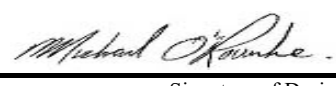


Schedule 1: Designer Information

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: 40-3 OPT 5 BED Project: VALES OF HUMBER	
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.			
March 21, 2022		 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.

Application for a Permit Construct or Demolish – Effective January 1, 2015

SITE NAME: VALES OF HUMBER				OPT 5 BED				DATE: Mar-22				WINTER NATURAL AIR CHANGE RATE 0.248				HEAT LOSS ΔT °F. 74				CSA-F280-12													
BUILDER: ROYAL PINE HOMES				TYPE: 40-3				GFA: 3223				LO# 92070				SUMMER NATURAL AIR CHANGE RATE 0.081				HEAT GAIN ΔT °F. 11				SB-12 PERFORMANCE									
ROOM USE				MBR		ENS		WIC		BED-2		BED-4		BED-5		ENS-2/3		BED-3				ENS-4/5		LAND									
EXP. WALL				31		16		20		13		30		37		7		11				12		12									
CLG. HT.				9		9		9		9		9		9		9		9				11		12									
FACTORS																																	
GRS.WALL AREA		LOSS GAIN		279		144		180		117		270		333		63		99				132		144									
GLAZING				LOSS GAIN		LOSS GAIN		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	18	374	278	0	0	0	7	145	108	18	374	278	0	0	0	0	0	0					
EAST		20.8	41.0	0	0	0	0	0	0	0	0	0	44	914	1806	36	748	1478	0	0	0	0	0	0	0	0	0	0					
SOUTH		20.8	24.4	9	187	220	18	374	439	0	0	0	0	0	0	9	187	220	0	0	0	0	0	0	0	11	229	268					
WEST		20.8	41.0	36	748	1478	0	0	0	9	187	369	0	0	0	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	0	0	0	0	0	0					
DOORS		24.7	3.7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	247	37						
NET EXPOSED WALL		3.5	0.5	234	811	120	126	437	65	171	593	88	99	343	51	226	784	116	288	999	148	56	194	29	81	281	42	116	402	60	123	426	63
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	0	0	0	0	0	0	0	0	0	0		
EXPOSED CLG		1.3	0.6	314	393	175	208	261	116	84	105	47	182	228	101	224	281	125	262	328	146	98	123	55	187	234	104	70	88	39	0	0	0
NO ATTIC EXPOSED CLG		2.7	1.2	0	0	0	0	0	0	0	0	0	0	0	0	20	54	24	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	224	558	83	0	0	0	0	0	0	0	0	0	0	0	0	70	174	26	0	0	0
BASEMENT/CRAWL HEAT LOSS				0		0		0		0		0		0		0		0		0		0		0		0		0		0		0	
SLAB ON GRADE HEAT LOSS				0		0		0		0		0		0		0		0		0		0		0		0		0		0		0	
SUBTOTAL HT LOSS				2140		1071		885		945		2536		2315		462		889				997		902									
SUB TOTAL HT GAIN				1993		620		504		431		2130		2015		192		424				781		368									
LEVEL FACTOR / MULTIPLIER		0.20	0.23			0.20	0.23			0.20	0.23			0.20	0.23			0.20	0.23			0.20	0.23			0.20	0.23			0.30	0.36		
AIR CHANGE HEAT LOSS				500		250		207		221		593		541		108		208				233		323									
AIR CHANGE HEAT GAIN						112		35		28		24		120		114		11		24		44		21									
DUCT LOSS				0		0		0		0		313		0		0		0		0		123		0									
DUCT GAIN				0		0		0		0		316		0		0		0		0		83		0									
HEAT GAIN PEOPLE		240		2	480	0	0	0	0	1	240	1	240	1	240	0	0	0	1	240	0	0	0	0	0	0	0	0	0	0	0	0	0
HEAT GAIN APPLIANCES/LIGHTS				669		0		0		669		669		669		669		669		669		0		669		0		0		0		0	
TOTAL HT LOSS BTU/H				2640		1322		1092		1166		3442		2857		570		1097				1352		1225									
TOTAL HT GAIN x 1.3 BTU/H				4230		851		692		1773		4517		3949		263		1764				1180		506									

ROOM USE	EXP. WALL	CLG. HT.	LV/DN	KIT	FAM	LAUN	PWD	FOY	MUD	WOD	BAS
			39	51	39	12	8	29	24	43	194
			10	10	10	9	10	11	12	10	10
FACTORS		LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN	
GRS.WALL AREA		390		510		390		108		80	
GLAZING											
NORTH	20.8 15.5	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	11 229 170	0 0 0	7 145 108
EAST	20.8 41.0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	14 291 575	0 0 0	0 0 0	0 0 0
SOUTH	20.8 24.4	42 873 1025	16 332 390	0 0 0	7 145 171	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	10 208 244
WEST	20.8 41.0	0 0 0	57 1184 2340	34 706 1396	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	5 104 205	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 0 0	0 0 0	0 0 0	0 0 0
DOORS	24.7 3.7	0 0 0	15 370 55	0 0 0	0 0 0	0 0 0	0 0 0	30 740 110	30 740 110	0 0 0	20 493 73
NET EXPOSED WALL	3.5 0.5	348 1207 179	422 1463 217	356 1234 183	101 350 52	80 277 41	275 954 141	247 856 127	253 889 132	453 1592 236	
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	0 0 0	0 0 0	0 0 0	
EXPOSED CLG	1.3 0.6	0 0 0	0 0 0	0 0 0	108 135 60	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	
NO ATTIC EXPOSED CLG	2.7 1.2	0 0 0	75 201 90	10 27 12	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	0 0 0	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		2079		3551		1968		631		277	
SUB TOTAL HT GAIN			1203		3091		1591		283		41
LEVEL FACTOR / MULTIPLIER	0.30 0.36			0.30 0.36		0.30 0.36		0.30 0.36		0.30 0.36	
AIR CHANGE HEAT LOSS		745		1273		705		147		99	
AIR CHANGE HEAT GAIN			68		174		90		16		2
DUCT LOSS		0		0		0		0		0	
DUCT GAIN		0		0		0		0		0	
HEAT GAIN PEOPLE	240	0	0	0	0	0	0	0	0	0	0
HEAT GAIN APPLIANCES/LIGHTS			669		669		669		669		669
TOTAL HT LOSS BTU/H		2825		4824		2673		778		377	
TOTAL HT GAIN x 1.3 BTU/H			2522		5115		3054		1258		56

TOTAL HEAT GAIN BTU/H: 35078 TONS: 2.92 LOSS DUE TO VENTILATION LOAD BTU/H: 1911 STRUCTURAL HEAT LOSS: 51192 TOTAL COMBINED HEAT LOSS BTU/H: 53104

SITE NAME: VALES OF HUMBER
BUILDER: ROYAL PINE HOMES

OPT 5 BED
TYPE: 40-3

DATE: Mar-22

GFA: 3223 LO# 92070

HEATING CFM 1145 COOLING CFM 1145
TOTAL HEAT LOSS 51,192 TOTAL HEAT GAIN 34,795
AIR FLOW RATE CFM 22.37 AIR FLOW RATE CFM 32.91

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

60

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	14	9	5
R/A	0	0	6	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	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
ROOM NAME	MBR	BED-2	ENS	ENS-2/3	BED-4	BED-5	BED-3	BED-4	BED-5	MBR	ENS-4/5	LV/DN	KIT	KIT	FAM	FAM	LAUN	PWD	FOY	MUD	BAS	BAS	BAS	BAS
RM LOSS MBH.	1.32	1.17	1.32	0.57	1.72	1.43	1.10	1.72	1.43	1.32	0.68	2.82	2.41	2.41	1.34	1.34	0.78	0.38	2.70	2.48	3.56	3.56	3.56	3.56
CFM PER RUN HEAT	30	26	30	13	38	32	25	38	32	30	15	63	54	54	30	30	17	8	60	55	80	80	80	80
RM GAIN MBH.	2.11	1.77	0.85	0.26	2.26	1.97	1.76	2.26	1.97	2.11	0.59	2.52	2.56	2.56	1.53	1.53	1.26	0.06	1.13	0.56	0.27	0.27	0.27	0.27
CFM PER RUN COOLING	70	58	28	9	74	65	58	74	65	70	19	83	84	84	50	50	41	2	37	18	9	9	9	9
ADJUSTED PRESSURE	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.16	0.16	0.16	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17
ACTUAL DUCT LGH.	53	48	39	44	58	59	26	63	66	47	54	41	43	34	31	42	42	14	43	14	36	38	25	26
EQUIVALENT LENGTH	140	160	130	200	150	170	260	160	190	140	140	150	180	160	140	180	170	190	150	190	170	160	100	90
TOTAL EFFECTIVE LENGTH	193	208	169	244	208	229	286	223	256	187	194	191	223	194	171	222	212	204	193	204	206	198	125	116
ADJUSTED PRESSURE	0.09	0.08	0.1	0.07	0.08	0.08	0.06	0.08	0.07	0.09	0.09	0.08	0.07	0.08	0.1	0.08	0.08	0.08	0.09	0.08	0.08	0.09	0.14	0.15
ROUND DUCT SIZE	5	6	4	5	6	6	6	6	6	5	4	6	6	6	5	5	4	4	5	5	6	6	6	6
HEATING VELOCITY (ft/min)	220	133	344	95	194	163	127	194	163	220	172	321	275	275	220	220	195	92	441	404	408	408	408	408
COOLING VELOCITY (ft/min)	514	296	321	66	377	331	296	377	331	514	218	423	428	428	367	367	470	23	272	132	46	46	46	46
OUTLET GRILL SIZE	3X10	4X10	3X10	3X10	4X10	4X10	4X10	4X10	4X10	3X10	3X10	4X10	4X10	4X10	3X10	3X10	3X10	3X10	3X10	3X10	4X10	4X10	4X10	4X10
TRUNK	A	B	B	B	D	C	D	D	C	A	D	C	A	A	A	A	D	D	C	D	A	A	B	B

RUN #	25	26	27	28
ROOM NAME	BAS	LAND	WIC	ENS-4/5
RM LOSS MBH.	3.56	1.22	1.09	0.68
CFM PER RUN HEAT	80	27	24	15
RM GAIN MBH.	0.27	0.51	0.69	0.59
CFM PER RUN COOLING	9	17	23	19
ADJUSTED PRESSURE	0.17	0.17	0.17	0.17
ACTUAL DUCT LGH.	42	25	50	48
EQUIVALENT LENGTH	160	180	160	150
TOTAL EFFECTIVE LENGTH	202	205	210	198
ADJUSTED PRESSURE	0.09	0.08	0.08	0.09
ROUND DUCT SIZE	6	4	4	4
HEATING VELOCITY (ft/min)	408	310	275	172
COOLING VELOCITY (ft/min)	46	195	264	218
OUTLET GRILL SIZE	4X10	3X10	3X10	3X10
TRUNK	C	D	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	388	0.07	10.2	14	x	8	499	TRUNK G	0	0.00	0	0	x	8	0	TRUNK O	0	0.05	0	0	x	8	0				
TRUNK B	641	0.07	12.3	18	x	8	641	TRUNK H	0	0.00	0	0	x	8	0	TRUNK P	0	0.05	0	0	x	8	0				
TRUNK C	267	0.07	8.8	10	x	8	481	TRUNK I	0	0.00	0	0	x	8	0	TRUNK Q	0	0.05	0	0	x	8	0				
TRUNK D	505	0.06	11.7	18	x	8	505	TRUNK J	0	0.00	0	0	x	8	0	TRUNK R	0	0.05	0	0	x	8	0				
TRUNK E	0	0.00	0	0	x	8	0	TRUNK K	0	0.00	0	0	x	8	0	TRUNK S	0	0.05	0	0	x	8	0				
TRUNK F	0	0.00	0	0	x	8	0	TRUNK L	0	0.00	0	0	x	8	0	TRUNK T	0	0.05	0	0	x	8	0				

RETURN AIR #	1	2	3	4	5	6	7	8							BR
AIR VOLUME	75	95	75	115	85	115	340	85	0	0	0	0	0	0	160
PLENUM PRESSURE	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15
ACTUAL DUCT LGH.	45	33	57	62	54	38	25	45	1	1	1	1	1	1	14
EQUIVALENT LENGTH	245	165	245	250	205	245	145	205	0	0	0	0	0	0	225
TOTAL EFFECTIVE LH	290	198	302	312	259	283	170	250	1	1	1	1	1	1	239
ADJUSTED PRESSURE	0.05	0.07	0.05	0.05	0.06	0.05	0.09	0.06	14.80	14.80	14.80	14.80	14.80	14.80	0.06
ROUND DUCT SIZE	6	6	6	7	6	7	9.1	6	0	0	0	0	0	0	7.6
INLET GRILL SIZE	8	8	8	8	8	8	8	8	0	0	0	0	0	0	8
	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
INLET GRILL SIZE	14	14	14	14	14	10	30	14	0	0	0	0	0	0	24

TYPE: 40-3
SITE NAME: VALES OF HUMBER

LO # 92070
OPT 5 BED

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>5</u>	@ 10.6 cfm	<u>53</u>	cfm
Other Rooms	<u>5</u>	@ 10.6 cfm	<u>53.0</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		95.4	cfm	

SUPPLEMENTAL VENTILATION CAPACITY			9.32.3.5.
Total Ventilation Capacity	<u>190.8</u>	cfm	
Less Principal Ventil. Capacity	<u>95.4</u>	cfm	
Required Supplemental Capacity	<u>95.4</u>	cfm	

PRINCIPAL EXHAUST FAN CAPACITY			
Model:	VANEE V150H	Location:	BSMT
<u>95.4</u>	cfm	☒	HVI Approved

PRINCIPAL EXHAUST HEAT LOSS CALCULATION				
CFM	ΔT °F	FACTOR	% LOSS	
95.4 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
ENS-2/3	BY INSTALLING CONTRACTOR	50	☒	3.5
ENS-4/5	BY INSTALLING CONTRACTOR	50	☒	3.5
PWD	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 @ 32 deg F (0 deg C)	☒	HVI Approved	

LOCATION OF INSTALLATION	
Lot:	Concession
Township	Plan:
Address	
Roll #	Building Permit #

BUILDER:	ROYAL PINE HOMES
Name:	
Address:	
City:	
Telephone #:	Fax #:

INSTALLING CONTRACTOR	
Name:	
Address:	
City:	
Telephone #:	Fax #:

DESIGNER CERTIFICATION	
I hereby certify that this ventilation system has been designed in accordance with the Ontario Building Code.	
Name:	HVAC Designs Ltd.
Signature:	
HRAI #	001820
Date:	March-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#: 92070		Model: 40-3		Builder: ROYAL PINE HOMES			Date: 2022-03-21																																																														
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5.2.3.1 Heat Loss due to Air Leakage					6.2.6 Sensible Gain due to Air Leakage																																																																
$HL_{airb} = LR_{airh} \times \frac{V_b}{3.6} \times DTD_h \times 1.2$ 0.248 x 359.19 x 41 °C x 1.2 = 4408 W = 15040 Btu/h					$HG_{salb} = LR_{airc} \times \frac{V_b}{3.6} \times DTD_c \times 1.2$ = 0.081 x 359.19 x 6 °C x 1.2 = 212 W = 725 Btu/h																																																																
5.2.3.2 Heat Loss due to Mechanical Ventilation					6.2.7 Sensible heat Gain due to Ventilation																																																																
$HL_{vairb} = PVC \times DTD_h \times 1.08 \times (1 - E)$ 95 CFM x 74 °F x 1.08 x 0.25 = 1911 Btu/h					$HL_{vairb} = PVC \times DTD_h \times 1.08 \times (1 - E)$ 95 CFM x 11 °F x 1.08 x 0.25 = 283 Btu/h																																																																
5.2.3.3 Calculation of Air Change Heat Loss for Each Room (Floor Multiplier Section)																																																																					
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HEAT LOSS AND GAIN SUMMARY SHEET

MODEL: 40-3	OPT 5 BED	BUILDER: ROYAL PINE HOMES
SFQT: 3223	LO# 92070	SITE: VALES OF HUMBER

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

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 (ft ³):	45665.0	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	6
INTERIOR LIGHTING LOAD (Btu/h/ft ²):	1.27	DC BRUSHLESS MOTOR (Y/N):	Y
FOUNDATION CONFIGURATION	BCIN_1	DEPTH BELOW GRADE:	7.0 ft
LENGTH: 64.0 ft	WIDTH: 33.0 ft	EXPOSED PERIMETER:	194.0 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 Minimum Efficiency	75%	-
Domestic Hot Water Heater Minimum EF	0.9	-

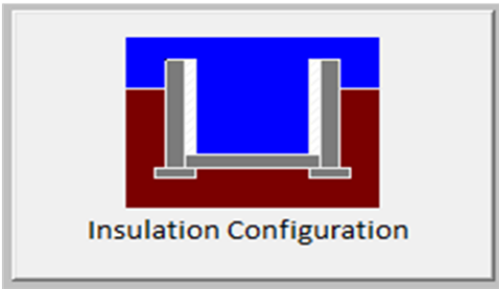
INDIVIDUAL BCIN: 19669

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):	19.5	 Insulation Configuration
Floor Width (m):	10.1	
Exposed Perimeter (m):	0.0	
Wall Height (m):	3.0	
Depth Below Grade (m):	2.13	
Window Area (m ²):	2.0	
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):		2001

TYPE: 40-3
LO# 92070

OPT 5 BED

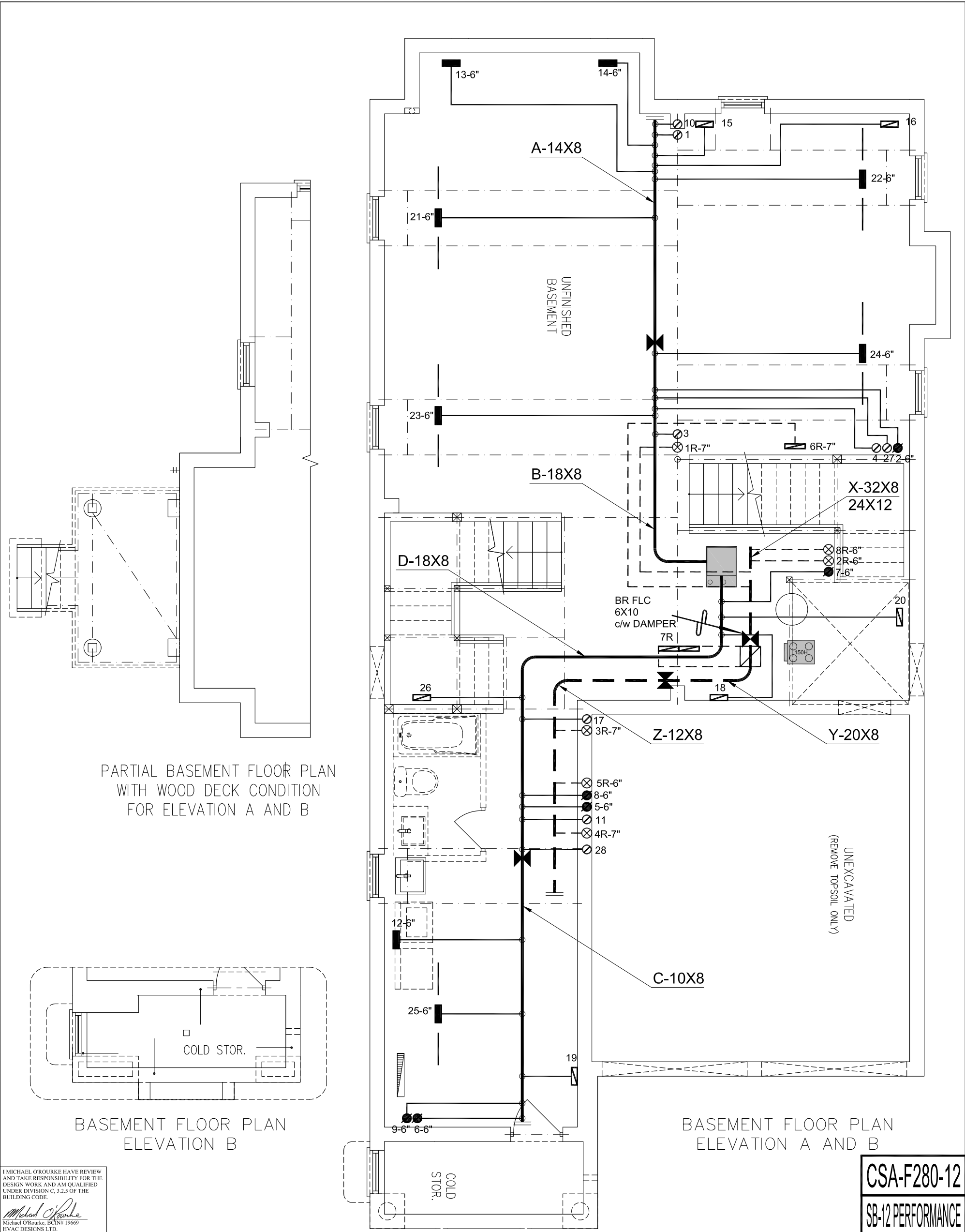
Air Infiltration Residential Load Calculator

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):	7.62			
Building Configuration				
Type:	Detached			
Number of Stories:	Two			
Foundation:	Full			
House Volume (m ³):	1293.1			
Air Leakage/Ventilation				
Air Tightness Type:	Energy Star Detached (2.5 ACH)			
Custom BDT Data:	ELA @ 10 Pa.	1207.1 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):	0.248			
Cooling Air Leakage Rate (ACH/H):	0.081			

TYPE: 40-3
LO# 92070

OPT 5 BED



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.

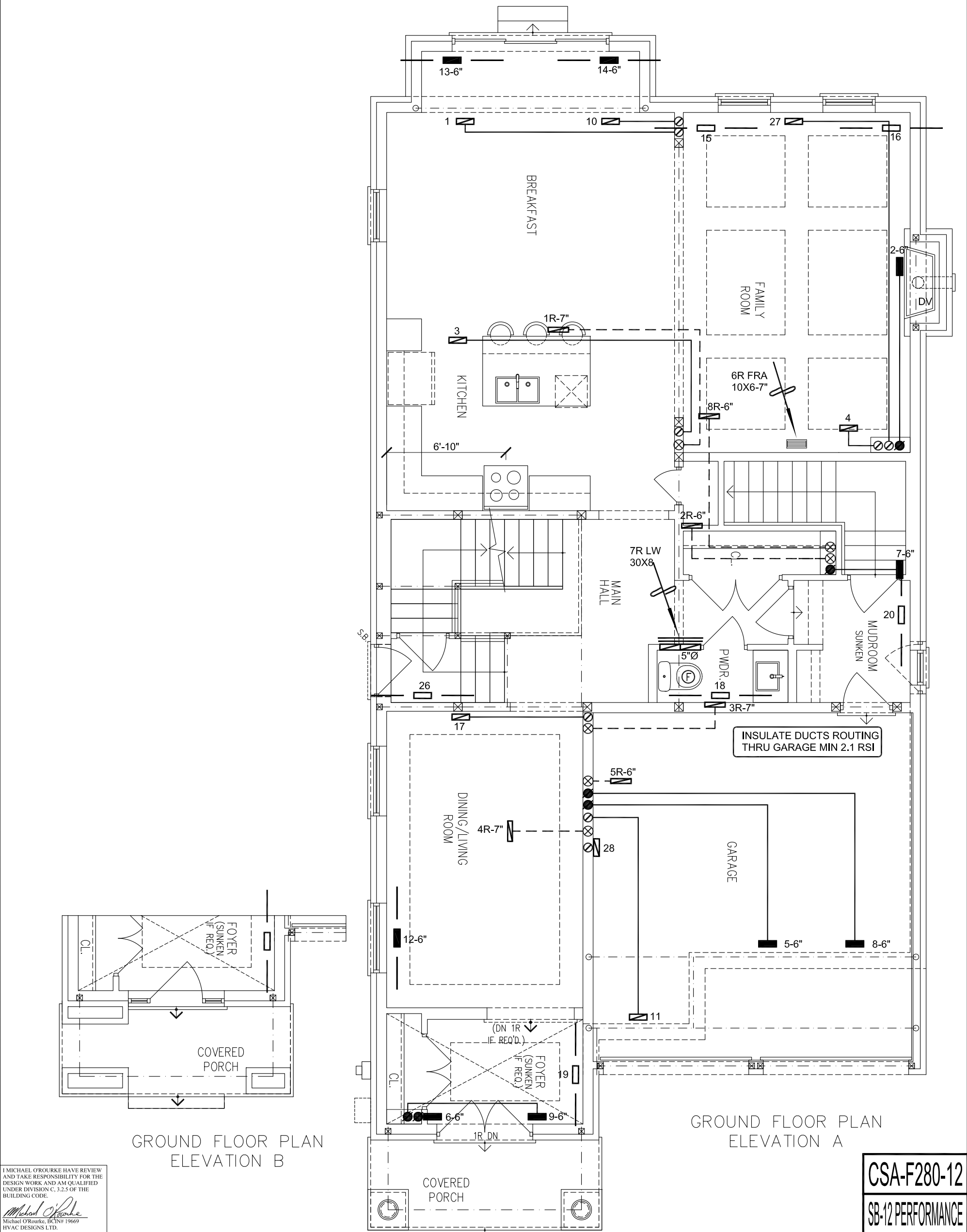
CSA-F280-12

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	MAR/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 53104 BTU/H UNIT DATA		# OF RUNS S/A R/A FANS			Sheet Title	
ROYAL PINE HOMES	Project Name VALES OF HUMBER BRAMPTON, ONTARIO		MAKE CARRIER	3RD FLOOR			BASEMENT HEATING LAYOUT		
MODEL 59SP5A-60-14			2ND FLOOR 14 6 3						
INPUT 60 MBTU/H			1ST FLOOR 9 2 2						
OUTPUT 58 MBTU/H			BASEMENT 5 1 0			Date AUG/2021			
OPT 5 BED 40-3	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.		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			Scale 3/16" = 1'-0"		
FAN SPEED 1145 cfm @ 0.6" w.c.			BCIN# 19669						
3223 sqft								LO#	92070



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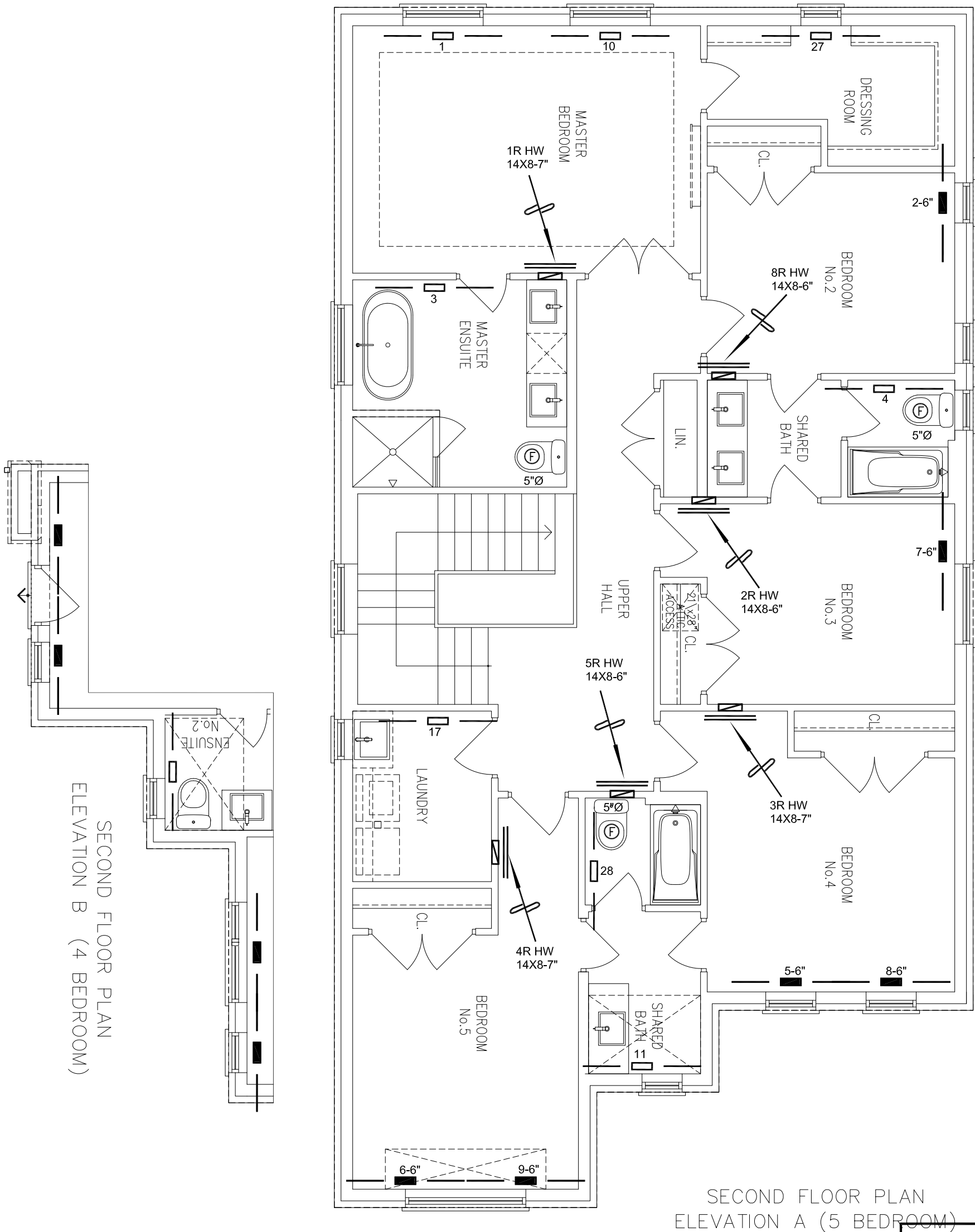
CSA-F280-12

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	AUG/2021
VALES OF HUMBER BRAMPTON, ONTARIO			Scale	3/16" = 1'-0"
OPT 5 BED 40-3			BCIN# 19669	
3223 sqft			LO#	92070



SECOND FLOOR PLAN
ELEVATION B (4 BEDROOM)

SECOND FLOOR PLAN
ELEVATION A (5 BEDROOM)

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