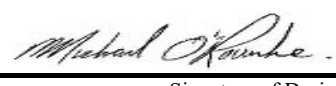


Schedule 1: Designer Information

Use one form for each individual who reviews and takes responsibility for design activities with respect to the project.

A. Project Information			
Building number, street name			Unit no.
Municipality BRAMPTON			Postal code
Plan number/ other description			Lot/con.
B. Individual who reviews and takes responsibility for design activities			
Name MICHAEL O'ROURKE		Firm HVAC DESIGNS LTD.	
Street address 375 FINLEY AVE		Unit no. 202	Lot/con. N/A
Municipality AJAX	Postal code L1S 2E2	Province ONTARIO	E-mail info@hvacdsgns.ca
Telephone number (905) 619-2300	Fax number (905) 619-2375	Cell number	
C. Design activities undertaken by individual identified in Section B. [Building Code Table 3.5.2.1 OF Division C]			
☐ House ☐ Small Buildings ☐ Large Buildings ☐ Complex Buildings ☒ HVAC – House ☐ Building Services ☐ Detection, Lighting and Power ☐ Fire Protection ☐ Building Structural ☐ Plumbing – House ☐ Plumbing – All Buildings ☐ On-site Sewage Systems			
Description of designer's work HEAT LOSS / GAIN CALCULATIONS DUCT SIZING RESIDENTIAL MECHANICAL VENTILATION DESIGN SUMMARY RESIDENTIAL SYSTEM DESIGN per CSA-F280-12		Model: 6003 Project: VALES OF HUMBER SOUTH	
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: 19669 Basis for exemption from registration and qualification: O.B.C SENTENCE 3.2.4.1 (4)			
☐ 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.			
July 9, 2024		 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 SOUTH										DATE Jul-24		WINTER NATURAL AIR CHANGE RATE 0.234						HEAT LOSS AT °F. 74		CSA-F280-12						
BUILDER: ROYAL PINE HOMES										TYPE: 6003		GFA: 5041		LO# 95293		SUMMER NATURAL AIR CHANGE RATE 0.076						HEAT GAIN AT °F. 11		SB-12 PERFORMANCE		
ROOM USE		GREAT		KIT		PANT		DIN		LIV		FOY		LIBR		PWD		LAUN								
EXP. WALL		69		26		20		25		35		8		36		7		25								
CLG. HT.		11		11		11		11		11		21		11		11		12								
FACTORS																										
GRS.WALL AREA		LOSS GAIN		759		286		220		275		168		396		77		300								
GLAZING				LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN								
NORTH		20.8	15.5	28	582	433	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	0	0	0	0	48	997	1970	20	416	821	70	1454	2873	0	0	0	0
SOUTH		20.8	24.4	14	291	342	0	0	0	0	0	0	37	769	903	0	0	0	0	0	0	0	0	0	0	
WEST		20.8	41.0	48	997	1970	73	1517	2997	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	
DOORS		24.7	3.7	0	0	0	20	493	73	0	0	0	0	0	0	0	60	1479	219	0	0	0	0	0	0	
NET EXPOSED WALL		3.5	0.5	669	2320	344	193	669	99	220	763	113	238	825	122	337	1168	173	88	305	45	326	1130	168	77	267
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	
EXPOSED CLG		1.3	0.6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
NO ATTIC EXPOSED CLG		2.7	1.2	10	27	12	0	0	0	0	0	0	0	0	0	15	40	18	64	172	76	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	
BASEMENT/CRAWL HEAT LOSS				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		
SUBTOTAL HT LOSS				4216		2679		763		1594		2206		2371		2585		267		1464						
SUB TOTAL HT GAIN						3101		3169				113		1025		2161		1162		3041				40		
LEVEL FACTOR / MULTIPLIER		0.30	0.38				0.30	0.38		0.30	0.38		0.30	0.38		0.30	0.38		0.30	0.38		0.30	0.38		217	
AIR CHANGE HEAT LOSS				1614		1026		292		610		844		908		989		102		560						
AIR CHANGE HEAT GAIN				163		167		6		54		114		61		160		2		11						
DUCT LOSS				0		0		0		0		0		0		0		0		0						
DUCT GAIN				0		0		0		0		0		0		0		0		0						
HEAT GAIN PEOPLE		240		0		0		0		0		0		0		0		0		0						
HEAT GAIN APPLIANCES/LIGHTS				1123		1123		0		1123		1123		0		1123		0		1123						
TOTAL HT LOSS BTU/H				5830		3704		1055		2204		3050		3279		3574		369		2024						
TOTAL HT GAIN x 1.3 BTU/H				5703		5796		155		2862		4418		1590		5621		54		1757						

ROOM USE																			
EXP. WALL																			
CLG. HT.																			
FACTORS																			
GRS.WALL AREA	LOSS GAIN																		
GLAZING																			
NORTH	20.8 15.5																		
EAST	20.8 41.0																		
SOUTH	20.8 24.4																		
WEST	20.8 41.0																		
SKYLT.	34.1 100.3																		
DOORS	24.7 3.7																		
NET EXPOSED WALL	3.5 0.5																		
NET EXPOSED BSMT WALL ABOVE GR	3.5 0.5																		
EXPOSED CLG	1.3 0.6																		
NO ATTIC EXPOSED CLG	2.7 1.2																		
EXPOSED FLOOR	2.5 0.4																		
BASEMENT/CRAWL HEAT LOSS																			
SLAB ON GRADE HEAT LOSS																			
SUBTOTAL HT LOSS																			
SUB TOTAL HT GAIN																			
LEVEL FACTOR / MULTIPLIER	0.50 0.94																		
AIR CHANGE HEAT LOSS																			
AIR CHANGE HEAT GAIN																			
DUCT LOSS																			
DUCT GAIN																			
HEAT GAIN PEOPLE	240																		
HEAT GAIN APPLIANCES/LIGHTS																			
TOTAL HT LOSS BTU/H																			
TOTAL HT GAIN x 1.3 BTU/H																			

TOTAL HEAT GAIN BTU/H: 59608 TONS: 4.97 LOSS DUE TO VENTILATION LOAD BTU/H: 6010 STRUCTURAL HEAT LOSS: 73079 TOTAL COMBINED HEAT LOSS BTU/H: 79089

[illegible]

TOTAL COMBINED HEAT LOSS BTU/H: 79089

SITE NAME: VALES OF HUMBER SOUTH
BUILDER: ROYAL PINE HOMES

TYPE: 6003

DATE: Jul-24

GFA: 5041

LO# 95293

FURNACE 1

HEATING CFM 975
TOTAL HEAT LOSS 48,919
AIR FLOW RATE CFM 19.93
COOLING CFM 975
TOTAL HEAT GAIN 29,595
AIR FLOW RATE CFM 32.95

**FACTORY
INSTALLED**

furnace pressure 0.6
furnace filter 0
a/c coil pressure 0.21
available pressure for s/a & r/a 0.39

**FURNACE HEAT LOSS +
HRV / ERV HEAT LOSS
= 51924 BTUH**
CARRIER
59SC6A060M17--16
FAN SPEED LOW 0
MEDLOW 790
MEDIUM 975
MEDIUM HIGH 1140
HIGH 1300

AFUE = 97 %
INPUT (BTU/H) = 60,000
OUTPUT (BTU/H) = **58,000**

DESIGN CFM = **975**
CFM @ .6" E.S.P.

TEMPERATURE RISE 55 °F

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	0	17	8
R/A	0	0	0	4	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	21	22	23	24
ROOM NAME	GREAT	GREAT	GREAT	KIT	KIT	KIT	PANT	DIN	DIN	LIV	LIV	FOY	LIBR	LIBR	LIBR	PWD	LAUN	BAS	BAS	BAS	BAS
RM LOSS MBH.	1.94	1.94	1.94	1.23	1.23	1.23	1.05	1.10	1.10	1.53	1.53	3.28	1.19	1.19	1.19	0.37	2.02	2.98	2.98	2.98	2.98
CFM PER RUN HEAT	39	39	39	25	25	25	21	22	22	30	30	65	24	24	24	7	40	59	59	59	59
RM GAIN MBH.	1.90	1.90	1.90	1.93	1.93	1.93	0.15	1.43	1.43	2.21	2.21	1.59	1.87	1.87	1.87	0.05	1.76	0.20	0.20	0.20	0.20
CFM PER RUN COOLING	63	63	63	64	64	64	5	47	47	73	73	52	62	62	62	2	58	7	7	7	7
ADJUSTED PRESSURE	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19
ACTUAL DUCT LGH.	55	69	52	43	37	38	36	16	16	34	29	27	39	47	48	32	46	43	33	64	54
EQUIVALENT LENGTH	150	120	120	120	130	130	150	100	100	110	110	110	130	170	170	90	190	140	150	130	140
TOTAL EFFECTIVE LENGTH	205	189	172	163	157	168	186	116	116	144	139	137	169	217	218	122	236	183	183	194	194
ADJUSTED PRESSURE	0.09	0.1	0.11	0.12	0.12	0.11	0.1	0.17	0.17	0.13	0.14	0.14	0.11	0.09	0.09	0.16	0.08	0.11	0.11	0.1	0.1
ROUND DUCT SIZE	5	5	5	5	5	5	4	5	5	5	5	4	5	5	5	4	5	5	5	5	5
HEATING VELOCITY (ft/min)	286	286	286	184	184	184	241	162	162	220	220	746	176	176	176	80	294	433	433	433	433
COOLING VELOCITY (ft/min)	463	463	463	470	470	470	57	345	345	536	536	597	455	455	455	23	426	51	51	51	51
OUTLET GRILL SIZE	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10
TRUNK	A	A	A	B	B	B	B	C	E	D	D	D	D	D	D	E	A	B	B	A	A

RUN #	25	26	27	28
ROOM NAME	BAS	BAS	BAS	BAS
RM LOSS MBH.	2.98	2.98	2.98	2.98
CFM PER RUN HEAT	59	59	59	59
RM GAIN MBH.	0.20	0.20	0.20	0.20
CFM PER RUN COOLING	7	7	7	7
ADJUSTED PRESSURE	0.19	0.19	0.19	0.19
ACTUAL DUCT LGH.	17	19	28	40
EQUIVALENT LENGTH	100	120	160	150
TOTAL EFFECTIVE LENGTH	117	139	188	190
ADJUSTED PRESSURE	0.16	0.14	0.1	0.1
ROUND DUCT SIZE	4	4	5	5
HEATING VELOCITY (ft/min)	677	677	433	433
COOLING VELOCITY (ft/min)	80	80	51	51
OUTLET GRILL SIZE	3X10	3X10	3X10	3X10
TRUNK	E	E	D	D

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	275	0.08	8.6	8	x	8	619	TRUNK G	0	0.00	0	0	x	8	0
TRUNK B	214	0.10	7.4	8	x	8	482	TRUNK H	0	0.00	0	0	x	8	0
TRUNK C	511	0.08	10.9	14	x	8	657	TRUNK I	0	0.00	0	0	x	8	0
TRUNK D	315	0.09	8.8	10	x	8	567	TRUNK J	0	0.00	0	0	x	8	0
TRUNK E	462	0.09	10.2	14	x	8	594	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	BR										
AIR VOLUME	290	340	135	135	0	0	0	0	0	0	0	0	0	0	75
PLENUM 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
ACTUAL DUCT LGH.	60	27	32	48	1	1	1	1	1	1	1	1	1	1	21
EQUIVALENT LENGTH	160	145	155	160	0	0	0	0	0	0	0	0	0	0	150
TOTAL EFFECTIVE LH	220	172	187	208	1	1	1	1	1	1	1	1	1	1	171
ADJUSTED PRESSURE	0.08	0.10	0.09	0.08	16.72	16.72	16.72	16.72	16.72	16.72	16.72	16.72	16.72	16.72	0.10
ROUND DUCT SIZE	8.8	8.9	6.4	6.6	0	0	0	0	0	0	0	0	0	0	5
INLET GRILL SIZE	6	8	8	8	0	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
INLET GRILL SIZE	30	30	14	14	0	0	0	0	0	0	0	0	0	0	14

SITE NAME: VALES OF HUMBER SOUTH
BUILDER: ROYAL PINE HOMES

TYPE: 6003

DATE: Jul-24

GFA: 5041

LO# 95293

FURNACE 2

HEATING CFM 925 COOLING CFM 925
TOTAL HEAT LOSS 24,160 TOTAL HEAT GAIN 29,568
AIR FLOW RATE CFM 38.29 AIR FLOW RATE CFM 31.28

FACTORY
INSTALLED

furnace pressure 0.6
furnace filter 0
a/c coil pressure 0.26
available pressure
for s/a & r/a 0.34

**FURNACE HEAT LOSS +
HRV / ERV HEAT LOSS
= 27165 BTUH**

59SC6A040M14--10

CARRIER

40

AFUE = 96 %
INPUT (BTU/H) = 40,000
OUTPUT (BTU/H) = **39,000**

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	21	0	0
R/A	0	0	6	0	0

plenum pressure s/a 0.18
max s/a dif press. loss 0.01
min adjusted pressure s/a 0.17

r/a pressure 0.16
r/a grille press. Loss 0.02
adjusted pressure r/a 0.14

FAN SPEED
LOW 0
MEDLOW 545
MEDIUM 770
MEDIUM HIGH 925
HIGH 0

DESIGN CFM = **925**
CFM @ .6" E.S.P.

TEMPERATURE RISE **39** °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	18	19	20	21
ROOM NAME	PRI	PRI	PRI	ENS	ENS	DRESS	BED-2	BED-2	BED-2	ENS-2	BED-3	BED-3	BED-3	ENS-3	BED-4	BED-4	BED-4	ENS-4	BED-5	BED-5	ENS-5
RM LOSS MBH.	1.09	1.09	1.09	0.57	0.57	1.24	1.01	1.01	1.01	1.20	1.51	1.51	1.51	1.20	1.34	1.34	1.34	0.88	1.45	1.45	0.73
CFM PER RUN HEAT	42	42	42	22	22	47	39	39	39	46	58	58	58	46	51	51	51	34	56	56	28
RM GAIN MBH.	1.59	1.59	1.59	0.61	0.61	0.83	1.44	1.44	1.44	0.42	1.72	1.72	1.72	0.42	2.18	2.18	2.18	0.64	2.40	2.40	0.44
CFM PER RUN COOLING	50	50	50	19	19	26	45	45	45	13	54	54	54	13	68	68	68	20	75	75	14
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	0.17	0.17
ACTUAL DUCT LGH.	63	70	76	65	47	39	74	80	86	66	64	68	69	68	54	61	64	54	43	45	41
EQUIVALENT LENGTH	200	200	200	180	160	160	180	180	190	150	130	140	150	150	160	150	180	120	130	150	130
TOTAL EFFECTIVE LENGTH	263	270	276	245	207	199	254	260	276	216	194	208	219	218	214	211	244	174	173	195	171
ADJUSTED PRESSURE	0.06	0.06	0.06	0.07	0.08	0.08	0.07	0.06	0.06	0.08	0.09	0.08	0.08	0.08	0.08	0.08	0.07	0.1	0.1	0.09	0.1
ROUND DUCT SIZE	5	5	5	4	4	5	5	5	5	5	5	5	5	5	6	6	6	6	5	5	4
HEATING VELOCITY (ft/min)	308	308	308	252	252	345	286	286	286	338	426	426	426	338	260	260	260	390	411	411	321
COOLING VELOCITY (ft/min)	367	367	367	218	218	191	330	330	330	95	396	396	396	95	347	347	347	229	551	551	161
OUTLET GRILL SIZE	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	4X10	4X10	4X10	3X10	3X10	3X10	3X10
TRUNK	C	C	C	D	D	D	C	C	C	D	B	B	B	D	A	A	A	B	A	A	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					TRUNK	STATIC	ROUND	RECT	VELOCITY					
	CFM	PRESS.	DUCT	DUCT			(ft/min)		CFM	PRESS.	DUCT	DUCT		(ft/min)		CFM	PRESS.	DUCT	DUCT				(ft/min)				
	TRUNK A	265	0.07	8.8	12	x	8	398	TRUNK G	0	0.00	0	0	x	8	0	TRUNK O	0	0.05	0	0	x	8	0			
	TRUNK B	501	0.07	11.2	16	x	8	564	TRUNK H	0	0.00	0	0	x	8	0	TRUNK P	0	0.05	0	0	x	8	0			
	TRUNK C	243	0.06	8.9	10	x	8	437	TRUNK I	0	0.00	0	0	x	8	0	TRUNK Q	0	0.05	0	0	x	8	0			
	TRUNK D	426	0.06	10.9	14	x	8	548	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			
																	TRUNK U	0	0.05	0	0	x	8	0			
																	TRUNK V	0	0.05	0	0	x	8	0			
																	TRUNK W	0	0.05	0	0	x	8	0			
																	TRUNK X	605	0.05	13.1	20	x	8	545			
																	TRUNK Y	320	0.05	10.3	12	x	8	480			
																	TRUNK Z	240	0.05	9.2	10	x	8	432			
																	DROP	925	0.05	15.3	24	x	10	555			

RETURN AIR #	1	2	3	4	5	6	BR									
AIR VOLUME	245	125	195	120	120	120	0	0	0	0	0	0	0	0	0	
PLENUM PRESSURE	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	
ACTUAL DUCT LGH.	50	77	92	72	44	51	1	1	1	1	1	1	1	1	1	
EQUIVALENT LENGTH	165	180	175	180	175	205	0	0	0	0	0	0	0	0	0	
TOTAL EFFECTIVE LH	215	257	267	252	219	256	1	1	1	1	1	1	1	1	1	
ADJUSTED PRESSURE	0.07	0.06	0.05	0.06	0.07	0.06	14.32	14.32	14.32	14.32	14.32	14.32	14.32	14.32	14.32	
ROUND DUCT SIZE	8.6	6.9	8.6	6.8	6.6	6.8	0	0	0	0	0	0	0	0	0	
INLET GRILL SIZE	8	8	8	8	8	8	0	0	0	0	0	0	0	0	0	
	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
INLET GRILL SIZE	30	14	30	14	14	14	0	0	0	0	0	0	0	0	0	

TYPE: 6003
SITE NAME: VALES OF HUMBER SOUTH

LO # 95293

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>7</u> @ 10.6 cfm	<u>74.2</u> cfm
Other Rooms	<u>6</u> @ 10.6 cfm	<u>63.6</u> cfm
Table 9.32.3.A.	TOTAL	<u>222.6</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>95.4</u> cfm

SUPPLEMENTAL VENTILATION CAPACITY		9.32.3.5.
Total Ventilation Capacity	<u>222.6</u>	cfm
Less Principal Ventil. Capacity	<u>150</u>	cfm
Required Supplemental Capacity	<u>72.6</u>	cfm

PRINCIPAL EXHAUST FAN CAPACITY	
Model:	VANEE V150H
Location:	BSMT
<u>150.0</u> cfm	☒ HVI Approved

PRINCIPAL EXHAUST HEAT LOSS CALCULATION				
CFM	ΔT °F	FACTOR	% LOSS	
150.0 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	BY INSTALLING CONTRACTOR	50	☒	3.5
ENS-3	BY INSTALLING CONTRACTOR	50	☒	3.5
ENS-4	BY INSTALLING CONTRACTOR	50	☒	3.5

HEAT RECOVERY VENTILATOR		9.32.3.11.
Model:	VANEE V150H	INSTALL 2 HRV / ERV's
<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:	<i>Michael O'Rourke</i>
HRAI #	001820
Date:	July-24

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#: 95293		Model: 6003		Builder: ROYAL PINE HOMES																																																									
				Date: 7/9/2024																																																									
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>2342</td> <td>10</td> <td>23420</td> </tr> <tr> <td>First</td> <td>2342</td> <td>11</td> <td>25762</td> </tr> <tr> <td>Second</td> <td>2803</td> <td>9</td> <td>25227</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>74,409.0 ft³</td> </tr> <tr> <td colspan="2" style="text-align: right;">Total:</td> <td></td> <td>2107.0 m³</td> </tr> </tbody> </table>			Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)	Bsmt	2342	10	23420	First	2342	11	25762	Second	2803	9	25227	Third	0	9	0	Fourth	0	9	0	Total:			74,409.0 ft³	Total:			2107.0 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%;">0.234</td> </tr> <tr> <td>SUMMER NATURAL AIR CHANGE RATE</td> <td>0.076</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	0.234	SUMMER NATURAL AIR CHANGE RATE	0.076	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																																																										
$HL_{airb} = LR_{airh} \times \frac{V_b}{3.6} \times DTD_h \times 1.2$ 0.234 x 585.29 x 41 °C x 1.2 = 6786 W = 23154 Btu/h			$HG_{salb} = LR_{airc} \times \frac{V_b}{3.6} \times DTD_c \times 1.2$ = 0.076 x 585.29 x 6 °C x 1.2 = 327 W = 1116 Btu/h																																																										
5.2.3.2 Heat Loss due to Mechanical Ventilation			6.2.7 Sensible heat Gain due to Ventilation																																																										
$HL_{vairb} = PVC \times DTD_h \times 1.08 \times (1 - E) \times 2 \text{ HRV / ERV's}$ 300 CFM x 74 °F x 1.08 x 0.25 = 6010 Btu/h			$HL_{vairb} = PVC \times DTD_h \times 1.08 \times (1 - E)$ 300 CFM x 11 °F x 1.08 x 0.25 = 891 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 / HLlevel)																																																									
1	0.5	23,154	12,251	0.945																																																									
2	0.3		18,145	0.383																																																									
3	0.2		18,820	0.246																																																									
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: 6003	BUILDER: ROYAL PINE HOMES
SFQT: 5041	SITE: VALES OF HUMBER SOUTH
LO# 95293	

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	0.60

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):	74409.0	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	6
INTERIOR LIGHTING LOAD (Btu/h/ft ²):	1.65	DC BRUSHLESS MOTOR (Y/N):	Y
FOUNDATION CONFIGURATION	BCIN_1	DEPTH BELOW GRADE:	7.0 ft
LENGTH: 68.0 ft	WIDTH: 52.0 ft	EXPOSED PERIMETER:	240.0 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	0.96	-
HRV Minimum Efficiency	75%	-
Domestic Hot Water Heater Minimum EF	0.9	-

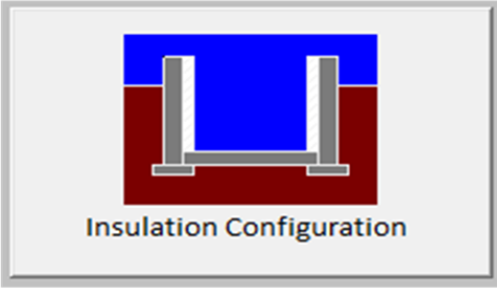
INDIVIDUAL BCIN: 19669

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):	20.7	 Insulation Configuration
Floor Width (m):	15.8	
Exposed Perimeter (m):	0.0	
Wall Height (m):	3.0	
Depth Below Grade (m):	2.13	
Window Area (m ²):	2.2	
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):		2558

TYPE: 6003

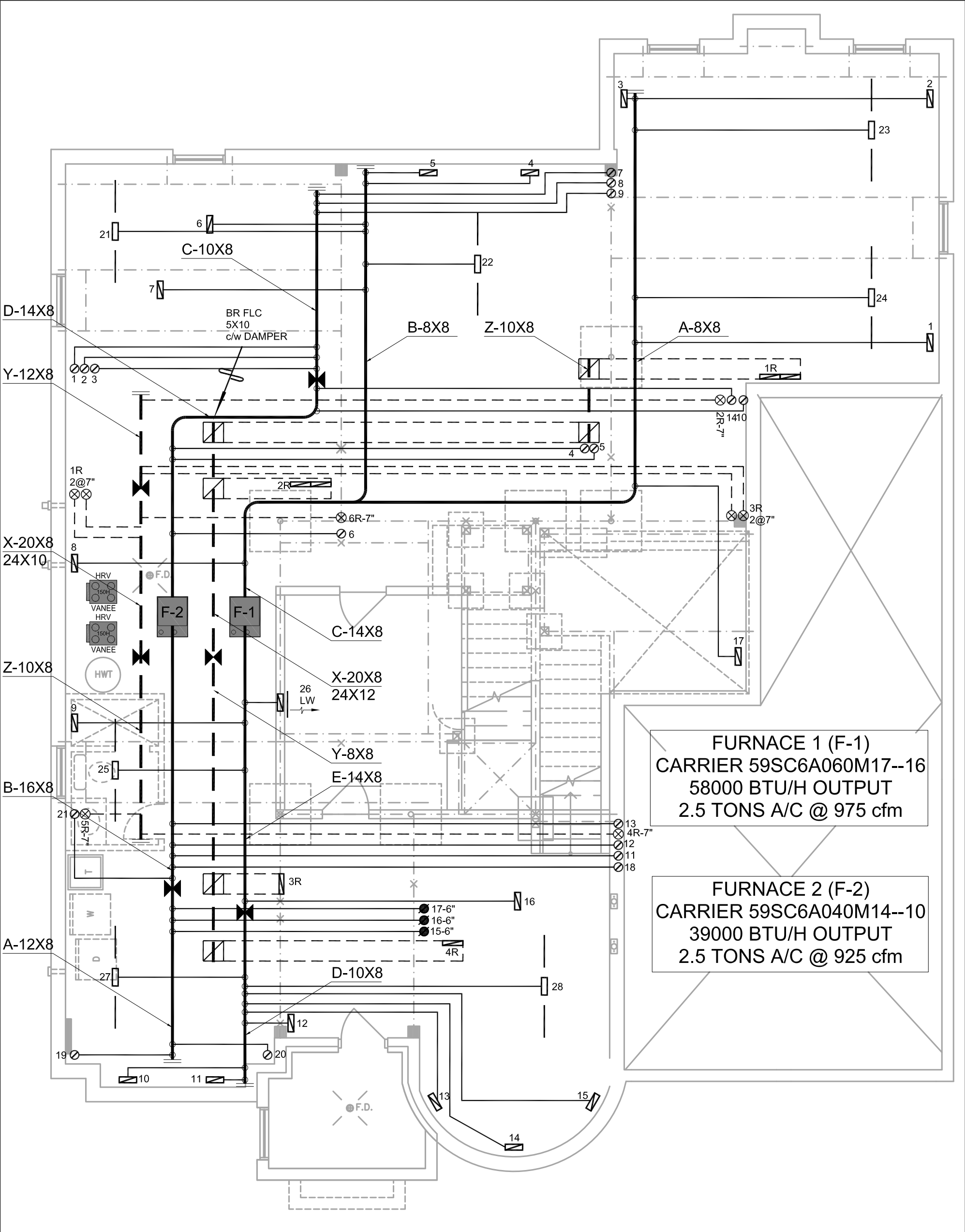
LO# 95293

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):	7.01			
Building Configuration				
Type:	Detached			
Number of Stories:	Two			
Foundation:	Full			
House Volume (m ³):	2107.0			
Air Leakage/Ventilation				
Air Tightness Type:	Energy Star Detached (2.5 ACH)			
Custom BDT Data:	ELA @ 10 Pa.	1966.9 cm ²		
	2.50	ACH @ 50 Pa		
Mechanical Ventilation (L/s):	Total Supply	Total Exhaust		
	70.8	70.8		
Flue Size				
Flue #:	#1	#2	#3	#4
Diameter (mm):	0	0	0	0
Natural Infiltration Rates				
Heating Air Leakage Rate (ACH/H):	0.234			
Cooling Air Leakage Rate (ACH/H):	0.076			

TYPE: 6003
LO# 95293



FURNACE 1 (F-1)
CARRIER 59SC6A060M17--16
58000 BTU/H OUTPUT
2.5 TONS A/C @ 975 cfm

FURNACE 2 (F-2)
CARRIER 59SC6A040M14--10
39000 BTU/H OUTPUT
2.5 TONS A/C @ 925 cfm

HVAC LEGEND								3.		
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	2.	UPDATED EQUIPMENT	JUL/2024
	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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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.

SB-12 PERFORMANCE

Client	ROYAL PINE HOMES
Project Name	VALES OF HUMBER SOUTH BRAMPTON, ONTARIO
6003	5041 sqft

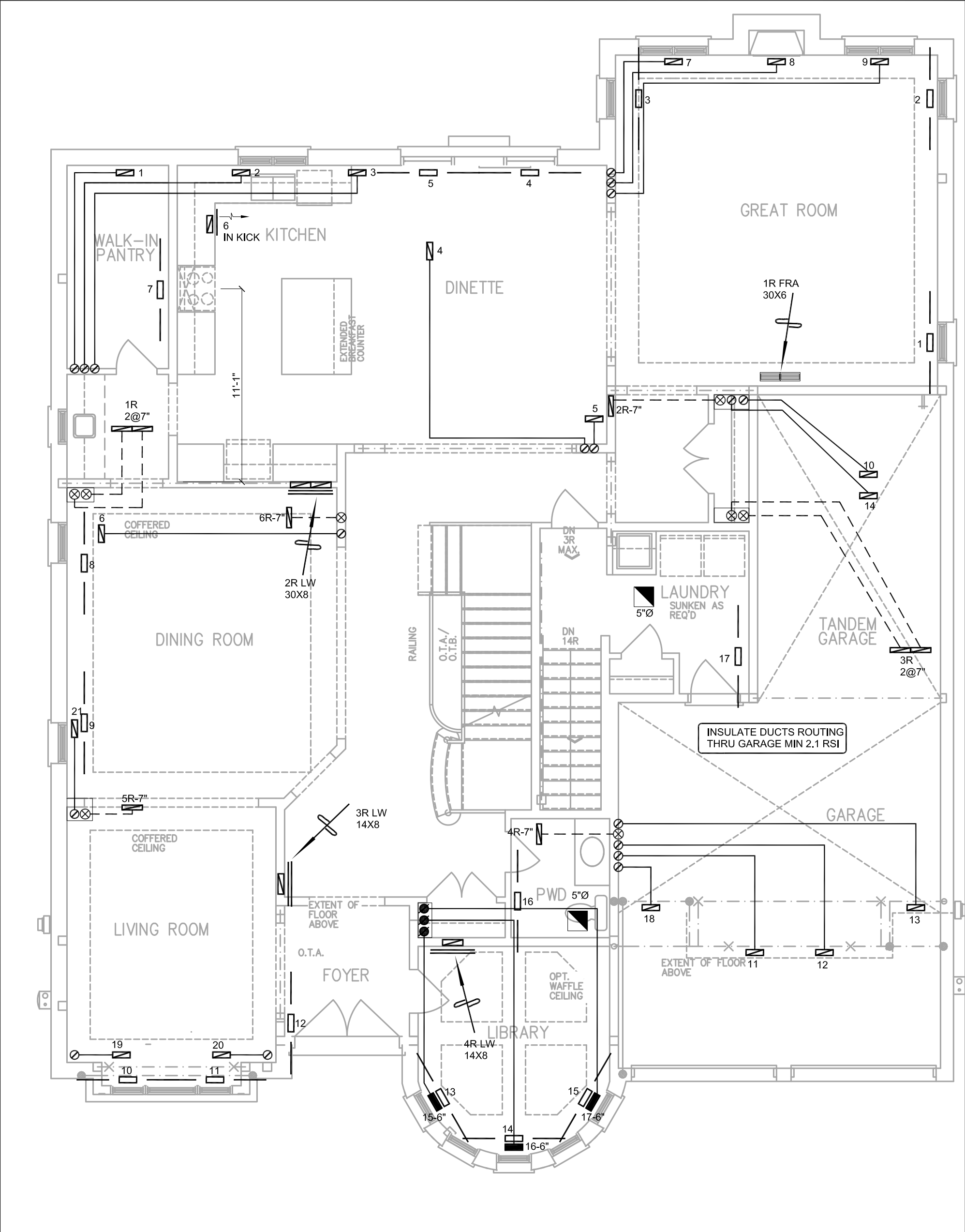
HVACDESIGNS LTD.

375 Finley Ave. Suite 202 - Ajax, Ontario
L1S 2E2 Tel. 905.619.2300 - 905.420.5300 Fax 905.619.2375
Email: info@hvacdesigns.ca
Web: www.hvacdesigns.ca
Specializing in Residential Mechanical Design Services

Installation to comply with the latest Ontario Building Code. All supply branch outlets shall be equipped with a manual balancing damper. Ductwork which passes through the garage or unheated spaces shall be adequately insulated and be gas-proofed.

	S/A	R/A	FANS
2ND	21	6	6
1ST	17	4	3
BAS	8	1	0

Sheet Title	BASEMENT HEATING LAYOUT
Date	MAR/2022
Scale	3/16" = 1'-0"
BCIN#	19669
LO#	95293



HVAC LEGEND								3.		
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	2.	UPDATED EQUIPMENT	JUL/2024
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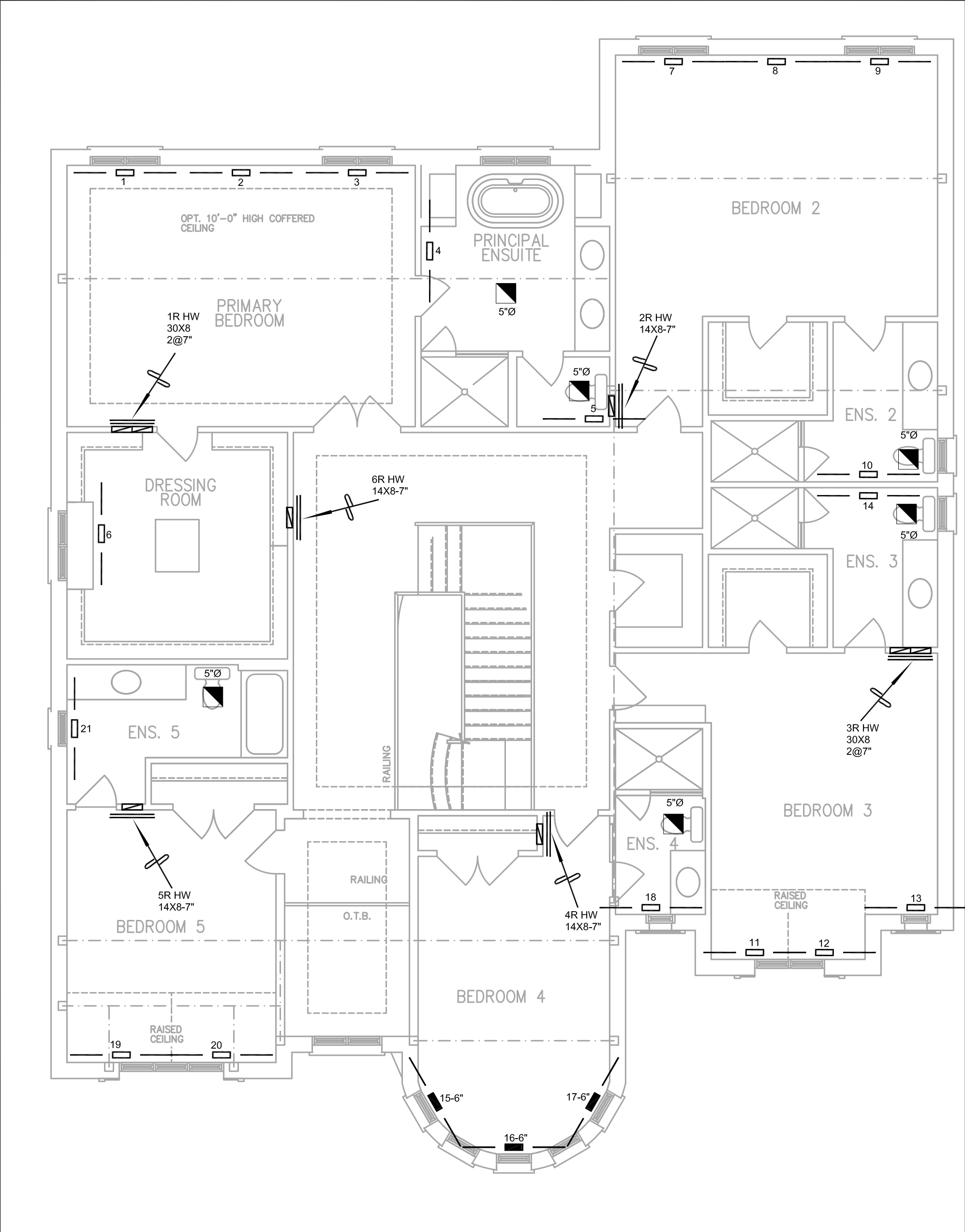
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Michael O'Rourke
Michael O'Rourke BCIN # 19669
HVAC Designs Ltd.

SB-12 PERFORMANCE

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.					Sheet Title	
ROYAL PINE HOMES							FIRST FLOOR HEATING LAYOUT	
Project Name							Date	MAR/2022
VALES OF HUMBER SOUTH BRAMPTON, ONTARIO							Scale	3/16" = 1'-0"
							BCIN# 19669	
6003	5041 sqft						LO#	95293

	S/A	R/A	FANS
2ND	21	6	6
1ST	17	4	3
BAS	8	1	0



HVAC LEGEND								3.		
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Client		ROYAL PINE HOMES				SB-12 PERFORMANCE				Sheet Title
Project Name		VALES OF HUMBER SOUTH BRAMPTON, ONTARIO				SECOND FLOOR HEATING LAYOUT				Date
6003		5041 sqft				BCIN# 19669				Scale
						LO# 95293				