

Schedule 1: Designer Information

Use one form for each individual who reviews and takes responsibility for design activities with respect to the project.

A. Project Information			
Building number, street name		Unit no.	Lot/con.
Municipality	Postal code	Plan number/ other description	
RICHMOND HILL			
B. Individual who reviews and takes responsibility for design activities			
Name		Firm	
MICHAEL O'ROURKE		HVAC DESIGNS LTD.	
Street address		Unit no.	Lot/con.
375 FINLEY AVE		202	N/A
Municipality	Postal code	Province	E-mail
AJAX	L1S 2E2	ONTARIO	info@hvacdesigns.ca
Telephone number	Fax number	Cell number	
(905) 619-2300	(905) 619-2375	()	
C. Design activities undertaken by individual identified in Section B. [Building Code Table 3.5.2.1 OF Division C]			
☐ House ☐ 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		Model:	
HEAT LOSS / GAIN CALCULATIONS		38-10	
DUCT SIZING		OPT 2ND	
RESIDENTIAL MECHANICAL VENTILATION DESIGN SUMMARY		Project:	
RESIDENTIAL SYSTEM DESIGN per CSA-F280-12		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.			
April 22, 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.

SITE NAME: CENTREFIELD (WEST GORMLEY) BUILDER: ROYAL PINE HOMES										DATE: Apr-21 LO# 90460	WINTER NATURAL AIR CHANGE RATE SUMMER NATURAL AIR CHANGE RATE	HEAT LOSS AT °F. 78 HEAT GAIN AT °F. 13	CSA-F280-12 SB-12 PERFORMANCE
ROOM USE EXP. WALL CLG. HT.										OPT 2ND TYPE: 38-10	BATH		
FACTORS LOSS GAIN										LO# 90460			
GRS.WALL AREA										BED-4	BED-3	BED-2	BED-1
GLAZING										18	33	40	18
NORTH										9	9	9	9
EAST										162	297	360	162
SOUTH										11	0	0	11
WEST										240	0	0	240
SKYL.T.										176	0	0	176
DOORS										0	0	0	0
NET EXPOSED WALL										0	0	0	0
NET EXPOSED BMT WALL ABOVE GR										0	0	0	0
EXPOSED CLG										0	0	0	0
NO ATTIC EXPOSED CLG										0	0	0	0
EXPOSED FLOOR										0	0	0	0
BASEMENT/CRAWL HEAT LOSS										0	0	0	0
SLAB ON GRADE HEAT LOSS										0	0	0	0
SUBTOTAL HT LOSS										432	401	2817	432
SUB TOTAL HT GAIN										0.20	0.18	0.20	0.18
LEVEL FACTOR / MULTIPLIER										208	2624	513	208
AIR CHANGE HEAT LOSS										79	142	131	79
AIR CHANGE HEAT GAIN										6	369	0	6
DUCT LOSS										51	352	0	51
DUCT GAIN										12	240	1	12
HEAT GAIN PEOPLE										0	517	517	0
HEAT GAIN APPLIANCES/LIGHTS										0	0	0	0
TOTAL HT LOSS BTU/H										2999	4298	1765	2999
TOTAL HT GAIN x 1.3 BTU/H										1548	5038	4313	1548

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

OPT 2ND

TYPE: 38-10 DATE: Apr-21 GFA: 2554 LO# 90460

HEATING CFM 970 COOLING CFM 970
TOTAL HEAT LOSS 41,954 TOTAL HEAT GAIN 29,515
AIR FLOW RATE CFM 23.12 AIR FLOW RATE CFM 32.87**CARRIER
59TN6A-060-14V 60
FAN SPEED
LOW 820
MEDIUM 970
HIGH 1520

AFUE = 97 %

INPUT (BTU/H) = 60,000

OUTPUT (BTU/H) = 58,000

DESIGN CFM = 970

CFM @ .6" E.S.P.

r/a pressure 0.17

r/a grille press. Loss 0.02

adjusted pressure r/a 0.15

plenum pressure s/a 0.18

max s/a dif press. loss 0.02

min adjusted pressure s/a 0.16

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

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

ROOM NAME	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	19	20	21	22	23	24
MBR	1.50	1.77	0.80	1.67	2.03	1.35	0.28	1.67	2.03	1.50								FOY	MUD	BAS	BAS	BAS	BAS
RM LOSS MBH	35	41	19	38	47	31	6	38	47	35		6	70	40	40	60	22	53	28	79	79	79	79
CFM PER RUN HEAT	2.15	1.55	0.21	2.16	2.52	1.53	0.08	2.16	2.52	2.15		0.08	2.70	2.27	2.27	1.46	0.83	1.01	0.20	0.42	0.42	0.42	0.42
RM GAIN MBH	71	51	7	71	83	50	3	71	83	71		3	89	75	75	48	27	33	7	14	14	14	14
CFM PER RUN COOLING	0.17	0.17	0.17	0.17	0.16	0.17	0.17	0.17	0.16	0.17		0.17	0.16	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17
ADJUSTED PRESSURE	55	47	26	43	34	44	23	43	44	38		30	33	36	29	35	37	28	31	38	29	18	30
ACTUAL DUCT LGH	150	140	130	170	160	190	150	160	170	140		170	120	140	160	120	110	110	150	110	130	100	120
EQUIVALENT LENGTH	205	187	156	213	194	234	173	203	214	178		200	153	176	189	155	147	138	181	148	159	118	150
TOTAL EFFECTIVE LENGTH	0.08	0.09	0.11	0.08	0.08	0.07	0.1	0.08	0.08	0.1		0.09	0.11	0.1	0.09	0.11	0.12	0.12	0.12	0.12	0.11	0.15	0.11
ADJUSTED PRESSURE	5	5	4	5	6	6	4	5	6	6		4	6	5	5	5	4	5	4	5	5	5	5
ROUND DUCT SIZE	178	301	218	279	240	158	69	279	240	178		69	357	294	294	441	252	389	321	580	580	580	580
HEATING VELOCITY (ft/min)	362	374	80	521	423	255	34	521	423	362		34	454	551	551	352	310	242	80	103	103	103	103
COOLING VELOCITY (ft/min)	4X10	3X10	3X10	3X10	4X10	4X10	3X10	3X10	4X10	4X10		3X10	4X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10
OUTLET GRILL SIZE	TRUNK B	A	C	E	E	B	E	E	E	A		E	A	B	B	D	B	D	B	B	A	E	D

ROOM NAME	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	19	20	21	22	23	24
RM LOSS MBH	35	41	19	38	47	31	6	38	47	35		6	70	40	40	60	22	53	28	79	79	79	79
CFM PER RUN HEAT	2.15	1.55	0.21	2.16	2.52	1.53	0.08	2.16	2.52	2.15		0.08	2.70	2.27	2.27	1.46	0.83	1.01	0.20	0.42	0.42	0.42	0.42
RM GAIN MBH	71	51	7	71	83	50	3	71	83	71		3	89	75	75	48	27	33	7	14	14	14	14
CFM PER RUN COOLING	0.17	0.17	0.17	0.17	0.16	0.17	0.17	0.17	0.16	0.17		0.17	0.16	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17
ADJUSTED PRESSURE	55	47	26	43	34	44	23	43	44	38		30	33	36	29	35	37	28	31	38	29	18	30
ACTUAL DUCT LGH	150	140	130	170	160	190	150	160	170	140		170	120	140	160	120	110	110	150	110	130	100	120
EQUIVALENT LENGTH	205	187	156	213	194	234	173	203	214	178		200	153	176	189	155	147	138	181	148	159	118	150
TOTAL EFFECTIVE LENGTH	0.08	0.09	0.11	0.08	0.08	0.07	0.1	0.08	0.08	0.1		0.09	0.11	0.1	0.09	0.11	0.12	0.12	0.12	0.12	0.11	0.15	0.11
ADJUSTED PRESSURE	5	5	4	5	6	6	4	5	6	6		4	6	5	5	5	4	5	4	5	5	5	5
ROUND DUCT SIZE	178	301	218	279	240	158	69	279	240	178		69	357	294	294	441	252	389	321	580	580	580	580
HEATING VELOCITY (ft/min)	362	374	80	521	423	255	34	521	423	362		34	454	551	551	352	310	242	80	103	103	103	103
COOLING VELOCITY (ft/min)	4X10	3X10	3X10	3X10	4X10	4X10	3X10	3X10	4X10	4X10		3X10	4X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10
OUTLET GRILL SIZE	TRUNK B	A	C	E	E	B	E	E	E	A		E	A	B	B	D	B	D	B	B	A	E	D

SUPPLY AIR TRUNK SIZE	TRUNK CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT	VELOCITY (ft/min)	TRUNK CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT	VELOCITY (ft/min)	TRUNK CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT	VELOCITY (ft/min)
TRUNK A	225	0.09	7.8	8	506	0	0.00	0	0	0	0	0.05	0	0	0
TRUNK B	275	0.07	8.9	10	485	0	0.00	0	0	0	0	0.05	0	0	0
TRUNK C	519	0.07	11.3	14	667	0	0.00	0	0	0	0	0.05	0	0	0
TRUNK D	192	0.11	7	8	432	0	0.00	0	0	0	0	0.05	0	0	0
TRUNK E	453	0.08	10.4	12	680	0	0.00	0	0	0	0	0.05	0	0	0
TRUNK F	972	0.07	14.3	24	729	0	0.00	0	0	0	0	0.05	0	0	0
RETURN AIR #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
AIR VOLUME	95	75	75	75	75	340	85	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	37	41	41	41	31	23	28	1	1	1	1	1	1	1	1
EQUIVALENT LENGTH	155	255	235	235	255	150	215	0	0	0	0	0	0	0	0
TOTAL EFFECTIVE LENGTH	205	301	276	272	286	173	243	1	1	1	1	1	1	1	1
ADJUSTED PRESSURE	0.07	0.05	0.05	0.05	0.05	0.09	0.06	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80
ROUND DUCT SIZE	6	6	6	6	6	9.1	6	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
INLET GRILL SIZE	14	14	14	14	14	30	14	0	0	0	0	0	0	0	0

Michael Spence

INDIVIDUAL BCIN: 19669

MICHAEL O'ROURKE

TYPE: 38-10
SITE NAME: CENTREFIELD (WEST GORMLEY)

LO # 90460
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	<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>5</u> @ 10.6 cfm	<u>53.0</u> cfm
Table 9.32.3.A.	TOTAL	<u>180.2</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>180.2</u>	cfm
Less Principal Ventil. Capacity	<u>79.5</u>	cfm
Required Supplemental Capacity	<u>100.7</u>	cfm

PRINCIPAL EXHAUST FAN CAPACITY	
Model: VANEE 65H	Location: BSMT
<u>79.5</u> cfm	☒ HVI Approved

PRINCIPAL EXHAUST HEAT LOSS CALCULATION				
CFM	ΔT °F	FACTOR	% LOSS	
79.5 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
0	BY INSTALLING CONTRACTOR	50	☒	3.5

HEAT RECOVERY VENTILATOR		9.32.3.11.
Model: VANEE 65H		
<u>155</u> cfm high	<u>64</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 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-21

CSA F280-12 Residential Heat Loss and Heat Gain Calculations																																																			
Formula Sheet (For Air Leakage / Ventilation Calculation)																																																			
LO#: 90460	Model: 38-10	Builder: ROYAL PINE HOMES	Date: 4/22/2021																																																
Volume Calculation		Air Change & Delta T Data																																																	
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>House Volume</th> <th>Floor Area (ft²)</th> <th>Floor Height (ft)</th> <th>Volume (ft³)</th> </tr> <tr> <td>Bsmt</td> <td>1109</td> <td>10</td> <td>11090</td> </tr> <tr> <td>First</td> <td>1109</td> <td>10</td> <td>11200.9</td> </tr> <tr> <td>Second</td> <td>1445</td> <td>9</td> <td>13005</td> </tr> <tr> <td>Third</td> <td>0</td> <td>9</td> <td>0</td> </tr> <tr> <td>Fourth</td> <td>0</td> <td>9</td> <td>0</td> </tr> <tr> <td>Total:</td> <td></td> <td></td> <td>35,295.9 ft³</td> </tr> <tr> <td>Total:</td> <td></td> <td></td> <td>999.5 m³</td> </tr> </table>		House Volume	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)	Bsmt	1109	10	11090	First	1109	10	11200.9	Second	1445	9	13005	Third	0	9	0	Fourth	0	9	0	Total:			35,295.9 ft³	Total:			999.5 m³	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th colspan="4">Design Temperature Difference</th> </tr> <tr> <th></th> <th>Tin °C</th> <th>Tout °C</th> <th>ΔT °C</th> </tr> <tr> <td>Winter DTDh</td> <td>22</td> <td>-21</td> <td>43</td> </tr> <tr> <td>Summer DTDc</td> <td>24</td> <td>31</td> <td>7</td> </tr> </table>		Design Temperature Difference					Tin °C	Tout °C	ΔT °C	Winter DTDh	22	-21	43	Summer DTDc	24	31	7
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6.2.6 Sensible Gain due to Air Leakage																																																			
$HG_{salb} = LR_{airc} \times \frac{V_b}{3.6} \times DTD_c \times 1.2$																																																			
0.227	x	277.63	x																																																
		43 °C	x																																																
		1.2	=																																																
		167 W																																																	
			=																																																
		571 Btu/h																																																	
6.2.7 Sensible heat Gain due to Ventilation																																																			
$HL_{vairb} = PVC \times DTD_h \times 1.08 \times (1 - E)$																																																			
80 CFM	x	78 °F	x																																																
		1.08	x																																																
		0.25	=																																																
		275 Btu/h																																																	
5.2.3.3 Calculation of Air Change Heat Loss for Each Room (Floor Multiplier Section)																																																			
$HL_{airr} = Level Factor \times HL_{airbv} \times \{(HL_{agcr} + HL_{bgcr}) \div (HL_{aglevel} + HL_{bglevel})\}$																																																			
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>Level</th> <th>Level Factor (LF)</th> <th>Hlaire Air Leakage + Ventilation Heat Loss (Btu/h)</th> <th>Level Conductive Heat Loss: (HL_{level})</th> <th>Air Leakage Heat Loss Multiplier (LF x Hlairebv / HL_{level})</th> </tr> <tr> <td>1</td> <td>0.5</td> <td rowspan="5" style="text-align: center; vertical-align: middle;">11,130</td> <td>8,030</td> <td>0.693</td> </tr> <tr> <td>2</td> <td>0.3</td> <td>10,149</td> <td>0.329</td> </tr> <tr> <td>3</td> <td>0.2</td> <td>12,224</td> <td>0.182</td> </tr> <tr> <td>4</td> <td>0</td> <td>0</td> <td>0.000</td> </tr> <tr> <td>5</td> <td>0</td> <td>0</td> <td>0.000</td> </tr> </table>				Level	Level Factor (LF)	Hlaire Air Leakage + Ventilation Heat Loss (Btu/h)	Level Conductive Heat Loss: (HL _{level})	Air Leakage Heat Loss Multiplier (LF x Hlairebv / HL _{level})	1	0.5	11,130	8,030	0.693	2	0.3	10,149	0.329	3	0.2	12,224	0.182	4	0	0	0.000	5	0	0	0.000																						
Level	Level Factor (LF)	Hlaire Air Leakage + Ventilation Heat Loss (Btu/h)	Level Conductive Heat Loss: (HL _{level})	Air Leakage Heat Loss Multiplier (LF x Hlairebv / HL _{level})																																															
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3	0.2		12,224	0.182																																															
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																																																			

HEAT LOSS AND GAIN SUMMARY SHEET

MODEL: 38-10	OPT 2ND	BUILDER: ROYAL PINE HOMES
SFQT: 2554	LO# 90460	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:	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 (ft³):	35295.9	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	5
INTERIOR LIGHTING LOAD (Btu/h/ft²):	1.27	DC BRUSHLESS MOTOR (Y/N):	Y
FOUNDATION CONFIGURATION	BCIN_1	DEPTH BELOW GRADE:	7.0 ft
LENGTH: 49.0 ft	WIDTH: 32.0 ft	EXPOSED PERIMETER:	162.0 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%	-

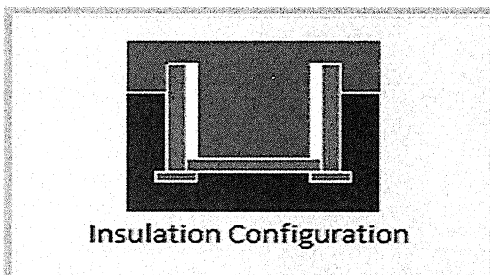
INDIVIDUAL BCIN: 19669

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):	14.9	 Insulation Configuration
Floor Width (m):	9.8	
Exposed Perimeter (m):	0.0	
Wall Height (m):	3.0	
Depth Below Grade (m):	2.13	
Window Area (m ²):	1.1	
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):		1600

TYPE: 38-10
LO# 90460

OPT 2ND

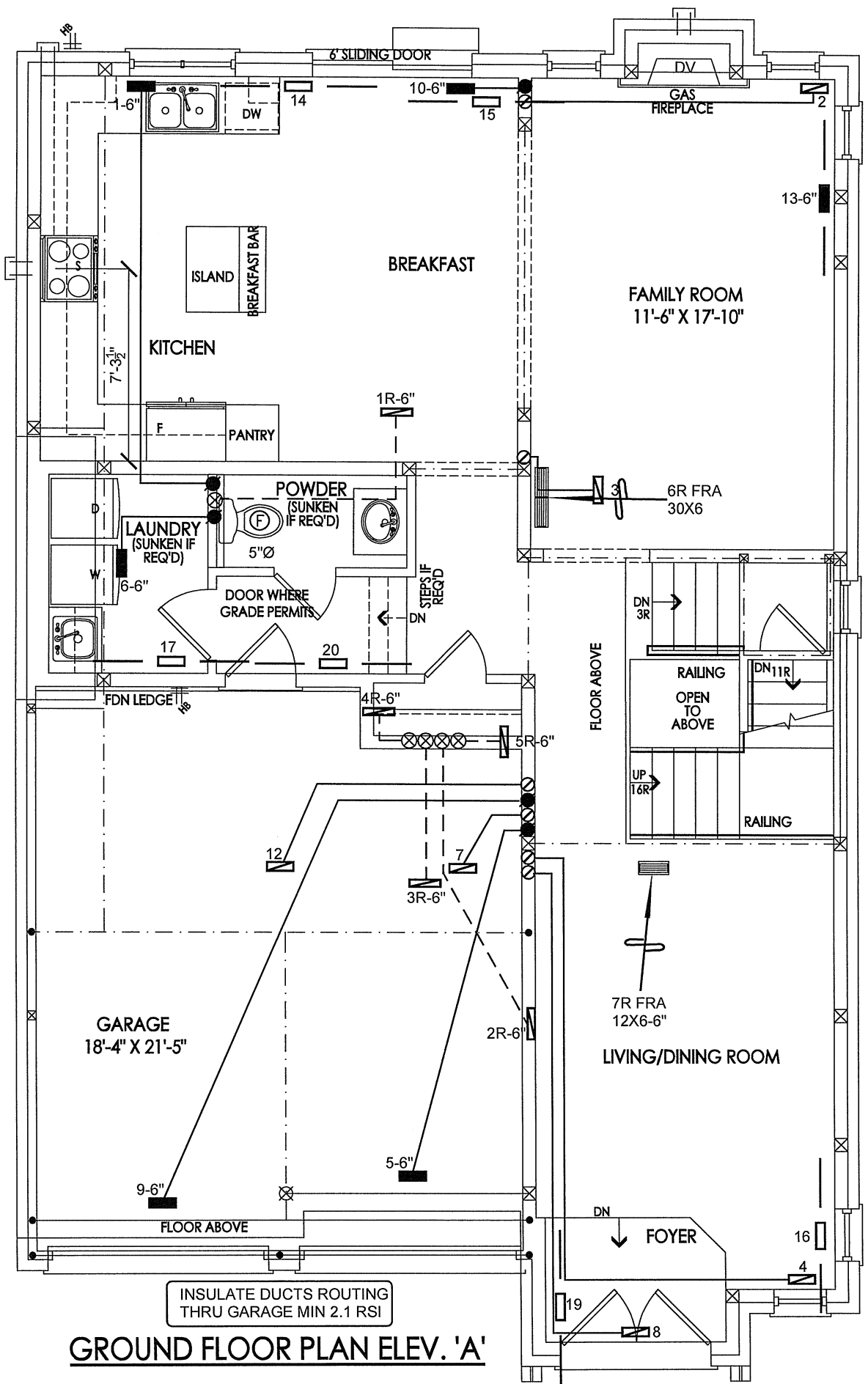
Air Infiltration Residential Load Calculator

Supplemental tool for CAN/CSA-F280

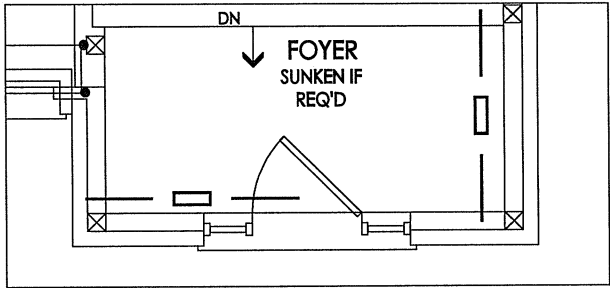
Weather Station Description				
Province:	Ontario			
Region:	Richmond Hill			
Weather Station Location:	Open flat terrain, grass			
Anemometer height (m):	10			
Local Shielding				
Building Site:	Suburban, forest			
Walls:	Heavy			
Flue:	Heavy			
Highest Ceiling Height (m):	6.74			
Building Configuration				
Type:	Detached			
Number of Stories:	Two			
Foundation:	Full			
House Volume (m ³):	999.5			
Air Leakage/Ventilation				
Air Tightness Type:	Energy Star Detached (2.5 ACH)			
Custom BDT Data:	ELA @ 10 Pa.	933.0 cm ²		
	2.50	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):	0.227			
Cooling Air Leakage Rate (ACH/H):	0.071			

TYPE: 38-10
LO# 90460

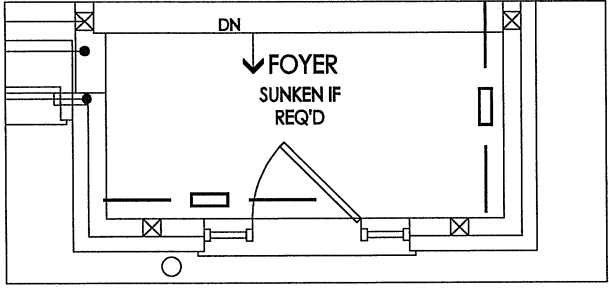
OPT 2ND



GROUND FLOOR PLAN ELEV. 'A'



GROUND FLOOR PLAN ELEV. 'B'



GROUND FLOOR PLAN ELEV. 'C'

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.

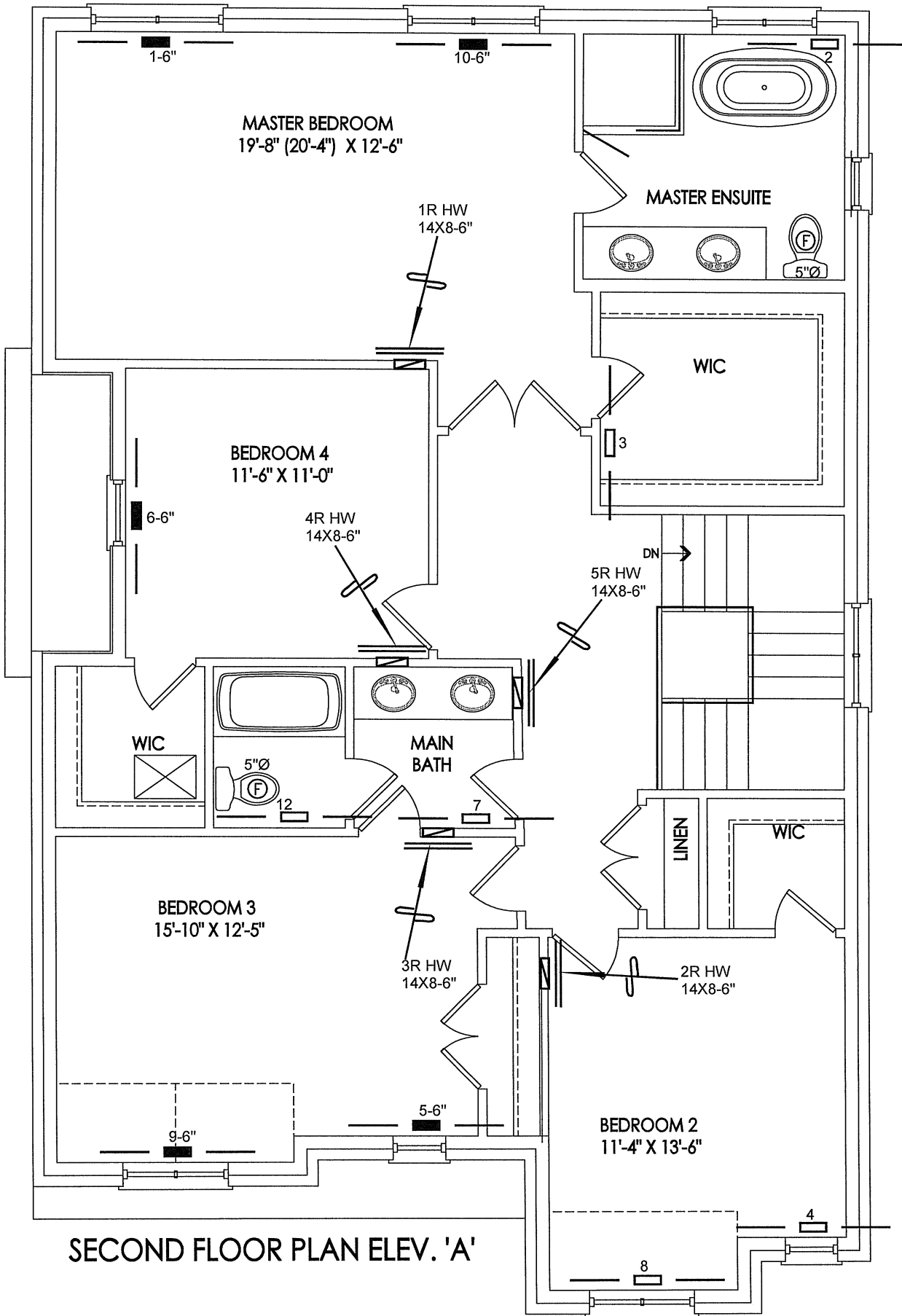
CSA-F280-12

SB-12 PERFORMANCE

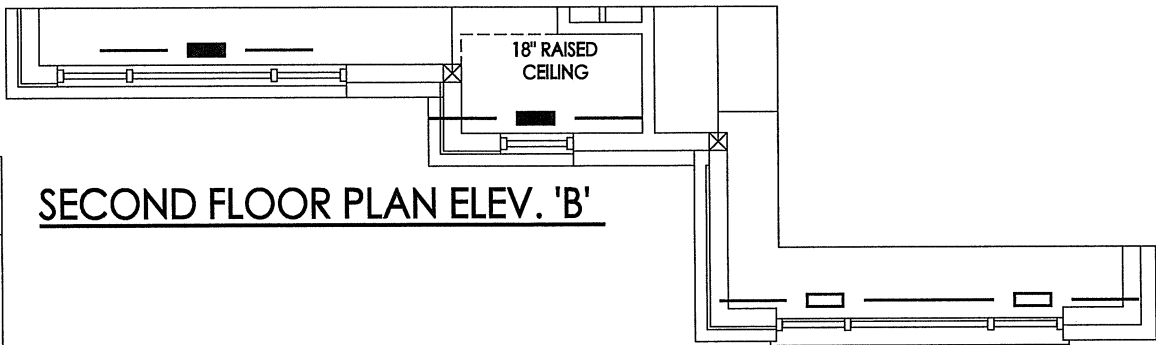
HVAC LEGEND							3.		
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	2.	
	SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		14"x8" RETURN AIR GRILLE		RETURN AIR STACK ABOVE	1.	
	SUPPLY AIR GRILLE 6" BOOT		SUPPLY AIR STACK FROM 2nd FLOOR		30"x8" RETURN AIR GRILLE		RETURN AIR STACK 2nd FLOOR	No.	
	SUPPLY AIR BOOT ABOVE		6" SUPPLY AIR STACK 2nd FLOOR		FRA- FLOOR RETURN AIR GRILLE		REDUCER	REVISIONS	
								Description	Date

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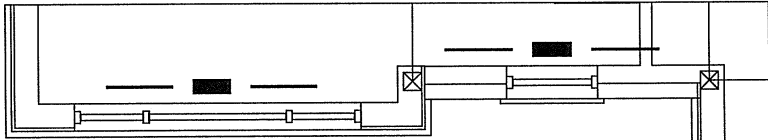
Client		 375 Finley Ave. Suite 202 - Ajax, Ontario L1S 2E2 Tel. 905.619.2300 - 905.420.5300 Fax 905.619.2375 Email: info@hvacdesigns.ca Web: www.hvacdesigns.ca Specializing in Residential Mechanical Design Services	Sheet Title	
ROYAL PINE HOMES			FIRST FLOOR HEATING LAYOUT	
Project Name			Date	APR/2021
CENTREFIELD (WEST GORMLEY) RICHMOND HILL, ONTARIO			Scale	3/16" = 1'-0"
38-10 - OPT 2ND 2554 sqft		BCIN# 19669		
		LO# 90460		
		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.		



SECOND FLOOR PLAN ELEV. 'A'



SECOND FLOOR PLAN ELEV. 'B'



SECOND FLOOR PLAN ELEV. 'C'

CSA-F280-12

SB-12 PERFORMANCE

I MICHAEL O'ROURKE HAVE REVIEW
AND TAKE RESPONSIBILITY FOR THE
DESIGN WORK AND AM QUALIFIED
UNDER DIVISION C.32.5 OF THE
BUILDING CODE.
Michael O'Rourke
Michael O'Rourke, BCIN# 19669
HVAC DESIGNS LTD.

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		

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Client ROYAL PINE HOMES		 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 SECOND FLOOR HEATING LAYOUT	
Project Name CENTREFIELD (WEST GORMLEY) RICHMOND HILL, ONTARIO			Date APR/2021	
38-10 - OPT 2ND 2554 sqft			Scale 3/16" = 1'-0"	
			BCIN# 19669	
			LO#	90460