

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@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: 3201 OPT 4 BED Project: SUMMER RIDGE ESTATES		
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.				
May 17, 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: SUMMER RIDGE ESTATES										OPT 4 BED										DATE: May-24										WINTER NATURAL AIR CHANGE RATE 0.282										HEAT LOSS AT °F. 74										CSA-F280-12																			
BUILDER: ROYAL PIE HOMES										TYPE: 3201										GFA: 2232										LO# 105068										SUMMER NATURAL AIR CHANGE RATE 0.088										HEAT GAIN AT °F. 11										PERFORMANCE									
ROOM USE				MBR				ENS				BED-2				BED-3				BED-4				ENS-2				BATH																																									
EXP. WALL				39				28				25				41				17				6				6																																									
CLG. HT.				9				9				9				9				9				9				9																																									
FACTORS																																																																					
GRS.WALL AREA		LOSS GAIN		335				241				215				353				153				52				52																																									
GLAZING				LOSS GAIN				LOSS GAIN				LOSS GAIN				LOSS GAIN				LOSS GAIN				LOSS GAIN				LOSS GAIN																																									
NORTH		20.8 12.8		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		0 0 0		0 0 0		0 0 0		0 0 0		0 0 0																																			
EAST		20.8 32.9		0 0 0		0 0 0		0 0 0				29 603 954		51 1060 1679		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																																			
SOUTH		20.8 19.8		0 0 0		0 0 0		0 0 0				0 0 0		7 145 139		26 540 516		9 187 178		0 0 0		0 0 0		0 0 0		0 0 0		0 0 0		0 0 0		0 0 0		0 0 0																																			
WEST		20.8 32.9		39 810 1284		19 395 625		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		0 0 0		0 0 0		0 0 0																																			
SKYLT.		34.1 132.1		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		0 0 0		0 0 0		0 0 0		0 0 0		0 0 0																																			
DOORS		19.6 2.9		0 0 0		0 0 0		0 0 0				0 0 0		0 0 0		0 0 0		0 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		296 1028 152		222 769 114		186 645 96				295 1021 151		127 440 65		43 148 22		52 179 27		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 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		0 0 0		0 0 0		0 0 0		0 0 0		0 0 0																																			
EXPOSED CLG		1.3 0.6		338 423 188		124 155 69		162 203 90				300 376 167		0 0 0		97 122 54		91 114 51		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		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 0		0 0 0		0 0 0		0 0 0		0 0 0		0 0 0		0 0 0																																			
EXPOSED FLOOR		2.5 0.4		0 0 0		0 0 0		162 403 60				0 0 0		0 0 0		77 192 28		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		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				2261		1319		1854				2656		981		648		293																																																			
SUB TOTAL HT GAIN				1624		808		1200				2160		581		283		77																																																			
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		0.20 0.23																																																			
AIR CHANGE HEAT LOSS				512		299		420				601		222		147		66																																																			
AIR CHANGE HEAT GAIN				100		50		74				133		36		17		5																																																			
DUCT LOSS				0		0		227				0		0		79		0																																																			
DUCT GAIN				0		0		253				0		0		30		0																																																			
HEAT GAIN PEOPLE		240		2		480		0				1		240		1		240		0				0		0		0		0		0		0																																			
HEAT GAIN APPLIANCES/LIGHTS						1015		0				1015		1015		1015		0						0		0		0		0		0		0																																			
TOTAL HT LOSS BTU/H				2774		1618		2501				3257		1203		874		359																																																			
TOTAL HT GAIN x 1.3 BTU/H				4185		1116		3616				4612		2433		429		107																																																			

ROOM USE				FAM				DIN				KT/BF				LAND				W/R			FOY				MUD				BAS
EXP. WALL				30				17				32				20				15			24				18				152
CLG. HT.				10				10				10				10				10			11				11				9
GRS.WALL AREA	LOSS	GAIN		300				170				320				200				150			264				198				912
GLAZING				LOSS	GAIN			LOSS	GAIN			LOSS	GAIN			LOSS	GAIN			LOSS	GAIN		LOSS	GAIN			LOSS	GAIN			LOSS
NORTH	20.8	12.8	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
EAST	20.8	32.9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	125	197	0	0	0	0	0	0	0
SOUTH	20.8	19.8	13	270	258	23	478	456				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WEST	20.8	32.9	46	956	1514	0	0	0	0	0	0	47	976	1547	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SKYLT.	34.1	132.1	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	19.6	2.9	0	0	0	0	0	0	0	0	0	0	0	0	0	20	392	58				40	783	116	20	392	58			20	392
NET EXPOSED WALL	3.5	0.5	241	836	124	147	510	76				273	947	140	180	624	93				141	489	72	218	756	112	178	617	91		0
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	456
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	0	0	0	0	0	0	1602
NO ATTIC EXPOSED CLG	2.7	1.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	238
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
BASEMENT/CRAWL HEAT LOSS				0				0				0				0			0			0				0					5190
SLAB ON GRADE HEAT LOSS				0				0				0				0			0			0				0					
SUBTOTAL HT LOSS				2061				988				1923				1016			676			1664				1009					7246
SUB TOTAL HT GAIN						1896		532						1687		151			369			426				150					394
LEVEL FACTOR / MULTIPLIER	0.30	0.36				0.30	0.36					0.30	0.36			0.30	0.36		0.30	0.36		0.30	0.36		0.30	0.36				0.50	0.78
AIR CHANGE HEAT LOSS				751				360						700		370			246			606				367					5667
AIR CHANGE HEAT GAIN						117		33						104		9			23			26				9					24
DUCT LOSS				0				0				0				0			0			0				0					0
DUCT GAIN						0		0						0		0			0			0				0					0
HEAT GAIN PEOPLE	240		0			0		0				0		0		0			0			0			0		0				0
HEAT GAIN APPLIANCES/LIGHTS						1015		1015						1015		0			0			0				0					1015
TOTAL HT LOSS BTU/H				2812				1347				2623				1386			922			2270				1376					12913
TOTAL HT GAIN x 1.3 BTU/H						3936		2053						3648		208			509			587				206					1863

TOTAL HEAT GAIN BTU/H: 29745

TONS: 2.48

LOSS DUE TO VENTILATION LOAD BTU/H: 1593

STRUCTURAL HEAT LOSS: 38235

TOTAL COMBINED HEAT LOSS BTU/H: 39828



SITE NAME: SUMMER RIDGE ESTATES
BUILDER: ROYAL PIE HOMES

OPT 4 BED
TYPE: 3201

DATE: May-24

GFA: 2232 LO# 105068

HEATING CFM 925 COOLING CFM 925
TOTAL HEAT LOSS 38,235 TOTAL HEAT GAIN 29,509
AIR FLOW RATE CFM 24.19 AIR FLOW RATE CFM 31.35

furnace pressure 0.6
furnace filter 0.00
a/c coil pressure 0.26
available pressure for s/a & r/a 0.34

FACTORY INSTALLED

59SC6A060M17--16 CARRIER

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

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	10	9	4
R/A	0	0	4	2	1

All S/A diffusers 4"x10" unless noted otherwise on layout.

All S/A runs 5"Ø unless noted otherwise on layout.

plenium pressure s/a 0.18 r/a pressure 0.16
max s/a dif press. loss 0.01 r/a grille press. Loss 0.02
min adjusted pressure s/a 0.17 adjusted pressure r/a 0.14

FAN SPEED 60
LOW 0
MEDLOW 0
MEDIUM 925
MEDIUM HIGH 0
HIGH 0

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

TEMPERATURE RISE 58 °F

RUN #	1	2	3	4	5	6	7	8	10	11	12	13	14	15	16	18	19	20	21	22	23	24
ROOM NAME	MBR	ENS	BED-2	BED-2	BED-3	BED-3	BATH	BED-4	MBR	ENS-2	FAM	DIN	KT/BF	KT/BF	LAND	W/R	FOY	MUD	BAS	BAS	BAS	BAS
RM LOSS MBH.	1.39	1.62	1.25	1.25	1.63	1.63	0.36	1.20	1.39	0.87	1.41	1.35	1.31	1.31	1.39	0.92	2.27	1.38	3.23	3.23	3.23	3.23
CFM PER RUN HEAT	34	39	30	30	39	39	9	29	34	21	34	33	32	32	34	22	55	33	78	78	78	78
RM GAIN MBH.	2.09	1.12	1.81	1.81	2.31	2.31	0.11	2.43	2.09	0.43	1.97	2.05	1.82	1.82	0.21	0.51	0.59	0.21	0.47	0.47	0.47	0.47
CFM PER RUN COOLING	66	35	57	57	72	72	3	76	66	13	62	64	57	57	7	16	18	6	15	15	15	15
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	0.17
ACTUAL DUCT LGH.	69	68	39	35	27	20	39	52	62	45	61	39	54	60	26	6	19	38	57	50	33	10
EQUIVALENT LENGTH	180	160	150	170	210	190	160	200	180	200	190	140	130	170	150	170	150	150	190	200	150	130
TOTAL EFFECTIVE LENGTH	249	228	189	205	237	210	199	252	242	245	251	179	184	230	176	176	169	188	247	250	183	140
ADJUSTED PRESSURE	0.07	0.07	0.09	0.08	0.07	0.08	0.08	0.07	0.07	0.07	0.07	0.09	0.09	0.07	0.09	0.09	0.1	0.09	0.07	0.07	0.09	0.12
ROUND DUCT SIZE	6	5	5	5	6	6	4	6	6	4	6	5	5	5	4	4	5	4	6	6	6	6
HEATING VELOCITY (ft/min)	173	286	220	220	199	199	103	148	173	241	173	242	235	235	390	252	404	379	398	398	398	398
COOLING VELOCITY (ft/min)	337	257	419	419	367	367	34	388	337	149	316	470	419	419	80	184	132	69	76	76	76	76
OUTLET GRILL SIZE	4X10	3X10	3X10	3X10	4X10	4X10	3X10	4X10	4X10	3X10	4X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	4X10	4X10	4X10	4X10
TRUNK	A	B	C	C	C	C	C	B	A	B	A	B	A	A	C	C	C	B	A	A	B	C

RUN #	25
ROOM NAME	FAM
RM LOSS MBH.	1.41
CFM PER RUN HEAT	34
RM GAIN MBH.	1.97
CFM PER RUN COOLING	62
ADJUSTED PRESSURE	0.17
ACTUAL DUCT LGH.	54
EQUIVALENT LENGTH	180
TOTAL EFFECTIVE LENGTH	234
ADJUSTED PRESSURE	0.07
ROUND DUCT SIZE	6
HEATING VELOCITY (ft/min)	173
COOLING VELOCITY (ft/min)	316
OUTLET GRILL SIZE	4X10
TRUNK	A

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	356	0.07	9.8	12	x	8	534	TRUNK G	0	0.00	0	0	x	8	0	TRUNK O	0	0.05	0	0	x	8	0
TRUNK B	589	0.07	11.9	16	x	8	663	TRUNK H	0	0.00	0	0	x	8	0	TRUNK P	0	0.05	0	0	x	8	0
TRUNK C	925	0.07	14.1	24	x	8	694	TRUNK I	0	0.00	0	0	x	8	0	TRUNK Q	0	0.05	0	0	x	8	0
TRUNK D	0	0.00	0	0	x	8	0	TRUNK J	0	0.00	0	0	x	8	0	TRUNK 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	BR									
FLOOR	2	2	2	2	1	1	B									
AIR VOLUME	75	130	95	95	240	140	0	0	0	0	0	0	0	0	0	150
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	0.14
ACTUAL DUCT LGH.	62	60	48	44	50	45	1	1	1	1	1	1	1	1	1	14
EQUIVALENT LENGTH	205	195	200	155	220	175	0	0	0	0	0	0	0	0	0	135
TOTAL EFFECTIVE LH	267	255	248	199	270	220	1	1	1	1	1	1	1	1	1	149
ADJUSTED PRESSURE	0.05	0.06	0.06	0.07	0.05	0.07	14.32	14.32	14.32	14.32	14.32	14.32	14.32	14.32	14.32	0.10
ROUND DUCT SIZE	6	7	6	6	9.2	6.9	0	0	0	0	0	0	0	0	0	6.5
INLET GRILL SIZE	8	8	8	8	8	8	0	0	0	0	0	0	0	0	0	8
	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
INLET GRILL SIZE	14	14	14	14	30	14	0	0	0	0	0	0	0	0	0	14

TYPE: 3201
SITE NAME: SUMMER RIDGE ESTATES

LO # 105068
OPT 4 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>3</u> @ 10.6 cfm	<u>31.8</u> cfm
Kitchen & Bathrooms	<u>5</u> @ 10.6 cfm	<u>53</u> cfm
Other Rooms	<u>3</u> @ 10.6 cfm	<u>31.8</u> cfm
Table 9.32.3.A.	TOTAL	<u>159.0</u> cfm

PRINCIPAL VENTILATION CAPACITY REQUIRED		9.32.3.4.(1)
1 Bedroom	31.8	cfm
2 Bedroom	47.7	cfm
3 Bedroom	63.6	cfm
4 Bedroom	79.5	cfm
5 Bedroom	95.4	cfm
TOTAL		<u>79.5</u> cfm

SUPPLEMENTAL VENTILATION CAPACITY		9.32.3.5.
Total Ventilation Capacity	<u>159</u>	cfm
Less Principal Ventil. Capacity	<u>79.5</u>	cfm
Required Supplemental Capacity	<u>79.5</u>	cfm

PRINCIPAL EXHAUST FAN CAPACITY	
Model:	VANEE V150H
Location:	BSMT
<u>79.5</u> cfm	☒ HVI Approved

PRINCIPAL EXHAUST HEAT LOSS CALCULATION				
CFM	ΔT °F	FACTOR	% LOSS	
79.5 CFM	X 74 F	X 1.08	X	0.25

SUPPLEMENTAL FANS		BY INSTALLING CONTRACTOR		
Location	Model	cfm	HVI	Sones
ENS	BY INSTALLING CONTRACTOR	50	☒	3.5
ENS-2	BY INSTALLING CONTRACTOR	50	☒	3.5
BATH	BY INSTALLING CONTRACTOR	50	☒	3.5
W/R	BY INSTALLING CONTRACTOR	50	☒	3.5

HEAT RECOVERY VENTILATOR		9.32.3.11.
Model:	VANEE V150H	
<u>150</u> cfm high	<u>35</u> cfm low	
<u>75</u> % Sensible Efficiency	☒ HVI Approved	
@ 32 deg F (0 deg C)		

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

BUILDER:	
ROYAL PIE 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:	May-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

CSA F280-12 Residential Heat Loss and Heat Gain Calculations																																																													
Formula Sheet (For Air Leakage / Ventilation Calculation)																																																													
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5.2.3.1 Heat Loss due to Air Leakage			6.2.6 Sensible Gain due to Air Leakage																																																										
$HL_{airb} = LR_{airh} \times \frac{V_b}{3.6} \times DTD_h \times 1.2$ 0.282 x 237.79 x 41 °C x 1.2 = 3322 W = 11335 Btu/h			$HG_{salb} = LR_{airc} \times \frac{V_b}{3.6} \times DTD_c \times 1.2$ = 0.088 x 237.79 x 6 °C x 1.2 = 154 W = 526 Btu/h																																																										
5.2.3.2 Heat Loss due to Mechanical Ventilation			6.2.7 Sensible heat Gain due to Ventilation																																																										
$HL_{vairb} = PVC \times DTD_h \times 1.08 \times (1 - E)$ 80 CFM x 74 °F x 1.08 x 0.25 = 1593 Btu/h			$HL_{vairb} = PVC \times DTD_h \times 1.08 \times (1 - E)$ 80 CFM x 11 °F x 1.08 x 0.25 = 236 Btu/h																																																										
5.2.3.3 Calculation of Air Change Heat Loss for Each Room (Floor Multiplier Section)																																																													
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*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: 3201	OPT 4 BED	BUILDER: ROYAL PIE HOMES
SFQT: 2232	LO# 105068	SITE: SUMMER RIDGE ESTATES

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:	ATTACHED	# OF STORIES (+BASEMENT):	3
FRONT FACES:	EAST	ASSUMED (Y/N):	Y
AIR CHANGES PER HOUR:	3.00	ASSUMED (Y/N):	Y
AIR TIGHTNESS CATEGORY:	TIGHT	ASSUMED (Y/N):	Y
WIND EXPOSURE:	SHELTERED	ASSUMED (Y/N):	Y
HOUSE VOLUME (ft ³):	30231.0	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	5
INTERIOR LIGHTING LOAD (Btu/h/ft ²):	2.50	DC BRUSHLESS MOTOR (Y/N):	Y
FOUNDATION CONFIGURATION	BCIN_1	DEPTH BELOW GRADE:	6.0 ft
LENGTH: 50.0 ft	WIDTH: 26.0 ft	EXPOSED PERIMETER:	152.0 ft

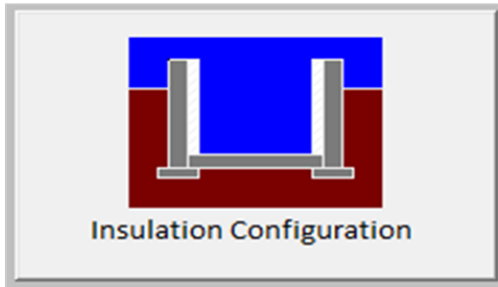
2012 OBC - COMPLIANCE PACKAGE Component	Compliance Package PERFORMANCE	
	Nominal	Min. Eff.
Ceiling with Attic Space Minimum RSI (R)-Value	60	59.22
Ceiling Without Attic Space Minimum RSI (R)-Value	31	27.65
Exposed Floor Minimum RSI (R)-Value	31	29.80
Walls Above Grade Minimum RSI (R)-Value	22+1.5	21.40
Basement Walls Minimum RSI (R)-Value	20	21.12
Below Grade Slab Entire surface > 600 mm below grade Minimum RSI (R)-Value	-	-
Edge of Below Grade Slab ≤ 600 mm Below Grade Minimum RSI (R)-Value	10	10
Heated Slab or Slab ≤ 600 mm below grade Minimum RSI (R)-Value	10	11.13
Windows and Sliding Glass Doors Maximum U-Value	1.6	-
Skylights Maximum U-Value	2.6	-
Space Heating Equipment Minimum AFUE	96%	-
HRV/ERV Minimum Efficiency	75%	-
Domestic Hot Water Heater Minimum EF	0.9	-

INDIVIDUAL BCIN: 19669
MICHAEL O'ROURKE



Residential Foundation Thermal Load Calculator

Supplemental tool for CAN/CSA-F280

Weather Station Description		
Province:	Ontario	
Region:	Brampton	
Site Description		
Soil Conductivity:	Normal conductivity: dry sand, loam, clay	
Water Table:	Normal (7-10 m, 23-33 ft)	
Foundation Dimensions		
Floor Length (m):	15.2	 Insulation Configuration
Floor Width (m):	7.9	
Exposed Perimeter (m):	0.0	
Wall Height (m):	2.7	
Depth Below Grade (m):	1.83	
Window Area (m ²):	0.3	
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):		1521

TYPE: 3201
LO# 105068

OPT 4 BED

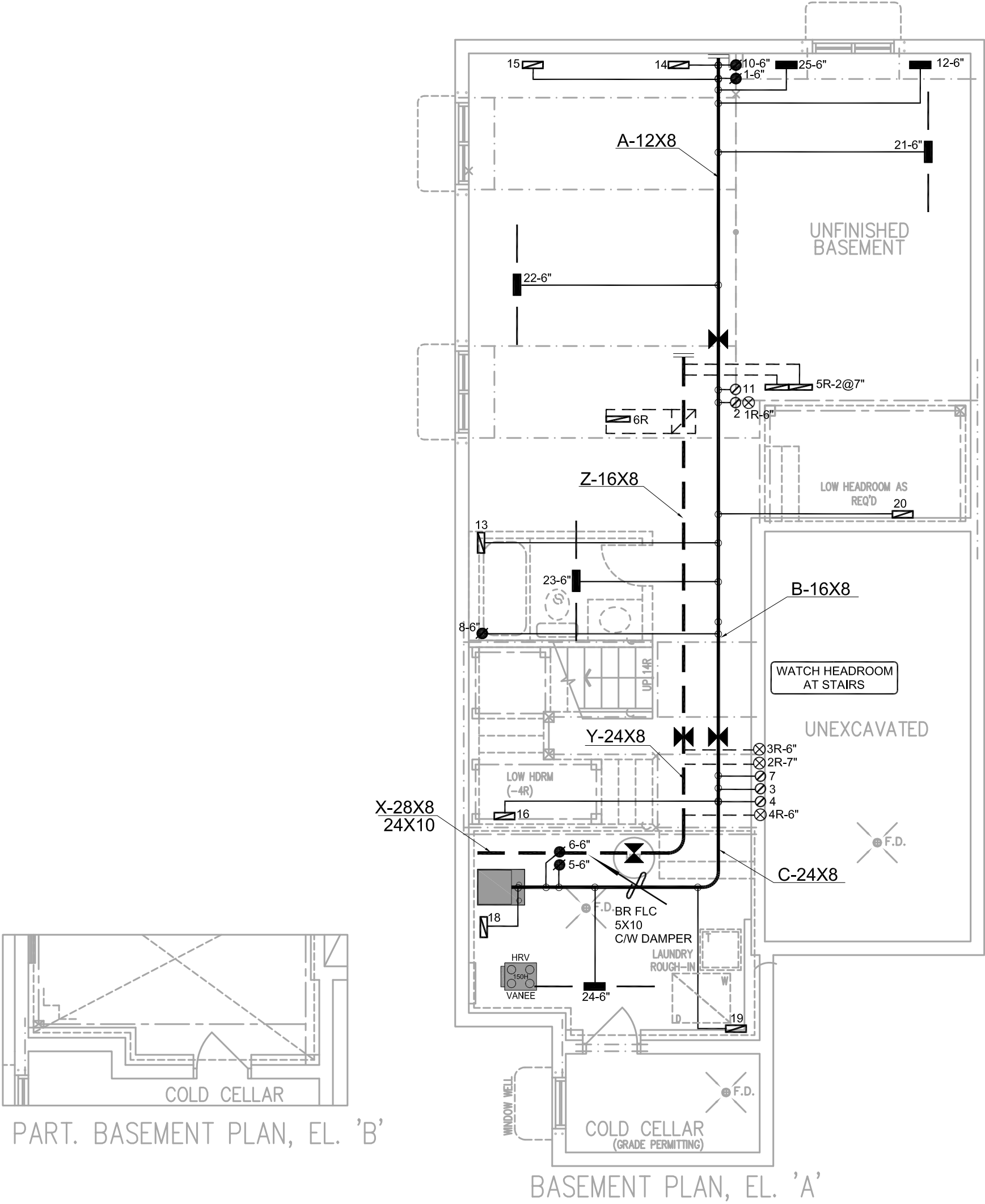
Air Infiltration Residential Load Calculator

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):	6.71			
Building Configuration				
Type:	Semi			
Number of Stories:	Two			
Foundation:	Full			
House Volume (m ³):	856.0			
Air Leakage/Ventilation				
Air Tightness Type:	Attached (3.0 ACH)			
Custom BDT Data:	ELA @ 10 Pa.	958.9 cm ²		
	3.00	ACH @ 50 Pa		
Mechanical Ventilation (L/s):	Total Supply	Total Exhaust		
	37.5	37.5		
Flue Size				
Flue #:	#1	#2	#3	#4
Diameter (mm):	0	0	0	0
Natural Infiltration Rates				
Heating Air Leakage Rate (ACH/H):	0.282			
Cooling Air Leakage Rate (ACH/H):	0.088			

TYPE: 3201
LO# 105068

OPT 4 BED



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.			
	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			
ALL DRAWINGS, CALCULATIONS AND SPECIFICATIONS ARE THE PROPERTY OF HVAC DESIGNS LTD.© AND MAY NOT BE REPRODUCED, MODIFIED OR ALTERED WITHOUT EXPRESSED WRITTEN CONSENT. THE DRAWINGS ARE DATED AND USE OF THESE DRAWINGS AFTER ONE YEAR FROM THE DATED NOTED IS NOT AUTHORIZED. CONTRACTOR SHALL CHECK ALL CONDITIONS BEFORE PROCEEDING WITH WORK. LATEST MUNICIPAL APPROVED DRAWINGS ONLY TO BE USED DURING INSTALLATION OF HEATING SYSTEM. HVAC DESIGNS LTD. IS NOT LIABLE FOR ANY CLAIMS ARISING FROM UNAUTHORIZED USE OF THE DRAWINGS OR FROM ANY CHANGES TO ACCEPTED STANDARDS AND/OR THE ONTARIO BUILDING CODE.						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 BCIN # 19669 HVAC Designs Ltd.		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.				HEAT LOSS 39828 BTU/H UNIT DATA		# OF RUNS S/A R/A FANS		Sheet Title	
ROYAL PINE HOMES						MAKE		3RD FLOOR		BASEMENT HEATING LAYOUT	
						CARRIER		2ND FLOOR		10 4 3	
						MODEL		1ST FLOOR		9 2 2	
						59SC6A060M17--16		BASEMENT		4 1 0	
						INPUT		60 MBTU/H		Date MAY/2024	
						OUTPUT		58 MBTU/H		Scale 3/16" = 1'-0"	
						COOLING		2.5 TONS		BCIN# 19669	
						FAN SPEED		925 cfm @ 0.6" w.c.		LO# 105068	
Project Name		SUMMER RIDGE ESTATES BRAMPTON, ONTARIO		OPT 4 BED 3201		2232 sqft					



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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	Sheet Title	
ROYAL PINE HOMES		FIRST FLOOR HEATING LAYOUT	
Project Name		Date	MAY/2024
SUMMER RIDGE ESTATES BRAMPTON, ONTARIO		Scale	3/16" = 1'-0"
OPT 4 BED 3201	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.	BCIN# 19669	
2232 sqft		LO#	105068

