

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	Postal code	Plan number/ other description	
RICHMOND HILL			
B. Individual who reviews and takes responsibility for design activities			
Name		Firm	
MICHAEL O'ROURKE		HVAC DESIGNS LTD.	
Street address		Unit no.	Lot/con.
375 FINLEY AVE		202	N/A
Municipality	Postal code	Province	E-mail
AJAX	L1S 2E2	ONTARIO	info@hvacdesigns.ca
Telephone number	Fax number	Cell number	
(905) 619-2300	(905) 619-2375	()	
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		Model: 4502	
HEAT LOSS / GAIN CALCULATIONS		OPT 4 BED 4 BATH	
DUCT SIZING		Project: CENTREFIELD (WEST GORMLEY)	
RESIDENTIAL MECHANICAL VENTILATION DESIGN SUMMARY			
RESIDENTIAL SYSTEM DESIGN per CSA-F280-12			
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.			
June 4, 2021			
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.

SITE NAME: CENTREFIELD (WEST GORMLEY) OPT 4 BED 4 BATH TYPE: 4502 DATE: Jun-21 WINTER NATURAL AIR CHANGE RATE 0.219 HEAT LOSS AT °F. 78 CSA-F280-12
BUILDER: ROYAL PINE HOMES LO# 91142 SUMMER NATURAL AIR CHANGE RATE 0.068 HEAT GAIN AT °F. 13 SB-12 PERFORMANCE

ROOM USE	MBR	ENS	KT/BR	DIN	LAUN	PWD	FOY	MUD	ENS-2	WIC-3	ENS-4
EXP. WALL CLG. HT.	34 9	11 8	37 10	17 10	16 11	6 10	18 10	11 11	8 8	7 8	11 8
GRS.WALL AREA	306	88	370	170	176	60	180	121	64	56	88
GLAZING	21.8 15.8	21.8 15.8	21.8 15.8	21.8 15.8	21.8 15.8	21.8 15.8	21.8 15.8	21.8 15.8	21.8 15.8	21.8 15.8	21.8 15.8
NORTH	0 0	0 0	0 0	0 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 0	0 0	0 0	0 0
SOUTH	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0
WEST	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0
SKYL.T.	35.8 101.2	35.8 101.2	35.8 101.2	35.8 101.2	35.8 101.2	35.8 101.2	35.8 101.2	35.8 101.2	35.8 101.2	35.8 101.2	35.8 101.2
DOORS	25.8 4.3	25.8 4.3	25.8 4.3	25.8 4.3	25.8 4.3	25.8 4.3	25.8 4.3	25.8 4.3	25.8 4.3	25.8 4.3	25.8 4.3
NET EXPOSED WALL	4.2 0.7	4.2 0.7	4.2 0.7	4.2 0.7	4.2 0.7	4.2 0.7	4.2 0.7	4.2 0.7	4.2 0.7	4.2 0.7	4.2 0.7
NET EXPOSED BSMT WALL ABOVE GR	3.7 0.6	3.7 0.6	3.7 0.6	3.7 0.6	3.7 0.6	3.7 0.6	3.7 0.6	3.7 0.6	3.7 0.6	3.7 0.6	3.7 0.6
EXPOSED CLG	1.3 0.6	1.3 0.6	1.3 0.6	1.3 0.6	1.3 0.6	1.3 0.6	1.3 0.6	1.3 0.6	1.3 0.6	1.3 0.6	1.3 0.6
NO ATTIC EXPOSED FLOOR	2.8 1.3	2.8 1.3	2.8 1.3	2.8 1.3	2.8 1.3	2.8 1.3	2.8 1.3	2.8 1.3	2.8 1.3	2.8 1.3	2.8 1.3
BASEMENT/CRAWL HEAT LOSS	2.6 0.4	2.6 0.4	2.6 0.4	2.6 0.4	2.6 0.4	2.6 0.4	2.6 0.4	2.6 0.4	2.6 0.4	2.6 0.4	2.6 0.4
SLAB ON GRADE HEAT LOSS	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL HT LOSS	2325	896	3105	1066	1314	375	1612	509	627	546	668
SUB TOTAL HT GAIN	1647	846	3765	1370	1507	482	2070	654	216	631	245
LEVEL FACTOR / MULTIPLIER	0.20 0.18	0.20 0.18	0.30 0.28	0.30 0.28	0.30 0.28	0.30 0.28	0.30 0.28	0.30 0.28	0.20 0.18	0.20 0.18	0.20 0.18
AIR CHANGE HEAT LOSS	426	164	883	303	374	107	459	145	115	100	122
AIR CHANGE HEAT GAIN	70	36	1995	436	491	7	152	172	9	27	10
DUCT LOSS	0	0	0	0	0	0	0	0	0	0	0
DUCT GAIN	0	0	0	0	0	0	0	0	0	0	0
HEAT GAIN PEOPLE	2	0	0	0	0	1	0	0	0	0	0
HEAT GAIN APPLIANCES/LIGHTS	539	0	0	0	0	240	0	0	0	0	0
TOTAL HT LOSS BTU/H	2752	1061	3988	1370	1507	2641	816	238	816	646	790
TOTAL HT GAIN x 1.3 BTU/H	3558	1147	5803	1787	1957	3670	1074	832	1074	832	1074

ROOM USE	LIV	GRT	KT/BR	DIN	LAUN	PWD	FOY	MUD	ENS-2	WIC-3	ENS-4
EXP. WALL CLG. HT.	30 10	34 10	37 10	17 10	16 11	6 10	18 10	11 11	8 8	7 8	11 8
GRS.WALL AREA	300	340	370	170	176	60	180	121	64	56	88
GLAZING	21.8 15.8	21.8 15.8	21.8 15.8	21.8 15.8	21.8 15.8	21.8 15.8	21.8 15.8	21.8 15.8	21.8 15.8	21.8 15.8	21.8 15.8
NORTH	0 0	0 0	0 0	0 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 0	0 0	0 0	0 0
SOUTH	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0
WEST	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0
SKYL.T.	35.8 101.2	35.8 101.2	35.8 101.2	35.8 101.2	35.8 101.2	35.8 101.2	35.8 101.2	35.8 101.2	35.8 101.2	35.8 101.2	35.8 101.2
DOORS	25.8 4.3	25.8 4.3	25.8 4.3	25.8 4.3	25.8 4.3	25.8 4.3	25.8 4.3	25.8 4.3	25.8 4.3	25.8 4.3	25.8 4.3
NET EXPOSED WALL	4.2 0.7	4.2 0.7	4.2 0.7	4.2 0.7	4.2 0.7	4.2 0.7	4.2 0.7	4.2 0.7	4.2 0.7	4.2 0.7	4.2 0.7
NET EXPOSED BSMT WALL ABOVE GR	3.7 0.6	3.7 0.6	3.7 0.6	3.7 0.6	3.7 0.6	3.7 0.6	3.7 0.6	3.7 0.6	3.7 0.6	3.7 0.6	3.7 0.6
EXPOSED CLG	1.3 0.6	1.3 0.6	1.3 0.6	1.3 0.6	1.3 0.6	1.3 0.6	1.3 0.6	1.3 0.6	1.3 0.6	1.3 0.6	1.3 0.6
NO ATTIC EXPOSED FLOOR	2.8 1.3	2.8 1.3	2.8 1.3	2.8 1.3	2.8 1.3	2.8 1.3	2.8 1.3	2.8 1.3	2.8 1.3	2.8 1.3	2.8 1.3
BASEMENT/CRAWL HEAT LOSS	2.6 0.4	2.6 0.4	2.6 0.4	2.6 0.4	2.6 0.4	2.6 0.4	2.6 0.4	2.6 0.4	2.6 0.4	2.6 0.4	2.6 0.4
SLAB ON GRADE HEAT LOSS	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL HT LOSS	1859	2326	3105	1066	1314	375	1612	509	627	546	668
SUB TOTAL HT GAIN	1575	2287	3765	1370	1507	482	2070	654	216	631	245
LEVEL FACTOR / MULTIPLIER	0.30 0.28	0.30 0.28	0.30 0.28	0.30 0.28	0.30 0.28	0.30 0.28	0.30 0.28	0.30 0.28	0.20 0.18	0.20 0.18	0.20 0.18
AIR CHANGE HEAT LOSS	529	662	883	303	374	107	459	145	115	100	122
AIR CHANGE HEAT GAIN	67	97	1995	436	491	7	152	172	9	27	10
DUCT LOSS	0	0	0	0	0	0	0	0	0	0	0
DUCT GAIN	0	0	0	0	0	0	0	0	0	0	0
HEAT GAIN PEOPLE	0	0	0	0	0	1	0	0	0	0	0
HEAT GAIN APPLIANCES/LIGHTS	539	0	0	0	0	240	0	0	0	0	0
TOTAL HT LOSS BTU/H	2388	2988	3988	1370	1507	2641	816	238	816	646	790
TOTAL HT GAIN x 1.3 BTU/H	2836	3801	5803	1787	1957	3670	1074	832	1074	832	1074

TOTAL HEAT GAIN BTU/H: 36941 TONS: 3.08 LOSS DUE TO VENTILATION LOAD BTU/H: 1670 STRUCTURAL HEAT LOSS: 45259 TOTAL COMBINED HEAT LOSS BTU/H: 46929

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

OPT 4 BED 4 BATH
TYPE: 4502

GFA: 2942 LO# 91142

DATE: Jun-21

HEATING CFM 1145 COOLING CFM 1145
TOTAL HEAT LOSS 45,259 TOTAL HEAT GAIN 36,666
AIR FLOW RATE CFM 25.3 AIR FLOW RATE CFM 31.23

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

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	12	10	4
R/A	0	0	5	3	1

59TN6B-060-14V **CARRIER
FAN SPEED 60
LOW 820
MEDIUM 1145
HIGH 1520
DESIGN CFM = 1145
CFM @ 8" E.S.P.
TEMPERATURE RISE 47 °F

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	3	4	5	6	7	8	9	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	ENS-3	ENS-2	BED-4	MBR	ENS-4	LIV	GRT	KT/BR	KT/BR	DIN	LAUN	PWD	FOY	MUD	BAS	BAS	BAS	BAS
RM LOSS MBH	1.38	1.06	2.04	2.33	1.32	1.32	0.24	0.82	1.32	1.38	0.79	2.39	1.49	1.99	1.99	1.37	1.69	0.48	2.07	0.65	3.57	3.57	3.57	3.57
CFM PER RUN HEAT	35	27	52	59	33	33	6	21	33	35	20	60	38	50	50	35	43	12	52	17	90	90	90	90
RM GAIN MBH	1.78	1.15	2.58	2.90	2.58	1.83	0.07	0.32	1.83	1.78	0.33	2.84	1.90	2.90	2.90	1.51	1.13	0.28	1.57	0.11	0.40	0.40	0.40	0.40
CFM PER RUN COOLING	56	36	81	90	81	57	2	10	57	56	10	89	59	91	91	47	35	9	49	4	13	13	13	13
ADJUSTED PRESSURE	0.17	0.17	0.16	0.16	0.16	0.17	0.17	0.17	0.17	0.17	0.17	0.16	0.17	0.16	0.16	0.16	0.17	0.17	0.17	0.17	0.16	0.16	0.16	0.16
ACTUAL DUCT LGH	27	51	56	65	51	45	44	52	38	37	26	30	40	25	35	5	39	16	35	40	19	42	10	30
EQUIVALENT LENGTH	150	130	140	140	130	160	150	150	190	140	110	110	150	130	120	140	140	140	130	150	140	130	140	110
TOTAL EFFECTIVE LENGTH	177	181	196	205	181	205	194	202	228	177	136	140	190	155	155	145	179	156	165	190	149	182	140	140
ADJUSTED PRESSURE	0.1	0.1	0.08	0.08	0.09	0.08	0.09	0.09	0.08	0.1	0.13	0.12	0.09	0.1	0.1	0.12	0.1	0.11	0.1	0.09	0.11	0.09	0.12	0.12
ROUND DUCT SIZE	5	4	6	6	6	6	4	4	5	5	4	6	5	6	6	4	4	4	5	4	6	6	6	6
HEATING VELOCITY (ft/min)	257	310	265	301	265	242	69	241	242	257	229	306	279	255	255	402	493	138	382	195	459	459	459	459
COOLING VELOCITY (ft/min)	411	413	413	459	413	419	23	115	419	411	115	454	433	464	464	539	402	103	360	46	66	66	66	66
OUTLET GRILL SIZE	3X10	3X10	4X10	4X10	4X10	4X10	3X10	3X10	3X10	3X10	3X10	4X10	4X10	4X10	4X10	3X10	3X10	3X10	3X10	3X10	4X10	4X10	4X10	4X10
TRUNK	B	B	D	A	D	C	D	D	C	B	D	C	A	B	B	D	A	C	C	A	B	A	D	C

RUN #	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
ROOM NAME	GRT	WIC-3																						
RM LOSS MBH	1.49	0.65																						
CFM PER RUN HEAT	38	16																						
RM GAIN MBH	1.90	0.85																						
CFM PER RUN COOLING	59	27																						
ADJUSTED PRESSURE	0.17	0.17																						
ACTUAL DUCT LGH	47	28																						
EQUIVALENT LENGTH	110	180																						
TOTAL EFFECTIVE LENGTH	157	208																						
ADJUSTED PRESSURE	0.11	0.08																						
ROUND DUCT SIZE	5	4																						
HEATING VELOCITY (ft/min)	279	184																						
COOLING VELOCITY (ft/min)	433	310																						
OUTLET GRILL SIZE	3X10	3X10																						
TRUNK	A	C																						

SUPPLY AIR TRUNK SIZE										RETURN AIR TRUNK SIZE									
TRUNK	STATIC PRESS.	ROUND DUCT	RECT DUCT	VELOCITY (ft/min)	TRUNK CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT	VELOCITY (ft/min)	TRUNK CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT	VELOCITY (ft/min)					
TRUNK A	0.08	8.8	10	8	285	0.00	0	0	8	0	0.05	0	0	8					
TRUNK B	0.08	11.4	16	8	572	0.00	0	0	8	0	0.05	0	0	8					
TRUNK C	0.08	8.9	10	8	296	0.00	0	0	8	0	0.05	0	0	8					
TRUNK D	0.08	11.4	16	8	572	0.00	0	0	8	0	0.05	0	0	8					
TRUNK E	0.00	0	0	8	0	0.00	0	0	8	0	0.05	0	0	8					
TRUNK F	0.00	0	0	8	0	0.00	0	0	8	0	0.05	0	0	8					
RETURN AIR #	1	2	3	4	5	6	7	8	BR						8				
AIR VOLUME	95	75	85	75	95	155	150	0	0	0	0	0	0	0					
PLENUM PRESSURE	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15					
ACTUAL DUCT LGH.	47	79	54	40	47	32	27	38	1	1	1	1	1	14					
EQUIVALENT LENGTH	175	225	215	255	175	230	145	190	0	0	0	0	0	135					
TOTAL EFFECTIVE LH	222	304	269	295	222	262	172	228	1	1	1	1	1	149					
ADJUSTED PRESSURE	0.07	0.05	0.06	0.05	0.07	0.06	0.09	0.06	14.80	14.80	14.80	14.80	14.80	0.10					
ROUND DUCT SIZE	6	6	6	6	6	7.5	6.7	8.8	0	0	0	0	0	6.9					
INLET GRILL SIZE	8	8	8	8	8	8	8	6	0	0	0	0	0	8					
	X	X	X	X	X	X	X	X	X	X	X	X	X	X					
INLET GRILL SIZE	14	14	14	14	14	14	14	18	0	0	0	0	0	14					

TYPE: 4502
SITE NAME: CENTREFIELD (WEST GORMLEY)

LO # 91142
OPT 4 BED 4 BATH

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	2 @ 21.2 cfm	42.4 cfm
Other Bedrooms	3 @ 10.6 cfm	31.8 cfm
Kitchen & Bathrooms	6 @ 10.6 cfm	63.6 cfm
Other Rooms	5 @ 10.6 cfm	53.0 cfm
Table 9.32.3.A.	TOTAL	190.8 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	190.8	cfm
Less Principal Ventil. Capacity	79.5	cfm
Required Supplemental Capacity	111.3	cfm

PRINCIPAL EXHAUST FAN CAPACITY			
Model: VANEE 65H	Location: BSMT		
79.5 cfm	☒ HVI Approved		
PRINCIPAL EXHAUST HEAT LOSS CALCULATION			
CFM	ΔT °F	FACTOR	% LOSS
79.5 CFM	X 78 F	X 1.08	X 0.25

SUPPLEMENTAL FANS		BY INSTALLING CONTRACTOR	
Location	Model	cfm	HVI
ENS	BY INSTALLING CONTRACTOR	50	☒
ENS-2	BY INSTALLING CONTRACTOR	50	☒
ENS-4	BY INSTALLING CONTRACTOR	50	☒
PWD	BY INSTALLING CONTRACTOR	50	☒

HEAT RECOVERY VENTILATOR		9.32.3.11.
Model: VANEE 65H		
155 cfm high	64 cfm low	
75 % 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-21

CSA F280-12 Residential Heat Loss and Heat Gain Calculations			
Formula Sheet (For Air Leakage / Ventilation Calculation)			
LO#: 91142	Model: 4502	Builder: ROYAL PINE HOMES	Date: 2021-06-04
Volume Calculation			
House Volume	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)
Level			
Bsmt	1305	9	11745
First	1305	10	13050
Second	1637	8	13096
Third	0	9	0
Fourth	0	9	0
Total:			37,891.0 ft³
Total:			1073.0 m³

6.2.6 Sensible Gain due to Air Leakage			
$HG_{salb} = LR_{airc} \times \frac{V_b}{3.6} \times DTD_c \times 1.2$			
0.219	x	298.04	x
		43 °C	x
		1.2	=
			173 W
			=
			592 Btu/h

6.2.7 Sensible heat Gain due to Ventilation			
$HL_{vairb} = PVC \times DTD_h \times 1.08 \times (1 - E)$			
80 CFM	x	13 °F	x
		1.08	x
		0.25	=
			275 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)	HLairbv Air Leakage + Ventilation Heat Loss (Btu/h)	Air Leakage Heat Loss Multiplier (LF x HLairbv / HLlevel)
1	0.5	11,538	8,498
2	0.3		12,167
3	0.2		12,588
4	0		0
5	0		0

*HLairbv = Air leakage heat loss + ventilation heat loss
*For a balanced or supply only ventilation system HLairve = 0

HEAT LOSS AND GAIN SUMMARY SHEET

MODEL: 4502	OPT 4 BED 4 BATH	BUILDER: ROYAL PINE HOMES
SFQT: 2942	LO# 91142	SITE: CENTREFIELD (WEST GORMLEY)

DESIGN ASSUMPTIONS

HEATING	°F	COOLING	°F
OUTDOOR DESIGN TEMP.	-6	OUTDOOR DESIGN TEMP.	88
INDOOR DESIGN TEMP.	72	INDOOR DESIGN TEMP. (MAX 75°F)	75

BUILDING DATA

ATTACHMENT:	DETACHED	# OF STORIES (+BASEMENT):	3
FRONT FACES:	EAST	ASSUMED (Y/N):	Y
AIR CHANGES PER HOUR:	2.50	ASSUMED (Y/N):	Y
AIR TIGHTNESS CATEGORY:	TIGHT	ASSUMED (Y/N):	Y
WIND EXPOSURE:	SHELTERED	ASSUMED (Y/N):	Y
HOUSE VOLUME (ft³):	37891.0	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	5
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: 48.0 ft	WIDTH: 38.0 ft	EXPOSED PERIMETER:	172.0 ft

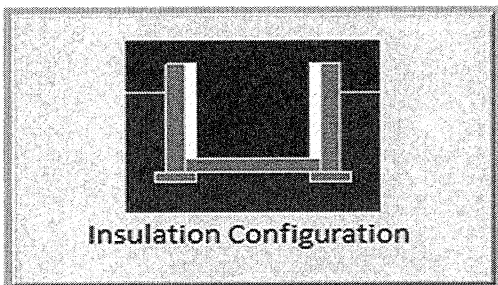
2012 OBC - COMPLIANCE PACKAGE		Compliance Package SB-12 PERFORMANCE	
Component		Nominal	Min. Eff.
Ceiling with Attic Space Minimum RSI (R)-Value		60	59.20
Ceiling Without Attic Space Minimum RSI (R)-Value		31	27.70
Exposed Floor Minimum RSI (R)-Value		31	29.80
Walls Above Grade Minimum RSI (R)-Value		22+1.5	18.50
Basement Walls Minimum RSI (R)-Value		20	21.12
Below Grade Slab Entire surface > 600 mm below grade Minimum RSI (R)-Value		-	-
Edge of Below Grade Slab ≤ 600 mm Below Grade Minimum RSI (R)-Value		10	10
Heated Slab or Slab ≤ 600 mm below grade Minimum RSI (R)-Value		10	11.13
Windows and Sliding Glass Doors Maximum U-Value		1.6	-
Skylights Maximum U-Value		2.6	-
Space Heating Equipment Minimum AFUE		0.96	-
HRV Minimum Efficiency		75%	-
Domestic Hot Water Heater Minimum EF		TE=94%	-

INDIVIDUAL BCIN: 19669
MICHAEL O'ROURKE



Residential Foundation Thermal Load Calculator

Supplemental tool for CAN/CSA-F280

Weather Station Description		
Province:	Ontario	
Region:	Richmond Hill	
Site Description		
Soil Conductivity:	Normal conductivity: dry sand, loam, clay	
Water Table:	Normal (7-10 m, 23-33 ft)	
Foundation Dimensions		
Floor Length (m):	14.6	 Insulation Configuration
Floor Width (m):	11.6	
Exposed Perimeter (m):	0.0	
Wall Height (m):	2.7	
Depth Below Grade (m):	1.83	
Window Area (m ²):	0.8	
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):		1724

TYPE: 4502
LO# 91142

OPT 4 BED 4 BATH

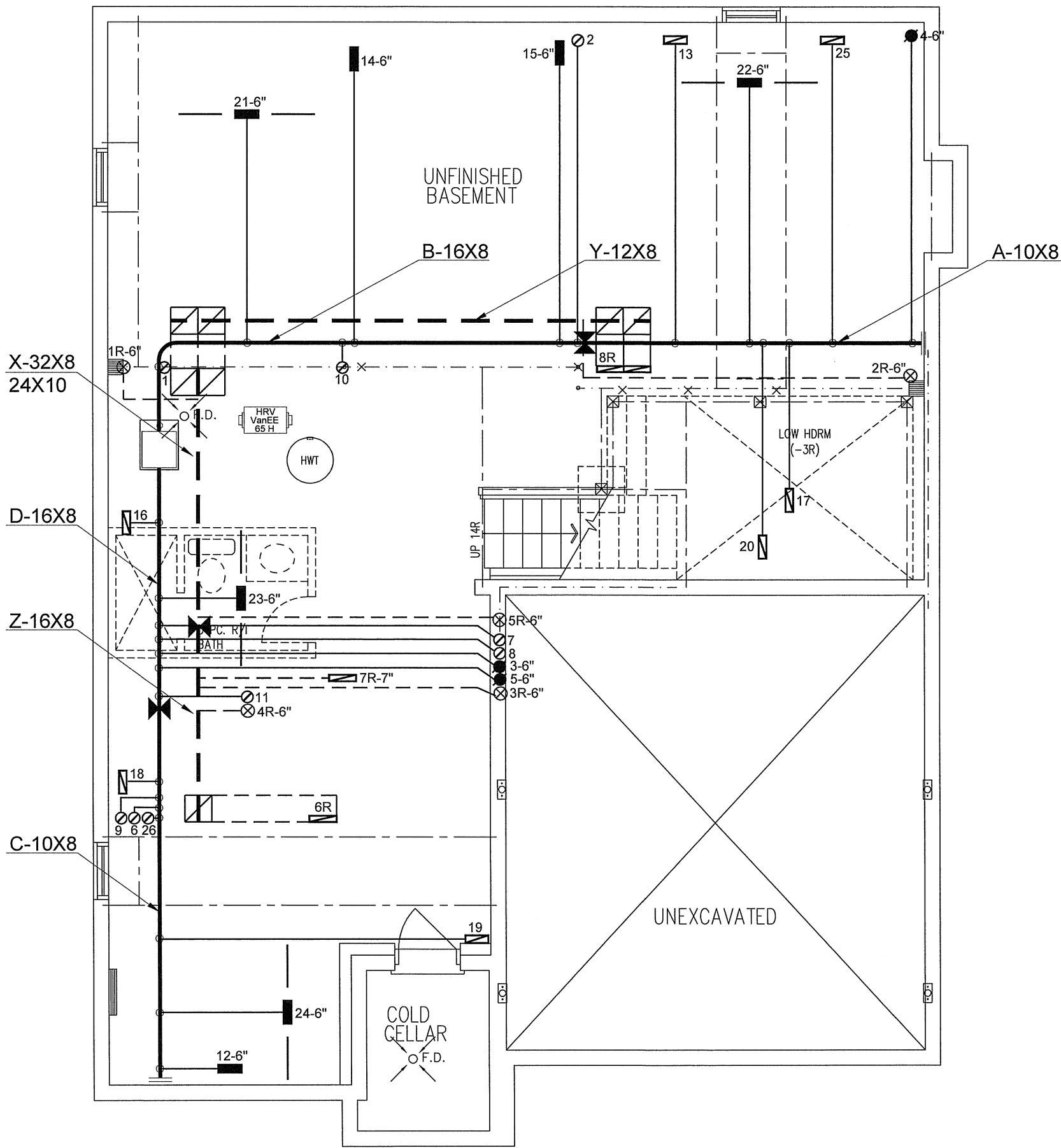
Air Infiltration Residential Load Calculator

Supplemental tool for CAN/CSA-F280

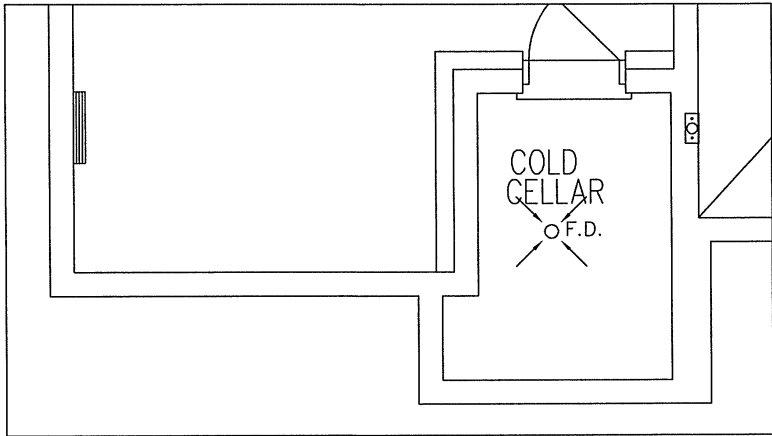
Weather Station Description				
Province:	Ontario			
Region:	Richmond Hill			
Weather Station Location:	Open flat terrain, grass			
Anemometer height (m):	10			
Local Shielding				
Building Site:	Suburban, forest			
Walls:	Heavy			
Flue:	Heavy			
Highest Ceiling Height (m):	6.40			
Building Configuration				
Type:	Detached			
Number of Stories:	Two			
Foundation:	Full			
House Volume (m ³):	1073.0			
Air Leakage/Ventilation				
Air Tightness Type:	Energy Star Detached (2.5 ACH)			
Custom BDT Data:	ELA @ 10 Pa.	1001.6 cm ²		
	2.50	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):	0.219			
Cooling Air Leakage Rate (ACH/H):	0.068			

TYPE: 4502
LO# 91142

OPT 4 BED 4 BATH



BASEMENT PLAN, ELEVATION 'A' & 'B'



BASEMENT PLAN, ELEVATION 'C'

CSA-F280-12

SB-12 PERFORMANCE

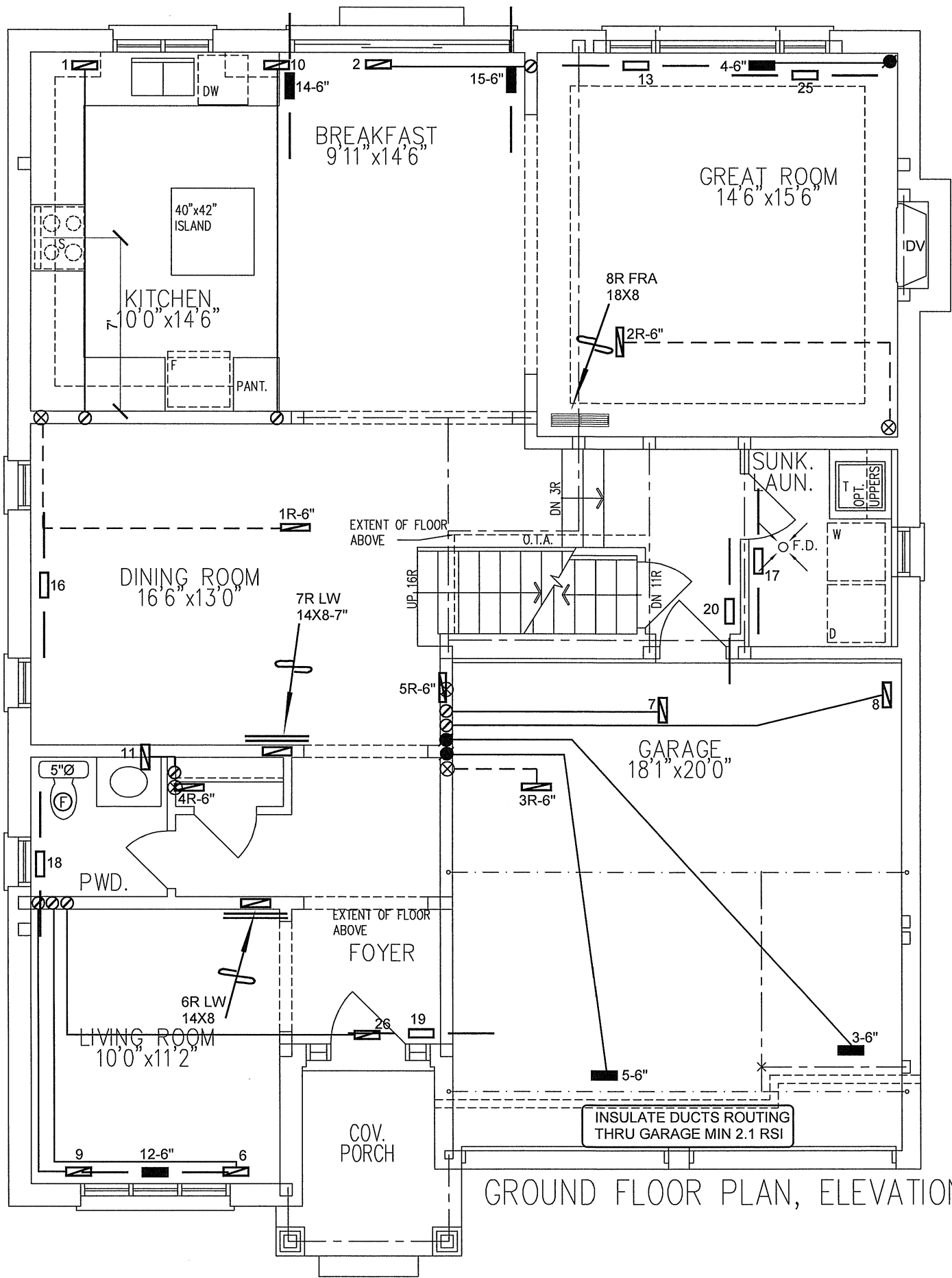
I MICHAEL O'ROURKE HAVE REVIEWED AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED UNDER DIVISION C.32.5 OF THE BUILDING CODE.

Michael O'Rourke
Michael O'Rourke, BCIN# 19669
HVAC DESIGNS LTD.

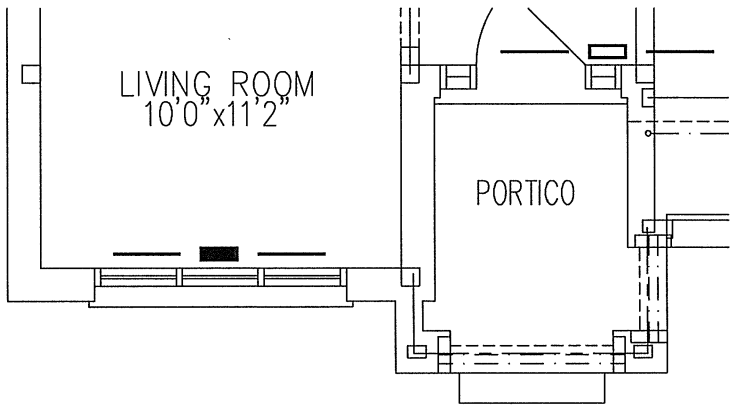
HVAC LEGEND							3.		
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	2.	
	SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		14"x8" RETURN AIR GRILLE		RETURN AIR STACK ABOVE	1.	
	SUPPLY AIR GRILLE 6" BOOT		SUPPLY AIR STACK FROM 2nd FLOOR		30"x8" RETURN AIR GRILLE		RETURN AIR STACK 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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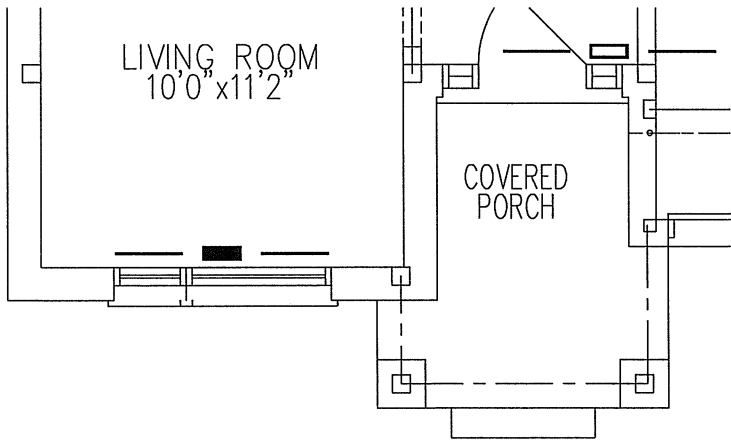
Client		HVACDESIGNS LTD. 375 Finley Ave. Suite 202 - Ajax, Ontario L1S 2E2 Tel. 905.619.2300 - 905.420.5300 Fax 905.619.2375 Email: info@hvacdesigns.ca Web: www.hvacdesigns.ca Specializing in Residential Mechanical Design Services Installation to comply with the latest Ontario Building Code. All supply 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.	HEAT LOSS 46929 BTU/H UNIT DATA		# OF RUNS S/A R/A FANS			Sheet Title	
ROYAL PINE HOMES			MAKE	CARRIER	3RD FLOOR				BASEMENT HEATING LAYOUT
Project Name			MODEL	59TN6B-060-14V	2ND FLOOR	12	5	3	
CENTREFIELD (WEST GORMLEY) RICHMOND HILL, ONTARIO			INPUT	60 MBTU/H	1ST FLOOR	10	3	2	
OPT 4 BED 4 BATH 4502 2942 sqft			OUTPUT	58 MBTU/H	BASEMENT	4	1	0	Date
		COOLING	3.0 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				Scale	3/16" = 1'-0"
		FAN SPEED	1145 cfm @ 0.6" w.c.					BCIN# 19669	
						LO#		91142	



GROUND FLOOR PLAN, ELEVATION 'A'



GROUND FLOOR PLAN, ELEVATION 'B'



GROUND FLOOR PLAN, ELEVATION 'C'

I MICHAEL O'ROURKE HAVE REVIEW AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED UNDER DIVISION C.3.2.5 OF THE BUILDING CODE.

Michael O'Rourke
Michael O'Rourke, BCIN# 19669
HVAC DESIGNS LTD.

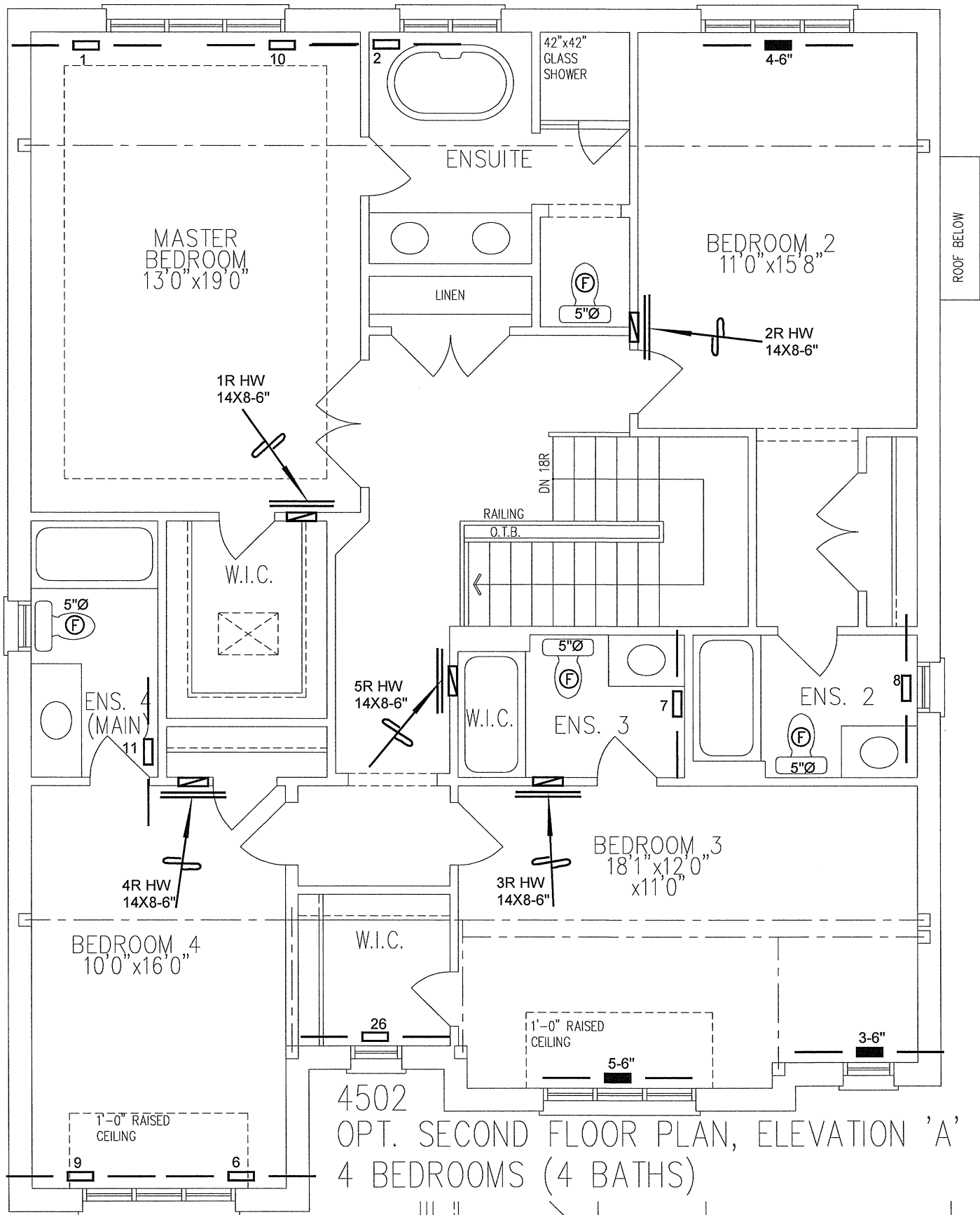
CSA-F280-12

SB-12 PERFORMANCE

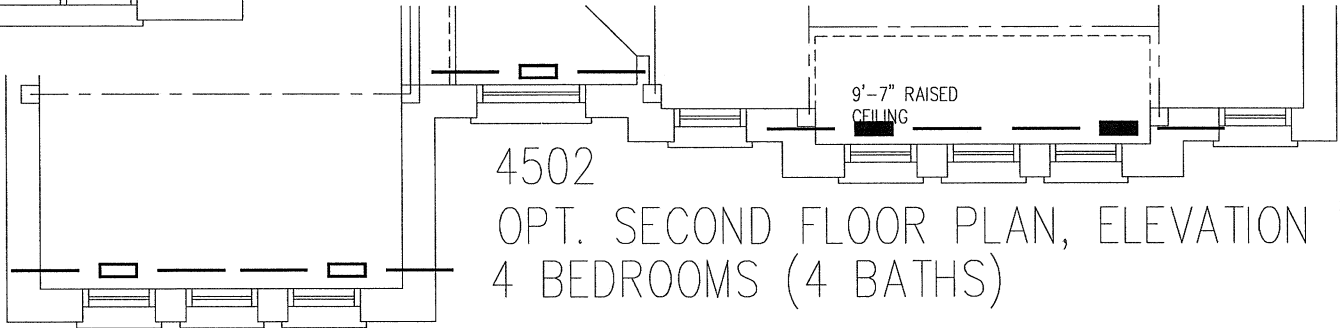
HVAC LEGEND							3.		
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	2.	
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	SUPPLY AIR GRILLE 6" BOOT		SUPPLY AIR STACK FROM 2nd FLOOR		30"x8" RETURN AIR GRILLE		RETURN AIR STACK 2nd FLOOR	No.	Description Date
	SUPPLY AIR BOOT ABOVE		6" SUPPLY AIR STACK 2nd FLOOR		FRA- FLOOR RETURN AIR GRILLE		REDUCER	REVISIONS	

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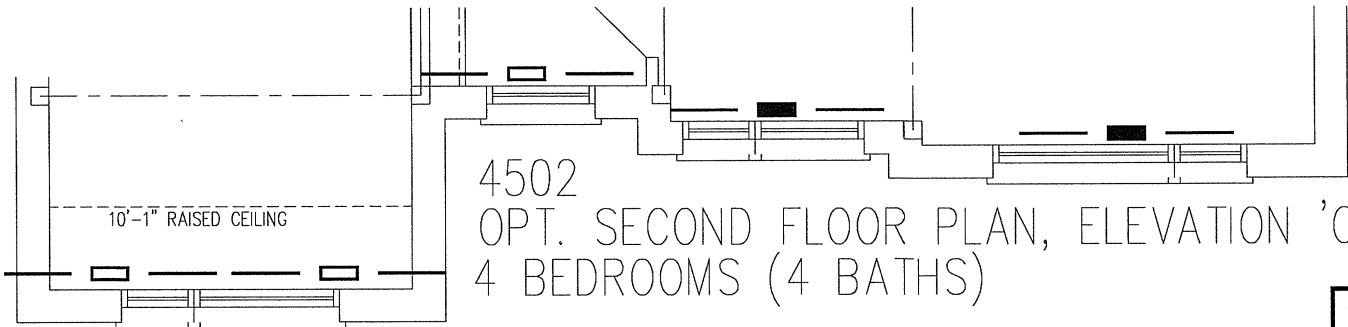
Client		 375 Finley Ave. Suite 202 - Ajax, Ontario L1S 2E2 Tel. 905.619.2300 - 905.420.5300 Fax 905.619.2375 Email: info@hvacdesigns.ca Web: www.hvacdesigns.ca Specializing in Residential Mechanical Design Services Installation to comply with the latest Ontario Building Code. All supply branch outlets 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	
ROYAL PINE HOMES			FIRST FLOOR HEATING LAYOUT	
Project Name			Date	JUNE/2021
CENTREFIELD (WEST GORMLEY) RICHMOND HILL, ONTARIO			Scale	3/16" = 1'-0"
OPT 4 BED 4 BATH 4502			BCIN# 19669	
2942 sqft		LO#	91142	



4502
OPT. SECOND FLOOR PLAN, ELEVATION 'A'
4 BEDROOMS (4 BATHS)



4502
OPT. SECOND FLOOR PLAN, ELEVATION 'B'
4 BEDROOMS (4 BATHS)



4502
OPT. SECOND FLOOR PLAN, ELEVATION 'C'
4 BEDROOMS (4 BATHS)

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AND TAKE RESPONSIBILITY FOR THE
DESIGN WORK AND AM QUALIFIED
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BUILDING CODE.
Michael O'Rourke
Michael O'Rourke, BCIN# 19669
HVAC DESIGNS LTD.

CSA-F280-12

SB-12 PERFORMANCE

HVAC LEGEND								3.		
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	2.		
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ROYAL PINE HOMES			SECOND FLOOR HEATING LAYOUT	
Project Name			Date	JUNE/2021
CENTREFIELD (WEST GORMLEY) RICHMOND HILL, ONTARIO			Scale	3/16" = 1'-0"
OPT 4 BED 4 BATH 4502			BCIN# 19669	
2942 sqft		LO#	91142	