window Area (m ²):	1.9	
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):		1820

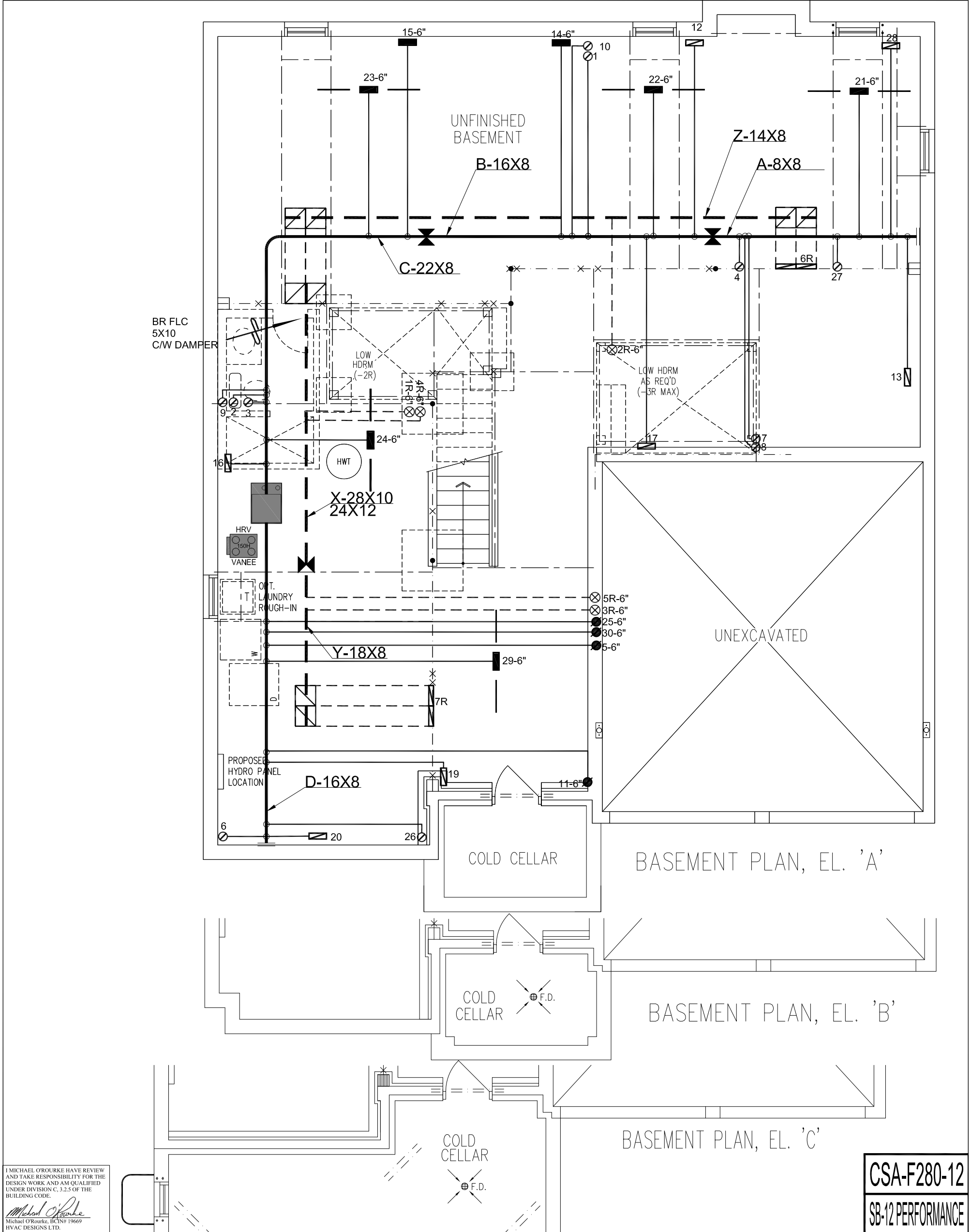
TYPE: 50-1
LO# 98677

Air Infiltration Residential Load Calculator

Supplemental tool for CAN/CSA-F280

Weather Station Description				
Province:	Ontario			
Region:	Richmond Hill			
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):	7.01			
Building Configuration				
Type:	Detached			
Number of Stories:	Two			
Foundation:	Full			
House Volume (m ³):	1415.8			
Air Leakage/Ventilation				
Air Tightness Type:	Present (1961-) (3.57 ACH)			
Custom BDT Data:	ELA @ 10 Pa.	1887.3 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):	0.332			
Cooling Air Leakage Rate (ACH/H):	0.104			

TYPE: 50-1
LO# 98677



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.

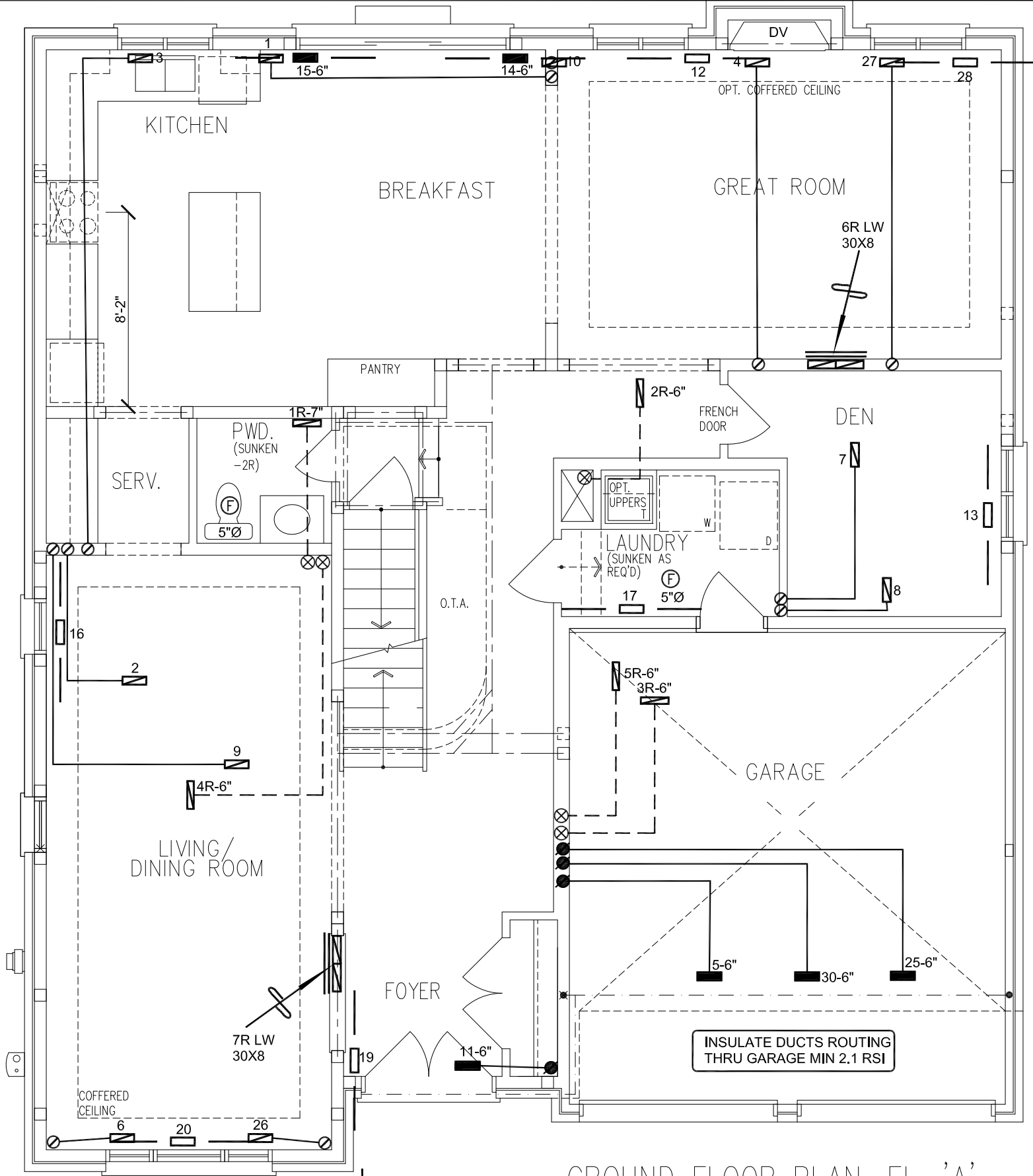
Michael O'Rourke
Michael O'Rourke, BCIN# 19669
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CSA-F280-12
SB-12 PERFORMANCE

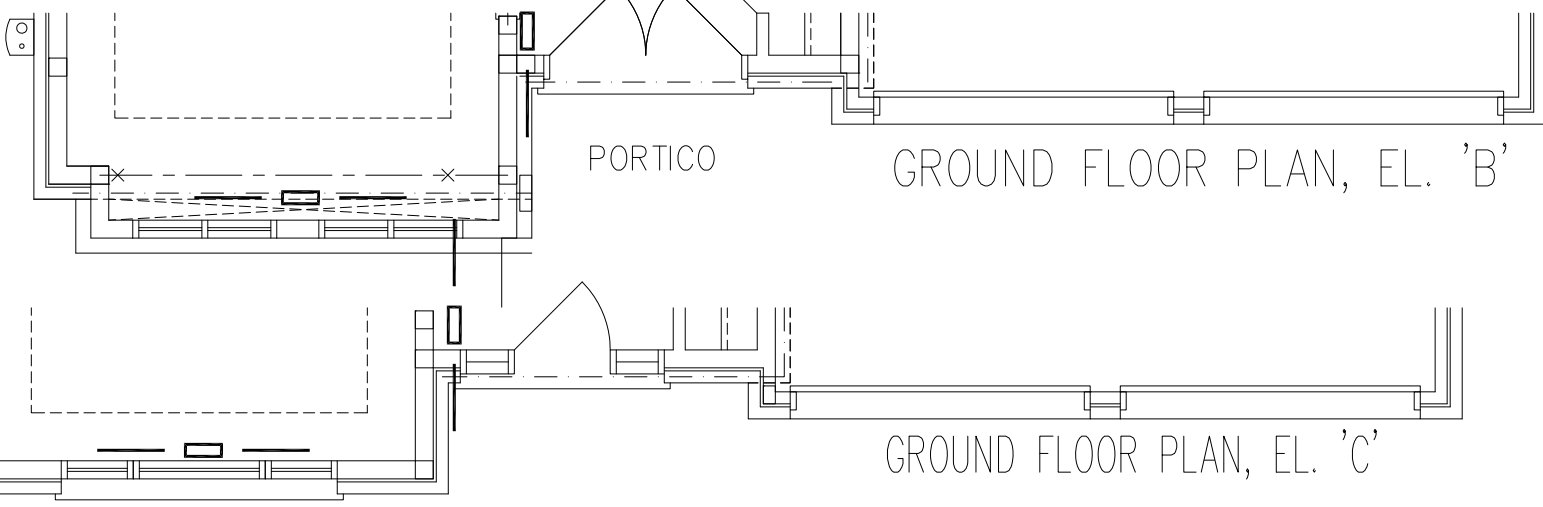
HVAC LEGEND							3.		
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	2.	
	SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		14"x8" RETURN AIR GRILLE		RETURN AIR STACK ABOVE	1.	
	SUPPLY AIR GRILLE 6" BOOT		SUPPLY AIR STACK FROM 2nd FLOOR		30"x8" RETURN AIR GRILLE		RETURN AIR STACK 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 63402 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	59TN6B-080-14V	2ND FLOOR	15	5	5		
CENTERFIELD RICHMOND HILL,ONTARIO		INPUT	80 MBTU/H	1ST FLOOR	9	2	3		
		OUTPUT	78 MBTU/H	BASEMENT	5	1	0	Date	AUG/2022
		COOLING	3.5 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"
50-01	3446 sqft	FAN SPEED	1260 cfm @ 0.6" w.c.					BCIN# 19669	
								LO#	98677



GROUND FLOOR PLAN, EL. 'A'



GROUND FLOOR PLAN, EL. 'B'

GROUND FLOOR PLAN, EL. 'C'

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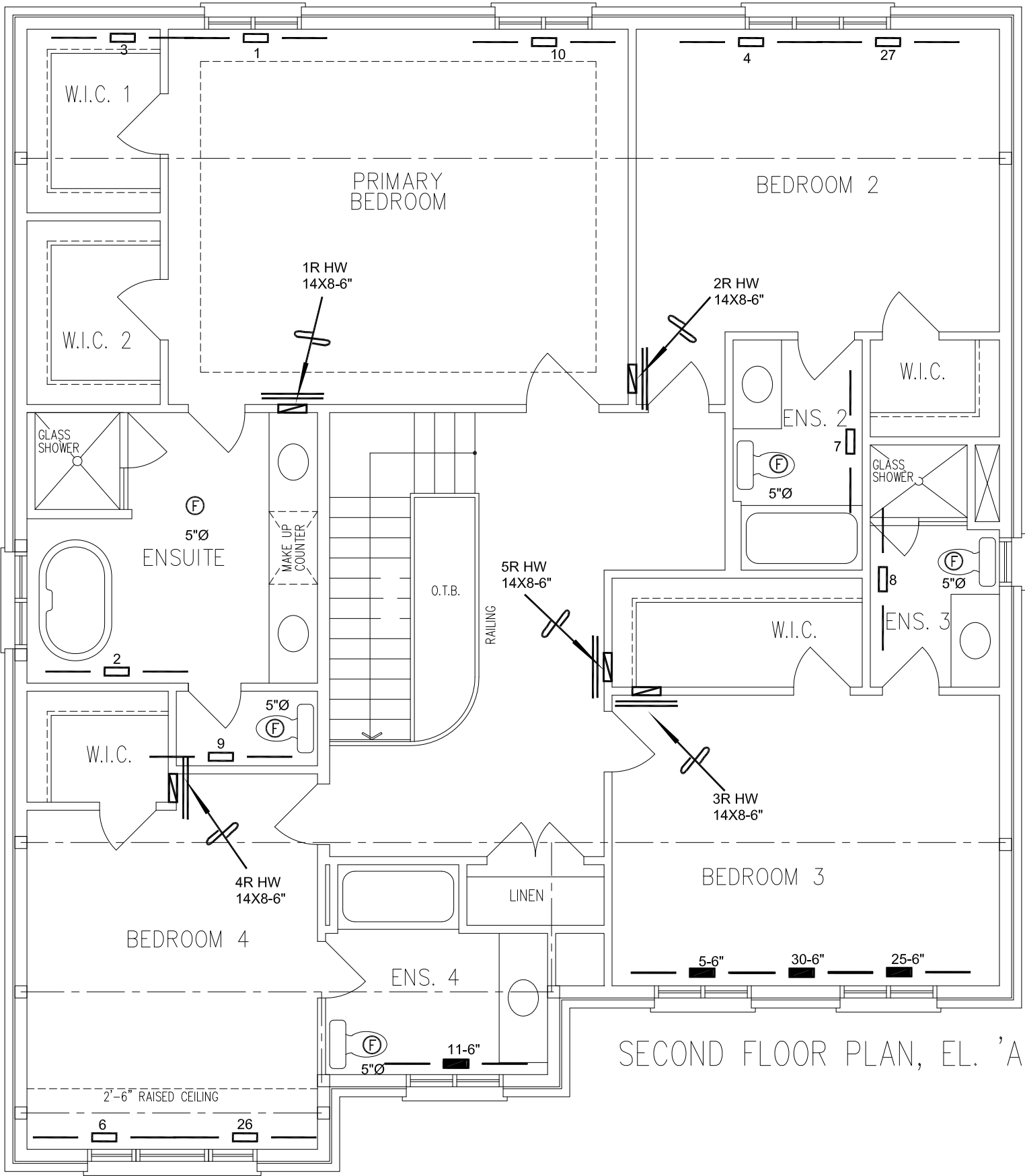
Michael O'Rourke, BCIN# 19669
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CSA-F280-12
SB-12 PERFORMANCE

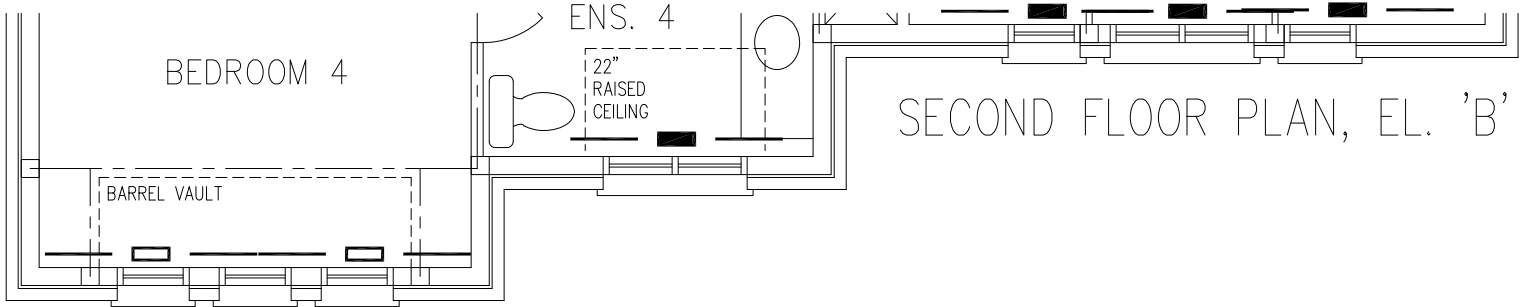
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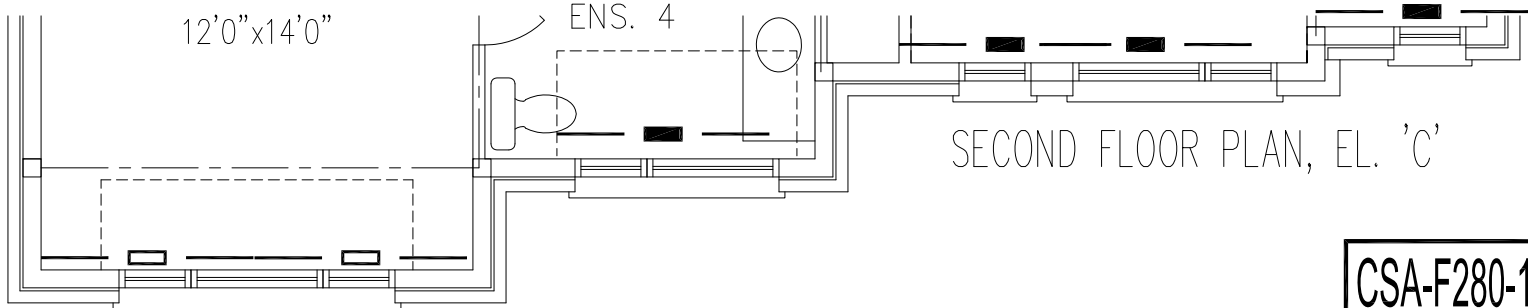
Client		 375 Finley Ave. Suite 202 - Ajax, Ontario L1S 2E2 Tel. 905.619.2300 - 905.420.5300 Fax 905.619.2375 Email: info@hvacdesigns.ca Web: www.hvacdesigns.ca Specializing in Residential Mechanical Design Services	Sheet Title		FIRST FLOOR HEATING LAYOUT	
Project Name			Date	AUG/2022		
CENTERFIELD RICHMOND HILL,ONTARIO		Scale	3/16" = 1'-0"			
		BCIN# 19669				
50-01		3446 sqft		LO#	98677	
		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.				



SECOND FLOOR PLAN, EL. 'A'



SECOND FLOOR PLAN, EL. 'B'



SECOND FLOOR PLAN, EL. 'C'

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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.		
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ROYAL PINE HOMES			SECOND FLOOR HEATING LAYOUT	
Project Name			Date	AUG/2022
CENTERFIELD RICHMOND HILL,ONTARIO			Scale	3/16" = 1'-0"
50-01			BCIN# 19669	
3446 sqft			LO#	98677