

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: 2005 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 22, 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										DATE: Apr-24	WINTER NATURAL AIR CHANGE RATE 0.282	HEAT LOSS AT °F. 74	CSA-F280-12
BUILDER: ROYAL PIE HOMES										LO# 104860	SUMMER NATURAL AIR CHANGE RATE 0.088	HEAT GAIN AT °F. 11	PERFORMANCE
ROOM USE		MBR		ENS		WIC		BED-2		BED-3		BATH	
EXP. WALL		42		20		5		10		26		0	
CLG. HT.		9		9		9		9		11		9	
FACTORS		378		180		45		90		286		0	
GRS.WALL AREA		LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN	
GLAZING		0 0 0		0 0 0		0 0 0		0 0 0		0 0 0		0 0 0	
NORTH		20.8	12.8	0	0	0	0	0	0	0	0	0	0
EAST		20.8	32.9	0	0	0	0	26	540	856	35	727	1152
SOUTH		20.8	19.8	86	1787	1705	23	478	456	14	291	278	0
WEST		20.8	32.9	23	478	757	0	0	0	0	0	0	0
SKYLT.		34.1	132.1	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
NET EXPOSED WALL		3.5	0.5	269	933	138	157	544	81	31	107	16	64
NET EXPOSED BSMT WALL ABOVE GR		3.5	0.5	0	0	0	0	0	0	0	0	0	0
EXPOSED CLG		1.3	0.6	313	392	174	108	135	60	50	63	28	225
NO ATTIC EXPOSED CLG		2.7	1.2	0	0	0	0	0	0	0	0	0	102
EXPOSED FLOOR		2.5	0.4	0	0	0	4	10	1	0	0	0	0
BASEMENT/CRAWL HEAT LOSS		0		0		0		0		0		0	
SLAB ON GRADE HEAT LOSS		0		0		0		0		0		0	
SUBTOTAL HT LOSS		3589		1167		461		1044		2622		104	
SUB TOTAL HT GAIN		2775		598		321		1014		2143		46	
LEVEL FACTOR / MULTIPLIER		0.20	0.23	0.20	0.23	0.20	0.23	0.20	0.23	0.20	0.23	0.20	0.23
AIR CHANGE HEAT LOSS		834		271		107		242		609		24	
AIR CHANGE HEAT GAIN		142		31		16		52		109		2	
DUCT LOSS		0		144		0		0		0		0	
DUCT GAIN		0		63		0		0		0		0	
HEAT GAIN PEOPLE		240	2	480	0	0	0	1	240	1	240	0	0
HEAT GAIN APPLIANCES/LIGHTS		541		0		0		541		541		0	
TOTAL HT LOSS BTU/H		4423		1583		568		1286		3231		128	
TOTAL HT GAIN x 1.3 BTU/H		5119		899		439		2401		3944		63	

ROOM USE		LV/DN		K/B/F		ENTRY-1		FOY		ENTRY-2		BAS	
EXP. WALL		36		42		7		5		14		102	
CLG. HT.		10		10		10		10		11		9	
FACTORS		360		420		70		50		154		612	
GRS.WALL AREA		LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN		LOSS GAIN	
GLAZING		0 0 0		0 0 0		0 0 0		0 0 0		0 0 0		0 0 0	
NORTH		20.8	12.8	0	0	0	0	0	0	0	0	0	0
EAST		20.8	32.9	74	1537	2435	0	0	0	0	0	3	62
SOUTH		20.8	19.8	37	769	734	38	789	753	0	0	7	145
WEST		20.8	32.9	0	0	0	31	644	1020	0	0	0	0
SKYLT.		34.1	132.1	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
NET EXPOSED WALL		3.5	0.5	249	863	128	351	1217	180	50	173	26	20
NET EXPOSED BSMT WALL ABOVE GR		3.5	0.5	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	0
NO ATTIC EXPOSED CLG		2.7	1.2	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
BASEMENT/CRAWL HEAT LOSS		0		0		0		0		0		0	
SLAB ON GRADE HEAT LOSS		0		0		0		0		0		0	
SUBTOTAL HT LOSS		3169		2651		565		721		1178		3391	
SUB TOTAL HT GAIN		3297		1954		84		325		175		5066	
LEVEL FACTOR / MULTIPLIER		0.30	0.38	0.30	0.38	0.30	0.38	0.30	0.38	0.30	0.38	0.50	1.03
AIR CHANGE HEAT LOSS		1198		1002		214		272		445		5219	
AIR CHANGE HEAT GAIN		168		100		4		17		9		23	
DUCT LOSS		0		0		0		0		0		0	
DUCT GAIN		0		0		0		0		0		0	
HEAT GAIN PEOPLE		240	0	0	0	0	0	0	0	0	0	0	0
HEAT GAIN APPLIANCES/LIGHTS		541		541		0		0		541		541	
TOTAL HT LOSS BTU/H		4368		3653		778		993		1624		10285	
TOTAL HT GAIN x 1.3 BTU/H		5209		3374		114		443		942		1325	

TOTAL HEAT GAIN BTU/H:

24462

TONS: 2.04

LOSS DUE TO VENTILATION LOAD BTU/H: 1274

STRUCTURAL HEAT LOSS: 32920

TOTAL COMBINED HEAT LOSS BTU/H: 34194

SITE NAME: SUMMER RIDGE ESTATES
BUILDER: ROYAL PIE HOMES

TYPE: 2005

DATE: Apr-24

GFA: 1971

LO# 104860

HEATING CFM 770 COOLING CFM 770
TOTAL HEAT LOSS 32,920 TOTAL HEAT GAIN 24,274
AIR FLOW RATE CFM 23.39 AIR FLOW RATE CFM 31.72

furnace pressure 0.6
furnace filter 0.00
a/c coil pressure 0.26
available pressure for s/a & r/a 0.34

FACTORY INSTALLED

59SC6A040M14--10

CARRIER

AFUE = 96 %

INPUT (BTU/H) = 40,000
OUTPUT (BTU/H) = 39,000

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	9	8	3
R/A	0	0	4	2	1

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

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

plenium pressure s/a 0.18
max s/a dif press. loss 0.02
min adjusted pressure s/a 0.16
r/a pressure 0.16
r/a grille press. Loss 0.02
adjusted pressure r/a 0.14

FAN SPEED 40
LOW 0
MEDLOW 545
MEDIUM 770
MEDIUM HIGH 925
HIGH 0

DESIGN CFM = 770
CFM @ .6" E.S.P.

TEMPERATURE RISE 47 °F

RUN #	1	2	3	4	5	6	7	8	10	11	12	13	14	15	16	17	19	21	22	23
ROOM NAME	MBR	ENS	WIC	BED-2	BED-3	BED-3	BATH	BED-2	MBR	LV/DN	LV/DN	LV/DN	K/B/F	K/B/F	ENTRY-1	ENTRY-2	FOY	BAS	BAS	BAS
RM LOSS MBH.	2.21	1.58	0.57	0.64	1.62	1.62	0.13	0.64	2.21	1.46	1.46	1.46	1.83	1.83	0.78	1.62	0.99	3.43	3.43	3.43
CFM PER RUN HEAT	52	37	13	15	38	38	3	15	52	34	34	34	43	43	18	38	23	80	80	80
RM GAIN MBH.	2.56	0.90	0.44	1.20	1.97	1.97	0.06	1.20	2.56	1.74	1.74	1.74	1.69	1.69	0.11	0.94	0.44	0.44	0.44	0.44
CFM PER RUN COOLING	81	29	14	38	63	63	2	38	81	55	55	55	54	54	4	30	14	14	14	14
ADJUSTED PRESSURE	0.16	0.17	0.17	0.17	0.17	0.17	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	0.17
ACTUAL DUCT LGH.	55	44	32	30	27	48	14	42	42	30	33	24	33	31	29	37	20	27	11	27
EQUIVALENT LENGTH	180	190	120	180	140	170	170	180	150	120	140	100	120	110	130	130	110	100	130	110
TOTAL EFFECTIVE LENGTH	235	234	152	210	167	218	184	222	192	150	173	124	153	141	159	167	130	127	141	137
ADJUSTED PRESSURE	0.07	0.07	0.11	0.08	0.1	0.08	0.09	0.08	0.08	0.11	0.1	0.13	0.11	0.12	0.1	0.1	0.13	0.13	0.12	0.12
ROUND DUCT SIZE	6	4	4	4	5	5	4	4	6	5	5	5	5	5	4	4	4	5	5	5
HEATING VELOCITY (ft/min)	265	424	149	172	279	279	34	172	265	250	250	250	316	316	207	436	264	587	587	587
COOLING VELOCITY (ft/min)	413	333	161	436	463	463	23	436	413	404	404	404	396	396	46	344	161	103	103	103
OUTLET GRILL SIZE	4X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	4X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10
TRUNK	A	A	D	D	D	C	D	C	B	C	C	C	A	B	A	A	D	B	B	C

RUN #	ROOM NAME	RM LOSS MBH.	CFM PER RUN HEAT	RM GAIN MBH.	CFM PER RUN COOLING	ADJUSTED PRESSURE	ACTUAL DUCT LGH.	EQUIVALENT LENGTH	TOTAL EFFECTIVE LENGTH	ADJUSTED PRESSURE	ROUND DUCT SIZE	HEATING VELOCITY (ft/min)	COOLING VELOCITY (ft/min)	OUTLET GRILL SIZE	TRUNK
1	MBR	2.21	52	2.56	81	0.16	55	180	235	0.07	6	265	413	4X10	A
2	ENS	1.58	37	0.90	29	0.17	44	190	234	0.07	4	424	333	3X10	A
3	WIC	0.57	13	0.44	14	0.17	32	120	152	0.11	4	149	161	3X10	D
4	BED-2	0.64	15	1.20	38	0.17	30	180	210	0.08	4	172	436	3X10	D
5	BED-3	1.62	38	1.97	63	0.17	27	140	167	0.1	5	279	463	3X10	D
6	BED-3	1.62	38	1.97	63	0.17	48	170	218	0.08	5	279	463	3X10	C
7	BATH	0.13	3	0.06	2	0.17	14	170	184	0.09	4	34	23	3X10	D
8	BED-2	0.64	15	1.20	38	0.17	42	180	222	0.08	4	172	436	3X10	C
10	MBR	2.21	52	2.56	81	0.16	42	150	192	0.08	6	265	413	4X10	B
11	LV/DN	1.46	34	1.74	55	0.17	30	120	150	0.11	5	250	404	3X10	C
12	LV/DN	1.46	34	1.74	55	0.17	33	140	173	0.1	5	250	404	3X10	C
13	LV/DN	1.46	34	1.74	55	0.17	24	100	124	0.13	5	250	404	3X10	C
14	K/B/F	1.83	43	1.69	54	0.17	33	120	153	0.11	5	316	396	3X10	A
15	K/B/F	1.83	43	1.69	54	0.17	31	110	141	0.12	5	316	396	3X10	B
16	ENTRY-1	0.78	18	0.11	4	0.17	29	130	159	0.1	4	207	46	3X10	A
17	ENTRY-2	1.62	38	0.94	30	0.17	37	130	167	0.1	4	436	344	3X10	A
19	FOY	0.99	23	0.44	14	0.17	20	110	130	0.13	4	264	161	3X10	D
21	BAS	3.43	80	0.44	14	0.17	27	100	127	0.13	5	587	103	3X10	B
22	BAS	3.43	80	0.44	14	0.17	11	130	141	0.12	5	587	103	3X10	B
23	BAS	3.43	80	0.44	14	0.17	27	110	137	0.12	5	587	103	3X10	C

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	188	0.07	7.8	8	x	8	423	TRUNK G	0	0.00	0	0	x	8	0	0	0.05	0	0	x	8	0	
TRUNK B	443	0.07	10.7	14	x	8	570	TRUNK H	0	0.00	0	0	x	8	0	0	0.05	0	0	x	8	0	
TRUNK C	235	0.08	8.2	8	x	8	529	TRUNK I	0	0.00	0	0	x	8	0	0	0.05	0	0	x	8	0	
TRUNK D	327	0.08	9.2	12	x	8	491	TRUNK J	0	0.00	0	0	x	8	0	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	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	0	0.05	0	0	x	8	0	

RETURN AIR #	1	2	3	4	5	6											BR	TRUNK W 0 0.05 0 0 x 8 0 TRUNK X 770 0.05 14.3 24 x 8 578 TRUNK Y 355 0.05 10.7 14 x 8 456 TRUNK Z 0 0.05 0 0 x 8 0 DROP 770 0.05 14.3 24 x 10 462
FLOOR	2	2	2	2	1	1											B	
AIR VOLUME	130	85	85	75	110	170	0	0	0	0	0	0	0	0	115			
PLENUM PRESSURE	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14			
ACTUAL DUCT LGH.	38	42	42	37	21	22	1	1	1	1	1	1	1	1	14			
EQUIVALENT LENGTH	215	185	225	245	240	190	0	0	0	0	0	0	0	0	135			
TOTAL EFFECTIVE LH	253	227	267	282	261	212	1	1	1	1	1	1	1	1	149			
ADJUSTED PRESSURE	0.06	0.06	0.05	0.05	0.05	0.07	14.32	14.32	14.32	14.32	14.32	14.32	14.32	14.32	0.10			
ROUND DUCT SIZE	7	6	6	6	6.9	7.5	0	0	0	0	0	0	0	0	5.9			
INLET GRILL SIZE	8	8	8	8	8	8	0	0	0	0	0	0	0	0	8			
	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X			
INLET GRILL SIZE	14	14	14	14	14	14	0	0	0	0	0	0	0	0	14			

RETURN AIR TRUNK SIZE							
	TRUNK	STATIC	ROUND	RECT		VELOCITY	
	CFM	PRESS.	DUCT	DUCT		(ft/min)	
TRUNK O	0	0.05	0	0	x	8	0
TRUNK P	0	0.05	0	0	x	8	0
TRUNK Q	0	0.05	0	0	x	8	0
TRUNK R	0	0.05	0	0	x	8	0
TRUNK S	0	0.05	0	0	x	8	0
TRUNK T	0	0.05	0	0	x	8	0
TRUNK U	0	0.05	0	0	x	8	0
TRUNK V	0	0.05	0	0	x	8	0
TRUNK W	0	0.05	0	0	x	8	0
TRUNK X	770	0.05	14.3	24	x	8	578
TRUNK Y	355	0.05	10.7	14	x	8	456
TRUNK Z	0	0.05	0	0	x	8	0
DROP	770	0.05	14.3	24	x	10	462

TYPE: 2005
SITE NAME: SUMMER RIDGE ESTATES

LO # 104860

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>4</u> @ 10.6 cfm	<u>42.4</u> cfm
Other Rooms	<u>4</u> @ 10.6 cfm	<u>42.4</u> cfm
Table 9.32.3.A.	TOTAL	<u>148.4</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>148.4</u>	cfm
Less Principal Ventil. Capacity	<u>63.6</u>	cfm
Required Supplemental Capacity	<u>84.8</u>	cfm

PRINCIPAL EXHAUST FAN CAPACITY	
Model: VANEE V150H	Location: BSMT
<u>63.6</u> cfm	☒ HVI Approved

PRINCIPAL EXHAUST HEAT LOSS CALCULATION				
CFM	ΔT °F	FACTOR	% LOSS	
63.6 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	☒ HVI Approved	
@ 32 deg F (0 deg C)		

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#: 104860		Model: 2005		Builder: ROYAL PIE HOMES			Date: 2024-04-22																																																												
Volume Calculation					Air Change & Delta T Data																																																														
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5.2.3.1 Heat Loss due to Air Leakage					6.2.6 Sensible Gain due to Air Leakage																																																														
$HL_{airb} = LR_{airh} \times \frac{V_b}{3.6} \times DTD_h \times 1.2$ 0.282 x 218.98 x 41 °C x 1.2 = 3059 W = 10438 Btu/h					$HG_{salb} = LR_{airc} \times \frac{V_b}{3.6} \times DTD_c \times 1.2$ 0.088 x 218.98 x 6 °C x 1.2 = 142 W = 485 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 74 °F x 1.08 x 0.25 = 1274 Btu/h					$HL_{vairb} = PVC \times DTD_h \times 1.08 \times (1 - E)$ 64 CFM x 11 °F x 1.08 x 0.25 = 189 Btu/h																																																														
5.2.3.3 Calculation of Air Change Heat Loss for Each Room (Floor Multiplier Section)																																																																			
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*HLairbv = Air leakage heat loss + ventilation heat loss *For a balanced or supply only ventilation system HLairve = 0																																																																			
								Michael O'Rourke BCIN# 19669 																																																											

HEAT LOSS AND GAIN SUMMARY SHEET

MODEL: 2005	BUILDER: ROYAL PIE HOMES
SFQT: 1971	SITE: SUMMER RIDGE ESTATES
LO# 104860	

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 (ft³):	27840.0	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	4
INTERIOR LIGHTING LOAD (Btu/h/ft²):	1.27	DC BRUSHLESS MOTOR (Y/N):	Y
FOUNDATION CONFIGURATION	BCIN_1	DEPTH BELOW GRADE:	6.0 ft
LENGTH: 54.0 ft	WIDTH: 22.0 ft	EXPOSED PERIMETER:	102.0 ft

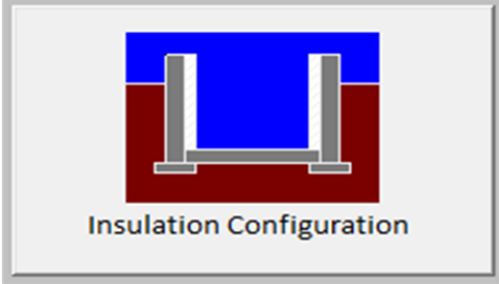
2012 OBC - COMPLIANCE PACKAGE		Compliance Package PERFORMANCE	
Component		Nominal	Min. Eff.
Ceiling with Attic Space Minimum RSI (R)-Value		60	59.22
Ceiling Without Attic Space Minimum RSI (R)-Value		31	27.65
Exposed Floor Minimum RSI (R)-Value		31	29.80
Walls Above Grade Minimum RSI (R)-Value		22+1.5	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):	6.7	
Exposed Perimeter (m):	31.1	
Wall Height (m):	2.7	
Depth Below Grade (m):	1.83	
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):		994

TYPE: 2005
LO# 104860

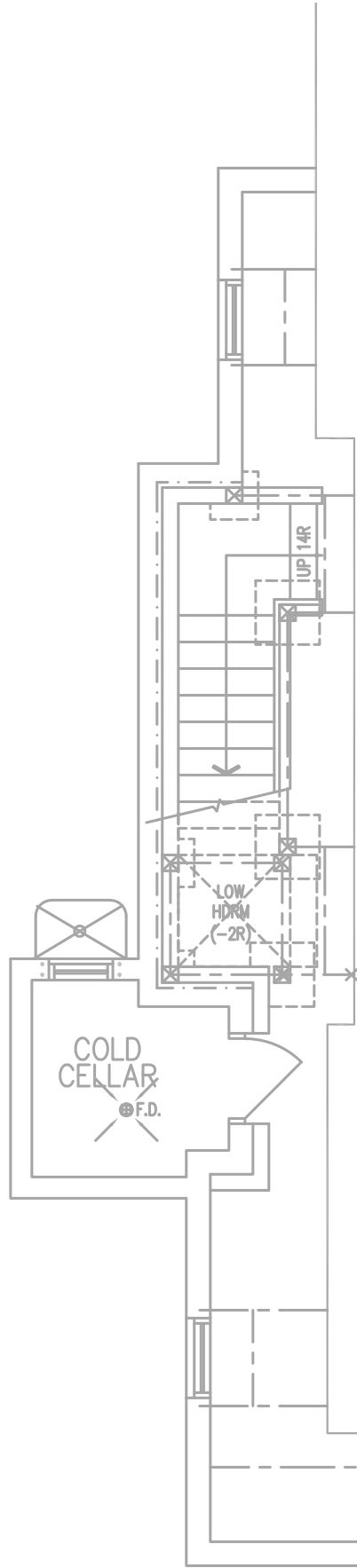
Air Infiltration Residential Load Calculator

Supplemental tool for CAN/CSA-F280

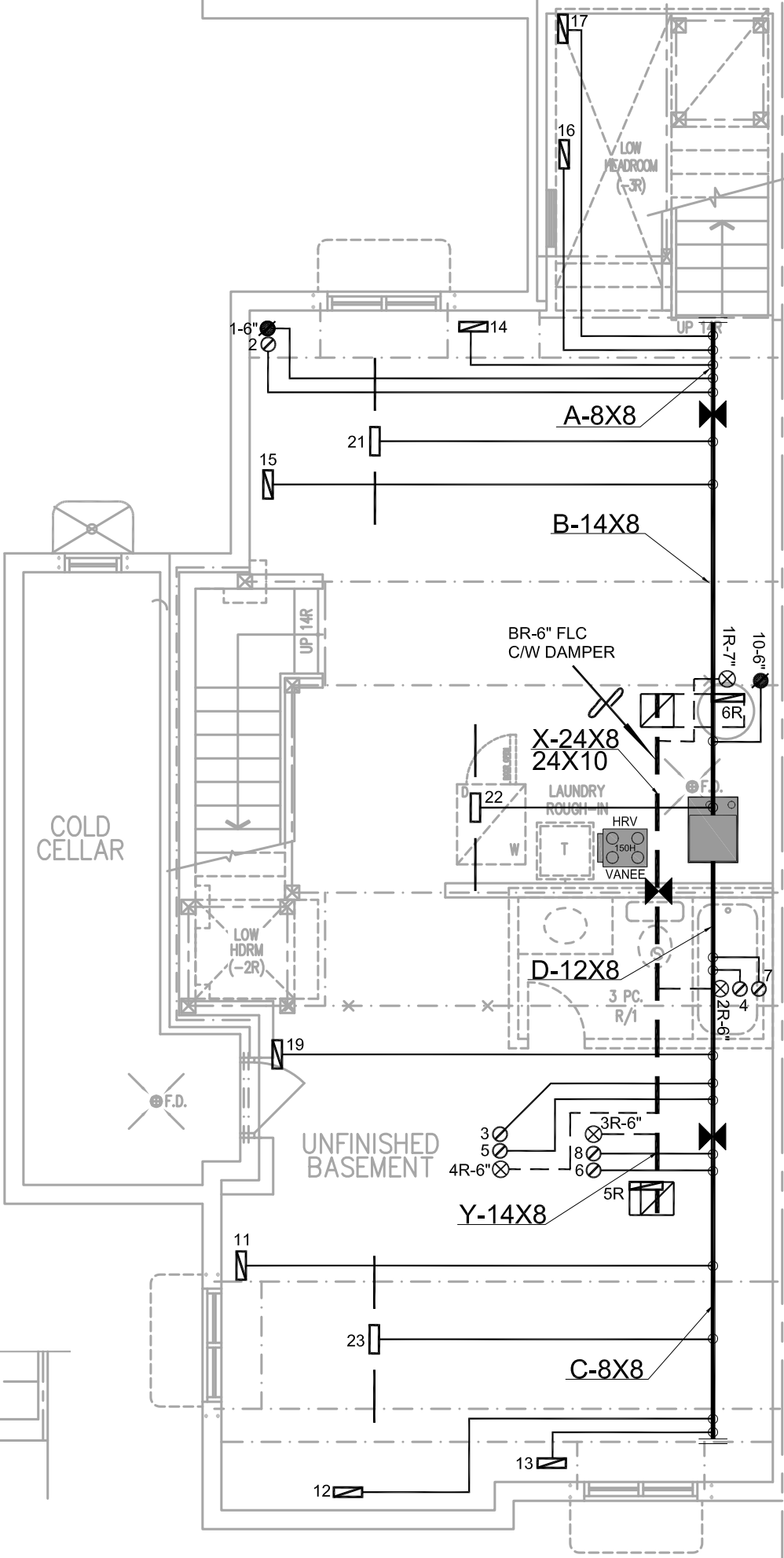
Weather Station Description				
Province:	Ontario			
Region:	Brampton			
Weather Station Location:	Open flat terrain, grass			
Anemometer height (m):	10			
Local Shielding				
Building Site:	Suburban, forest			
Walls:	Heavy			
Flue:	Heavy			
Highest Ceiling Height (m):	6.71			
Building Configuration				
Type:	Semi			
Number of Stories:	Two			
Foundation:	Full			
House Volume (m ³):	788.3			
Air Leakage/Ventilation				
Air Tightness Type:	Attached (3.0 ACH)			
Custom BDT Data:	ELA @ 10 Pa.	883.1 cm ²		
	3.00	ACH @ 50 Pa		
Mechanical Ventilation (L/s):	Total Supply	Total Exhaust		
	30.0	30.0		
Flue Size				
Flue #:	#1	#2	#3	#4
Diameter (mm):	0	0	0	0
Natural Infiltration Rates				
Heating Air Leakage Rate (ACH/H):	0.282			
Cooling Air Leakage Rate (ACH/H):	0.088			

TYPE: 2005

LO# 104860

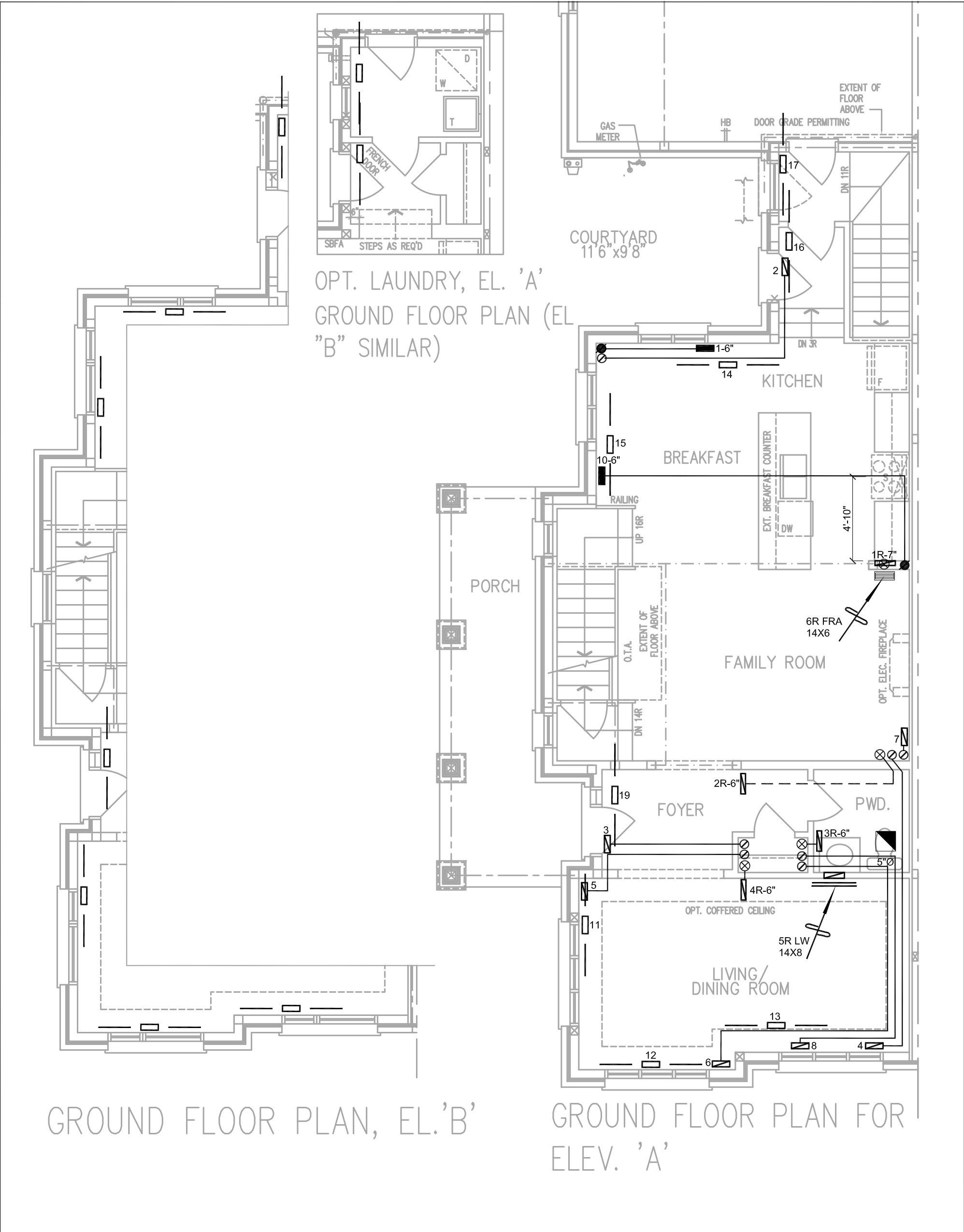


BASEMENT PLAN, EL. 'B'



BASEMENT PLAN, EL. '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		 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 34194 BTU/H		# OF RUNS S/A R/A FANS		Sheet Title			
ROYAL PINE HOMES						UNIT DATA		3RD FLOOR				BASEMENT HEATING LAYOUT	
						MAKE CARRIER		2ND FLOOR		9	4		2
						MODEL 59SC6A040M14--10		1ST FLOOR		8	2		2
						INPUT 40 MBTU/H		BASEMENT		3	1	0	
						OUTPUT 39 MBTU/H		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					
						COOLING 2.0 TONS							
FAN SPEED 770 cfm @ 0.6" w.c.													
Project Name						SUMMER RIDGE ESTATES				Date		APR/2024	
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"	
										BCIN# 19669			
2005						1971 sqft				LO#		104860	



HVAC LEGEND								3.			
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	2.			
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	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@hvacdsgns.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.				Michael O'Rourke BCIN # 19669 HVAC Designs Ltd.				Sheet Title	
ROYAL PINE HOMES										FIRST FLOOR HEATING LAYOUT	
Project Name										Date	
SUMMER RIDGE ESTATES BRAMPTON, ONTARIO										APR/2024	
						Scale		3/16" = 1'-0"			
								BCIN# 19669			
2005		1971 sqft				LO#		104860			

SECOND FLOOR PLAN, EL.'B'

SECOND FLOOR PLAN, EL. '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				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 SUMMER RIDGE ESTATES BRAMPTON, ONTARIO										Date APR/2024	
										Scale 3/16" = 1'-0"	
										BCIN# 19669	
2005		1971 sqft						LO#	104860		