

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: 2003 OPT 2ND - 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				OPT 2ND - FIN BSMT				DATE: Apr-24				WINTER NATURAL AIR CHANGE RATE 0.266				HEAT LOSS AT °F. 74				CSA-F280-12			
BUILDER: ROYAL PIE HOMES				TYPE: 2003				LO# 104857				SUMMER NATURAL AIR CHANGE RATE 0.083				HEAT GAIN AT °F. 11				PERFORMANCE			
ROOM USE				MBR				BED-2				BED-3				BATH				B-BTH			
EXP. WALL				12				11				12				0				0			
CLG. HT.				9				9				9				9				9			
FACTORS				103				181				103				0				66			
GRS.WALL AREA				LOSS GAIN				LOSS GAIN				LOSS GAIN				LOSS GAIN				LOSS GAIN			
GLAZING				20.8 12.8				20.8 12.8				20.8 12.8				20.8 12.8				20.8 12.8			
NORTH				0 0 0				0 0 0				0 0 0				0 0 0				0 0 0			
EAST				0 0 0				0 0 0				0 0 0				0 0 0				0 0 0			
SOUTH				0 0 0				16 332 317				0 0 0				0 0 0				10 208 329			
WEST				30 623 987				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			
DOORS				19.6 2.9				0 0 0				0 0 0				0 0 0				0 0 0			
NET EXPOSED WALL				3.5 0.5				73 254 38				165 571 85				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			
EXPOSED CLG				1.3 0.6				285 357 159				142 178 79				232 291 129				204 256 114			
NO ATTIC EXPOSED CLG				2.7 1.2				0 0 0				0 0 0				0 0 0				17 46 20			
EXPOSED FLOOR				2.5 0.4				0 0 0				4 10 1				0 0 0				0 0 0			
BASEMENT/CRAWL HEAT LOSS				0				0				0				0				0			
SLAB ON GRADE HEAT LOSS				0				0				0				0				0			
SUBTOTAL HT LOSS				1234				1091				1069				127				108			
SUB TOTAL HT GAIN				1184				482				1020				56				0			
LEVEL FACTOR / MULTIPLIER				0.20 0.38				0.20 0.38				0.20 0.38				0.20 0.38				0.50 1.64			
AIR CHANGE HEAT LOSS				471				416				408				48				177			
AIR CHANGE HEAT GAIN				100				41				87				112				5			
DUCT LOSS				0				151				0				0				0			
DUCT GAIN				0				52				0				0				0			
HEAT GAIN PEOPLE				240				0				1				240				0			
HEAT GAIN APPLIANCES/LIGHTS				2				480				0				467				0			
TOTAL HT LOSS BTU/H				1705				1658				1477				1748				175			
TOTAL HT GAIN x 1.3 BTU/H				2900				748				2358				2782				79			

ROOM USE			LV/DN			K/B/G			ENTRY-1			LAUN			FOY			ENTRY-2			REC									BAS		
EXP. WALL			11			12			7			0			12			21			10									36		
CLG. HT.			10			10			10			9			11			11			9									9		
GRS.WALL AREA			FACTORS			115			67			0			127			223			66									238		
GLAZING			LOSS GAIN			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	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	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	0	0	0	0	0	
WEST			20.8	32.9	0	0	0	33	686	1086	0	0	0	0	0	0	0	0	0	0	0	10	208	329	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	0	0	0	0	0	0	
DOORS			19.6	2.9	0	0	0	0	0	0	20	392	58	0	0	0	36	705	104	40	783	116	0	0	0	0	0	0	20	392	58	0
NET EXPOSED WALL			3.5	0.5	69	238	35	82	285	42	47	164	24	0	0	0	86	299	44	183	633	94	0	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	0	0	0	20	70	10	72	253	38	0	
EXPOSED CLG			1.3	0.6	0	0	0	0	0	0	0	0	0	65	81	36	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
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
BASEMENT/CRAWL HEAT LOSS					0			0		0		0		0		0						720							513			
SLAB ON GRADE HEAT LOSS					0			0		0		0		0		0						0										
SUBTOTAL HT LOSS					1007			971		555		81				1108		1416		998									1158			
SUB TOTAL HT GAIN						1253			1128		82		36			313		210		340											96	
LEVEL FACTOR / MULTIPLIER			0.30	0.55			0.30	0.55		0.30	0.55		0.20	0.38		0.30	0.55		0.30	0.55		0.50	1.64					0.50	1.64			
AIR CHANGE HEAT LOSS					555			535		306			31			610		781		1635									1898			
AIR CHANGE HEAT GAIN						106			96		7		3			27		18				29									8	
DUCT LOSS					0			0		0			0			0		0		0									0			
DUCT GAIN					0			0		0		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						467			467		0		467			0		0		0		0								467		
TOTAL HT LOSS BTU/H					1561			1506		861		113				1718		2197		2633									3055			
TOTAL HT GAIN x1.3 BTU/H					2374			2198		116		658				442		296		479										742		

SITE NAME: SUMMER RIDGE ESTATES
BUILDER: ROYAL PIE HOMES

TYPE: 2003
OPT 2ND - FIN BSMT

DATE: Apr-24

GFA: 1961 LO# 104857

HEATING CFM 545 COOLING CFM 545
TOTAL HEAT LOSS 22,195 TOTAL HEAT GAIN 17,570
AIR FLOW RATE CFM 24.56 AIR FLOW RATE CFM 31.02

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
FAN SPEED LOW

CARRIER 26

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

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	7	5	5
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

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	6	7	10	12	15	16	17	19	20	21	22	23	24
ROOM NAME	MBR	ENS	BED-2	BED-3	BATH	MBR	LV/DN	K/B/G	ENTRY-1	LAUN	FOY	ENTRY-2	REC	B-BTH	B-BED	BAS
RM LOSS MBH.	0.85	1.66	1.48	1.75	0.17	0.85	1.56	1.51	0.86	0.11	1.72	2.20	2.63	0.29	1.50	1.53
CFM PER RUN HEAT	21	41	36	43	4	21	38	37	21	3	42	54	65	7	37	38
RM GAIN MBH.	1.45	0.75	2.36	2.78	0.08	1.45	2.37	2.20	0.12	0.66	0.44	0.30	0.48	0.00	1.40	0.37
CFM PER RUN COOLING	45	23	73	86	2	45	74	68	4	20	14	9	15	0	43	12
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.	59	61	27	38	34	54	19	36	54	37	10	56	45	15	34	50
EQUIVALENT LENGTH	160	170	190	150	130	160	160	110	170	140	170	160	140	100	170	160
TOTAL EFFECTIVE LENGTH	219	231	217	188	164	214	179	146	224	177	180	216	185	115	204	210
ADJUSTED PRESSURE	0.1	0.1	0.1	0.11	0.14	0.1	0.13	0.15	0.1	0.13	0.12	0.1	0.12	0.19	0.11	0.11
ROUND DUCT SIZE	5	4	6	6	4	5	6	6	4	4	4	5	5	4	5	4
HEATING VELOCITY (ft/min)	154	470	184	219	46	154	194	189	241	34	482	396	477	80	272	436
COOLING VELOCITY (ft/min)	330	264	372	438	23	330	377	347	46	229	161	66	110	0	316	138
OUTLET GRILL SIZE	3X10	3X10	4X10	4X10	3X10	3X10	4X10	4X10	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.	1.53
CFM PER RUN HEAT	38
RM GAIN MBH.	0.37
CFM PER RUN COOLING	12
ADJUSTED PRESSURE	0.22
ACTUAL DUCT LGH.	6
EQUIVALENT LENGTH	120
TOTAL EFFECTIVE LENGTH	126
ADJUSTED PRESSURE	0.18
ROUND DUCT SIZE	4
HEATING VELOCITY (ft/min)	436
COOLING VELOCITY (ft/min)	138
OUTLET GRILL SIZE	3X10
TRUNK	B

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	CFM
TRUNK A	298	0.10	8.4	8	x 8	671	TRUNK G	0	0.00	0	0	x 8	0	0.07	0	0	x 8	0	0.07
TRUNK B	546	0.10	10.6	14	x 8	702	TRUNK H	0	0.00	0	0	x 8	0	0.07	0	0	x 8	0	0.07
TRUNK C	0	0.00	0	0	x 8	0	TRUNK I	0	0.00	0	0	x 8	0	0.07	0	0	x 8	0	0.07
TRUNK D	0	0.00	0	0	x 8	0	TRUNK J	0	0.00	0	0	x 8	0	0.07	0	0	x 8	0	0.07
TRUNK E	0	0.00	0	0	x 8	0	TRUNK K	0	0.00	0	0	x 8	0	0.07	0	0	x 8	0	0.07
TRUNK F	0	0.00	0	0	x 8	0	TRUNK L	0	0.00	0	0	x 8	0	0.07	0	0	x 8	0	0.07

RETURN AIR #	1	2	3	4	5	6	BR
FLOOR	2	2	2	2	1	B	B
AIR VOLUME	60	70	80	80	195	55	5
PLENUM PRESSURE	0.20	0.20	0.20	0.20	0.20	0.20	0.20
ACTUAL DUCT LGH.	55	46	47	55	24	32	40
EQUIVALENT LENGTH	235	195	155	140	220	155	175
TOTAL EFFECTIVE LH	290	241	202	195	244	187	215
ADJUSTED PRESSURE	0.07	0.08	0.10	0.10	0.08	0.10	0.09
ROUND DUCT SIZE	5.1	5.2	5.1	5.1	7.6	4.5	1.9
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	24	14	0

TYPE: 2003
SITE NAME: SUMMER RIDGE ESTATES

LO # 104857
OPT 2ND - 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>5</u> @ 10.6 cfm <u>53.0</u> cfm	
Table 9.32.3.A.	TOTAL <u>159.0</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	79.5 cfm	

SUPPLEMENTAL VENTILATION CAPACITY		9.32.3.5.
Total Ventilation Capacity	<u>159</u> cfm	
Less Principal Ventil. Capacity	<u>79.5</u> cfm	
Required Supplemental Capacity	<u>79.5</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#: 104857		Model: 2003		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;"> <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>980</td> <td>9</td> <td>8428</td> </tr> <tr> <td>First</td> <td>980</td> <td>10</td> <td>9408</td> </tr> <tr> <td>Second</td> <td>981</td> <td>9</td> <td>8436.6</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"></td> <td>Total:</td> <td>26,272.6 ft³</td> </tr> <tr> <td colspan="2"></td> <td>Total:</td> <td>744.0 m³</td> </tr> </tbody> </table>					Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)	Bsmt	980	9	8428	First	980	10	9408	Second	981	9	8436.6	Third	0	9	0	Fourth	0	9	0			Total:	26,272.6 ft³			Total:	744.0 m³	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 70%;">WINTER NATURAL AIR CHANGE RATE</td> <td style="width: 30%;">0.266</td> </tr> <tr> <td>SUMMER NATURAL AIR CHANGE RATE</td> <td>0.083</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>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	0.266	SUMMER NATURAL AIR CHANGE RATE	0.083	Design Temperature Difference						Tin °C	Tout °C	ΔT °C	ΔT °F	Winter DTDh	22	-19	41	74	Summer DTDc	24	30	6	11
Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)																																																														
Bsmt	980	9	8428																																																														
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Winter DTDh	22	-19	41	74																																																													
Summer DTDc	24	30	6	11																																																													
5.2.3.1 Heat Loss due to Air Leakage					6.2.6 Sensible Gain due to Air Leakage																																																												
$HL_{airb} = LR_{airh} \times \frac{V_b}{3.6} \times DTD_h \times 1.2$ 0.266 x 206.65 x 41 °C x 1.2 = 2722 W = 9289 Btu/h					$HG_{salb} = LR_{airc} \times \frac{V_b}{3.6} \times DTD_c \times 1.2$ = 0.083 x 206.65 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)																																																																	
$HL_{airr} = Level\ Factor \times HL_{airbv} \times \{(HL_{agcr} + HL_{bgcr}) \div (HL_{agclevel} + HL_{bgclevel})\}$ <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Level</th> <th>Level Factor (LF)</th> <th>HLairve Air Leakage + Ventilation Heat Loss (Btu/h)</th> <th>Level Conductive Heat Loss: (HL_{clevel})</th> <th>Air Leakage Heat Loss Multiplier (LF x HLairbv / HLlevel)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>0.5</td> <td rowspan="5" style="text-align: center; vertical-align: middle;">9,289</td> <td>2,833</td> <td>1.639</td> </tr> <tr> <td>2</td> <td>0.3</td> <td>5,056</td> <td>0.551</td> </tr> <tr> <td>3</td> <td>0.2</td> <td>4,867</td> <td>0.382</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> </tbody> </table>										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	9,289	2,833	1.639	2	0.3	5,056	0.551	3	0.2	4,867	0.382	4	0	0	0.000	5	0	0	0.000																														
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*HLairbv = Air leakage heat loss + ventilation heat loss *For a balanced or supply only ventilation system HLairve = 0																																																																	
					Michael O'Rourke BCIN# 19669 																																																												

HEAT LOSS AND GAIN SUMMARY SHEET

MODEL: 2003	OPT 2ND - FIN BSMT	BUILDER: ROYAL PIE HOMES
SFQT: 1961	LO# 104857	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):	26272.6	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:	6.6 ft
LENGTH: 55.0 ft	WIDTH: 21.0 ft	EXPOSED PERIMETER:	56.0 ft

2012 OBC - COMPLIANCE PACKAGE**Component****Compliance Package
PERFORMANCE****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	-

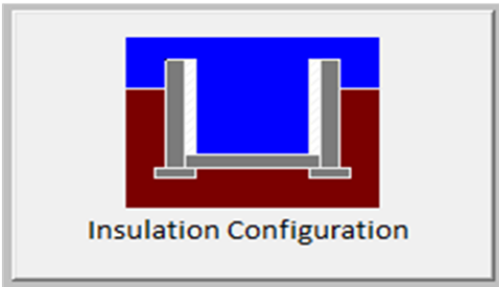
INDIVIDUAL BCIN: 19669

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):	16.8	 Insulation Configuration
Floor Width (m):	6.4	
Exposed Perimeter (m):	17.1	
Wall Height (m):	2.6	
Depth Below Grade (m):	2.01	
Window Area (m ²):	1.9	
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):		478

TYPE: 2003
LO# 104857

OPT 2ND - FIN BSMT

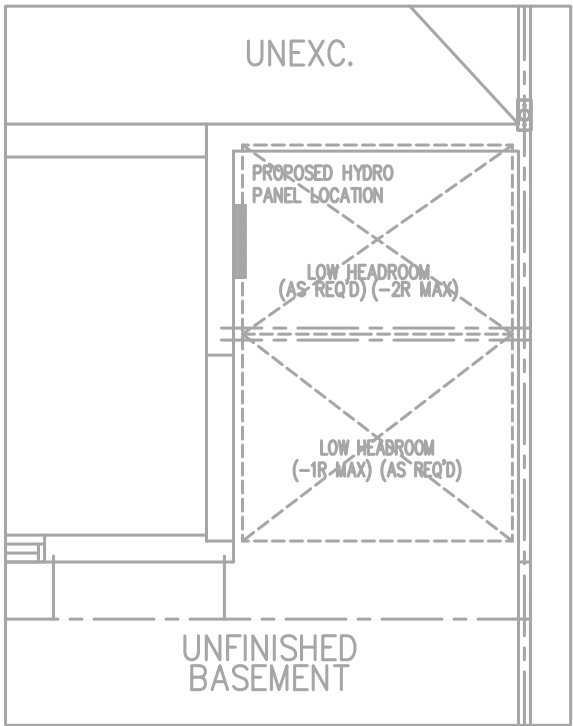
Air Infiltration Residential Load Calculator

Supplemental tool for CAN/CSA-F280

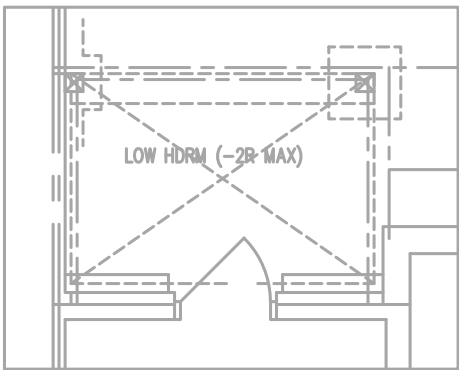
Weather Station Description				
Province:	Ontario			
Region:	Brampton			
Weather Station Location:	Open flat terrain, grass			
Anemometer height (m):	10			
Local Shielding				
Building Site:	Suburban, forest			
Walls:	Heavy			
Flue:	Heavy			
Highest Ceiling Height (m):	6.16			
Building Configuration				
Type:	Semi			
Number of Stories:	Two			
Foundation:	Full			
House Volume (m ³):	744.0			
Air Leakage/Ventilation				
Air Tightness Type:	Attached (3.0 ACH)			
Custom BDT Data:	ELA @ 10 Pa.	833.4 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):	0.266			
Cooling Air Leakage Rate (ACH/H):	0.083			

TYPE: 2003
LO# 104857

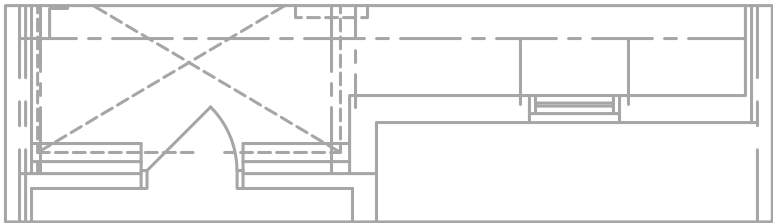
OPT 2ND - FIN BSMT



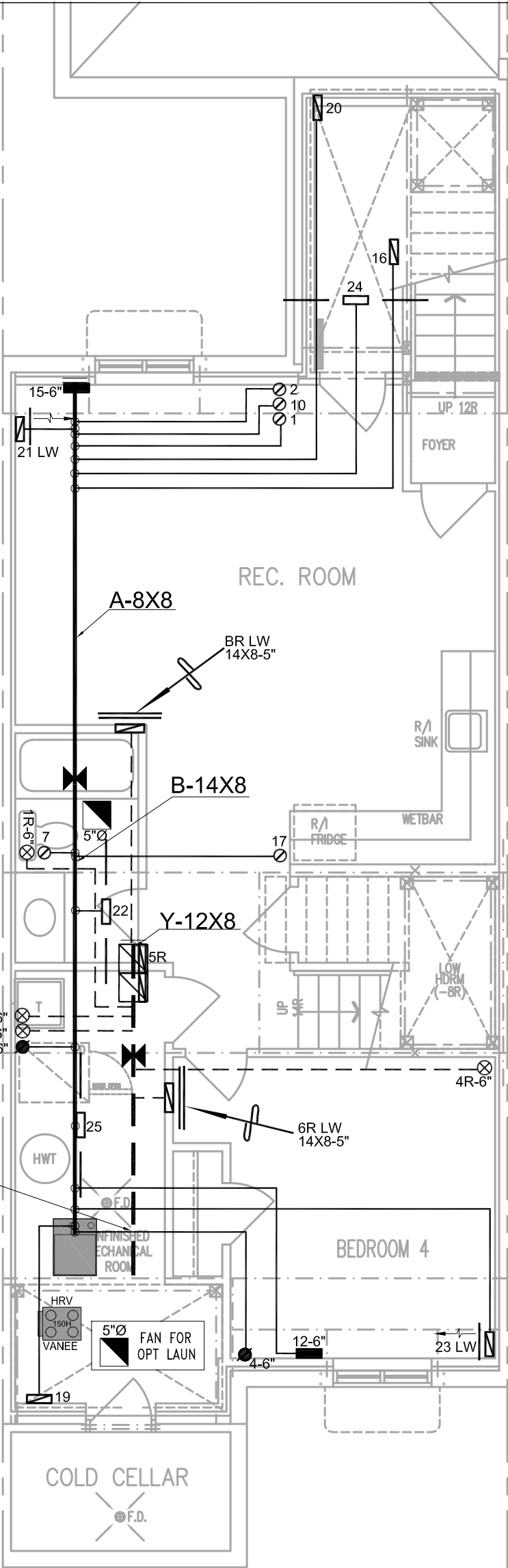
PART. BSMT. OPT.
LAUNDRY ELEV. 'A'
(ELEV. 'B' SIMILAR)



PART. BASEMENT PLAN
FOR SUNKEN FOYER (-2R)
ELEV. 'A' (ELEV. 'B' SIMILAR)

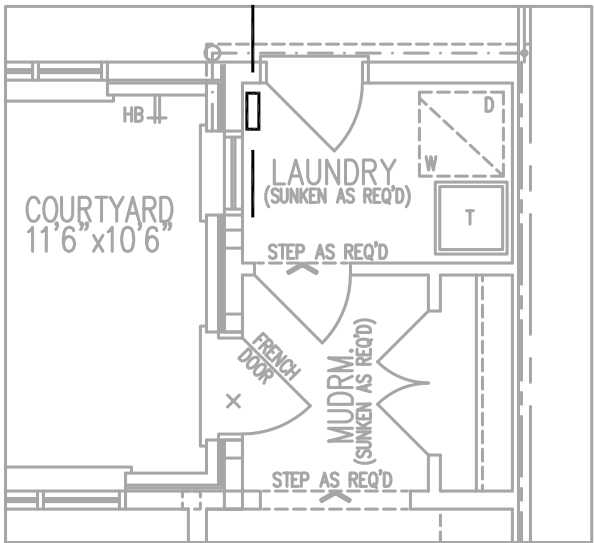


PART. BASEMENT
PLAN, ELEV. 'B'

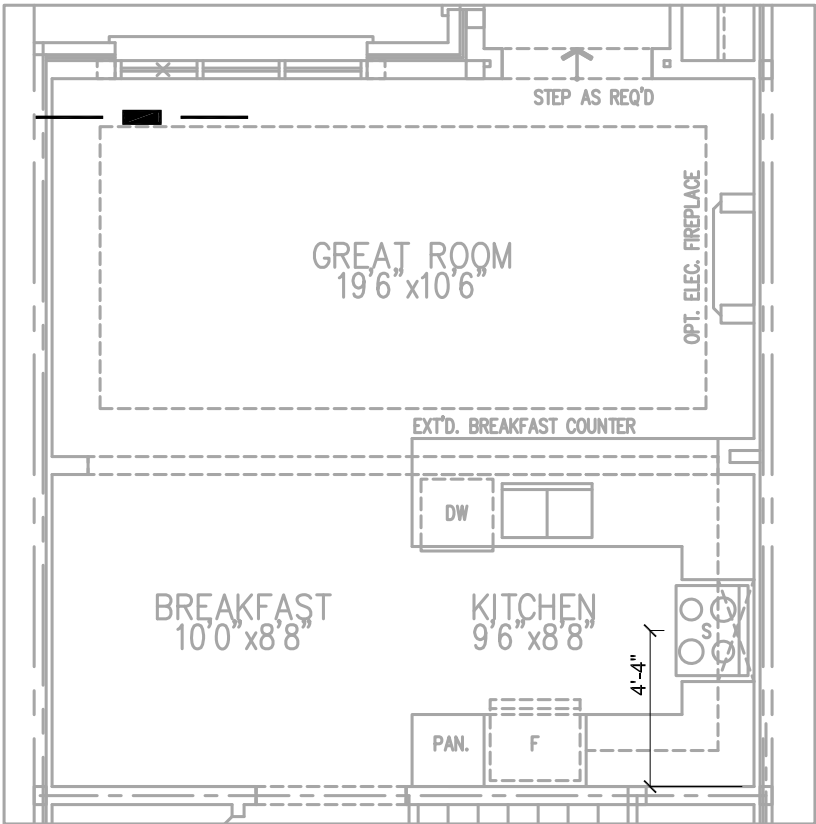


OPT. FINISHED
BASEMENT PLAN

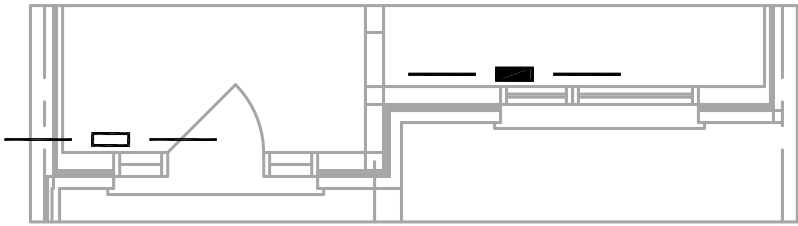
HVAC LEGEND								3.			
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	2.			
	SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		14"x8" RETURN AIR GRILLE		RETURN AIR STACK ABOVE	1.			
	SUPPLY AIR GRILLE 6" BOOT		SUPPLY AIR STACK FROM 2nd FLOOR		30"x8" RETURN AIR GRILLE		RETURN 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		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 23788 BTU/H UNIT DATA		# OF RUNS S/A R/A FANS		Sheet Title	
Project Name						MAKE CARRIER		3RD FLOOR		BASEMENT HEATING LAYOUT	
SUMMER RIDGE ESTATES BRAMPTON, 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.				MODEL 59SC6A026M14--10		2ND FLOOR		7 4 3	
FIN BSMT 2003 - OPT 2ND 1961 sqft						INPUT 26 MBTU/H		1ST FLOOR		5 1 2	
						OUTPUT 25 MBTU/H		BASEMENT		5 2 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		Date APR/2024	
						FAN SPEED 545 cfm @ 0.6" w.c.		Scale 3/16" = 1'-0"		BCIN# 19669	
								LO# 104857			



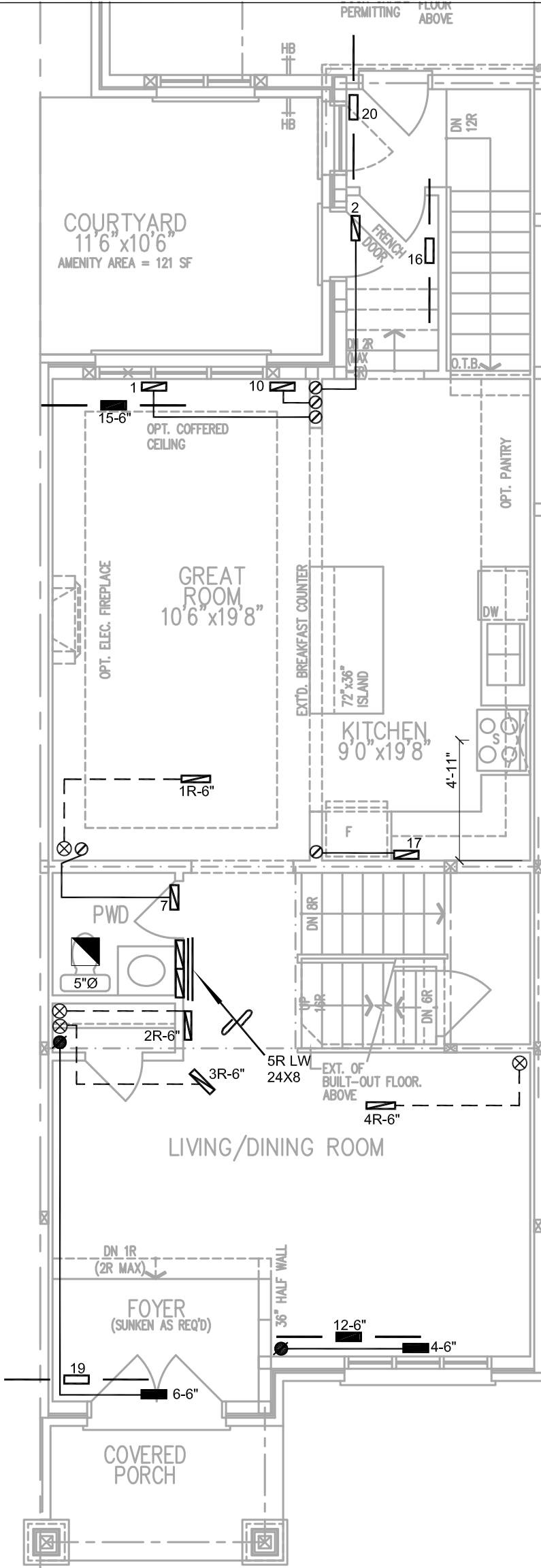
PART. GROUND FLOOR OPT. LAUNDRY ELEV. 'A' (ELEV. 'B' SIMILAR)



OPT. GROUND FLOOR PLAN, ELEV. 'A'

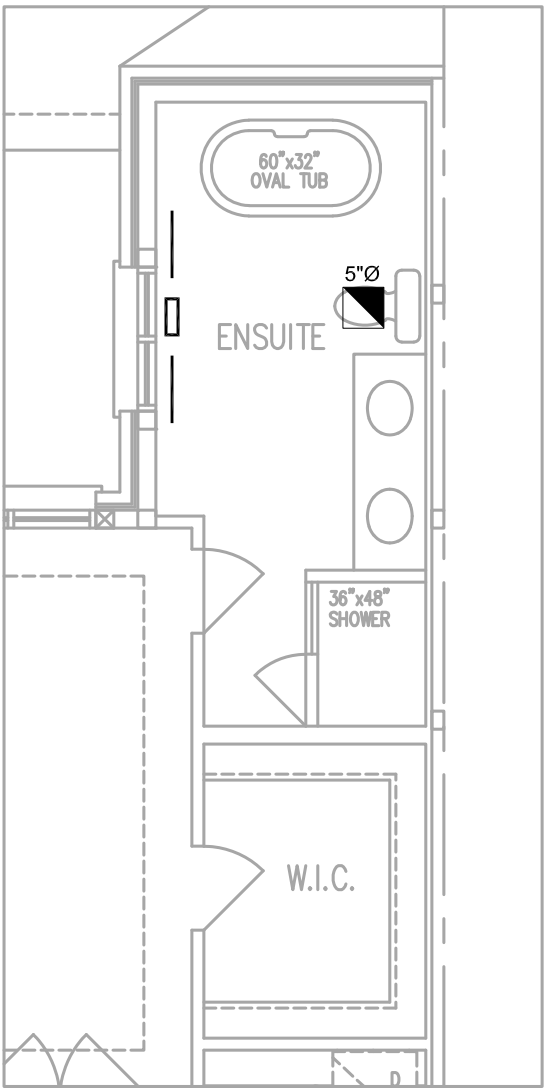


PART. GROUND FLOOR PLAN, ELEV. 'B'

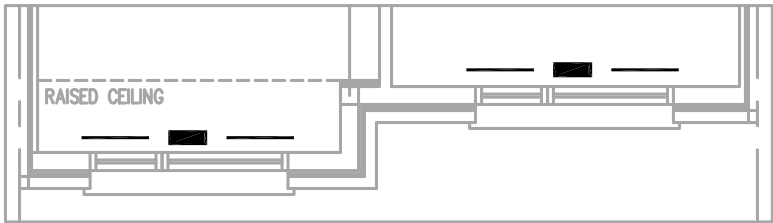


GROUND FLOOR PLAN, ELEV. 'A'

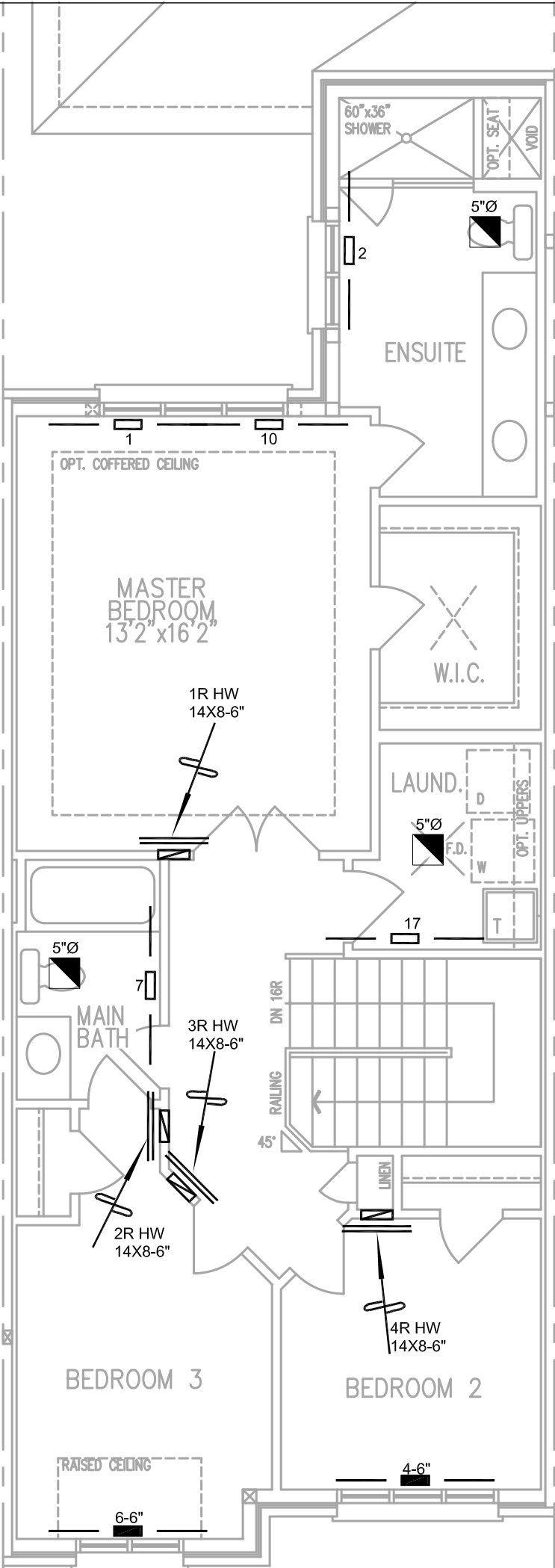
HVAC LEGEND								3.			
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Client		 375 Finley Ave. Suite 202 - Ajax, Ontario L1S 2E2 Tel. 905.619.2300 - 905.420.5300 Fax 905.619.2375 Email: info@hvacdesigns.ca Web: www.hvacdesigns.ca Specializing in Residential Mechanical Design Services				 Michael O'Rourke BCIN # 19669 HVAC Designs Ltd.				Sheet Title	
Project Name										FIRST FLOOR HEATING LAYOUT	
SUMMER RIDGE ESTATES BRAMPTON, ONTARIO										Date	APR/2024
FIN BSMT 2003 - OPT 2ND										Scale	3/16" = 1'-0"
1961 sqft		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.				BCIN# 19669					
						LO# 104857					



PART. SND. FLR. PLAN,
ELEV. 'A'
OPT. BATH LAYOUT



PART SECOND FLOOR
PLAN, ELEV. 'B'



OPT. 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		
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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		SECOND FLOOR HEATING LAYOUT
Project Name										Date		APR/2024
SUMMER RIDGE ESTATES BRAMPTON, 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.								Scale		3/16" = 1'-0"
FIN BSMT 2003 - OPT 2ND										BCIN# 19669		
1961 sqft										LO#	104857	