

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 RICHMOND HILL	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@hvacdesigns.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: 2010 Project: CENTREFIELD (WEST GORMLEY)		
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.				
September 10, 2021		 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: CENTREFIELD (WEST GORMLEY)

BUILDER: ROYAL PINE HOMES

TYPE: 2010

GFA: 1742

DATE: Sep-21
LC# 87540

WINTER NATURAL AIR CHANGE RATE 0.284
SUMMER NATURAL AIR CHANGE RATE 0.086

HEAT LOSS AT °F. 78
HEAT GAIN AT °F. 13

CSA-F280-12
SB-12 PERFORMANCE

ROOM USE	EXP. WALL CLG. HT.	MBR	ENS	GRS.WALL AREA GLAZING	FACTORS	LOSS GAIN	NET EXPOSED BSMT WALL ABOVE GR	EXPOSED CLG	NO ATTIC EXPOSED FLOOR	BASEMENT/CRAWL HEAT LOSS	SLAB ON GRADE HEAT LOSS	SUBTOTAL HT LOSS	SUB TOTAL HT GAIN	LEVEL FACTOR / MULTIPLIER	AIR CHANGE HEAT LOSS	AIR CHANGE HEAT GAIN	DUCT LOSS	DUCT GAIN	HEAT GAIN PEOPLE	HEAT GAIN APPLIANCES/LIGHTS	TOTAL HT LOSS BTU/H	TOTAL HT GAIN x 1.3 BTU/H
EXP. WALL	14	9	22	126	198	LOSS GAIN	94	395	65	166	698	115	1533	1484	0	0	0	0	0	0	1779	3584
FACTORS	21.8	16.0	0	0	0	0	4.2	0.7	2.8	1.3	0.6	1.3	0.6	2.8	1.3	0.6	2.6	0.4	240	240	240	240
GRS.WALL AREA GLAZING	21.8	16.0	0	0	0	0	4.2	0.7	2.8	1.3	0.6	1.3	0.6	2.8	1.3	0.6	2.6	0.4	240	240	240	240
NORTH	21.8	16.0	0	0	0	0	4.2	0.7	2.8	1.3	0.6	1.3	0.6	2.8	1.3	0.6	2.6	0.4	240	240	240	240
EAST	21.8	16.0	0	0	0	0	4.2	0.7	2.8	1.3	0.6	1.3	0.6	2.8	1.3	0.6	2.6	0.4	240	240	240	240
SOUTH	21.8	16.0	0	0	0	0	4.2	0.7	2.8	1.3	0.6	1.3	0.6	2.8	1.3	0.6	2.6	0.4	240	240	240	240
WEST	21.8	16.0	0	0	0	0	4.2	0.7	2.8	1.3	0.6	1.3	0.6	2.8	1.3	0.6	2.6	0.4	240	240	240	240
SKYLT.	35.8	101.2	0	0	0	0	4.2	0.7	2.8	1.3	0.6	1.3	0.6	2.8	1.3	0.6	2.6	0.4	240	240	240	240
DOORS	25.8	4.3	0	0	0	0	4.2	0.7	2.8	1.3	0.6	1.3	0.6	2.8	1.3	0.6	2.6	0.4	240	240	240	240
NET EXPOSED BSMT WALL ABOVE GR	4.2	0.7	94	395	65	166	698	115	1533	1484	0	0	0	0	0	0	0	0	0	0	1779	3584
EXPOSED CLG	1.3	0.6	298	392	175	105	138	62	1123	1123	0	0	0	0	0	0	0	0	0	0	1123	1123
NO ATTIC EXPOSED FLOOR	2.8	1.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BASEMENT/CRAWL HEAT LOSS	2.6	0.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SLAB ON GRADE HEAT LOSS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL HT LOSS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SUB TOTAL HT GAIN	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20
LEVEL FACTOR / MULTIPLIER	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20
AIR CHANGE HEAT LOSS	295	64	304	46	1123	1123	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AIR CHANGE HEAT GAIN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DUCT LOSS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DUCT GAIN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HEAT GAIN PEOPLE	2	480	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HEAT GAIN APPLIANCES/LIGHTS	643	643	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL HT LOSS BTU/H	1779	3584	1838	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL HT GAIN x 1.3 BTU/H	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

ROOM USE	EXP. WALL CLG. HT.	FACTORS	LOSS GAIN	NET EXPOSED BSMT WALL ABOVE GR	EXPOSED CLG	NO ATTIC EXPOSED FLOOR	BASEMENT/CRAWL HEAT LOSS	SLAB ON GRADE HEAT LOSS	SUBTOTAL HT LOSS	SUB TOTAL HT GAIN	LEVEL FACTOR / MULTIPLIER	AIR CHANGE HEAT LOSS	AIR CHANGE HEAT GAIN	DUCT LOSS	DUCT GAIN	HEAT GAIN PEOPLE	HEAT GAIN APPLIANCES/LIGHTS	TOTAL HT LOSS BTU/H	TOTAL HT GAIN x 1.3 BTU/H
EXP. WALL	12	9	49	495	4823	5389	0.30	0.29	1402	220	0	0	0	0	0	0	0	0	0
FACTORS	21.8	16.0	0	0	0	0	4.2	0.7	2.8	1.3	0.6	1.3	0.6	2.8	1.3	0.6	2.6	0.4	240
GRS.WALL AREA GLAZING	21.8	16.0	0	0	0	0	4.2	0.7	2.8	1.3	0.6	1.3	0.6	2.8	1.3	0.6	2.6	0.4	240
NORTH	21.8	16.0	0	0	0	0	4.2	0.7	2.8	1.3	0.6	1.3	0.6	2.8	1.3	0.6	2.6	0.4	240
EAST	21.8	16.0	0	0	0	0	4.2	0.7	2.8	1.3	0.6	1.3	0.6	2.8	1.3	0.6	2.6	0.4	240
SOUTH	21.8	16.0	0	0	0	0	4.2	0.7	2.8	1.3	0.6	1.3	0.6	2.8	1.3	0.6	2.6	0.4	240
WEST	21.8	16.0	0	0	0	0	4.2	0.7	2.8	1.3	0.6	1.3	0.6	2.8	1.3	0.6	2.6	0.4	240
SKYLT.	35.8	101.2	0	0	0	0	4.2	0.7	2.8	1.3	0.6	1.3	0.6	2.8	1.3	0.6	2.6	0.4	240
DOORS	25.8	4.3	0	0	0	0	4.2	0.7	2.8	1.3	0.6	1.3	0.6	2.8	1.3	0.6	2.6	0.4	240
NET EXPOSED BSMT WALL ABOVE GR	4.2	0.7	94	395	65	166	698	115	1533	1484	0	0	0	0	0	0	0	0	0
EXPOSED CLG	1.3	0.6	298	392	175	105	138	62	1123	1123	0	0	0	0	0	0	0	0	0
NO ATTIC EXPOSED FLOOR	2.8	1.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BASEMENT/CRAWL HEAT LOSS	2.6	0.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SLAB ON GRADE HEAT LOSS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL HT LOSS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SUB TOTAL HT GAIN	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20
LEVEL FACTOR / MULTIPLIER	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20
AIR CHANGE HEAT LOSS	295	64	304	46	1123	1123	0	0	0	0	0	0	0	0	0	0	0	0	0
AIR CHANGE HEAT GAIN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DUCT LOSS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DUCT GAIN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HEAT GAIN PEOPLE	2	480	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HEAT GAIN APPLIANCES/LIGHTS	643	643	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL HT LOSS BTU/H	1779	3584	1838	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL HT GAIN x 1.3 BTU/H	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

TOTAL HEAT GAIN BTU/H: 29699

TONS: 2.47

LOSS DUE TO VENTILATION LOAD BTU/H: 1336

STRUCTURAL HEAT LOSS: 34683

TOTAL COMBINED HEAT LOSS BTU/H: 35899

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

TYPE: 2010

DATE: Sep-21

GFA: 1742 LO# 87540

HEATING CFM 875 COOLING CFM 875
TOTAL HEAT LOSS 34,663 TOTAL HEAT GAIN 29,480
AIR FLOW RATE CFM 25.24 AIR FLOW RATE CFM 29.68

furnace pressure 0.6
furnace filter 0.05
a/c coil pressure 0.2
available pressure for s/a & r/a 0.35

59TNSA-060-14V 60
FAN SPEED LOW 820
MEDIUM 875
HIGH 0

AFUE = 97 %
INPUT (BTU/H) = 60,000
OUTPUT (BTU/H) = 58,000
DESIGN CFM = 875
CFM @ .6" E.S.P.

RUN COUNT	4th	3rd	2nd	1st	Bas
S/A	0	0	8	6	3
R/A	0	0	4	2	1

All S/A diffusers 4"X10" unless noted otherwise on layout.

All S/A runs 5/8" unless noted otherwise on layout.

ROOM NAME	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
MBR	1.84	0.89	2.06	2.63	2.63	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30
RM LOSS MBH	22	46	52	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66	66
CFM PER RUN HEAT	1.79	1.52	3.33	3.09	3.09	3.09	3.09	3.09	3.09	3.09	3.09	3.09	3.09	3.09	3.09	3.09	3.09	3.09	3.09	3.09	3.09	3.09
RM GAIN MBH	53	45	99	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92	92
CFM PER RUN COOLING	0.17	0.17	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16
ADJUSTED PRESSURE	0.17	0.17	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16
EQUIVALENT LENGTH	110	130	130	190	170	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150	150
TOTAL EFFECTIVE LENGTH	150	155	178	245	216	179	179	179	179	179	179	179	179	179	179	179	179	179	179	179	179	179
ADJUSTED PRESSURE	0.11	0.11	0.09	0.07	0.08	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
ROUND DUCT SIZE	5	4	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
HEATING VELOCITY (ft/min)	162	528	265	337	337	80	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34
COOLING VELOCITY (ft/min)	389	516	505	469	469	489	489	489	489	489	489	489	489	489	489	489	489	489	489	489	489	489
OUTLET GRILL SIZE	3X10	3X10	4X10	4X10	4X10	4X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10

ROOM NAME	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46
BAS	3.17	80	0.20	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
RM LOSS MBH	80	0.20	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
CFM PER RUN HEAT	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
RM GAIN MBH	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
CFM PER RUN COOLING	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
ADJUSTED 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
EQUIVALENT LENGTH	35	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120
TOTAL EFFECTIVE LENGTH	155	155	155	155	155	155	155	155	155	155	155	155	155	155	155	155	155	155	155	155	155	155
ADJUSTED PRESSURE	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11
ROUND DUCT SIZE	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
HEATING VELOCITY (ft/min)	587	587	587	587	587	587	587	587	587	587	587	587	587	587	587	587	587	587	587	587	587	587
COOLING VELOCITY (ft/min)	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44
OUTLET GRILL SIZE	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10

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 CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT	VELOCITY (ft/min)	TRUNK CFM	STATIC PRESS.	ROUND DUCT	RECT DUCT	VELOCITY (ft/min)
TRUNK A	0.07	9.8	12	8	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0
TRUNK B	0.07	11.3	14	8	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0
TRUNK C	0.09	9.2	10	8	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0
TRUNK D	0.00	0	0	8	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0
TRUNK E	0.00	0	0	8	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0
TRUNK F	0.00	0	0	8	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0	0	0.00	0	0	0

TYPE: 2010
SITE NAME: CENTREFIELD (WEST GORMLEY)

LO # 87540

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	2 @ 10.6 cfm	21.2 cfm
Kitchen & Bathrooms	4 @ 10.6 cfm	42.4 cfm
Other Rooms	1 @ 10.6 cfm	10.6 cfm
Table 9.32.3.A.	TOTAL	116.6 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		63.6 cfm

SUPPLEMENTAL VENTILATION CAPACITY		9.32.3.5.
Total Ventilation Capacity	116.6	cfm
Less Principal Ventil. Capacity	63.6	cfm
Required Supplemental Capacity	53.0	cfm

PRINCIPAL EXHAUST FAN CAPACITY	
Model: VANEE 65H	Location: BSMT
63.6 cfm	☒ HVI Approved

PRINCIPAL EXHAUST HEAT LOSS CALCULATION			
CFM	ΔT °F	FACTOR	% LOSS
63.6 CFM	X 78 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
PWD	BY INSTALLING CONTRACTOR	50	☒	3.5

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:	September-21

CSA F280-12 Residential Heat Loss and Heat Gain Calculations																																																																																			
Formula Sheet (For Air Leakage / Ventilation Calculation)																																																																																			
LO#: 87540	Model: 2010	Builder: ROYAL PINE HOMES	Date: 9/10/2021																																																																																
Volume Calculation		Air Change & Delta T Data																																																																																	
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5.2.3.1 Heat Loss due to Air Leakage																																																																																			
$HL_{air-b} = LR_{air-h} \times \frac{V_b}{3.6} \times DTD_h \times 1.2$																																																																																			
0.284	x	192.08	x																																																																																
		43 °C	x																																																																																
		1.2	x																																																																																
			=																																																																																
		2825 W	=																																																																																
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		9638 Btu/h	=																																																																																
5.2.3.2 Heat Loss due to Mechanical Ventilation																																																																																			
$HL_{vair-b} = PVC \times DTD_h \times 1.08 \times (1 - E)$																																																																																			
64 CFM	x	78 °F	x																																																																																
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		0.25	x																																																																																
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		1336 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																																																																																			

HEAT LOSS AND GAIN SUMMARY SHEET**MODEL:** 2010**BUILDER:** ROYAL PINE HOMES**SFQT:** 1742**LO#** 87540**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:	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):	24419.7	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	4
INTERIOR LIGHTING LOAD (Btu/h/ft ²):	1.27	DC BRUSHLESS MOTOR (Y/N):	Y
FOUNDATION CONFIGURATION	BCIN_1	DEPTH BELOW GRADE:	7.0 ft
LENGTH: 52.0 ft	WIDTH: 22.0 ft	EXPOSED PERIMETER:	120.0 ft

2012 OBC - COMPLIANCE PACKAGE**Component****Compliance Package
SB-12 PERFORMANCE****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%	-

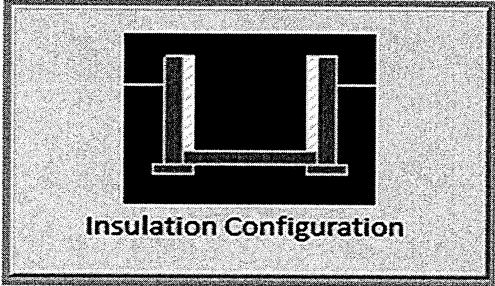
INDIVIDUAL BCIN: 19669

MICHAEL O'ROURKE



Residential Foundation Thermal Load Calculator

Supplemental tool for CAN/CSA-F280

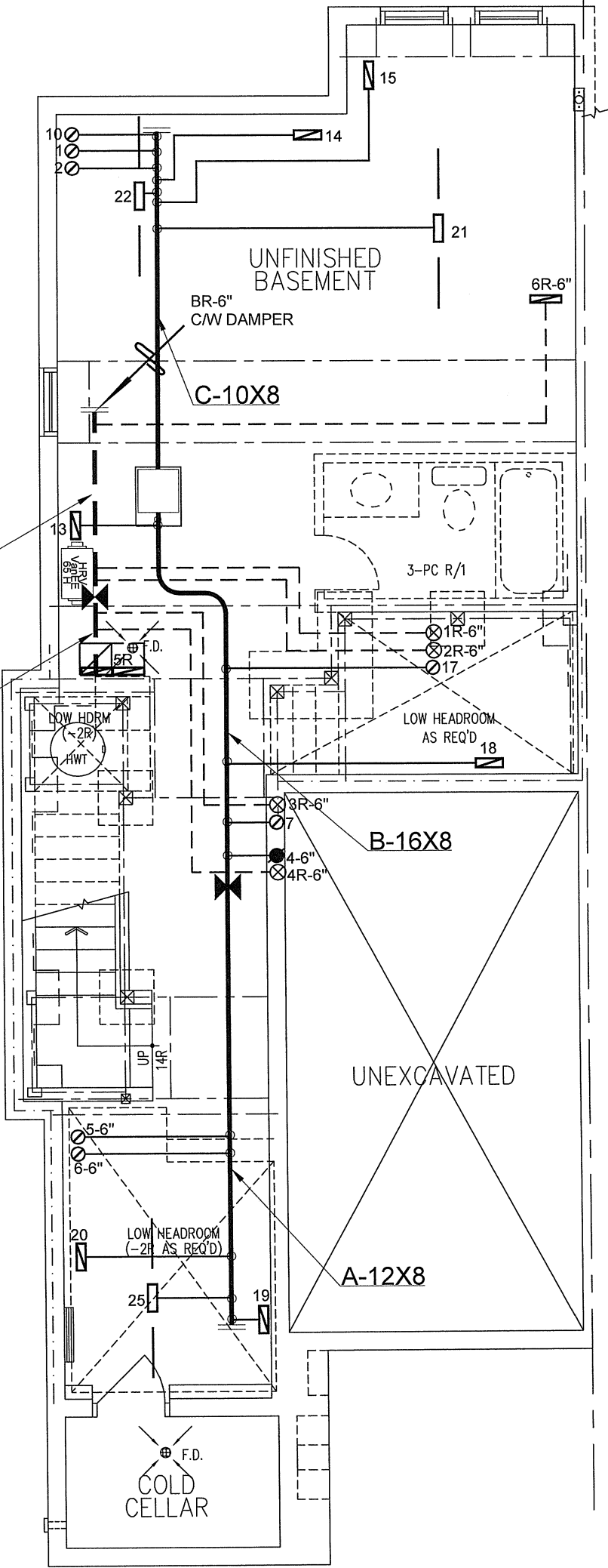
Weather Station Description		
Province:	Ontario	
Region:	Richmond Hill	
Site Description		
Soil Conductivity:	Normal conductivity: dry sand, loam, clay	
Water Table:	Normal (7-10 m, 23-33 ft)	
Foundation Dimensions		
Floor Length (m):	15.8	
Floor Width (m):	6.7	
Exposed Perimeter (m):	36.6	
Wall Height (m):	3.0	
Depth Below Grade (m):	2.13	
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):	1156	

TYPE: 2010
LO# 87540

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):	6.74			
Building Configuration				
Type:	Semi			
Number of Stories:	Two			
Foundation:	Full			
House Volume (m ³):	691.5			
Air Leakage/Ventilation				
Air Tightness Type:	Energy Star Attached (3.0 ACH)			
Custom BDT Data:	ELA @ 10 Pa.	774.6 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):	0.284			
Cooling Air Leakage Rate (ACH/H):	0.086			



BASEMENT PLAN, EL. 'A' & 'B'

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

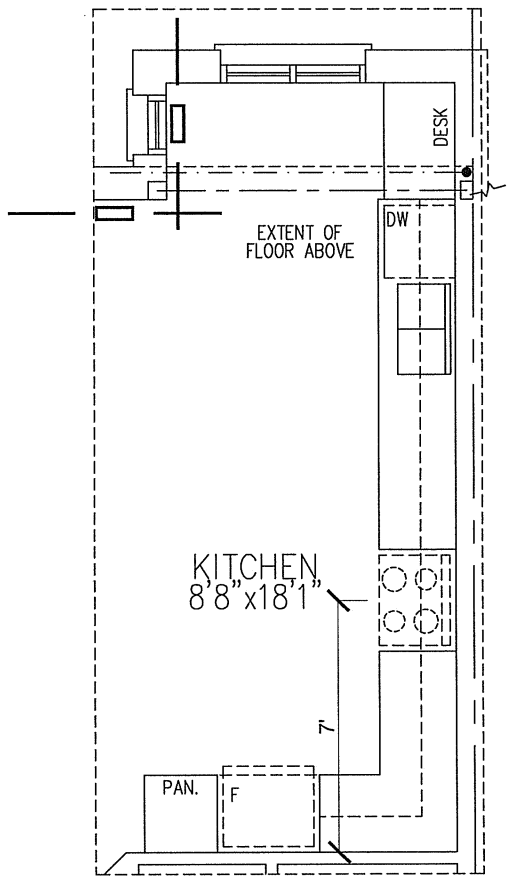
CSA-F280-12

SB-12 PERFORMANCE

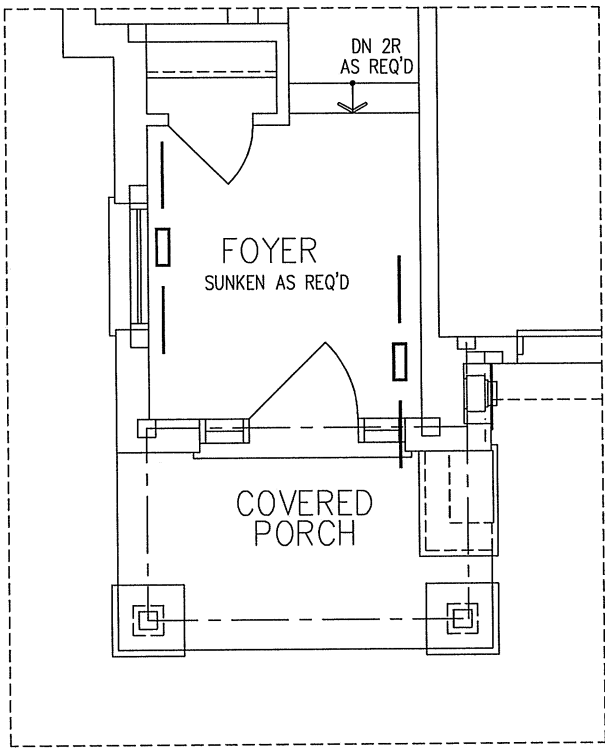
HVAC LEGEND								3.	REVISED ACH	SEPT/2021
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	2.	REVISED AS PER ARCHITECTURALS	APR/2021
	SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		14"x8" RETURN AIR GRILLE		RETURN AIR STACK ABOVE	1.	REVISED TO PERFORMANCE	SEPT/2020
	SUPPLY 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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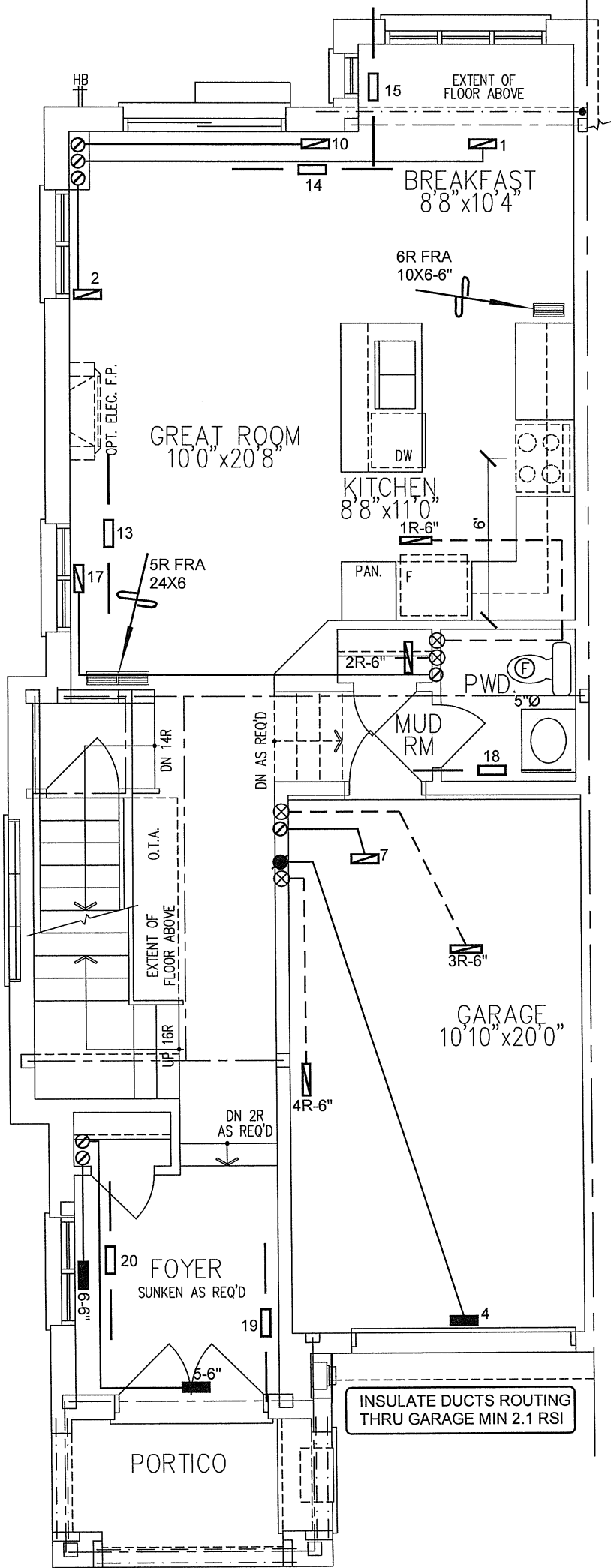
Client ROYAL PINE HOMES		HVACDESIGNS LTD. 375 Finley Ave. Suite 202 - Ajax, Ontario L1S 2E2 Tel. 905.619.2300 - 905.420.5300 Fax 905.619.2375 Email: info@hvacdesigns.ca Web: www.hvacdesigns.ca Specializing in Residential Mechanical Design Services	HEAT LOSS 35999 BTU/H UNIT DATA		# OF RUNS S/A R/A FANS			Sheet Title BASEMENT HEATING LAYOUT		
Project Name CENTREFIELD (WEST GORMLEY) RICHMOND HILL, ONTARIO			MAKE CARRIER		3RD FLOOR			Date SEPT/2020		
			MODEL 59TN6A-060-14V		2ND FLOOR			Scale 3/16" = 1'-0"		
			INPUT 60 MBTU/H		1ST FLOOR			BCIN# 19669		
			OUTPUT 58 MBTU/H		BASEMENT			LO# 87540		
2010		1742 sqft		COOLING 2.5 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				
		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.		FAN SPEED 875 cfm @ 0.6" w.c.						



PART. GROUND FLOOR PLAN
- OPT. KITCHEN LAYOUT



GROUND FLOOR PLAN, EL. 'B'



GROUND FLOOR PLAN, EL. 'A'

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.

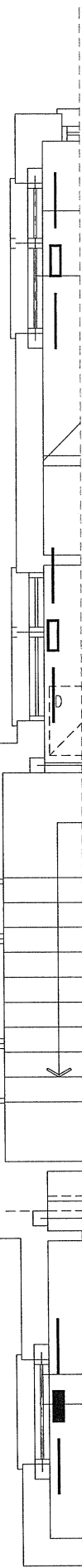
CSA-F280-12

SB-12 PERFORMANCE

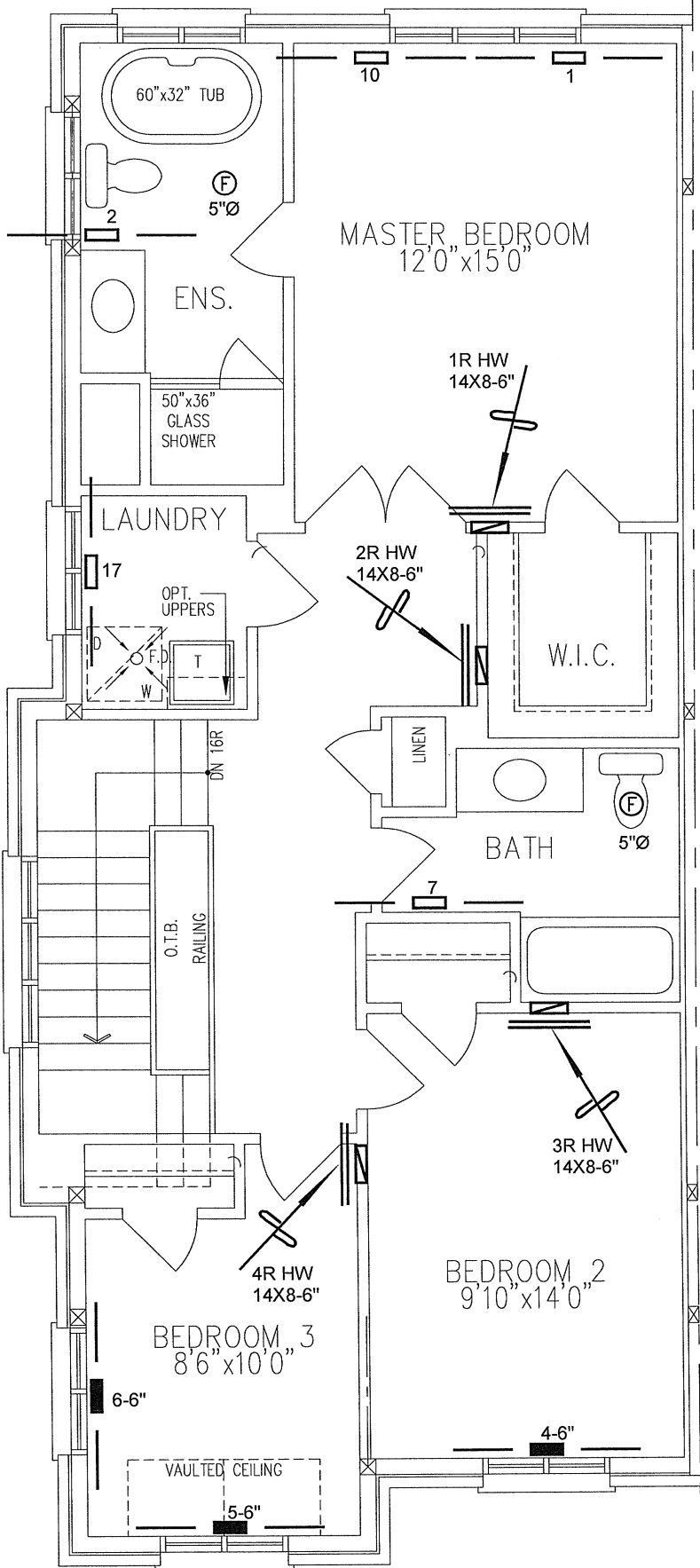
HVAC LEGEND								3.	REVISED ACH	SEPT/2021
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	2.	REVISED AS PER ARCHITECTURALS	APR/2021
	SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		14"x8" RETURN AIR GRILLE		RETURN AIR STACK ABOVE	1.	REVISED TO PERFORMANCE	SEPT/2020
	SUPPLY 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 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	SEPT/2020
CENTREFIELD (WEST GORMLEY) RICHMOND HILL, ONTARIO			Scale	3/16" = 1'-0"
		BCIN# 19669		
2010	1742 sqft	LO# 87540		



SECOND FLOOR PLAN, EL. 'B'



SECOND FLOOR PLAN, EL. 'A'

SECOND FLOOR PLAN, EL. 'A'

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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.	REVISED ACH	SEPT/2021
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	2.	REVISED AS PER ARCHITECTURALS	APR/2021
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ROYAL PINE HOMES			SECOND FLOOR HEATING LAYOUT	
Project Name			Date	SEPT/2020
CENTREFIELD (WEST GORMLEY) RICHMOND HILL, ONTARIO			Scale	3/16" = 1'-0"
		BCIN# 19669		
2010	1742 sqft	LO#	87540	