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	**Postal code**	**Plan number/ other description**		
BRAMPTON				

B. Individual who reviews and takes responsibility for design activities

Name		Firm		
MICHAEL O'ROURKE		**HVAC DESIGNS LTD.**		
Street address			Unit no.	Lot/con.
375 FINLEY AVE			**202**	**N/A**
Municipality	Postal code	Province	E-mail	
AJAX	**L1S 2E2**	**ONTARIO**	**info@hvacdesigns.ca**	
Telephone number	Fax number		Cell number	
(**905**) **619-2300**	(**905**) **619-2375**		( )	

C. Design activities undertaken by individual identified in Section B. [Building Code Table 3.5.2.1 OF Division C]

❑ House	☒ HVAC – House	❑ Building Structural
❑ Small Buildings	❑ Building Services	❑ Plumbing – House
❑ Large Buildings	❑ Detection, Lighting and Power	❑ Plumbing – All Buildings
❑ Complex Buildings	❑ Fire Protection	❑ 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:** 7001 **Project:** VALES OF HUMBER SOUTH

D. Declaration of Designer

I **MICHAEL O'ROURKE** 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 Di vision 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.

April 7, 2022
Date

Michael O'Rourke
Signature of Designer

NOTE:

1. 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.
2. 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.

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SITE NAME: VALES OF HUMBER SOUTH | DATE Apr-22 | WINTER NATURAL AIR CHANGE RATE 0.241 | HEAT LOSS ΔT °F. 74 | CSA-F280-12

BUILDER: ROYAL PINE HOMES | TYPE: 7001 | GFA: 5543 | LO# 95295 | SUMMER NATURAL AIR CHANGE RATE 0.078 | HEAT GAIN ΔT °F. 11 | SB-12 PERFORMANCE

ROOM USE			GREAT			KIT			PANT			DIN			LIV			FOY			LIBR			PWD-1			PWD-2			MD/LN		
EXP. WALL			48			32			20			26			30			20			33			3			8			33		
CLG. HT.			21			11			11			11			11			23			11			11			11			12		
	FACTORS																															
GRS.WALL AREA	LOSS	GAIN	1008			352			220			286			330			460			363			33			88			396		
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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	25	519	387
EAST	20.8	41.0	0	0	0	0	0	0	0	0	0	0	0	0	41	852	1683	56	1163	2299	41	852	1683	0	0	0	0	0	0	0	0	0
SOUTH	20.8	24.4	0	0	0	0	0	0	0	0	0	39	810	951	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WEST	20.8	41.0	192	3989	7881	112	2327	4597	0	0	0	0	0	0	0	0	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	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	45	1109	164	0	0	0	0	0	0	0	0	0	40	986	146
NET EXPOSED WALL	3.5	0.5	816	2829	419	225	780	116	220	763	113	247	856	127	289	1002	149	359	1245	185	322	1116	166	33	114	17	88	305	45	331	1148	170
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	0	0
EXPOSED CLG	1.3	0.6	503	630	280	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
NO ATTIC EXPOSED CLG	2.7	1.2	10	27	12	0	0	0	0	0	0	0	0	0	0	0	0	80	215	95	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	0	0	0
BASEMENT/CRAWL HEAT LOSS				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	
SUBTOTAL HT LOSS				7475			3477			763			1667			1854			3732			1968			114			305			2653	
SUB TOTAL HT GAIN					8593			4768			113			1078			1832			2743			1848			17			45			703
LEVEL FACTOR / MULTIPLIER			0.30	0.37		0.30	0.37		0.30	0.37		0.30	0.37		0.30	0.37		0.30	0.37		0.30	0.37		0.30	0.37		0.30	0.37		0.30	0.37	
AIR CHANGE HEAT LOSS				2737			1273			279			610			679			1366			721			42			112			971	
AIR CHANGE HEAT GAIN					423			235			6			53			90			135			91			1			2			35
DUCT LOSS				0			0			0			0			0			0			0			0			0			0	
DUCT GAIN					0			0			0			0			0			0			0			0			0			0
HEAT GAIN PEOPLE	240		0		0	0		0	0		0	0		0	0		0	0		0	0		0	0		0	0		0	0		0
HEAT GAIN APPLIANCES/LIGHTS					1367			1367			0			1367			1367			0			1367			0			0			1367
TOTAL HT LOSS BTU/H				10212			4750			1042			2277			2533			5099			2689			156			417			3624	
TOTAL HT GAIN x 1.3 BTU/H					13498			8281			154			3248			4276			3742			4299			23			62			2736

ROOM USE			BAS		
EXP. WALL			250		
CLG. HT.			10		
	FACTORS				
GRS.WALL AREA	LOSS	GAIN	1750		
GLAZING			LOSS		GAIN
NORTH	20.8	15.5	0	0	0
EAST	20.8	41.0	0	0	0
SOUTH	20.8	24.4	12	249	293
WEST	20.8	41.0	12	249	493
SKYLT.	34.1	100.3	0	0	0
DOORS	24.7	3.7	20	493	73
NET EXPOSED WALL	3.5	0.5	0	0	0
NET EXPOSED BSMT WALL ABOVE GR	3.5	0.5	750	2635	391
EXPOSED CLG	1.3	0.6	0	0	0
NO ATTIC EXPOSED CLG	2.7	1.2	0	0	0
EXPOSED FLOOR	2.5	0.4	0	0	0
BASEMENT/CRAWL HEAT LOSS				8939	
SLAB ON GRADE HEAT LOSS					
SUBTOTAL HT LOSS				12566	
SUB TOTAL HT GAIN					1249
LEVEL FACTOR / MULTIPLIER			0.50	1.17	
AIR CHANGE HEAT LOSS				14650	
AIR CHANGE HEAT GAIN					61
DUCT LOSS				0	
DUCT GAIN					0
HEAT GAIN PEOPLE	240		0		0
HEAT GAIN APPLIANCES/LIGHTS					
TOTAL HT LOSS BTU/H				27216	
TOTAL HT GAIN x 1.3 BTU/H					1704

TOTAL HEAT GAIN BTU/H: 76691 | TONS: 6.39 | LOSS DUE TO VENTILATION LOAD BTU/H: 6010 | STRUCTURAL HEAT LOSS: 85143 | TOTAL COMBINED HEAT LOSS BTU/H: 91154

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.

Michael O'Rourke

INDIVIDUAL BCIN: 19669 MICHAEL O'ROURKE

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BUILDER: ROYAL PINE HOMES | TYPE: 7001 | GFA: 5543 | LO# 95295 | SUMMER NATURAL AIR CHANGE RATE 0.078 | HEAT GAIN ΔT °F. 11 | SB-12 PERFORMANCE

ROOM USE			PRI			ENS			DRESS			BED-2			BED-3			BED-4			BED-5			RETR			ENS-2			ENS-3				
EXP. WALL			25			27			11			13			35			24			30			10			6			8				
CLG. HT.			10			10			10			10			11			10			10			10			10			10				
	FACTORS																																
GRS.WALL AREA	LOSS	GAIN	250			270			110			130			385			240			300			100			60			80				
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	0	0	27	561	418	0	0	0	0	0	0	0	0	0	0	0	0	9	187	139	0	0	0		
EAST	20.8	41.0	0	0	0	0	0	0	0	0	0	0	0	0	83	1724	3407	40	831	1642	40	831	1642	0	0	0	0	0	0	0	0	0		
SOUTH	20.8	24.4	0	0	0	32	665	781	8	166	195	0	0	0	0	0	0	0	0	0	0	0	0	18	374	439	0	0	0	0	0	0		
WEST	20.8	41.0	54	1122	2217	23	478	944	0	0	0	0	0	0	0	0	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	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	0	0	0	0	0	0	0	0	0		
NET EXPOSED WALL	3.5	0.5	196	680	101	215	745	111	102	354	52	103	357	53	302	1047	155	200	693	103	260	901	134	82	284	42	51	177	26	80	277	41		
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	0	0		
EXPOSED CLG	1.3	0.6	546	684	304	180	226	100	165	207	92	325	407	181	368	461	205	394	494	220	216	271	120	310	388	173	66	83	37	66	83	37		
NO ATTIC EXPOSED CLG	2.7	1.2	0	0	0	0	0	0	0	0	0	0	0	0	50	134	60	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	20	50	7	418	1041	154	30	75	11	0	0	0	0	0	0	66	164	24	66	164	24		
BASEMENT/CRAWL HEAT LOSS				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				
SUBTOTAL HT LOSS				2486			2114			727			1375			4408			2093			2003			1047			611			524				
SUB TOTAL HT GAIN					2622			1936			340			659			3981			1975			1896			654			227			102		
LEVEL FACTOR / MULTIPLIER			0.20	0.32		0.20	0.32		0.20	0.32		0.20	0.32		0.20	0.32		0.20	0.32		0.20	0.32		0.20	0.32		0.20	0.32		0.20	0.32			
AIR CHANGE HEAT LOSS				807			686			236			446			1431			679			650			340			198			170				
AIR CHANGE HEAT GAIN					129			95			17			32			196			97			93			32			11			5		
DUCT LOSS				0			0			0			182			584			277			0			0			81			69			
DUCT GAIN					0			0			0			230			578			368			0			0			24			11		
HEAT GAIN PEOPLE	240		2		480	0		0	0		0	1		240	1		240	1		240	1		240	0		0	0		0	0		0		
HEAT GAIN APPLIANCES/LIGHTS					1367			0			0			1367			1367			1367			1367			1367			0			0		
TOTAL HT LOSS BTU/H				3293			2800			962			2004			6422			3050			2653			1387			890			764				
TOTAL HT GAIN x 1.3 BTU/H					5977			2640			463			3287			8272			5262			4675			2669			340			153		

ROOM USE			ENS-4			SHARED																											
EXP. WALL			0			6																											
CLG. HT.			10			10																											
	FACTORS																																
GRS.WALL AREA	LOSS	GAIN	0			60																											
GLAZING			LOSS	GAIN		LOSS	GAIN																										
NORTH	20.8	15.5	0	0	0	0	0	0																									
EAST	20.8	41.0	0	0	0	0	0	0																									
SOUTH	20.8	24.4	0	0	0	9	187	220																									
WEST	20.8	41.0	0	0	0	0	0	0																									
SKYLT.	34.1	100.3	0	0	0	0	0	0																									
DOORS	24.7	3.7	0	0	0	0	0	0																									
NET EXPOSED WALL	3.5	0.5	0	0	0	51	177	26																									
NET EXPOSED BSMT WALL ABOVE GR	3.5	0.5	0	0	0	0	0	0																									
EXPOSED CLG	1.3	0.6	70	88	39	90	113	50																									
NO ATTIC EXPOSED CLG	2.7	1.2	0	0	0	0	0	0																									
EXPOSED FLOOR	2.5	0.4	40	100	15	0	0	0																									
BASEMENT/CRAWL HEAT LOSS				0			0																										
SLAB ON GRADE HEAT LOSS				0			0																										
SUBTOTAL HT LOSS				187			477																										
SUB TOTAL HT GAIN					54			296																									
LEVEL FACTOR / MULTIPLIER			0.20	0.32		0.20	0.32																										
AIR CHANGE HEAT LOSS				61			155																										
AIR CHANGE HEAT GAIN					3			15																									
DUCT LOSS				25			0																										
DUCT GAIN					6			0																									
HEAT GAIN PEOPLE	240		0		0	0		0																									
HEAT GAIN APPLIANCES/LIGHTS					0			0																									
TOTAL HT LOSS BTU/H				273			631																										
TOTAL HT GAIN x 1.3 BTU/H					81			404																									

TOTAL HEAT GAIN BTU/H: 76691 **TONS:** 6.39 **LOSS DUE TO VENTILATION LOAD BTU/H:** 6010 **STRUCTURAL HEAT LOSS:** 85143 **TOTAL COMBINED HEAT LOSS BTU/H:** 91154

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.

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SITE NAME: VALES OF HUMBER SOUTH
BUILDER: ROYAL PINE HOMES
TYPE: 7001
DATE: Apr-22
GFA: 5543 LO# 95295
FURNACE 1

HEATING CFM	1370	COOLING CFM	1370	furnace pressure	0.6
TOTAL HEAT LOSS	60,015	TOTAL HEAT GAIN	42,022	furnace filter	0.05
AIR FLOW RATE CFM	22.83	AIR FLOW RATE CFM	32.6	a/c coil pressure	0.2
				available pressure for s/a & r/a	0.35

FURNACE HEAT LOSS + HRV / ERV HEAT LOSS = 63020 BTUH

#CARRIER
59SP5A-80-16 80

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

FAN SPEED	
LOW	0
MEDLOW	975
MEDIUM	1200
MEDIUM HIGH	1370
HIGH	1540

DESIGN CFM = **1370**
CFM @ .6 " E.S.P.
TEMPERATURE RISE 53 °F

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	0	20	8
R/A	0	0	0	5	1

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

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	GREAT	GREAT	GREAT	GREAT	GREAT	KIT	KIT	KIT	PANT	DIN	DIN	LIV	LIV	FOY	FOY	LIBR	LIBR	PWD-1	PWD-2	MD/LN	BAS	BAS	BAS	BAS
RM LOSS MBH.	2.04	2.04	2.04	2.04	2.04	1.58	1.58	1.58	1.04	1.14	1.14	1.27	1.27	2.55	2.55	1.34	1.34	0.16	0.42	3.62	3.40	3.40	3.40	3.40
CFM PER RUN HEAT	47	47	47	47	47	36	36	36	24	26	26	29	29	58	58	31	31	4	10	83	78	78	78	78
RM GAIN MBH.	2.70	2.70	2.70	2.70	2.70	2.76	2.76	2.76	0.15	1.62	1.62	2.14	2.14	1.87	1.87	2.15	2.15	0.02	0.06	2.74	0.21	0.21	0.21	0.21
CFM PER RUN COOLING	88	88	88	88	88	90	90	90	5	53	53	70	70	61	61	70	70	1	2	89	7	7	7	7
ADJUSTED PRESSURE	0.16	0.16	0.16	0.16	0.16	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	0.17	0.16	0.17	0.17	0.17	0.17
ACTUAL DUCT LGH.	31	25	21	23	28	35	47	53	55	50	62	78	74	78	82	81	87	31	11	18	53	38	21	25
EQUIVALENT LENGTH	100	100	120	140	120	110	90	110	100	120	110	100	120	150	130	120	130	120	170	140	110	100	130	130
TOTAL EFFECTIVE LENGTH	131	125	141	163	148	145	137	163	155	170	172	178	194	228	212	201	217	151	181	158	163	138	151	155
ADJUSTED PRESSURE	0.12	0.13	0.11	0.1	0.11	0.11	0.12	0.1	0.11	0.1	0.1	0.1	0.09	0.08	0.08	0.09	0.08	0.11	0.1	0.1	0.11	0.12	0.11	0.11
ROUND DUCT SIZE	**6**	**6**	**6**	**6**	**6**	**6**	**6**	**6**	4	5	5	5	5	5	5	5	5	4	4	**6**	5	5	5	5
HEATING VELOCITY (ft/min)	240	240	240	240	240	184	184	184	275	191	191	213	213	426	426	228	228	46	115	423	573	573	573	573
COOLING VELOCITY (ft/min)	449	449	449	449	449	459	459	459	57	389	389	514	514	448	448	514	514	11	23	454	51	51	51	51
OUTLET GRILL SIZE	4X10	4X10	4X10	4X10	4X10	4X10	4X10	4X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	4X10	3X10	3X10	3X10	3X10
TRUNK	F	F	F	E	E	E	E	D	D	C	C	A	A	A	B	B	B	E	E	F	D	E	E	F

RUN #	25	26	27	28
ROOM NAME	BAS	BAS	BAS	BAS
RM LOSS MBH.	3.40	3.40	3.40	3.40
CFM PER RUN HEAT	78	78	78	78
RM GAIN MBH.	0.21	0.21	0.21	0.21
CFM PER RUN COOLING	7	7	7	7
ADJUSTED PRESSURE	0.17	0.17	0.17	0.17
ACTUAL DUCT LGH.	52	58	71	78
EQUIVALENT LENGTH	110	110	110	100
TOTAL EFFECTIVE LENGTH	162	168	181	178
ADJUSTED PRESSURE	0.11	0.1	0.1	0.1
ROUND DUCT SIZE	5	5	5	5
HEATING VELOCITY (ft/min)	573	573	573	573
COOLING VELOCITY (ft/min)	51	51	51	51
OUTLET GRILL SIZE	3X10	3X10	3X10	3X10
TRUNK	C	C	A	B

SUPPLY 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 A	194	0.08	7.6	8	x	8	437	TRUNK G	0	0.00	0	0	x	8	0
TRUNK B	198	0.08	7.6	8	x	8	446	TRUNK H	0	0.00	0	0	x	8	0
TRUNK C	600	0.08	11.6	16	x	8	675	TRUNK I	0	0.00	0	0	x	8	0
TRUNK D	138	0.10	6.3	8	x	8	311	TRUNK J	0	0.00	0	0	x	8	0
TRUNK E	1074	0.08	14.4	24	x	8	806	TRUNK K	0	0.00	0	0	x	8	0
TRUNK F	302	0.10	8.5	10	x	8	544	TRUNK L	0	0.00	0	0	x	8	0

RETURN AIR TRUNK SIZE

	TRUNK CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT			VELOCITY (ft/min)
TRUNK O	0	0.06	0	0	x	8	0
TRUNK P	0	0.06	0	0	x	8	0
TRUNK Q	0	0.06	0	0	x	8	0
TRUNK R	0	0.06	0	0	x	8	0
TRUNK S	0	0.06	0	0	x	8	0
TRUNK T	0	0.06	0	0	x	8	0
TRUNK U	0	0.06	0	0	x	8	0
TRUNK V	0	0.06	0	0	x	8	0
TRUNK W	0	0.06	0	0	x	8	0
TRUNK X	1370	0.06	17	26	x	12	632
TRUNK Y	775	0.06	13.7	22	x	8	634
TRUNK Z	515	0.06	11.8	16	x	8	579
DROP	1370	0.06	17	24	x	12	685

RETURN AIR #	1	2	3	4	5											**BR**
AIR VOLUME	330	155	360	130	130	0	0	0	0	0	0	0	0	0	0	265
PLENUM PRESSURE	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15
ACTUAL DUCT LGH.	15	55	55	63	60	1	1	1	1	1	1	1	1	1	1	16
EQUIVALENT LENGTH	145	205	200	205	165	0	0	0	0	0	0	0	0	0	0	185
TOTAL EFFECTIVE LH	160	260	255	268	225	1	1	1	1	1	1	1	1	1	1	201
ADJUSTED PRESSURE	0.09	0.06	0.06	0.06	0.07	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	0.07
ROUND DUCT SIZE	9	7.5	10.3	7	6.8	0	0	0	0	0	0	0	0	0	0	8.8
INLET GRILL SIZE	8	8	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	X
INLET GRILL SIZE	30	14	30	14	14	0	0	0	0	0	0	0	0	0	0	30

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Michael O'Rourke

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

TYPE: 7001 DATE: Apr-22 GFA: 5543 LO# 95295 **FURNACE 2**

HEATING CFM	1040	COOLING CFM	1040	furnace pressure	0.6	
TOTAL HEAT LOSS	25,129	TOTAL HEAT GAIN	34,224	furnace filter	0.05	
AIR FLOW RATE CFM	41.39	AIR FLOW RATE CFM	30.39	a/c coil pressure	0.2	
				available pressure for s/a & r/a	0.35	
				plenum pressure s/a	0.18	r/a pressure 0.17
				max s/a dif press. loss	0.02	r/a grille press. Loss 0.02
				min adjusted pressure s/a	0.16	adjusted pressure r/a 0.15

FURNACE HEAT LOSS + HRV / ERV HEAT LOSS = 28134 BTUH

#*CARRIER
59SP5A-40-12 **40**
AFUE = 97 %
INPUT (BTU/H) = 40,000
OUTPUT (BTU/H) = **39,000**

FAN SPEED	
LOW	0
MEDLOW	0
MEDIUM	0
MEDIUM HIGH	770
HIGH	1040

DESIGN CFM = **1040**
CFM @ .6 " E.S.P.
TEMPERATURE RISE 35 °F

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	21	0	0
R/A	0	0	7	0	0

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	ENS-2	BED-3	BED-3	BED-3	BED-3	ENS-3	BED-4	BED-4	ENS-4	BED-5	BED-5	SHARED	RETR
RM LOSS MBH.	1.10	1.10	1.10	2.10	0.70	0.96	1.00	1.00	0.89	1.61	1.61	1.61	1.61	0.76	1.52	1.52	0.27	1.33	1.33	0.63	1.39
CFM PER RUN HEAT	45	45	45	87	29	40	41	41	37	66	66	66	66	32	63	63	11	55	55	26	57
RM GAIN MBH.	1.99	1.99	1.99	1.98	0.66	0.46	1.64	1.64	0.34	2.07	2.07	2.07	2.07	0.15	2.63	2.63	0.08	2.34	2.34	0.40	2.67
CFM PER RUN COOLING	61	61	61	60	20	14	50	50	10	63	63	63	63	5	80	80	2	71	71	12	81
ADJUSTED PRESSURE	0.17	0.17	0.17	0.16	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.16
ACTUAL DUCT LGH.	84	69	63	90	85	85	43	38	33	41	37	42	49	39	64	58	39	94	88	80	92
EQUIVALENT LENGTH	190	200	210	160	170	200	180	180	110	110	120	130	130	120	190	220	110	170	170	170	190
TOTAL EFFECTIVE LENGTH	274	269	273	250	255	285	223	218	143	151	157	172	179	159	254	278	149	264	258	250	282
ADJUSTED PRESSURE	0.06	0.06	0.06	0.06	0.07	0.06	0.08	0.08	0.12	0.11	0.11	0.1	0.1	0.11	0.07	0.06	0.12	0.07	0.07	0.07	0.06
ROUND DUCT SIZE	**6**	**6**	**6**	**6**	4	5	5	5	4	5	5	5	5	4	**6**	**6**	4	**6**	**6**	4	**6**
HEATING VELOCITY (ft/min)	229	229	229	444	333	294	301	301	424	485	485	485	485	367	321	321	126	280	280	298	291
COOLING VELOCITY (ft/min)	311	311	311	306	229	103	367	367	115	463	463	463	463	57	408	408	23	362	362	138	413
OUTLET GRILL SIZE	4X10	4X10	4X10	4X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	4X10	4X10	3X10	4X10	4X10	3X10	4X10
TRUNK	A	A	A	A	A	A	B	B	B	D	D	B	B	B	C	C	D	C	C	C	C

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

	TRUNK CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT			VELOCITY (ft/min)		TRUNK CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT			VELOCITY (ft/min)
TRUNK A	291	0.06	9.5	10	x	8	524	TRUNK G	0	0.00	0	0	x	8	0
TRUNK B	574	0.06	12.2	18	x	8	574	TRUNK H	0	0.00	0	0	x	8	0
TRUNK C	319	0.06	9.8	14	x	8	410	TRUNK I	0	0.00	0	0	x	8	0
TRUNK D	462	0.06	11.3	18	x	8	462	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 TRUNK SIZE

	TRUNK CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT			VELOCITY (ft/min)
TRUNK O	0	0.05	0	0	x	8	0
TRUNK P	0	0.05	0	0	x	8	0
TRUNK Q	0	0.05	0	0	x	8	0
TRUNK R	0	0.05	0	0	x	8	0
TRUNK S	0	0.05	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	1040	0.05	16	30	x	8	624
TRUNK Y	585	0.05	12.9	20	x	8	527
TRUNK Z	230	0.05	9.1	10	x	8	414
DROP	1040	0.05	16	24	x	10	624

RETURN AIR #	1	2	3	4	5	6	7									**BR**
AIR VOLUME	280	95	230	115	115	75	130	0	0	0	0	0	0	0	0	0
PLENUM PRESSURE	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15
ACTUAL DUCT LGH.	46	42	54	66	89	60	53	1	1	1	1	1	1	1	1	1
EQUIVALENT LENGTH	175	165	245	205	210	215	205	0	0	0	0	0	0	0	0	0
TOTAL EFFECTIVE LH	221	207	299	271	299	275	258	1	1	1	1	1	1	1	1	1
ADJUSTED PRESSURE	0.07	0.07	0.05	0.05	0.05	0.05	0.06	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80
ROUND DUCT SIZE	9	6	9.1	7	7	6	7	0	0	0	0	0	0	0	0	0
INLET GRILL SIZE	8	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	X
INLET GRILL SIZE	30	14	30	14	14	14	14	0	0	0	0	0	0	0	0	0

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Michael O'Rourke INDIVIDUAL BCIN: 19669 MICHAEL O'ROURKE

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TYPE: 7001 LO # 95295
SITE NAME: VALES OF HUMBER SOUTH

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	2	@ 21.2 cfm	42.4	cfm
Other Bedrooms	4	@ 10.6 cfm	42.4	cfm
Kitchen & Bathrooms	8	@ 10.6 cfm	84.8	cfm
Other Rooms	7	@ 10.6 cfm	74.2	cfm
Table 9.32.3.A.		TOTAL	243.8	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	243.8	cfm
Less Principal Ventil. Capacity	150	cfm
Required Supplemental Capacity	93.8	cfm

PRINCIPAL EXHAUST FAN CAPACITY

Model: VANEE V150H Location: BSMT

150.0 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

150 cfm high 35 cfm low

75 % 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: Michael O'Rourke.

HRAI # 001820

Date: April-22

I REVIEW AND TAKE RESPONIBILITY 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.

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CSA F280-12 Residential Heat Loss and Heat Gain Calculations

Formula Sheet (For Air Leakage / Ventiliation Calculation)

LO#: 95295 Model: 7001 Builder: ROYAL PINE HOMES Date: 2022-04-07

Volume Calculation

House Volume

Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)
Bsmt	2786	10	27860
First	2786	11	30646
Second	3296	10	32960
Third	0	9	0
Fourth	0	9	0
		Total:	91,466.0 ft³
		Total:	2590.0 m³

Air Change & Delta T Data

WINTER NATURAL AIR CHANGE RATE	0.241
SUMMER NATURAL AIR CHANGE RATE	0.078

Design Temperature Difference

	Tin °C	Tout °C	ΔT °C	ΔT °F
Winter DTDh	22	-19	41	74
Summer DTDc	24	30	6	11

5.2.3.1 Heat Loss due to Air Leakage

$$HL_{airb} = LR_{airh} \times \frac{V_b}{3.6} \times DTD_h \times 1.2$$

0.241 x 719.45 x 41 °C x 1.2 = 8587 W

= **29300 Btu/h**

6.2.6 Sensible Gain due to Air Leakage

$$HG_{salb} = LR_{airc} \times \frac{V_b}{3.6} \times DTD_c \times 1.2$$

= 0.078 x 719.45 x 6 °C x 1.2 = 414 W

= **1412 Btu/h**

5.2.3.2 Heat Loss due to Mechanical Ventilation

$$HL_{vairb} = PVC \times DTD_h \times 1.08 \times (1 - E)$$

x 2 HRV / ERV's

300 CFM x 74 °F x 1.08 x 0.25 = **6010 Btu/h**

6.2.7 Sensible heat Gain due to Ventilation

$$HL_{vairb} = PVC \times DTD_h \times 1.08 \times (1 - E)$$

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	29,300	12,566	1.166
2	0.3		24,009	0.366
3	0.2		18,050	0.325
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

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HEAT LOSS AND GAIN SUMMARY SHEET

MODEL: 7001 **BUILDER:** ROYAL PINE HOMES
SFQT: 5543 **LO#** 95295 **SITE:** VALES OF HUMBER SOUTH

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):	91466.0	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	6
INTERIOR LIGHTING LOAD ($Btu/h/ft^2$):	1.85	DC BRUSHLESS MOTOR (Y/N):	Y
FOUNDATION CONFIGURATION	BCIN_1	DEPTH BELOW GRADE:	7.0 ft
LENGTH: 63.0 ft	WIDTH: 62.0 ft	EXPOSED PERIMETER:	250.0 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	-

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MICHAEL O'ROURKE

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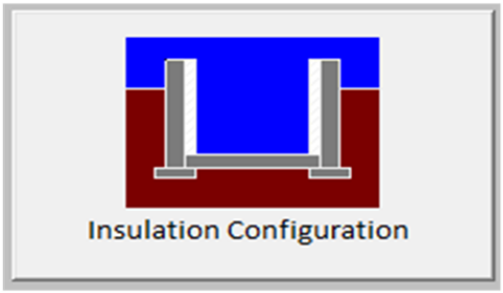
Residential Foundation Thermal Load Calculator

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):	**19.2**	 Insulation Configuration
Floor Width (m):	**18.9**	
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):	**2619**	

TYPE: 7001
LO# 95295

HVAC Designs Ltd.
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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):	7.32
Building Configuration	
Type:	Detached
Number of Stories:	Two
Foundation:	Full
House Volume (m^3):	2590.0
Air Leakage/Ventilation	
Air Tightness Type:	Energy Star Detached (2.5 ACH)
Custom BDT Data:	ELA @ 10 Pa. 2417.8 cm^2
	2.50 ACH @ 50 Pa
Mechanical Ventilation (L/s):	Total Supply 70.8 / Total Exhaust 70.8
Flue Size	
Flue #:	#1 #2 #3 #4
Diameter (mm):	0 0 0 0
Natural Infiltration Rates	
Heating Air Leakage Rate (ACH/H):	**0.241**
Cooling Air Leakage Rate (ACH/H):	**0.078**

TYPE: 7001
LO# 95295