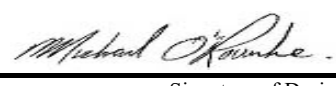


Schedule 1: Designer Information

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: 7001 - ELEV C OPT IN-LAW - LAUN 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: <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 7, 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

[illegible]

	ROOM USE							BAS
	EXP. WALL	11						250
	CLG. HT.	11						10
	FACTORS							
	GRS.WALL AREA	LOSS	GAIN	121				1750
	GLAZING	LOSS GAIN						LOSS GAIN
	NORTH	20.8	15.5	0	0	0	0	0
	EAST	20.8	41.0	0	0	0	0	0
	SOUTH	20.8	24.4	0	0	0	12	249 293
	WEST	20.8	41.0	0	0	0	12	249 493
	SKYLT.	34.1	100.3	0	0	0	0	0
	DOORS	24.7	3.7	0	0	0	20	493 73
	NET EXPOSED WALL	3.5	0.5	121	420	62	0	0
	NET EXPOSED BSMT WALL ABOVE GR	3.5	0.5	0	0	0	750	2635 391
	EXPOSED CLG	1.3	0.6	0	0	0	0	0
	NO ATTIC EXPOSED CLG	2.7	1.2	0	0	0	0	0
	EXPOSED FLOOR	2.5	0.4	0	0	0	0	0
	BASEMENT/CRAWL HEAT LOSS	0						8939
	SLAB ON GRADE HEAT LOSS	0						
	SUBTOTAL HT LOSS	420						12566
	SUB TOTAL HT GAIN	62						1249
	LEVEL FACTOR / MULTIPLIER	0.30	0.37					0.50 1.17
	AIR CHANGE HEAT LOSS	157						14738
	AIR CHANGE HEAT GAIN	3						67
	DUCT LOSS	0						0
	DUCT GAIN	0						0
	HEAT GAIN PEOPLE	240	0	0				0
	HEAT GAIN APPLIANCES/LIGHTS	0						0
	TOTAL HT LOSS BTU/H	576						27304
	TOTAL HT GAIN x 1.3 BTU/H	85						1711

TOTAL HEAT GAIN BTU/H: 77263

TONS: 6.44

LOSS DUE TO VENTILATION LOAD BTU/H: 6010

STRUCTURAL HEAT LOSS: 83860

TOTAL COMBINED HEAT LOSS BTU/H: 89870

[illegible]

TOTAL COMBINED HEAT LOSS BTU/H: 89870

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

OPT IN-LAW - LAUN
TYPE: 7001 - ELEV C

DATE: Apr-22

GFA: 5590 LO# 95347

FURNACE 1

HEATING CFM 1370 COOLING CFM 1370
TOTAL HEAT LOSS 59,813 TOTAL HEAT GAIN 41,845
AIR FLOW RATE CFM 22.9 AIR FLOW RATE CFM 32.74

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

FURNACE HEAT LOSS +
HRV / ERV HEAT LOSS
= 62818 BTUH

#CARRIER

59SP5A-80-16 80

FAN SPEED

LOW 0

MEDLOW 975

MEDIUM 1200

MEDIUM HIGH 1370

HIGH 1540

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

DESIGN CFM = 1370
CFM @ .6" E.S.P.

TEMPERATURE RISE 53 °F

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	0	21	8
R/A	0	0	0	5	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	GREAT	GREAT	GREAT	GREAT	GREAT	KIT	KIT	KIT	PANT	DIN	DIN	LIV	LIV	FOY	FOY	IN-LAW	IN-LAW	PWD-1	PWD-2	MD/LN	BAS	BAS	BAS	BAS
RM LOSS MBH.	2.05	2.05	2.05	2.05	2.05	1.60	1.60	1.60	1.05	1.14	1.14	1.19	1.19	2.48	2.48	0.98	0.98	0.16	0.42	3.64	3.41	3.41	3.41	3.41
CFM PER RUN HEAT	47	47	47	47	47	37	37	37	24	26	26	27	27	57	57	22	22	4	10	83	78	78	78	78
RM GAIN MBH.	2.75	2.75	2.75	2.75	2.75	2.75	2.75	2.75	0.15	1.72	1.72	2.04	2.04	1.53	1.53	2.17	2.17	0.02	0.06	2.93	0.21	0.21	0.21	0.21
CFM PER RUN COOLING	90	90	90	90	90	90	90	90	5	56	56	67	67	50	50	71	71	1	2	96	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	0.09	0.08	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	6	6	4	4	6	5	5	5	5
HEATING VELOCITY (ft/min)	240	240	240	240	240	189	189	189	275	191	191	198	198	419	419	112	112	46	115	423	573	573	573	573
COOLING VELOCITY (ft/min)	459	459	459	459	459	459	459	459	57	411	411	492	492	367	367	362	362	11	23	489	51	51	51	51
OUTLET GRILL SIZE	4X10	4X10	4X10	4X10	4X10	4X10	4X10	4X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	4X10	4X10	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	29
ROOM NAME	BAS	BAS	BAS	BAS	I-ENS
RM LOSS MBH.	3.41	3.41	3.41	3.41	0.58
CFM PER RUN HEAT	78	78	78	78	13
RM GAIN MBH.	0.21	0.21	0.21	0.21	0.09
CFM PER RUN COOLING	7	7	7	7	3
ADJUSTED PRESSURE	0.17	0.17	0.17	0.17	0.17
ACTUAL DUCT LGH.	52	58	71	78	60
EQUIVALENT LENGTH	110	110	110	100	120
TOTAL EFFECTIVE LENGTH	162	168	181	178	180
ADJUSTED PRESSURE	0.11	0.1	0.1	0.1	0.1
ROUND DUCT SIZE	5	5	5	5	4
HEATING VELOCITY (ft/min)	573	573	573	573	149
COOLING VELOCITY (ft/min)	51	51	51	51	34
OUTLET GRILL SIZE	3X10	3X10	3X10	3X10	3X10
TRUNK	C	C	A	B	B

SUPPLY AIR TRUNK SIZE										RETURN AIR TRUNK SIZE									
TRUNK	STATIC	ROUND	RECT	VELOCITY						TRUNK	STATIC	ROUND	RECT	VELOCITY					
CFM	PRESS.	DUCT	DUCT							CFM	PRESS.	DUCT	DUCT						
TRUNK A	189	0.08	7.5	8	x	8	425			TRUNK G	0	0.00	0	0	x	8	0		
TRUNK B	192	0.08	7.6	8	x	8	432			TRUNK H	0	0.00	0	0	x	8	0		
TRUNK C	589	0.08	11.5	16	x	8	663			TRUNK I	0	0.00	0	0	x	8	0		
TRUNK D	139	0.10	6.3	8	x	8	313			TRUNK J	0	0.00	0	0	x	8	0		
TRUNK E	1066	0.08	14.4	24	x	8	800			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 #	1	2	3	4	5	BR									
AIR VOLUME	330	155	360	130	130	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
ACTUAL DUCT LGH.	15	55	55	63	60	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	185
TOTAL EFFECTIVE LH	160	260	255	268	225	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	0.07
ROUND DUCT SIZE	9	7.5	10.3	7	6.8	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	8
	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	30

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

OPT IN-LAW - LAUN
TYPE: 7001 - ELEV C

DATE: Apr-22

GFA: 5590 LO# 95347

FURNACE 2

HEATING CFM 1040 COOLING CFM 1040
TOTAL HEAT LOSS 24,047 TOTAL HEAT GAIN 34,973
AIR FLOW RATE CFM 43.25 AIR FLOW RATE CFM 29.74

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

**FURNACE HEAT LOSS +
HRV / ERV HEAT LOSS
= 27052 BTUH**
#*CARRIER
59SP5A-40-12 40
FAN SPEED
LOW 0
MEDLOW 0
MEDIUM 0
MEDIUM HIGH 770
HIGH 1040

AFUE = 97 %
INPUT (BTU/H) = 40,000
OUTPUT (BTU/H) = **39,000**

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	15	16	17	18	19	20	21	22
ROOM NAME	PRI	PRI	PRI	ENS	ENS	DRESS	BED-2	BED-2	ENS-2	WIC-4	BED-3	BED-3	ENS-3	BED-4	BED-4	ENS-4	BED-5	BED-5	SHARED	RETR	LAUN
RM LOSS MBH.	1.12	1.12	1.12	2.13	0.71	0.98	1.02	1.02	0.90	0.95	1.55	1.55	2.25	1.34	1.34	0.28	1.25	1.25	0.64	1.41	0.13
CFM PER RUN HEAT	48	48	48	92	31	42	44	44	39	41	67	67	97	58	58	12	54	54	28	61	6
RM GAIN MBH.	2.06	2.06	2.06	1.99	0.66	0.47	1.75	1.75	0.34	1.08	2.04	2.04	1.99	2.45	2.45	0.08	2.21	2.21	0.41	2.86	2.02
CFM PER RUN COOLING	61	61	61	59	20	14	52	52	10	32	61	61	59	73	73	2	66	66	12	85	60
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	0.16	0.17	0.17	0.17	0.17	0.17	0.17	0.16	0.17
ACTUAL DUCT LGH.	84	69	63	90	85	85	43	38	33	41	37	42	49	64	58	39	94	88	80	92	62
EQUIVALENT LENGTH	190	200	210	160	170	200	180	180	110	110	120	130	130	190	220	110	170	170	170	190	220
TOTAL EFFECTIVE LENGTH	274	269	273	250	255	285	223	218	143	151	157	172	179	254	278	149	264	258	250	282	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	0.09	0.07	0.06	0.12	0.07	0.07	0.07	0.06	0.06
ROUND DUCT SIZE	6	6	6	6	4	5	5	5	4	4	6	6	6	6	6	4	6	6	4	6	5
HEATING VELOCITY (ft/min)	245	245	245	469	356	308	323	323	447	470	342	342	495	296	296	138	275	275	321	311	44
COOLING VELOCITY (ft/min)	311	311	311	301	229	103	382	382	115	367	311	311	301	372	372	23	337	337	138	433	441
OUTLET GRILL SIZE	4X10	4X10	4X10	4X10	3X10	3X10	3X10	3X10	3X10	3X10	4X10	4X10	4X10	4X10	4X10	3X10	4X10	4X10	3X10	4X10	3X10
TRUNK	A	A	A	A	A	A	B	B	B	D	D	B	B	C	C	D	C	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
1	PRI	1.12	48	2.06	61	0.17	84	190	274	0.06	6	245	311	4X10	A
2	PRI	1.12	48	2.06	61	0.17	69	200	269	0.06	6	245	311	4X10	A
3	PRI	1.12	48	2.06	61	0.17	63	210	273	0.06	6	245	311	4X10	A
4	ENS	2.13	92	1.99	59	0.16	90	160	250	0.06	6	469	301	4X10	A
5	ENS	0.71	31	0.66	20	0.17	85	170	255	0.07	4	356	229	3X10	A
6	DRESS	0.98	42	0.47	14	0.17	85	200	285	0.06	5	308	103	3X10	A
7	BED-2	1.02	44	1.75	52	0.17	43	180	223	0.08	5	323	382	3X10	B
8	BED-2	1.02	44	1.75	52	0.17	38	180	218	0.08	5	323	382	3X10	B
9	ENS-2	0.90	39	0.34	10	0.17	33	110	143	0.12	4	447	115	3X10	B
10	WIC-4	0.95	41	1.08	32	0.17	41	110	151	0.11	4	470	367	3X10	D
11	BED-3	1.55	67	2.04	61	0.17	37	120	157	0.11	6	342	311	4X10	D
12	BED-3	1.55	67	2.04	61	0.17	42	130	172	0.1	6	342	311	4X10	B
13	ENS-3	2.25	97	1.99	59	0.16	49	130	179	0.09	6	495	301	4X10	B
15	BED-4	1.34	58	2.45	73	0.17	64	190	254	0.07	6	296	372	4X10	C
16	BED-4	1.34	58	2.45	73	0.17	58	220	278	0.06	6	296	372	4X10	C
17	ENS-4	0.28	12	0.08	2	0.17	39	110	149	0.12	4	138	23	3X10	D
18	BED-5	1.25	54	2.21	66	0.17	94	170	264	0.07	6	275	337	4X10	C
19	BED-5	1.25	54	2.21	66	0.17	88	170	258	0.07	6	275	337	4X10	C
20	SHARED	0.64	28	0.41	12	0.17	80	170	250	0.07	4	321	138	3X10	C
21	RETR	1.41	61	2.86	85	0.16	92	190	282	0.06	6	311	433	4X10	C
22	LAUN	0.13	6	2.02	60	0.17	62	220	282	0.06	5	44	441	3X10	C

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	309	0.06	9.7	10	x	8	556			TRUNK G	0	0.00	0	0	x	8	0	TRUNK O	0	0.05	0	0	x	8	0				
TRUNK B	600	0.06	12.4	18	x	8	600			TRUNK H	0	0.00	0	0	x	8	0	TRUNK P	0	0.05	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 Q	0	0.05	0	0	x	8	0				
TRUNK D	439	0.06	11.1	18	x	8	439			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										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	

TYPE: 7001 - ELEV C
SITE NAME: VALES OF HUMBER SOUTH

LO # 95347
OPT IN-LAW - LAUN

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>5</u> @ 10.6 cfm <u>53</u> cfm	
Kitchen & Bathrooms	<u>9</u> @ 10.6 cfm <u>95.4</u> cfm	
Other Rooms	<u>7</u> @ 10.6 cfm <u>74.2</u> cfm	
Table 9.32.3.A.	TOTAL <u>265.0</u> cfm	

PRINCIPAL VENTILATION CAPACITY REQUIRED		9.32.3.4.(1)
6 Bedrooms		
As Per Ashrea 62.2 Dwelling- Unit Ventilation		
4.1.1 Total Ventilation Rate		
$Q_{tot}=0.03A_{floor}+7.5(N_{br}+1)$		
TOTAL <u>220.2</u> cfm		

SUPPLEMENTAL VENTILATION CAPACITY		9.32.3.5.
Total Ventilation Capacity	<u>265</u>	cfm
Less Principal Ventil. Capacity	<u>150</u>	cfm
Required Supplemental Capacity	<u>115.0</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:	April-22

CSA F280-12 Residential Heat Loss and Heat Gain Calculations																																																													
Formula Sheet (For Air Leakage / Ventilation Calculation)																																																													
LO#: 95347		Model: 7001 - ELEV C		Builder: ROYAL PINE HOMES																																																									
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5.2.3.1 Heat Loss due to Air Leakage			6.2.6 Sensible Gain due to Air Leakage																																																										
$HL_{airb} = LR_{airh} \times \frac{V_b}{3.6} \times DTD_h \times 1.2$ 0.241 x 723.76 x 41 °C x 1.2 = 8639 W = 29475 Btu/h			$HG_{salb} = LR_{airc} \times \frac{V_b}{3.6} \times DTD_c \times 1.2$ = 0.078 x 723.76 x 6 °C x 1.2 = 416 W = 1421 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)																																																													
$HL_{airr} = \text{Level Factor} \times HL_{airbv} \times \{(HL_{agcr} + HL_{bgcr}) \div (HL_{agclevel} + HL_{bgclevel})\}$																																																													
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	29,475	12,566	1.173																																																									
2	0.3		23,667	0.374																																																									
3	0.2		17,044	0.346																																																									
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: 7001 - ELEV C	OPT IN-LAW - LAUN	BUILDER: ROYAL PINE HOMES
SFQT: 5590	LO# 95347	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):	92013.0	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	7
INTERIOR LIGHTING LOAD (Btu/h/ft ²):	2.20	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	-

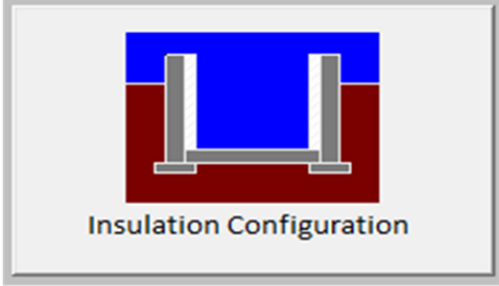
INDIVIDUAL BCIN: 19669

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):	19.2	 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 - ELEV C
LO# 95347

OPT IN-LAW - LAUN

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):	2605.5			
Air Leakage/Ventilation				
Air Tightness Type:	Energy Star Detached (2.5 ACH)			
Custom BDT Data:	ELA @ 10 Pa.		2432.2 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):	0.241			
Cooling Air Leakage Rate (ACH/H):	0.078			

TYPE: 7001 - ELEV C
LO# 95347

OPT IN-LAW - LAUN