

Schedule 1: Designer Information

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

A. Project Information				
Building number, street name			Unit no.	Lot/con.
Municipality BRAMPTON	Postal code	Plan number/ other description		
B. Individual who reviews and takes responsibility for design activities				
Name MICHAEL O'ROURKE		Firm HVAC DESIGNS LTD		
Street address 375 FINLEY AVE		Unit no. 202	Lot/con. N/A	
Municipality AJAX	Postal code L1S 2E2	Province ONTARIO	E-mail info@hvacdsgns.ca	
Telephone number (905) 619-2300	Fax number (905) 619-2375	Cell number ()		
C. Design activities undertaken by individual identified in Section B. [Building Code Table 3.5.2.1 OF Division C]				
☐ House ☐ Small Buildings ☐ Large Buildings ☐ Complex Buildings				
☒ HVAC – House ☐ Building Services ☐ Detection, Lighting and Power ☐ Fire Protection				
☐ Building Structural ☐ Plumbing – House ☐ Plumbing – All Buildings ☐ On-site Sewage Systems				
Description of designer's work HEAT LOSS / GAIN CALCULATIONS DUCT SIZING RESIDENTIAL MECHANICAL VENTILATION DESIGN SUMMARY RESIDENTIAL SYSTEM DESIGN per CSA-F280-12		Model: 2002 FIN BSMT Project: SUMMER RIDGE ESTATES		
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 24, 2024				
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: SUMMER RIDGE ESTATES				FIN BSMT				DATE: Apr-24				WINTER NATURAL AIR CHANGE RATE 0.271				HEAT LOSS AT °F. 74				CSA-F280-12			
BUILDER: ROYAL PIE HOMES				TYPE: 2002				LO# 104853				SUMMER NATURAL AIR CHANGE RATE 0.085				HEAT GAIN AT °F. 11				PERFORMANCE			
ROOM USE				MBR				BED-2				BED-3				BATH				BED-4			
EXP. WALL				12				12				10				0				10			
CLG. HT.				9				9				9				9				9			
FACTORS																							
GRS.WALL AREA				103				189				0				0				61			
GLAZING				LOSS GAIN				LOSS GAIN				LOSS GAIN				LOSS GAIN				LOSS GAIN			
NORTH	20.8	12.8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EAST	20.8	32.9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SOUTH	20.8	19.8	0	0	0	13	270	258	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WEST	20.8	32.9	30	623	987	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SKYLT.	34.1	132.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DOORS	19.6	2.9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NET EXPOSED WALL	3.5	0.5	73	254	38	176	611	91	77	268	40	51	177	26	0	0	0	0	0	0	0	0	0
NET EXPOSED BSMT WALL ABOVE GR	3.5	0.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	25	88	13	0
EXPOSED CLG	1.3	0.6	339	425	189	137	172	76	191	239	106	210	263	117	69	86	38	0	0	0	0	0	0
NO ATTIC EXPOSED CLG	2.7	1.2	0	0	0	0	0	0	0	0	0	19	51	23	0	0	0	0	0	0	0	0	0
EXPOSED FLOOR	2.5	0.4	0	0	0	4	10	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BASEMENT/CRAWL HEAT LOSS			0			0			0			0			0			0		311		115	
SLAB ON GRADE HEAT LOSS			0			0			0			0			0			0		0		0	
SUBTOTAL HT LOSS			1302			1063			1047			1218			86			607		115		115	
SUB TOTAL HT GAIN				1214		426			1002			1318			38			342		0		0	
LEVEL FACTOR / MULTIPLIER			0.20	0.39		0.20	0.39		0.20	0.39		0.20	0.39		0.20	0.39		0.50	2.17	0.50	2.17		
AIR CHANGE HEAT LOSS			506			413			407			473			34			1319		251			
AIR CHANGE HEAT GAIN				104		36			85			112			3			29		0			
DUCT LOSS			0			148			0			0			0			0		0			
DUCT GAIN				0		46			0			0			0			0		0			
HEAT GAIN PEOPLE	240		2		480	0		0	1		240	1		240	0		0	1		240	0		0
HEAT GAIN APPLIANCES/LIGHTS					408	0		0			408			408			0			408			0
TOTAL HT LOSS BTU/H				1807		1623			1454			1691			120			1926		366			
TOTAL HT GAIN x 1.3 BTU/H				2867		661			2256			2702			54			1325		0			

ROOM USE			LV/DN			KT/BF			ENTRY-1			LND			FOY			ENTRY-2			REC			BAS								
EXP. WALL			10			12			7			0			12			14			10			45								
CLG. HT.			10			10			10			9			11			11			10			9								
FACTORS																																
GRS.WALL AREA			96			115			67			0			127			148			96			275								
GLAZING			LOSS GAIN			LOSS GAIN			LOSS GAIN			LOSS GAIN			LOSS GAIN			LOSS GAIN			LOSS GAIN											
NORTH	20.8	12.8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0								
EAST	20.8	32.9	37	769	1218	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0								
SOUTH	20.8	19.8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0								
WEST	20.8	32.9	0	0	0	28	582	922	0	0	0	0	0	0	0	0	0	0	0	10	208	329	0	0								
SKYLT.	34.1	132.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0								
DOORS	19.6	2.9	0	0	0	0	0	0	20	392	58	0	0	0	0	0	0	0	0	0	0	0	0	0								
NET EXPOSED WALL	3.5	0.5	59	205	30	87	302	45	47	164	24	0	0	0	0	0	0	0	0	86	299	44	108	376	56	86	298	44	0	0	0	
NET EXPOSED BSMT WALL ABOVE GR	3.5	0.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
EXPOSED CLG	1.3	0.6	0	0	0	0	0	0	0	0	0	55	69	31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
NO ATTIC EXPOSED CLG	2.7	1.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
EXPOSED FLOOR	2.5	0.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
BASEMENT/CRAWL HEAT LOSS			0			0			0			0			0			0		657			628									
SLAB ON GRADE HEAT LOSS			0			0			0			0			0			0		0			0									
SUBTOTAL HT LOSS			973			884			555			69			1115			1159		1163			1415									
SUB TOTAL HT GAIN				1248			966		82			31			493			172		373			117									
LEVEL FACTOR / MULTIPLIER			0.30	0.48		0.30	0.48		0.30	0.48		0.20	0.39		0.30	0.48		0.30	0.48	0.30	0.48		0.50	2.17								
AIR CHANGE HEAT LOSS			464			421			265			27			531			552		554			3076									
AIR CHANGE HEAT GAIN				106			82		7			3			42			15		32			10									
DUCT LOSS			0			0			0			0			0			0		0			0									
DUCT GAIN				0			0		0			0			0			0		0			0									
HEAT GAIN PEOPLE	240		0			0		0	0		0	0		0	0		0	0	0	0		0	0									
HEAT GAIN APPLIANCES/LIGHTS				408			408		0			408			0			0		408			408									
TOTAL HT LOSS BTU/H			1437			1305			820			96			1646			1711		1717			4491									
TOTAL HT GAIN x 1.3 BTU/H			2292			1894			116			574			696			242		1057			69									

SITE NAME: SUMMER RIDGE ESTATES
BUILDER: ROYAL PIE HOMES

FIN BSMT
TYPE: 2002

DATE: Apr-24

GFA: 1914 LO# 104853

HEATING CFM 545 COOLING CFM 545
TOTAL HEAT LOSS 22,212 TOTAL HEAT GAIN 17,433
AIR FLOW RATE CFM 24.54 AIR FLOW RATE CFM 31.26

furnace pressure 0.6
furnace filter 0.00
a/c coil pressure 0.15
available pressure for s/a & r/a 0.45

FACTORY INSTALLED

59SC6A026M14--10 CARRIER

AFUE = 96 %
INPUT (BTU/H) = 26,000
OUTPUT (BTU/H) = 25,000

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	7	6	4
R/A	0	0	4	1	2

plenium pressure s/a 0.23 r/a pressure 0.22
max s/a dif press. loss 0.02 r/a grille press. Loss 0.02
min adjusted pressure s/a 0.21 adjusted pressure r/a 0.20

FAN SPEED 26
LOW 0
MEDLOW 545
MEDIUM 770
MEDIUM HIGH 0
HIGH 0

DESIGN CFM = 545
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	7	10	12	14	16	17	19	20	21	22	23	24
ROOM NAME	MBR	ENS	BED-2	BED-3	BATH	MBR	LV/DN	KT/BF	ENTRY-1	LND	FOY	ENTRY-2	REC	B-BTH	BED-4	BAS
RM LOSS MBH.	0.90	1.62	1.45	1.69	0.12	0.90	1.44	1.31	0.82	0.10	1.65	1.71	1.72	0.37	1.93	2.25
CFM PER RUN HEAT	22	40	36	42	3	22	35	32	20	2	40	42	42	9	47	55
RM GAIN MBH.	1.43	0.66	2.26	2.70	0.05	1.43	2.29	1.89	0.12	0.57	0.70	0.24	1.06	0.00	1.33	0.35
CFM PER RUN COOLING	45	21	71	84	2	45	72	59	4	18	22	8	33	0	41	11
ADJUSTED PRESSURE	0.22	0.22	0.22	0.21	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22
ACTUAL DUCT LGH.	73	71	31	29	57	67	26	39	50	38	16	54	54	24	26	48
EQUIVALENT LENGTH	220	220	220	220	180	220	160	130	160	170	150	170	170	130	200	170
TOTAL EFFECTIVE LENGTH	293	291	251	249	237	287	186	169	210	208	166	224	224	154	226	218
ADJUSTED PRESSURE	0.08	0.08	0.09	0.09	0.09	0.08	0.12	0.13	0.11	0.11	0.13	0.1	0.1	0.15	0.1	0.1
ROUND DUCT SIZE	5	5	6	6	4	5	6	5	4	4	4	4	4	4	4	5
HEATING VELOCITY (ft/min)	162	294	184	214	34	162	178	235	229	23	459	482	482	103	539	404
COOLING VELOCITY (ft/min)	330	154	362	428	23	330	367	433	46	207	252	92	379	0	470	81
OUTLET GRILL SIZE	3X10	3X10	4X10	4X10	3X10	3X10	4X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10
TRUNK	A	A	B	B	B	A	B	A	A	B	B	A	A	B	B	A

RUN #	25
ROOM NAME	BAS
RM LOSS MBH.	2.25
CFM PER RUN HEAT	55
RM GAIN MBH.	0.35
CFM PER RUN COOLING	11
ADJUSTED PRESSURE	0.22
ACTUAL DUCT LGH.	12
EQUIVALENT LENGTH	140
TOTAL EFFECTIVE LENGTH	152
ADJUSTED PRESSURE	0.15
ROUND DUCT SIZE	4
HEATING VELOCITY (ft/min)	631
COOLING VELOCITY (ft/min)	126
OUTLET GRILL SIZE	3X10
TRUNK	B

SUPPLY AIR TRUNK SIZE												RETURN AIR TRUNK SIZE											
TRUNK		STATIC	ROUND	RECT	VELOCITY			TRUNK		STATIC	ROUND	RECT	VELOCITY			TRUNK		STATIC	ROUND	RECT	VELOCITY		
	CFM	PRESS.	DUCT	DUCT			(ft/min)		CFM	PRESS.	DUCT	DUCT			(ft/min)		CFM	PRESS.	DUCT	DUCT			(ft/min)
TRUNK A	275	0.08	8.6	8	x	8	619	TRUNK G	0	0.00	0	0	x	8	0	TRUNK O	0	0.07	0	0	x	8	0
TRUNK B	544	0.08	11.2	14	x	8	699	TRUNK H	0	0.00	0	0	x	8	0	TRUNK P	0	0.07	0	0	x	8	0
TRUNK C	0	0.00	0	0	x	8	0	TRUNK I	0	0.00	0	0	x	8	0	TRUNK Q	0	0.07	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	0.07	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	0.07	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	0.07	0	0	x	8	0

RETURN AIR #	1	2	3	4	5	6	BR
FLOOR	2	2	2	2	1	B	B
AIR VOLUME	60	70	75	65	190	45	0
PLENUM PRESSURE	0.20	0.20	0.20	0.20	0.20	0.20	0.20
ACTUAL DUCT LGH.	62	72	41	41	40	33	1
EQUIVALENT LENGTH	215	175	155	195	200	165	0
TOTAL EFFECTIVE LH	277	247	196	236	240	198	1
ADJUSTED PRESSURE	0.07	0.08	0.10	0.08	0.08	0.10	19.60
ROUND DUCT SIZE	5.1	5.2	5	5	7.5	4.2	0
INLET GRILL SIZE	8	8	8	8	8	8	0
INLET GRILL SIZE	X	X	X	X	X	X	X
INLET GRILL SIZE	14	14	14	14	14	14	0

TYPE: 2002
SITE NAME: SUMMER RIDGE ESTATES

LO # 104853
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>1</u> @ 21.2 cfm	<u>21.2</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>6</u> @ 10.6 cfm	<u>63.6</u> cfm
Table 9.32.3.A.	TOTAL	<u>169.6</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>169.6</u>	cfm
Less Principal Ventil. Capacity	<u>79.5</u>	cfm
Required Supplemental Capacity	<u>90.1</u>	cfm

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

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

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

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

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

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

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

DESIGNER CERTIFICATION	
I hereby certify that this ventilation system has been designed in accordance with the Ontario Building Code.	
Name:	HVAC Designs Ltd.
Signature:	<i>Michael O'Rourke</i>
HRAI #	001820
Date:	April-24

I REVIEW AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED IN THE APPROPRIATE CATEGORY AS AN "OTHER DESIGNER" UNDER DIVISION C, 3.2.5 OF THE BUILDING CODE.

INDIVIDUAL BCIN: 19669

MICHAEL O'ROURKE

CSA F280-12 Residential Heat Loss and Heat Gain Calculations																																																																	
Formula Sheet (For Air Leakage / Ventilation Calculation)																																																																	
LO#: 104853		Model: 2002		Builder: ROYAL PIE HOMES			Date: 2024-04-24																																																										
Volume Calculation					Air Change & Delta T Data																																																												
House Volume <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 5px;"> <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>964</td> <td>9</td> <td>8290.4</td> </tr> <tr> <td>First</td> <td>964</td> <td>10</td> <td>9254.4</td> </tr> <tr> <td>Second</td> <td>965</td> <td>9</td> <td>8299</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="2" style="text-align: right;">Total:</td> <td></td> <td>25,843.8 ft³</td> </tr> <tr> <td colspan="2" style="text-align: right;">Total:</td> <td></td> <td>731.8 m³</td> </tr> </tbody> </table>					Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)	Bsmt	964	9	8290.4	First	964	10	9254.4	Second	965	9	8299	Third	0	9	0	Fourth	0	9	0	Total:			25,843.8 ft³	Total:			731.8 m³	<table border="1" style="width: 100%; border-collapse: collapse; margin-top: 5px;"> <tr> <td style="width: 70%;">WINTER NATURAL AIR CHANGE RATE</td> <td style="width: 30%;">0.271</td> </tr> <tr> <td>SUMMER NATURAL AIR CHANGE RATE</td> <td>0.085</td> </tr> </table> <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 5px;"> <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>22</td> <td>-19</td> <td>41</td> <td>74</td> </tr> <tr> <td>Summer DTDc</td> <td>24</td> <td>30</td> <td>6</td> <td>11</td> </tr> </table>					WINTER NATURAL AIR CHANGE RATE	0.271	SUMMER NATURAL AIR CHANGE RATE	0.085	Design Temperature Difference						Tin °C	Tout °C	ΔT °C	ΔT °F	Winter DTDh	22	-19	41	74	Summer DTDc	24	30	6	11
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5.2.3.1 Heat Loss due to Air Leakage					6.2.6 Sensible Gain due to Air Leakage																																																												
$HL_{airb} = LR_{airh} \times \frac{V_b}{3.6} \times DTD_h \times 1.2$ 0.271 x 203.28 x 41 °C x 1.2 = 2723 W = 9292 Btu/h					$HG_{salb} = LR_{airc} \times \frac{V_b}{3.6} \times DTD_c \times 1.2$ = 0.085 x 203.28 x 6 °C x 1.2 = 126 W = 431 Btu/h																																																												
5.2.3.2 Heat Loss due to Mechanical Ventilation					6.2.7 Sensible heat Gain due to Ventilation																																																												
$HL_{vairb} = PVC \times DTD_h \times 1.08 \times (1 - E)$ 80 CFM x 74 °F x 1.08 x 0.25 = 1593 Btu/h					$HL_{vairb} = PVC \times DTD_h \times 1.08 \times (1 - E)$ 80 CFM x 11 °F x 1.08 x 0.25 = 236 Btu/h																																																												
5.2.3.3 Calculation of Air Change Heat Loss for Each Room (Floor Multiplier Section)																																																																	
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HEAT LOSS AND GAIN SUMMARY SHEET

MODEL: 2002	FIN BSMT	BUILDER: ROYAL PIE HOMES
SFQT: 1914	LO# 104853	SITE: SUMMER RIDGE ESTATES

DESIGN ASSUMPTIONS

HEATING	°F	COOLING	°F
OUTDOOR DESIGN TEMP.	-2	OUTDOOR DESIGN TEMP.	86
INDOOR DESIGN TEMP.	72	INDOOR DESIGN TEMP. (MAX 75°F)	75
		WINDOW SHGC	0.60

BUILDING DATA

ATTACHMENT:	ATTACHED	# OF STORIES (+BASEMENT):	3
FRONT FACES:	EAST	ASSUMED (Y/N):	Y
AIR CHANGES PER HOUR:	3.00	ASSUMED (Y/N):	Y
AIR TIGHTNESS CATEGORY:	TIGHT	ASSUMED (Y/N):	Y
WIND EXPOSURE:	SHELTERED	ASSUMED (Y/N):	Y
HOUSE VOLUME (ft ³):	25843.8	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	5
INTERIOR LIGHTING LOAD (Btu/h/ft ²):	1.27	DC BRUSHLESS MOTOR (Y/N):	Y
FOUNDATION CONFIGURATION	BCIN_1	DEPTH BELOW GRADE:	6.1 ft
LENGTH: 54.0 ft	WIDTH: 21.0 ft	EXPOSED PERIMETER:	55.0 ft

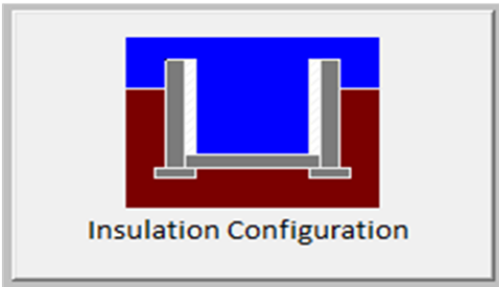
2012 OBC - COMPLIANCE PACKAGE		Compliance Package PERFORMANCE	
Component		Nominal	Min. Eff.
Ceiling with Attic Space Minimum RSI (R)-Value		60	59.22
Ceiling Without Attic Space Minimum RSI (R)-Value		31	27.65
Exposed Floor Minimum RSI (R)-Value		31	29.80
Walls Above Grade Minimum RSI (R)-Value		22+1.5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

INDIVIDUAL BCIN: 19669
MICHAEL O'ROURKE



Residential Foundation Thermal Load Calculator

Supplemental tool for CAN/CSA-F280

Weather Station Description		
Province:	Ontario	
Region:	Brampton	
Site Description		
Soil Conductivity:	Normal conductivity: dry sand, loam, clay	
Water Table:	Normal (7-10 m, 23-33 ft)	
Foundation Dimensions		
Floor Length (m):	16.5	 Insulation Configuration
Floor Width (m):	6.4	
Exposed Perimeter (m):	16.8	
Wall Height (m):	2.6	
Depth Below Grade (m):	1.86	
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):		502

TYPE: 2002
LO# 104853

FIN BSMT

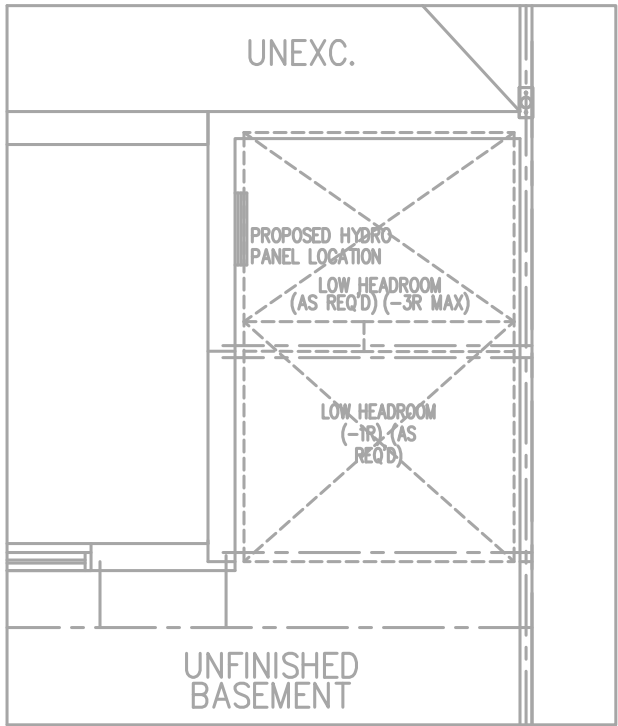
Air Infiltration Residential Load Calculator

Supplemental tool for CAN/CSA-F280

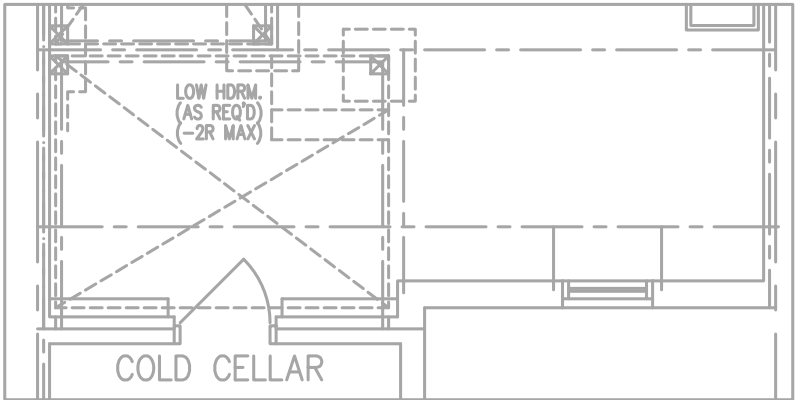
Weather Station Description				
Province:	Ontario			
Region:	Brampton			
Weather Station Location:	Open flat terrain, grass			
Anemometer height (m):	10			
Local Shielding				
Building Site:	Suburban, forest			
Walls:	Heavy			
Flue:	Heavy			
Highest Ceiling Height (m):	6.31			
Building Configuration				
Type:	Semi			
Number of Stories:	Two			
Foundation:	Full			
House Volume (m ³):	731.8			
Air Leakage/Ventilation				
Air Tightness Type:	Attached (3.0 ACH)			
Custom BDT Data:	ELA @ 10 Pa.	819.8 cm ²		
	3.00	ACH @ 50 Pa		
Mechanical Ventilation (L/s):	Total Supply	Total Exhaust		
	37.5	37.5		
Flue Size				
Flue #:	#1	#2	#3	#4
Diameter (mm):	0	0	0	0
Natural Infiltration Rates				
Heating Air Leakage Rate (ACH/H):	0.271			
Cooling Air Leakage Rate (ACH/H):	0.085			

TYPE: 2002
LO# 104853

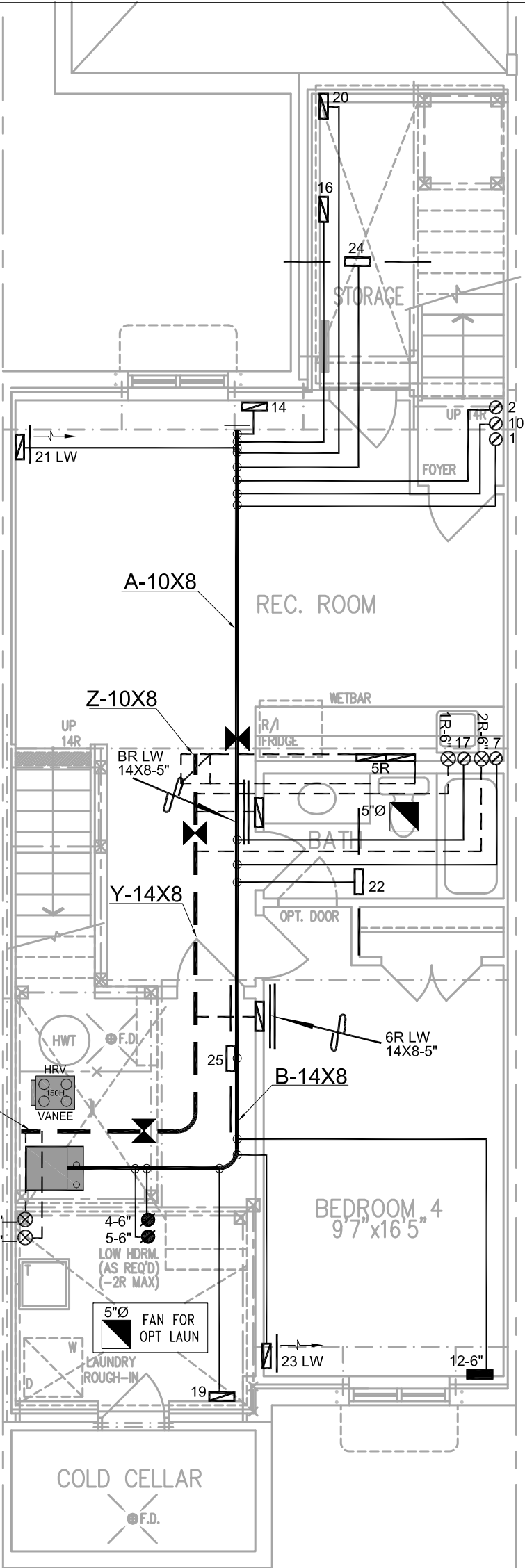
FIN BSMT



PART. BSMT. OPT.
LAUNDRY ELEV. 'A'
(ELEV. 'B' SIMILAR)

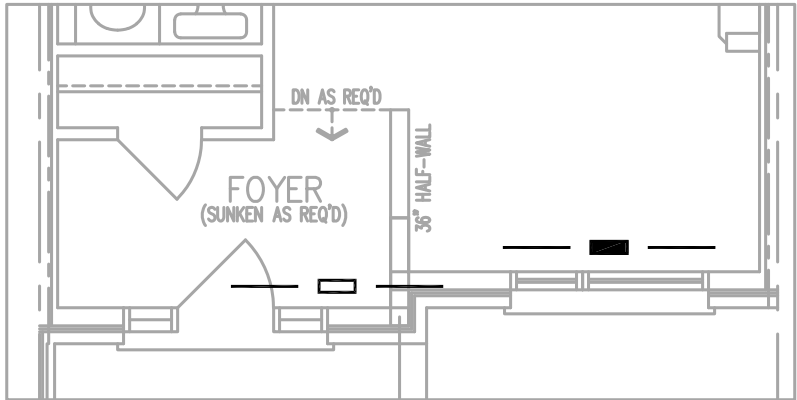


PART. BASEMENT
PLAN, ELEV. 'B'

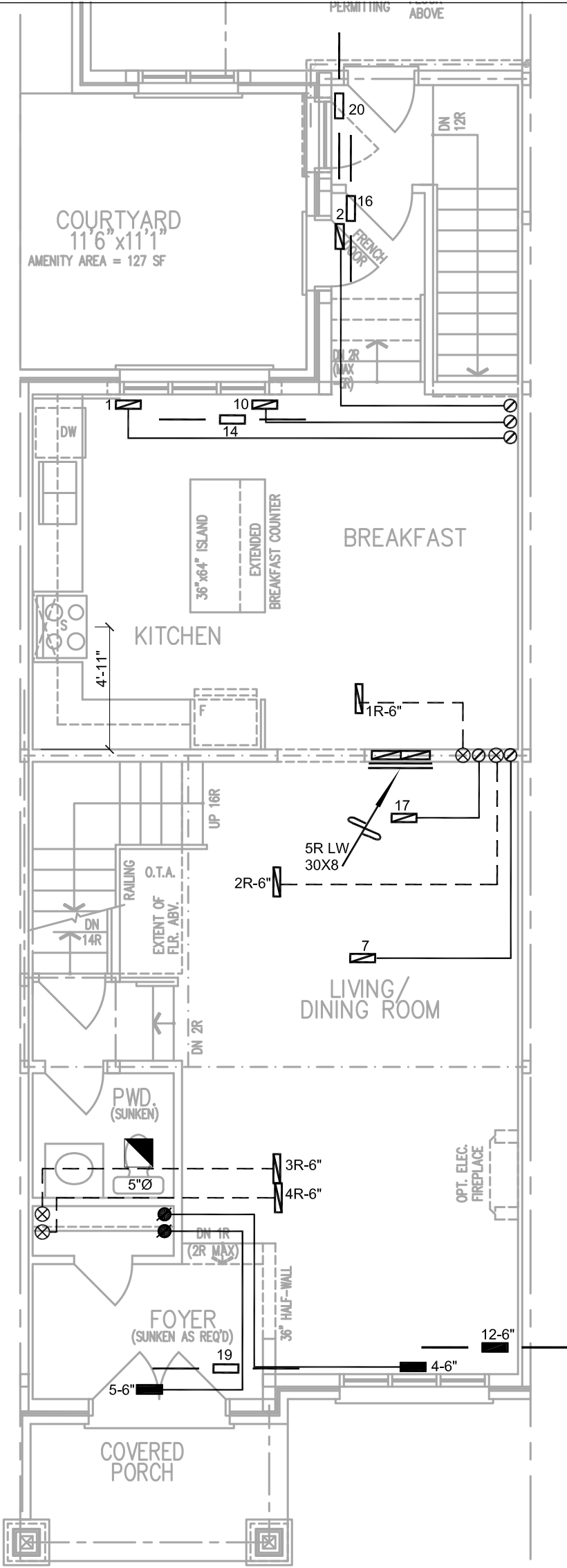


OPT. FINISHED
BASEMENT PLAN,
ELEV. 'A'

HVAC LEGEND							3.						
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	2.					
	SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		14"x8" RETURN AIR GRILLE		RETURN AIR STACK ABOVE	1.					
	SUPPLY AIR GRILLE 6" BOOT		SUPPLY AIR STACK FROM 2nd FLOOR		30"x8" RETURN AIR GRILLE		RETURN AIR STACK 2nd FLOOR	No.	Description Date				
	SUPPLY AIR BOOT ABOVE		6" SUPPLY AIR STACK 2nd FLOOR		FRA- FLOOR RETURN AIR GRILLE		REDUCER	REVISIONS					
ALL DRAWINGS, CALCULATIONS AND SPECIFICATIONS ARE THE PROPERTY OF HVAC DESIGNS LTD.© AND MAY NOT BE REPRODUCED, MODIFIED OR ALTERED WITHOUT EXPRESSED WRITTEN CONSENT. THE DRAWINGS ARE DATED AND USE OF THESE DRAWINGS AFTER ONE YEAR FROM THE DATED NOTED IS NOT AUTHORIZED. CONTRACTOR SHALL CHECK ALL CONDITIONS BEFORE PROCEEDING WITH WORK. LATEST MUNICIPAL APPROVED DRAWINGS ONLY TO BE USED DURING INSTALLATION OF HEATING SYSTEM. HVAC DESIGNS LTD. IS NOT LIABLE FOR ANY CLAIMS ARISING FROM UNAUTHORIZED USE OF THE DRAWINGS OR FROM ANY CHANGES TO ACCEPTED STANDARDS AND/OR THE ONTARIO BUILDING CODE.							I Michael O'Rourke have reviewed and take responsibility for the design work and am qualified under division C.3.2.5 of the building code. Michael O'Rourke BCIN # 19669 HVAC Designs Ltd.		PERFORMANCE				
Client 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			HEAT LOSS 23804 BTU/H UNIT DATA		# OF RUNS S/A R/A FANS		Sheet Title BASEMENT HEATING LAYOUT				
Project Name SUMMER RIDGE ESTATES BRAMPTON, ONTARIO					MAKE CARRIER		3RD FLOOR				Date APR/2024		
2002 - FIN BSMT 1914 sqft					MODEL 59SC6A026M14--10		2ND FLOOR		7	4	3	Scale 3/16" = 1'-0"	
					INPUT 26 MBTU/H		1ST FLOOR		5	1	2	BCIN# 19669	
		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.			OUTPUT 25 MBTU/H		BASEMENT		1(2)				
					COOLING 1.5 TONS		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# 104853				
					FAN SPEED 545 cfm @ 0.6" w.c.								

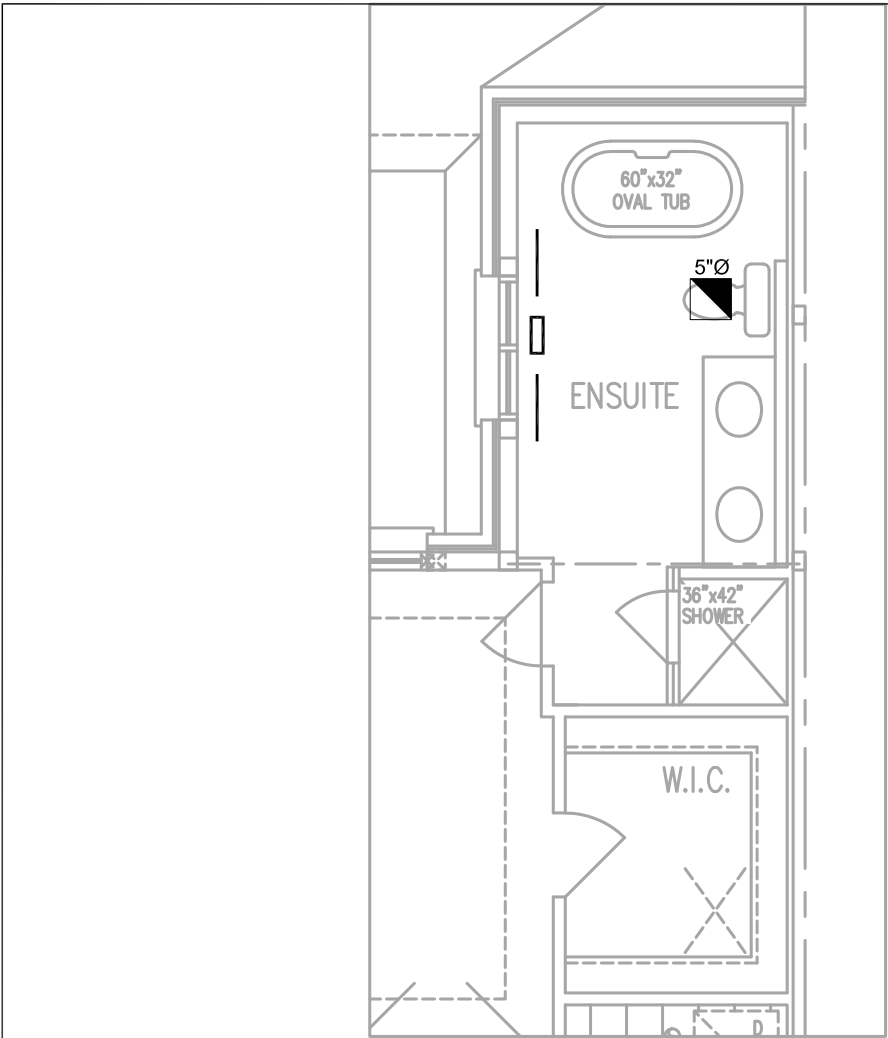


PART. GROUND FLOOR
PLAN, ELEV. 'B'

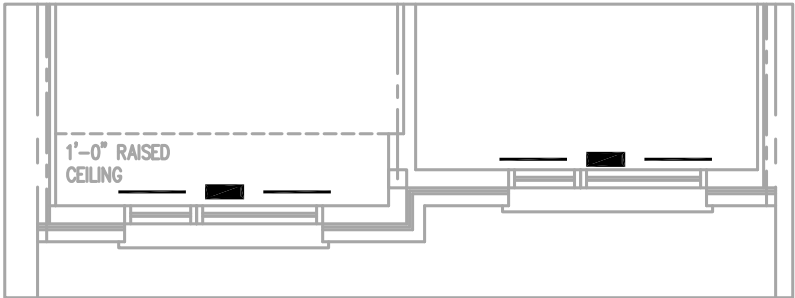


GROUND FLOOR PLAN,
ELEV. 'A'

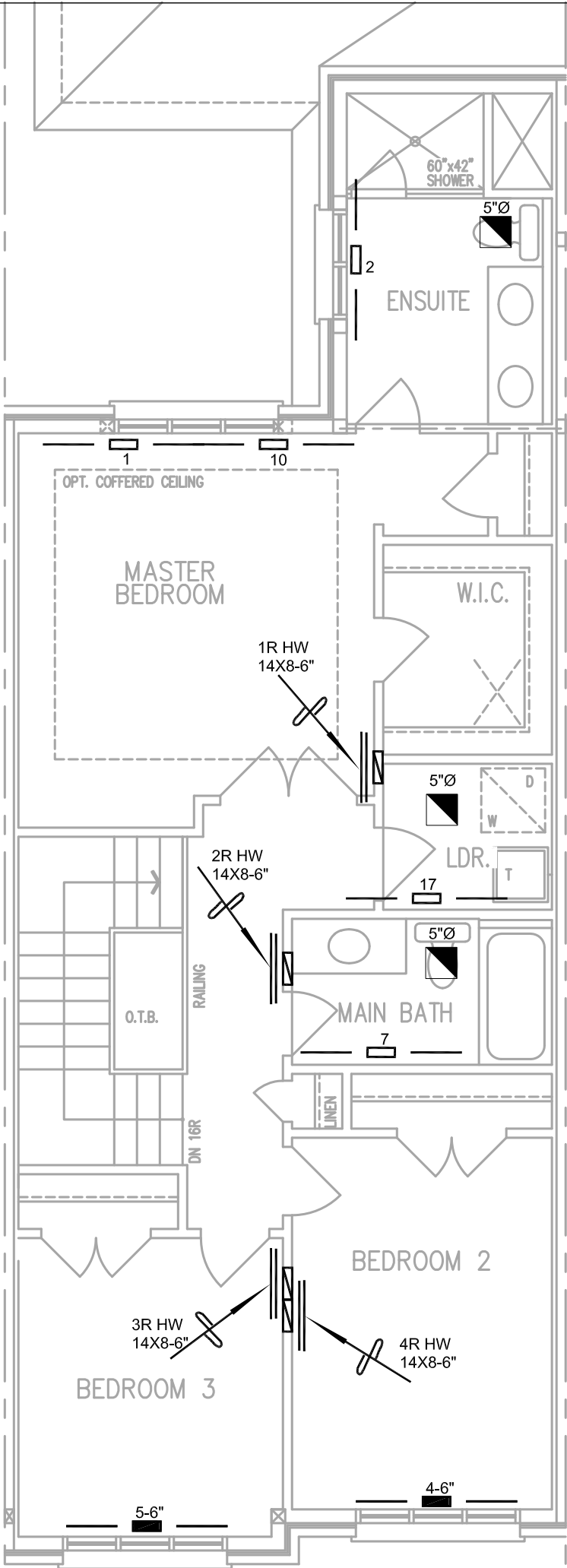
HVAC LEGEND								3.			
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	SUPPLY AIR BOOT ABOVE		6" SUPPLY AIR STACK 2nd FLOOR		FRA- FLOOR RETURN AIR GRILLE		REDUCER	REVISIONS			
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Client		375 Finley Ave. Suite 202 - Ajax, Ontario L1S 2E2 Tel. 905.619.2300 - 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	
Project Name										FIRST FLOOR HEATING LAYOUT	
SUMMER RIDGE ESTATES BRAMPTON, ONTARIO										Date APR/2024	
2002 - FIN BSMT 1914 sqft										Scale 3/16" = 1'-0"	
						BCIN# 19669					
						LO#		104853			



PART SECOND FLOOR
PLAN, ELEV. 'A'
OPT. BATH LAYOUT



PART SECOND FLOOR
PLAN, ELEV. 'B'



SECOND FLOOR PLAN,
ELEV. 'A'

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								Sheet Title SECOND FLOOR HEATING LAYOUT	
Project Name SUMMER RIDGE ESTATES BRAMPTON, ONTARIO										Date APR/2024	
2002 - FIN BSMT 1914 sqft										Scale 3/16" = 1'-0"	
										BCIN# 19669	
		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.								LO#	104853