

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: 2009 END	
HEAT LOSS / GAIN CALCULATIONS				
DUCT SIZING				
RESIDENTIAL MECHANICAL VENTILATION DESIGN SUMMARY			Project: CENTREFIELD (WEST GORMLEY)	
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.				
April 21, 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.

Application for a Permit Construct or Demolish – Effective January 1, 2015

SITE NAME: CENTREFIELD (WEST GORMLEY)										DATE: Apr-21		WINTER NATURAL AIR CHANGE RATE		HEAT LOSS AT °F.		CSA-F280-12	
BUILDING: ROYAL PINE HOMES										LO# 87536		SUMMER NATURAL AIR CHANGE RATE		HEAT GAIN AT °F.		SB-12 PERFORMANCE	
ROOM USE		MBR		ENS		TYPE: 2009 END		GFA: 1700		BATH							
EXP. WALL CLG. HT.		13 9		26 9						0 9							
FACTORS		LOSS		GAIN						LOSS		GAIN					
GRS.WALL AREA		117		234						0		LOSS		GAIN			
GLAZING		LOSS		GAIN						0		LOSS		GAIN			
NORTH		21.8	16.0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EAST		21.8	41.6	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SOUTH		21.8	24.9	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WEST		21.8	41.6	28	610	1163	9	196	374	0	0	0	0	0	0	0	0
SKYL.T.		35.8	101.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DOORS		25.8	4.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NET EXPOSED WALL		4.2	0.7	89	374	62	225	946	156	62	261	43	411	1728	284	0	0
NET EXPOSED BSMT WALL ABOVE GR		3.7	0.6	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EXPOSED CLG		1.3	0.6	382	502	225	78	103	46	177	233	104	200	263	118	77	101
EXPOSED FLOOR		2.8	1.3	0	0	0	0	0	0	0	0	20	56	25	0	0	0
BASEMENT/CRAWL HEAT LOSS		2.6	0.4	0	0	0	0	0	0	177	462	76	21	55	9	50	131
SLAB ON GRADE HEAT LOSS				0	0	0				0	0				0	0	0
SUBTOTAL HT LOSS				1486		1245				1565		1386		3170	232	67	
SUB TOTAL HT GAIN				0.20	0.20	0.20				0.20	0.20	0.20		0.20	0.20	0.20	
LEVEL FACTOR / MULTIPLIER				302		253				318		66		643	47	3	
AIR CHANGE HEAT LOSS				0		0				188		262		381	28	7	
DUCT LOSS				0		0				1		240		240	0	0	
HEAT GAIN PEOPLE		240		0		0				923		923		923	0	0	
HEAT GAIN APPLIANCES/LIGHTS				923		0				2071		3740		4194	307	100	
TOTAL HT LOSS BTU/H				1788		1497											
TOTAL HT GAIN x 1.3 BTU/H				3798		784											

ROOM USE		K/B/G		PWD		FOY		BAS	
EXP. WALL CLG. HT.		54 10		12 11		46 11		112 10	
FACTORS		LOSS		GAIN		LOSS		GAIN	
GRS.WALL AREA		545		133		511		784	
GLAZING		LOSS		GAIN		LOSS		GAIN	
NORTH		21.8	16.0	0	0	0	0	0	0
EAST		21.8	41.6	0	0	0	0	0	0
SOUTH		21.8	24.9	49	1067	1220	118	25	545
WEST		21.8	41.6	78	1699	3241	0	0	0
SKYL.T.		35.8	101.2	0	0	0	0	0	0
DOORS		25.8	4.3	0	0	0	0	0	0
NET EXPOSED WALL		4.2	0.7	418	1760	289	40	1034	170
NET EXPOSED BSMT WALL ABOVE GR		3.7	0.6	0	0	0	0	0	0
EXPOSED CLG		1.3	0.6	31	87	39	0	0	0
EXPOSED FLOOR		2.8	1.3	0	0	0	0	0	0
BASEMENT/CRAWL HEAT LOSS		2.6	0.4	0	0	0	0	0	0
SLAB ON GRADE HEAT LOSS				0	0	0	0	0	0
SUBTOTAL HT LOSS				4613		993		3452	
SUB TOTAL HT GAIN				0.30	0.26	0.30	0.26	0.30	0.26
LEVEL FACTOR / MULTIPLIER				1193		257		893	
AIR CHANGE HEAT LOSS				227		8		72	
AIR CHANGE HEAT GAIN				0		0		0	
DUCT LOSS				0		0		0	
HEAT GAIN PEOPLE		240		0		0		0	
HEAT GAIN APPLIANCES/LIGHTS				0		0		0	
TOTAL HT LOSS BTU/H				5806		1250		4345	
TOTAL HT GAIN x 1.3 BTU/H				7722		222		2066	

TYPE: 2009 END
SITE NAME: CENTREFIELD (WEST GORMLEY)

LO # 87536

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	5 @ 10.6 cfm	53 cfm
Other Rooms	2 @ 10.6 cfm	21.2 cfm
Table 9.32.3.A.	TOTAL	137.8 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	63.6	cfm

SUPPLEMENTAL VENTILATION CAPACITY		9.32.3.5.
Total Ventilation Capacity	137.8	cfm
Less Principal Ventil. Capacity	63.6	cfm
Required Supplemental Capacity	74.2	cfm

PRINCIPAL EXHAUST FAN CAPACITY	
Model: VANE 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
B-BATH	BY INSTALLING CONTRACTOR	50	☒	3.5

HEAT RECOVERY VENTILATOR		9.32.3.11.
Model: VANE 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:	April-21

CSA F280-12 Residential Heat Loss and Heat Gain Calculations																																																																			
Formula Sheet (For Air Leakage / Ventilation Calculation)																																																																			
LO#: 87536	Model: 2009 END	Builder: ROYAL PINE HOMES	Date: 4/21/2021																																																																
Volume Calculation		Air Change & Delta T Data																																																																	
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6.2.6 Sensible Gain due to Air Leakage																																																																			
$HG_{salb} = LR_{airc} \times \frac{V_b}{3.6} \times DTD_c \times 1.2$																																																																			
0.236	x	186.74	x																																																																
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			389 Btu/h																																																																
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$HL_{vair-b} = PVC \times DTD_h \times 1.08 \times (1 - E)$																																																																			
64 CFM	x	78 °F	x																																																																
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		0.25	=																																																																
			220 Btu/h																																																																
5.2.3.3 Calculation of Air Change Heat Loss for Each Room (Floor Multiplier Section)																																																																			
$HL_{airr} = Level Factor \times HL_{airbv} \times \{(HL_{agcr} + HL_{bgcr}) \div (HL_{agclevel} + HL_{bgclevel})\}$																																																																			
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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:** 2009 END**SFQT:** 1700**LO#** 87536**BUILDER:** ROYAL PINE HOMES**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:	2.50	ASSUMED (Y/N):	Y
AIR TIGHTNESS CATEGORY:	TIGHT	ASSUMED (Y/N):	Y
WIND EXPOSURE:	SHELTERED	ASSUMED (Y/N):	Y
HOUSE VOLUME (ft ³):	23741.4	ASSUMED (Y/N):	Y
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	4
INTERIOR LIGHTING LOAD (Btu/h/ft ²):	1.50	DC BRUSHLESS MOTOR (Y/N):	Y
FOUNDATION CONFIGURATION	BCIN_1	DEPTH BELOW GRADE:	7.0 ft
LENGTH: 52.0 ft	WIDTH: 20.0 ft	EXPOSED PERIMETER:	112.0 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%	-

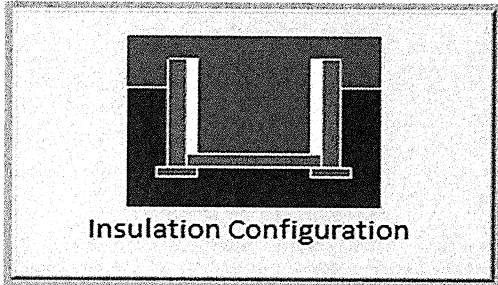
INDIVIDUAL BCIN: 19669

MICHAEL O'ROURKE



Residential Foundation Thermal Load Calculator

Supplemental tool for CAN/CSA-F280

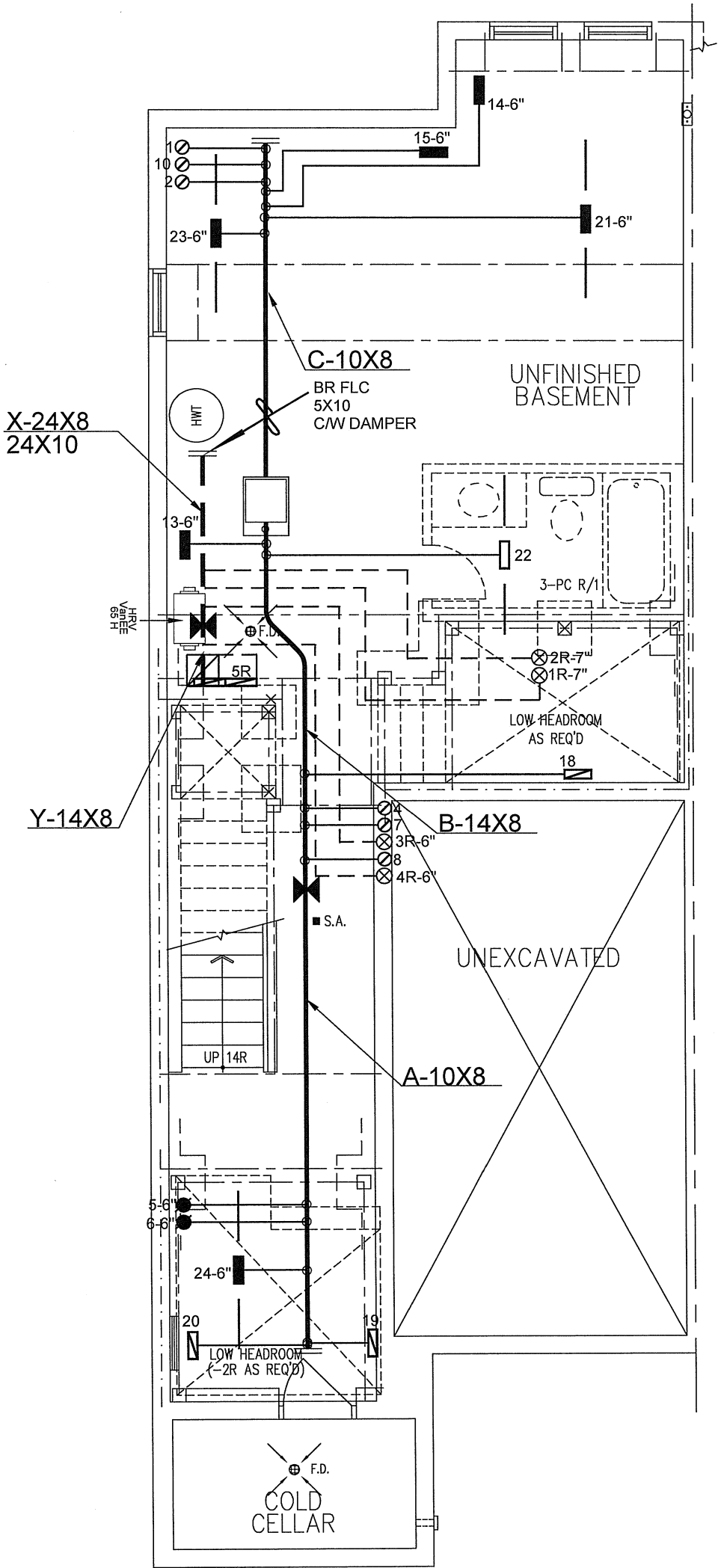
Weather Station Description		
Province:	Ontario	
Region:	Richmond Hill	
Site Description		
Soil Conductivity:	Normal conductivity: dry sand, loam, clay	
Water Table:	Normal (7-10 m, 23-33 ft)	
Foundation Dimensions		
Floor Length (m):	15.8	 Insulation Configuration
Floor Width (m):	6.1	
Exposed Perimeter (m):	34.1	
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):		1062

TYPE: 2009 END
LO# 87536

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):	672.3			
Air Leakage/Ventilation				
Air Tightness Type:	Energy Star Detached (2.5 ACH)			
Custom BDT Data:	ELA @ 10 Pa.	627.6 cm ²		
	2.50	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):	0.236			
Cooling Air Leakage Rate (ACH/H):	0.072			



BASEMENT PLAN, EL. 'A' & 'B'
- END COND.

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.

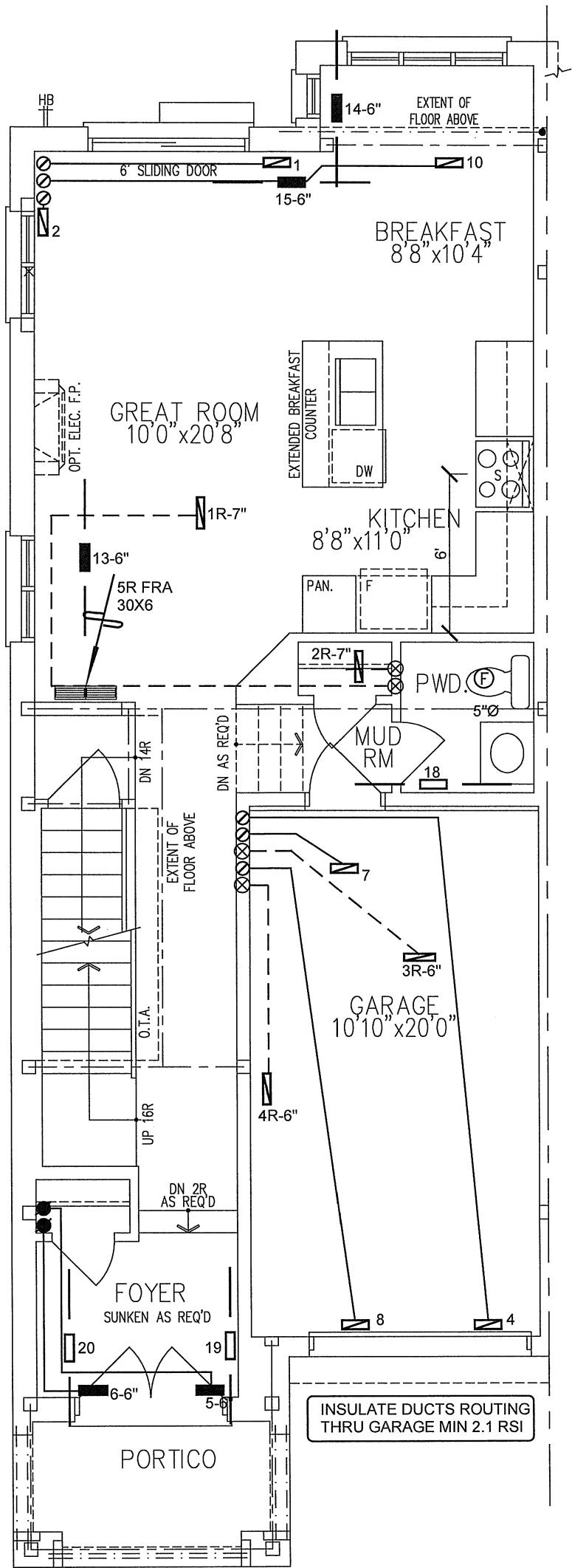
CSA-F280-12

SB-12 PERFORMANCE

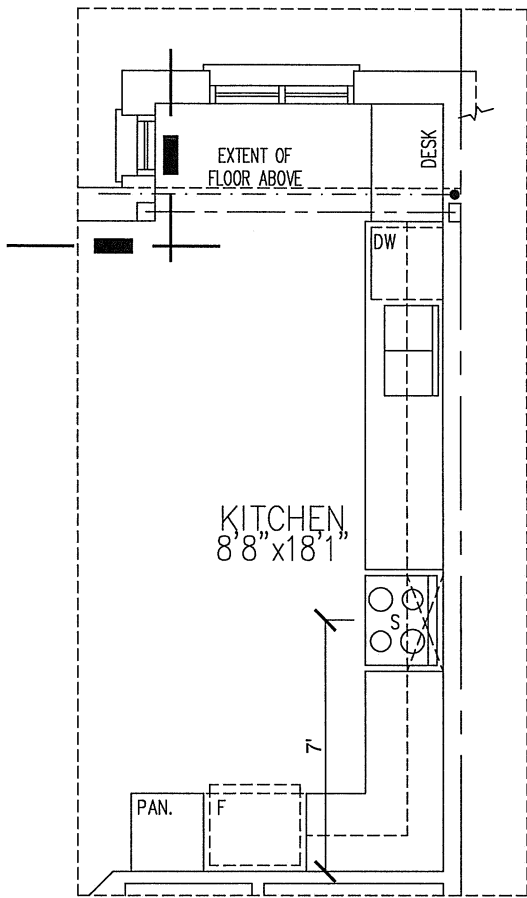
HVAC LEGEND								3.		
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	2.	REVISED AS PER ARCHITECTURALS	APR/2021
	SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		14"x8" RETURN AIR GRILLE		RETURN AIR STACK ABOVE	1.	REVISED TO PERFORMANCE	SEPT/2020
	SUPPLY AIR GRILLE 6" BOOT		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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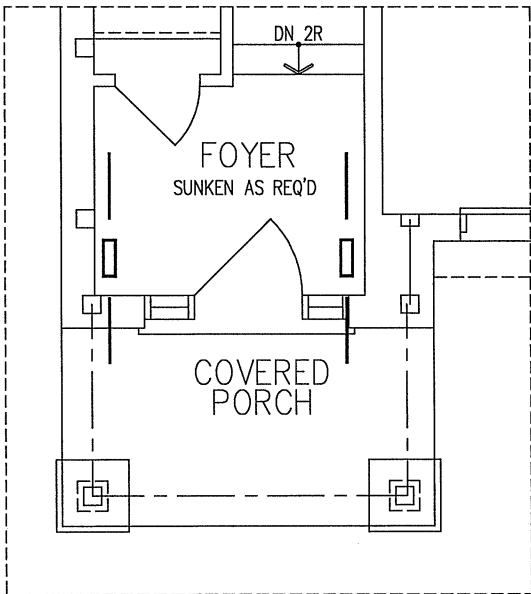
Client		HVACDESIGNS LTD. 375 Finley Ave. Suite 202 - Ajax, Ontario L1S 2E2 Tel. 905.619.2300 - 905.420.5300 Fax 905.619.2375 Email: info@hvacdesigns.ca Web: www.hvacdesigns.ca Specializing in Residential Mechanical Design Services Installation to comply with the latest Ontario Building Code. All supply 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 32096 BTU/H		# OF RUNS S/A R/A FANS				Sheet Title		
ROYAL PINE HOMES			UNIT DATA		3RD FLOOR					BASEMENT HEATING LAYOUT	
Project Name			CARRIER		2ND FLOOR		8	4	2	Date	SEPT/2020
CENTREFIELD (WEST GORMLEY) RICHMOND HILL, ONTARIO			MODEL 59TN6A-060-14V		1ST FLOOR		6	1	2	Scale	3/16" = 1'-0"
		INPUT 60 MBTU/H		BASEMENT		3	1	0	BCIN# 19669		
		OUTPUT 58 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									
2009 END		FAN SPEED 820 cfm @ 0.6" w.c.		LO# 87536							
1700 sqft											



GROUND FLOOR PLAN,
EL. 'A' – END



PART. GROUND FLOOR PLAN
– OPT. KITCHEN LAYOUT



GROUND FLOOR PLAN, EL.
'B' – END

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.

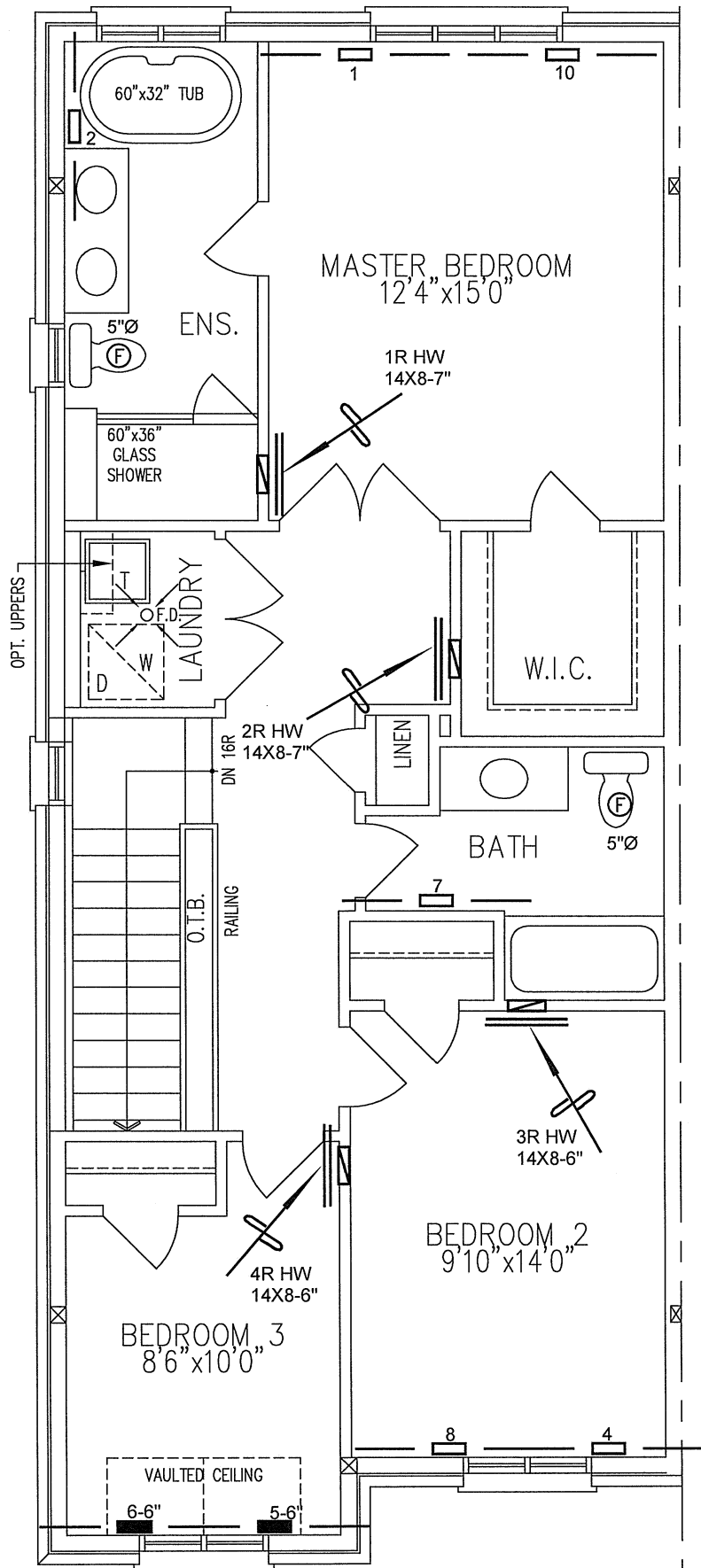
CSA-F280-12

SB-12 PERFORMANCE

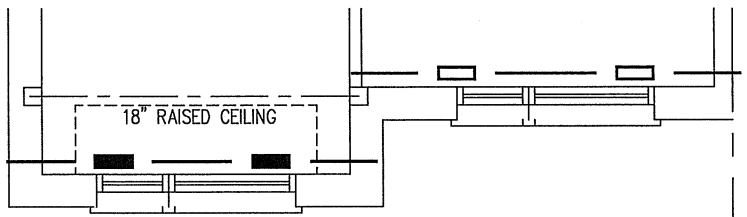
HVAC LEGEND								3.		
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	2.	REVISED AS PER ARCHITECTURALS	APR/2021
	SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		14"x8" RETURN AIR GRILLE		RETURN AIR STACK ABOVE	1.	REVISED TO PERFORMANCE	SEPT/2020
	SUPPLY AIR GRILLE 6" BOOT		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		 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"
2009 END			BCIN# 19669	
1700 sqft			LO#	87536



SECOND FLOOR PLAN, EL.
'A1/A2' - END



SECOND FLOOR PLAN, EL.
'B' - END

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.	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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ROYAL PINE HOMES			SECOND FLOOR	
Project Name			HEATING	
CENTREFIELD (WEST GORMLEY)			LAYOUT	
RICHMOND HILL, ONTARIO			Date	SEPT/2020
		Scale	3/16" = 1'-0"	
		BCIN# 19669		
2009 END	1700 sqft	LO#	87536	