

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: 2505 OPT 2ND Project: SUMMER RIDGE ESTATES INC.	
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.			
April 25, 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

SITE NAME: SUMMER RIDGE ESTATES INC.				OPT 2ND				DATE: Apr-22				WINTER NATURAL AIR CHANGE RATE 0.273				HEAT LOSS ΔT °F. 74				CSA-F280-12							
BUILDER: ROYAL PINE HOMES				TYPE: 2505				GFA: 2384				LO# 95324				SUMMER NATURAL AIR CHANGE RATE 0.089				HEAT GAIN ΔT °F. 11				SB-12 PERFORMANCE			
ROOM USE				MBR		ENS		BED-2		BED-3		BED-4		BATH													
EXP. WALL				32		20		20		34		28		6													
CLG. HT.				9		9		9		10		9		9													
FACTORS																											
GRS.WALL AREA		LOSS GAIN		288		180		180		340		252		54													
GLAZING				LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN													
NORTH		20.8	15.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
EAST		20.8	41.0	0	0	0	0	0	0	46	956	1888	35	727	1437	0	0	0	0	0	0	0					
SOUTH		20.8	24.4	0	0	0	26	540	634	46	956	1122	0	0	0	0	0	0	0	0	0	0					
WEST		20.8	41.0	26	540	1067	12	249	493	0	0	0	0	0	0	0	0	0	0	0	0	0					
SKYLT.		34.1	100.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
DOORS		19.6	2.9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
NET EXPOSED WALL		3.5	0.5	262	908	135	142	492	73	134	465	69	248	860	127	217	752	112	54	187	28						
NET EXPOSED BSMT WALL ABOVE GR		3.5	0.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
EXPOSED CLG		1.3	0.6	343	430	191	118	148	66	155	194	86	205	257	114	202	253	113	92	115	51						
NO ATTIC EXPOSED CLG		2.7	1.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
EXPOSED FLOOR		2.5	0.4	0	0	0	0	0	0	0	0	0	175	436	65	75	187	28									
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				1878		1430		1615		3028		2168		489													
SUB TOTAL HT GAIN				1393		1266		1277		3252		1725		107													
LEVEL FACTOR / MULTIPLIER		0.20	0.21			0.20	0.21			0.20	0.21			0.20	0.21												
AIR CHANGE HEAT LOSS				389		296		335		628		449		101													
AIR CHANGE HEAT GAIN				59		54		54		138		73		5													
DUCT LOSS				0		0		0		0		262		59													
DUCT GAIN				0		0		0		0		243		50													
HEAT GAIN PEOPLE		240	2	480		0		1		240	1	240	1	240	0												
HEAT GAIN APPLIANCES/LIGHTS				387		387		387		387		387		387													
TOTAL HT LOSS BTU/H				2268		1726		1949		3656		2880		650													
TOTAL HT GAIN x 1.3 BTU/H				3016		2219		2547		5223		3469		713													

ROOM USE			FAM		KT/BR		LV/DN		ENS-2		W/R		FOY		MUD						BAS		
EXP. WALL			30		36		46		10		6		14		11						156		
CLG. HT.			10		10		10		9		10		10		11						9		
FACTORS																							
GRS.WALL AREA	LOSS	GAIN	300		360		460		90		60		140		121						936		
GLAZING			LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN					LOSS	GAIN	
NORTH	20.8	15.5	0	0	0	0	0	0	0	0	0	0	0	0	0	8	166	124			0	0	0
EAST	20.8	41.0	0	0	0	0	0	46	956	1888	0	0	0	0	0	0	0	0			0	0	0
SOUTH	20.8	24.4	0	0	0	57	1184	1391	46	956	1122	16	332	390	0	0	0	0			6	125	146
WEST	20.8	41.0	38	789	1560	47	976	1929	0	0	0	0	0	0	0	0	0	0			3	62	123
SKYLT.	34.1	100.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			0	0	0
DOORS	19.6	2.9	0	0	0	0	0	0	0	0	0	0	0	0	40	783	116	20	392	58	20	392	58
NET EXPOSED WALL	3.5	0.5	262	908	135	256	888	132	368	1276	189	74	257	38	60	208	31	100	347	51	93	322	48
NET EXPOSED BSMT WALL ABOVE GR	3.5	0.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	468	1644	244
EXPOSED CLG	1.3	0.6	0	0	0	0	0	0	0	0	90	113	50	0	0	0	0	0	0	0	0	0	0
NO ATTIC EXPOSED CLG	2.7	1.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EXPOSED FLOOR	2.5	0.4	0	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						5332		
SLAB ON GRADE HEAT LOSS			0		0		0		0		0		0		0								
SUBTOTAL HT LOSS			1698		3048		3187		702		208		1130		880						7555		
SUB TOTAL HT GAIN			1694		3451		3200		479		31		167		230						571		
LEVEL FACTOR / MULTIPLIER	0.30	0.35	0.30	0.35	0.30	0.35	0.30	0.35	0.20	0.21	0.30	0.35	0.30	0.35	0.30	0.35	0.50	0.78					
AIR CHANGE HEAT LOSS			588		1056		1104		145		72		391		305						5860		
AIR CHANGE HEAT GAIN			72		147		136		20		1		7		10						24		
DUCT LOSS			0		0		0		0		0		0		0						0		
DUCT GAIN			0		0		0		0		0		0		0						0		
HEAT GAIN PEOPLE	240		0		0		0		0		0		0		0						0		
HEAT GAIN APPLIANCES/LIGHTS			387		387		387		0		387		387		387						387		
TOTAL HT LOSS BTU/H			2286		4104		4291		847		280		1521		1185						13415		
TOTAL HT GAIN x 1.3 BTU/H			2800		5181		4840		648		546		731		815						1279		

SITE NAME: SUMMER RIDGE ESTATES INC.
BUILDER: ROYAL PINE HOMES

OPT 2ND
TYPE: 2505

DATE: Apr-22

GFA: 2384 LO# 95324

HEATING CFM 1145 COOLING CFM 1145
TOTAL HEAT LOSS 41,057 TOTAL HEAT GAIN 34,026
AIR FLOW RATE CFM 27.89 AIR FLOW RATE CFM 33.65

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

#*CARRIER

AFUE = 97 %

59SP5A-60-14

INPUT (BTU/H) = 60,000

FAN SPEED

OUTPUT (BTU/H) = 58,000

LOW 0

DESIGN CFM = 1145

MEDLOW 785

CFM @ .6" E.S.P.

MEDIUM 960

MEDIUM HIGH 1145

HIGH 1440

TEMPERATURE RISE 47 °F

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	10	9	4
R/A	0	0	5	2	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	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
ROOM NAME	MBR	ENS	BED-3	BED-2	BED-3	BED-4	BATH	BED-4	MBR	LV/DN	FAM	FAM	KT/BR	KT/BR	LV/DN	ENS-2	W/R	FOY	MUD	BAS	BAS	BAS	BAS
RM LOSS MBH.	1.13	1.73	1.83	1.95	1.83	1.44	0.65	1.44	1.13	2.15	1.14	1.14	2.05	2.05	2.15	0.85	0.28	1.52	1.19	3.35	3.35	3.35	3.35
CFM PER RUN HEAT	32	48	51	54	51	40	18	40	32	60	32	32	57	57	60	24	8	42	33	94	94	94	94
RM GAIN MBH.	1.51	2.22	2.61	2.55	2.61	1.73	0.71	1.73	1.51	2.42	1.40	1.40	2.59	2.59	2.42	0.65	0.55	0.73	0.81	0.32	0.32	0.32	0.32
CFM PER RUN COOLING	51	75	88	86	88	58	24	58	51	81	47	47	87	87	81	22	18	25	27	11	11	11	11
ADJUSTED PRESSURE	0.17	0.17	0.16	0.16	0.16	0.17	0.17	0.17	0.17	0.16	0.17	0.17	0.16	0.16	0.16	0.17	0.17	0.17	0.17	0.16	0.16	0.16	0.16
ACTUAL DUCT LGH.	37	42	59	43	59	54	36	50	42	54	23	13	30	33	50	54	14	34	21	27	11	23	47
EQUIVALENT LENGTH	160	210	200	180	220	140	130	120	150	110	120	100	130	130	110	180	180	180	120	140	130	140	120
TOTAL EFFECTIVE LENGTH	197	252	259	223	279	194	166	170	192	164	143	113	160	163	160	234	194	214	141	167	141	163	167
ADJUSTED PRESSURE	0.09	0.07	0.06	0.07	0.06	0.09	0.1	0.1	0.09	0.1	0.12	0.15	0.1	0.1	0.1	0.07	0.09	0.08	0.12	0.1	0.11	0.1	0.1
ROUND DUCT SIZE	5	6	6	6	6	5	4	5	5	6	4	4	6	6	6	4	4	4	4	6	6	6	6
HEATING VELOCITY (ft/min)	235	245	260	275	260	294	207	294	235	306	367	367	291	291	306	275	92	482	379	479	479	479	479
COOLING VELOCITY (ft/min)	374	382	449	438	449	426	275	426	374	413	539	539	444	444	413	252	207	287	310	56	56	56	56
OUTLET GRILL SIZE	3X10	4X10	4X10	4X10	4X10	3X10	3X10	3X10	3X10	4X10	3X10	3X10	4X10	4X10	4X10	3X10	3X10	3X10	3X10	4X10	4X10	4X10	4X10
TRUNK	A	C	B	C	B	C	C	C	A	B	A	A	A	A	B	B	C	B	C	A	A	C	B

RUN #	
ROOM NAME	
RM LOSS MBH.	
CFM PER RUN HEAT	
RM GAIN MBH.	
CFM PER RUN COOLING	
ADJUSTED PRESSURE	
ACTUAL DUCT LGH.	
EQUIVALENT LENGTH	
TOTAL EFFECTIVE LENGTH	
ADJUSTED PRESSURE	
ROUND DUCT SIZE	
HEATING VELOCITY (ft/min)	
COOLING VELOCITY (ft/min)	
OUTLET GRILL SIZE	
TRUNK	

SUPPLY AIR TRUNK SIZE										RETURN AIR TRUNK SIZE									
TRUNK	STATIC	ROUND	RECT	VELOCITY						TRUNK	STATIC	ROUND	RECT	VELOCITY					
CFM	PRESS.	DUCT	DUCT	(ft/min)						CFM	PRESS.	DUCT	DUCT	(ft/min)					
TRUNK A	430	0.09	9.9	12	x	8	645			TRUNK G	0	0.00	0	0	x	8	0		
TRUNK B	382	0.06	10.5	14	x	8	491			TRUNK H	0	0.00	0	0	x	8	0		
TRUNK C	717	0.06	13.3	20	x	8	645			TRUNK I	0	0.00	0	0	x	8	0		
TRUNK D	0	0.00	0	0	x	8	0			TRUNK J	0	0.00	0	0	x	8	0		
TRUNK E	0	0.00	0	0	x	8	0			TRUNK K	0	0.00	0	0	x	8	0		
TRUNK F	0	0.00	0	0	x	8	0			TRUNK L	0	0.00	0	0	x	8	0		

RETURN AIR #	1	2	3	4	5	6	7	BR											
AIR VOLUME	85	115	115	75	115	310	155	0	0	0	0	0	0	0	0	0	0	175	
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	0.15	0.15	
ACTUAL DUCT LGH.	55	68	58	63	53	19	47	1	1	1	1	1	1	1	1	1	1	14	
EQUIVALENT LENGTH	215	225	255	260	205	135	210	0	0	0	0	0	0	0	0	0	0	135	
TOTAL EFFECTIVE LH	270	293	313	323	258	154	257	1	1	1	1	1	1	1	1	1	1	149	
ADJUSTED PRESSURE	0.05	0.05	0.05	0.05	0.06	0.10	0.06	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	0.10		
ROUND DUCT SIZE	6.3	7	7	6	6.7	8.6	7.5	0	0	0	0	0	0	0	0	0	6.9		
INLET GRILL SIZE	8	8	8	8	8	8	8	0	0	0	0	0	0	0	0	0	8		
	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
INLET GRILL SIZE	14	14	14	14	14	30	14	0	0	0	0	0	0	0	0	0	14		

TYPE: 2505
SITE NAME: SUMMER RIDGE ESTATES INC.

LO # 95324
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	<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>4</u> @ 10.6 cfm	<u>42.4</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		<u>79.5</u> 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 V150H	Location: BSMT
<u>79.5</u> cfm	☒ 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		BY INSTALLING CONTRACTOR		
Location	Model	cfm	HVI	Sones
ENS	BY INSTALLING CONTRACTOR	50	☒	3.5
BATH	BY INSTALLING CONTRACTOR	50	☒	3.5
W/R	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:	April-22

I REVIEW AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED IN THE APPROPRIATE CATEGORY AS AN "OTHER DESIGNER" UNDER DIVISION C, 3.2.5 OF THE BUILDING CODE.

INDIVIDUAL BCIN: 19669

MICHAEL O'ROURKE

Michael O'Rourke

CSA F280-12 Residential Heat Loss and Heat Gain Calculations																																																												
Formula Sheet (For Air Leakage / Ventilation Calculation)																																																												
LO#: 95324	Model: 2505	Builder: ROYAL PINE HOMES SUMMER RIDGE ESTATES INC.	Date: 2022-04-25																																																									
Volume Calculation			Air Change & Delta T Data																																																									
House Volume <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th>Level</th> <th>Floor Area (ft²)</th> <th>Floor Height (ft)</th> <th>Volume (ft³)</th> </tr> </thead> <tbody> <tr><td>Bsmt</td><td>1090</td><td>9</td><td>9810</td></tr> <tr><td>First</td><td>1090</td><td>10</td><td>10900</td></tr> <tr><td>Second</td><td>1294</td><td>9</td><td>11646</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="3" style="text-align: right;">Total:</td><td>32,356.0 ft³</td></tr> <tr><td colspan="3" style="text-align: right;">Total:</td><td>916.2 m³</td></tr> </tbody> </table>			Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)	Bsmt	1090	9	9810	First	1090	10	10900	Second	1294	9	11646	Third	0	9	0	Fourth	0	9	0	Total:			32,356.0 ft³	Total:			916.2 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%;">0.273</td> </tr> <tr> <td>SUMMER NATURAL AIR CHANGE RATE</td> <td>0.089</td> </tr> </table> <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <th colspan="5" style="text-align: center;">Design Temperature Difference</th> </tr> <tr> <th></th> <th>Tin °C</th> <th>Tout °C</th> <th>ΔT °C</th> <th>ΔT °F</th> </tr> <tr> <td>Winter DTDh</td> <td>22</td> <td>-19</td> <td>41</td> <td>74</td> </tr> <tr> <td>Summer DTDc</td> <td>24</td> <td>30</td> <td>6</td> <td>11</td> </tr> </table>		WINTER NATURAL AIR CHANGE RATE	0.273	SUMMER NATURAL AIR CHANGE RATE	0.089	Design Temperature Difference						Tin °C	Tout °C	ΔT °C	ΔT °F	Winter DTDh	22	-19	41	74	Summer DTDc	24	30	6	11
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5.2.3.1 Heat Loss due to Air Leakage			6.2.6 Sensible Gain due to Air Leakage																																																									
$HL_{airb} = LR_{airh} \times \frac{V_b}{3.6} \times DTD_h \times 1.2$ 0.273 x 254.51 x 41 °C x 1.2 = 3435 W = 11719 Btu/h			$HG_{salb} = LR_{airc} \times \frac{V_b}{3.6} \times DTD_c \times 1.2$ = 0.089 x 254.51 x 6 °C x 1.2 = 165 W = 565 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 74 °F x 1.08 x 0.25 = 1593 Btu/h			$HL_{vairb} = PVC \times DTD_h \times 1.08 \times (1 - E)$ 80 CFM x 11 °F x 1.08 x 0.25 = 236 Btu/h																																																									
5.2.3.3 Calculation of Air Change Heat Loss for Each Room (Floor Multiplier Section)																																																												
$HL_{airr} = Level\ Factor \times HL_{airbv} \times \{(HL_{agcr} + HL_{bgcr}) \div (HL_{agclevel} + HL_{bgclevel})\}$																																																												
Level	Level Factor (LF)	HLairve Air Leakage + Ventilation Heat Loss (Btu/h)	Level Conductive Heat Loss: (HL _{clevel})	Air Leakage Heat Loss Multiplier (LF x HLairbv / HL _{clevel})																																																								
1	0.5	11,719	7,555	0.776																																																								
2	0.3		10,152	0.346																																																								
3	0.2		11,310	0.207																																																								
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																																																												
				Michael O'Rourke BCIN# 19669 																																																								

HEAT LOSS AND GAIN SUMMARY SHEET

MODEL: 2505	OPT 2ND	BUILDER: ROYAL PINE HOMES
SFQT: 2384	LO# 95324	SITE: SUMMER RIDGE ESTATES INC.

DESIGN ASSUMPTIONS

HEATING	°F	COOLING	°F
OUTDOOR DESIGN TEMP.	-2	OUTDOOR DESIGN TEMP.	86
INDOOR DESIGN TEMP.	72	INDOOR DESIGN TEMP. (MAX 75°F)	75
		WINDOW SHGC	0.50

BUILDING DATA

ATTACHMENT:	DETACHED	# OF STORIES (+BASEMENT):	3
FRONT FACES:	EAST	ASSUMED (Y/N):	Y
AIR CHANGES PER HOUR:	3.00	ASSUMED (Y/N):	Y
AIR TIGHTNESS CATEGORY:	TIGHT	ASSUMED (Y/N):	Y
WIND EXPOSURE:	SHELTERED	ASSUMED (Y/N):	Y
HOUSE VOLUME (ft ³):	32356.0	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	5
INTERIOR LIGHTING LOAD (Btu/h/ft ²):	1.45	DC BRUSHLESS MOTOR (Y/N):	Y
FOUNDATION CONFIGURATION	BCIN_1	DEPTH BELOW GRADE:	6.0 ft
LENGTH: 51.0 ft	WIDTH: 27.0 ft	EXPOSED PERIMETER:	156.0 ft

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

Ceiling with Attic Space Minimum RSI (R)-Value	60	59.22
Ceiling Without Attic Space Minimum RSI (R)-Value	31	27.65
Exposed Floor Minimum RSI (R)-Value	31	29.80
Walls Above Grade Minimum RSI (R)-Value	22+1.5	21.40
Basement Walls Minimum RSI (R)-Value	20	21.12
Below Grade Slab Entire surface > 600 mm below grade Minimum RSI (R)-Value	-	-
Edge of Below Grade Slab ≤ 600 mm Below Grade Minimum RSI (R)-Value	10	10
Heated Slab or Slab ≤ 600 mm below grade Minimum RSI (R)-Value	10	11.13
Windows and Sliding Glass Doors Maximum U-Value	1.6	-
Skylights Maximum U-Value	2.6	-
Space Heating Equipment Minimum AFUE	96%	-
HRV/ERV Minimum Efficiency	75%	-
Domestic Hot Water Heater Minimum EF	0.9	-

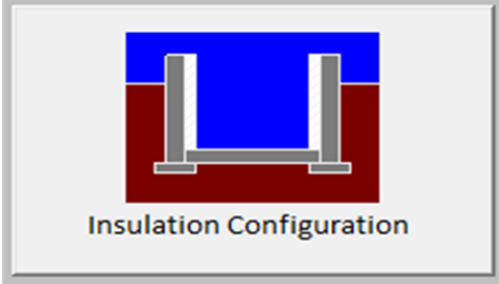
INDIVIDUAL BCIN: 19669

MICHAEL O'ROURKE



Residential Foundation Thermal Load Calculator

Supplemental tool for CAN/CSA-F280

Weather Station Description		
Province:	Ontario	
Region:	Brampton	
Site Description		
Soil Conductivity:	Normal conductivity: dry sand, loam, clay	
Water Table:	Normal (7-10 m, 23-33 ft)	
Foundation Dimensions		
Floor Length (m):	15.5	 Insulation Configuration
Floor Width (m):	8.2	
Exposed Perimeter (m):	0.0	
Wall Height (m):	2.7	
Depth Below Grade (m):	1.83	
Window Area (m ²):	0.8	
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):		1562

TYPE: 2505
LO# 95324

OPT 2ND

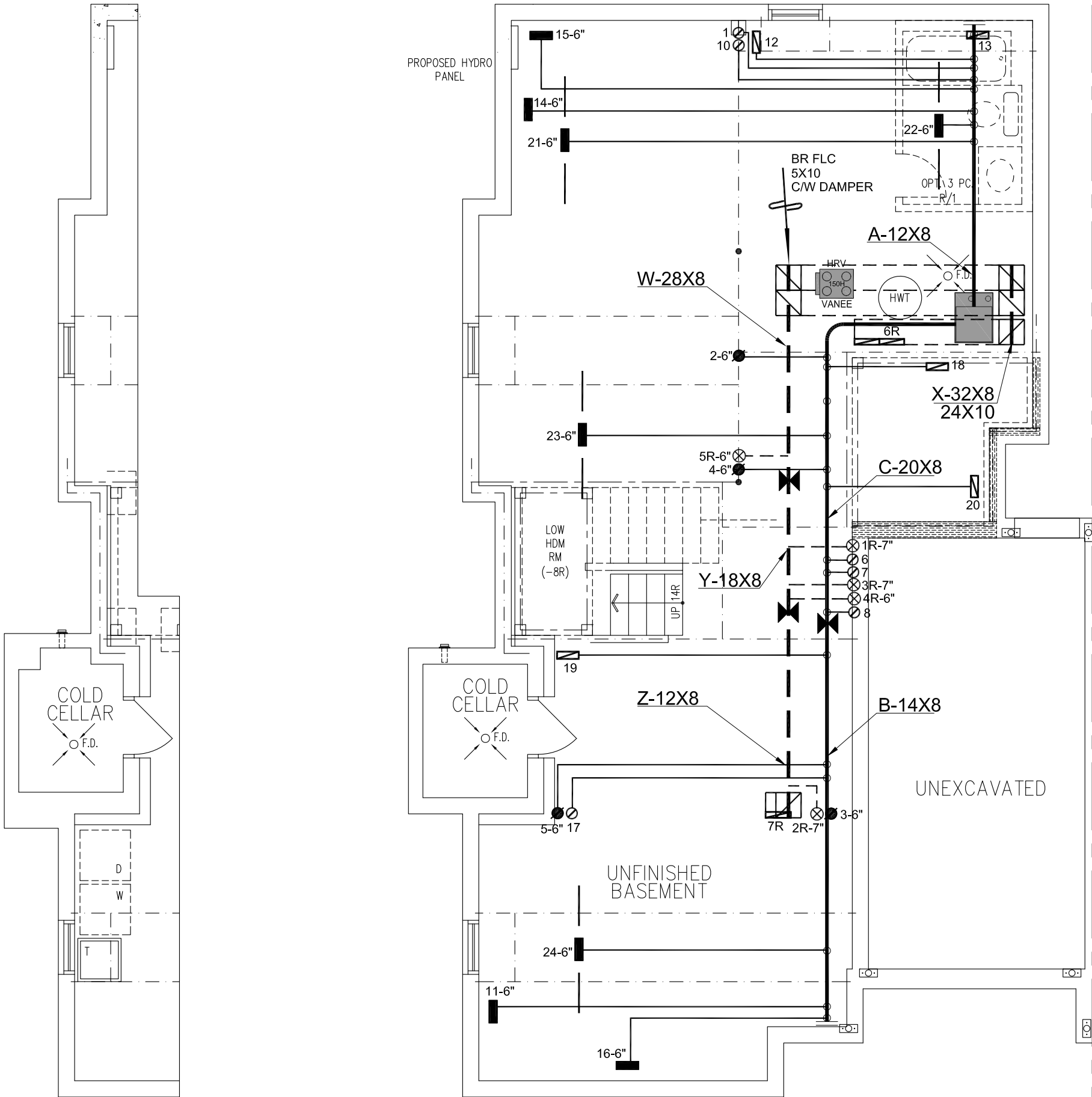
Air Infiltration Residential Load Calculator

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:	Detached			
Number of Stories:	Two			
Foundation:	Full			
House Volume (m ³):	916.2			
Air Leakage/Ventilation				
Air Tightness Type:	Energy Star Attached (3.0 ACH)			
Custom BDT Data:	ELA @ 10 Pa.	1026.3 cm ²		
	3.00	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):	0.273			
Cooling Air Leakage Rate (ACH/H):	0.089			

TYPE: 2505
LO# 95324

OPT 2ND



PARTIAL BASEMENT PLAN, ELEV 'B'

BASEMENT PLAN ELEV '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.

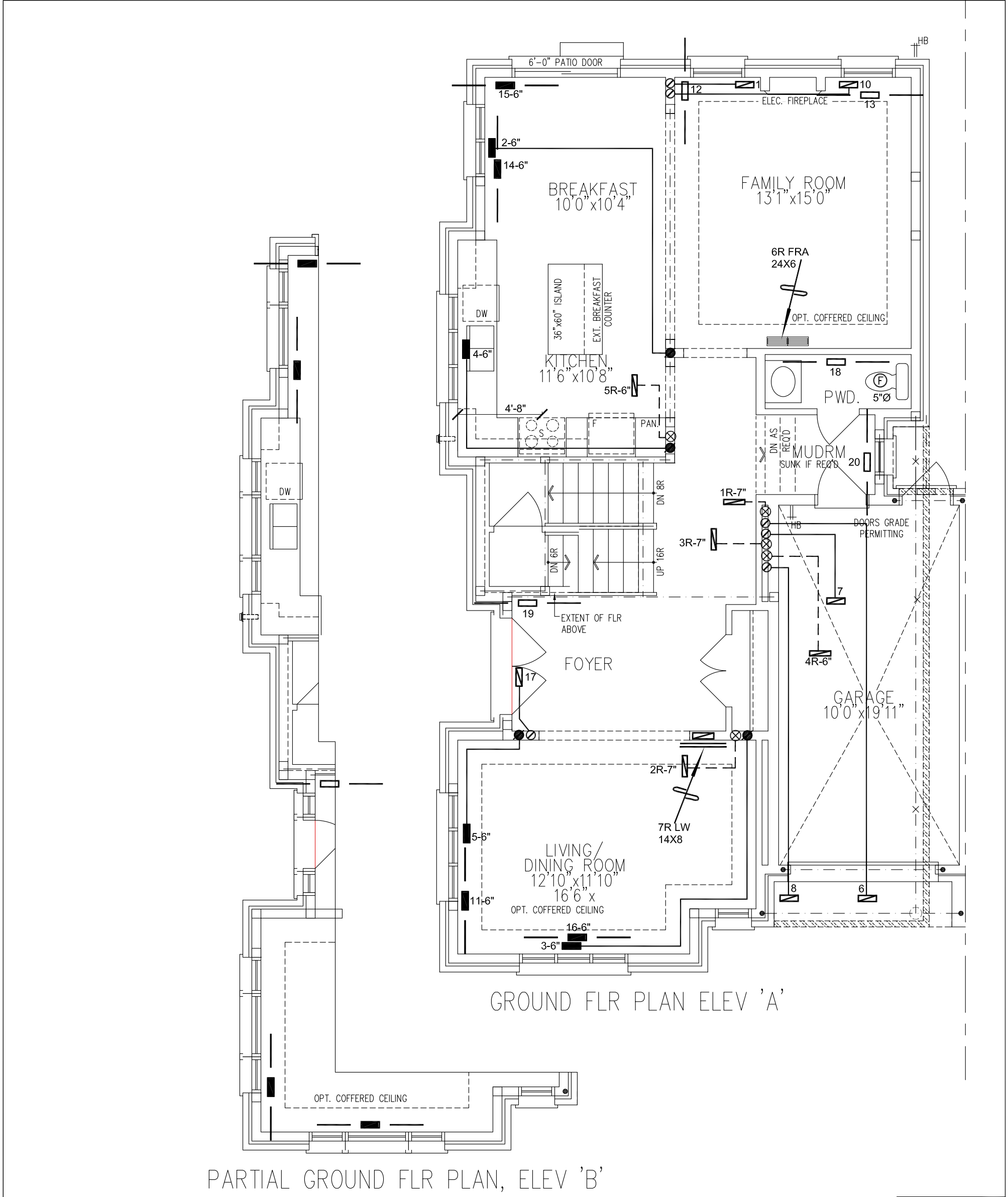
CSA-F280-12

SB-12 PERFORMANCE

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

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Client		 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 42650 BTU/H UNIT DATA		# OF RUNS S/A R/A FANS			Sheet Title	
ROYAL PINE HOMES			MAKE CARRIER		3RD FLOOR			BASEMENT HEATING LAYOUT	
Project Name SUMMER RIDGE ESTATES INC. BRAMPTON, ONTARIO			MODEL 59SP5A-60-14		2ND FLOOR	10	5	3	
			INPUT 60	MBTU/H	1ST FLOOR	9	2	2	Date MAR/2022
			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	
2505 - OPT 2ND 2384 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.		FAN SPEED 1145	cfm @ 0.6" w.c.	LO# 95324			



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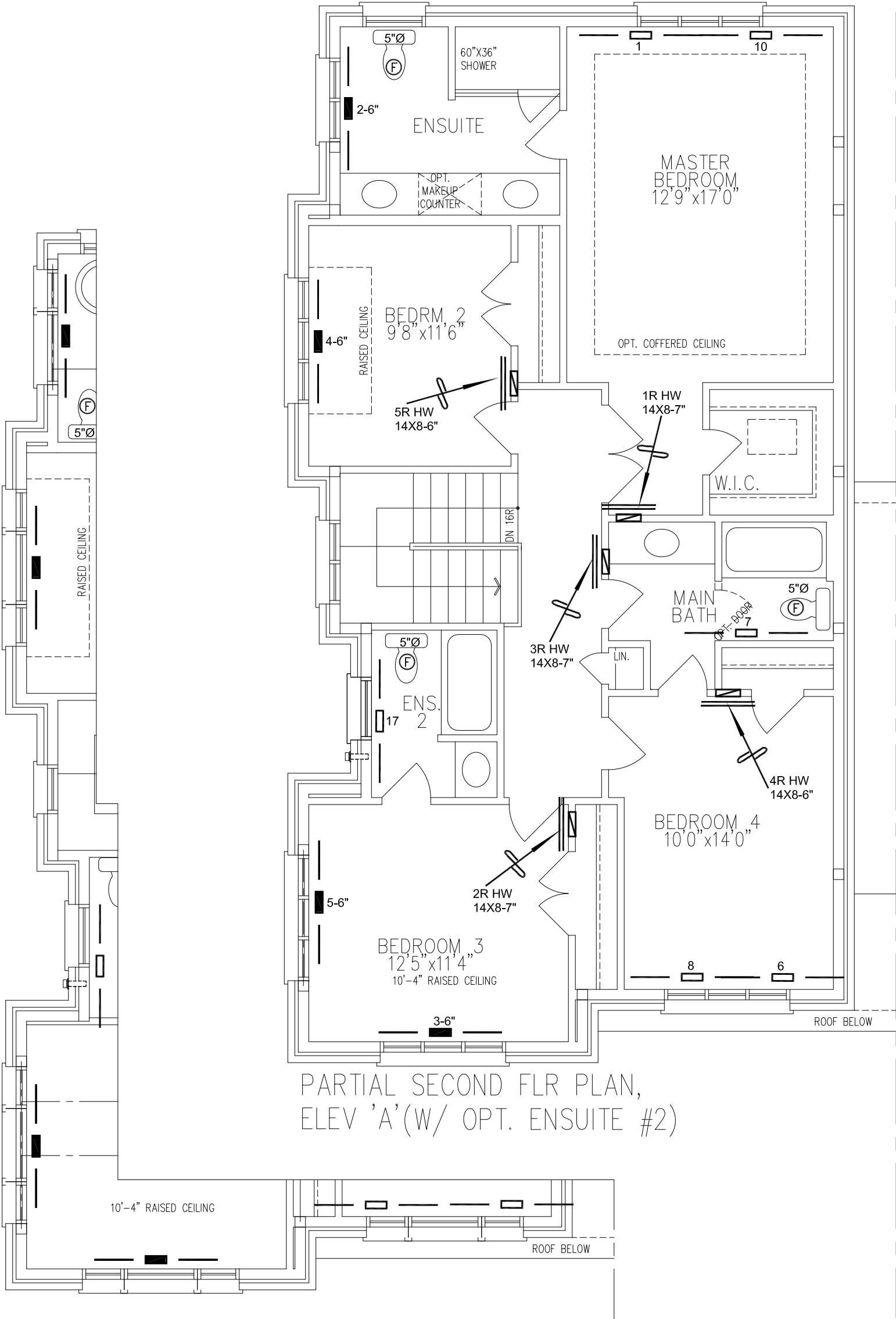
CSA-F280-12

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 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	
ROYAL PINE HOMES			FIRST FLOOR HEATING LAYOUT	
Project Name			Date	MAR/2022
SUMMER RIDGE ESTATES INC. BRAMPTON, ONTARIO			Scale	3/16" = 1'-0"
2505 - OPT 2ND 2384 sqft			BCIN# 19669	
			LO#	95324



PARTIAL SECOND FLR PLAN,
ELEV 'A'(W/ OPT. ENSUITE #2)

PARTIAL SECOND FLOOR PLAN ELEV 'B'

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HVAC DESIGNS LTD.

CSA-F280-12

SB-12 PERFORMANCE

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ROYAL PINE HOMES			SECOND FLOOR HEATING LAYOUT	
Project Name			Date	MAR/2022
SUMMER RIDGE ESTATES INC. BRAMPTON, ONTARIO			Scale	3/16" = 1'-0"
2505 - OPT 2ND 2384 sqft			BCIN# 19669	
			LO#	95324