

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 RICHMOND HILL	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: 2008 OPT 2ND Project: CENTREFIELD (WEST GORMLEY)	
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.			
September 10, 2021 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

SITE NAME: CENTREFIELD (WEST GORMLEY)										OPT 2ND		DATE: Sep-21		WINTER NATURAL AIR CHANGE RATE		HEAT LOSS AT °F.		CSA-F200-13	
BUILDER: ROYAL PINE HOMES										TYPE: 2008		LO# 87530		SUMMER NATURAL AIR CHANGE RATE		HEAT GAIN AT °F.		SB-12 PERFORMANCE	
ROOM USE		MBR		ENS		BED-2		BED-3		BATH									
EXP. WALL	CLG. HT.	EXP. WALL	CLG. HT.	EXP. WALL	CLG. HT.	EXP. WALL	CLG. HT.	EXP. WALL	CLG. HT.	EXP. WALL	CLG. HT.								
FACTORS		FACTORS		FACTORS		FACTORS		FACTORS		FACTORS									
GRS.WALL AREA	LOSS	GRS.WALL AREA	LOSS	GRS.WALL AREA	LOSS	GRS.WALL AREA	LOSS	GRS.WALL AREA	LOSS	GRS.WALL AREA	LOSS								
GLAZING	GAIN	GLAZING	GAIN	GLAZING	GAIN	GLAZING	GAIN	GLAZING	GAIN	GLAZING	GAIN								
NORTH	21.8	16.0	0	0	0	0	0	0	0	0	0								
EAST	21.8	41.6	0	0	0	0	0	28	610	1163	36	784	1496	0	0	0	0	0	0
SOUTH	21.8	24.9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WEST	21.8	41.6	28	610	1163	17	370	706	0	0	0	0	0	0	0	0	0	0	0
SKYLT.	35.8	101.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DOORS	25.8	4.3	0	0	0	0	0	63	223	37	164	690	113	0	0	0	0	0	0
NET EXPOSED WALL	4.2	0.7	98	412	68	37	166	26	0	0	0	0	0	0	0	0	0	0	0
NET EXPOSED BSMT WALL ABOVE GR	3.7	0.6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EXPOSED CLG	1.3	0.6	332	436	195	108	142	63	121	169	71	282	344	98	129	58	154	0	0
NO ATTIC EXPOSED CLG	2.8	1.3	0	0	0	0	0	0	0	0	38	107	48	0	0	0	0	0	0
EXPOSED FLOOR	2.6	0.4	0	0	0	0	0	0	121	316	52	29	76	98	256	42	0	0	0
BASEMENT/CRAWL HEAT LOSS			0	0	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	0	0
SUBTOTAL HT LOSS			1458			668			1308		1323		1824	0.20	0.31	100			
SUB TOTAL HT GAIN			1426			0.20	0.31	795	0.20	0.31	0.20	0.31	1824	0.20	0.31	100			
LEVEL FACTOR / MULTIPLIER			0.20	0.31	0.20	0.31	204	47	400	612	78	108	108	118	118	6			
AIR CHANGE HEAT LOSS			446			84			171		244		297	50	50	11			
AIR CHANGE HEAT GAIN			0			0			1		240		240	0	0	0			
DUCT LOSS			0			0			797		797		797	0	0	0			
DUCT GAIN			0			0			1878		3487		2873	552	552	151			
HEAT GAIN PEOPLE	240		2			480			1		244		297	0	0	11			
HEAT GAIN APPLIANCES/LIGHTS			797			0			797		797		797	0	0	0			
TOTAL HT LOSS BTU/H			1904			872			1878		3487		2873	552	552	151			
TOTAL HT GAIN x 1.3 BTU/H			3624			1095			3487		4245		4245	151	151	151			

ROOM USE		K/B/G		FOY		MUD		BAS	
EXP. WALL	20	EXP. WALL	20	EXP. WALL	26	EXP. WALL	20	EXP. WALL	67
CLG. HT.	10	CLG. HT.	10	CLG. HT.	11	CLG. HT.	12	CLG. HT.	9
FACTORS		FACTORS		FACTORS		FACTORS		FACTORS	
GRS.WALL AREA	202	GRS.WALL AREA	202	GRS.WALL AREA	289	GRS.WALL AREA	242	GRS.WALL AREA	402
GLAZING	LOSS	GLAZING	LOSS	GLAZING	LOSS	GLAZING	LOSS	GLAZING	LOSS
NORTH	0	NORTH	0	NORTH	0	NORTH	0	NORTH	0
EAST	0	EAST	0	EAST	27	EAST	0	EAST	0
SOUTH	0	SOUTH	0	SOUTH	588	SOUTH	0	SOUTH	0
WEST	0	WEST	0	WEST	0	WEST	0	WEST	0
SKYLT.	78	SKYLT.	1699	SKYLT.	0	SKYLT.	0	SKYLT.	12
DOORS	0	DOORS	3241	DOORS	0	DOORS	0	DOORS	261
NET EXPOSED WALL	0	NET EXPOSED WALL	0	NET EXPOSED WALL	40				
NET EXPOSED BSMT WALL ABOVE GR	124	NET EXPOSED BSMT WALL ABOVE GR	621	NET EXPOSED BSMT WALL ABOVE GR	86	NET EXPOSED BSMT WALL ABOVE GR	20	NET EXPOSED BSMT WALL ABOVE GR	517
EXPOSED CLG	0	EXPOSED CLG	0	EXPOSED CLG	0	EXPOSED CLG	0	EXPOSED CLG	85
EXPOSED CLG	0	EXPOSED CLG	0	EXPOSED CLG	222	EXPOSED CLG	932	EXPOSED CLG	163
NO ATTIC EXPOSED CLG	0	NO ATTIC EXPOSED CLG	0	NO ATTIC EXPOSED CLG	0	NO ATTIC EXPOSED CLG	0	NO ATTIC EXPOSED CLG	222
EXPOSED FLOOR	0	EXPOSED FLOOR	0	EXPOSED FLOOR	0	EXPOSED FLOOR	0	EXPOSED FLOOR	934
BASEMENT/CRAWL HEAT LOSS	0	BASEMENT/CRAWL HEAT LOSS	0	BASEMENT/CRAWL HEAT LOSS	0	BASEMENT/CRAWL HEAT LOSS	0	BASEMENT/CRAWL HEAT LOSS	154
SLAB ON GRADE HEAT LOSS	0	SLAB ON GRADE HEAT LOSS	0	SLAB ON GRADE HEAT LOSS	0	SLAB ON GRADE HEAT LOSS	0	SLAB ON GRADE HEAT LOSS	0
SUBTOTAL HT LOSS	0	SUBTOTAL HT LOSS	0	SUBTOTAL HT LOSS	0	SUBTOTAL HT LOSS	0	SUBTOTAL HT LOSS	0
SUB TOTAL HT GAIN	2221	SUB TOTAL HT GAIN	3327	SUB TOTAL HT GAIN	2554	SUB TOTAL HT GAIN	1461	SUB TOTAL HT GAIN	3995
LEVEL FACTOR / MULTIPLIER	0.30	LEVEL FACTOR / MULTIPLIER	0.43	LEVEL FACTOR / MULTIPLIER	0.30	LEVEL FACTOR / MULTIPLIER	0.43	LEVEL FACTOR / MULTIPLIER	0.50
AIR CHANGE HEAT LOSS	952	AIR CHANGE HEAT LOSS	197	AIR CHANGE HEAT LOSS	1085	AIR CHANGE HEAT LOSS	622	AIR CHANGE HEAT LOSS	4447
AIR CHANGE HEAT GAIN	0	AIR CHANGE HEAT GAIN	0	AIR CHANGE HEAT GAIN	0	AIR CHANGE HEAT GAIN	0	AIR CHANGE HEAT GAIN	0
DUCT LOSS	0	DUCT LOSS	0	DUCT LOSS	0	DUCT LOSS	0	DUCT LOSS	0
DUCT GAIN	0	DUCT GAIN	0	DUCT GAIN	0	DUCT GAIN	0	DUCT GAIN	0
HEAT GAIN PEOPLE	240	HEAT GAIN PEOPLE	240	HEAT GAIN PEOPLE	0	HEAT GAIN PEOPLE	0	HEAT GAIN PEOPLE	0
HEAT GAIN APPLIANCES/LIGHTS	797	HEAT GAIN APPLIANCES/LIGHTS	797	HEAT GAIN APPLIANCES/LIGHTS	0	HEAT GAIN APPLIANCES/LIGHTS	0	HEAT GAIN APPLIANCES/LIGHTS	0
TOTAL HT LOSS BTU/H	3172	TOTAL HT LOSS BTU/H	5616	TOTAL HT LOSS BTU/H	3649	TOTAL HT LOSS BTU/H	2072	TOTAL HT LOSS BTU/H	8342
TOTAL HT GAIN x 1.3 BTU/H		TOTAL HT GAIN x 1.3 BTU/H		TOTAL HT GAIN x 1.3 BTU/H	3026	TOTAL HT GAIN x 1.3 BTU/H	329	TOTAL HT GAIN x 1.3 BTU/H	1030

SITE NAME: CENTREFIELD (WEST GORMLEY)
BUILDER: ROYAL PINE HOMESOPT 2ND
TYPE: 2008

DATE: Sep-21

GFA: 1672 LO# 87530

HEATING CFM 820 COOLING CFM 820
TOTAL HEAT LOSS 25,316 TOTAL HEAT GAIN 22,603
AIR FLOW RATE CFM 32.39 AIR FLOW RATE CFM 36.28**CARRIER
59TN6A-060-14V 60
FAN SPEED
LOW 820
MEDLOW 0
MEDIUM 0
MEDIUM HIGH 0
HIGH 1520AFUE = 97 %
INPUT (BTU/H) = 60,000
OUTPUT (BTU/H) = 58,000
DESIGN CFM = 820
CFM @ .6" E.S.P.

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	0	5	3
R/A	0	0	4	1	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	10	14	15	18	19	20	21	23	24
ROOM NAME	MBR	MBR	BED-2	BED-2	BED-3	BED-3	BATH	ENS	K/B/G	K/B/G	FOY	FOY	MUD	BAS	BAS	BAS
RM LOSS MBH	0.95	0.95	0.94	0.94	1.44	1.44	0.55	0.87	1.59	1.59	1.82	1.82	2.07	2.78	2.78	2.78
CFM PER RUN HEAT	31	31	30	30	47	47	18	28	51	51	59	59	67	90	90	90
RM GAIN MBH	1.81	1.81	1.74	1.74	2.12	2.12	0.15	1.10	2.81	2.81	1.51	1.51	0.33	0.34	0.34	0.34
CFM PER RUN COOLING	66	66	63	63	77	77	5	40	102	102	55	55	12	12	12	12
ADJUSTED PRESSURE	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.16	0.16	0.17	0.17	0.17	0.16	0.16	0.16
ACTUAL DUCT LGH.	35	27	64	63	76	72	56	34	8	7	56	62	40	12	26	57
EQUIVALENT LENGTH	180	130	150	140	190	210	190	150	110	180	130	130	150	130	120	140
TOTAL EFFECTIVE LENGTH	215	157	214	203	266	282	246	184	118	187	186	192	190	142	146	197
ADJUSTED PRESSURE	0.08	0.11	0.08	0.08	0.06	0.06	0.07	0.09	0.14	0.09	0.09	0.09	0.09	0.11	0.11	0.08
ROUND DUCT SIZE	5	5	5	5	6	6	4	4	6	6	5	5	5	6	6	6
HEATING VELOCITY (f/min)	228	228	220	220	240	240	207	321	260	260	433	433	492	459	459	459
COOLING VELOCITY (f/min)	485	485	463	463	393	393	57	459	520	520	404	404	88	61	61	61
OUTLET GRILL SIZE	3X10	3X10	3X10	3X10	4X10	4X10	3X10	3X10	4X10	4X10	3X10	3X10	3X10	4X10	4X10	4X10
TRUNK	C	C	B	B	A	A	B	C	C	C	A	A	B	C	C	A

RUN #	1	2	3	4	5	6	7	10	14	15	18	19	20	21	23	24
ROOM NAME	MBR	MBR	BED-2	BED-2	BED-3	BED-3	BATH	ENS	K/B/G	K/B/G	FOY	FOY	MUD	BAS	BAS	BAS
RM LOSS MBH	0.95	0.95	0.94	0.94	1.44	1.44	0.55	0.87	1.59	1.59	1.82	1.82	2.07	2.78	2.78	2.78
CFM PER RUN HEAT	31	31	30	30	47	47	18	28	51	51	59	59	67	90	90	90
RM GAIN MBH	1.81	1.81	1.74	1.74	2.12	2.12	0.15	1.10	2.81	2.81	1.51	1.51	0.33	0.34	0.34	0.34
CFM PER RUN COOLING	66	66	63	63	77	77	5	40	102	102	55	55	12	12	12	12
ADJUSTED PRESSURE	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.16	0.16	0.17	0.17	0.17	0.16	0.16	0.16
ACTUAL DUCT LGH.	35	27	64	63	76	72	56	34	8	7	56	62	40	12	26	57
EQUIVALENT LENGTH	180	130	150	140	190	210	190	150	110	180	130	130	150	130	120	140
TOTAL EFFECTIVE LENGTH	215	157	214	203	266	282	246	184	118	187	186	192	190	142	146	197
ADJUSTED PRESSURE	0.08	0.11	0.08	0.08	0.06	0.06	0.07	0.09	0.14	0.09	0.09	0.09	0.09	0.11	0.11	0.08
ROUND DUCT SIZE	5	5	5	5	6	6	4	4	6	6	5	5	5	6	6	6
HEATING VELOCITY (f/min)	228	228	220	220	240	240	207	321	260	260	433	433	492	459	459	459
COOLING VELOCITY (f/min)	485	485	463	463	393	393	57	459	520	520	404	404	88	61	61	61
OUTLET GRILL SIZE	3X10	3X10	3X10	3X10	4X10	4X10	3X10	3X10	4X10	4X10	3X10	3X10	3X10	4X10	4X10	4X10
TRUNK	C	C	B	B	A	A	B	C	C	C	A	A	B	C	C	A

SUPPLY AIR TRUNK SIZE													RETURN AIR TRUNK SIZE												
	TRUNK CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT	VELOCITY (ft/min)	TRUNK CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT	VELOCITY (ft/min)		TRUNK CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT	VELOCITY (ft/min)									
TRUNK A	302	0.06	9.6	10	8	TRUNK G	0	0.00	0	0	8	TRUNK O	0	0.05	0	0	8								
TRUNK B	447	0.06	11.1	14	8	TRUNK H	0	0.00	0	0	8	TRUNK P	0	0.05	0	0	8								
TRUNK C	820	0.06	14	22	8	TRUNK I	0	0.00	0	0	8	TRUNK Q	0	0.05	0	0	8								
TRUNK D	0	0.00	0	0	8	TRUNK J	0	0.00	0	0	8	TRUNK R	0	0.05	0	0	8								
TRUNK E	0	0.00	0	0	8	TRUNK K	0	0.00	0	0	8	TRUNK S	0	0.05	0	0	8								
TRUNK F	0	0.00	0	0	8	TRUNK L	0	0.00	0	0	8	TRUNK T	0	0.05	0	0	8								
												TRUNK U	0	0.05	0	0	8								
												TRUNK V	0	0.05	0	0	8								
												TRUNK W	0	0.05	0	0	8								
RETURN AIR #	1	2	3	4	5					BR		TRUNK X	820	0.05	14.6	24	8								
AIR VOLUME	95	115	75	75	340	0	0	0	0	0	0	TRUNK Y	360	0.05	10.8	14	8								
PLENUM PRESSURE	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	TRUNK Z	150	0.05	7.8	8	338								
ACTUAL DUCT LGH.	69	67	72	76	21	1	1	1	1	1	1	DROP	820	0.05	14.6	24	492								
EQUIVALENT LENGTH	215	255	225	230	175	0	0	0	0	0	0														
TOTAL EFFECTIVE LH	284	322	297	306	196	1	1	1	1	1	1														
ADJUSTED PRESSURE	0.05	0.05	0.05	0.05	0.08	14.80	14.80	14.80	14.80	14.80	14.80														
ROUND DUCT SIZE	6.5	7	6	6	9.4	0	0	0	0	0	0														
INLET GRILL SIZE	8	8	8	8	6	0	0	0	0	0	0														
	X	X	X	X	X	X	X	X	X	X	X														
INLET GRILL SIZE	14	14	14	14	30	0	0	0	0	0	0														

TYPE: 2008
SITE NAME: CENTREFIELD (WEST GORMLEY)

LO # 87530
OPT 2ND

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	2 @ 10.6 cfm	21.2 cfm
Kitchen & Bathrooms	4 @ 10.6 cfm	42.4 cfm
Other Rooms	2 @ 10.6 cfm	21.2 cfm
Table 9.32.3.A.	TOTAL	127.2 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	63.6	cfm

SUPPLEMENTAL VENTILATION CAPACITY		9.32.3.5.
Total Ventilation Capacity	127.2	cfm
Less Principal Ventil. Capacity	63.6	cfm
Required Supplemental Capacity	63.6	cfm

PRINCIPAL EXHAUST FAN CAPACITY	
Model: VANE 65H	Location: BSMT
63.6 cfm	☒ HVI Approved

PRINCIPAL EXHAUST HEAT LOSS CALCULATION				
CFM	$\Delta T \cdot F$	FACTOR	% LOSS	
63.6 CFM	X 78 F	X 1.08	X	0.25

SUPPLEMENTAL FANS BY INSTALLING CONTRACTOR				
Location	Model	cfm	HVI	Sones
ENS	BY INSTALLING CONTRACTOR	50	☒	3.5
BATH	BY INSTALLING CONTRACTOR	50	☒	3.5
PWD	BY INSTALLING CONTRACTOR	50	☒	3.5

HEAT RECOVERY VENTILATOR		9.32.3.11.
Model: VANE 65H		
155 cfm high	64 cfm low	
75 % Sensible Efficiency	☒ HVI Approved	
@ 32 deg F (0 deg C)		

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:	September-21

CSA F280-12 Residential Heat Loss and Heat Gain Calculations																																																																															
Formula Sheet (For Air Leakage / Ventilation Calculation)																																																																															
LO#: 87530	Model: 2008	Builder: ROYAL PINE HOMES	Date: 9/10/2021																																																																												
Volume Calculation		Air Change & Delta T Data																																																																													
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5.2.3.2 Heat Loss due to Mechanical Ventilation																																																																															
$HL_{vairb} = PVC \times DTD_h \times 1.08 \times (1 - E)$																																																																															
64 CFM	x	78 °F	x																																																																												
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		0.25	x																																																																												
			= 1336 Btu/h																																																																												
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*HLairbv = Air leakage heat loss + ventilation heat loss *For a balanced or supply only ventilation system HLairve = 0																																																																															

HEAT LOSS AND GAIN SUMMARY SHEET

MODEL: 2008	OPT 2ND	BUILDER: ROYAL PINE HOMES
SFQT: 1672	LO# 87530	SITE: CENTREFIELD (WEST GORMLEY)

DESIGN ASSUMPTIONS

HEATING	°F	COOLING	°F
OUTDOOR DESIGN TEMP.	-6	OUTDOOR DESIGN TEMP.	88
INDOOR DESIGN TEMP.	72	INDOOR DESIGN TEMP. (MAX 75°F)	75

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 (ft³):	22535.8	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	4
INTERIOR LIGHTING LOAD (Btu/h/ft²):	1.65	DC BRUSHLESS MOTOR (Y/N):	Y
FOUNDATION CONFIGURATION	BCIN_1	DEPTH BELOW GRADE:	6.0 ft
LENGTH: 52.0 ft	WIDTH: 20.0 ft	EXPOSED PERIMETER:	67.0 ft

2012 OBC - COMPLIANCE PACKAGE

Component	Compliance Package SB-12 PERFORMANCE	
	Nominal	Min. Eff.
Ceiling with Attic Space Minimum RSI (R)-Value	60	59.20
Ceiling Without Attic Space Minimum RSI (R)-Value	31	27.70
Exposed Floor Minimum RSI (R)-Value	31	29.80
Walls Above Grade Minimum RSI (R)-Value	22+1.5	18.50
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	TE=94%	-

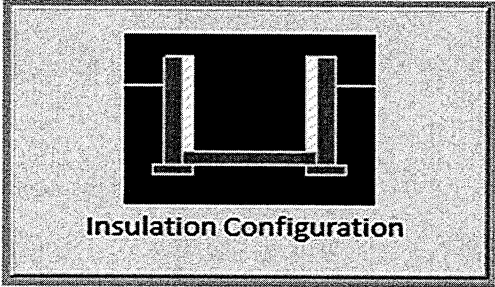
INDIVIDUAL BCIN: 19669

MICHAEL O'ROURKE



Residential Foundation Thermal Load Calculator

Supplemental tool for CAN/CSA-F280

Weather Station Description		
Province:	Ontario	
Region:	Richmond Hill	
Site Description		
Soil Conductivity:	Normal conductivity: dry sand, loam, clay	
Water Table:	Normal (7-10 m, 23-33 ft)	
Foundation Dimensions		
Floor Length (m):	15.8	
Floor Width (m):	6.1	
Exposed Perimeter (m):	20.4	
Wall Height (m):	2.7	
Depth Below Grade (m):	1.83	
Window Area (m ²):	1.1	
Door Area (m ²):	2.8	
Radiant Slab		
Heated Fraction of the Slab:	0	
Fluid Temperature (°C):	33	
Design Months		
Heating Month	1	
Foundation Loads		
Heating Load (Watts):		620

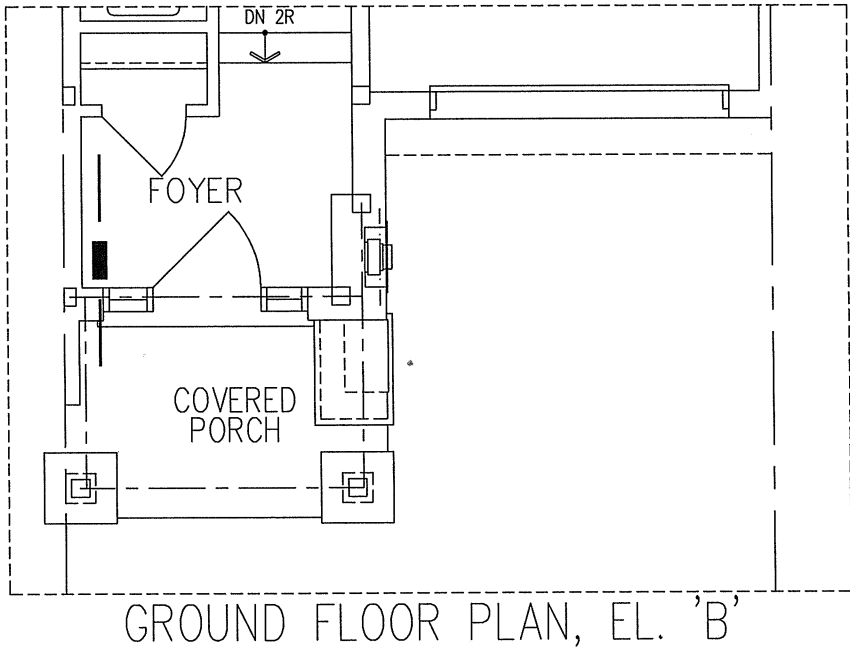
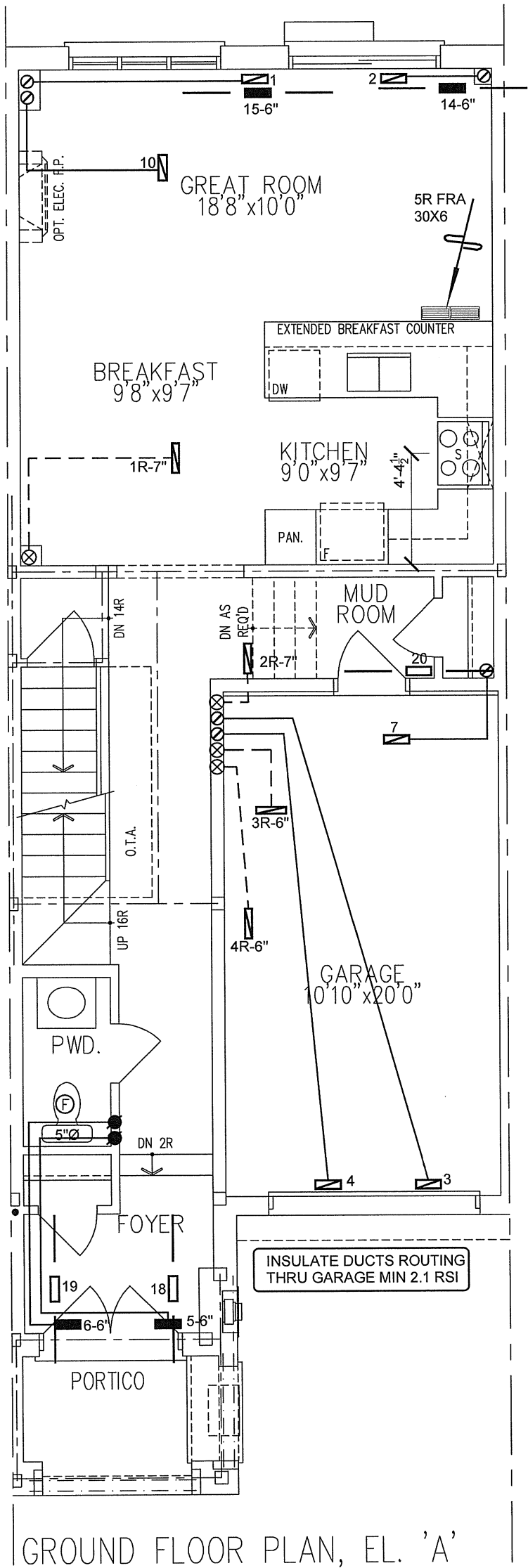
Air Infiltration Residential Load Calculator

Supplemental tool for CAN/CSA-F280

Weather Station Description				
Province:	Ontario			
Region:	Richmond Hill			
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):	6.74			
Building Configuration				
Type:	Semi			
Number of Stories:	Two			
Foundation:	Full			
House Volume (m ³):	638.1			
Air Leakage/Ventilation				
Air Tightness Type:	Energy Star Attached (3.0 ACH)			
Custom BDT Data:	ELA @ 10 Pa.	714.8 cm ²		
	3.00	ACH @ 50 Pa		
Mechanical Ventilation (L/s):	Total Supply	Total Exhaust		
	30.0	30.0		
Flue Size				
Flue #:	#1	#2	#3	#4
Diameter (mm):	0	0	0	0
Natural Infiltration Rates				
Heating Air Leakage Rate (ACH/H):	0.284			
Cooling Air Leakage Rate (ACH/H):	0.086			

TYPE: 2008
LO# 87530

OPT 2ND



I MICHAEL O'ROURKE HAVE REVIEWED AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED UNDER DIVISION C, 3.2.5 OF THE BUILDING CODE.

Michael O'Rourke
Michael O'Rourke, BCIN# 19669
HVAC DESIGNS LTD.

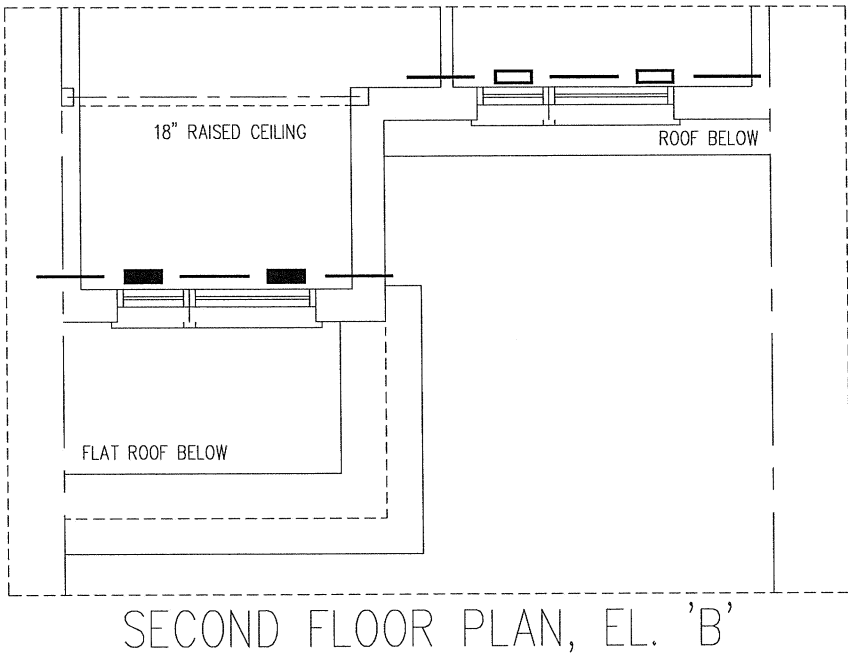
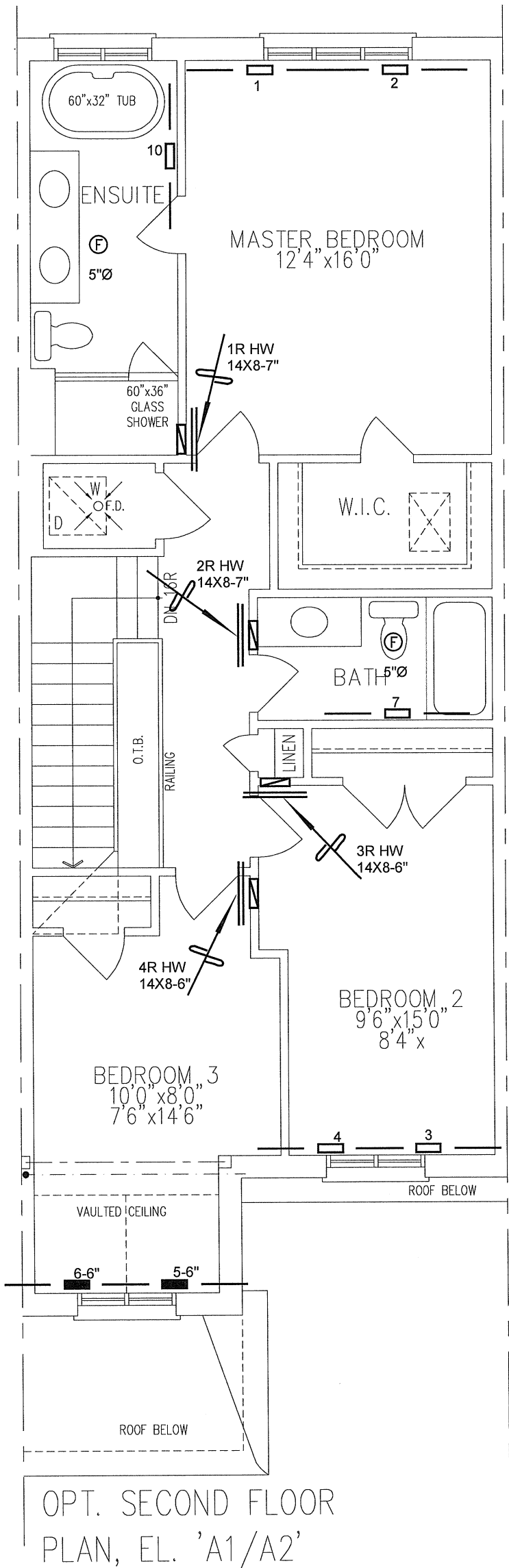
CSA-F280-12

SB-12 PERFORMANCE

HVAC LEGEND								3.		
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	2.	REVISED ACH	SEPT/2021
	SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		14"x8" RETURN AIR GRILLE		RETURN AIR STACK ABOVE	1.	REVISED TO PERFORMANCE	SEPT/2020
	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.

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		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.	Date	
CENTREFIELD (WEST GORMLEY) RICHMOND HILL, ONTARIO			SEPT/2020	
OPT 2ND 2008			Scale	
1672 sqft			3/16" = 1'-0"	
			BCIN# 19669	
			LO# 87530	



I MICHAEL O'ROURKE HAVE REVIEWED AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED UNDER DIVISION C, 3.2.5 OF THE BUILDING CODE.

Michael O'Rourke
Michael O'Rourke, BCIN# 19669
HVAC DESIGNS LTD.

CSA-F280-12

SB-12 PERFORMANCE

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ROYAL PINE HOMES			SECOND FLOOR HEATING LAYOUT	
Project Name			Date	SEPT/2020
CENTREFIELD (WEST GORMLEY) RICHMOND HILL, ONTARIO			Scale	3/16" = 1'-0"
OPT 2ND 2008			BCIN# 19669	
1672 sqft			LO#	87530