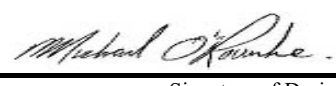


Schedule 1: Designer Information

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: 2010 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.			
April 21, 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		GFA: 1742		DATE: Apr-21 LO# 87541		WINTER NATURAL AIR CHANGE RATE 0.236		HEAT LOSS ΔT °F. 78		CSA-F280-12	
BUILDER: ROYAL PINE HOMES				TYPE: 2010						SUMMER NATURAL AIR CHANGE RATE 0.072		HEAT GAIN ΔT °F. 13		SB-12 PERFORMANCE	
ROOM USE						BED-2	BED-3			BATH				B-BATH	
EXP. WALL						10	42			0				0	
CLG. HT.						9	11			9				10	
FACTORS															
GRS.WALL AREA	LOSS	GAIN				90	462			0				0	
GLAZING	LOSS	GAIN				LOSS	GAIN			LOSS	GAIN			LOSS	GAIN
NORTH	21.8	16.0	0	0	0	0	0	0		0	0	0		0	0
EAST	21.8	41.6	0	0	0	28	610	1163	36	784	1496			0	0
SOUTH	21.8	24.9	0	0	0	0	0	0	55	1198	1369			0	0
WEST	21.8	41.6	32	697	1330	9	196	374		0	0	0		0	0
SKYLT.	35.8	101.2	0	0	0	0	0	0		0	0	0		0	0
DOORS	25.8	4.3	0	0	0	0	0	0		0	0	0		0	0
NET EXPOSED WALL	4.2	0.7	94	395	65	62	261	43	371	1560	257			0	0
NET EXPOSED BSMT WALL ABOVE GR	3.7	0.6	0	0	0	0	0	0		0	0	0		0	0
EXPOSED CLG	1.3	0.6	298	392	175	176	231	103	253	332	149			0	0
NO ATTIC EXPOSED CLG	2.8	1.3	0	0	0	0	0	0		20	56	25		0	0
EXPOSED FLOOR	2.6	0.4	0	0	0	176	459	76	21	55	9			0	0
BASEMENT/CRAWL HEAT LOSS						0				0				305	
SLAB ON GRADE HEAT LOSS						0				0				0	
SUBTOTAL HT LOSS			1484			1561			3986	225				305	
SUB TOTAL HT GAIN				1570	1123		1385		3305		63			0	
LEVEL FACTOR / MULTIPLIER			0.20	0.17		0.20	0.17			0.20	0.17			0.50	0.86
AIR CHANGE HEAT LOSS			246			258			660	37				261	
AIR CHANGE HEAT GAIN				57	41		50		120		2			0	
DUCT LOSS			0			182			465	26				0	
DUCT GAIN				0	0		232		431		7			0	
HEAT GAIN PEOPLE	240		2		480	1		240	1		240			0	
HEAT GAIN APPLIANCES/LIGHTS					643		643		643		0			0	
TOTAL HT LOSS BTU/H			1730		1787	2002		5110		289				566	
TOTAL HT GAIN x 1.3 BTU/H				3575	1513	3316		6160		93				0	

ROOM USE						K/B/G		LAUND	PWD	FOY					BAS
EXP. WALL						49		7	12	36					120
CLG. HT.						10		9	10	11					10
FACTORS															
GRS.WALL AREA	LOSS	GAIN				495		63	121	382				1200	
GLAZING	LOSS	GAIN				LOSS	GAIN	LOSS	GAIN	LOSS	GAIN			LOSS	GAIN
NORTH	21.8	16.0	0	0	0	0	0	0	0	0	0			0	0
EAST	21.8	41.6	0	0	0	0	0	0	0	20	436	831		0	0
SOUTH	21.8	24.9	71	1547	1768	33	719	822	0	65	1416	1618		3	65
WEST	21.8	41.6	80	1743	3324	0	0	0	0	0	0	0		7	152
SKYLT.	35.8	101.2	0	0	0	0	0	0	0	0	0	0		0	0
DOORS	25.8	4.3	0	0	0	0	0	0	20	517	85	50	1292	213	20
NET EXPOSED WALL	4.2	0.7	344	1446	238	30	126	21	101	426	70	247	1037	171	0
NET EXPOSED BSMT WALL ABOVE GR	3.7	0.6	0	0	0	0	0	0	0	0	0	0	0	0	0
EXPOSED CLG	1.3	0.6	0	0	0	56	74	33	0	0	0	0	0	0	0
NO ATTIC EXPOSED CLG	2.8	1.3	31	87	39	0	0	0	0	0	0	0	0	0	0
EXPOSED FLOOR	2.6	0.4	0	0	0	0	0	0	0	0	0	0	0	0	0
BASEMENT/CRAWL HEAT LOSS						0			0	0				3640	
SLAB ON GRADE HEAT LOSS						0			0	0				0	
SUBTOTAL HT LOSS						4823		919	943	4181				4374	
SUB TOTAL HT GAIN					5369		875		155		2833				451
LEVEL FACTOR / MULTIPLIER			0.30	0.24		0.30	0.24		0.30	0.24				0.50	0.86
AIR CHANGE HEAT LOSS					1168		152		228		1013			3754	
AIR CHANGE HEAT GAIN					194		32		6		103			16	
DUCT LOSS					0		0		0		0			0	
DUCT GAIN					0		0		0		0			0	
HEAT GAIN PEOPLE	240		0		0	0		0	0	0		0		0	
HEAT GAIN APPLIANCES/LIGHTS					643		643		0		0			0	
TOTAL HT LOSS BTU/H					5991		1071		1171		5194			8129	
TOTAL HT GAIN x 1.3 BTU/H					8068		2015		209		3816			607	

TOTAL HEAT GAIN BTU/H:

29592

TONS: 2.47

LOSS DUE TO VENTILATION LOAD BTU/H: 1336

STRUCTURAL HEAT LOSS: 33038

TOTAL COMBINED HEAT LOSS BTU/H: 34374

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

FIN BSMT
TYPE: 2010

DATE: Apr-21

GFA: 1742 LO# 87541

HEATING CFM 875 COOLING CFM 875
TOTAL HEAT LOSS 33,038 TOTAL HEAT GAIN 29,372
AIR FLOW RATE CFM 26.48 AIR FLOW RATE CFM 29.79

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

**CARRIER
59TN6A-060-14V
FAN SPEED 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	6	4
R/A	0	0	4	2	1

plenium pressure s/a 0.18
max s/a dif press. loss 0.02
min adjusted pressure s/a 0.16
r/a pressure 0.17
r/a grille press. Loss 0.02
adjusted pressure r/a 0.15

LOW 820
MEDLOW 875
MEDIUM 0
MEDIUM HIGH 0
HIGH 1520

DESIGN CFM = 875
CFM @ .6" 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	4	5	6	7	10	13	14	15	17	18	19	20	21	22	23
ROOM NAME	MBR	ENS	BED-2	BED-3	BED-3	BATH	MBR	K/B/G	K/B/G	K/B/G	LAUND	PWD	FOY	FOY	BAS	BAS	B-BATH
RM LOSS MBH.	0.86	1.79	2.00	2.56	2.56	0.29	0.86	2.00	2.00	2.00	1.07	1.17	2.60	2.60	2.71	2.71	0.57
CFM PER RUN HEAT	23	47	53	68	68	8	23	53	53	53	28	31	69	69	72	72	15
RM GAIN MBH.	1.79	1.51	3.32	3.08	3.08	0.09	1.79	2.69	2.69	2.69	2.02	0.21	1.91	1.91	0.20	0.20	0.00
CFM PER RUN COOLING	53	45	99	92	92	3	53	80	80	80	60	6	57	57	6	6	0
ADJUSTED PRESSURE	0.17	0.17	0.16	0.16	0.16	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17
ACTUAL DUCT LGH.	40	25	48	55	46	29	33	4	19	24	41	22	34	36	39	22	9
EQUIVALENT LENGTH	110	130	130	190	170	150	110	150	150	170	190	160	110	130	160	160	140
TOTAL EFFECTIVE LENGTH	150	155	178	245	216	179	143	154	169	194	231	182	144	166	199	182	149
ADJUSTED PRESSURE	0.11	0.11	0.09	0.07	0.08	0.1	0.12	0.11	0.1	0.09	0.07	0.09	0.12	0.1	0.09	0.09	0.12
ROUND DUCT SIZE	5	4	6	6	6	4	5	5	5	5	5	4	5	5	5	5	4
HEATING VELOCITY (ft/min)	169	539	270	347	347	92	169	389	389	389	206	356	507	507	529	529	172
COOLING VELOCITY (ft/min)	389	516	505	469	469	34	389	587	587	587	441	69	419	419	44	44	0
OUTLET GRILL SIZE	3X10	3X10	4X10	4X10	4X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10
TRUNK	C	C	B	A	A	B	C	B	C	C	B	B	A	A	C	C	B

RUN #	25
ROOM NAME	BAS
RM LOSS MBH.	2.71
CFM PER RUN HEAT	72
RM GAIN MBH.	0.20
CFM PER RUN COOLING	6
ADJUSTED PRESSURE	0.17
ACTUAL DUCT LGH.	35
EQUIVALENT LENGTH	120
TOTAL EFFECTIVE LENGTH	155
ADJUSTED PRESSURE	0.11
ROUND DUCT SIZE	5
HEATING VELOCITY (ft/min)	529
COOLING VELOCITY (ft/min)	44
OUTLET GRILL SIZE	3X10
TRUNK	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	346	0.07	9.7	12	x	8	519	TRUNK G	0	0.00	0	0	x	8	0	TRUNK O	0	0.05	0	0	x	8	0
TRUNK B	534	0.07	11.5	16	x	8	601	TRUNK H	0	0.00	0	0	x	8	0	TRUNK P	0	0.05	0	0	x	8	0
TRUNK C	343	0.09	9.1	10	x	8	617	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	0	0	0	0	0	0	0	0	0	BR
AIR VOLUME	95	85	85	75	330	105	0	0	0	0	0	0	0	0	0	100
PLENUM PRESSURE	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15
ACTUAL DUCT LGH.	57	46	56	55	18	35	1	1	1	1	1	1	1	1	1	30
EQUIVALENT LENGTH	165	205	175	215	190	160	0	0	0	0	0	0	0	0	0	145
TOTAL EFFECTIVE LH	222	251	231	270	208	195	1	1	1	1	1	1	1	1	1	175
ADJUSTED PRESSURE	0.07	0.06	0.06	0.05	0.07	0.08	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	0.08
ROUND DUCT SIZE	6	6	6	6	9.6	6	0	0	0	0	0	0	0	0	0	5.9
INLET GRILL SIZE	8	8	8	8	6	4	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	24	12	0	0	0	0	0	0	0	0	0	14

TYPE: 2010
SITE NAME: CENTREFIELD (WEST GORMLEY)

LO # 87541
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	<u>2</u> @ 21.2 cfm	<u>42.4</u> cfm
Other Bedrooms	<u>2</u> @ 10.6 cfm	<u>21.2</u> cfm
Kitchen & Bathrooms	<u>5</u> @ 10.6 cfm	<u>53</u> cfm
Other Rooms	<u>1</u> @ 10.6 cfm	<u>10.6</u> cfm
Table 9.32.3.A.	TOTAL	<u>127.2</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>63.6</u> cfm

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

PRINCIPAL EXHAUST FAN CAPACITY	
Model: VANEE 65H	Location: BSMT
<u>63.6</u> 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

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 @ 32 deg F (0 deg C)	☒ HVI Approved	

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

BUILDER:	
ROYAL PINE HOMES	
Name:	
Address:	
City:	
Telephone #:	Fax #:

INSTALLING CONTRACTOR	
Name:	
Address:	
City:	
Telephone #:	Fax #:

DESIGNER CERTIFICATION	
I hereby certify that this ventilation system has been designed in accordance with the Ontario Building Code.	
Name:	HVAC Designs Ltd.
Signature:	<i>Michael O'Rourke</i>
HRAI #	001820
Date:	April-21

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

Michael O'Rourke

CSA F280-12 Residential Heat Loss and Heat Gain Calculations																																																												
Formula Sheet (For Air Leakage / Ventilation Calculation)																																																												
LO#: 87541	Model: 2010	Builder: ROYAL PINE HOMES	Date: 4/21/2021																																																									
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House Volume <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Level</th> <th>Floor Area (ft²)</th> <th>Floor Height (ft)</th> <th>Volume (ft³)</th> </tr> </thead> <tbody> <tr> <td>Bsmt</td> <td>777</td> <td>10</td> <td>7770</td> </tr> <tr> <td>First</td> <td>777</td> <td>10</td> <td>7847.7</td> </tr> <tr> <td>Second</td> <td>978</td> <td>9</td> <td>8802</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 colspan="3" style="text-align: right;">Total:</td> <td>24,419.7 ft³</td> </tr> <tr> <td colspan="3" style="text-align: right;">Total:</td> <td>691.5 m³</td> </tr> </tbody> </table>			Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)	Bsmt	777	10	7770	First	777	10	7847.7	Second	978	9	8802	Third	0	9	0	Fourth	0	9	0	Total:			24,419.7 ft³	Total:			691.5 m³	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 80%;">WINTER NATURAL AIR CHANGE RATE</td> <td style="width: 20%; text-align: center;">0.236</td> </tr> <tr> <td>SUMMER NATURAL AIR CHANGE RATE</td> <td style="text-align: center;">0.072</td> </tr> </table> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th colspan="5" style="text-align: center;">Design Temperature Difference</th> </tr> <tr> <th></th> <th>Tin °C</th> <th>Tout °C</th> <th>ΔT °C</th> <th>ΔT °F</th> </tr> <tr> <td>Winter DTDh</td> <td style="text-align: center;">22</td> <td style="text-align: center;">-21</td> <td style="text-align: center;">43</td> <td style="text-align: center;">78</td> </tr> <tr> <td>Summer DTDc</td> <td style="text-align: center;">24</td> <td style="text-align: center;">31</td> <td style="text-align: center;">7</td> <td style="text-align: center;">13</td> </tr> </table>		WINTER NATURAL AIR CHANGE RATE	0.236	SUMMER NATURAL AIR CHANGE RATE	0.072	Design Temperature Difference						Tin °C	Tout °C	ΔT °C	ΔT °F	Winter DTDh	22	-21	43	78	Summer DTDc	24	31	7	13
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Summer DTDc	24	31	7	13																																																								
5.2.3.1 Heat Loss due to Air Leakage			6.2.6 Sensible Gain due to Air Leakage																																																									
$HL_{airb} = LR_{airh} \times \frac{V_b}{3.6} \times DTD_h \times 1.2$ 0.236 x 192.08 x 43 °C x 1.2 = 2354 W = 8032 Btu/h			$HG_{salb} = LR_{airc} \times \frac{V_b}{3.6} \times DTD_c \times 1.2$ = 0.072 x 192.08 x 7 °C x 1.2 = 117 W = 401 Btu/h																																																									
5.2.3.2 Heat Loss due to Mechanical Ventilation			6.2.7 Sensible heat Gain due to Ventilation																																																									
$HL_{vairb} = PVC \times DTD_h \times 1.08 \times (1 - E)$ 64 CFM x 78 °F x 1.08 x 0.25 = 1336 Btu/h			$HL_{vairb} = PVC \times DTD_h \times 1.08 \times (1 - E)$ 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)																																																												
$HL_{airr} = Level\ Factor \times HL_{airbv} \times \{(HL_{agcr} + HL_{bgcr}) \div (HL_{agclevel} + HL_{bgclevel})\}$																																																												
Level	Level Factor (LF)	HLairve Air Leakage + Ventilation Heat Loss (Btu/h)	Level Conductive Heat Loss: (HL _{clevel})	Air Leakage Heat Loss Multiplier (LF x HLairbv / HLlevel)																																																								
1	0.5	8,032	4,679	0.858																																																								
2	0.3		9,946	0.242																																																								
3	0.2		9,708	0.165																																																								
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: 2010	FIN BSMT	BUILDER: ROYAL PINE HOMES
SFQT: 1742	LO# 87541	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:	2.50	ASSUMED (Y/N):	Y
AIR TIGHTNESS CATEGORY:	TIGHT	ASSUMED (Y/N):	Y
WIND EXPOSURE:	SHELTERED	ASSUMED (Y/N):	Y
HOUSE VOLUME (ft ³):	24419.7	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	4
INTERIOR LIGHTING LOAD (Btu/h/ft ²):	1.27	DC BRUSHLESS MOTOR (Y/N):	Y
FOUNDATION CONFIGURATION	BCIN_1	DEPTH BELOW GRADE:	7.0 ft
LENGTH: 52.0 ft	WIDTH: 22.0 ft	EXPOSED PERIMETER:	120.0 ft

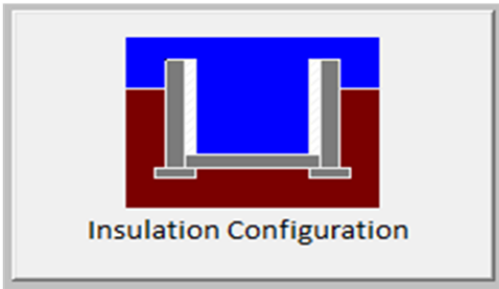
2012 OBC - COMPLIANCE PACKAGE		Compliance Package SB-12 PERFORMANCE	
Component		Nominal	Min. Eff.
Ceiling with Attic Space Minimum RSI (R)-Value		60	59.20
Ceiling Without Attic Space Minimum RSI (R)-Value		31	27.70
Exposed Floor Minimum RSI (R)-Value		31	29.80
Walls Above Grade Minimum RSI (R)-Value		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):	6.7	
Exposed Perimeter (m):	36.6	
Wall Height (m):	3.0	
Depth Below Grade (m):	2.13	
Window Area (m ²):	0.9	
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):		1156

TYPE: 2010
LO# 87541

FIN BSMT

Air Infiltration Residential Load Calculator

Supplemental tool for CAN/CSA-F280

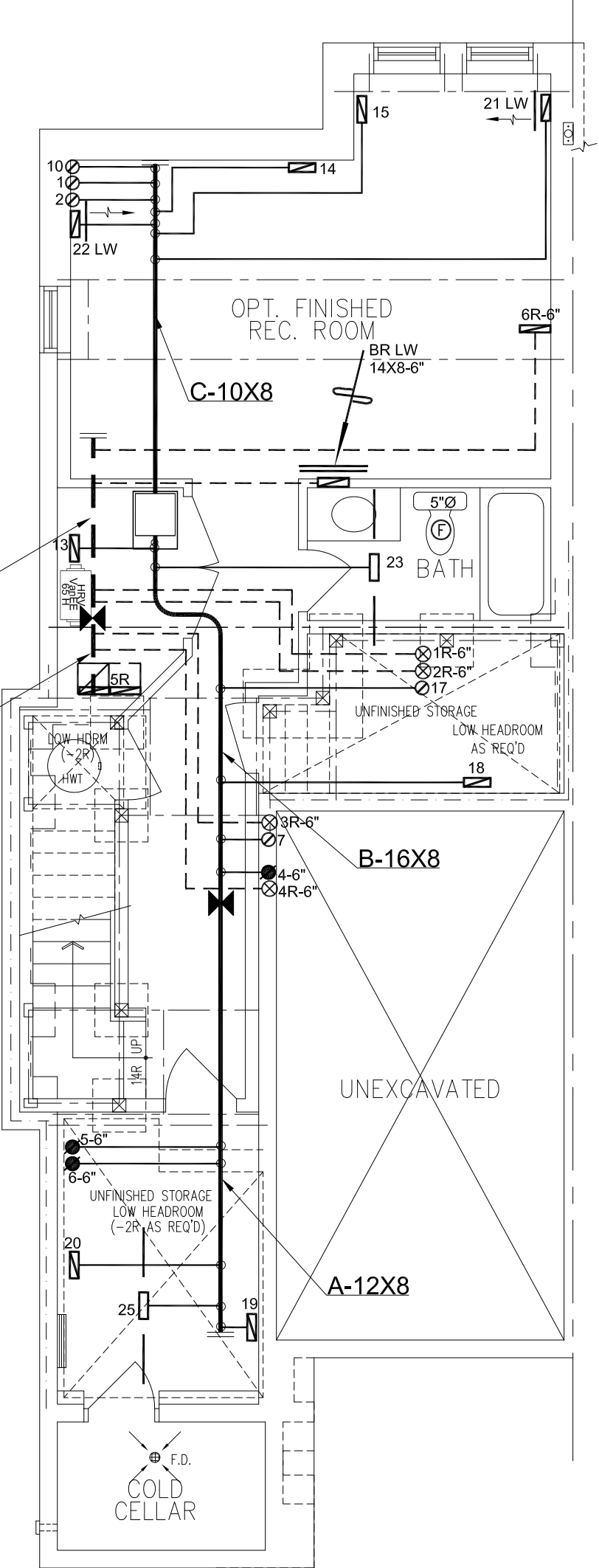
Weather Station Description				
Province:	Ontario			
Region:	Richmond Hill			
Weather Station Location:	Open flat terrain, grass			
Anemometer height (m):	10			
Local Shielding				
Building Site:	Suburban, forest			
Walls:	Heavy			
Flue:	Heavy			
Highest Ceiling Height (m):	6.74			
Building Configuration				
Type:	Semi			
Number of Stories:	Two			
Foundation:	Full			
House Volume (m ³):	691.5			
Air Leakage/Ventilation				
Air Tightness Type:	Energy Star Detached (2.5 ACH)			
Custom BDT Data:	ELA @ 10 Pa.	645.5 cm ²		
	2.50	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):	0.236			
Cooling Air Leakage Rate (ACH/H):	0.072			

TYPE: 2010
LO# 87541

FIN BSMT

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.



OPT. FINISHED
BASEMENT PLAN, EL. 'A' & 'B'

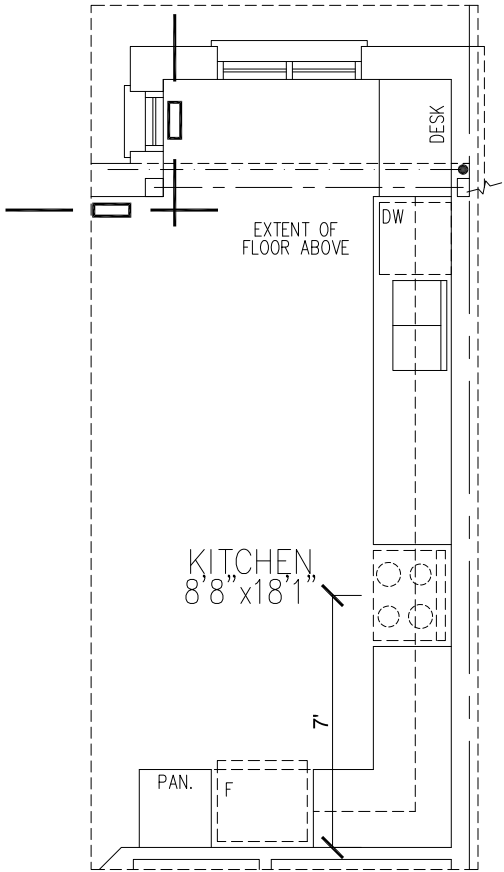
CSA-F280-12

SB-12 PERFORMANCE

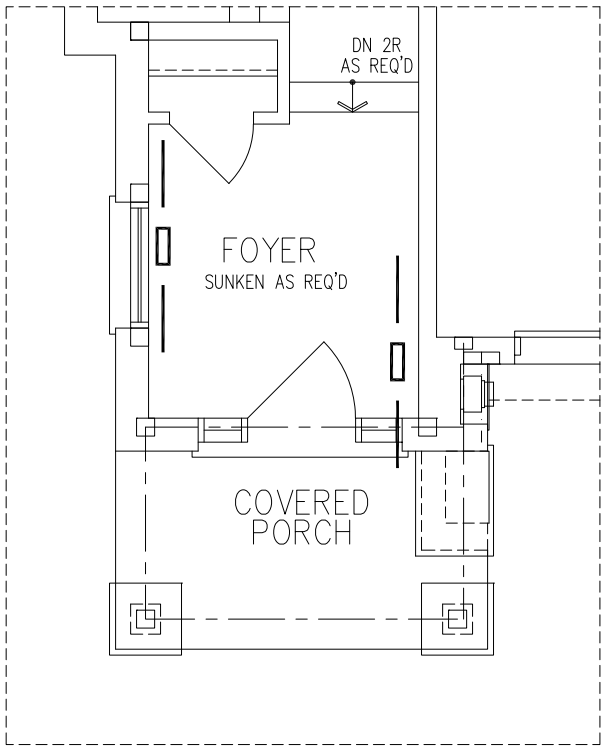
HVAC LEGEND								3.		
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	2.	REVISED AS PER ARCHITECTURALS	APR/2021
	SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		14"x8" RETURN AIR GRILLE		RETURN AIR STACK ABOVE	1.	REVISED TO PERFORMANCE	SEPT/2020
	SUPPLY AIR GRILLE 6" BOOT		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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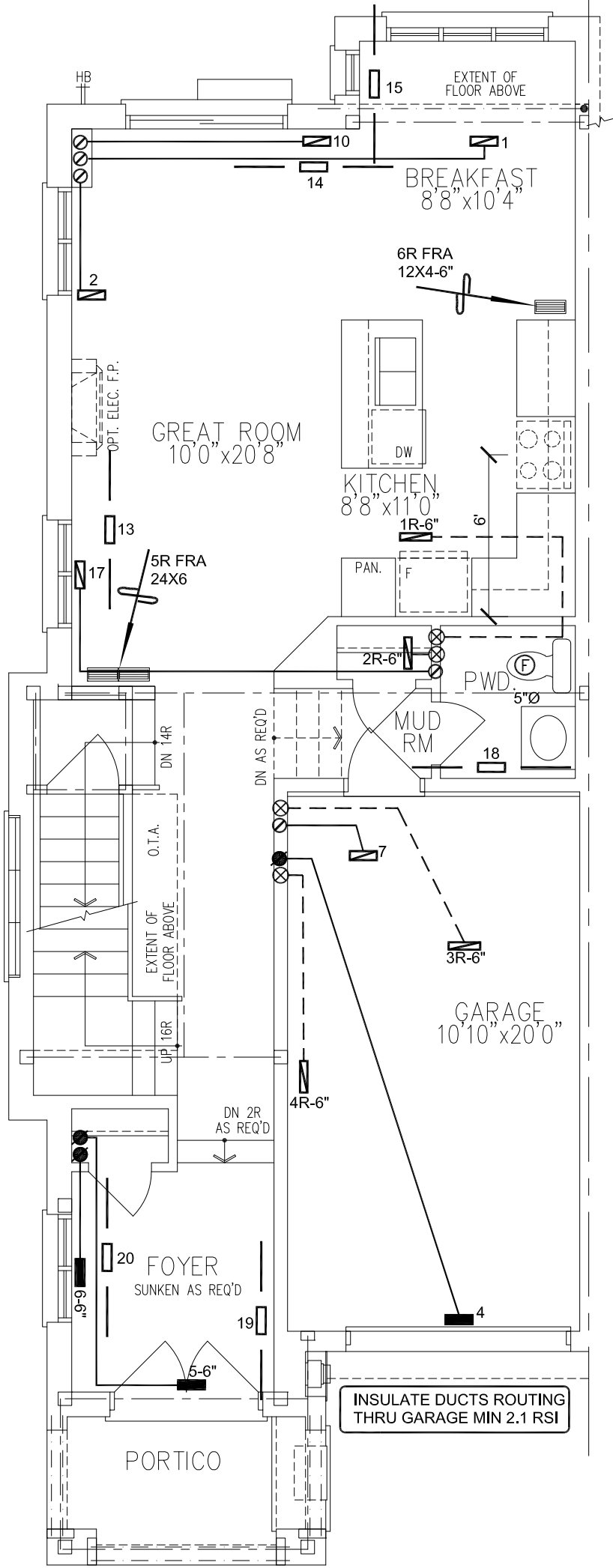
Client ROYAL PINE HOMES	 375 Finley Ave. Suite 202 - Ajax, Ontario L1S 2E2 Tel. 905.619.2300 - 905.420.5300 Fax 905.619.2375 Email: info@hvacdsgns.ca Web: www.hvacdesigns.ca Specializing in Residential Mechanical Design Services	HEAT LOSS 34374 BTU/H UNIT DATA MAKE CARRIER MODEL 59TN6A-060-14V INPUT 60 MBTU/H OUTPUT 58 MBTU/H COOLING 2.5 TONS FAN SPEED 875 cfm @ 0.6" w.c.	# OF RUNS S/A R/A FANS 3RD FLOOR 2ND FLOOR 8 4 2 1ST FLOOR 6 2 2 BASEMENT 4 1 1	Sheet Title BASEMENT HEATING LAYOUT Date SEPT/2020 Scale 3/16" = 1'-0" BCIN# 19669
Project Name CENTREFIELD (WEST GORMLEY) RICHMOND HILL, ONTARIO	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.	1742 sqft	ALL S/A DIFFUSERS 4 "x10" UNLESS NOTED OTHERWISE ON LAYOUT. ALL S/A RUNS 5"Ø UNLESS NOTED OTHERWISE ON LAYOUT. UNDERCUT DOORS 1" min. FOR R/A	LO# 87541
FIN BSMT 2010				



PART. GROUND FLOOR PLAN
- OPT. KITCHEN LAYOUT



GROUND FLOOR PLAN, EL. 'B'



GROUND FLOOR PLAN, EL. 'A'

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.

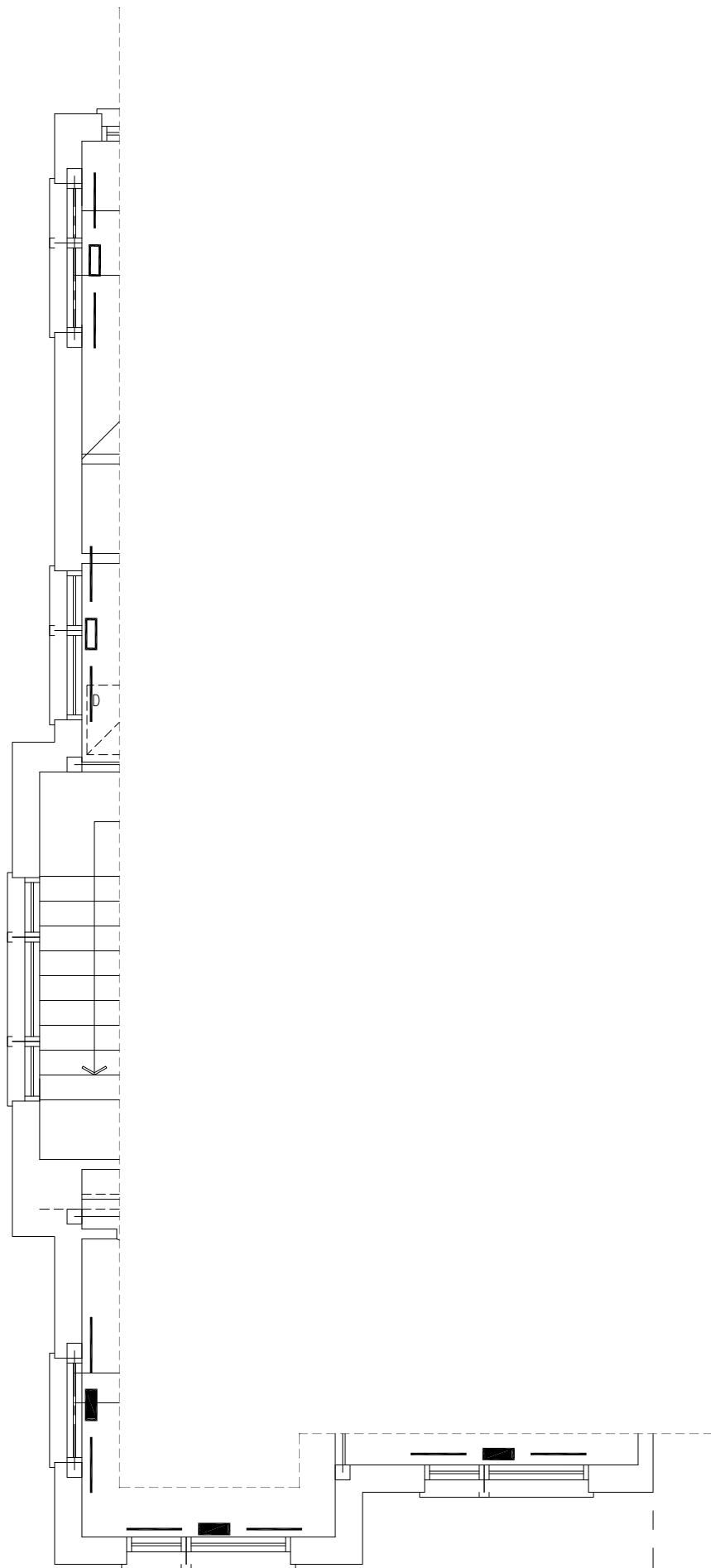
CSA-F280-12

SB-12 PERFORMANCE

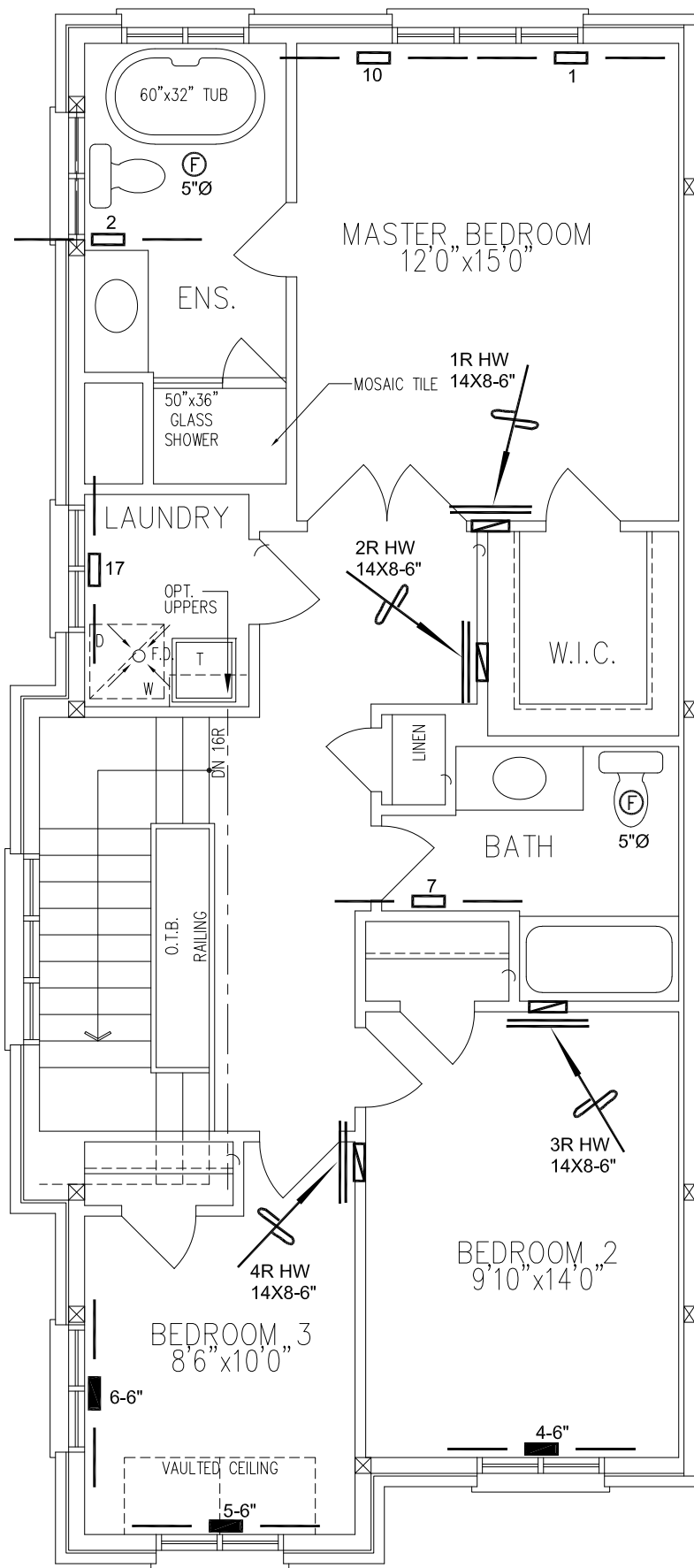
HVAC LEGEND								3.		
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	2.	REVISED AS PER ARCHITECTURALS	APR/2021
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Client		 375 Finley Ave. Suite 202 - Ajax, Ontario L1S 2E2 Tel. 905.619.2300 - 905.420.5300 Fax 905.619.2375 Email: info@hvacdesigns.ca Web: www.hvacdesigns.ca Specializing in Residential Mechanical Design Services 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 2010			BCIN# 19669	
1742 sqft			LO#	87541



SECOND FLOOR PLAN, EL. 'B'



SECOND FLOOR PLAN, EL. 'A'

I MICHAEL O'ROURKE HAVE REVIEW 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 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
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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"
FIN BSMT			BCIN# 19669	
2010			LO#	87541
1742 sqft				