CITY OF RICHMOND HILL BUILDING DIVISION

09/03/2021

Schedule 1: Designer Information

Use one form for each individual who reviews and takes responsibility for design activities with respect to the project CEIVED

A. Project Information		The British of the Control of the Control	GGG Harrier 1		A COLUMN TO SERVICE AND A
Building number, street name				Unit no.	Lot/con.
Municipality	Postal code	Plan number/ other de	scription	<u></u>	
RICHMOND HILL					
B. Individual who reviews and ta	kes responsibility (for design activities	Sarra Darabasia	700 garaga	The state of the s
Name		Firm			
MICHAEL O'ROURKE Street address		HVAC DESIGNS LTD.	Unit no.		Lot/con.
375 FINLEY AVE			202		N/A
Municipality	Postal code	Province	E-mail		
AJAX	L1S 2E2	ONTARIO	info@hvacde	esigns.ca	***************************************
Telephone number (905) 619-2300	Fax number (905) 619-2375	5	Cell number		
C. Design activities undertaken l	1`			No 3 5 2 1 OF F	Nivision Cl
O. Design activities undertaken i	by individual identity	ned in Section B. [Buil	unig Gode Ta	DIE 3.3.2.1 OF L	nvision cj
☐ House		C – House		Building Struc	ctural
☐ Small Buildings ☐ Large Buildings		ing Services ction, Lighting and Po		Plumbing — H	
☐ Carge Buildings ☐ Complex Buildings		Protection		l Plumbing – A l On-site Sewa	
Description of designer's work		Model:	2009		
HEAT LOSS / GAIN CALCULATIONS					
DUCT SIZING	ATION DESIGN SUM	MADV			
DUCT SIZING RESIDENTIAL MECHANICAL VENTIL		MARY Project	: CENTREFIELD	(WEST GORMLEY)
DUCT SIZING RESIDENTIAL MECHANICAL VENTIL RESIDENTIAL SYSTEM DESIGN per		MARY Project	: CENTREFIELD	(WEST GORMLEY)
DUCT SIZING RESIDENTIAL MECHANICAL VENTIL RESIDENTIAL SYSTEM DESIGN per D. Declaration of Designer	CSA-F280-12	MARY Project			
DUCT SIZING RESIDENTIAL MECHANICAL VENTIL RESIDENTIAL SYSTEM DESIGN per	CSA-F280-12	MARY Project		(WEST GORMLEY	
DUCT SIZING RESIDENTIAL MECHANICAL VENTIL RESIDENTIAL SYSTEM DESIGN per D. Declaration of Designer	CSA-F280-12 (E	on behalf of a firm registe	declare t	that (choose one a	is appropriate):
DUCT SIZING RESIDENTIAL MECHANICAL VENTIL RESIDENTIAL SYSTEM DESIGN per D. Declaration of Designer I MICHAEL O'ROURK I review and take responsib Division C, of the Building C	CSA-F280-12 (E	on behalf of a firm registe	declare t	that (choose one a	is appropriate):
DUCT SIZING RESIDENTIAL MECHANICAL VENTIL RESIDENTIAL SYSTEM DESIGN per D. Declaration of Designer I MICHAEL O'ROURK I review and take responsib Division C, of the Building C classes/categories. Individual BCIN:	CSA-F280-12 (E (print name) illity for the design work code. I am qualified, an an illity for the design and	on behalf of a firm registed the firm is registered, in	declare t	that (choose one a ection 3.2.4.of appropriat	is appropriate):
DUCT SIZING RESIDENTIAL MECHANICAL VENTIL RESIDENTIAL SYSTEM DESIGN per D. Declaration of Designer I MICHAEL O'ROURK I review and take responsib Division C, of the Building C classes/categories. Individual BCIN: Firm BCIN: I review and take responsib designer" under subsectic Individual BCIN:	CSA-F280-12 (print name) illity for the design work code. I am qualified, an illity for the design and on 3.2.5.of Di vis	on behalf of a firm registed the firm is registered, in am qualified in the appropsion C, of the Building Cod	declare tered under subsetthe	that (choose one a ection 3.2.4.of appropriat	is appropriate):
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DUCT SIZING RESIDENTIAL MECHANICAL VENTIL RESIDENTIAL SYSTEM DESIGN per D. Declaration of Designer I MICHAEL O'ROURK I review and take responsib Division C, of the Building C classes/categories. Individual BCIN: Firm BCIN: I review and take responsib designer" under subsection in individual BCIN: Basis for exempt Basis for exempt Basis for exempt C certify that: 1. The information contain	CSA-F280-12 (print name) illity for the design work code. I am qualified, and illity for the design and on 3.2.5.of Di vis 19669 tion from registration a from the registration and qualificat ned in this sche	am qualified in the appropsion C, of the Building Cod	declare to	chat (choose one a ection 3.2.4.of appropriat s an "other NTENCE 3.2.4. Building Code.	is appropriate):

NOTE:

^{1.} 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.

^{2.} 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.

INDIVIDUAL BCIN: 19669

TOTAL COMBINED HEAT LOSS BTU/H: 24655

STRUCTURAL HEAT LOSS: 23319

LOSS DUE TO VENTILATION LOAD BTU/H: 1336

TONS: 1.89

22691

TOTAL HEAT GAIN BTU/H:

BUILDER: CENTREFIELD (WEST GORMLET)	FIELD (WE PINE HOME	:ST GOF	MLEY)		_	TYPE: 2009		GFA	GFA: 1660		LO# 87532			WIN LEK I SUMMER !	WINTER NATURAL AIR CHANGE RATE 0.236 SUMMER NATURAL AIR CHANGE RATE 0.072	HEAT GAIN AT °F. 78	CSA-F280-12 SB-12 PERFORMANCE
ROOM USE	-	MBR			ENS		BE	BED-2	L	BED-3			ВАТН	_			
EXP. WALL		14			9		_	0		15			0				
CLG. HT.		6			6			6		10			6				
FACTORS	SS																
GRS.WALL AREA LOSS GAIN	GAIN	126			54			06		150			0				
GLAZING		COSS	GAIN	_	oss c	NIN	Ö	-		ross	GAIN		LOSS	GAIN			
NORTH 21.8	16.0	•	•	•	0	-	0	0	•	0	•	•	0	•			
EAST 21.8	41.6	•	•	•	0	•				784	1496	•	0	•			
SOUTH 21.8	24.9 0	0	0	•		•				0	•	-	0	•			
WEST 21.8	41.6 28	610	1163	6		374				0	•	•	0	•			
SKYLT. 35.8	101.2 0		•	•		•				0	•	•	0	•		_	
DOORS 25.8	4.3	0	0	•		•				0	•	-	0	•			
NET EXPOSED WALL 4.2	0.7			45		34				479	79	•	0	•			
NET EXPOSED BSMT WALL ABOVE GR 3.7	0.6			•		•				0	0	•	0	•			-
EXPOSED CLG 1.3	0.6 382	2 502	225	78	103	46	177 2	33 104	200	263	118	77	101	45			
NO ATTIC EXPOSED CLG 2.8	1.3			•		0				26	25	-	0	•			
EXPOSED FLOOR 2.6	0.4			•		0				22	6	20	131	72			
BASEMENT/CRAWL HEAT LOSS		0			0		_	_		0			0				
SLAB ON GRADE HEAT LOSS	-	0			0			0		0			0				
SUBTOTAL HT LOSS		1524			488			65		1637			232				
SUB TOTAL HT GAIN			1456			451		1386			1726			29			
LEVEL FACTOR / MULTIPLIER	0.20	0 0.28		0.20	0.28		0.20 0.	.28	0.20	0.28		0.20	0.28				
AIR CHANGE HEAT LOSS		426			136		4	138		458			65				
AIR CHANGE HEAT GAIN			8			25		78			26			4			
DUCT LOSS		0			0		Š	200		210			30				
DUCT GAIN			0			•		259			295			7		-	
HEAT GAIN PEOPLE 240	- 2		480	۰		0	_	240	-		240	•		•			
HEAT GAIN APPLIANCES/LIGHTS			889			0		889			889			•			
TOTAL HT LOSS BTU/H		1950			624			2204		2305			326				
TOTAL UT CAME . 4 9 DTINU												_					

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PWD	12	=======================================			LOSS	0	0		0	0	517	476	0	0	0	0										0		1355	
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ROOM USE	EXP. WALL	CLG. HT.	FACTORS	GRS.WALL AREA LOSS GAIN	GLAZING	NORTH 21.8 16.0	EAST 21.8 41.6	SOUTH 21.8 24.9	WEST 21.8 41.6	SKYLT. 35.8 101.2	DOORS 25.8 4.3	NET EXPOSED WALL 4.2 0.7	NET EXPOSED BSMT WALL ABOVE GR 3.7 0.6	EXPOSED CLG 1.3 0.6	NO ATTIC EXPOSED CLG 2.8 1.3	EXPOSED FLOOR 2.6 0.4	BASEMENT/CRAWL HEAT LOSS	SLAB ON GRADE HEAT LOSS	SUBTOTAL HT LOSS	SUB TOTAL HT GAIN	EVEL FACTOR / MULTIPLIER	AIR CHANGE HEAT LOSS	AIR CHANGE HEAT GAIN	DUCTLOSS	DUCT GAIN	HEAT GAIN PEOPLE 240	HEAT GAIN APPLIANCES/LIGHTS	TOTAL HT LOSS BTU/H	יייידם יויידם יוידטרטדיויידטרטדיויידטרטדיויידטרטדיוידטרטדי

375 Finley Ave. Suite 202 Ajax, ON L1S 2E2 Tel: 905.619.2300 Fax: 905.619.2375 Web: www.hvacdesigns.ca E-mail: info@hvacdesigns.ca

HIVI DESIGNS LTD.

MICHAEL O'ROURKE
/IDUAL BCIN: 19669

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				CITY OF RICHMOND HILL
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	900	820 E.S.P.	23 BBAS 2.45 2.45 0.61 2.22 0.16 0.16 194 0.08 6 6 6 6 6 C	09/03/2021
	= 97 % = 60,0 = 58,0	9	2 3 3 8 0 0 0 1 2 2 5 5 6 8 4 7 X	ω ω ω ω ω ω ω ω ω ω φ θ
	AFUE = 97 % INPUT (BTU/H) = 60,000 OUTPUT (BTU/H) = 58,000 .	DESIGN CFM @ .E CFM @ .E		RECEIVED **************** Per:*jocelyn.aguilar
	INPUI	DESIGN CFM = CFM @ 'EMPERATURE RISE	21 BAS 2.45 86 0.61 22 0.16 18 16 178 0.09 6 438 4X10 C	Proceedings of the control of the co
87532			20 1.85 65 0.96 35 0.17 38 110 110 148 0.12 5 5 7 7 7 8	O 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
LO# 8.	Ш	0 0 0 1520	19 FOY 1.85 66 6.0.96 3.35 0.17 3.36 0.12 0.12 0.12 0.12 0.12 0.12 0.12 0.12	្ត
	*CA 14V EED			ω
GFA: 1660	A-060-7	MEDLOW MEDIUM MEDIUM HIGH HIGH	PWD PWD 1.35 1.35 1.35 1.35 1.60 1.17 2.2 2.2 2.2 1.60 1.00 1.00 1.00 1.00 1.00 1.00 1.00	RETURN AIR TRUNK TRUNK O 0 TRUNK P 0 TRUNK P 0 TRUNK R 0 TRUNK S 0 TRUNK S 0 TRUNK V 0 TRUNK V 0 TRUNK V 2 TRUNK W 820
GFA	59TN6 F/	MED		RETURN O TRUNK O TRUNK O TRUNK O TRUNK B TRUNK B TRUNK U TRUNK U TRUNK U TRUNK U TRUNK V TRUNK Y TRUNK Y TRUNK Y TRUNK Z DROP
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DATE: Apr-21				MEGT DUCT TO 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
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	0.6 0.05 0.2 0.35	0.18 0.03 0.15	10 MBR MBR 34 34 11.89 69 69 69 11.79 179 179 50 50 50 50 7	TRUNK CFM
2009	pressure nace filter pressure pressure s/a & r/a	ss. loss		TRUNK G TRUNK H TRUNK I TRUNK J TRUNK J TRUNK J TRUNK J TRUNK J TRUNK L TRUNK C 0 0 114.80 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
	furnace pressure furnace filte a/c coil pressure available pressure for s/a & r/c	plenum pressure s/a max s/a dif press. loss min adjusted pressure s/a	8 BED-2 BED-2 39 1.185 68 0.17 47 177 177 177 177 177 177 177 177 17	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
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r GORA	1			
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EFIELD PINE H	COOLING CFM TOTAL HEAT GAIN AIR FLOW RATE CFM	2nd 8 4 4 se on lar ayout.		ROUND BOUCT 9:22 10:6 9:8 9:8 9:45 301 4:45 301 4:45 4:45 301 4:45 4:45 301 4:45 4:45 3:45 3:45 3:45 3:45 3:45 3:45
SITE NAME: CENTREFIELD (WEST GORMLEY) BUILDER: ROYAL PINE HOMES	•	RUN COUNT	2 ENS 0.62 22 23 23 0.17 26 170 196 0.09 4 4 255 264 3X10	STATIC PRESS. 0.07 0.00 0.00 0.00 0.00 0.00 0.00 0
NAME:	820 23,319 35.16	4th 0 0 ss noted	MBR 0.98 3.4 1.89 69 017 3.3 110 143 012 5 5 5 5 5 7 7 7 7 8 8 8 8 8 8 8 8 8 8 8	TRUNK CFM 298 435 386 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
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			TOT,	TOT, HEA COO SUPPI



CITY OF RICHMOND³⁷⁵ Finley Ave. Suite 202 Ajax, ON L15 2E2 fel: 905.619.2300 Fax: 905.619.2375 BUILDIN (web: www.hvacdesigns.ca E-mail: info@hvacdesigns.ca

TYPE:

SITE NAME:

2009

CENTREFIELD (WEST GORMLEY)

RESIDENTIAL MECHANICAL VENTILATION DESIGN SUMMARY

LO#

				FIME		
COMBUSTION APPLIANCES	9.32.3.1(1)	SUPPLEMENTAL VENT	LATION CAPACITY -			9.3 <mark>2</mark> .3.5.
a) Direct vent (sealed combustion) only		T-4-1)/49-6 09	Per:joce		lar	
a) Direct vent (sealed combustion) only		Total Ventilation Capacity		137.8		cfm
b) Positive venting induced draft (except fireplaces)		Laca Deinsinal Vantil Con				_
1 ositive vertiling induced draft (except ineplaces)		Less Principal Ventil. Cap	acity	63.6	_	cfm
c) Natural draft, B-vent or induced draft gas fireplace		Required Supplemental C	anacity	74.2		cfm
,	1	Troquirou Cuppiomoniai C	араоку	17.2	_	Citti
d) Solid Fuel (including fireplaces)						
		PRINCIPAL EXHAUST F	AN CAPACITY			
e) No Combustion Appliances						
		Model:	VANEE 65H	Location:	BS	MT
UEATING OVOTEN						
HEATING SYSTEM		63.6 cfm)		_ ✓ H/	/I Approved
✓ Forced Air Non Forced Air		DDINCIDAL EVUALIST II	EAT LOSS CALCULATIO			
100007.11		CFM	ΔT °F	FACTOR		% LOSS
		63.6 CFM X			x	0.25
Electric Space Heat						0.25
		SUPPLEMENTAL FANS	BY INS	STALLING CON	TRACTOR	
		Location	Model	cfm	HVI	Sones
HOUSE TYPE	9.32.1(2)		BY INSTALLING CONTRACTOR	50	1	3.5
			BY INSTALLING CONTRACTOR	50	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	3.5
Type a) or b) appliance only, no solid fuel			BY INSTALLING CONTRACTOR	50	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	3.5
II Type I except with solid fuel (including fireplaces)		B-BATH	BY INSTALLING CONTRACTOR	50	/	3.5
Type rexcept with solid ruer (including meplaces)		HEAT RECOVERY VENT	II ATOR			9.32.3.11.
III Any Type c) appliance		Model:	VANEE 65H			9.32.3.11.
		155	cfm high	64		cfm low
IV Type I, or II with electric space heat			y		_	
		75	% Sensible Efficiency		✓ HV	/I Approved
Other: Type I, II or IV no forced air			@ 32 deg F (0 deg C)			
SYSTEM DESIGN OPTIONS (D.N.H.W.P.	LOCATION OF INSTALL	ATION			
TOTEM DESIGN OF HONS	J.IV.H.VV.P.	Lot:		Concordion		
1 Exhaust only/Forced Air System		201.	***************************************	Concession		
	1	Township		Plan:		
2 HRV with Ducting/Forced Air System						
Promotion 4		Address				
3 HRV Simplified/connected to forced air system						
4 UDV with Dusting to a forced air such as		Roll #		Building Perm	nit #	
4 HRV with Ducting/non forced air system		BUILDER:	DOVAL DINE HOMES			
Part 6 Design		BUILDER:	ROYAL PINE HOMES			
		Name:				Į.
OTAL VENTILATION CAPACITY	9.32.3.3(1)	Address:				
Basement + Master Bedroom 2 @ 21.2 cfm 42.4	cfm	City:				
Other Deducation	.					-
Other Bedrooms 2 @ 10.6 cfm 21.2	cfm	Telephone #:		Fax #:		
Kitchen & Bathrooms 5 @ 10.6 cfm 53	cfm	INSTALLING CONTRACT	-OP			
7 (10.10)	Citti	INSTALLING CONTRACT	OK			
Other Rooms 2 @ 10.6 cfm 21.2	cfm	Name:				
Table 9.32.3.A. TOTAL <u>137.8</u>	cfm	Address:				
		City:				
PRINCIPAL VENTILATION CAPACITY REQUIRED	3.32.3.4.(1)					
1 Bedroom 31.8	cfm	Telephone #:		Fax#:		
31.0	Citt	DESIGNER CERTIFICATI	ON		-	
2 Bedroom 47.7	cfm	I hereby certify that this ve		esigned		
		in accordance with the On				
3 Bedroom 63,6	cfm	Name:	HVAC Designs Ltd.			
				1 . 11		
4 Bedroom 79.5	cfm	Signature:	Milaha	nd Ofounde		
5 Bedroom 95.4	of	LUDAL #	•			
5 Bedroom 95.4	cfm	HRAI#		001820		
TOTAL 63.6 cfm		Date:		April-21		
I REVIEW AND TAKE RESPONIBILITY FOR THE DESIGN WORK AND AM QUALIF	FIED IN THE APP	PROPRIATE CATEGORY AS AN "OTHER	R DESIGNER" UNDER DIVISION C	. 3.2.5 OF THE BUIL	DING CODE	

INDIVIDUAL BCIN: 19669
Model Office.

MICHAEL O'ROURKE

9
SIGN
I

	Date: 4/21/2021						ΔT %F	78	13			111 W	380 Btu/h			220 Btu/h		(Per:_)9/(REjo) (C	3/ E	/2	2C /E)2 EC	2°
	Date: 4/		0.236	0.072		rence	∆T °C	43	7			"	"	1		"			-				_		
		a T Data	E RATE	SE RATE		Design Temperature Difference	Tout °C	-21	31	to Air Leakage	< 1.2	x 1.2		ue to Ventilation	(1-E)	x 0.25									
		Air Change & Delta T Data	WINTER NATURAL AIR CHANGE RATE	SUMMER NATURAL AIR CHANGE RATE		Design Te	Tin °C	22	24	6.2.6 Sensible Gain due to Air Leakage	$\frac{V_b}{2.6} \times DTD_c >$	7 °C		6.2.7 Sensible heat Gain due to Ventilation	$\rho_h \times 1.08 \times 0$	x 1.08		:level)}	Multiplier (LF x evel)						
Calculations Ilculation)		Ai	WINTER NATU	SUMMER NATI				Winter DTDh	Summer DTDc	6.2.6 Sei	$HG_{salb} = LR_{airc} \times \frac{V_b}{2 \epsilon} \times DTD_c \times 1.2$	x 182.17		6.2.7 Sensi	$HL_{vairb} = PVC \times DTD_h \times 1.08 \times (1 - E)$	x 13 °F	r Multiplier Section)	$HL_{agclevel} + HL_{bgc}$	Air Leakage Heat Loss Multi HLairbv / HLlevel)	1.075	0.364	0.280	0.000	0.000	
Loss and Heat Gain age / Ventiliation Ca	Builder: ROYAL PINE HOMES						•	1-1)H	= 0.072			HL_{vc}	64 CFM	ss for Each Room (Floor	$_{igcr} + HL_{bgcr}) \div ($	Level Conductive Heat Air Leakage Heat Loss Multiplier (LF x Loss: (HL _{clevel}) HLairbv / HLlevel)	3,542	6,274	5,447	0	0	
CSA F280-12 Kesidential Heat Loss and Heat Gain Calculations Formula Sheet (For Air Leakage / Ventiliation Calculation)	Builder:											= 2232 W	= 7617 Btu/h			= 1336 Btu/h	5.2.3.3 Calculation of Air Change Heat Loss for Each Room (Floor Multiplier Section)	= Level Factor × HL_{airbv} × $\{(HL_{agcr} + HL_{bgcr}) \div (HL_{agclevel} + HL_{bgclevel})\}$	HLairve Air Leakage + Loss Ventilation Heat Loss (Btu/h)			7,617			ventilation heat loss
CSA F28 Form				Volume (ft³)	7413.4	8406	0	0	23,159.4 ft³ 655.8 m³	. Leakage	$TD_h \times 1.2$	x 1.2		cal Ventilation	$0.08 \times (1-E)$	x 0.25	5.2.3.3 Calculat	$T_{r} = Level$ Facto	Level Factor (LF)	0.5	0.3	0.2	0	0	*HLairbv = Air leakage heat loss +
	Model: 2009	Volume Calculation		Floor Height (ft)	10	6	6	6	Total: Total:	5.2.3.1 Heat Loss due to Air Leakage	$HL_{airb} = LR_{airh} \times \frac{V_b}{3.6} \times DTD_h \times 1.2$	x 43°C		5.2.3.2 Heat Loss due to Mechanical Ventilation	$HL_{vairb} = PVC \times DTD_h \times 1.08 \times (1 - E)$	× 1.08		HL_{airr}	Level	1	2	3	4	2	*HLairbv = Ai
				Floor Area (ft²)	734	934	0	0		5.2.3.1	$HL_{airb} = LL$	x 182.17		5.2.3.2 Heat I	$HL_{vairb} = PI$	x 78 °F									
	LO#: 87532		House Volume	Level	First	Second	Third	Fourth				0.236				64 CFM									

CITY OF RICHMOND HILL



375 Finley Ave. Suite 202 Ajax, ON L1S 2E2 Tel: 905.619.2300 Fax: 905.619.2375

Web: www.hvacdesigns.ca E-mail: info@hvacdesigns.ca

HEAT LOSS AND GAIN SUMMARY SHEET 00/02/2021

EXPOSED PERIMETER:

MODEL: 2009 **BUILDER:** ROYAL PINE HOMES SFQT: 1660 LO# 87532 SITE: CENTREFIELD (WEST GORMLEY) jocelyn.aguilar **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): Υ AIR CHANGES PER HOUR: 2.50 ASSUMED (Y/N): AIR TIGHTNESS CATEGORY: **TIGHT** ASSUMED (Y/N): Υ WIND EXPOSURE: **SHELTERED** ASSUMED (Y/N): Υ HOUSE VOLUME (ft³): 23159.4 ASSUMED (Y/N): γ INTERNAL SHADING: **BLINDS/CURTAINS ASSUMED OCCUPANTS:** 4 INTERIOR LIGHTING LOAD (Btu/h/ft²): 1.85 DC BRUSHLESS MOTOR (Y/N): FOUNDATION CONFIGURATION BCIN 1 **DEPTH BELOW GRADE:** 7.0 ft

2012 OBC - COMPLIANCE PACKAGE		
	Complianc	e Package
Component	SB-12 PER	FORMANCE
	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%	_

WIDTH:

20.0 ft

INDIVIDUAL BCIN: 19669 MICHAEL O'ROURKE

LENGTH:

52.0 ft



66.0 ft



CITY OF RICHMOND HIVAC Designs Ltd.
BUILDING DB//5 Finley Ave, Suite 202

09/03/202 1 Ajax ON, L1S 2E2
905-619-2300

RECEIVED

Residential Foundation Thermal Load Calculator

Supplemental tool for CAN/CSA-F280

W	eather Stat	tion Description
Province:	Ontario	
Region:	Richmon	lliн b
	Site De	escription
Soil Conductivity:	Normal c	onductivity: dry sand, loam, clay
Water Table:	Normal (7	7-10 m, 23-33 ft)
	Foundatio	n Dimensions
Floor Length (m):	15.8	
Floor Width (m):	6.1	
Exposed Perimeter (m):	20.1	
Wall Height (m):	3.0	
Depth Below Grade (m):	2.13	Insulation Configuration
Window Area (m²):	0.7	
Door Area (m²):	1.9	
	Radia	nt Slab
Heated Fraction of the Slab:	0	
Fluid Temperature (°C):	33	
	Design	Months
Heating Month	1	
	Foundat	tion Loads
Heating Load (Watts):		628

TYPE: 2009 **LO#** 87532



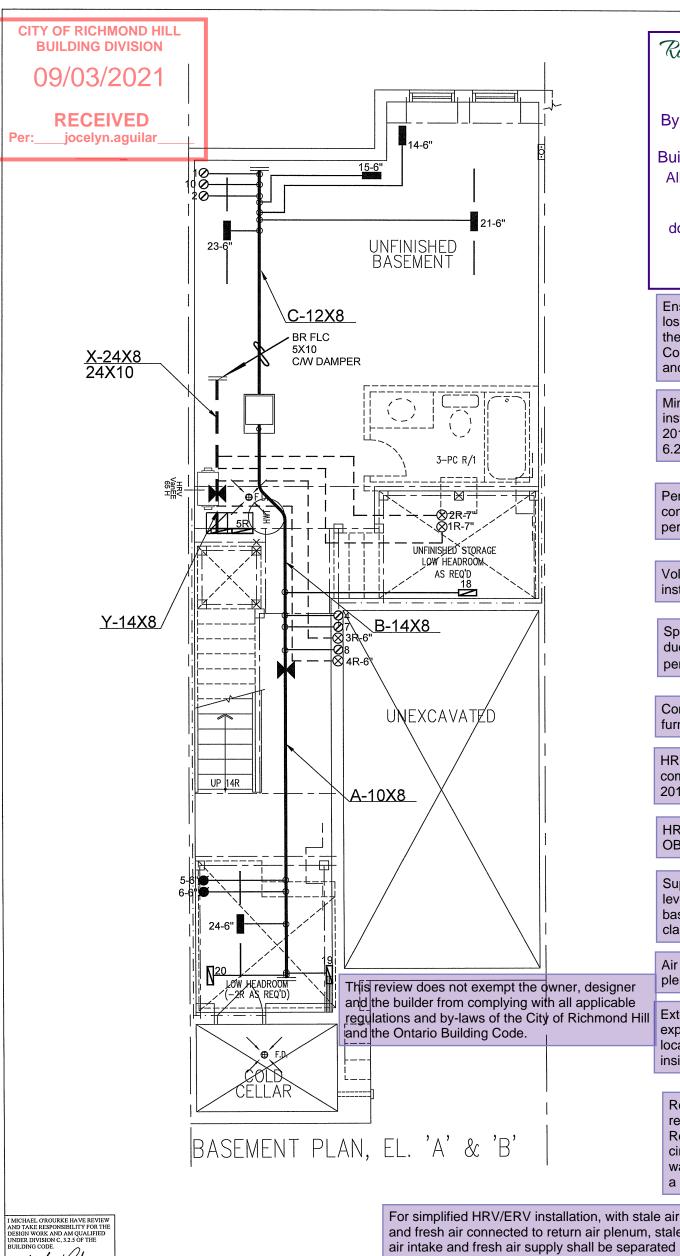
CITY OF RICHMOND HILL BUILDING DIVISION HVAC Designs Ltd. 375 Finley Ave, Suite 202 09/03/202 1 Ajax ON, L1S 2E2 905-619-2300

RECEIVED
Per:____jocelyn.aguilar

Air Infiltration Residential Load Calculator

Supplemental tool for CAN/CSA-F280

Weathe	er 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	
Build	ding Configuration	
Type:	Semi	
Number of Stories:	Two	
Foundation:	Full	
House Volume (m³):	655.8	
Air Le	eakage/Ventilation	
Air Tightness Type:	Energy Star Detached (2,	5.ACH)
Custom BDT Data:	ELA @ 10 Pa. 2.50	612.2 cm ² ACH @ 50 Pa
Mechanical Ventilation (L/s):	Total Supply 30.0	Total Exhaust
	Flue Size	
Flue #: Diameter (mm):	#1 #2 #3 #4 0 0 0 0	
Natur	al Infiltration Rates	
Heating Air Leakage Rate (A	CH/H): 0.236	
Cooling Air Leakage Rate (A	CH/H): 0.072	
TYPE: 2009 LO# 87532	require air tightness test as per energy	
	modelling	



Richmond H<u>ill</u>

City of Richmond Hill **Building Division**

REVIEWED

By: PxV

Date: SEPT/07/2021

Building Permit #: **BP#-2021-50776**

All construction shall comply with the Ontario Building Code and all other applicable statutory regulations. The reviewed documents must be kept on site at all times.

> Building inspection line: 905-771-5465 (24 hr) buildinginspections@richmondhill.ca Building inquiry line 905-771-8810 building@richmondhill.ca

Ensure that R-Values and U-Values used for heat loss and heat gain calculations are consistent with the values specified by SB-12 Performance Compliance: Energy Modeling/air leak test and the values used for architectural design.

Minimum R-12 Insulation Value required for ducts installed at unheated or exposed condition (OBC 2012 Div.B 6.2.4.3(10) and seal the ducts as per 6.2.4.3(11) & HRAI Digest 2005, Clause 4.5.

Penetration of Air Barrier System by ducts, wires, conduits or building materials shall be sealed as per OBC 2012, Div.B 9.25.3.3.(9) & (10).

Volume control dampers to all branches to be installed per OBC 2012, Div.B, 6.2.4.5.

Space between studs and joists used as return ducts shall be separated from unused portion as per OBC 2012 Div.B 6.2.4.7(6)

Combustion air supply shall be provided to the furnace and hot water tank.

HRV installation, testing, startup and commissioning shall be in compliance with OBC 2012, Div.B 9.32.3.11, 9.32.3.11(7)&(10)

HRV duct connection shall be in compliance with OBC 2012 Div.B 9.32.3.6(3) & 9.32.3.4(7).

Supply air grill at finished basement shall be at low level. Return air grill for finished or unfinished basement shall be at low level. HRAI digest 2005, clause 7.7(3).

Air supply outlet shall not be installed on a furnace plenum or trunk duct. (HRAI Digest 2005, 4.6)

Exterior insulation effective R-Value for wall, roof or exposed floor shall be maintained at the respective location where duct or sanitary pipes are routed inside exterior envelope.

Return air intake shall be provided as recommended in HRAI Digest 2005 Section 4.7 Return air inlet should be positioned so that short circuiting of supply air is avoided. A high and low wall return air combination shall be provided when a combined cooling & heating system is installed.

and fresh air connected to return air plenum, stale minimum 3' or as recommended by HRV/ERV Manufacturer

CSA-F280-12

					EGEND	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	0	SUPPLY AIR STACK FROM 2nd FLOOR		30"x8" RETURN AIR GRILLE	×	RETURN AIR STACK 2nd FLOOR	No.	Description	Date	
	SUPPLY AIR BOOT ABOVE	Ø	6" SUPPLY AIR STACK 2nd FLOOR		FRA- FLOOR RETURN AIR GRILLE	X	REDUCER		REVISIONS		

ALL DRAWINGS, CALCULATIONS AND SPECIFICATIONS ARE THE PROPERTY OF HVAC DESIGNS LTD. O 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 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

ROYAL PINE HOMES

CENTREFIELD (WEST GORMLEY) RICHMOND HILL, ONTARIO

375 Finley Ave. Suite 202 - Ajax, Ontario 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

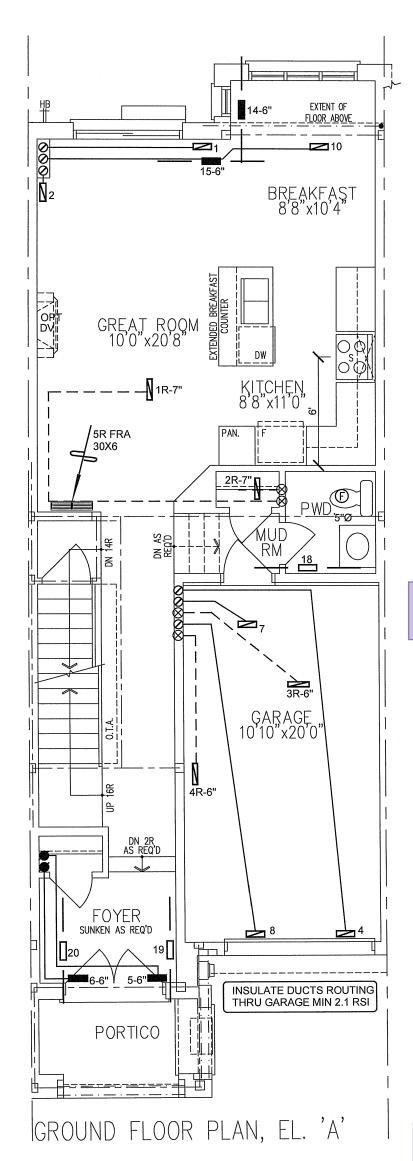
Installation to comply with the latest Ontario Building Code. All supply branch outlets shall be equipped with a manual balancing damper. Ductwork which passes through the garage or unheated spaces shall be adequately insulated and be gas-proofed.

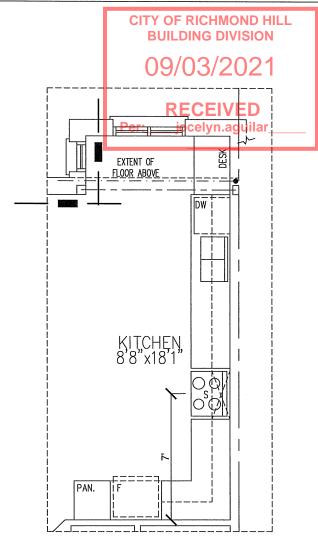
HEAT L	OSS 24655	BTU/H	# OF RUNS	S/A	R/A	FANS	She		
	UNIT DATA		3RD FLOOR						
MAKE	CARRIER		2ND FLOOR	8	4	2			
MODEL 59T	N6A-060-14\	/	1ST FLOOR	5	1	2			
INPUT	60	мвти/н	BASEMENT	3	1	0	Dat		
OUTPUT		MBTU/H	ALL S/A DIFFUSERS 4 "x10"						
0001110	58		UNLESS NOTED OTHERWISE						
COOLING	2.0	TONS	ON LAYOUT. A				-		
FAN SPEEL	820	cfm @ 0.6" w.c.	ON LAYOUT. U DOORS 1" min.	NDER	CUT		L		

BASEMENT **HEATING** LAYOUT SEPT/2020 3/16" = 1'-0"

BCIN# 19669 87532 .O#

2009 1660 sqft

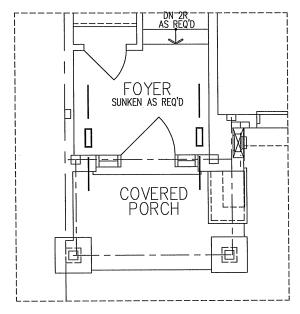




PART. GROUND FLOOR PLAN

- OPT. KITCHEN LAYOUT

Space between studs and joists used as return ducts shall be separated from unused portion as per OBC 2012 Div.B 6.2.4.7(6)



GROUND FLOOR PLAN, EL. 'B'

Kitchen hood exhaust duct shall be provided as per OBC 2012, Div.B 9.32.3.10, 9.32.3.5(2).

Exterior insulation effective R-Value for wall, roof or exposed floor shall be maintained at the respective location where duct or sanitary pipes are routed inside exterior envelope.

CSA-F280-12

SB-12 PERFORMANCE

HVAC DESIGNS LTD.										
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	0	SUPPLY AIR STACK FROM 2nd FLOOR		30"x8" RETURN AIR GRILLE	M	RETURN AIR STACK 2nd FLOOR	No.	Description	Date
	SUPPLY AIR BOOT ABOVE	.5	6" SUPPLY AIR STACK 2nd FLOOR		FRA- FLOOR RETURN AIR GRILLE	X	REDUCER			

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Client

ROYAL PINE HOMES

Project Name

CENTREFIELD (WEST GORMLEY) RICHMOND HILL, ONTARIO

HVA DESIGNS 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

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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

FIRST FLOOR HEATING LAYOUT

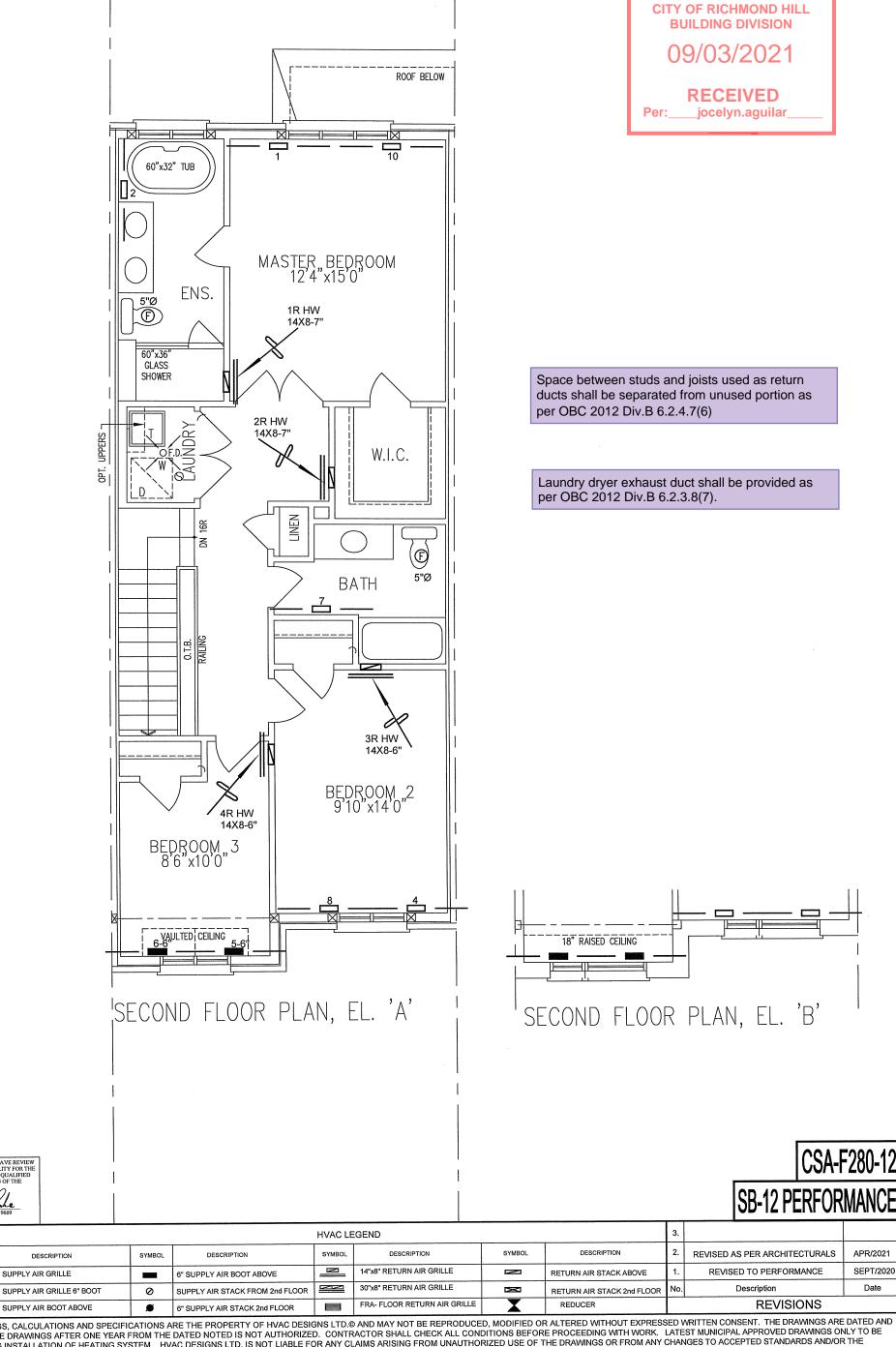
Date SEPT/2020 Scale 3/16" = 1'-0"

BCIN# 19669

LO# 87532

2009

1660 sqft



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

SYMBOL

ROYAL PINE HOMES

CENTREFIELD (WEST GORMLEY) RICHMOND HILL, ONTARIO

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

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LO#

SECOND FLOOR **HEATING** LAYOUT

SEPT/2020 3/16" = 1'-0"

BCIN# 19669

87532

2009

1660 sqft