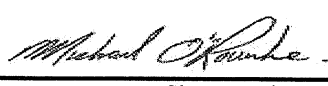


Schedule 1: Designer Information

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@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: 4505 OPT GROUND 5 BED 4 BATH Project: CENTREFIELD (WEST GORMLEY)	
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.			
June 4, 2021 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.

SITE NAME: CENTREFIELD (WEST GORMLEY)										DATE: Jun-21		HEAT LOSS AT °F. 78		CSA-F280-12	
BUILDER: ROYAL PINE HOMES										LO# 91155		HEAT GAIN AT °F. 13		SB-12 PERFORMANCE	
TYPE: 4505										GFA: 3289		WINTER NATURAL AIR CHANGE RATE 0.219		SUMMER NATURAL AIR CHANGE RATE 0.068	
OPT GROUND 5 BED 4 BATH										ENS-2		ENS-3		ENS-4/5	
FACTORS										BED-4		BED-5		ENS-4/5	
ROOM USE										WIR		FOY		BAS	
EXP. WALL										LAUN		DIN		EXP. WALL	
CLG. HT.										KIB/G		LIV		CLG. HT.	
FACTORS										GRS.WALL AREA		GLAZING		FACTORS	
LOSS GAIN										NORTH		EAST		SOUTH	
GRS.WALL AREA										WEST		SKYLT.		DOORS	
GLAZING										NET EXPOSED WALL		NET EXPOSED BSMT WALL ABOVE GR		EXPOSED CLG	
NORTH										21.8 15.6		21.8 40.5		21.8 24.3	
EAST										21.8 40.5		21.8 40.5		21.8 40.5	
SOUTH										21.8 40.5		21.8 40.5		21.8 40.5	
WEST										21.8 40.5		21.8 40.5		21.8 40.5	
SKYLT.										35.3 101.2		35.3 101.2		35.3 101.2	
DOORS										25.8 4.3		25.8 4.3		25.8 4.3	
NET EXPOSED WALL										4.2 0.7		4.2 0.7		4.2 0.7	
NET EXPOSED BSMT WALL ABOVE GR										3.7 0.6		3.7 0.6		3.7 0.6	
EXPOSED CLG										1.3 0.6		1.3 0.6		1.3 0.6	
EXPOSED FLOOR										2.8 1.3		2.8 1.3		2.8 1.3	
BASEMENT/CRAWL HEAT LOSS										2.6 0.4		2.6 0.4		2.6 0.4	
SLAB ON GRADE HEAT LOSS										2.6 0.4		2.6 0.4		2.6 0.4	
SUBTOTAL HT LOSS										2239		2239		2239	
SUB TOTAL HT GAIN										1457		1457		1457	
LEVEL FACTOR / MULTIPLIER										0.20 0.19		0.20 0.19		0.20 0.19	
AIR CHANGE HEAT LOSS										418		418		418	
AIR CHANGE HEAT GAIN										77		77		77	
DUCT LOSS										0		0		0	
DUCT GAIN										0		0		0	
HEAT GAIN PEOPLE										240		240		240	
HEAT GAIN APPLIANCES/LIGHTS										601		601		601	
TOTAL HT LOSS BTU/H										1669		1669		1669	
TOTAL HT GAIN x 1.3 BTU/H										3399		3399		3399	

SITE NAME: CENTREFIELD (WEST GORMLEY)
BUILDER: ROYAL PINE HOMES

TYPE: 4505 OPT GROUND 5 BED 4 BATH

GFA: 3289 LO# 91155

DATE: Jun-21

HEATING CFM 1200 COOLING CFM 1200
TOTAL HEAT GAIN 35,789
AIR FLOW RATE CFM 33.53

****CARRIER**
59TNGA-060-14V
FAN SPEED 60
AFUE = 97 %
INPUT (BTU/H) = 60,000
OUTPUT (BTU/H) = 58,000
DESIGN CFM = 1200
CFM @ .6" E.S.P.

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	16	8	4
R/A	0	0	5	3	1

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

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

RUN #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
ROOM NAME	ENS	MBR	BED-2	BED-2	BED-3	BED-4	ENS-2	BED-3	ENS-3	MBR	ENS-4/5	LIV	K/B/G	K/B/G	K/B/G	DIN	LAUN	W/R	FOY	ENS	BAS	BAS	BAS	BAS
RM LOSS MBH	0.56	1.33	1.97	1.97	1.87	1.18	0.49	1.87	0.49	1.33	0.55	2.61	2.21	2.21	2.21	2.15	2.44	0.55	2.44	0.56	3.92	3.92	3.92	3.92
CFM PER RUN HEAT	14	32	48	48	46	29	12	46	12	32	13	63	54	54	54	52	59	13	59	14	95	95	95	95
RM GAIN MBH	0.44	1.70	2.27	2.27	2.64	1.88	0.12	2.64	0.56	1.70	0.36	3.10	2.00	2.00	2.00	2.17	1.34	0.29	1.03	0.44	0.46	0.46	0.46	0.46
CFM PER RUN COOLING	15	57	76	76	89	63	4	89	19	57	12	104	67	67	67	73	45	10	35	15	15	15	15	15
ADJUSTED PRESSURE	0.17	0.17	0.17	0.17	0.16	0.17	0.17	0.16	0.17	0.17	0.17	0.16	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.16	0.16	0.16	0.16
ACTUAL DUCT LGH.	32	58	58	51	49	29	37	47	44	49	27	31	28	39	51	6	43	17	36	46	45	26	8	27
EQUIVALENT LENGTH	150	150	130	120	180	130	140	170	130	150	140	90	130	130	100	140	120	150	100	160	110	120	150	110
TOTAL EFFECTIVE LENGTH	182	208	188	171	229	159	177	217	174	199	167	121	158	169	151	146	163	167	136	206	155	146	158	137
ADJUSTED PRESSURE	0.09	0.08	0.09	0.1	0.07	0.11	0.1	0.07	0.1	0.09	0.1	0.13	0.11	0.1	0.11	0.12	0.11	0.1	0.13	0.08	0.1	0.11	0.1	0.12
ROUND DUCT SIZE	4	5	6	6	6	6	4	6	4	5	4	6	5	5	5	6	5	4	5	4	6	6	6	6
HEATING VELOCITY (ft/min)	161	235	245	245	235	148	138	235	138	235	149	321	396	396	396	265	433	149	433	161	484	484	484	484
COOLING VELOCITY (ft/min)	172	419	388	388	454	321	46	454	218	419	138	530	492	492	492	372	330	115	257	172	76	76	76	76
OUTLET GRILL SIZE	3X10	3X10	4X10	4X10	4X10	4X10	3X10	4X10	3X10	3X10	3X10	4X10	3X10	3X10	3X10	4X10	3X10	3X10	3X10	3X10	4X10	4X10	4X10	4X10
TRUNK	D	D	B	B	A	B	B	A	B	D	B	A	D	C	C	B	C	A	A	C	C	D	B	A

RUN #	25	26	27	28
ROOM NAME	ENS	WIC	ENS-3	BED-5
RM LOSS MBH	0.56	0.43	0.49	1.26
CFM PER RUN HEAT	14	10	12	31
RM GAIN MBH	0.44	0.12	0.56	1.90
CFM PER RUN COOLING	15	4	19	64
ADJUSTED PRESSURE	0.17	0.17	0.17	0.17
ACTUAL DUCT LGH.	35	45	41	22
EQUIVALENT LENGTH	160	170	140	190
TOTAL EFFECTIVE LENGTH	195	215	181	212
ADJUSTED PRESSURE	0.09	0.08	0.1	0.08
ROUND DUCT SIZE	4	4	4	6
HEATING VELOCITY (ft/min)	161	115	138	158
COOLING VELOCITY (ft/min)	172	46	218	326
OUTLET GRILL SIZE	3X10	3X10	3X10	4X10
TRUNK	D	C	B	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	322	0.07	9.5	12	483	0	0.00	0	0	8	0	0.05	0	0	8				
TRUNK B	643	0.07	12.3	20	579	TRUNK G	0	0.00	0	0	TRUNK P	0	0.05	0	8				
TRUNK C	286	0.08	8.8	10	515	TRUNK H	0	0.00	0	0	TRUNK Q	0	0.05	0	8				
TRUNK D	558	0.08	11.3	14	717	TRUNK I	0	0.00	0	0	TRUNK R	0	0.05	0	8				
TRUNK E	0	0.00	0	0	0	TRUNK J	0	0.00	0	0	TRUNK S	0	0.05	0	8				
TRUNK F	0	0.00	0	0	0	TRUNK K	0	0.00	0	0	0	0	0.05	0	8				
					8	TRUNK L	0	0.00	0	0					8				
					8					8					8				
					8					8					8				
					8					8					8				
					8					8					8				
					8					8					8				
					8					8					8				
					8					8					8				
					8					8					8				
					8					8					8				
					8					8					8				
					8					8					8				
					8					8					8				
					8					8					8				
					8					8					8				
					8					8					8				
					8					8					8				
					8					8					8				
					8					8					8				
					8					8					8				
					8					8					8				
					8					8					8				
					8					8					8				
					8					8					8				
					8					8					8				
					8					8					8				
					8					8					8				
					8					8					8				
					8					8					8				
					8					8					8				
					8					8					8				
					8					8					8				
					8					8					8				
					8					8					8				
					8					8					8				
					8					8					8				
					8					8					8				
					8					8					8				
					8					8					8				
					8					8					8				
					8					8					8				
					8					8					8				
					8					8					8				
					8					8					8				
					8					8					8				
					8					8					8				
					8					8					8				
					8					8					8				
					8					8					8				
					8					8					8				
					8					8					8				
					8					8					8				
					8					8					8				
					8					8					8				
					8					8					8				
					8					8					8				
					8					8					8				
					8					8					8				
					8					8					8				
					8					8					8				
					8					8					8				
					8					8					8				
					8					8					8				
					8					8					8				
					8					8					8				
					8					8					8				
					8					8					8				
					8					8					8				
					8					8					8				
					8			</											

RETURN AIR #									
AIR VOLUME	1	2	3	4	5	6	7	8	BR
PLENUM PRESSURE	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15
ACTUAL DUCT LGH.	54	50	53	52	58	35	23	30	17
EQUIVALENT LENGTH	215	205	245	165	175	200	185	190	1
TOTAL EFFECTIVE LH	269	255	298	217	233	235	208	220	1
ADJUSTED PRESSURE	0.06	0.06	0.05	0.07	0.06	0.06	0.07	0.07	0.09
ROUND DUCT SIZE	7	6	6	6	7	7.5	7.5	7.5	14.80
INLET GRILL SIZE	X	X	X	X	X	X	X	X	0
INLET GRILL SIZE	14	14	14	14	14	14	14	14	0

TYPE: 4505
SITE NAME: CENTREFIELD (WEST GORMLEY)

LO # 91155
OPT GROUND 5 BED 4 BATH

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>4</u> @ 10.6 cfm	<u>42.4</u> cfm
Kitchen & Bathrooms	<u>6</u> @ 10.6 cfm	<u>63.6</u> cfm
Other Rooms	<u>5</u> @ 10.6 cfm	<u>53.0</u> cfm
Table 9.32.3.A.	TOTAL	<u>201.4</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>95.4</u> cfm

SUPPLEMENTAL VENTILATION CAPACITY		9.32.3.5.
Total Ventilation Capacity	<u>201.4</u>	cfm
Less Principal Ventil. Capacity	<u>95.4</u>	cfm
Required Supplemental Capacity	<u>106.0</u>	cfm

PRINCIPAL EXHAUST FAN CAPACITY			
Model: VANEE 65H	Location: BSMT		
<u>95.4</u> cfm	☒ HVI Approved		
PRINCIPAL EXHAUST HEAT LOSS CALCULATION			
CFM	ΔT °F	FACTOR	% LOSS
95.4 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-4/5	BY INSTALLING CONTRACTOR	50	☒	3.5
W/R	BY INSTALLING CONTRACTOR	50	☒	3.5

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:	<i>Michael O'Rourke</i>
HRAI #	001820
Date:	June-21

CSA F280-12 Residential Heat Loss and Heat Gain Calculations																																																											
Formula Sheet (For Air Leakage / Ventilation Calculation)																																																											
LO#: 91155	Model: 4505	Builder: ROYAL PINE HOMES	Date: 2021-06-04																																																								
Volume Calculation		Air Change & Delta T Data																																																									
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>House Volume</th> <th>Floor Area (ft²)</th> <th>Floor Height (ft)</th> <th>Volume (ft³)</th> </tr> <tr> <td>Level</td> <td>1434</td> <td>9</td> <td>12906</td> </tr> <tr> <td>Bsmt</td> <td>1434</td> <td>10</td> <td>14483.4</td> </tr> <tr> <td>First</td> <td>1861</td> <td>8</td> <td>14888</td> </tr> <tr> <td>Second</td> <td>0</td> <td>9</td> <td>0</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>Total:</td> <td></td> <td></td> <td>42,277.4 ft³</td> </tr> <tr> <td>Total:</td> <td></td> <td></td> <td>1197.2 m³</td> </tr> </table>		House Volume	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)	Level	1434	9	12906	Bsmt	1434	10	14483.4	First	1861	8	14888	Second	0	9	0	Third	0	9	0	Fourth	0	9	0	Total:			42,277.4 ft³	Total:			1197.2 m³	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th colspan="4">Design Temperature Difference</th> </tr> <tr> <th></th> <th>Tin °C</th> <th>Tout °C</th> <th>ΔT °C</th> </tr> <tr> <td>Winter DTDh</td> <td>22</td> <td>-21</td> <td>43</td> </tr> <tr> <td>Summer DTDc</td> <td>24</td> <td>31</td> <td>7</td> </tr> <tr> <td></td> <td></td> <td></td> <td>13</td> </tr> </table>		Design Temperature Difference					Tin °C	Tout °C	ΔT °C	Winter DTDh	22	-21	43	Summer DTDc	24	31	7				13
House Volume	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)																																																								
Level	1434	9	12906																																																								
Bsmt	1434	10	14483.4																																																								
First	1861	8	14888																																																								
Second	0	9	0																																																								
Third	0	9	0																																																								
Fourth	0	9	0																																																								
Total:			42,277.4 ft³																																																								
Total:			1197.2 m³																																																								
Design Temperature Difference																																																											
	Tin °C	Tout °C	ΔT °C																																																								
Winter DTDh	22	-21	43																																																								
Summer DTDc	24	31	7																																																								
			13																																																								
5.2.3.1 Heat Loss due to Air Leakage		6.2.6 Sensible Gain due to Air Leakage																																																									
$HL_{air-b} = LR_{air-h} \times \frac{V_b}{3.6} \times DTD_h \times 1.2$ 0.219 x 332.55 x 43 °C x 1.2 = 3785 W		$HG_{salb} = LR_{air-c} \times \frac{V_b}{3.6} \times DTD_c \times 1.2$ = 0.068 x 332.55 x 7 °C x 1.2 = 194 W																																																									
5.2.3.2 Heat Loss due to Mechanical Ventilation		6.2.7 Sensible heat Gain due to Ventilation																																																									
$HL_{vair-b} = PVC \times DTD_h \times 1.08 \times (1 - E)$ 95 CFM x 78 °F x 1.08 x 0.25 = 2004 Btu/h		$HL_{vair-b} = PVC \times DTD_h \times 1.08 \times (1 - E)$ 95 CFM x 13 °F x 1.08 x 0.25 = 330 Btu/h																																																									
5.2.3.3 Calculation of Air Change Heat Loss for Each Room (Floor Multiplier Section)																																																											
$HL_{airr} = Level Factor \times HL_{airbv} \times \{(HL_{agcr} + HL_{bgcr}) \div (HL_{agclvel} + HL_{bgclvel})\}$ <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>Level</th> <th>Level Factor (LF)</th> <th>HLairbv Air Leakage + Ventilation Heat Loss (Btu/h)</th> <th>Level Conductive Heat Loss: (HL_{devel})</th> <th>Air Leakage Heat Loss Multiplier (LF x HLairbv / HLlevel)</th> </tr> <tr> <td>1</td> <td>0.5</td> <td rowspan="5" style="text-align: center; vertical-align: middle;">12,916</td> <td>9,207</td> <td>0.701</td> </tr> <tr> <td>2</td> <td>0.3</td> <td>12,941</td> <td>0.299</td> </tr> <tr> <td>3</td> <td>0.2</td> <td>13,836</td> <td>0.187</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> </table>				Level	Level Factor (LF)	HLairbv Air Leakage + Ventilation Heat Loss (Btu/h)	Level Conductive Heat Loss: (HL _{devel})	Air Leakage Heat Loss Multiplier (LF x HLairbv / HLlevel)	1	0.5	12,916	9,207	0.701	2	0.3	12,941	0.299	3	0.2	13,836	0.187	4	0	0	0.000	5	0	0	0.000																														
Level	Level Factor (LF)	HLairbv Air Leakage + Ventilation Heat Loss (Btu/h)	Level Conductive Heat Loss: (HL _{devel})	Air Leakage Heat Loss Multiplier (LF x HLairbv / HLlevel)																																																							
1	0.5	12,916	9,207	0.701																																																							
2	0.3		12,941	0.299																																																							
3	0.2		13,836	0.187																																																							
4	0		0	0.000																																																							
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: 4505	OPT GROUND 5 BED 4 BATH	BUILDER: ROYAL PINE HOMES
SFQT: 3289	LO# 91155	SITE: CENTREFIELD (WEST GORMLEY)

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

BUILDING DATA

ATTACHMENT:	DETACHED	# OF STORIES (+BASEMENT):	3
FRONT FACES:	EAST	ASSUMED (Y/N):	Y
AIR CHANGES PER HOUR:	2.50	ASSUMED (Y/N):	Y
AIR TIGHTNESS CATEGORY:	TIGHT	ASSUMED (Y/N):	Y
WIND EXPOSURE:	SHELTERED	ASSUMED (Y/N):	Y
HOUSE VOLUME (ft³):	42277.4	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	6
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: 38.0 ft	WIDTH: 56.0 ft	EXPOSED PERIMETER:	188.0 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	0.96	-
HRV Minimum Efficiency	75%	-
Domestic Hot Water Heater Minimum EF	TE=94%	-

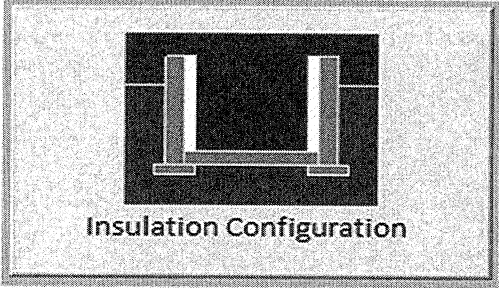
INDIVIDUAL BCIN: 19669

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):	11.6	 Insulation Configuration
Floor Width (m):	17.1	
Exposed Perimeter (m):	0.0	
Wall Height (m):	2.7	
Depth Below Grade (m):	1.83	
Window Area (m ²):	1.2	
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):		1855

TYPE: 4505
LO# 91155

OPT GROUND 5 BED 4 BATH

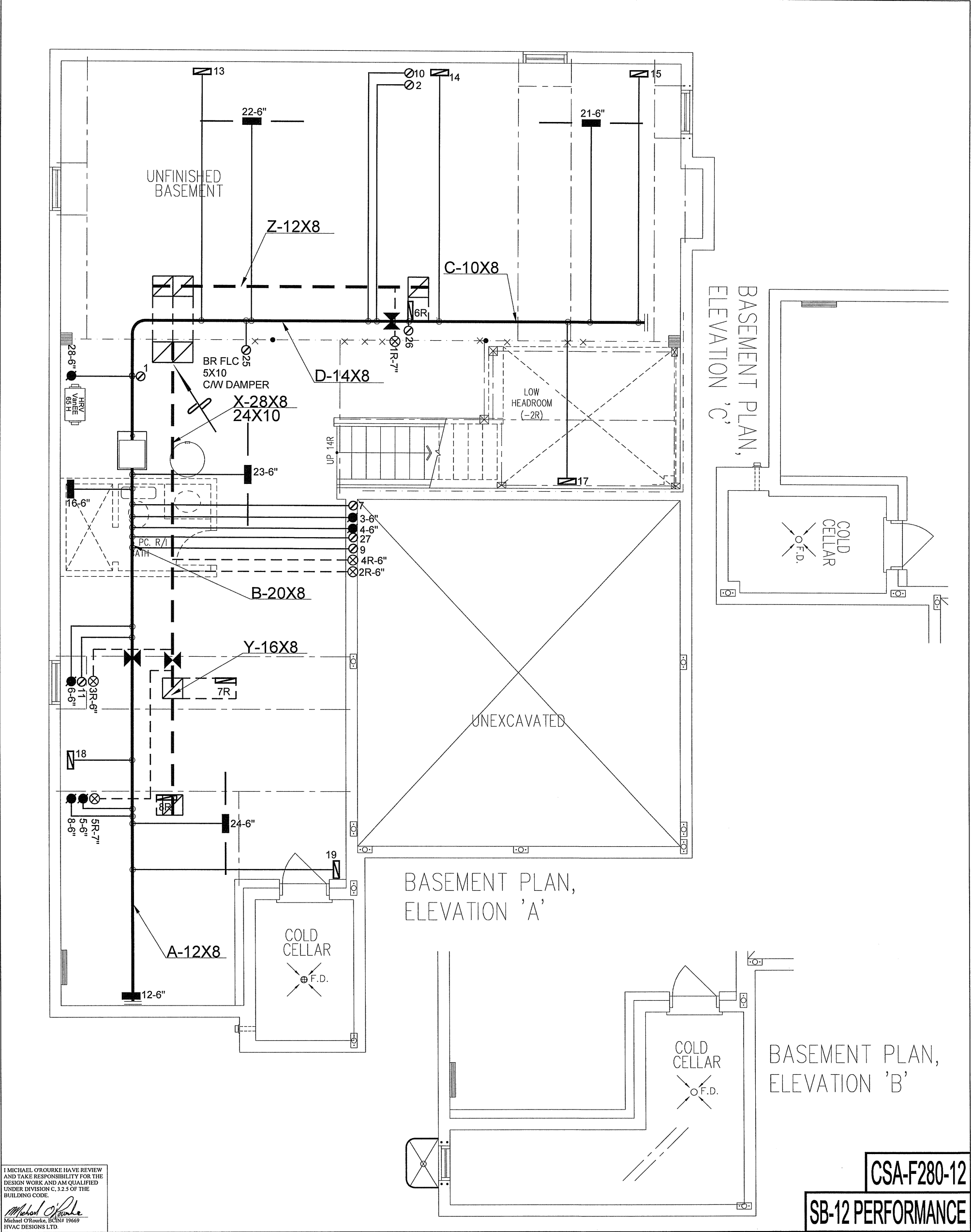
Air Infiltration Residential Load Calculator

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):	6.43			
Building Configuration				
Type:	Detached			
Number of Stories:	Two			
Foundation:	Full			
House Volume (m ³):	1197.2			
Air Leakage/Ventilation				
Air Tightness Type:	Energy Star Detached (2.5 ACH)			
Custom BDT Data:	ELA @ 10 Pa.	1117.5 cm ²		
	2.50	ACH @ 50 Pa		
Mechanical Ventilation (L/s):	Total Supply	Total Exhaust		
	45.0	45.0		
Flue Size				
Flue #:	#1	#2	#3	#4
Diameter (mm):	0	0	0	0
Natural Infiltration Rates				
Heating Air Leakage Rate (ACH/H):	0.219			
Cooling Air Leakage Rate (ACH/H):	0.068			

TYPE: 4505
LO# 91155

OPT GROUND 5 BED 4 BATH



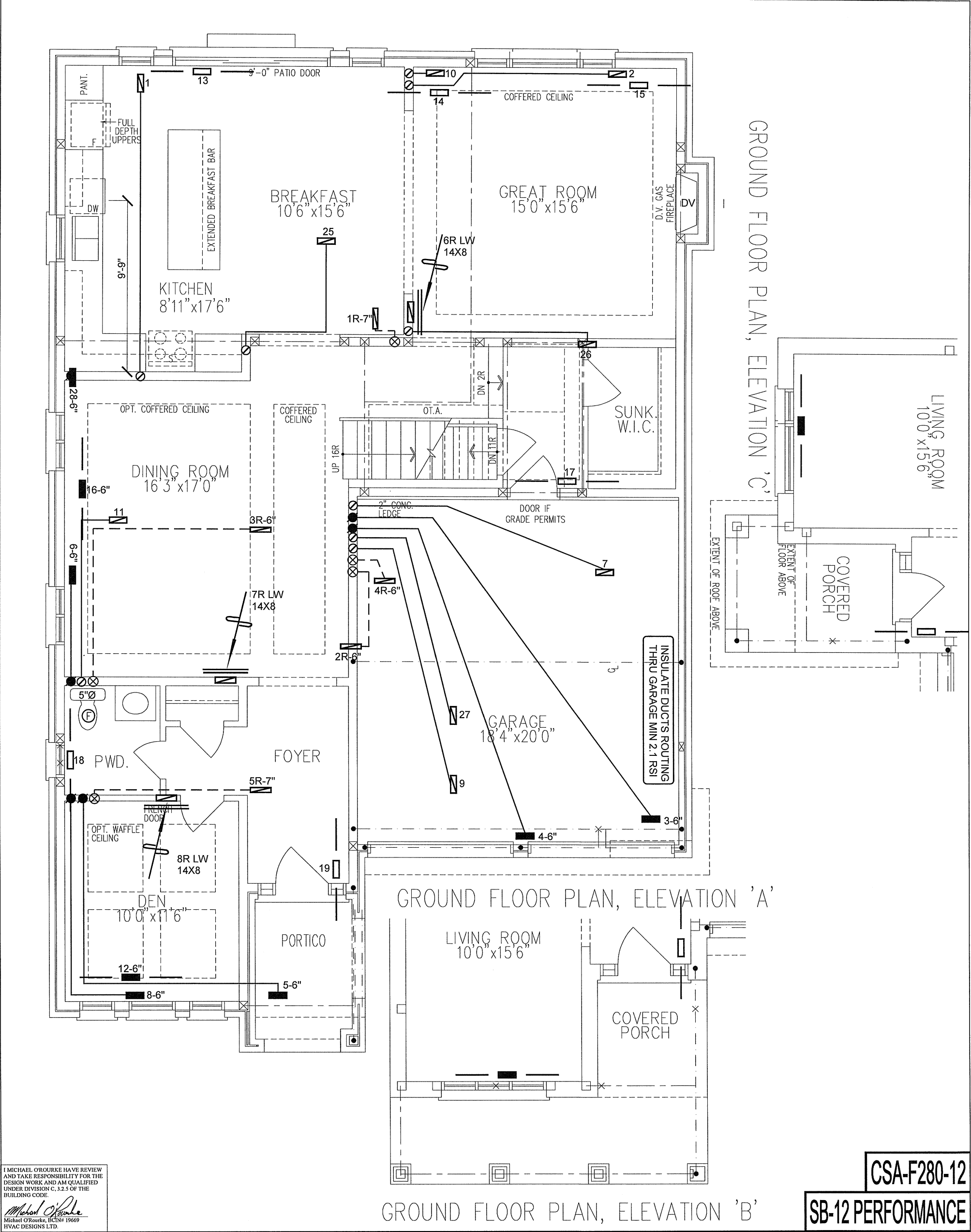
I MICHAEL O'ROURKE HAVE REVIEW AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED UNDER DIVISION C, 3.2.5 OF THE BUILDING CODE.

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

HVAC LEGEND						3.	
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		14"x8" RETURN AIR GRILLE		RETURN AIR STACK ABOVE
	SUPPLY AIR GRILLE 6" BOOT		SUPPLY AIR STACK FROM 2nd FLOOR		30"x8" RETURN AIR GRILLE		RETURN AIR STACK 2nd FLOOR
	SUPPLY AIR BOOT ABOVE		6" SUPPLY AIR STACK 2nd FLOOR		FRA- FLOOR RETURN AIR GRILLE		REDUCER
						REVISIONS	
						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		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 51396 BTU/H		# OF RUNS S/A R/A FANS			Sheet Title	
ROYAL PINE HOMES Project Name CENTREFIELD (WEST GORMLEY) RICHMOND HILL, ONTARIO OPT GROUND 5 BED 4 BATH 4505 3289 sqft			UNIT DATA		3RD FLOOR			BASEMENT HEATING LAYOUT Date JUNE/2021 Scale 3/16" = 1'-0" BCIN# 19669 LO# 91155	
			MAKE CARRIER		2ND FLOOR 16 5 5				
			MODEL 59TN6A-060-14V		1ST FLOOR 8 3 2				
			INPUT 60 MBTU/H		BASEMENT 4 1 0				
			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				
		COOLING 3.0 TONS							
		FAN SPEED 1200 cfm @ 0.6" w.c.							



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.

GROUND FLOOR PLAN, ELEVATION 'B'

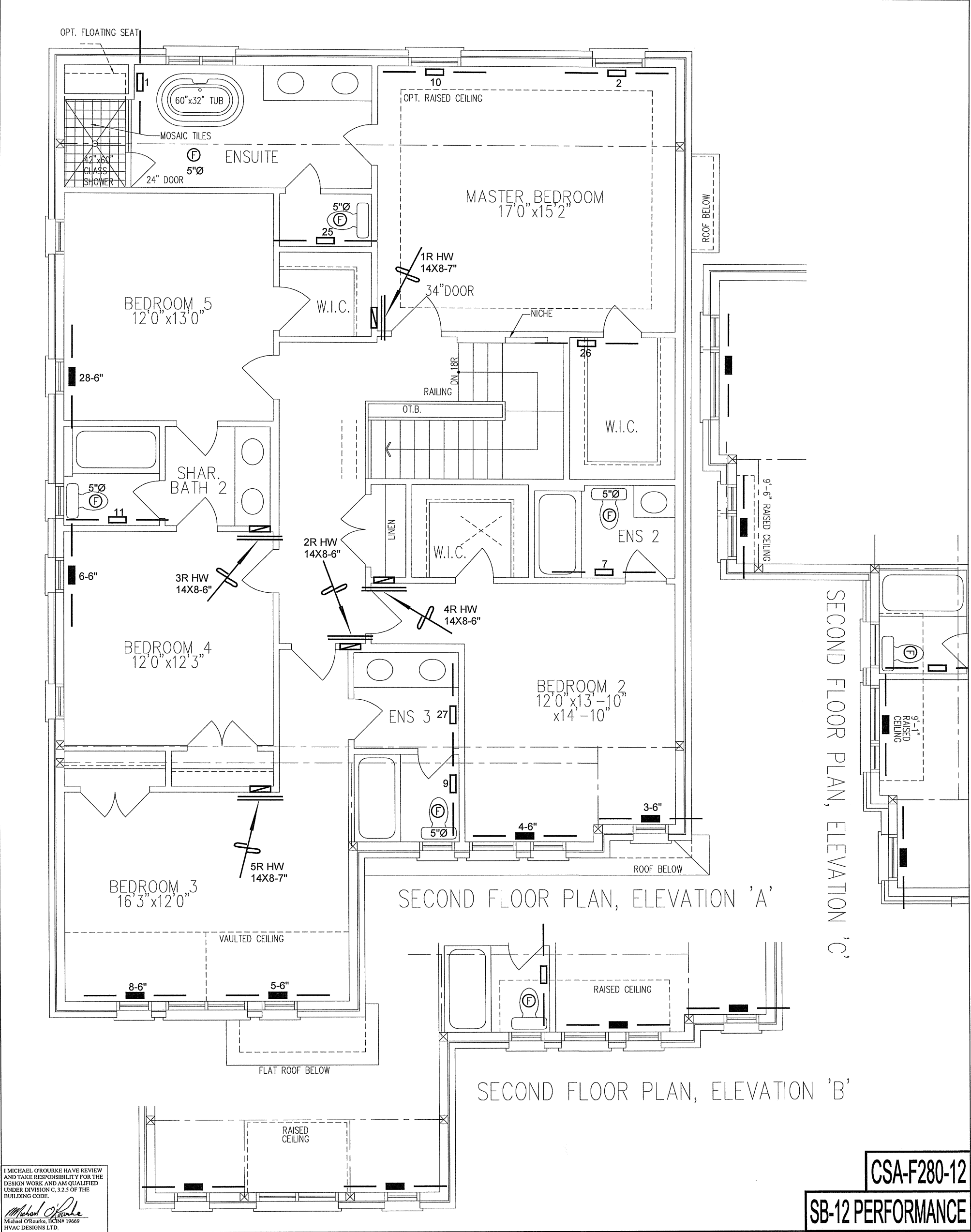
CSA-F280-12

SB-12 PERFORMANCE

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

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 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 CENTREFIELD (WEST GORMLEY) RICHMOND HILL, ONTARIO			Date JUNE/2021	
OPT GROUND 5 BED 4 BATH 4505 3289 sqft			Scale 3/16" = 1'-0"	
			BCIN# 19669	
			LO# 91155	



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

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

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	Sheet Title	
ROYAL PINE HOMES			SECOND FLOOR HEATING LAYOUT	
Project Name		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.	Date	JUNE/2021
CENTREFIELD (WEST GORMLEY) RICHMOND HILL, ONTARIO			Scale	3/16" = 1'-0"
OPT GROUND 5 BED 4 BATH 4505 3289 sqft			BCIN# 19669	
			LO#	91155