

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: 2505-CNR Project: SUMMER RIDGE ESTATES		
D. Declaration of Designer				
I, <u>MICHAEL O'ROURKE</u> (print name) declare that (choose one as appropriate):				
☐ 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.				
June 11, 2024		 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: SUMMER RIDGE ESTATES

BUILDER: ROYAL PINE HOMES

TYPE: 2505-CNR

GFA: 2384

DATE: Jun-24

LO# 105281

WINTER NATURAL AIR CHANGE RATE 0.298

SUMMER NATURAL AIR CHANGE RATE 0.097

HEAT LOSS AT °F. 74

HEAT GAIN AT °F. 11

CSA-F280-12

PERFORMANCE

ROOM USE	EXP. WALL	CLG. HT.	FACTORS	LOSS	GAIN	288	180	180	340	252	54				
				LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN				
GRS.WALL AREA	20.8	12.8	0	0	0	0	0	0	0	0	0				
GLAZING	20.8	32.9	0	0	0	0	0	0	0	0	0				
NORTH	20.8	19.8	0	0	0	26	540	516	56	1163	1110				
EAST	20.8	32.9	26	540	856	12	249	395	0	0	0				
SOUTH	34.1	132.1	0	0	0	0	0	0	0	0	0				
WEST	19.6	2.9	0	0	0	0	0	0	0	0	0				
SKYLT.	3.5	0.5	262	908	135	142	492	73	124	430	64				
DOORS	3.5	0.5	0	0	0	0	0	0	0	0	0				
NET EXPOSED WALL	1.3	0.6	343	430	191	118	148	66	155	194	86				
NET EXPOSED BSMT WALL ABOVE GR	2.7	1.2	0	0	0	0	0	0	0	0	0				
EXPOSED CLG	2.5	0.4	0	0	0	0	0	0	0	0	0				
EXPOSED FLOOR															
BASEMENT/CRAWL HEAT LOSS															
SLAB ON GRADE HEAT LOSS															
SUBTOTAL HT LOSS						1878		1430	1788						
SUB TOTAL HT GAIN							1182			1260				2771	
LEVEL FACTOR / MULTIPLIER	0.20	0.22					0.20	0.22	0.20	0.22				0.20	0.22
AIR CHANGE HEAT LOSS						411		313	391					474	
AIR CHANGE HEAT GAIN							58		62					71	
DUCT LOSS						0		0	0					264	
DUCT GAIN						0		0	0					207	
HEAT GAIN PEOPLE	240		2			480	0	0	1					240	
HEAT GAIN APPLIANCES/LIGHTS						315		315	315					315	
TOTAL HT LOSS BTU/H						2289		1742	2179					2907	
TOTAL HT GAIN x 1.3 BTU/H							2645		2441					2955	

ROOM USE	EXP. WALL	CLG. HT.	FACTORS	LOSS	GAIN	300	360	460	90	60	140	121			
				LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN	LOSS	GAIN		
GRS.WALL AREA	20.8	12.8	0	0	0	0	0	0	0	0	0	8	166	103	
GLAZING	20.8	32.9	0	0	0	0	0	0	0	0	0	0	0	0	
NORTH	20.8	19.8	0	0	0	57	1184	1130	46	961	917	24	499	476	
EAST	20.8	32.9	38	789	1251	47	976	1547	0	0	0	0	0	0	
SOUTH	34.1	132.1	0	0	0	0	0	0	0	0	0	0	0	0	
WEST	19.6	2.9	0	0	0	0	0	0	0	0	0	0	0	0	
SKYLT.	3.5	0.5	262	908	135	256	888	132	357	1238	184	66	229	34	
DOORS	3.5	0.5	0	0	0	0	0	0	0	0	0	0	0	0	
NET EXPOSED WALL	1.3	0.6	0	0	0	0	0	0	0	0	0	0	0	0	
NET EXPOSED BSMT WALL ABOVE GR	2.7	1.2	0	0	0	0	0	0	0	0	0	0	0	0	
EXPOSED CLG	2.5	0.4	0	0	0	0	0	0	0	0	0	0	0	0	
EXPOSED FLOOR															
BASEMENT/CRAWL HEAT LOSS															
SLAB ON GRADE HEAT LOSS															
SUBTOTAL HT LOSS						1698		3048							
SUB TOTAL HT GAIN							1385		2809						
LEVEL FACTOR / MULTIPLIER	0.30	0.37					0.30	0.37	0.30	0.37		0.30	0.37		
AIR CHANGE HEAT LOSS						623		1119							
AIR CHANGE HEAT GAIN							68		138						
DUCT LOSS						0		0							
DUCT GAIN						0		0							
HEAT GAIN PEOPLE	240		0			0		0	0			0		0	
HEAT GAIN APPLIANCES/LIGHTS						315		315				315		315	
TOTAL HT LOSS BTU/H						2321		4168				1694		1203	
TOTAL HT GAIN x 1.3 BTU/H							2299		4240				1208		694

TOTAL HEAT GAIN BTU/H:

31500

TONS: 2.63

LOSS DUE TO VENTILATION LOAD BTU/H: 1593

STRUCTURAL HEAT LOSS: 43355

TOTAL COMBINED HEAT LOSS BTU/H: 44948



SITE NAME: SUMMER RIDGE ESTATES
BUILDER: ROYAL PINE HOMES

TYPE: 2505-CNR

DATE: Jun-24

GFA: 2384

LO# 105281

HEATING CFM 975 COOLING CFM 975
TOTAL HEAT LOSS 43,355 TOTAL HEAT GAIN 31,264
AIR FLOW RATE CFM 22.49 AIR FLOW RATE CFM 31.19

furnace pressure 0.6
furnace filter 0.00
a/c coil pressure 0.21
available pressure for s/a & r/a 0.39

FACTORY INSTALLED

59SC6A060M17--16 CARRIER

AFUE = 97 %
INPUT (BTU/H) = 60,000
OUTPUT (BTU/H) = 58,000

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	10	9	4
R/A	0	0	5	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 0.20 r/a pressure 0.19
max s/a dif press. loss 0.02 r/a grille press. Loss 0.02
min adjusted pressure s/a 0.18 adjusted pressure r/a 0.17

FAN SPEED 60
LOW 0
MEDLOW 790
MEDIUM 975
MEDIUM HIGH 1140
HIGH 1300

DESIGN CFM = 975
CFM @ .6" E.S.P.

TEMPERATURE RISE 55 °F

RUN #	1	2	3	4	5	6	7	8	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
ROOM NAME	MBR	ENS	BED-3	BED-2	BED-3	BED-4	BATH	BED-4	MBR	LV/DN	FAM	FAM	KT/BR	KT/BR	LV/DN	LAUN	W/R	FOY	MUD	BAS	BAS	BAS	BAS
RM LOSS MBH.	1.14	1.74	1.89	2.18	1.89	1.45	0.66	1.45	1.14	2.31	1.16	1.16	2.08	2.08	2.31	1.02	0.28	1.69	1.20	3.62	3.62	3.62	3.62
CFM PER RUN HEAT	26	39	42	49	42	33	15	33	26	52	26	26	47	47	52	23	6	38	27	82	82	82	82
RM GAIN MBH.	1.32	1.84	2.25	2.44	2.25	1.48	0.61	1.48	1.32	2.23	1.15	1.15	2.12	2.12	2.23	1.17	0.45	1.21	0.69	0.44	0.44	0.44	0.44
CFM PER RUN COOLING	41	57	70	76	70	46	19	46	41	69	36	36	66	66	69	37	14	38	22	14	14	14	14
ADJUSTED PRESSURE	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.18	0.18	0.18	0.18
ACTUAL DUCT LGH.	37	42	59	43	59	54	36	50	42	54	23	13	30	33	50	54	14	34	21	27	11	23	47
EQUIVALENT LENGTH	160	210	200	180	220	140	130	120	150	110	120	100	130	130	110	180	180	180	120	140	130	140	120
TOTAL EFFECTIVE LENGTH	197	252	259	223	279	194	166	170	192	164	143	113	160	163	160	234	194	214	141	167	141	163	167
ADJUSTED PRESSURE	0.1	0.08	0.07	0.09	0.07	0.1	0.12	0.11	0.1	0.12	0.13	0.17	0.12	0.12	0.12	0.08	0.1	0.09	0.14	0.11	0.13	0.11	0.11
ROUND DUCT SIZE	4	6	6	6	6	5	4	4	4	6	4	4	6	6	6	4	4	4	4	6	6	6	6
HEATING VELOCITY (ft/min)	298	199	214	250	214	242	172	379	298	265	298	298	240	240	265	264	69	436	310	418	418	418	418
COOLING VELOCITY (ft/min)	470	291	357	388	357	338	218	528	470	352	413	413	337	337	352	424	161	436	252	71	71	71	71
OUTLET GRILL SIZE	3X10	4X10	4X10	4X10	4X10	3X10	3X10	3X10	3X10	4X10	3X10	3X10	4X10	4X10	4X10	3X10	3X10	3X10	3X10	4X10	4X10	4X10	4X10
TRUNK	A	C	B	C	B	C	C	C	A	B	A	A	A	A	B	B	C	B	C	A	A	C	B

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	1.14	26	1.32	41	0.19	37	160	197	0.1	4	298	470	3X10	A
2	ENS	1.74	39	1.84	57	0.19	42	210	252	0.08	6	199	291	4X10	C
3	BED-3	1.89	42	2.25	70	0.19	59	200	259	0.07	6	214	357	4X10	B
4	BED-2	2.18	49	2.44	76	0.19	43	180	223	0.09	6	250	388	4X10	C
5	BED-3	1.89	42	2.25	70	0.19	59	220	279	0.07	6	214	357	4X10	B
6	BED-4	1.45	33	1.48	46	0.19	54	140	194	0.1	5	242	338	3X10	C
7	BATH	0.66	15	0.61	19	0.19	36	130	166	0.12	4	172	218	3X10	C
8	BED-4	1.45	33	1.48	46	0.19	50	120	170	0.11	4	379	528	3X10	C
10	MBR	1.14	26	1.32	41	0.19	42	150	192	0.1	4	298	470	3X10	A
11	LV/DN	2.31	52	2.23	69	0.19	54	110	164	0.12	6	265	352	4X10	B
12	FAM	1.16	26	1.15	36	0.19	23	120	143	0.13	4	298	413	3X10	A
13	FAM	1.16	26	1.15	36	0.19	13	100	113	0.17	4	298	413	3X10	A
14	KT/BR	2.08	47	2.12	66	0.19	30	130	160	0.12	6	240	337	4X10	A
15	KT/BR	2.08	47	2.12	66	0.19	33	130	163	0.12	6	240	337	4X10	A
16	LV/DN	2.31	52	2.23	69	0.19	50	110	160	0.12	6	265	352	4X10	B
17	LAUN	1.02	23	1.17	37	0.19	54	180	234	0.08	4	264	424	3X10	B
18	W/R	0.28	6	0.45	14	0.19	14	180	194	0.1	4	69	161	3X10	C
19	FOY	1.69	38	1.21	22	0.19	34	120	141	0.09	4	436	436	3X10	B
20	MUD	1.20	27	0.69	14	0.19	21	140	167	0.14	4	310	252	3X10	C
21	BAS	3.62	82	0.44	14	0.18	27	130	141	0.11	6	418	71	4X10	A
22	BAS	3.62	82	0.44	14	0.18	11	140	163	0.13	6	418	71	4X10	A
23	BAS	3.62	82	0.44	14	0.18	23	140	163	0.11	6	418	71	4X10	C
24	BAS	3.62	82	0.44	14	0.18	47	120	167	0.11	6	418	71	4X10	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	362	0.10	9.1	10	x	8	652	TRUNK G	0	0.00	0	0	x	8	0	TRUNK O	0	0.05	0	0	x	8	0			
TRUNK B	331	0.07	9.6	12	x	8	497	TRUNK H	0	0.00	0	0	x	8	0	TRUNK P	0	0.05	0	0	x	8	0			
TRUNK C	615	0.07	12.1	18	x	8	615	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	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
FLOOR	2	2	2	2	2	1	1																	
AIR VOLUME	81	85	85	85	85	310	80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PLENUM PRESSURE	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	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.	55	68	58	63	53	19	47	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
EQUIVALENT LENGTH	215	225	255	260	205	135	210	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL EFFECTIVE LH	270	293	313	323	258	154	257	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
ADJUSTED PRESSURE	0.06	0.06	0.05	0.05	0.06	0.11	0.07	16.72	16.72	16.72	16.72	16.72	16.72	16.72	16.72	16.72	16.72	16.72	16.72	16.72	16.72	16.72	16.72	16.72
ROUND DUCT SIZE	5.9	6	6	6	6	8.3	5.6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
INLET GRILL SIZE	8	8	8	8	8	8	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
INLET GRILL SIZE	14	14	14	14	14	24	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

TYPE: 2505-CNR
SITE NAME: SUMMER RIDGE ESTATES

LO # 105281

RESIDENTIAL MECHANICAL VENTILATION DESIGN SUMMARY

COMBUSTION APPLIANCES		9.32.3.1(1)
a)	☒ Direct vent (sealed combustion) only	
b)	☐ Positive venting induced draft (except fireplaces)	
c)	☐ Natural draft, B-vent or induced draft gas fireplace	
d)	☐ Solid Fuel (including fireplaces)	
e)	☐ No Combustion Appliances	

HEATING SYSTEM	
☒ Forced Air	☐ Non Forced Air
☐ Electric Space Heat	

HOUSE TYPE		9.32.1(2)
☒ I	Type a) or b) appliance only, no solid fuel	
☐ II	Type I except with solid fuel (including fireplaces)	
☐ III	Any Type c) appliance	
☐ IV	Type I, or II with electric space heat	
☐	Other: Type I, II or IV no forced air	

SYSTEM DESIGN OPTIONS		O.N.H.W.P.
☐ 1	Exhaust only/Forced Air System	
☐ 2	HRV with Ducting/Forced Air System	
☒ 3	HRV Simplified/connected to forced air system	
☐ 4	HRV with Ducting/non forced air system	
☐	Part 6 Design	

TOTAL VENTILATION CAPACITY		9.32.3.3(1)
Basement + Master Bedroom	<u>2</u> @ 21.2 cfm	<u>42.4</u> cfm
Other Bedrooms	<u>3</u> @ 10.6 cfm	<u>31.8</u> cfm
Kitchen & Bathrooms	<u>4</u> @ 10.6 cfm	<u>42.4</u> cfm
Other Rooms	<u>5</u> @ 10.6 cfm	<u>53.0</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
W/R	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 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:	June-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

Michael O'Rourke

CSA F280-12 Residential Heat Loss and Heat Gain Calculations																																																												
Formula Sheet (For Air Leakage / Ventilation Calculation)																																																												
LO#: 105281	Model: 2505-CNR	Builder: ROYAL PINE HOMES	Date: 6/11/2024																																																									
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																																																										
$HL_{airb} = LR_{airh} \times \frac{V_b}{3.6} \times DTD_h \times 1.2$ 0.298 x 254.51 x 41 °C x 1.2 = 3748 W = 12788 Btu/h		$HG_{salb} = LR_{airc} \times \frac{V_b}{3.6} \times DTD_c \times 1.2$ = 0.097 x 254.51 x 6 °C x 1.2 = 181 W = 616 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)																																																												
$HL_{airr} = Level\ Factor \times HL_{airbv} \times \{(HL_{agcr} + HL_{bgcr}) \div (HL_{agclevel} + HL_{bgclevel})\}$																																																												
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 / HL _{clevel})																																																								
1	0.5	12,788	8,104	0.789																																																								
2	0.3		10,448	0.367																																																								
3	0.2		11,691	0.219																																																								
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																																																												
				Michael O'Rourke BCIN# 19669 																																																								

HEAT LOSS AND GAIN SUMMARY SHEET

MODEL: 2505-CNR	BUILDER: ROYAL PINE HOMES
SFQT: 2384	SITE: SUMMER RIDGE ESTATES
LO# 105281	

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:	DETACHED	# 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):	32356.0	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:	6.0 ft
LENGTH: 51.0 ft	WIDTH: 27.0 ft	EXPOSED PERIMETER:	156.0 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	-

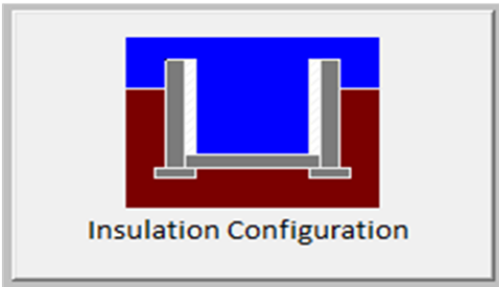
INDIVIDUAL BCIN: 19669

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):	15.5	 Insulation Configuration
Floor Width (m):	8.2	
Exposed Perimeter (m):	0.0	
Wall Height (m):	2.7	
Depth Below Grade (m):	1.83	
Window Area (m ²):	2.0	
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):		1545

TYPE: 2505-CNR
LO# 105281

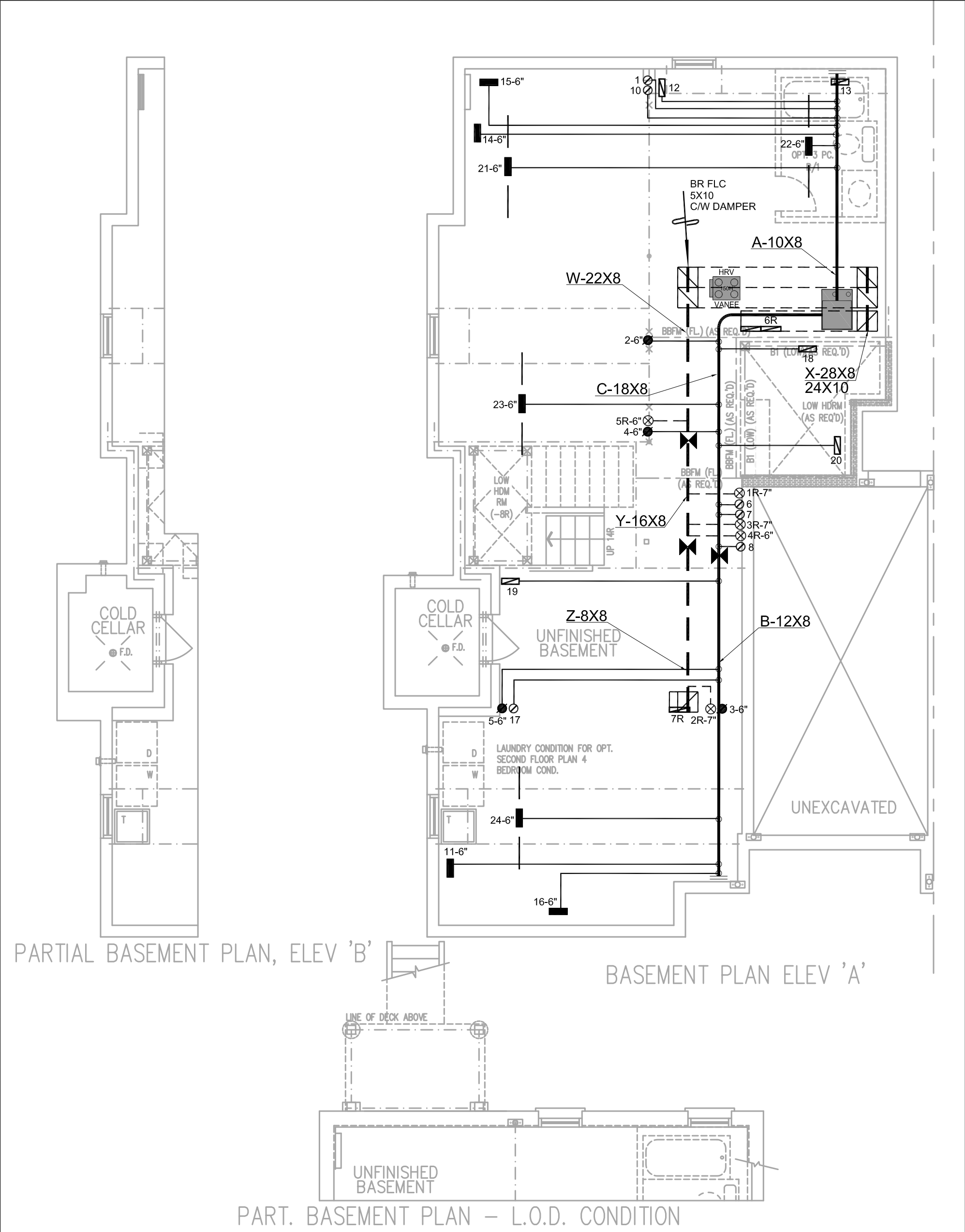
Air Infiltration Residential Load Calculator

Supplemental tool for CAN/CSA-F280

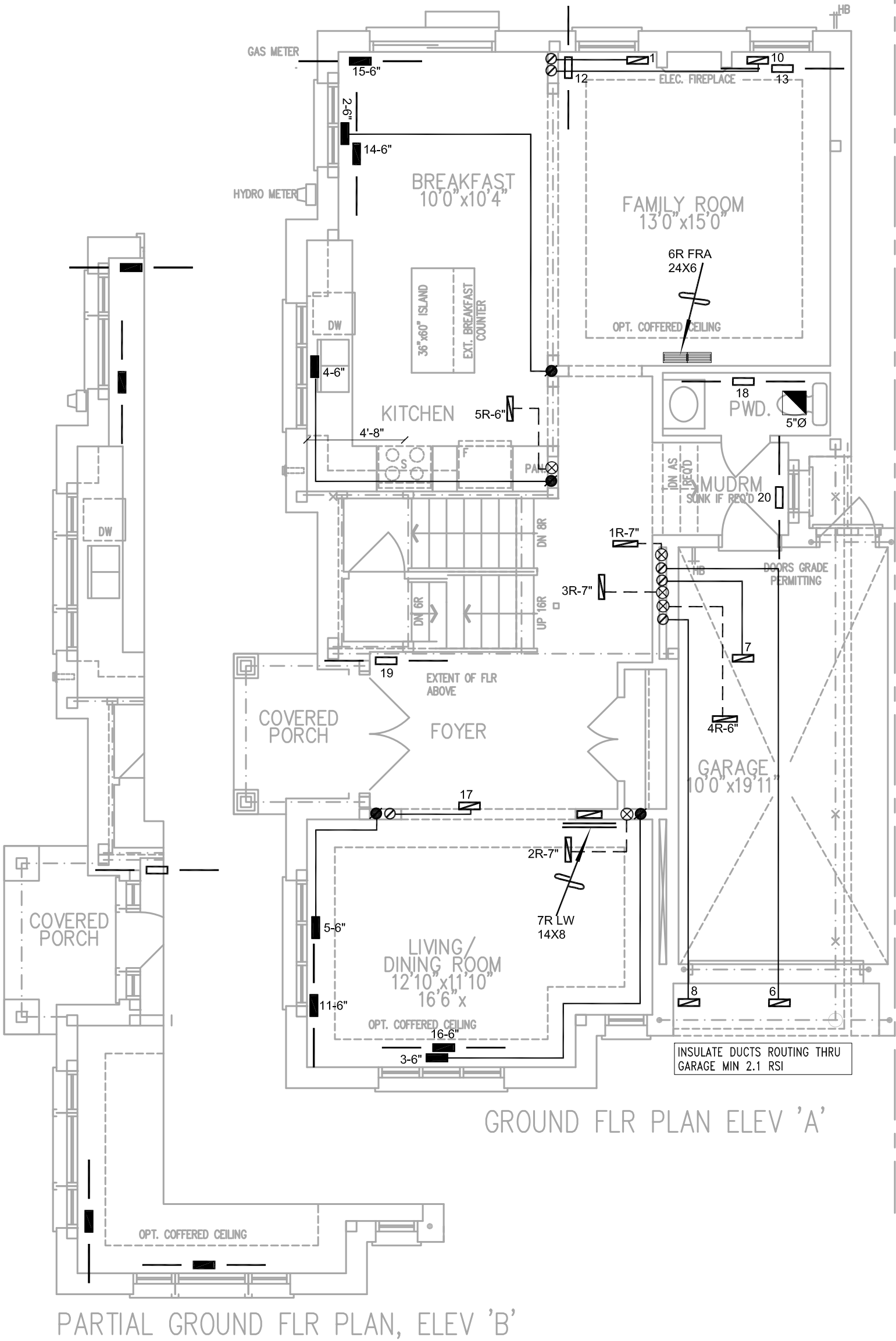
Weather Station Description				
Province:	Ontario			
Region:	Brampton			
Weather Station Location:	Open flat terrain, grass			
Anemometer height (m):	10			
Local Shielding				
Building Site:	Suburban, forest			
Walls:	Heavy			
Flue:	Heavy			
Highest Ceiling Height (m):	7.62			
Building Configuration				
Type:	Detached			
Number of Stories:	Two			
Foundation:	Full			
House Volume (m ³):	916.2			
Air Leakage/Ventilation				
Air Tightness Type:	Attached (3.0 ACH)			
Custom BDT Data:	ELA @ 10 Pa.	1026.3 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):	0.298			
Cooling Air Leakage Rate (ACH/H):	0.097			

TYPE: 2505-CNR

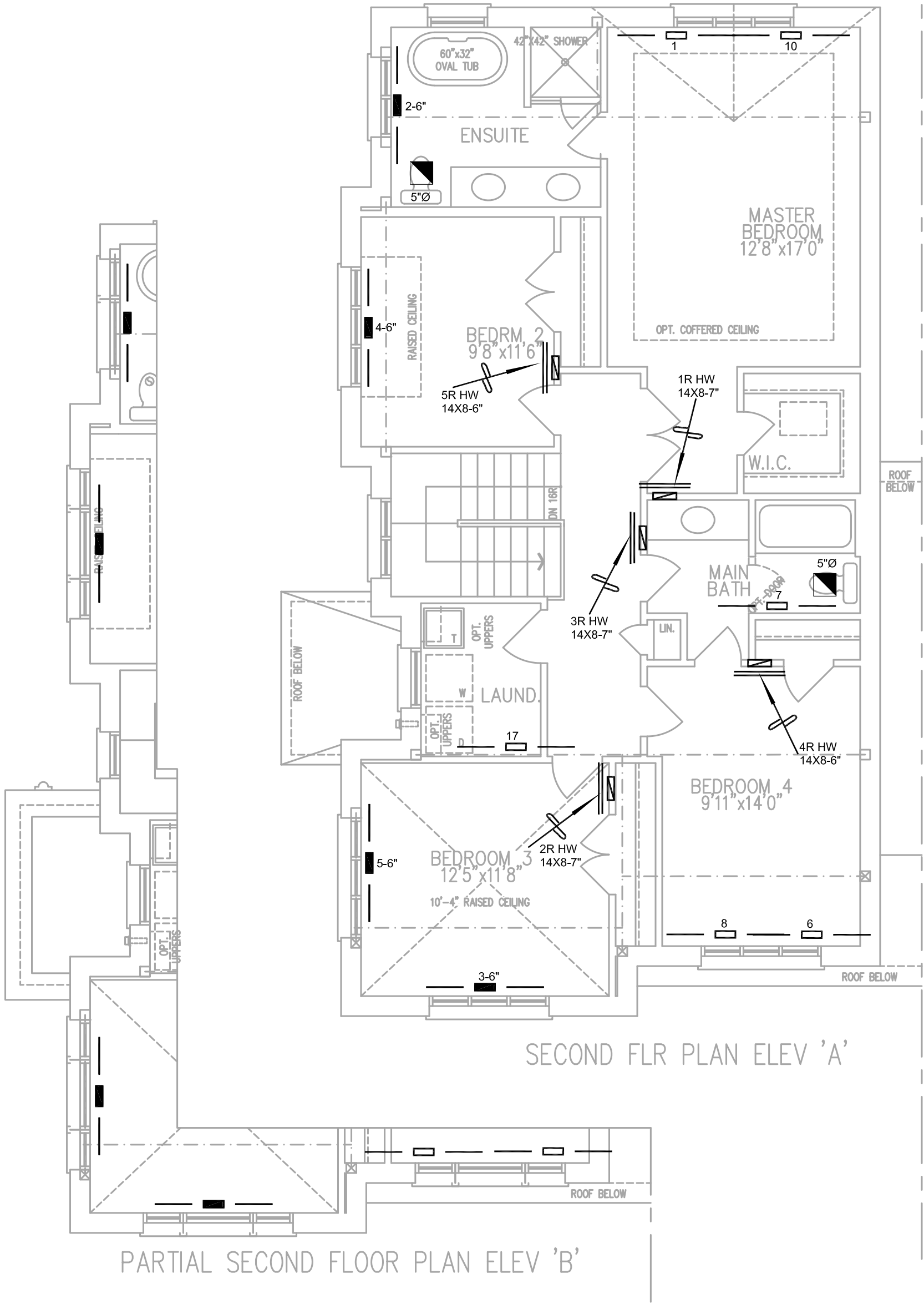
LO# 105281



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.		SB-12 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 44948 BTU/H		# OF RUNS S/A R/A FANS		Sheet Title	
Project Name ROYAL PINE HOMES SUMMER RIDGE ESTATES BRAMPTON, ONTARIO 2505-CNR 2384 sqft						UNIT DATA		3RD FLOOR		BASEMENT HEATING LAYOUT	
						MAKE CARRIER		2ND FLOOR		10 5 2	
						MODEL 59SC6A060M17--16		1ST FLOOR		9 2 2	
						INPUT 60 MBTU/H		BASEMENT		4 1 0	
						OUTPUT 58 MBTU/H		ALL S/A DIFFUSERS 4 "x10" UNLESS NOTED OTHERWISE ON LAYOUT. ALL S/A RUNS 5"xØ UNLESS NOTED OTHERWISE ON LAYOUT. UNDERCUT DOORS 1" min. FOR R/A		Date JUNE/2024	
						COOLING 2.5 TONS				Scale 3/16" = 1'-0"	
						FAN SPEED 975 cfm @ 0.6" w.c.				BCIN# 19669	
										LO# 105281	
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.											



HVAC LEGEND							3.		
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	SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		14"x8" RETURN AIR GRILLE		RETURN AIR STACK ABOVE	1.	
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Project Name		ROYAL PINE HOMES		SUMMER RIDGE ESTATES BRAMPTON, ONTARIO		Sheet Title		FIRST FLOOR HEATING LAYOUT	
2505-CNR		2384 sqft				Date		JUNE/2024	
						Scale		3/16" = 1'-0"	
								BCIN# 19669	
								LO# 105281	



HVAC LEGEND							3.				
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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							Sheet Title SECOND FLOOR HEATING LAYOUT		
Project Name SUMMER RIDGE ESTATES BRAMPTON, ONTARIO									Date JUNE/2024		
									Scale 3/16" = 1'-0"		
						BCIN# 19669					
2505-CNR		2384 sqft				LO#			105281		
		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.									