

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@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: 2009 FIN BSMT Project: CENTREFIELD (WEST GORMLEY)		
D. Declaration of Designer				
I, <u>MICHAEL O'ROURKE</u> 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 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		 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: CENTREFIELD (WEST GORMLEY) FIN BSMT TYPE: 2009 DATE: Sep-21 LO# 87533 WINTER NATURAL AIR CHANGE RATE 0.284 HEAT LOSS AT °F. 78 CSA-F280-12
BUILDER: ROYAL PINE HOMES GFA: 1660 SUMMER NATURAL AIR CHANGE RATE 0.086 HEAT GAIN AT °F. 13 SB-12 PERFORMANCE

ROOM USE	EXP. WALL	CLG. HT.	MBR	ENS	K/B/G	BED-2	BED-3	BATH	WINTER NATURAL AIR CHANGE RATE	HEAT LOSS AT °F. 78	CSA-F280-12
GRS.WALL AREA	14	9	126	54	23	10	15	0			
GLAZING											
NORTH	21.8	16.0	0	0	0	0	0	0			
EAST	21.8	41.6	0	0	0	0	0	0			
SOUTH	21.8	24.9	0	0	0	0	0	0			
WEST	21.8	41.6	28	9	0	0	0	0			
SKYLT.	35.8	101.2	0	0	0	0	0	0			
DOORS	25.8	4.3	0	0	0	0	0	0			
NET EXPOSED WALL	4.2	0.7	98	45	189	31	0	0			
NET EXPOSED BSMT WALL ABOVE GR	3.7	0.6	0	0	0	0	0	0			
EXPOSED CLG	1.3	0.6	382	502	225	78	103	46			
NO ATTIC EXPOSED CLG	2.8	1.3	0	0	0	0	0	0			
EXPOSED FLOOR	2.6	0.4	0	0	0	0	0	0			
BASEMENT/CRAWL HEAT LOSS											
SLAB ON GRADE HEAT LOSS											
SUBTOTAL HT LOSS			1524	488		1665	1637	232		175	
SUB TOTAL HT GAIN			0.20	0.34	1456	0.20	0.34	0.20		0.50	
LEVEL FACTOR / MULTIPLIER			512	164		525	550	78		1.29	
AIR CHANGE HEAT LOSS										226	
AIR CHANGE HEAT GAIN										0	
DUCT LOSS			0	0		209	219	31		0	
DUCT GAIN			2	480		263	299	7		0	
HEAT GAIN PEOPLE						240	240	240		0	
HEAT GAIN APPLIANCES/LIGHTS						913	913	0		0	
TOTAL HT LOSS BTU/H			2036	652		2300	2406	340		401	
TOTAL HT GAIN x 1.3 BTU/H						3822	4273	101		0	

ROOM USE	EXP. WALL	CLG. HT.	MBR	ENS	K/B/G	BED-2	BED-3	BATH	WINTER NATURAL AIR CHANGE RATE	HEAT LOSS AT °F. 78	CSA-F280-12
GRS.WALL AREA	14	9	126	54	23	10	15	0			
GLAZING											
NORTH	21.8	16.0	0	0	0	0	0	0			
EAST	21.8	41.6	0	0	0	0	0	0			
SOUTH	21.8	24.9	0	0	0	0	0	0			
WEST	21.8	41.6	28	9	0	0	0	0			
SKYLT.	35.8	101.2	0	0	0	0	0	0			
DOORS	25.8	4.3	0	0	0	0	0	0			
NET EXPOSED WALL	4.2	0.7	98	45	189	31	0	0			
NET EXPOSED BSMT WALL ABOVE GR	3.7	0.6	0	0	0	0	0	0			
EXPOSED CLG	1.3	0.6	382	502	225	78	103	46			
NO ATTIC EXPOSED CLG	2.8	1.3	0	0	0	0	0	0			
EXPOSED FLOOR	2.6	0.4	0	0	0	0	0	0			
BASEMENT/CRAWL HEAT LOSS											
SLAB ON GRADE HEAT LOSS											
SUBTOTAL HT LOSS			1524	488		1665	1637	232		175	
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HEAT GAIN APPLIANCES/LIGHTS						913	913	0		0	
TOTAL HT LOSS BTU/H			2036	652		2300	2406	340		401	
TOTAL HT GAIN x 1.3 BTU/H						3822	4273	101		0	

TOTAL HEAT GAIN BTU/H: 22955 TONS: 1.91 LOSS DUE TO VENTILATION LOAD BTU/H: 1336 STRUCTURAL HEAT LOSS: 24862 TOTAL COMBINED HEAT LOSS BTU/H: 26198

1 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: 15669

MICHAEL O'ROURKE

SITE NAME: CENTREFIELD (WEST GORMLEY)
BUILDER: ROYAL PINE HOMES

FIN BSMT
TYPE: 2009

DATE: Sep-21 GFA: 1660 LO# 87533

HEATING CFM 820 COOLING CFM 820
TOTAL HEAT LOSS 24,862 TOTAL HEAT GAIN 22,735
AIR FLOW RATE CFM 32.98 AIR FLOW RATE CFM 36.07

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

**CARRIER
59T6A-060-14V 60

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

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

plenum pressure s/a 0.18
max s/a diff press. loss 0.03
min adjusted pressure s/a 0.15

r/a pressure 0.17
r/a grille press. loss 0.02
adjusted pressure r/a 0.15

DESIGN CFM = 820
CFM @ 5" E.S.P.

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	10	14	15	18	19	20	21	22	23	24
ROOM NAME	MBR	ENS	BED-3	BED-2	BED-3	BED-3	BATH	BED-2	MBR	K/B/G	K/B/G	PWD	FOY	FOY	BAS	B-BATH	BAS	BAS
RM LOSS MBH	1.02	0.65	1.15	1.15	1.20	1.20	0.34	1.15	1.02	1.85	1.85	1.43	1.94	1.94	2.57	0.40	2.57	2.57
CFM PER RUN HEAT	34	21	38	40	40	40	11	38	34	61	61	47	64	64	85	13	85	85
RM GAIN MBH	1.91	0.62	1.88	1.88	2.14	2.14	0.10	1.88	1.91	3.07	3.07	0.23	0.96	0.96	0.62	0.00	0.62	0.62
CFM PER RUN COOLING	69	22	68	77	77	77	4	68	69	111	111	8	35	35	23	0	23	23
ADJUSTED PRESSURE	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.15	0.15	0.17	0.17	0.17	0.16	0.17	0.16	0.16
ACTUAL DUCT LGH	33	26	52	53	50	50	30	47	39	23	19	22	36	39	31	11	24	33
EQUIVALENT LENGTH	110	170	150	150	180	180	140	130	140	170	150	160	110	110	160	140	180	120
TOTAL EFFECTIVE LENGTH	143	196	202	243	230	230	170	177	179	193	169	182	146	149	191	151	204	153
ADJUSTED PRESSURE	0.12	0.09	0.09	0.09	0.07	0.07	0.1	0.1	0.1	0.08	0.09	0.09	0.12	0.12	0.08	0.11	0.08	0.11
ROUND DUCT SIZE	5	4	5	6	6	6	4	5	5	6	6	5	5	5	6	4	6	6
HEATING VELOCITY (f/min)	250	241	279	204	204	204	126	279	250	311	311	345	470	470	433	149	433	433
COOLING VELOCITY (f/min)	507	252	499	393	393	393	46	499	507	566	566	59	257	257	117	0	117	117
OUTLET GRILL SIZE	3X10	3X10	3X10	3X10	4X10	4X10	3X10	3X10	3X10	4X10	4X10	3X10	3X10	3X10	4X10	3X10	4X10	4X10
TRUNK	C	C	B	A	A	A	B	B	C	C	C	B	A	A	C	B	C	A

ROOM NAME	ROOM NAME	ROOM NAME	ROOM NAME	ROOM NAME	ROOM NAME	ROOM NAME	ROOM NAME	ROOM NAME	ROOM NAME	ROOM NAME	ROOM NAME	ROOM NAME	ROOM NAME	ROOM NAME	ROOM NAME	ROOM NAME	ROOM NAME	ROOM NAME	ROOM NAME
RM LOSS MBH	RM LOSS MBH	RM LOSS MBH	RM LOSS MBH	RM LOSS MBH	RM LOSS MBH	RM LOSS MBH	RM LOSS MBH	RM LOSS MBH	RM LOSS MBH	RM LOSS MBH	RM LOSS MBH	RM LOSS MBH	RM LOSS MBH	RM LOSS MBH	RM LOSS MBH	RM LOSS MBH	RM LOSS MBH	RM LOSS MBH	RM LOSS MBH
CFM PER RUN HEAT	CFM PER RUN HEAT	CFM PER RUN HEAT	CFM PER RUN HEAT	CFM PER RUN HEAT	CFM PER RUN HEAT	CFM PER RUN HEAT	CFM PER RUN HEAT	CFM PER RUN HEAT	CFM PER RUN HEAT	CFM PER RUN HEAT	CFM PER RUN HEAT	CFM PER RUN HEAT	CFM PER RUN HEAT	CFM PER RUN HEAT	CFM PER RUN HEAT	CFM PER RUN HEAT	CFM PER RUN HEAT	CFM PER RUN HEAT	CFM PER RUN HEAT
RM GAIN MBH	RM GAIN MBH	RM GAIN MBH	RM GAIN MBH	RM GAIN MBH	RM GAIN MBH	RM GAIN MBH	RM GAIN MBH	RM GAIN MBH	RM GAIN MBH	RM GAIN MBH	RM GAIN MBH	RM GAIN MBH	RM GAIN MBH	RM GAIN MBH	RM GAIN MBH	RM GAIN MBH	RM GAIN MBH	RM GAIN MBH	RM GAIN MBH
CFM PER RUN COOLING	CFM PER RUN COOLING	CFM PER RUN COOLING	CFM PER RUN COOLING	CFM PER RUN COOLING	CFM PER RUN COOLING	CFM PER RUN COOLING	CFM PER RUN COOLING	CFM PER RUN COOLING	CFM PER RUN COOLING	CFM PER RUN COOLING	CFM PER RUN COOLING	CFM PER RUN COOLING	CFM PER RUN COOLING	CFM PER RUN COOLING	CFM PER RUN COOLING	CFM PER RUN COOLING	CFM PER RUN COOLING	CFM PER RUN COOLING	CFM PER RUN COOLING
ADJUSTED PRESSURE	ADJUSTED PRESSURE	ADJUSTED PRESSURE	ADJUSTED PRESSURE	ADJUSTED PRESSURE	ADJUSTED PRESSURE	ADJUSTED PRESSURE	ADJUSTED PRESSURE	ADJUSTED PRESSURE	ADJUSTED PRESSURE	ADJUSTED PRESSURE	ADJUSTED PRESSURE	ADJUSTED PRESSURE	ADJUSTED PRESSURE	ADJUSTED PRESSURE	ADJUSTED PRESSURE	ADJUSTED PRESSURE	ADJUSTED PRESSURE	ADJUSTED PRESSURE	ADJUSTED PRESSURE
ACTUAL DUCT LGH	ACTUAL DUCT LGH	ACTUAL DUCT LGH	ACTUAL DUCT LGH	ACTUAL DUCT LGH	ACTUAL DUCT LGH	ACTUAL DUCT LGH	ACTUAL DUCT LGH	ACTUAL DUCT LGH	ACTUAL DUCT LGH	ACTUAL DUCT LGH	ACTUAL DUCT LGH	ACTUAL DUCT LGH	ACTUAL DUCT LGH	ACTUAL DUCT LGH	ACTUAL DUCT LGH	ACTUAL DUCT LGH	ACTUAL DUCT LGH	ACTUAL DUCT LGH	ACTUAL DUCT LGH
EQUIVALENT LENGTH	EQUIVALENT LENGTH	EQUIVALENT LENGTH	EQUIVALENT LENGTH	EQUIVALENT LENGTH	EQUIVALENT LENGTH	EQUIVALENT LENGTH	EQUIVALENT LENGTH	EQUIVALENT LENGTH	EQUIVALENT LENGTH	EQUIVALENT LENGTH	EQUIVALENT LENGTH	EQUIVALENT LENGTH	EQUIVALENT LENGTH	EQUIVALENT LENGTH	EQUIVALENT LENGTH	EQUIVALENT LENGTH	EQUIVALENT LENGTH	EQUIVALENT LENGTH	EQUIVALENT LENGTH
TOTAL EFFECTIVE LENGTH	TOTAL EFFECTIVE LENGTH	TOTAL EFFECTIVE LENGTH	TOTAL EFFECTIVE LENGTH	TOTAL EFFECTIVE LENGTH	TOTAL EFFECTIVE LENGTH	TOTAL EFFECTIVE LENGTH	TOTAL EFFECTIVE LENGTH	TOTAL EFFECTIVE LENGTH	TOTAL EFFECTIVE LENGTH	TOTAL EFFECTIVE LENGTH	TOTAL EFFECTIVE LENGTH	TOTAL EFFECTIVE LENGTH	TOTAL EFFECTIVE LENGTH	TOTAL EFFECTIVE LENGTH	TOTAL EFFECTIVE LENGTH	TOTAL EFFECTIVE LENGTH	TOTAL EFFECTIVE LENGTH	TOTAL EFFECTIVE LENGTH	TOTAL EFFECTIVE LENGTH
ADJUSTED PRESSURE	ADJUSTED PRESSURE	ADJUSTED PRESSURE	ADJUSTED PRESSURE	ADJUSTED PRESSURE	ADJUSTED PRESSURE	ADJUSTED PRESSURE	ADJUSTED PRESSURE	ADJUSTED PRESSURE	ADJUSTED PRESSURE	ADJUSTED PRESSURE	ADJUSTED PRESSURE	ADJUSTED PRESSURE	ADJUSTED PRESSURE	ADJUSTED PRESSURE	ADJUSTED PRESSURE	ADJUSTED PRESSURE	ADJUSTED PRESSURE	ADJUSTED PRESSURE	ADJUSTED PRESSURE
ROUND DUCT SIZE	ROUND DUCT SIZE	ROUND DUCT SIZE	ROUND DUCT SIZE	ROUND DUCT SIZE	ROUND DUCT SIZE	ROUND DUCT SIZE	ROUND DUCT SIZE	ROUND DUCT SIZE	ROUND DUCT SIZE	ROUND DUCT SIZE	ROUND DUCT SIZE	ROUND DUCT SIZE	ROUND DUCT SIZE	ROUND DUCT SIZE	ROUND DUCT SIZE	ROUND DUCT SIZE	ROUND DUCT SIZE	ROUND DUCT SIZE	ROUND DUCT SIZE
HEATING VELOCITY (f/min)	HEATING VELOCITY (f/min)	HEATING VELOCITY (f/min)	HEATING VELOCITY (f/min)	HEATING VELOCITY (f/min)	HEATING VELOCITY (f/min)	HEATING VELOCITY (f/min)	HEATING VELOCITY (f/min)	HEATING VELOCITY (f/min)	HEATING VELOCITY (f/min)	HEATING VELOCITY (f/min)	HEATING VELOCITY (f/min)	HEATING VELOCITY (f/min)	HEATING VELOCITY (f/min)	HEATING VELOCITY (f/min)	HEATING VELOCITY (f/min)	HEATING VELOCITY (f/min)	HEATING VELOCITY (f/min)	HEATING VELOCITY (f/min)	HEATING VELOCITY (f/min)
COOLING VELOCITY (f/min)	COOLING VELOCITY (f/min)	COOLING VELOCITY (f/min)	COOLING VELOCITY (f/min)	COOLING VELOCITY (f/min)	COOLING VELOCITY (f/min)	COOLING VELOCITY (f/min)	COOLING VELOCITY (f/min)	COOLING VELOCITY (f/min)	COOLING VELOCITY (f/min)	COOLING VELOCITY (f/min)	COOLING VELOCITY (f/min)	COOLING VELOCITY (f/min)	COOLING VELOCITY (f/min)	COOLING VELOCITY (f/min)	COOLING VELOCITY (f/min)	COOLING VELOCITY (f/min)	COOLING VELOCITY (f/min)	COOLING VELOCITY (f/min)	COOLING VELOCITY (f/min)
OUTLET GRILL SIZE	OUTLET GRILL SIZE	OUTLET GRILL SIZE	OUTLET GRILL SIZE	OUTLET GRILL SIZE	OUTLET GRILL SIZE	OUTLET GRILL SIZE	OUTLET GRILL SIZE	OUTLET GRILL SIZE	OUTLET GRILL SIZE	OUTLET GRILL SIZE	OUTLET GRILL SIZE	OUTLET GRILL SIZE	OUTLET GRILL SIZE	OUTLET GRILL SIZE	OUTLET GRILL SIZE	OUTLET GRILL SIZE	OUTLET GRILL SIZE	OUTLET GRILL SIZE	OUTLET GRILL SIZE
TRUNK	TRUNK	TRUNK	TRUNK	TRUNK	TRUNK	TRUNK	TRUNK	TRUNK	TRUNK	TRUNK	TRUNK	TRUNK	TRUNK	TRUNK	TRUNK	TRUNK	TRUNK	TRUNK	TRUNK

SUPPLY AIR TRUNK SIZE	TRUNK	STATIC PRESS.	ROUND DUCT	RECT DUCT	VELOCITY (f/min)	TRUNK CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT	VELOCITY (f/min)	TRUNK CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT	VELOCITY (f/min)
TRUNK A	293	0.07	9.2	10	8	0	0.00	0	0	0	0	0.05	0	0	0
TRUNK B	440	0.07	10.7	14	8	0	0.00	0	0	0	0	0.05	0	0	0
TRUNK C	381	0.08	9.8	12	8	0	0.00	0	0	0	0	0.05	0	0	0
TRUNK D	0	0.00	0	0	0	0	0.00	0	0	0	0	0.05	0	0	0
TRUNK E	0	0.00	0	0	0	0	0.00	0	0	0	0	0.05	0	0	0
TRUNK F	0	0.00	0	0	0	0	0.00	0	0	0	0	0.05	0	0	0
RETURN AIR #	1	2	3	4	5	0	0	0	0	0	0	0	0	0	0
AIR VOLUME	95	115	75	75	340	0	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
ACTUAL DUCT LGH	69	47	56	55	21	1	1	1	1	1	1	1	1	1	1
EQUIVALENT LENGTH	205	165	245	175	150	0	0	0	0	0	0	0	0	0	0
TOTAL EFFECTIVE LENGTH	274	212	301	230	171	1	1	1	1	1	1	1	1	1	1
ADJUSTED PRESSURE	0.05	0.07	0.05	0.06	0.09	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
ROUND DUCT SIZE	6.5	6.5	6	5.7	9.1	0	0	0	0	0	0	0	0	0	0
INLET GRILL SIZE	8	8	8	8	8	0	0	0	0	0	0	0	0	0	0
INLET GRILL SIZE	X	X	X	X	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	0	0	0	0

TYPE: 2009
SITE NAME: CENTREFIELD (WEST GORMLEY)

LO # 87533
FIN BSMT

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	6 @ 10.6 cfm	63.6 cfm
Other Rooms	2 @ 10.6 cfm	21.2 cfm
Table 9.32.3.A.	TOTAL	148.4 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	148.4	cfm
Less Principal Ventil. Capacity	63.6	cfm
Required Supplemental Capacity	84.8	cfm

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

PRINCIPAL EXHAUST HEAT LOSS CALCULATION				
CFM	ΔT °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
B-BATH	BY INSTALLING CONTRACTOR	50	☒	3.5

HEAT RECOVERY VENTILATOR		9.32.3.11.
Model: VANEE 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#: 87533	Model: 2009																																																														
Volume Calculation																																																															
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6.2.6 Sensible Gain due to Air Leakage																																																															
$HG_{satb} = LR_{airc} \times \frac{V_b}{3.6} \times DTD_c \times 1.2$ 0.284 x 182.17 x 7 °C x 1.2 = 134 W = 456 Btu/h																																																															
6.2.7 Sensible heat Gain due to Ventilation																																																															
$HL_{vairb} = PVC \times DTD_h \times 1.08 \times (1 - E)$ 64 CFM x 13 °F x 1.08 x 0.25 = 220 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

HEAT LOSS AND GAIN SUMMARY SHEET

MODEL: 2009	FIN BSMT	BUILDER: ROYAL PINE HOMES
SFQT: 1660	LO# 87533	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):	23159.4	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	4
INTERIOR LIGHTING LOAD (Btu/h/ft²):	1.90	DC BRUSHLESS MOTOR (Y/N):	Y
FOUNDATION CONFIGURATION	BCIN_1	DEPTH BELOW GRADE:	7.0 ft
LENGTH: 52.0 ft	WIDTH: 20.0 ft	EXPOSED PERIMETER:	66.0 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%	-

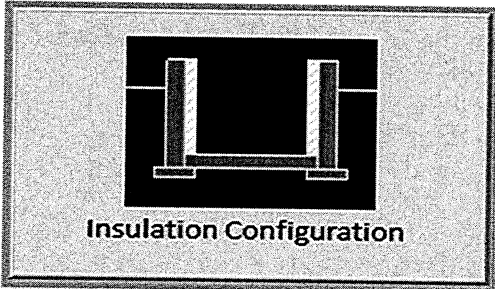
INDIVIDUAL BCIN: 19669

MICHAEL O'ROURKE



Residential Foundation Thermal Load Calculator

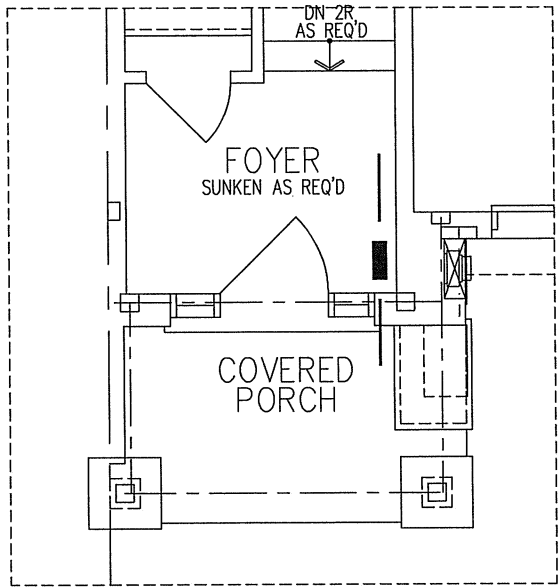
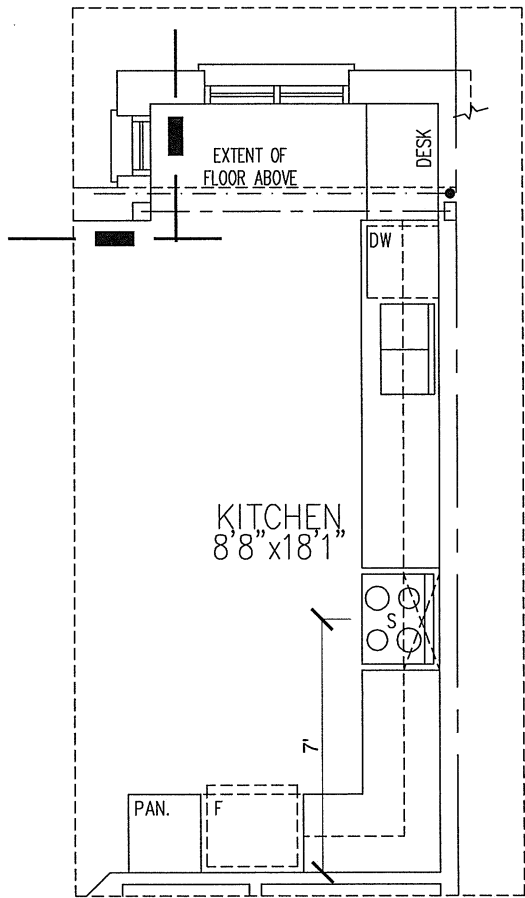
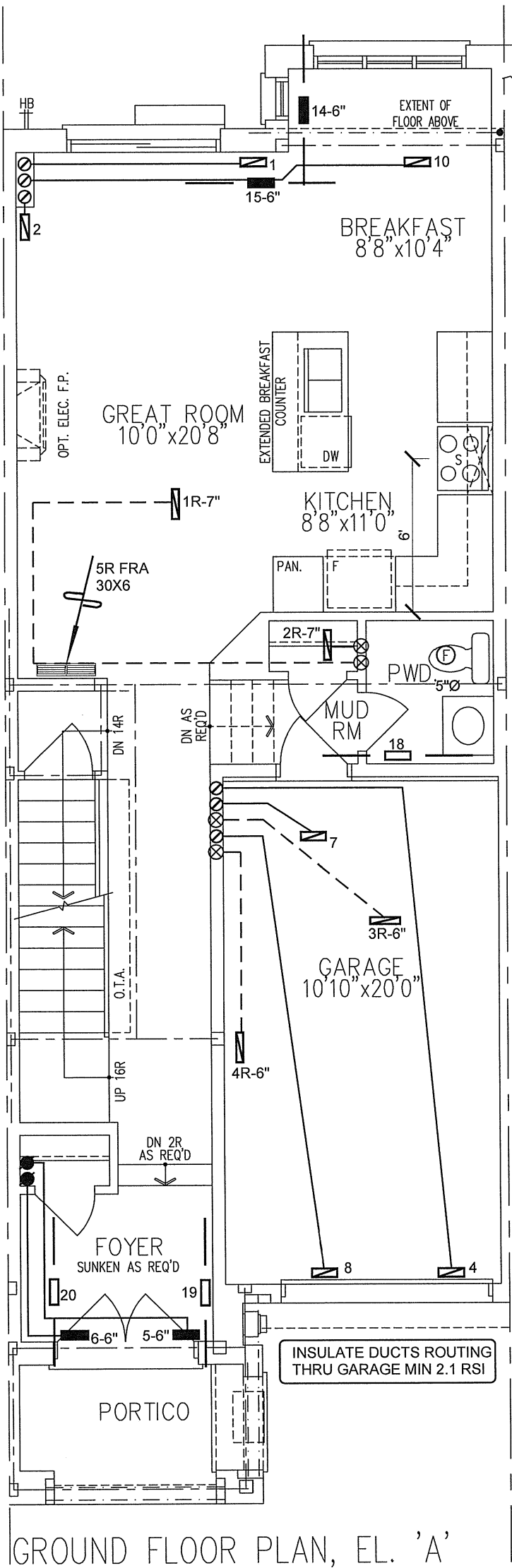
Supplemental tool for CAN/CSA-F280

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	 Insulation Configuration
Floor Width (m):	6.1	
Exposed Perimeter (m):	20.1	
Wall Height (m):	3.0	
Depth Below Grade (m):	2.13	
Window Area (m ²):	0.7	
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):		628

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):	655.8			
Air Leakage/Ventilation				
Air Tightness Type:	Energy Star Attached (3.0 ACH)			
Custom BDT Data:	ELA @ 10 Pa.	734.6 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			



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.

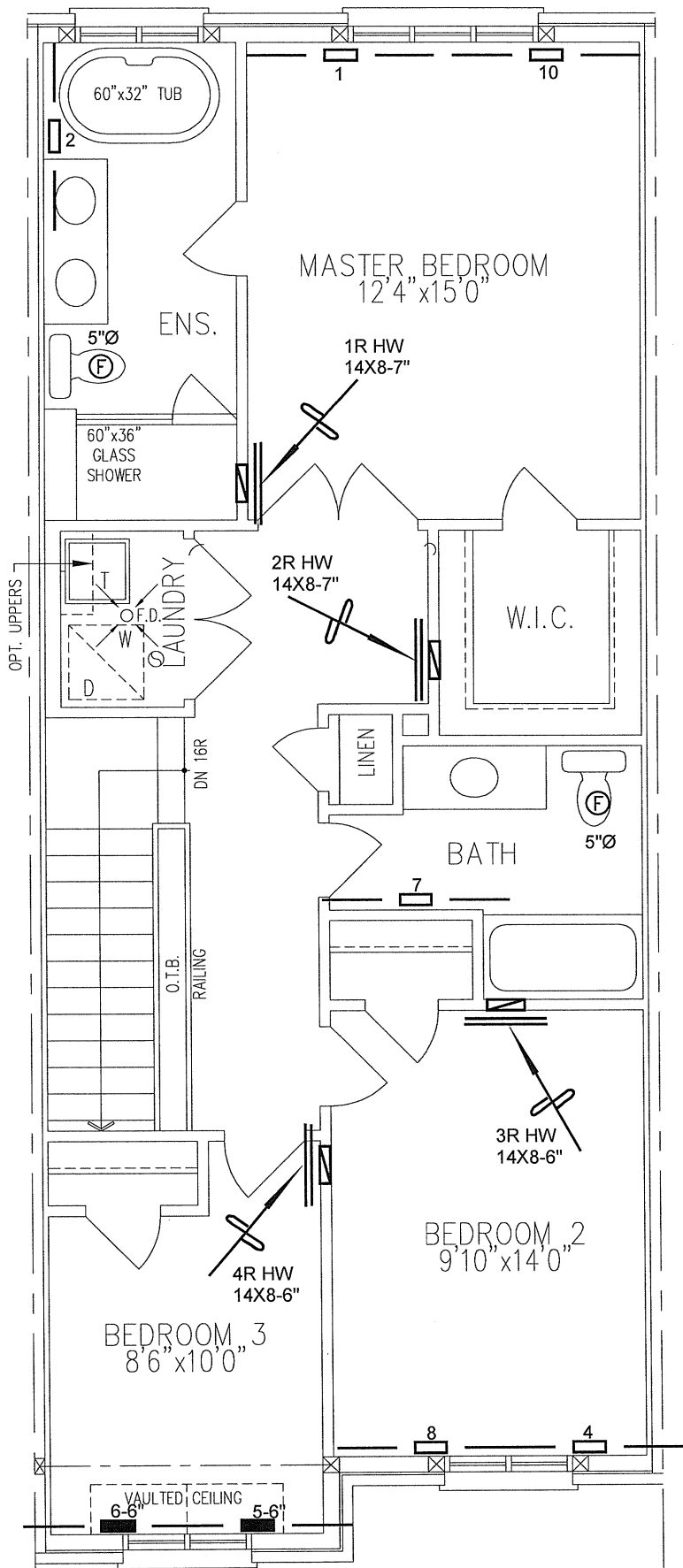
CSA-F280-12

SB-12 PERFORMANCE

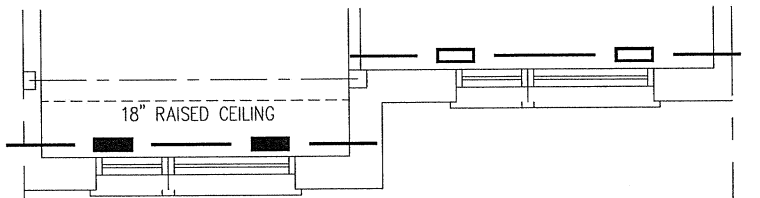
HVAC LEGEND								3.	REVISED ACH	SEPT/2021
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	2.	REVISED AS PER ARCHITECTURALS	APR/2021
	SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		14"x8" RETURN AIR GRILLE		RETURN AIR STACK ABOVE	1.	REVISED TO PERFORMANCE	SEPT/2020
	SUPPLY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

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Client		HVACDESIGNS LTD. 375 Finley Ave. Suite 202 - Ajax, Ontario L1S 2E2 Tel. 905.619.2300 - 905.420.5300 Fax 905.619.2375 Email: info@hvacdesigns.ca Web: www.hvacdesigns.ca Specializing in Residential Mechanical Design Services Installation to comply with the latest Ontario Building Code. All supply branch outlets shall be equipped with a manual balancing damper. Ductwork which passes through the garage or unheated spaces shall be adequately insulated and be gas-proofed.	Sheet Title	
ROYAL PINE HOMES			FIRST FLOOR HEATING LAYOUT	
Project Name			Date	SEPT/2020
CENTREFIELD (WEST GORMLEY) RICHMOND HILL, ONTARIO			Scale	3/16" = 1'-0"
FIN BSMT			BCIN# 19669	
2009			LO#	87533
1660 sqft				



SECOND FLOOR PLAN, EL. 'A'



SECOND FLOOR PLAN, EL. 'B'

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

CSA-F280-12

SB-12 PERFORMANCE

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