#### 45-04 Duncan

CITY OF RICHMOND HILL BUILDING DIVISION

08/12/2021

#### **RECEIVED**

### **Schedule 1: Designer Information**

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

A. Project Information					No. of Contrast		
Building number, street name					Unit no.	201/10/2017/10/2017	Lot/con.
Municipality	Postal code	Plan number/ other	er desc	cription			<u> </u>
RICHMOND HILL		1					
B. Individual who reviews and takes	responsibility fo	r design activitie	s				=======================================
Name		Firm	******			***************************************	
MICHAEL O'ROURKE Street address		HVAC DESIGNS	LTD.	T			h
375 FINLEY AVE				Unit no. 202			Lot/con. N/A
Municipality	Postal code	Province		E-mail			J
AJAX	L1S ZEZ	ONTARIO		info@hva	designs.ca		
Telephone number (905) 619-2300	Fax number (905) 619-2375			Cell number	er		
C. Design activities undertaken by in	dividual identifie	d in Section B. [	Build	ing Code	Table 3.5.2.1	OF Divis	ion C]
☐ House	⊠ HVAC				Building		
☐ Small Buildings ☐ Large Buildings		g Services	. n		☐ Plumbing	g Hous	e 
Complex Buildings	☐ Fire Pr	on, Lighting and otection	POW	ver	☐ Plumbing ☐ On-site 8	g All Bu Sewage S	uildings Systems
Description of designer's work		Mo	del:	4504			
HEAT LOSS / GAIN CALCULATIONS		2		Duncan			
DUCT SIZING							
RESIDENTIAL MECHANICAL VENTILATION RESIDENTIAL SYSTEM DESIGN per CSA-		ARY Pro	ject:	CENTREFIE	LD (WEST GOR	MLEY)	
D. Declaration of Designer		L					
MICHAEL O'ROURKE			.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	decla	re that (choose	one se so	oranista):
	rint name)	······································		www.	a mac pariooso	one as ap	ргорпаце).
I review and take responsibility for Division C, of the Building Code. classes/categories.	or the design work o I am qualified, and	n behalf of a firm re the firm is registere	gistere d, in th	ed under su ie		of ropriate	
Individual BCIN; Firm BCIN:			•••••		_		
I review and take responsibility for designer" under subsection 3.3		n qualified in the ap n C, of the Building			as an "other		
Individual BCIN:	19669						
Basis for exemption for		qualification;		O.B.C S	ENTENCE	3.2.4.1 (	<u>4</u> )
The design work is exempt Basis for exemption from registra	from the registration and qualification	on and qualification	requir	ements of th	ne Building Coo	de.	
I certify that:					,-		
•							
<ol> <li>The information contained</li> <li>I have submitted this applica</li> </ol>	in this schedu tion with the knowle	ile is true to the bes dge and consent of	t of my the fir	/ knowledge ता.	),		
lung 7 2021				Market .	Lat Ok	21.	
June 7, 2021 Date	•		•		42 (**3.\$15.)	ure of Desi	- conder
				*******	o i grist	uie or Desi	gner
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.

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.

15364

STRUCTURAL HEAT LOSS: 4943)

872

630

908

FOTAL COMBINED HEAT LOSS BTUIH: 51197

**BUILDING DIVISION** SB-12 PERFORMANCE 42 0 0 35 9606 0.67 6359 • 0.60 400000000000 Per: 2 2 HEAT LOSS AT 15. HEAT GAIN AT 'F. 200 457 99 748 . . . . . . . . . . . . . . . . . . 22 winter natural are change rate Summer natural air change rate 00000000000 238 2 242 00002 6.29 424 9.30 **\$** 236 £. 4 57B ខ្នុំនេះ 0.29 544 0.20 679 00080430 0 246 246 555 22 259 Ξ DATE: Jun-21 LO# 87511 8ED.4 0.19 1637 8 Q. 0,29 119 0.20 0.30 138 246 246 655 ¥ 0 25 384 6.19 587 9.19 0,20 0.20 3223 6909 133 24 42 25 55 1699 286 0.19 645 \$612 235 3464 <del>\$</del> a ž 野ささ 9 9 9 2 0.29 398 0.20 9.30 208 989 0.29 1376 000 5 0.30 163 88 0.53 6;3 330 1238 6.29 4.29 報 28 章 SITE NAME: CENTREPIELD (WEST GORMLEY) 4181 e 4 86 655 82 2 378 OSS 0.19 522 3307 269 5.29 508 2 % 2 . . . BUILDER: ROYAL PIME HOMES 2 0 2 3.30 101.2 16.0 41.6 24.9 41.6 8.5 9.5 8.5 8.5 8.5 8.5 8.5 41.8 191.3 GAIN 16.0 41.6 24.8 4.5 0.6 0.6 0.6 0.4 FACTORS 1088 1.039 25.8 4.2 3.7 4.3 2.6 2.6 340 LEVEL, FACTOR / MULTIPEJER AIR CHANGE HEAT LOSS AIR CHANGE HEAT GAIN SOUTH WEST SKYLT. WEST EAST EAST ROOM USE EXP. WALL GRS.WALL AREA GLAZING NET EXPOSED WALL NET EXPOSED BSMT WALL ABOVE OR EXPOSED CLG NO ATTIC EXPOSED CLG EXPOSED FLOOR SLAB ON GRADE HEAT LOSS SUBTOTAL HT LOSS SUB TOTAL HT GAIN DUCT LOSS HEAT GAIN PEOPLE HEAT GAIN APPLIANCES/LIGHTS TOTAL HT LOSS BTUM TOTAL HT GAIN x 1.3 BTUM ROOM USE GRS.WALL AREA HEAT GAIN PEOPLE Basement/Crawl Heat Loss DUCT GAIN EXP. WALL AR CHANGE HEAT LOSS AIR CHANGE HEAT GAIN NET EXPOSED WALL EXPOSED CLG het exposed bsmt wall above of NO ATTIC EXPOSED CLG ЕХРОЗЕВ Р. ООЯ SLAB ON GRADE HEAT LOSS SUBTOTAL HT LOSS SUB TOTAL HT GAIN LEVEL FACTOR / MULTIPLIER DUCT LOSS DUCT GAIN Basement/Crawl Heat Loss

**CITY OF RICHMOND HILL** 

375 Finby Ave. Suite 202 Ajex, ON L15 2EZ Tal; 905,619.2300 Fex: 905,619,2375 Web: www.hvacdesigns.ca E-mal: into@tvacdesigns.ca

LOSS DUE TO VENTILATION LOAD BTU/H:

392

TOTAL HT LOSS BTU/H

TOTAL HT GAIN x 1.3 BTU/H

REAT GAIN APPLIANCES/LIGHTS

\$828

41260

TOTAL HEAT GAIN BTWH:

MICHAEL O'ROURKE

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SITE NAME: CENTREFIELD (WEST GORMLEY) BUILDER: ROYAL PINE HOMES	1370 49,437 27,71 4th 0 0 0 6 ss noted oil	MBR 1.65 6 46 70 0.17 0 0.17 0 0.17 0 0.09 0 0.09 0 0.09 0 0.045 2 25 25 25 25 25 25 25 25 25 25 25 25	FRUNK ST CFU ST
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#### **CITY OF RICHMOND HILL BUILDING DIVISION**

375 Finley Ave. Suite 202 Ajax, ON LIS 252 Tel: 905.619.2300 Fax: 905.619.2375 Web: www.hvacdesigns.ca E-mail: info@hvacdesigns.ca

TYPE: SITE NAME: 4504

10# 87511

SITE NAME: CENTREFIELD (WEST GORMLEY)	CHANICAL Y	VENTILATION DES	IGN SUMMARY		
COMBUSTION APPLIANCES PGF:	9.32.3.1(1)		VENTILATION CAPACITY		9.32.3,5
a)		Total Ventilation C		190.8	Clini
b) Positive venting induced draft (except fireplaces)		Less Principal Ven	til. Capacity	79.5	c/m
c) Natural draft, B-vent or induced draft gas fireplace		Required Supplem	ental Capacity	111.3	Cfm:
d) Solid Fuel (including fireplaces)					
e) No Combustion Appliances		PRINCIPAL EXHA	UST FAN CAPACITY		
HEATING SYSTEM		Model:	VANEE 65H	Location:	BSMT
,		79.5	cfm		HVI Approved
Forced Air Non Forced Air		CFM	UST HEAT LOSS CALCULATION  AT 'F	FACTOR	%LOSS
Electric Space Heat		79.5 CFM	X 78 F X	1.08	X 0.25
		SUPPLEMENTAL Location		ALLING CON	
HOUSE TYPE	9.32.1(2)	ENS	Model  BY INSTALLING CONTRACTOR	cfm 50	HVI Sones
1 <del></del>		BATH	BY INSTALLING CONTRACTOR	50	✓ 3,5
Type a) or b) appliance only, no solid fuel		ENS-2	BY INSTALLING CONTRACTOR	50	V 3.5
II Type I except with solid fuel (including firenlaces)	1	W/R	BY INSTALLING CONTRACTOR	50	✓ 3.5
I Type I except with solid fuel (including fireplaces)		fuca = peopuro			
III Any Type c) appliance		HEAT RECOVERY Model:			9.32,3,11,
the state of the s		155	VANEE 65H		-F I
IV Type I, or II with electric space heat			— বিচা high	64	cfm low
Other: Type I, If or IV no forced air		75	— % Sensible Efficiency @ 32 deg F ( 0 deg C)		HVI Approved
	····	LOCATION OF INS	TALLATION		
SYSTEM DESIGN OPTIONS	O.N.H.W.P.	COOK TON OF 186	TACCATION		
,		f.ot:		Concession	
1 Exhaust only/Forced Air System					
2 HRV with Ducting/Forced Air System	İ	Township		Plan:	
3 HRV Simplified/connected to forced air system		Address		·····	
4 HRV with Ducking/non forced air system		Roll #		Building Permi	it#
Part 6 Design		BUILDER:	ROYAL PINE HOMES		
TOTAL VENTILATION CAPACITY		Name:			
	9.32.3.3(1)	Address:		······································	
Basement + Master Bedroom 2 @ 21.2 cfm 42.4	cfm	City:		·	
Other Bedrooms 3 @ 10.6 cfm 31,B	cfm	Telephone #:	1	Fax#:	·
Kitchen & Bathrooms 5 @ 10.6 cfm 53	cfm	INSTALLING CONT	RACTOR		
Other Rooms 6 @ 10.6 cfm 63.6	cfm	Name:		<del></del>	
Table 9.32.3.A. TOTAL 190.8	cfm	Address:		· · · · · · · · · · · · · · · · · · ·	
PRINCIPAL VENTILATION CAPACITY REQUIRED		City:	····		
THE STATE OF SALVETT RESPONDED	9.32.3.4.(1)	Telephone #:	,	*ax#;	
1 Bedroom 31.6	cfm	DESIGNER CERTIF			
2 Bedroom 47,7	cfm	I hereby certify that t	his ventilation system has been desi te Ontaño Bullding Code.	igned	
3 Bedroom 63.6	çin	Name:	HVAC Designs Ltd.		
4 Bedroom 79.5	cfm	Signature:	Michael	offile	
5 Bedroom 95.4	ctm	HRAI#		001820	
TOTAL 79.5 cfm  1 REVIEW AND TAKE RESPONIBILITY FOR THE DESIGN WORK AND AM QUALF	FIED IN THE Appro	Date:	POTIGED DESIGNADA I INSARRA SIMA	June-21	
INCHIDITAL DONA ACCOUNT			ALL THE DEGREE OF THE PROPERTY C. 3.	a.→ UF SME BUILD	IIINS LIUUE.

MS Lm

The control of the				Form	80-12 Kesidential He nula Sheet (For Air Le	SA FZBU-12 RESIDENTIAL Heat Loss and Heat Gain Calculations Formula Sheet (For Air Leakage / Ventiliation Calculation)	n Calculations Salculation)			
Floor Aves (ff.)   Floor Height (ff.)   Volume Caliculation	10#: 87		Model: 4504		Build	er: ROYAL PINE HOMES			Date: (	Date: 6/7/2021
Floor Avea (FF)   Floor Height (F)   Volume (FF)     1830			Volume Catculati	on			Air Change & De	Ita T Data		
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	House Volume Level Bsmt First	Floor Area (ft²) 1453 1453	Floor Height (ft) 9 10	Volume (ft²) 13077 14530			WINTER NATURAL AIR CHAN SUMMER NATURAL AIR CHAN	GE RATE IGE RATE	0.219	
$HL_{airb} = LR_{airh} \times \frac{V_b}{3.6} \times DTD_h \times 1.2$ $\times 32853 \times 43.C \times 1.2 = 3727W$ $\times 32853 \times 43.C \times 1.2 = 3727W$ $\times 32853 \times 43.C \times 1.2 = 3727W$ $= 0.068 \times 32853 \times 7^*C \times 1.2$ $\times 1.23.2 \text{ Heat Loss due to Mechanical Vanilation}$ $HL_{vairb} = PVC \times DTD_h \times 1.08 \times (1-E)$ $\times 1.8^*F \times 1.08 \times (1-E)$ $\times 1.8^*F \times 1.08 \times (1-E)$ $HL_{airr} = Level Factor \text{ H Lairby} \times \text{ H Lairby} \times \text{ H Lage The Earth Roam [Floor Multiplier Section]}$ $HL_{airr} = Level Factor \text{ H Lairby} \times \text{ H Lairby} \times \text{ H Lairby} \text{ H Lage The Earth Roam [Air Leakage Heart Loss Multiplier (IF Normal Hairby) H Heart Loss \text{ Loss: (H-loss)} \text{ H Lairby} \text{ H L Lairby} \text{ H L Lairby}  H L L L L L L L L L L L L L L L L L L $	Second Third Fourth	1770 0 0	8 9 9 Total:	14160 0 0 41,767,0 ft <sup>‡</sup> 1182,7 m <sup>4</sup>				emperature Diffe Fout *C -21 -31	AT °C 43	AT °F 78 13
$HB_{airb} = LR_{airh} \times \frac{V_b}{3.6} \times DTD_b \times 1.2$ $\times 328.53 \times 43 \cdot C \times 1.2$ $\times 328.53 \times 43 \cdot C \times 1.2$ $\times 5.23.2 \text{ Heat Loss due to Mechanical Ventilation}$ $HL_{vairb} = PVC \times DTD_b \times 1.08 \times (1 - E)$ $\times 78^{+}F \times 1.08 \times (1 - E)$ $\times 1.08 \times 0.25 \times 1.08 \times (1 - E)$ $\times 1.08 \times 1.09 \times 0.25 \times 1.09 \times (1 - E)$ $\times 1.09 \times 0.25 \times 1.09 \times (1 - E)$ $\times 1.09 \times 0.25 \times 1.09 \times (1 - E)$ $\times 1.09 \times 0.25 \times 1.09 \times (1 - E)$ $\times 1.09 \times 0.25 \times 1.09 \times (1 - E)$ $\times 1.09 \times 0.25 \times 1.09 \times (1 - E)$ $\times 1.09 \times 0.25 \times 1.09 \times (1 - E)$ $\times 1.09 \times 0.25 \times 1.09 \times (1 - E)$ $\times 1.09 \times 0.25 \times 1.09 \times (1 - E)$ $\times 1.09 \times 0.25 \times 1.09 \times (1 - E)$ $\times 1.09 \times 0.25 \times 1.09 \times (1 - E)$ $\times 1.09 \times 0.25 \times 1.09 \times (1 - E)$ $\times 1.09 \times 0.25 \times 1.09 \times (1 - E)$ $\times 1.09 \times 0.25 \times 1.09 \times (1 - E)$ $\times 1.09 \times 0.25 \times 1.09 \times (1 - E)$ $\times 1.09 \times 0.25 \times 1.09 \times (1 - E)$ $\times 1.09 \times 0.25 \times 1.09 \times (1 - E)$ $\times 1.09 \times 0.29 \times 1.09 \times (1 - E)$ $\times 1.09 \times 0.29 \times 1.09 \times (1 - E)$ $\times 1.09 \times 0.29 \times 1.09 \times (1 - E)$ $\times 1.09 \times 0.29 \times 1.09 \times (1 - E)$ $\times 1.09 \times 0.29 \times 0.25 \times (1 - E)$ $\times 1.09 \times 0.29 \times 0.25 \times (1 - E)$ $\times 1.09 \times 0.29 \times 0.25 \times (1 - E)$ $\times 1.09 \times 0.29 \times 0.25 \times (1 - E)$ $\times 1.09 \times 0.29 \times 0.25 \times (1 - E)$ $\times 1.09 \times 0.29 \times (1 - E)$ $\times 1.09 \times 0.29 \times (1 - E)$ $\times 1.09 \times 0.29 \times (1 - E)$ $\times 1.09 \times (1 - E)$		5,2,3,1	L Heat toss due to A	ir Leakage			6.2.6 Sensible Gain due	to Air Leakage		
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$		$HL_{airb} = L$	$R_{airh} \times \frac{V_b}{3.6} \times I$	$97D_h \times 1.2$		¥	$G_{salb} = LR_{airc}  imes rac{V_b}{3  ilde{\kappa}}  imes DTD_c$	× 1.2		
5.2.3.2 Heat Loss due to Machanical Ventilation $HL_{vairb} = PVC \times DTD_h \times 1.08 \times (1-E)$ $\times 78 \cdot F \times 1.08 \times (1-E)$ $\times 78 \cdot F \times 1.08 \times (1-E)$ $= 5.2.3.3 \text{ Catculation of Air Change Heat Loss for Each Room [Floor Multiplier Section]}$ $HL_{atirr} = Level Factor \times HL_{airbv} \times \{HL_{agcr} + HL_{bgcr} \} + \{HL_{agclevel} + HL_{bgclevel} \}$ $= 1.005 \times 10.00$ $= 1.005 \times 10.00$ $= 1.005 \times 10.000$ $= 1.000$ $= 1.000$ $= 1.000$ $= 1.000$ $= 1.000$ $= 1.000$ $= 1.000$ $= 1.000$ $= 1.000$ $= 1.000$ $= 1.000$ $= 1.000$ $= 1.000$ $= 1.000$ $= 1.000$ $= 1.000$ $= 1.000$ $= 1.000$	0.219		× 43°C	x 1.2		0.068	x 328.53 x 7°C	1	iJ L	191 W
$HL_{vairb} = PVC \times DTD_h \times 1.08 \times (1-E)$		5.2.3.2 Heat	loss due to Mochan	aleal Ventilation	J				  -	652 Btu/n
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$		HLvairb = P	$VC \times DTD_h \times 1$	1.08 × (1 – E)		HL,	$a_{trb} = PVC \times DTD_h \times 1.08	(1-E)		
$L_{airr} = Level \ Factor \ \times HL_{airbv} \times \{\{HL_{agcr} + HL_{bgcr}\} + \{HL_{agclevel} + HL_{bgclevel}\}\}$ $Level \ Factor \ (LF)$ $Level \ Factor \ (LF)$ $Level \ Factor \ (LF)$ $Loss: \{HL_{abwal}\}$	80 CFM	İ			Ll	80 CFM	13 °F ×		li	275 Btu/h
$L_{airr} = Level \ Factor \times HL_{airbv} \times \{(HL_{agcr} + HL_{bgcr}) + (HL_{agclevel} + HL_{bgclevel})\}$ $Level \ Factor \{LF\} \qquad Histore \ Air \ Leakage + Level \ Conductive \ Heat \ Loss \ (HL_{airbv}) + (HL_{bgclevel})\}$ $Loss \ (HL_{agcr} + HL_{bgclevel}) + (HL_{bgclevel}) + (HL_{$				5.2.3.3 Cetcula	tion of Air Change Heat	Loss for Each Room (Floc	r Multiplier Section)			
Level Factor (LF)         Hilairve Air Leakage + Loss (Conductive Heat Air Leakage Heat Loss Multiplier (LF x Loss: Hilairbu / Hilair			HLa	irr = Level Facti	$m \times HL_{airby} \times \{(H)\}$	$L_{agcr} + HL_{bgcr}) + ($	$(HL_{agclevel} + HL_{bgclevel})$	L		
0.5         9,505         0,669           0.3         13,147         0,290           0         0         0,188           0         0         0,000           0         0         0,000			Level	Level Factor (LF)	Hisinve Air Leakage + Ventitation Heat Loss (8tu/h)	Level Conductive Heat Loss: (HLowel)	Air Leakage Heat Loss Multiplier (LF x Hairbv / Hilevel)		Pe	В О
0.2         12,718         13,561         0.250           0         0         0.000           0         0         0.000			1 2	0.5		9,505	0.669			_
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			4 0	0		0	000.0		CE	2/
			*Htairbv = A	iir leakage heat loss +	ventilation heat loss				IVE	20



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

MODEL: 4504 **BUILDER: ROYAL PINE HOMES** SFQT: 3223 LO# 87511 SITE: CENTREFIELD (WEST GORMLEY) **DESIGN ASSUMPTIONS** HEATING Per: COOLING ٩° OUTDOOR DESIGN TEMP. -6 OUTDOOR DESIGN TEMP. 88 INDOOR DESIGN TEMP. 72 INDOOR DESIGN TEMP. (MAX 75°F) 75

#### **BUILDING DATA**

WA DESIGNS LTD.

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):	Υ
WIND EXPOSURE:	SHELTERED	ASSUMED (Y/N):	γ
HOUSE VOLUME (ft³):	41767.0	ASSUMED (Y/N):	Υ
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	5
INTERIOR LIGHTING LOAD (Btu/h	/ft²): 1.40	DC BRUSHLESS MOTOR (Y/N):	Υ
FOUNDATION CONFIGURATION	BCIN_1	DEPTH BELOW GRADE:	6.0 ft
LENGTH: 57.0 ft	WIDTH: 37.0 ft	EXPOSED PERIMETER:	188.0 ft

2012 OBC - COMPLIANCE PACKAGE			
Component	CITY OF RICHMOND HILL BUILDING DIVISION	Compliance SB-12 PER	Package FORMANCE
	00/40/2024	Nominal	Min. Eff.
Ceiling with Attic Space Minimum RSI (R)-Value	08/12/2021	60	59.20
Ceiling Without Attic Space Minimum RSI (R)-Value		31	27.70
Exposed Floor Minimum RSI (R)-Value	RECEIVED	31	29.80
Walls Above Grade Minimum RSI (R)-Value	Per:	22+1.5	18.50
Basement Walls Minimum RSI (R)-Value		20	21.12
Below Grade Slab Entire surface > 600 mm below gra	ade Minimum RSI (R)-Value	<u> </u>	-
Edge of Below Grade Slab ≤ 600 mm Below Grade Mi	inimum RSI (R)-Value	10	10
Heated Slab or Slab ≤ 600 mm below grade Minimun	n RSt (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



CITY OF RICHMOND HILL BUILDING DIVISION

08/12/2021

**RECEIVED** 

HVAC Designs Ltd. 375 Finley Ave, Suite 202 Ajax ON, L1S 2E2 905-619-2300

# Residential Foundation Thermal Load Calculator

Supplemental tool for CAN/CSA-F280

W	eather Stat	ion Description
Province:	Ontario	
Region:	Richmond	Hill
	Site De	scription
Soil Conductivity:	Normal co	nductivity: dry sand, loam, clay
Water Table:	Normal (7	-10 m, 23-33 ft)
	Foundation	Dimensions
Floor Length (m):	17.4	
Floor Width (m):	11.3	
Exposed Perimeter (m):	0.0	
Wall Height (m):	2.7	SA PERSONAL PROPERTY AND ADDRESS OF THE PROPERTY ADDRESS OF THE PROPERTY AND ADDRESS OF THE PROPERTY AND ADDRESS OF THE PROPERTY ADDRESS OF THE PROPERTY ADDRESS OF THE PROPERTY ADDRESS OF THE PROPERTY ADDRESS OF THE PROPERTY ADDRESS OF THE PROPERTY ADDRESS OF THE PROPERTY ADDRESS OF THE PROPERTY ADDRESS OF THE PROPERTY ADDRESS OF THE PROPERTY ADDRESS OF THE PROPERTY ADDRESS OF THE PROPERTY ADDRESS OF THE PROPERTY ADDRESS OF THE PROPERTY ADDRESS OF THE PROPERTY ADDRESS OF THE PROPERTY ADDRESS OF THE PROPERTY ADDRESS OF THE PROPERTY ADDRESS OF THE PROPERTY A
Depth Below Grade (m):	1.83	Insulation Configuration
Window Area (m²):	1.9	
Door Area (m²):	1.9	
······································	Radia	nt Slab
Heated Fraction of the Slab:	0	
Fluid Temperature (°C):	33	
	Design	Months
Heating Month	1	
	Foundati	on Loads
Heating Load (Watts):		1897

TYPE: 4504 LO# 87511



CITY OF RICHMOND HILL BUILDING DIVISION

08/12/2021

**RECEIVED** 

Per:\_\_\_\_

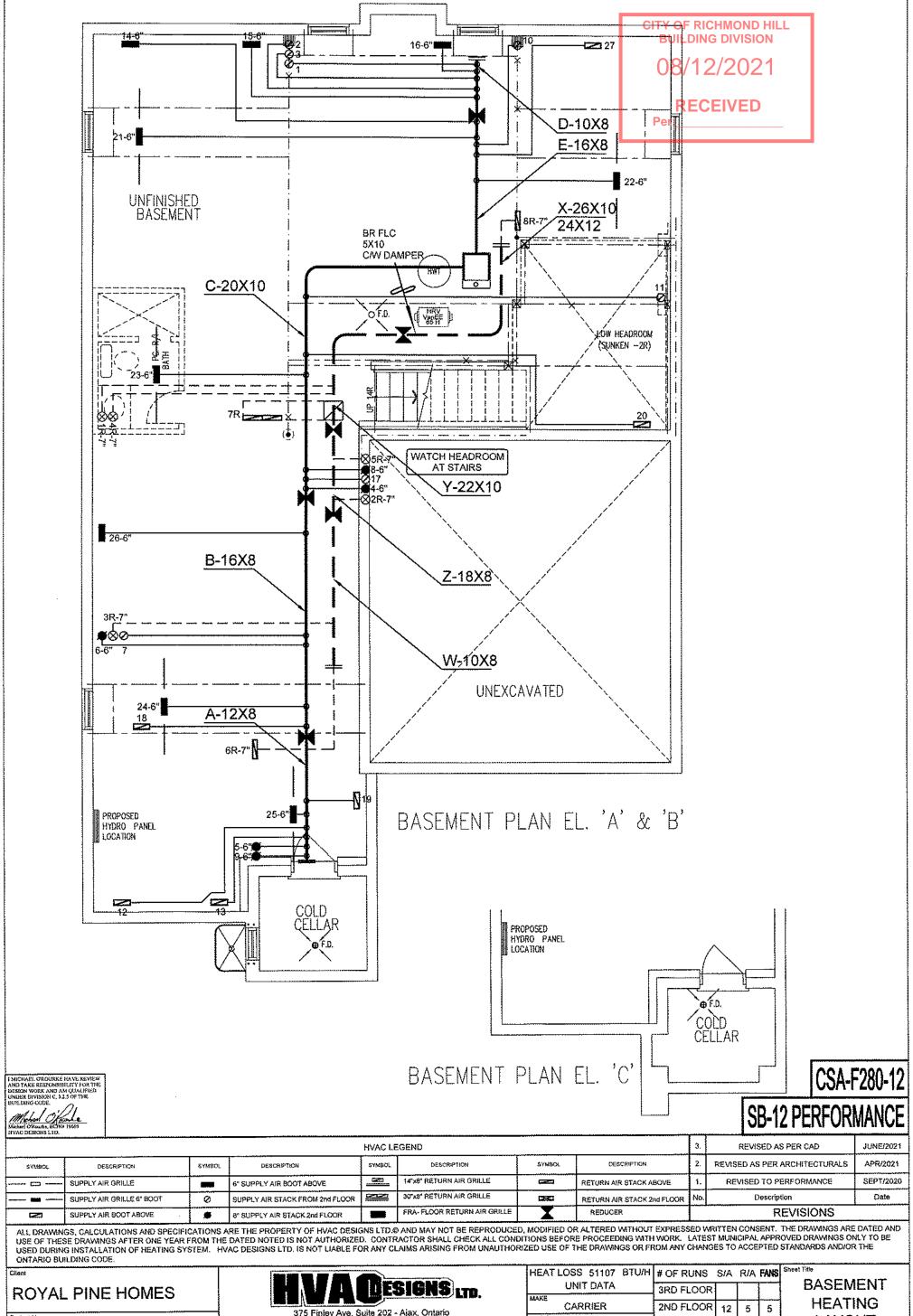
HVAC Designs Ltd. 375 Finley Ave, Suite 202 Ajax ON, L1S 2E2 905-619-2300

# **Air Infiltration Residential Load Calculator**

Supplemental tool for CAN/CSA-F280

Weathe	r Station Description				
Province:	Ontario				
Region:	Richmond Hill				
Weather Station Location:	Open flat terrain, grass				
Anemometer height (m):	10				
	ocal Shielding				
Building Site:	Suburban, forest				
Walls:	Heavy				
Flue:	Heavy				
Highest Ceiling Height (m):	6.40				
Build	ing Configuration				
Type:	Detached				
Number of Stories:	Two				
Foundation:	Full				
House Volume (m³):	1182.7				
Air Lea	akage/Ventilation				
Air Tightness Type:	Energy Star Detached (2.5 ACH)				
Custom BDT Data:	ELA @ 10 Pa. 1104.1 cm <sup>2</sup>				
	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				
Natura	l Infiltration Rates				
Heating Air Leakage Rate (AC	H/H): <b>0.21</b> 9				
Cooling Air Leakage Rate (ACI	H/H): 0.068				

TYPE: 4504 LO# 87511



Project Nema

4504

CENTREFIELD (WEST GORMLEY)
RICHMOND HILL, ONTARIO

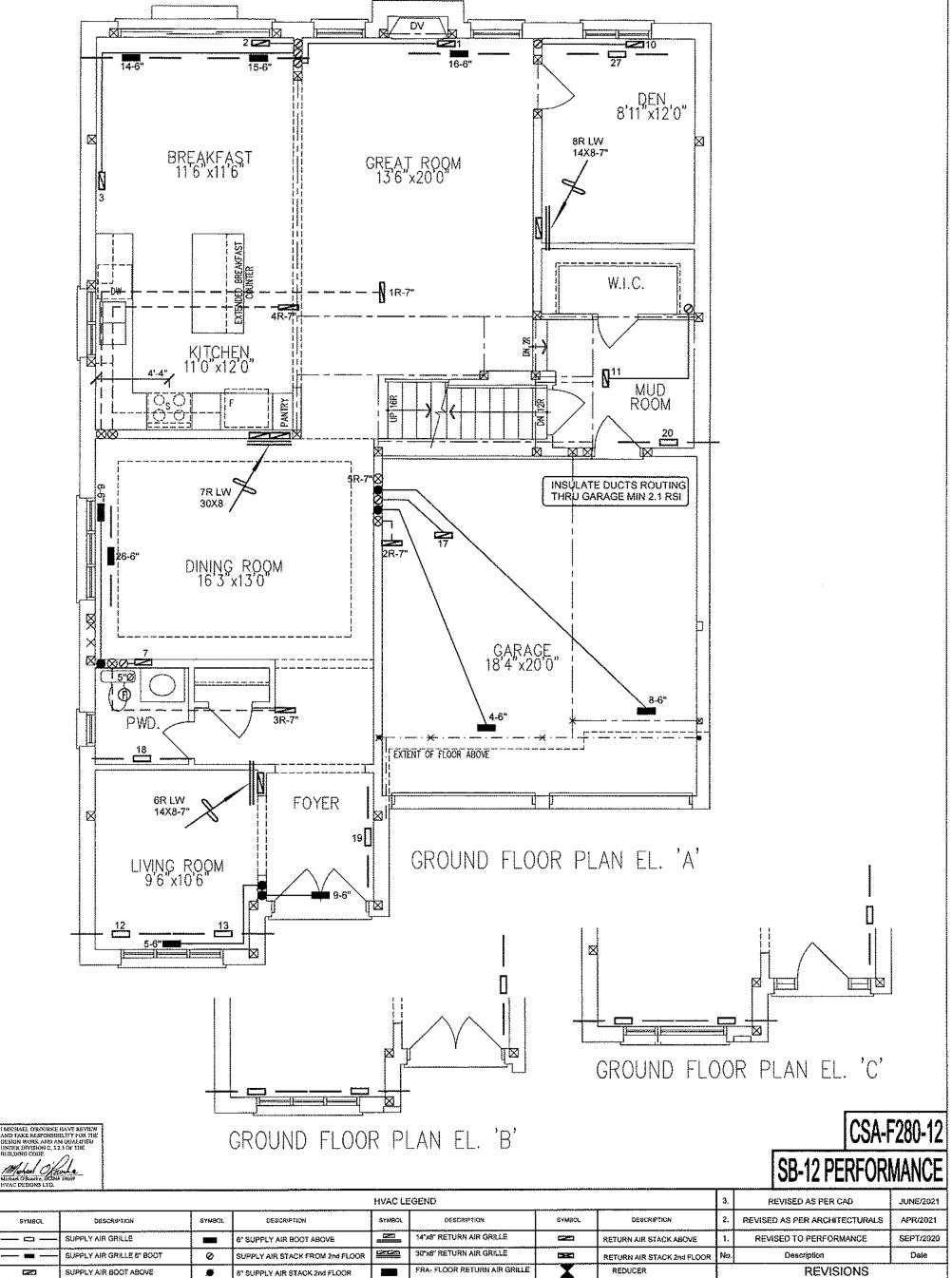
3223 sqft

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.

	SS 51107	8TU/H	# OF RUNS	S/A	R/A	FANS	She
	JNIT DATA		3RD FLOOR		[		
MAKE C	ARRIER		2ND FLOOR	12	5	5	
MODEL 59TN	√6A-060-14\	,	1ST FLOOR	10	3	2	
INPUT	60	MBTU/H	BASEMENT	5	1	0	Date
OUTPUT	58	мвти/н	ALL S/A DIFFU				Sca
COOLING	3.5	TONS	ON LAYOUT. A	LL S/A	RUN	S 5"Ø	_
FAN SPEED	1370	c(m @ 0.6" w.c.	ON LAYOUT. U DOORS 1" min.	NDER	CUT		L



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### ROYAL PINE HOMES

CENTREFIELD (WEST GORMLEY) RICHMOND HILL, ONTARIO

# DESIGNS LTD.

375 Finley Ave. Suite 202 - Ajax, Ontario L18 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 3223 sqft adequately insulated and be gas-proofed.

**CITY OF RICHMOND HILL BUILDING DIVISION** 

08/12/2021

RECEIVED

Per:

FIRST FLOOR **HEATING** LAYOUT

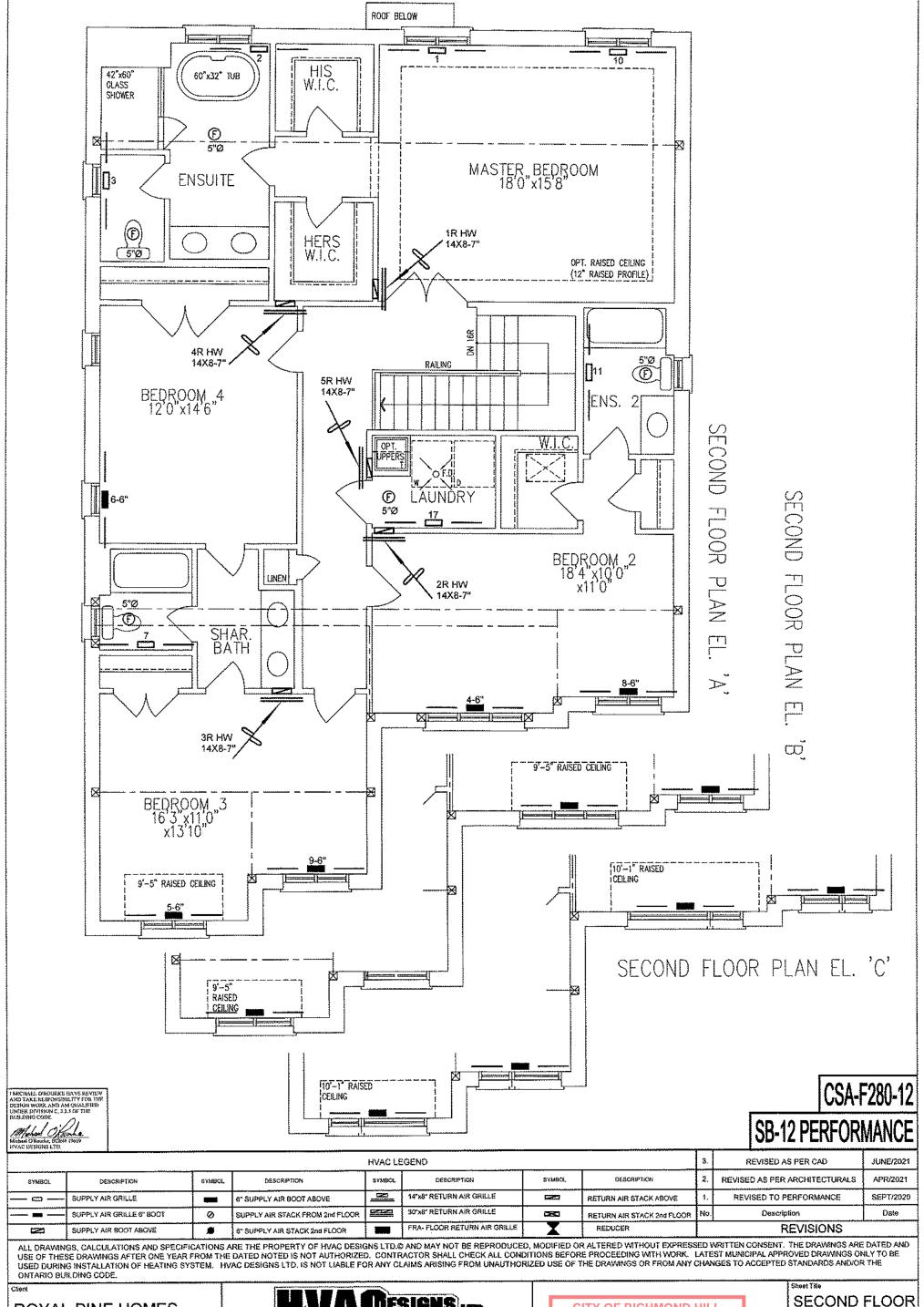
SEPT/2020 3/16" = 1'-0"

LO#

BCIN# 19669

87511

4504



### **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

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.

**CITY OF RICHMOND HILL BUILDING DIVISION** 

08/12/2021

**RECEIVED** 

**HEATING** LAYOUT

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

BCIN# 19669 87511

4504

3223 sqft

### 08/12/2021

### Schedule 1: Designer Information

**RECEIVED** 

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

A. Project Information				- Incomplete and the	
Building number, street name				Unit no.	Lot/con.
Municipality	Postal code	Plan number/ other d	annéntina		
RICHMOND HILL	1 00101 0002	i idil (idiliber/ otile) d	escripson		
B. Individual who reviews and takes	 responsibility fo	  - decide  antivities			
Name	eabouain((ft)(ft)	Firm		<u> </u>	
MICHAEL O'ROURKE		HVAC DESIGNS LTI	<b>)</b> .		
Street address 375 FINLEY AVE			Unit no. 202		Lot/con.
Municipality	Postal code	Province	E-mail	~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~	
AJAX	L1S 2E2	ONTARIO	info@hvacdes	signs.ca	
Telephone number (905) 619-2300	Fax number (905) 619-2375		Cell number		
C. Design activities undertaken by in	dividual identifie	d in Section B. (Bu	lding Code Tab	ile 3.5.2.1 OF Divi	sion C]
☐ House	⊠ HVAC	House		Building Structu	ral
Small Buildings  Large Buildings	☐ Building	g Services		Plumbing Hou	ıse
Complex Buildings	☐ Detecti	on, Lighting and Potection	ower 🛄	Plumbing All E On-site Sewage	Buildings Systems
Description of designer's work		Model	<del></del>	On-site Gewage	Cysterns
HEAT LOSS / GAIN CALCULATIONS		1	4504		
DUCT SIZING			OPT. 2ND		
RESIDENTIAL MECHANICAL VENTILATIO RESIDENTIAL SYSTEM DESIGN per CSA-	N DESIGN SUMMA F280-12	VRY Projec	t: CENTREFIELD (	WEST GORMLEY)	
D. Declaration of Designer	· · · · · · · · · · · · · · · · · · ·				
IMICHAEL O'ROURKE	2004-0401-00-00-00-00-00-00-00-00-00-00-00-00-0				
	nt name)		_ declare th	at (choose one as a	ppropriate):
I review and take responsibility for Division C, of the Building Code. in classes/categories.	r the design work o am qualified, and t	n behalf of a firm regist he firm is registered, in	ered under subsec the	ction 3.2.4.of appropriate	
Individual BCIN:	······································				
i review and take responsibility for designer" under subsection 3.2	r the design and an .5.of Di vision	n qualified in the approp	oriate category as le.	an "other	
Individual BCIN:	19669				
Basis for exemption from		qualification:	O.B.C SENT	TENCE 3,2.4.1	(4)
<ul> <li>The design work is exempt</li> <li>Basis for exemption from registrat</li> </ul>	from the registration	on and qualification req	uiramente of the P	uilding Codo	
certify that:	•	***************************************	······································	****	
<ol> <li>The information contained</li> <li>I have submitted this applicat</li> </ol>	in this schedul ion with the knowled	e is true to the best of age and consent of the	my knowledge. firm.		
June 7, 2021			Make	1 Offile	: 
Date				Signature of De	signer
			·····		
NOTE:					

<sup>1.</sup> 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.

INDIVIDUAL BCIN: 19659

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375 Finiay Ava. Suite 202 Ajax, ON L1S 252 Tel: 805.819.2300 Fax: 805.619.2375 Wob: www.itvacchsigns.ca E-mail: info@wacchsigns.ca

97.00×0

00X0

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ACTUAL DUCT LGH. EQUIVALENT LENGTH TOTAL EFFECTIVE LH

PLENUM PRESSURE

ADJUSTED PRESSURE

ROUND DUCT SIZE NLET GRR1 SIZE NLET GRILL, SIZE

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75	CARRIER 80 820 0 0 1370 1520	16 2.42 2.42 68 68 60 60 160 208 0.08 6 44 44 3.77 8	822 83 87 77 6 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8
3223	SBTN6A-D60-14V FAN SPEED LOW MEDLOW MEDLOW MEDIUM MEDIUM HIGH HIGH	18 WWR WIR Co. 15 Co. 15 Co. 17 Co. 1	RETURN AIR TRUNK SIZE  TRUNK SIX  CFN PRE  TRUNK O 0.0.0  TRUNK V O 0.0  TRUNK X 1230 0.0  TRUNK X 455 0.0  TRUNK X 1025 0.0  TRUNK X 1025 0.0  DROP 1370 0.0
GFA:	S9TN6A- FAN ME MEDFU	175 0.31 0.31 0.39 30 0.17 4.5 130 175 0.17 175 0.17 0.17 0.17 0.17 0.17 0.17 0.17 0.17	RETURN A RETURN A TRUNK D TRUNK D TRUNK T TRUNK T TRUNK T TRUNK T TRUNK T TRUNK T TRUNK T TRUNK T TRUNK T TRUNK T TRUNK T TRUNK T TRUNK T TRUNK T TRUNK T TRUNK T TRUNK T
		16 KT/GT 204 258 251 84 110 1124 0.13 6 8 296 428 4210 D	VELOCITY (Minis) (Mini
		15 KT/GT 2.04 2.51 2.51 2.51 2.6 2.6 6 4.710 D 1	8808888

**CITY OF** 

**RICHMOND BUILDING DIVISION**  VELOCITY (Lightern)

PUCT 00000

200000

TRUNK H TRUNK I TRUNK J TRUNK J

TRUNK

PRESS.

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24 BAS BAS 83 83 0.41 14 0.16 38 38 110 110 1148 0.11 6

KT/GT 204 258 259 34 34 120 1120 1120 4X10

10 1.27 36 1.50 50 0.17 34 160 194 0.09 5 5 33 33 33 194

9 1.80 1.80 51 2.57 2.57 150 1.66 6.0.08 6.0.08 6.0.08 7.40 4.710

8 ENS-2/3 22.0 62.2 62.0 62.1 1.74 6.2 6.1 1.40 202 6.009 6.000 6.000 6.000 6.

ļ.

375 Finley Ave. Sulte 202 Ajax, ON 115 2E2 Tel: 905.619.2300 Fax: 905.619.2375

Web: www.hvacdesigns.ca Е-тай: info@hvacdesigns.ca

DATE: Jun-21

OPT. ZND TYPE: 4504 fumace pressure fumace filter a/c coil pressure for s/a & r/a

available pressure

t/a grille pressure da grille press. Loss adjusted pressure r/a



### CITY OF RICHMOND HILL BUILDING DIVISION

08/12/2021

375 Finley Ave. Sulte 202 Ajax, ON 1,15 2E2
Tel: 905.619.2300 Fax: 905.619.2375
Web: www.hvacdesigns.ca E-mail: info@hvacdesigns.ca

TYPE: SITE NAME:

4504

CENTREFIELD (WEST GORMLEY)

LO# 87514 OPT. 2ND

	RESIDENTIAL MEC	HANICAL.	VENTIL <mark>ATION</mark> DESI	GN SUMMARY		
COMBUSTION APPLIANCES	Per:	9.32.3.1(1)	SUPPLEMENTAL	VENTILATION CAPACITY	7	9.32.3.5.
a) Direct vent (sealed com	bustion) only		Yotal Ventilation Ca	pacity	201.4	cfm
Positive venting induced	d draft (except fireplaces)		Less Principal Veni	il. Capacity	95.4	cfm
c) Natural draft, B-vent or	induced draft gas fireplace		Required Suppleme	ental Capacity	106.0	cfm
d) Solid Fuel (including fire	ptaces)		DDINCIDAL CYUA	UST FAN GAPACITY		
e) No Combustion Applian	ces					
HEATING SYSTEM			Model:	VANEE 65H	Location:	
			95.4	cfm		HVI Approved
Forced Air	Non Forced Air		PRINCIPAL EXHA	UST HEAT LOSS CALCU	LATION FACTOR	% LOSS
Electric Space Heat			95.4 CFM	X 78 F	X 1.06	X 0.2\$
	<u> </u>		SUPPLEMENTAL Location	FANS Model	BY INSTALLING COI	
HOUSE TYPE		9.32.1(2)	ENS	8Y INSTALLING CONTRA		HVI Sones  2 3.5
<b></b>			ENS-4/5	BY INSTALLING CONTRA		✓ 3.5
Type a) or	b) appliance only, no solid fuel	1	ENS-2/3	BY INSTALLING CONTRA		√ 3.5
li Type Lexc	ept with solid fuel (including fireplaces)		W/R	BY INSTALLING CONTRA	ACTOR 50	_ [ ✓ ] 3.5
,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	opt with a vine roes (including maplaces)	i	HEAT RECOVERY	VENTEATOR		9.32,3,11,
III Any Type o	c) appliance		Model:	VANEE 65H		3.32,3,11,
			155	cfm high	64	cfm low
IV Type I, or I	II with electric space heat	ļ	75	% Sensible Efficier		HVI Approved
Other: Type I, II or IV n	o forced air			@ 32 deg F (0 deg	•	1147Apploved
			LOCATION OF INS	TALLATION		
SYSTEM DESIGN OPTIONS	-	N.H.W.P.	İ			
1 Exhaust or	nly/Forced Air System		Lot:		Concession	
2 HRV with E	Ducting/Forced Air System		Township		Plan:	
***************************************	iffied/connected to forced air system		Address			
	•		Roll #		Building Pen	mit #
	Ducking/non forced air system		BUILDER:	ROYAL PINE HO	MES	
Part 6 De	sign		Name:			
TOTAL VENTILATION CAPACITY		9,32,3,3(1)	Address:			
Basement + Master Bedroom	2 @ 21.2 cfm 42.4	cfm	City:			
Other Bedrooms	4 @ 10.6 c/m 42.4	cfm	Telephone #:		Fax#:	
Kitchen & Bathrooms	5 @ 10.6 c/m 53	cfm	INSTALLING CONT	TRACTOR		
Other Rooms	6 @ 10.6 cfm 63.6	र्दाम	Name:			
Table 9.32.3.A.	TOTAL <u>201.4</u>	cfm	Address:			
VI. I			City:			
PRINCIPAL VENTILATION CAPACI	TY REQUIRED 9	.32.3.4.(1)	2.77			
1 Bedroom	31.8	cfm	Telephone #:		Fax#,	
2 Bedroom	47.7	cim	DESIGNER CERTIF		harrian de la company	
3 Bedraom	63.6	cfm	in accordance with I	this ventilation system has the Ontario Building Code.	-	
4 Bedroom	79.6	cfm :	Name: Signature:	HVAC Designs Ltd	. 0.	~~~~~
5 Sedroom	95.4	cfm	HRAI #	/6	Muhal Office	£.,
		Gill			001820	
I REVIEW AND TAKE RESPON:	TOTAL 95,4 cfm BILITY FOR THE DESIGN WORK AND AM QUALIF	FUED ON THE APP	Date: PROPRIATE CATEGORY AS AN	VIC FEDING TEMPIRED PRINTO"	Jurie-21 ISION C. 3.2.5 OF THE BUI	ILDPIG CODE.

			Form	CSA F280-12 Residential Heat Loss and Heat Gain Calculations Formula Sheet (For Air Leakage / Ventillation Calculation)	at Loss and Heat Gair skage / Ventiliation C	n Calculations alculation)					
LO#: 87514	514	Model: 4504		∌piid€	Builder: ROYAL PINE HOMES				Date	Date: 6/7/2021	
		Volume Calculation	on				Air Change & Detta T Data	ta T Data			
House Volume				,,,,,		WINTER NA	WINTER NATURAL AIR CHANGE RATE	GE RATE	2000	_	
Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)	·	•••	SUMMER NA	SUMMER NATURAL AIR CHANGE RATE	GE RATE	0.068	<del></del>	
First	1453	10	14530								
Second	1770	8	14160	<del> ,</del>	-		Design Te	Design Temperature Difference	ference		
Fourth	0 0	6. 0	0				Tin °C	Tout °C	ΔT °C	V	Δ1 16
		Fotal:	41,767.0 H³	~~~~~		Summer DTDc	2.2	31	43		78
		Total:	1182.7 m³	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	*********						
	5.2.3	5.2.3.1 Heat Loss due to Air Leakage	Air Leakage			6.2.6 \$	6.2.6 Sensible Gain due to Air Leakage	to Air Leakage			
	$HL_{airb} =$	$HL_{airb} = LR_{airh} \times \frac{V_b}{2.6} \times DTD_h \times 1.2$	$DTD_h \times 1.2$		H	$HG_{saib} = LR_{oirc} \times$	$\langle \frac{V_b}{\frac{1}{2}} \times DTD_c \times 1.2 \rangle$	× 1.2			
0.219	х 328.53	x 43°C	x 1.2	= 3727 W	2 0.068	x 328.53		x 1.2	#	19	191 W
				= 12718 Btu/h	····				н	652	652 Btu/h
	5.2.3.2 Hez	5.2.3.2 Heat Loss due to Mechanical Ventilation	nical Ventilation			6.2.7 Sen	6.2.7 Sensible heat Gain due to Ventilation	lue to Ventifatio	ĸ.		
	HLvairb =	$HL_{vatrb} = PVC \times DTD_h \times 1.08 \times (1 - E)$	$1.08 \times (1-E)$		$HL_1$	$HL_{vairb} = PVC \times DTD_h$	$TD_h \times 1.08 \times (1-E)$	(1 – <i>E</i> )			
95 CFM	х 78 °F	× 1.08	x 0.25	= 2004 Btu/h	95 CFM	× 13°F	× 1.08	× 0.25	li li	330	330 Btu/h
			5.2.3.3 Calcuta	5.2.3.3 Calculation of Air Change Heat Loss for Each Room (Floor Multiplier Section)	oss for Each Room (Floo	or Multiplier Section)					
		$HL_{a}$	$HL_{airr} = Level Facto$	or $\times$ $HL_{alrbv} \times \{(HL_{agcr} + HL_{bgcr}) + (HL_{agclevel} + HL_{bgclevel})\}$	$L_{agcr} + HL_{bgcr}) + 1$	(HLagclevel + HLb	gclevel)}				(
		i.evel	Level Factor (£F)	Hairve Air Leakage + Ventilation Heat Loss (8tu/h)	i.evel Conductive Heat Air Leakage Heat Loss Multiplier (LF x Loss: {HLaws} Hairby / HLlevel)	Air Leakage Heat Loss Mult HLsirby / HLlevel)	ss Multiplier (LF x 1t.level)	Per:_	F	BUII O8	CITY O
		1	0.5		8,378	0.759	6		_	LDI 3/1	FF
		4 60	0.5	12,718	13,147	0.290	0 1				RIC
		*	0		0	0.000	0		-/ <i>4</i> El	3 D ) / <u>'</u>	:HN
		S	0		0	0.000	0			) (2	/IC
		*Htairbv = A *For a balan	*Htairbv = Air leakage heat loss + ventilation heat loss *For a balanced or supply only ventilation system Htal	*Htairbv = Air leakage heat loss + ventilation heat loss *For a balanced or supply only ventilation system Hairve = 0	0 11				ED	isio 02	ND
						-		_			ŀ



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**

SFQT: 3223  LO# 87514  SITE: C  DESIGN ASSUMPTIONS  HEATING OUTDOOR DESIGN TEMP6 OUTDOOR DESIGN TEMP. INDOOR DESIGN TEMP. 72 INDOOR DESIGN TEMP.  BUILDING DATA  ATTACHMENT: DETACHED # OF STORIES (+BASEME)  FRONT FACES: EAST ASSUMED (Y/N):  AIR CHANGES PER HOUR: 2.50 ASSUMED (Y/N):  AIR TIGHTNESS CATEGORY: TIGHT ASSUMED (Y/N):  WIND EXPOSURE: SHELTERED ASSUMED (Y/N):	ENTREFIELD (WEST GORMLEY)  *F
HEATING °F COOLING OUTDOOR DESIGN TEMP6 OUTDOOR DESIGN TEMP. INDOOR DESIGN TEMP. 72 INDOOR DESIGN TEMP. ( BUILDING DATA  ATTACHMENT: DETACHED # OF STORIES (+BASEME) FRONT FACES: EAST ASSUMED (Y/N): AIR CHANGES PER HOUR: 2.50 ASSUMED (Y/N): AIR TIGHTNESS CATEGORY: TIGHT ASSUMED (Y/N):	°F
OUTDOOR DESIGN TEMP.  1-6 OUTDOOR DESIGN TEMP.  1-72 INDOOR DESIGN TEMP.  BUILDING DATA  ATTACHMENT: DETACHED # OF STORIES (+BASEME)  FRONT FACES: EAST ASSUMED (Y/N):  AIR CHANGES PER HOUR: 2.50 ASSUMED (Y/N):  AIR TIGHTNESS CATEGORY: TIGHT ASSUMED (Y/N):	*F
INDOOR DESIGN TEMP.  BUILDING DATA  ATTACHMENT: DETACHED # OF STORIES (+BASEME)  FRONT FACES: EAST ASSUMED (Y/N):  AIR CHANGES PER HOUR: 2.50 ASSUMED (Y/N):  AIR TIGHTNESS CATEGORY: TIGHT ASSUMED (Y/N):	
ATTACHMENT: DETACHED # OF STORIES (+BASEME) FRONT FACES: EAST ASSUMED (Y/N): AIR CHANGES PER HOUR: 2.50 ASSUMED (Y/N): AIR TIGHTNESS CATEGORY: TIGHT ASSUMED (Y/N):	P. 88
ATTACHMENT: DETACHED # OF STORIES (+BASEME) FRONT FACES: EAST ASSUMED (Y/N):  AIR CHANGES PER HOUR: 2.50 ASSUMED (Y/N):  AIR TIGHTNESS CATEGORY: TIGHT ASSUMED (Y/N):	MAX 75°F) 75
FRONT FACES: EAST ASSUMED (Y/N):  AIR CHANGES PER HOUR: 2.50 ASSUMED (Y/N):  AIR TIGHTNESS CATEGORY: TIGHT ASSUMED (Y/N):	
AIR CHANGES PER HOUR: 2.50 ASSUMED (Y/N):  AIR TIGHTNESS CATEGORY: TIGHT ASSUMED (Y/N):	NT): 3
AIR TIGHTNESS CATEGORY: TIGHT ASSUMED (Y/N):	Y
	Υ
WIND EXPOSURE: SHEETERED ASSUMED (VAIL)	Y
ADDURED (1/14).	Υ
HOUSE VOLUME (ft³): 41767.0 ASSUMED (Y/N):	Υ
NTERNAL SHADING: BLINDS/CURTAINS ASSUMED OCCUPANTS:	6
NTERIOR LIGHTING LOAD (Btu/h/ft²): 1.27 DC BRUSHLESS MOTOR (	Y/N): Y
OUNDATION CONFIGURATION BCIN_1 DEPTH BELOW GRADE:	6.0
ENGTH: 46.0 ft WIDTH: 37.0 ft EXPOSED PERIMETER:	166.0

2012 OBC - COMPLIANCE PACKAGE		· · · · · · · · · · · · · · · · · · ·		
Component			ompliance iB-12 PERI	Package ORMANCE
		N	lominal	Min. Eff.
Ceiling with Attic Space Minimum RSI (R)-Value		<u> </u>	60	59.20
Ceiling Without Attic Space Minimum RSI (R)-Val	ue		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 Walis Minimum RSI (R)-Value		ļ	20	21.12
Below Grade Slab Entire surface > 600 mm below	v grade Minimum RSI (R)-Value	***	-	-
Edge of Below Grade Slab ≤ 600 mm Below Grad	e Minimum RSI (R)-Value		10	10
Heated Slab or Slab ≤ 600 mm below grade Minis	mum RSI (R)-Value		10	11.13
Windows and Sliding Glass Doors Maximum U-Va	alue		1.6	-
Skylights Maximum U-Value		- !	2.6	*
Space Heating Equipment Minimum AFUE	CITY OF RICHMOND HILL	***************************************	0.96	-
HRV Minimum Efficiency	BUILDING DIVISION		75%	-
Domestic Hot Water Heater Minimum EF	-00/40/0004	T	E=94%	-

INDIVIDUAL BCIN: 19669 MICHAEL O'ROURKE 08/12/2021

RECEIVED
Per:\_\_\_\_\_

Michael Offiche.



### **Residential Foundation Thermal Load Calculator**

Supplemental tool for CAN/CSA-F280

W	eather Stat	ion Description
Province:	Ontario	
Region:	Richmond	1 Hill
	Site De	escription
Soil Conductivity:	Normal co	onductivity: dry sand, loam, clay
Water Table:	Normal (7	7-10 m, 23-33 ft)
	Foundation	n Dimensions
Floor Length (m):	14.0	
Floor Width (m):	11.3	
Exposed Perimeter (m):	0.0	
Wall Height (m):	2.7	A SAMPLE CONTROL OF THE PARTY O
Depth Below Grade (m):	1.83	Insulation Configuration
Window Area (m²):	1.9	
Door Area (m²):	1.9	
	Radia	nt Slab
Heated Fraction of the Slab:	0	
Fluid Temperature (°C):	33	
	Design	Months
Heating Month	1	
	Foundat	ion Loads
Heating Load (Watts):		1638

**TYPE:** 4504 **LO#** 87514

OPT. 2ND

CITY OF RICHMOND HILL BUILDING DIVISION

08/12/2021

RECEIVED

Per:\_



CITY OF RICHMOND HILL BUILDING DIVISION

08/12/2021

**RECEIVED** 

Per:\_\_\_\_\_

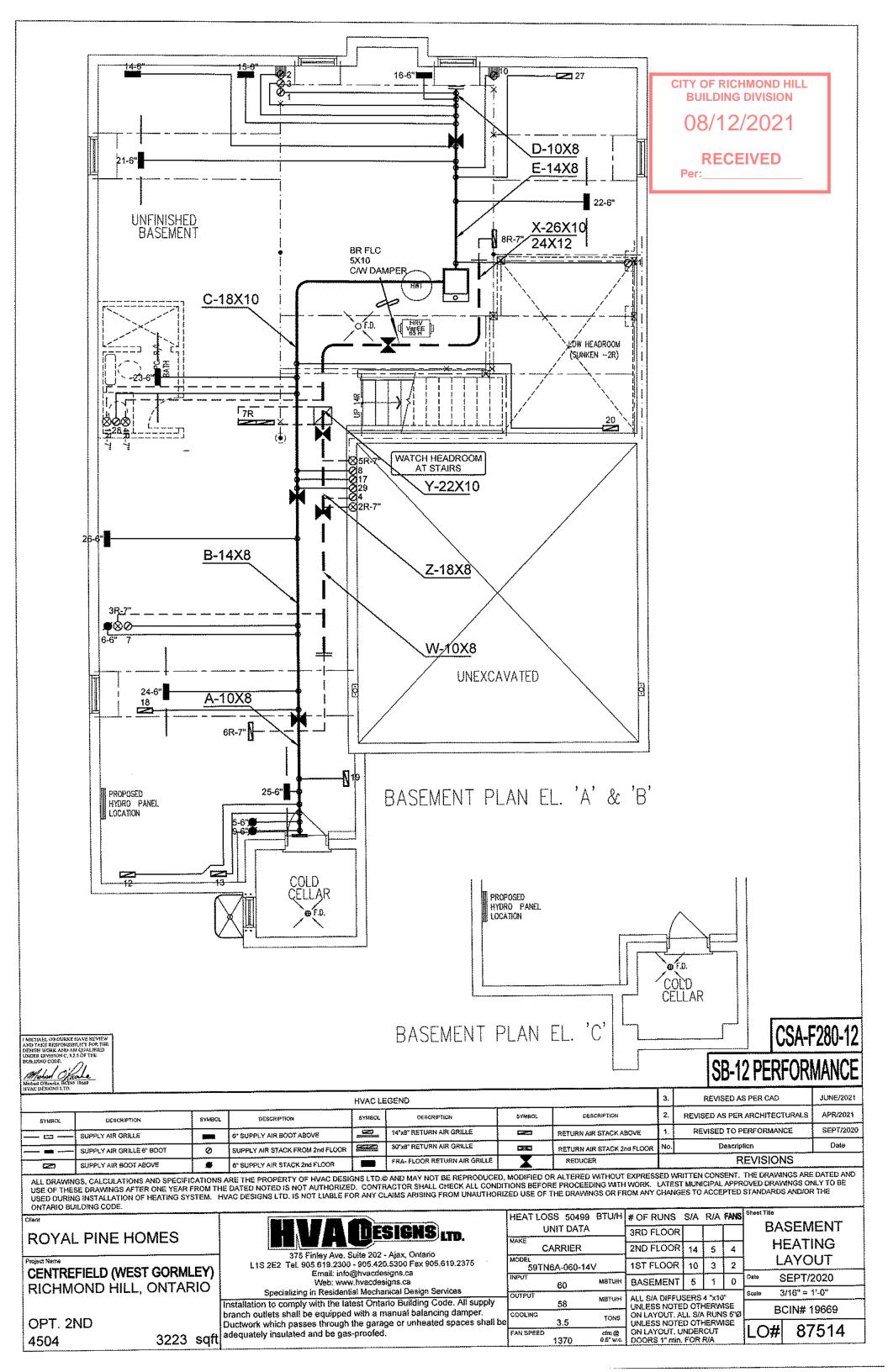
HVAC Designs Ltd. 375 Finley Ave, Suite 202 Ajax ON, L1S 2E2 905-619-2300

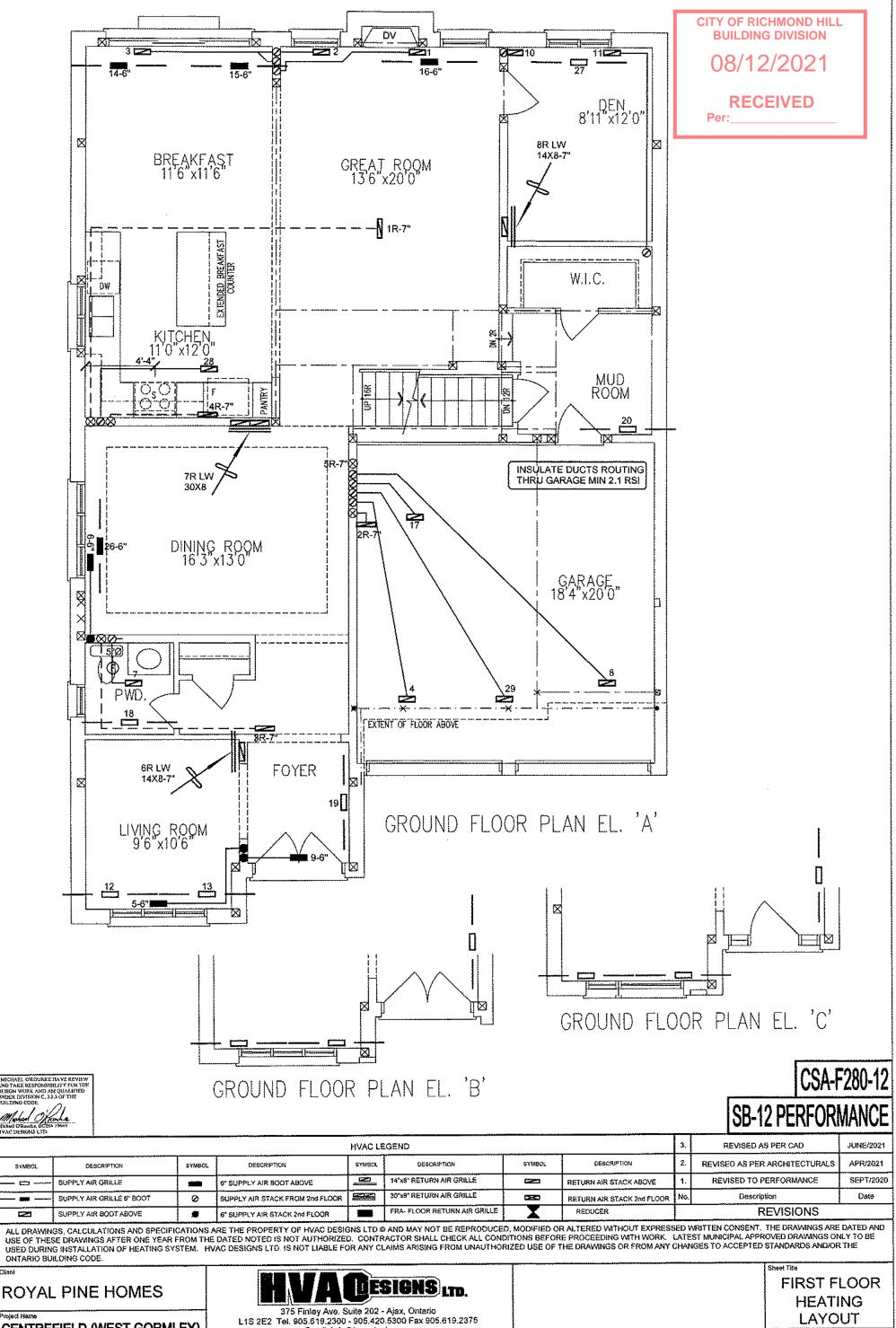
### **Air Infiltration Residential Load Calculator**

Supplemental tool for CAN/CSA-F280

Weather Statio	on De	script	ion		
Province:	Onta	rio			
Region:	Richr	nond F	Hill		
Weather Station Location:	Oper	flat te	errain,	grass	
Anemometer height (m):	10				
Local Sh	ieldin	g			
Building Site:	Subu	rban, f	orest	***************************************	
Walls:	Heav	у			
Flue:	Heav	у			
Highest Ceiling Height (m):	6.40				
Building Co	nfigur	ation			
Type:	Deta	ched		***************************************	
Number of Stories:	Two				
Foundation:	Full				
House Volume (m³):	1182	.7			
Air Leakage/	Venti	lation	1		
Air Tightness Type:	Energ	y Star	Detacl	ned (2.	5 ACH)
Custom BDT Data:	ELA @	0 10 Pa	3.	7777	1104.1 cm²
	2.50				ACH @ 50 Pa
Mechanical Ventilation (L/s):	To	tal Sup	ply		Total Exhaust
		45.0			45.0
Flue	Size				
Flue #:	#1	#2	#3	#4	
Diameter (mm):	0	0	0	0	
Natural Infilt	ration	Rate	s		
Heating Air Leakage Rate (ACH/H):		0	.21	9	
Cooling Air Leakage Rate (ACH/H):		0	.06	8	

TYPE: 4504 LO# 87514 OPT. 2ND





ONTARIO BUILDING CODE

4504

CENTREFIELD (WEST GORMLEY) RICHMOND HILL, ONTARIO

OPT. 2ND

3223 sqft

Email: info@hvacdesigns.ca Web: www.hvacdesigns.ca

Specializing in Residential Mechanical Design Services

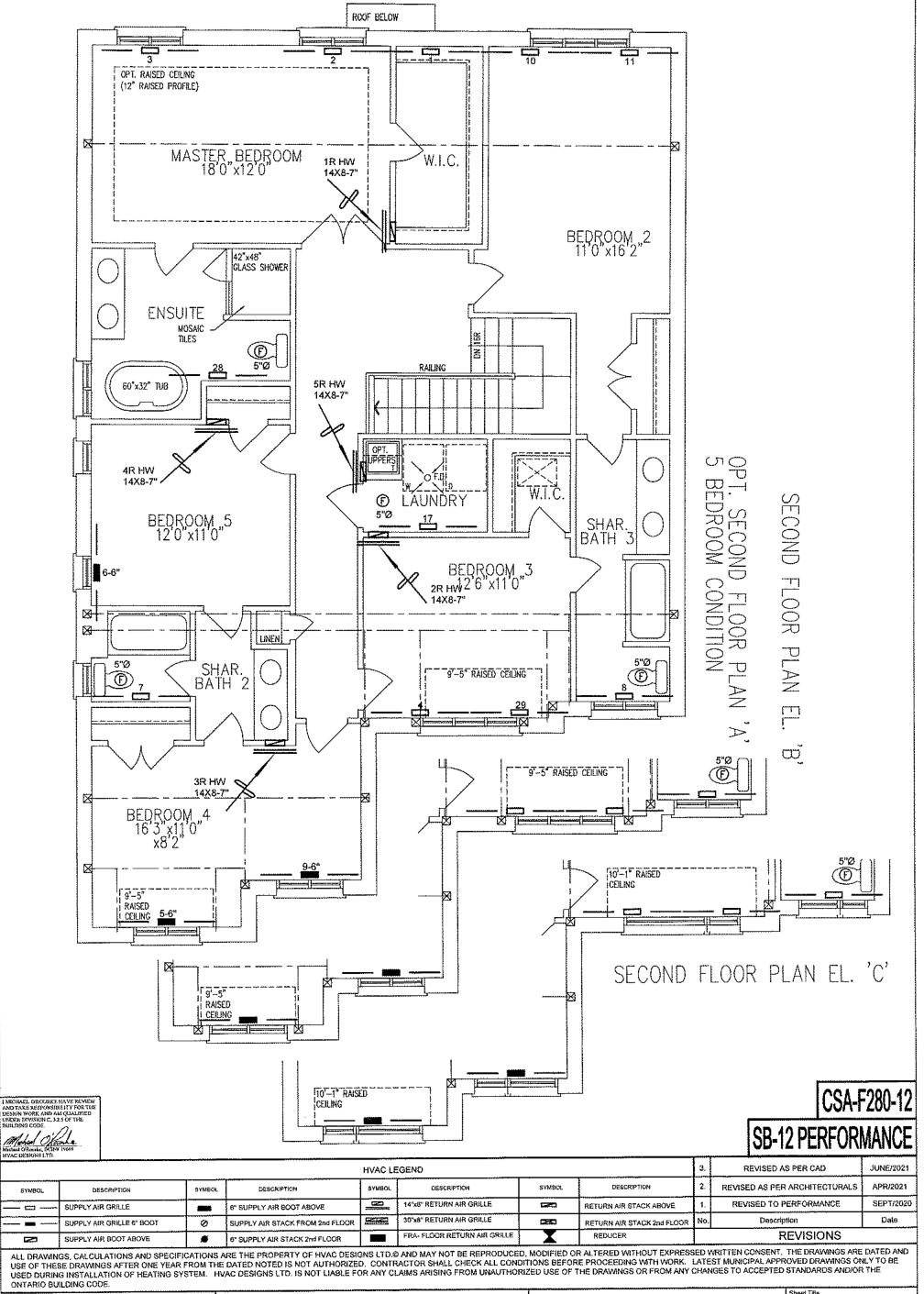
Installation to comply with the latest Ontario Building Code. All supply branch outlets shall be equipped with a manual balancing damper. Ductwork which passes through the garage or unheated spaces shall be adequately insulated and be gas-proofed.

SEPT/2020

BCIN# 19669

3/16" = 1'-0"

LO# 87514



Client

### **ROYAL PINE HOMES**

Project Nam

CENTREFIELD (WEST GORMLEY)
RICHMOND HILL, ONTARIO

OPT. 2ND

4504

3223 sqft

# 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

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.

CITY OF RICHMOND HILL BUILDING DIVISION

08/12/2021

**RECEIVED** 

SECOND FLOOR HEATING LAYOUT

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

BCIN# 19669 \_O# 87514

### CITY OF RICHMOND HILL BUILDING DIVISION

### 08/12/2021

### 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				PEGE	<del>WED</del>
Building number, street name			Uri	itho.	Lot/con.
Municipality	Postal code	Plan number/ other desc	printion		
RICHMOND HILL	l ssui couc	I wan wanden outer desc	x ibsioti		
B. Individual who reviews and takes	 responsibility:f	or decide activities			
Name	соронацию, (	Firm			
MICHAEL O'ROURKE		HVAC DESIGNS LTD.			
Street address	***************************************		Unit no.		Lat/con.
375 FINLEY AVE			202		N/A
Municipality AJAX	Postał code	Province	E-mail		
Telephone number	<u> </u>	ONTARIO	info@hvacdesign:	s.ca	***************************************
(905) 619-2300	Fax number (905) 619-2375		Cell number		
C D	1. ,		i` ′		
C. Design activities undertaken by in	aividuai identii	led in Section B. [Build	ing Code Table 3	.5.2.1 OF Divi:	sion C]
□ House	ᄾᄼᄼᅜᅜᄗ	C – House	<b>O</b> p	talia a Guard	
Small Buildings		ng Services	Su Bui	lding Structur mbing – Hous	al se
☐ Large Buildings	Detec	tion, Lighting and Pow	ver 🗀 Ptu	mbing All 8	uildinas
☐ Complex Buildings	₩ Fire P	rotection	© On-	site Sewage	Systems
Description of designer's work HEAT LOSS / GAIN CALCULATIONS		Model:	4504		
DUCT SIZING			OPT 5 BED 4 BATH		
RESIDENTIAL MECHANICAL VENTILATIO		AADV.		T CORE # 510	
RESIDENTIAL SYSTEM DESIGN per CSA-		rioject.	CENTREFIELD (WES	I GORMLEY)	
D. Declaration of Designer					
MICHAEL O'ROURKE			declare that (c	hoose one as ap	propriate):
	nt name)				
I review and take responsibility for Division C, of the Building Code. I classes/categories.	r the design work am qualified, and	on behalf of a firm registered I the firm is registered, in th	ed under subsection e	3.2.4.of appropriate	
Individual BCIN:					
Firm BCIN:			<del></del>		
I review and take responsibility for designer under subsection 3.2	r the design and a .5.of Di visi	om qualified in the appropria ion C, of the Building Code.	ite category as an "c	other	
Individual BCIN:	19669				
		d qualification:	O.B.C SENTEN	CE 3.2.4.1	(4)
The design work is exempt Basis for exemption from registrat	from the registration and qualificati	tion and qualification require	ements of the Buildis		
I certify that:					
The information contained     I have submitted this applicat	in this sched ion with the knowl	lule is true to the best of my ledge and consent of the fin	knowledge. m.		
June 7, 2021			Metal	Whate	•
Date		•	5	Signature of Des	igner

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.

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.

MANCHAEL O'ROURKE

TOTAL COMBINED HEAT LOSS BTU/H; 56729	had Hamba.
18785	1
STRUCTURAL HEAT LOSS: 48785	Ì

SB-12 PERFORMANCE				****																							BAS	166	o-	986	en-	4 87 64	474 494	474	9	217	0 0 0	ō	0	9	6591	-	982		6369	77		6	595	14737	2506
				GAIN		£3	Ф	4	۰.	• ;	2	2 =	; e	7.				970		4	;	Ę	•	-	\$44£													••••					•••••						••••		1
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ROOM USE EXP. WALL	CLG. HT.		ULL AREA Grazinio	NORTH	EAST	SOUTH	WEST	SKYLT,	00083	WAE	BOVE OF	200	200	LOSS	1,055	1088	TOAM	PLES	Loss	G G G	DUCT LUSS	37409 8091£	LIGHTS	BTWA	BTUH	ROOM USE	EXP. WALL	CLG. HT.	1	GLAZING	NORTH	EAST	SOUTH	SKYLT.	DOORS	WALL	IDVE OR	2 0	LOOK	LOSS	LOSS	1.055	P. IER	Loss	GAIN	SSOT	2 0 0	IGHTS	HUUTE	зтин	
ROC	: :	ı	GRS.WALL AREA LOSS GAIN	i -				-	-	WET EXPOSED WALL	net exposed asmt wall above or	EXPOSED CLG	NO AT INCEAPOSED CLG	BASEMENT/CRAM. HEAT LOSS	SLAB ON GRADE HEAT LOSS	SUBTOTAL HT LOSS	SUB TOTAL, HT GAM	LEVEL FACTOR / MULTIPLIER	AIR CHANGE HEAT LOSS	AIR CHANGE TEAL GAIN	200	HEAT GAIN PEOPLE	HEAT GAIN APPLIANCES LIGHTS	TOTAL HT LOSS BTUR	TOTAL HT GAIN x 1.3 BTUIH	ROOM	EXP.	ಕ	400	Greenwale Area Loss GAM	2		τ <b>Ω</b> -	iń	Φ	NET EXPOSED WALL	NET EXPOSED BSMT WALL ABOVE OR	NO ATTIC EXPOSED CLG	EXPOSED FLOOR	BASEMENT/CRAWL HEAT LOSS	SLAB ON GRADE HEAT LOSS	SUBTOTAL HT 1,055	SUB FOLIAL RESULTIBLIER	AIR CHANGE HEAT LOSS	air change heat gain	DUCT LOSS	DDCI GAIN SEAT GAIN SEOR	HEAT GAIR APPLIANCES/LIGHTS	TOTAL HT LOSS BTU/H	TOTAL HT GAIN x 1,3 BTU/H	



HV/ATESIONS in	ei:																		Web	375 Finley Ave. Suite 202 Ajax, ON 1,15 222 Tel: 905,619.2300 Fax: 905.619.2307 Web: www.hvacdesigns.ca E-mail: info@hvacdesigns.ca	375 Finiey Ave. Suite 202 Ajax, ON 1,15 2E2 Tet 905,619,2300 Fax: 905,619,2375 ardesigns.ca E-mail: info@hvacdesigns.ca	iniey Ave. Suite 202 Ajax, ON 115 2E2 Tet 905,619.2300 Fax: 905,619.2375 signs.ra E-mail: info@hvacdealgns.ra	02 Ajax, Oh   Fax: 905.1 fo@hvacd	44,15 2E2 619,2375 esigns.ca
EIS B	E NAME:	SITE NAME: CENTREFIELD (WEST GORMLEY) BUILDER: ROYAL PINE HOMES	FIELD (V	VEST GC	RMLEY)			OPT 5 Bi TYPE: 4504	OPT 5 BED 4 BATH 4504	O 4 BATH		۵	DATE: Jun-21	n-21		U	GFA: 3223		10# 91146	146				
MEATING CFM TOTAL HEAT LOSS AIR FLOW RATE CFM	1370 48,785 28.08		COOLING CFM TOTAL HEAT GAIN AIR FLOW RATE CFM	LING CFM EAT GAIN ATE CFM	1370 42,127 32,52		· >	furnace pressure furnace filler a/c coil pressure available pressure	m tu m	0.05						. 85 F8	SBTN6A-060-14V FAN SPEED	.14V EED	ш	1	AFUE = 97 % INPUT (BTUH) = 60,000 OUTPUT (BTUH) = 58,000	FUE = 97 UM) = 60	% 000 %	
RUN COUNT 4th 3rd 27 S/A 0 0 1 R/A 18/A diffusers 4"x10" unless noted otherwise on	4th 0 0 less noted	3rd 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	3rd 2nd 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	15t 10 10 ut.	Bas 5		fo plenum pr max s/a dlf p mln adjusted pn	for s/ plenum press ux s/a dlf pres idjusted press	for s/a & r/a oressure s/a press. loss oressure s/a	0.35 0.18 0.16	r/a gr adjust	r/a pressure r/a grille press. Loss adjusted pressure r/a		0.17 0.02 0.15		æ	LOW MEDLOW MEDIUM MEDIUM HIGH HIGH		820 0 0 1370 1520	TEMP	DESIGN CFM & CFM @ EMPERATURE RISE	DESIGN CFM # 1370 CFM @ .6. E.S.P.	8370 E.S.P.	11,
# BLOOM HIGS OF UNITED HOW	led other	Mise on its	70ui.	4	t	- 1				1	11	12		1	- 1			- 1		- 1	23	!		
RM LOSS MBH. CFM PER RUN HEAT	08.0 e 5	F. 75	1.31 37	33 33 34 35 57	1.79 50 50	Ð	ō.	WIC-3 1.48 41	주 한 요 교	2052 2012 2012 2012 2012 2012 2012 2012	3ED-2 1.01 28	3;2 8	₹558 252	77/61 2.04 57	KT/GT K1 2.04 2 57	KT/GT L/ 2.04 0 57	0.31 O	W/R F 0.53	FOY M	MCD B.	BAS B	BAS E 2.95	8AS 2.95	2.95
RM GAIN MBH. CFM PER RUN COOLING	80° -	53 53	1.95 63	73	2.60 85	_																		24.5
ADVOSTED PRESSURE ACTUAL DVCT LGH, EQUIVALENT LENGTH	45	6.4 7.4 7.4 7.4 7.4 7.4 7.4 7.4 7.4 7.4 7	0.17 49 89	0.17 54 55 54 54 54	0.16 17.	0.17 66 57																		39 38
TOTAL EFFECTIVE LENGTH ADJUSTED PRESSURE	195	222 0.08	229 0.08	0.175	241	236																		110
ROUND DUCT SIZE HEATING VELOCITY (flumin) COOLING VELOCITY (flumin)	4 <u>6</u> 2	5 272 463	272	5 272 536	255	\$ £3	4 tet																	6.423
OUTLET GRILL SIZE TRUNK	3X30	3x10	2 K a	3,5°	4X10 A	4X10 B						- 1					• • •		``	·	•	•	•	233
RUN #	l 1	26	27	28	29	11			H		П		H	11										m
ROOM NAME RM LOSS MBH.	8AS 2.95	₩ 8.	1.77	ENS 0.90	BED-3	ENS-2 0.65	ENS-3			P			CIT											•
CFM PER RUN HEAT RM GAIN MBH.		56 1.93	50 2.26	25 0.67	37		26 0.35			F _:_er		3UII 3C	ΥO											
CFM PER RUN COOLING ADJUSTED PRESSURE	0.16 14	0,17	74.0 71.0	22 0.17	73 71.0		0.17			RE			FR											
ACTUAL DUCT LGH. EQUIVALENT LENGTH	150	e 65	22 25	8 8 8	£ 68	6 5 5	5 170 170			CE														
ADJUSTED PRESSURE	0.08 0.08	9.4	0.1	0.08	223 0.08	210	210 0.08			:IV			IMC											
HEATING VELOCITY (Wmin)	423	9 7 8 8	5 367	4 287	5 272	4 207	298 298			E														
COOLING VELOCITY (Wmin) OUTLET GRILL SIZE TRUNK	4X 4 4	32† 4X10 B	3X10 E 10	3X10 C	536 C 3X10	3X 33 3X 43 3X 43	3X10			<u> </u>		10N												
SUPPLY AIR TRUNK SIZE							ŀ																	
	TRUNK	STATIC PRESS.	ROUND	RECT		_	VELOCITY (PVmIn)		æ	TRUNK ST	STATIC RK	ROUND R	RECT		VELC	ALDOUTA	JAN AIR JRUNK JRUNK	NK STATIC	윤	ROUND RE	RECT		類	ÆCOCITY
TRUNK A	315 515	0.07	4. t.	5 5	× ×	m) es	567	E F	TONK G				_							_				(frl/mhr)
TRUNK G	848	0.07	13.4	: ₩ 5	× >	٠Ç.	654	: F	RUNK !		38													00
TRUNK B	552	0.08	17.5	5 tō c	× × >	v 00 0	621 621	= Æ {	TRUNK J	000	0.00	000	00.			0 0 TRU								
				,				=	1		56					·	TRUNK I 0	900		00	^ ^	××	€0 €0	00
RETURN AIR #	0	~ ~	en c	40	9	9										BR TRUE	_							04
AIR VOLUME	32	115	115	115	38	130																		107
ACTUAL DUCT LGH.	0.15 85	55.5	0.15 88	0.15 78	50 0.15	0.15 57											TRUNKZ 49					,		
FOUNTALENT LENGTH TOTAL EFFECTIVE LH	280	300	215 303	235 313	205 255	190 247																		6
ALJUSTED PRESSURE ROUND DUCT SIZE INLET GRILL SIZE	0.05 7 8	0.05 ~ «	0.05 7 a	0.05 7	9.08	0.06	0.05	6.5	4.80 5.0 4.	0.00	0.00	0 0 14	14.80 14.	14.80 14	0 7.	7.5								
WET GRIL SIZE	× ½	× 2	°×‡	o × 4	o × 2	•×₹																		······································
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TYPE: SITE NAME: 4504

CENTREFIELD (WEST GORMLEY)

LO#

91146 OPT 5 8ED 4 BATH

### RESIDENTIAL MECHANICAL VENTILATION DESIGN SUMMARY

COMBUSTION APPLIANCES	9.32.3.1(1)	SUPPLEMENTAL VENTILATION CAPACITY 9	.32.3.5,
a) Direct vent (sealed combustion) only		Total Ventilation Capacity 212 of	'n
b) Positive venting induced draft (except fireplaces)		Less Principal Ventil. Capacity 95.4 cfi	in:
c) Natural draft, 8-vent or induced draft gas fireplace		Required Supplemental Capacity116.5	in:
d) Solid Fuel (including fireplaces)	İ		
e) No Combustion Appliances		PRINCIPAL EXHAUST FAN CAPACITY	
		Model: VANEE 65H Location: 8SMT	
HEATING SYSTEM		95.4 cfm	proved
Forced Air Non Forced Air		PRINCIPAL EXHAUST HEAT LOSS CALCULATION  CFM 67 FACTOR %LC	``.ee
Electric Space Heat		95.4 CFM X 78 F X 1.08 X 0.2	
		SUPPLEMENTAL FANS BY INSTALLING CONTRACTOR	
HOUSE TYPE	9.32.1(2)	Location Model cfm HVI Son  ENS BY INSTALLING CONTRACTOR 50 V 33	**********
	2.04.1(4)	ENS BY METALLING CONTRACTOR 50 3:  ENS-4/5 BY INSTALLING CONTRACTOR 50 3:	******
Type a) or b) appliance only, no solid fuel		ENS-3 BY INSTALLING CONTRACTOR 50 / 3.	
Type ( except with solid fuel (including firentages)		W/R BY INSTALLING CONTRACTOR 50 / 3.	5
Il Type I except with solid fuel (including fireplaces)		HEAT RECOVERY VENTILATOR 9.3	
ill Any Type c) appliance		Model: VANEE 65H	2.3.11.
IV Type I, or II with electric space heat		155 cfm high <u>64</u> cfm	low
Other: Type I, II or IV no forced air		75 % Sensible Efficiency Y HVI App	proved
***************************************			
SYSTEM DESIGN OPTIONS 0	.N.H.W.P.	LOCATION OF INSTALLATION	
,		Lot: Concession	
1 Exhaust only/Forced Air System		Township Plan:	
2 HRV with Ducting/Forced Air System		Address	
3 HRV Simplified/connected to forced air system		Roll # Building Permit #	
4 HRV with Ducting/non forced air system			
Part 6 Design			
		Name:	
TOTAL VENTILATION CAPACITY 9	.32.3.3(1)	Address:	
Basement + Master Bedroom 2 @ 21.2 cfm 42.4	cim	City	
Other Bedraoms 4 @ 10.6 c/m 42.4	cfm	Telephone #: CITY OF RICHMOND Fax#	
Kitchen & Sathrooms 6 @ 10,6 cfm 63.6	cfm	INSTALLING CONTRACTOR LDING DIVISION	
Other Rooms 6 @ 10.6 c/m 63.6	cfm	Name; 09/4 9/9 04	
Table 9.32.3.A. TOTAL 212.0	căn)	Address:	
		City: DECEIVED	-
PRINCIPAL VENTILATION CAPACITY REQUIRED 9.	32.3.4.(1)	NEUEIVED 1	
1 Bedroom 31,8	cfm	Telaphone #: Per: Fax #:	
2 Bedroom 47.7	cfm	DESIGNER CERTIFICATION  I hereby certify that this ventilation system has been designed	
3 Bedroom 63,6	cfm	in accordance with the Ontario Building Code. Name: HVAC Designs Ltd.	
4 Bedroom 79.5	cím	Signature: Mutist Office :	
5 Bedroom 95.4	cfm	HRAI# 001820	
TOTAL 95.4 cfm		Date: June-21	
I REVIEW AND TAKE RESPONDBUTY FOR THE DESIGN WORK AND AM QUALIFIT INDIVIDUAL BOTH: 19669 MICHAEL O'ROUF	ED IN THE APPI	ROPRIATE CATEGORY AS AN "OTHER DESIGNER" UNDER DIVISION C. 3.2.5 OF THE BUILDING CODE.	

Alpha Office.

			Form	ula Sheet (For Air Leg	mula Sheet (For Air Leakage / Ventiliation Calculation)	Calculations   alculation					
10#:	LO#: 91146	Model: 4504		Builde	Builder: ROYAL PINE HOMES				Date.	Date: 6/7/2024	
		Volume Calculation	uo			Air Ci	Air Change & Delta T Data	Data		4707110	
House Volume				,,,,,,	<del></del>	STAN STANTED WINTER WATER	S ASP CHANGE	1 1	0,10		
Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)			SUMMER NATURAL AIR CHANGE RATE	AL AIR CHANGE	RATE	0.068		
First	1453	6 02	13077								
Second	1770	8	14160								
Тһігд	0	6	0				Design Temp	Design Temperature Difference	rence		
Fourth	0	6	0			Winter OTDI)	22	-21 -21	43	10 4	_
		Total: Total:	41,767.0 ft³ 1182.7 m³			Summer DTDc	24	31	7	13	
	5.2.3.	5.2.3.1 Heat Loss due to Air Leakage	ir Leakage			6.2.6 Seneth	6.2 6 Sensible Gain due to Air Leatage	Air Leabage			
	HLocat =	$H_{Local} = I.R_{Local} \times \frac{V_b}{V_b} \times DTD, \times 1.2$	3TD, × 1.2			, , , , , , , , , , , , , , , , , , ,					
		3.6				nusath - Lhaire X 3.6	$\times DID_c \times 1.2$	7.			
0.219	x 328.53	× 43°C	x 1.2	= 3727 W	0.068	x 328.53 x	7.C ×	1.2	lı	W 191	3
				= 12718 8tu/h					1	652 Btu/h	ų/n
	5.2.3.2 Hea	5.2.3.2 Heat toss due to Mechanical Ventilation	nical Ventilation			6.2.7 Sensible	6.2.7 Sensible heat Gain due to Ventilation	to Ventilation			
	$HL_{vairb} = I$	$HL_{vairb} = PVC \times DTD_h \times 1.08 \times (1-E)$	$1.08 \times (1-E)$		HL <sub>y</sub>	$HL_{vairb} = PVC \times DTD_h \times 1.08 \times (1 - E)$	× 1.08 × (1	E)			
95 CFM	х 78 °F	x 1.08	× 0.25	= 2004 Btu/h	95 CFM	× 13 %	1.08 ×	0.25	il	330 Btu/h	u/h
			5.2.3.3 Calcular	ion of Air Change Heat L	5.2.3.3 Calculation of Air Change Heat Loss for Each Room (Floor Multiplier Section)	r Multiplier Section)					
		$HL_{ai}$	$HL_{airr} = Level Facto$	$r \times HL_{airbv} \times \{(H_i)\}$	$L_{agcr} + HL_{bgcr}$ $\div$ (	tor × $HL_{alrbv}$ × { $(HL_{agcr} + HL_{bgcr}) \div (HL_{agclevel} + HL_{bgclevel})$ }	el)}				С
		Level	Level Factor (LF)	HLairve Air Leakage + Ventilation Heat Loss {Btu/h}	Level Conductive Heat Loss: (HL.hwal)	Level Conductive Heat Air Leakage Heat Loss Multiplier (LF x Loss: (H_heat) Healtby / Hilevel)	tiplier (LF x	Per:	R	BUIL 08/	ITY OF
		1	0.5		8,378	0.759			Ī	DI	- R
		2	0.3		13,147	0.290				N	210
		e e	0.2	12,718	14,056	0.181			-	G I	:H
		4 3	0 0		0	0.000			IV	DIV	MC
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		*For a balan	TFOL a balanced of supply only ve-	ventilation system HLairve = 0	- ()					10	Н



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**

MODEL:	4504		OPT 5 BED 4 BATH	PHILIPPS GOVAL DAIS HOLDS				
SFQT:	3223	LO#	91146	Builder: Royal Pine Homes Site: Centrefield (West				
		LQ"	31140	SITE, CENTRETIELD (WES	GORIVILEY)			
DESIGN A	SSUMPTIONS							
HEATING			۰¢	COOLING	•F			
OUTDOOF	R DESIGN TEMP.		-6	OUTDOOR DESIGN TEMP.	88			
INDOOR D	DESIGN TEMP.		72	INDOOR DESIGN TEMP. (MAX 75°F)	75			
BUILDING	DATA							
АТТАСНМ	ENT:		DETACHED	# OF STORIES (+BASEMENT):	3			
FRONT FA	CES:		EAST	ASSUMED (Y/N):	Υ			
AIR CHANG	GES PER HOUR:		2.50	ASSUMED (Y/N):	Y			
AIR TIGHT	NESS CATEGORY:		TIGHT	ASSUMED (Y/N):	γ			
WIND EXP	OSURE:	:	SHELTERED	ASSUMED (Y/N):	Υ			
HOUSE VO	LUME (ft³):		41767.0	ASSUMED (Y/N):	Υ			
INTERNAL	SHADING:	BLINDS	/CURTAINS	ASSUMED OCCUPANTS:	6			
INTERIOR I	LIGHTING LOAD (Btu/	h/ft²):	1.40	DC BRUSHLESS MOTOR (Y/N):	Υ			
OUNDATI	DUNDATION CONFIGURATION		BCIN_1	DEPTH BELOW GRADE:	6.0			
.ENGTH:	46.0 ft	WiDTH:	37.0 ft	EXPOSED PERIMETER:				

2012 OBC - COMPLIANCE PACKAGE			······
Component		Compliance SB-12 PER	e Package 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 gra	de Minimum RSI (R)-Value	-	
Edge of Below Grade Slab ≤ 600 mm Below Grade Mi		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	CITY OF RICHMOND HILL	0.96	_
HRV Minimum Efficiency	BUILDING DIVISION	75%	
Domestic Hot Water Heater Minimum EF	00/40/0004	TE=94%	_

INDIVIDUAL BCIN: 19669 MICHAEL O'ROURKE 08/12/2021

RECEIVED
Per:

Mital Karte.



# **Residential Foundation Thermal Load Calculator**

Supplemental tool for CAN/CSA-F280

W	eather Sta	tion Desc	ription						
Province:	Ontario	********							
Region:	Richmor	nd Hill							
	Site D	escription							
Soil Conductivity:	Normal e	conductivity:	dry sand, loam, clay						
Water Table:	Normal (	7-10 m, 23-3	3 ft)						
	Foundatio	n Dimens	ions						
Floor Length (m):	14.0								
Floor Width (m):	11.3	Supergrade Northwest							
Exposed Perimeter (m):	0.0								
Wall Height (m):	2.7		SSS-DEVIMACOSTOCICA SAL						
Depth Below Grade (m):	1.83	1	nsulation Configuration						
Window Area (m²):	1.9	\$ <del>1005/45000</del>							
Door Area (m²):	1.9								
	Radia	ant Slab	CITY OF RICHMOND HILL						
Heated Fraction of the Slab:	0		BUILDING DIVISION						
Fluid Temperature (°C):	33		08/12/2021						
	Design	Months	RECEIVED						
leating Month	1								
	Founda	tion Loads	;						
Foundation Loads eating Load (Watts): 1638									

TYPE: 4504 LO# 91146

OPT 5 BED 4 BATH



# **Air Infiltration Residential Load Calculator**

Supplemental tool for CAN/CSA-F280

Weather Stat	on De	scrip	tion		
Province:	Onta	rio			
Region:	Richr	mond I	<del>1</del> 111		
Weather Station Location:	Oper	n flat to	errain,	grass	
Anemometer height (m):	10				
Local S	hieldir	ıg		*****	
Building Site:		rban, 1	orest	***************************************	
Walls:	Heav	У			
Flue:	Heav	γ			
Highest Ceiling Height (m):	6.40				
Building Co	nfigur	ation	<u> </u>		
Type:	Deta				
Number of Stories:	Two				
Foundation:	Full				
House Volume (m³):	1182	.7			
Air Leakage	/Venti	latio	7	•••	
Air Tightness Type:	Energ	y Star	Detacl	ned (2.	5 ACH)
Custom BDT Data:	ELA @	9 10 P	а.		1104.1 cm²
	2.50				ACH @ 50 Pa
Mechanical Ventilation (L/s):	Ťζ	tal Sup	ply		Total Exhaust
		45.0			45.0
Flue	Size	****	***************************************		
Flue #:	#1	#2	#3	#4	
Diameter (mm):	0	0	0	0	
Natural Infile	ration	Rate	S		
Heating Air Leakage Rate (ACH/H)	*	C	.21		
Cooling Air Leakage Rate (ACH/H):		C	.06	8	

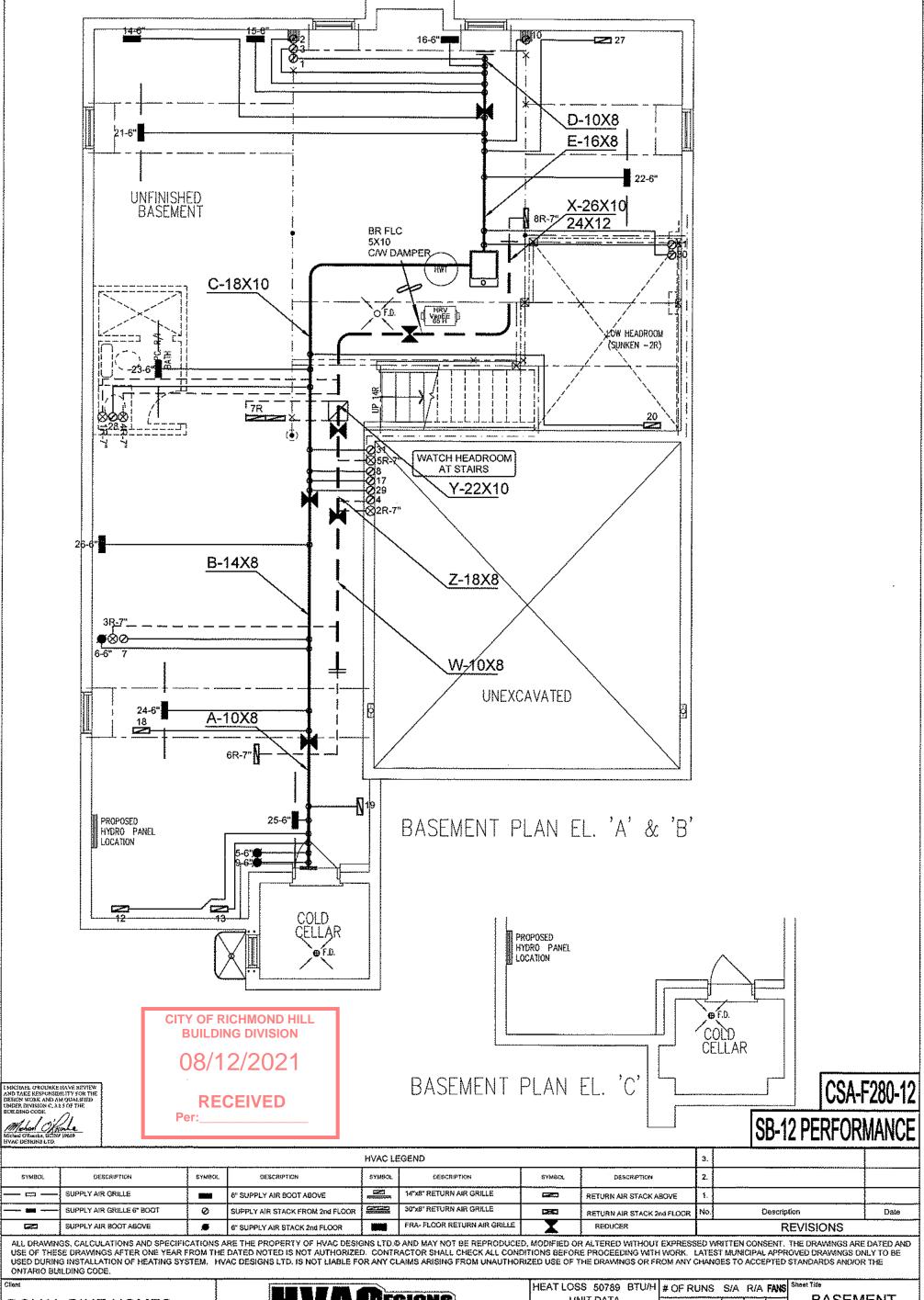
CITY OF RICHMOND HILL BUILDING DIVISION

08/12/2021

RECEIVED
Per:

TYPE: 4504 LO# 91146

OPT 5 BED 4 BATH



ROYAL PINE HOMES

CENTREFIELD (WEST GORMLEY) RICHMOND HILL, ONTARIO

OPT. 5 BED 4 BATH

3223 sqft 4504

# 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

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.

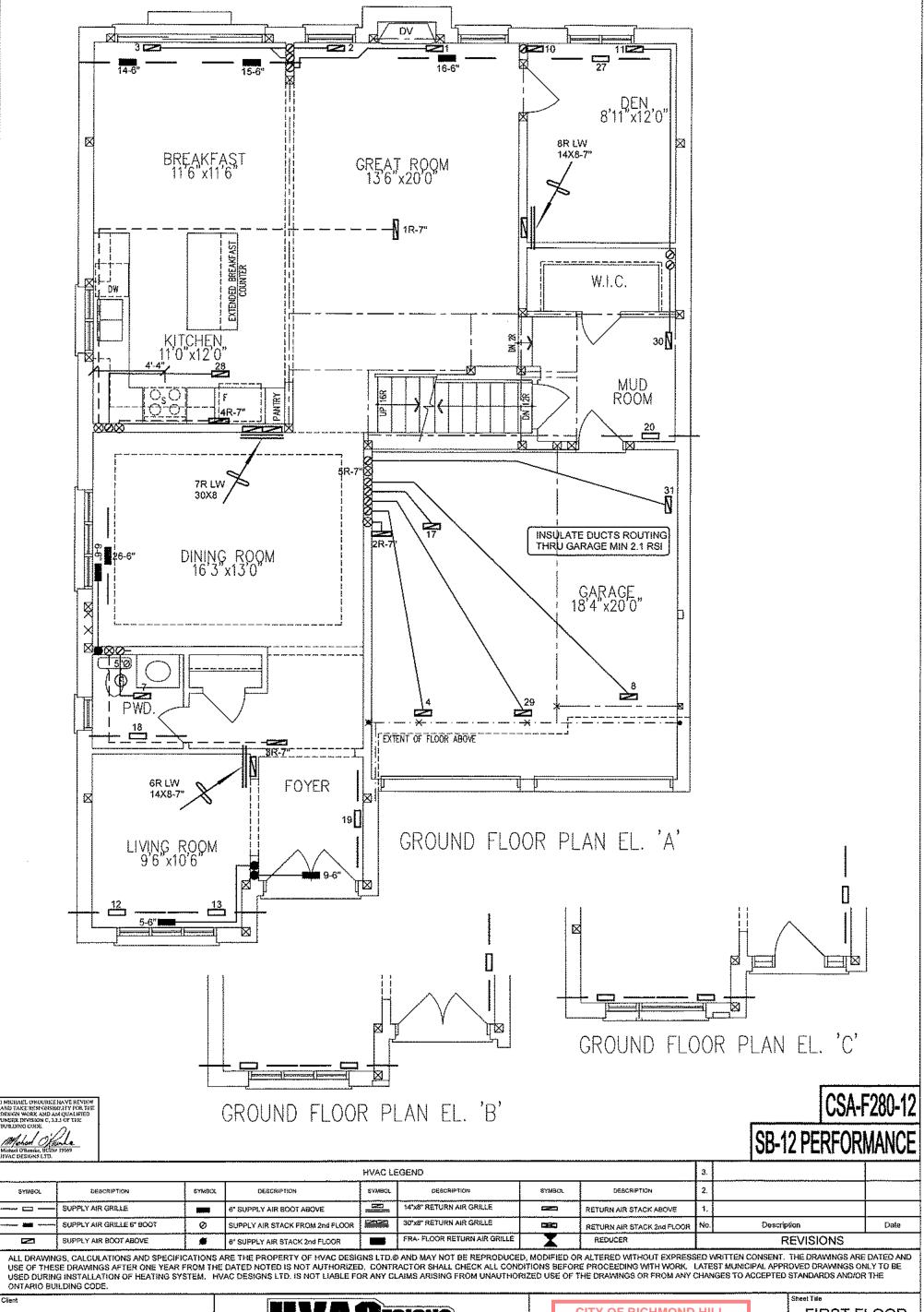
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ON LAYOUT, UNDERCUT DOORS 1" min. FOR R/A

BASEMENT HEATING LAYOUT JUNE/2021 3/16" = 1'-0" BCIN# 19669 LO# 91146



### **ROYAL PINE HOMES**

**CENTREFIELD (WEST GORMLEY)** RICHMOND HILL, ONTARIO

OPT. 5 BED 4 BATH 3223 sqft

4504

# DESIGNS LTD.

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**CITY OF RICHMOND HILL BUILDING DIVISION** 

08/12/2021

**RECEIVED** Per:

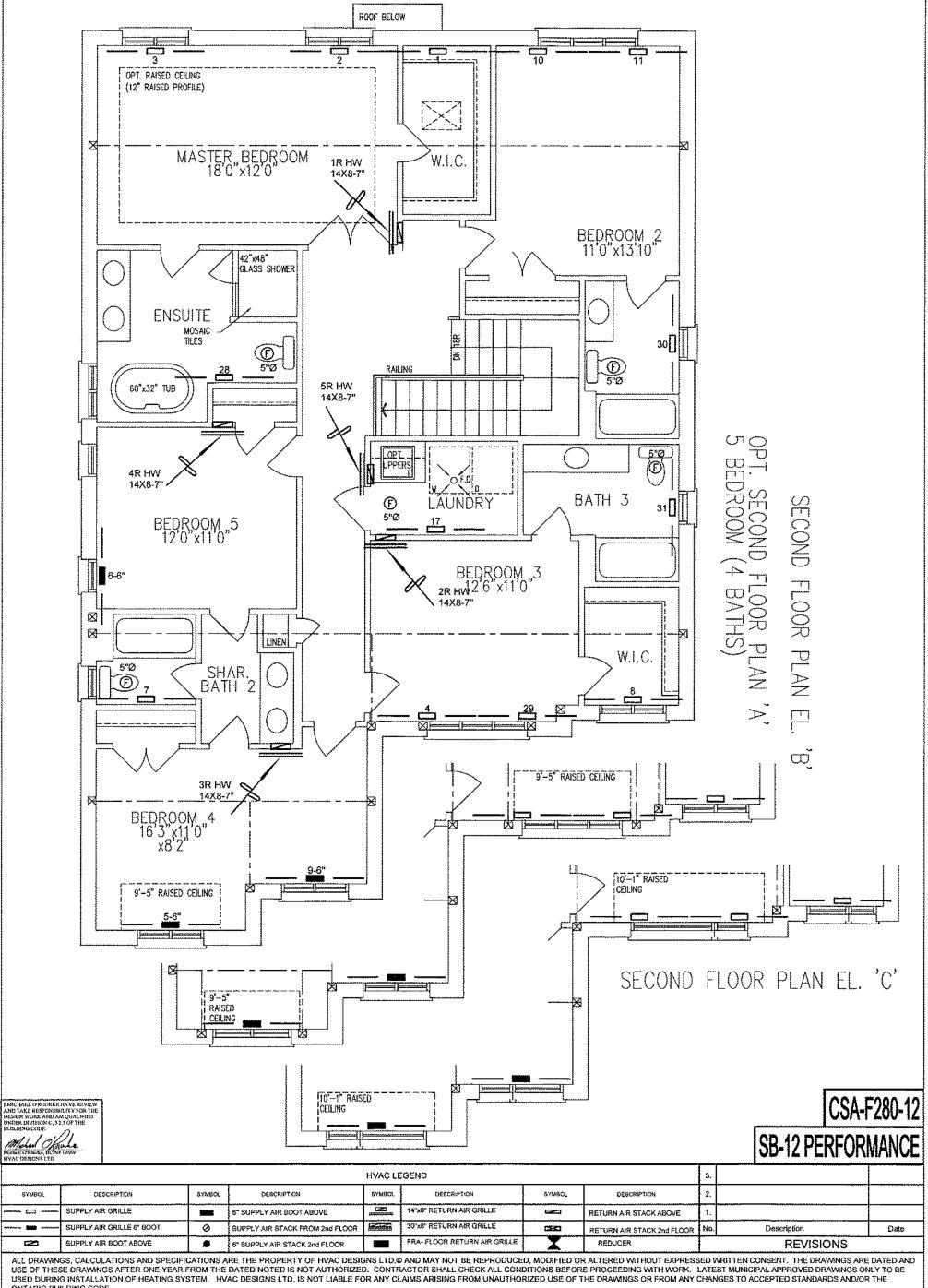
FIRST FLOOR **HEATING** LAYOUT

JUNE/2021 3/16" = 1'-0"

LO#

BCIN# 19669

91146



ONTARIO BUILDING CODE.

### **ROYAL PINE HOMES**

**CENTREFIELD (WEST GORMLEY)** RICHMOND HILL, ONTARIO

OPT. 5 BED 4 BATH

4504 3223 sqft

# DESIGNS LTD.

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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.

CITY OF RICHMOND HILL **BUILDING DIVISION** 

08/12/2021

**RECEIVED** 

### SECOND FLOOR **HEATING** LAYOUT

JUNE/2021 3/16" = 1'-0"

BCIN# 19669

91146

### **Schedule 1: Designer Information**

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

A. Pro	ject Information				
Building	number, street name			4400000	Unit no. Lot/con.
Municipa	ality	Postal code	Plan number/ other des		dian
RICHMO	•	i ustar code	rian number/ outer des	cupi	RIGHT
	vidual who reviews and takes	 reenoneibility fo		(455)X	
Name		responsionicy ic	Firm		SUIEDINGEDIVISIONE
MICHAE	L O'ROURKE		HVAC DESIGNS LTD.		BOILDING BIVIOIGI
Street ac	·			Un	nit no. (18/12/20 Rot/con.
	LEY AVE			20:	
Municipa AJAX	llity	Postal code	Province		mail
<u></u>	ne number	L1S 2E2	ONTARIO	inf	fo@hvacdesig <mark>ns.ca</mark> CEIVED
(905) 61		Fax number (905) 619-2375		Cel	numbeper:
C Oas	Zan Galeria	.1.		1	
U. DES	ign activities undertaken by in	awaaa loenun	a iu secnou R' fRaile	ıng	Code Table 3.5.2.1 OF Division C]
□ но	use	⊠ HVAC	House	ystyllid	☐ Building Structural
□ Sm	all Buildings	🗀 Buildin	g Services		☐ Plumbing House
Lar	ge Buildings mplex Buildings	Detect	ion, Lighting and Pov	ver	☐ Plumbing – All Buildings
<del></del>		☐ Fire Pr			On-site Sewage Systems
	on of designer's work DSS / GAIN CALCULATIONS		Model:	450	04
DUCT SI			İ	OPT	PT. GROUND - 5 BED 4 BATH
RESIDEI	NTIAL MECHANICAL VENTILATIO	N DESIGN SUMM.	ARY D		=
RESIDE	NTIAL SYSTEM DESIGN per CSA-	F280-12	Project:	CEN	NTREFIELD (WEST GORMLEY)
D. Decl	aration of Designer				
ł	MICHAEL O'ROURKE				declare that (choose one as appropriate):
	(pi	int name)			(
ם	I review and take responsibility for Division C, of the Building Code, classes/categories.	or the design work of I am qualified, and	on behalf of a firm register the firm is registered, in th	ed ui ie	under subsection 3.2.4.of appropriate
	Individual BCIN: Firm BCIN:				
X	I review and take responsibility for designer" under subsection 3.2	r the design and ar l.5.of Di visio	n qualified in the appropri on C, of the Building Code.	ate c	category as an "other
	Individual BCIN:	19669			
			qualification:	Ο.	D.B.C SENTENCE 3.2.4.1 (4)
۵	The design work is exempt Basis for exemption from registra	from the registrati	on and qualification requir	eme	ents of the Building Code
l cartifu +		••••			
certify th	IGU.				
	<ol> <li>The information contained</li> <li>I have submitted this applicat</li> </ol>	in this schedu ion with the knowle	de is true to the best of mydge and consent of the fir	/ kno m,	owledge.
	June 7, 2021			1	Metal Office.
	Date	•	•		Signature of Designer
NOTE:		<del></del>	····		

<sup>1.</sup> 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.

<sup>2.</sup> 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.

CSA-F280-12

SB-12 PERFORMANCE

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NET EXPOSED WALL NET EXPOSED BSRT WALL ABOVE OR EXPOSED CLG NO ATTIC EXPOSED CLG EXPOSED FLOOR MICHAEL G'ROURKE

TOTAL COMBINED HEAT LOSS BTUIR: 51727 STRUCTURAL, HEAT LOSS: 49723

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EN CEN	Š		٠,		FACTORS	Fos		21.8	23.8	22.8	27.6	35.8	26.8	4,2	2	2	2.	2.6										\$				
SITE NAME: CENTREPIELO (WEST GORMLEY)	BUILDER: ROYAL PINE HOMES	ROOM USE	EXP. WALL	CLG. HT.		ORS.WALL AREA LOSS GAIN	GLAZING	NORTH	EAST	SOUTH	WEST	SKYLT.	DOORS	WALL	OVE GR	EXPOSED CLG	DOLG	EXPOSED FLOOR	LOSS	1095	1033	GAIN	PLIER	1089	GAIN	ouer Loss	Office Gala	4			H	200
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						ORS								NET EXPOSED WALL	NET EXPOSED BENT WALL ABOVE GR	õ	NO ATTIC EXPOSED CLG	EXPO	BASEMENT/CRAWL HEAT LOSS	SLAB ON GRADE HEAT LOSS	SUBTOTAL HY LOSS	SUB TOTAL HT GAIN	LEVEL FACTOR / MULTIPLIER	AIR CHANGE HEAT LOSS	AIR CHANGE HEAT GAIN			HEAT CAM DECEM	The state of the s		COLAL HI LOSS BIUM	IOIAL NI GAIN X 7.8 BILIN
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	t																			•												L



LOSS DUE TO VENTILATION LOAD BTU/H: 2004

TONS: 3.55

42653

TOTAL HEAT GAIN BTUMS

HEAT GAIN PEOPLE

SUB TOTAL HT GAIN LEVEL FACTOR / MULTIPLIER Air Change Heat Loss Air Change Heat gain

SUBTOTAL HT LOSS SLAB ON GRADE HEAT LOSS

Basementicrawl heat 1,098

HEAT GAIN APPLIANCES/LIGHTS
TOTAL HT LOSS BTUIN
TOTAL HT GAIN x 1.3 BTUIN

MICHAEL O'ROURKE

<u> </u>	24 88AS 2.985 2.985 2.985 114 114 116 116 48 48 47.10 8 47.10 8 47.10 8 47.10 8 47.10 8 47.10 8 47.10 8	## ## ## ## ## ## ## ## ## ## ## ## ##			
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GFA: 3223  59TN6A-050-14V FAN SPEED LOW MEDICOW MEDICOW MEDIUM MEDIUM HIGH	17-17-17-17-17-17-17-17-17-17-17-17-17-1	RETURN AIR TRUNK FRUNK O O TRUNK O O TRUNK O O TRUNK T O TRUNK T O TRUNK T O TRUNK V Q45 TRUNK X 1370 TRUNK X 1370 TRUNK X 1370 TRUNK X 1370 TRUNK X 1370 TRUNK X 1370 TRUNK X 1370 TRUNK X 1370 TRUNK X 1370 TRUNK X 1370			
- 82	KY7GT L KY7GT L 2.32 2.32 6.17 0.17 3.8 3.8 5.5 5.5 5.7 5.7 5.7 5.7 5.7 5.7	WELOCATY (ffmmy) (ffmm			
	7.6 7.7 7.7 8.6 8.6 8.7 7.6 0.17 9.0 1.120 1.00 1.0	_			
25 ~ 25		8888888 000 1.00 X			
E. Jun-21 re 0.17 rs 0.02	74 KT/67 2 202 202 202 202 202 202 202 202 202	****** 0000+0+1200			
D 4 BATH DATE:  OATE:  (la pressure  r/a grille press. Loss  adjusted pressure r/a	1.17 1.11 1.165 1.165 6.5 1.70 2.36 2.36 3.37 3.37 8.38 9.39 9.37 9.37 9.37	00000000000000000000000000000000000000			
BATH grille p	1.17 1.11 1.11 1.15 5.3 0.17 0.07 0.07 0.07 0.07 0.07 0.07 0.07	00000000000000000000000000000000000000			
OPT. GROUND - 5 BED 4 BATH 4504 Aressure 0.6 Aressure 0.2 Aressure 0.2 Aressure 8/a 8.74 8.75 8.75 8.75 8.75 8.75 8.75 8.75 8.75	111 1114 1114 1114 1116 11170 1100	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0			
0.05 0.05 0.2 0.35 0.18 0.02 0.02	8E 5.2 11.14 1.14 1.15 1.15 1.15 1.15 1.15 1.1	TRUNK CFM 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0			
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OPT. G TYPE: 4504 furnace pressure furnace filter a/c coll pressure available pressure for s/a & r/a plenum pressure s/a ax s/a df press. loss	8 6.048 1 13 0.48 1 13 0.48 1 13 0.48 1 14 0.17 7 1 14 0.018 1 14 0 14 0 14 0.018 1 14 0 14 0 14 0 14 0 14 0 14 0 14 0	8 8 8 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9			
OPT. GI TYPE: 4504 furnace pressure furnace filter alc cell pressure available pressure for sia & ria plenum pressure sia max sia dif press. loss	ENS-4/5 E ENS-4/5 E ENS-4/5 E E ENS-4/5 E E E E E E E E E E E E E E E E E E E	ALLOCATY (FELOCATY	Ē	***	
380 3		0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0			
GORMLEY) N 1370 N 42,323 M 32.37 M 32.37	8 EED-4 1.34 EED-4 1.34 EED-3 1.34 AX10 1.39 EED-3 1.39 BED-3 1.39 BED-3 1.39 SA10 1.30 SA1	200.000 × × × × × × × × × × × × × × × × ×			
INE HOMES OCIANG CFM COOLING CFM TOTAL HEAT GAIN RELOW RATE CFM 16 10 6 3 on layout.	BEED-3 1.39 1.39 1.39 1.30 1.47 1.47 1.47 1.47 1.43 1.43 1.43 1.43 1.43 1.43 1.43 1.43	20 000 115 0.15 0.05 0.05 0.05 0.05 0.05			
EFIELD (WEST GC PINE HOMES COOLING CFM TOTAL HEAT GAIN AIR FLOW RATE CFM AIR FLOW RATE CFM 16 10 10 10 10 10 10 10 10 10 10 10 10 10	MBR MBR 1.40	23 215 215 215 215 215 215 215 215 215 215			
CENTR ROYAL 3rd 0 0 0 otherwitks on it	MRR 1.40	2 0.007 0.007 0.007 0.007 0.007 0.007 0.007 0.007 0.007 0.007 0.007 0.007 0.007 0.007 0.007 0.005 0.00			
SITE NAME: CENTREFIELD (WEST GORMLEY) BUILDER: ROYAL PINE HOMES  FM 1370  COOLING CFM 1370  SS 49,723  FM 27,55  ARRIOW RATE CFM 32,373  FM 37d  ARRIOW RATE CFM 32,373  FM 37d  ARRIOW RATE CFM 32,373  FM 37d  ARRIOW RATE CFM 32,373  FM 37d  ARRIOW RATE CFM 32,373  FM 37d  ARRIOW RATE CFM 32,373  ARRIOW RATE CFM 32,373  ARRIVER STATE S	WIC 0.33 9 9 0.10 9 0.10 144 147 140 144 160 160 160 160 160 160 160 160	линк ости ости 2513 2772 2772 2773 1370 0.15 95 95 95 95 95 95 95 95 95 95 95 95 95			
SITE BLU G CFM T LOSS E CFM 10" unless 955 notes	RUN# ROOM NAME A LOOS NAME R RUN HEAT M GAIN MBH. UN COOLING D PRESSURE E L' DUCT LGH. ENT LENGTH TIVE LENGTH O PRESSURE COTTY ((Unin)) T GRILL SIZE ROOM NAME A' LOSS MBH. R RUN HEAT W GAIN MBH. UN COOLING D PRESSURE C D UCT LGH. ER LINGTH THE LENGTH THE LENGTH THE LENGTH THE LENGTH THE LENGTH THE LENGTH THE L' DUCT LGH. D D UUCT LGH. D PRESSURE COTTY ((Unin)) T GRILL SIZE THENGTH THE LOUT LGH. THE LOUT LGH. THE L' DUCT L' SIZE THE L' DUCT L' SIZE	4 # 0 U m r			
SITE NAME: CENTREFIELD (WE BUILDER: ROYAL PINE HOME HOME HATING CFM 1370 COOL# TOTAL HEAT LOSS 49,723 AIR FLOW RATE CFM 27,55 AIR FLOW RATE CFM 27,55 AIR FLOW RATE CFM 27,55 AIR FLOW RATE CFM 27,55 AIR FLOW RATE CFM 27,55 AIR FLOW RATE CFM 27,55 AIR FLOW RATE CFM 27,55 AIR FLOW RATE CFM 27,55 AIR FLOW RATE CFM 27,55 AIR SIA AIR SI	ROOM NAME RAD LOSS MBH. CFM PER RUN HEAT RAD GARW MBH. CFM PER RUN COCULNG ADJUSTED PRESSURE ACTUAL DUCT LGH EQUIVALENT LENGTH ADJUSTED PRESSURE ROUND DUCT SIZE ROUNG VELOCITY (froin) OUTLET GRELL SIZE ROOM NAME RAD GARW MBH. CFM PER RUN HEAT RRUN R ADJUSTED PRESSURE ACTUAL DUCT LGH ADJUSTED PRESSURE ACTUAL DUCT LGH CAUNALENT LENGTH ADJUSTED PRESSURE ACTUAL DUCT (RIMIN) COCURG AGUNALENT LENGTH ADJUSTED PRESSURE ACTUAL DUCT (RIMIN) COLUGO RECTIVE LENGTH ADJUSTED PRESSURE ROUND DUCT SIZE ROUND GARW SIZE	第 x 2 u 3 m m m m m m m m m m m m m m m m m m			
TO AIR FI RUN SIA diffical SIA diffical SIA curis	CFN CFM PEI ADJUS ACT ECUN NO SOLING V OUT EACH ADJUS ACT ECUN NO SOLING V OUT EACH ADJUS ACT ECUN PEI ADJUS ROI SATHING W OUT OUT OUT	SUPPLY AR TRUNK SI TH TH TH TH TH TH TH TH TH TH TH TH TH			
A P	F #8   5 #8	RETI AIR ) PLES PLES PLES ADAL ROUI			





TYPE

4504

CENTREFIELD (WEST GORMLEY) SITE NAME:

LO#

91148

OPT, GROUND - 5 BED 4 BATH RESIDENTIAL MECHANICAL VENTILATION DESIGN SUMMARY

COMBUSTION APPLIANCES 9	3.32.3.1(1)	SUPPLEMENTAL VENTILATION CAPACITY	9.32.3.5.
a) Direct vent (sealed combustion) only		Total Ventilation Capacity	1.4 cfm
b) Positive venting induced draft (except fireplaces)		Less Principal Ventil. Capacity 98	i.4 cfm
c) Natural draft, B-vent or induced draft gas fireplace		Required Supplemental Capacity 10	6.0 cfm
d) Solid Fuel (including fireplaces)		L	
e) No Combustion Appliances	l	PRINCIPAL EXHAUST FAN CAPACITY	
		Model: VANEE 65H Loca	ition: BSMT
HEATING SYSTEM		95.4 cfm	HVI Approved
Forced Air Non Forced Air		PRINCIPAL EXHAUST HEAT LOSS CALCULATION  CFM AT 'F FEE	tor %LOSS
Electric Space Heat		1	08 X 0.25
			CONTRACTOR
HOUSE TYPE	9,32,1(2)	Location Model of ENS BY INSTALLING CONTRACTOR 5	***************************************
<u></u>			0 / 3.5 0 / 3.5
Type a) or b) appliance only, no solid fuel		***************************************	0 / 3.5
II Type I except with solid fuel (including fireplaces)		W/R BY INSTALLING CONTRACTOR 5	0 / 3.5
Type i except wild solid idea (including ineplaces)	İ	HEAT RECOVERY VENTILATOR	9.32.3.11.
III Any Type c) appliance	-	Model: VANEE 65H	9.32.3.13.
		155	1 cfm low
IV Type I, or II with electric space heat		75 W Chamilla Ciffeinn	r
Other: Type I, It or IV no forced air		75 % Sensible Efficiency @ 32 dag F ( 0 dag C)	_ ✓ HVI Approved
		LOCATION OF INSTALLATION	
SYSTEM DESIGN OPTIONS O.1	N.H.W.P.		İ
1 Exhaust only/Forced Air System		Lot: Conces	sion
Consult distributed All System		Township Plan:	
2 HRV with Ducting/Forced Air System		Address	
3 HRV Simplified/connected to forced air system	Ì		
4 HRV with Ducting/non forced air system	-	Roll # Building	Permit #
Part 6 Design		BUILDER: ROYAL PINE HOMES	
		Name:	
TOTAL VENTILATION CAPACITY 9.3	32.3.3(1)	Address:	
Basement + Master Bedroom 2 @ 21.2 cfm 42.4	ctm	City:	
Other Bedrooms 4 @ 10.6 cfm 42.4	cfm	Telephone #: Fax #:	
Kitchen & Bathrooms 6 @ 10.6 cfm 63.6	afm.	INSTALLING CONTRACTOR	
Other Rooms 5 @ 10.6 cfm 53.0	cfm	Name:	ND HILL
	cfm	BUILDING BIV	SION
Table 9.32.3.A. TOTAL 201.4	Can	Address:	121
PRINCIPAL VENTICATION CAPACITY REQUIRED 9.3	2.3.4.(1)	City:	72
		Telephone #Fax.#:	
1 Bedroom 31.8	ofm	RECEIV	ED
2 Bedroom 47.7	cfm	DESIGNER CERTIFICATION I hereby certify that this ventilation system has been designed	
3 Sedroom 63.6	cfm	in accordance with the C <mark>ntario Building Code.</mark> Name: HVAC Designs Ltd.	
4 Bedroom 79.5	c:fm	Signature: Mulaul OKo	21.
5 Bedroom 95.4	cím	HRAI# 001820	1
TOTAL 95.4 cfm FREVIEW AND TAKE RESPONDBLITY FOR THE DESIGN WORK AND AM QUALIFIED	D IN THE APP	Date: June-21	E SUIII DHAIS COIDS
INDIVIDUAL BCIN: 19669 MILLOPPLE. MICHAEL O'ROURI	KE		

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OFFICES.

			For	A F280-12 Residential Heat Loss and Heat Gain Calculations Formula Sheet (For Air Leakage / Ventillation Calculation)	at Loss and Heat Gain akage / Ventiliation C	Calculations afortation)					
:#O1	LO#: 91148	Model: 4504		Builde	Builder: ROYAL PINE HOMES				Date	Date: 6/7/2024	
		Volume Calcutation	noi			Air C	Air Change & Delta T Data	Jata			
House Volume				<u> </u>		WINTER NATURA	WINTER NATIJRAL AJR CHANGE RATE	116	0.340		
Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft²)	ı"-ı		SUMMER NATURAL AIR CHANGE RATE	AL AIR CHANGE RA	ATE	0.068		
First	1453	10	14530								
Second	1770	8	14160	T			Declan Termestature Difference	vature Office	9400		
Third	0	9	0	7			Tin °C	Tout °C	AT 'C	7. TV	
Fourth	0	6	0			Winter DTDh		-21	43	78	
		Total:	41,767.0 ft³ 1182.7 m³		**************************************	Summer DTDc	24	31	,	13	
	523	5.2 3.1 Heat Inserting to Sir Leabare	dir Loutage								
	.6.3.6	יובמן ייינא חוב וח	Als Leanage			6.2.6 Sens	6.2.6 Sensible Gain due to Air Leakage	r Leakage			
	$HL_{airb} = 1$	$HL_{airb} = LR_{airh} \times \frac{V_b}{3.6} \times DTD_h \times 1.2$	$DTD_h \times 1.2$		H	$HG_{saib} = LR_{airc} \times \frac{V_b}{2}$	$\frac{V_b}{2} \times DTD_c \times 1.2$	2			
0.219	× 328.53	× 43 °C	× 1,2	= 3727 W	= 0.068	328.53 x	7°C ×	1.2	I	191 W	
				= 12718 Btu/h					! <b>!</b>	652 Btu/h	ے
	5.2.3.2 Heat	5.2.3.2 Heat loss due to Mechanical Ventilation	ınical Ventilation			6.2.7 Sensible	6.2.7 Sensible heat Gain due to Ventilation	Ventilation			
	$HL_{vairb} = F$	$HL_{vairb} = PVC \times DTD_h \times 1.08 \times (1 - E)$	$1.08\times(1-E)$		$HL_{\mathbf{v}}$	$HL_{vairb} = PVC \times DTD_h \times 1.08 \times (1 - E)$	× 1.08 × (1 –	· E)			
95 CFM	x 78 °F	x 1.08	× 0.25	= 2004 Btu/ħ	95 CFM	× 13 °F ×	1.08 ×	0.25		330 Btu/h	_
			5.2.3.3 Calcut	5.2.3.3 Calculation of Air Change Heat Loss for Each Room (Floor Multiplier Section)	Loss for Each Room (Floo	r Multiplier Section)					
		$HL_c$	airr = Level Fact	or $\times$ $HL_{airbv} \times \{(H_i)\}$	$L_{agcr} + HL_{bgcr}) \div ($	$HL_{airr} = Level\ Factor  imes HL_{airbv}  imes \{(HL_{agcr} + HL_{bgcr}) + (HL_{agclevel} + HL_{bgclevel})\}$	et)}	Pe		В	OLT
		Level	Level Factor (LF)	Highrye Air Leakage + Ventilation Heat Loss (Btu/h)	Level Conductive Heat Loss: (Hl <sub>clevel</sub> )	Level Conductive Heat Air Leakage Heat Loss Multiplier {£F x Loss: {HL <sub>clsvsl</sub> } HLairbv / HLlevel}	Itiplier {LF x	r:	RE	UILDII 8/1	, OF 5
		+	0.5		8.378	0.759			CI		100
		2	0.3		14,376	0.265			ΕI		
		٣	0.2	12,718	13,721	0.185			V		
		4	0		0	0.000			Έ		
		ın	0		0	0:000			D		<u></u>
		*HLairbv = /	*HLairbv = Air leakage heat loss	s + ventilation heat loss							



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**

MODEL:	4504		OPT. GROUND - 5	BED 4 BATH	BUILDER: ROYAL PINE HOMES	
SFQT:	3223	LO#	91148		SITE: CENTREFIELD (WEST	GORMLEY)
DESIGN A	SSUMPTIONS	······································				
HEATING			°F	COOLING		°F
OUTDOOF	R DESIGN TEMP.		-6	OUTDOO	R DESIGN TEMP.	88
INDOOR D	ESIGN TEMP.		72	INDOOR	DESIGN TEMP. (MAX 75°F)	75
BUILDING	DATA		······································	<del></del>		
ATTACHM	ENT:		DETACHED	# OF STO	RIES (+BASEMENT):	3
FRONT FA	CES:		EAST	ASSUMED	) (Y/N):	Υ
AIR CHAN	GES PER HOUR:		2.50	ASSUMED	) (Y/N):	Y
AIR TIGHT	NESS CATEGORY:		TIGHT	ASSUMED	) (Y/N):	Υ
WIND EXP	OSURE:	;	SHELTERED	ASSUMED	) (Y/N):	Υ
HOUSE VO	LUME (ft³):		41767.0	ASSUMED	) (Y/N):	Υ
NTERNAL	SHADING:	BLINDS	/CURTAINS	ASSUMED	OCCUPANTS:	6
NTERIOR I	LIGHTING LOAD (Btu/I	n/ft²):	1.40	DC BRUSH	ILESS MOTOR (Y/N):	Υ
OUNDAT	on configuration		BCIN_1	DEPTH BE	LOW GRADE:	6.0
ENGTH:	46.0 ft	WIDTH:	37.0 ft	EXPOSED	PERIMETER:	166.0

2012 OBC - COMPLIANCE PACKAGE  Component	CITY OF RICHMOND HILL BUILDING DIVISION		ice Package ERFORMANCE
	08/12/2021	Nomina	l Min. Eff.
Ceiling with Attic Space Minimum RSI (R)-Value	00/12/2021	60	59.20
Ceiling Without Attic Space Minimum RSI (R)-Value		31	27.70
Exposed Floor Minimum RSI (R)-Value	RECEIVED	31	29.80
Walis Above Grade Minimum RSI (R)-Value	Per:	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 Minir	num RSI (R)-Value	10	10
Heated Slab or Slab ≤ 600 mm below grade Minimum R	SI (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

W	eather Sta	tion Description
Province:	Ontario	
Region:	Richmon	Іін ь
	Site De	escription
Soil Conductivity:	Normal c	onductivîty: dry sand, loam, clay
Water Table:	Normal (1	7-10 m, 23-33 ft)
	Foundatio	n Dimensions
Floor Length (m):	14.0	
Floor Width (m):	11.3	
Exposed Perimeter (m):	0.0	
Wall Height (m):	2.7	West State Control of
Depth Below Grade (m):	1.83	Insulation Configuration
Window Area (m²):	1.9	
Door Area (m²):	1.9	
	Radia	ant Slab
Heated Fraction of the Slab:	0	
Fluid Temperature (°C):	33	
	Design	Months
Heating Month	1	
	Founda	tion Loads
Heating Load (Watts):		1638

	OF RICHMOND HILL	OPT. GROUND - 5 BED 4 BATH
LO# 91	48 BUILDING DIVISION	
	08/12/2021	

RECEIVED



# **Air Infiltration Residential Load Calculator**

Supplemental tool for CAN/CSA-F280

Weather Station	on De	cript	ion	<del></del>	
Province:	Onta	rio		***************************************	· · · · · · · · · · · · · · · · · · ·
Region:	Richr	nond F	Hill		
Weather Station Location:	Oper	flat te	errain,	grass	
Anemometer height (m):	10				
Local St	nieldin	g	***************************************		
Building Site:	Subu	rban, f	orest		
Walls:	Heav	у			
Flue:	Heav	у			
Highest Ceiling Height (m):	6.40				
Building Co	nfigur	ation			
Type:	Deta	hed			
Number of Stories:	Two				
Foundation:	Full				
House Volume (m³):	1182	.7			
Air Leakage	<b>Venti</b>	atio	<u> </u>		······································
Air Tightness Type:	Energ	y Star	Detacl	ned (2.	5 ACH)
Custom BDT Data:	ELA @	9 10 P	a.		1104.1 cm²
	2.50				ACH @ 50 Pa
Mechanical Ventilation (L/s):	To	tal Sug	ply		Total Exhaust
		45.0			45.0
Flue	Size				
Flue #:	#1	#2	#3	#4	
Diameter (mm):	0	0	0	0	
Natural Infilt	ration	Rate	<u>!</u> S		
Heating Air Leakage Rate (ACH/H):		C	).21	9	
Cooling Air Leakage Rate (ACH/H):		C	.06	8	

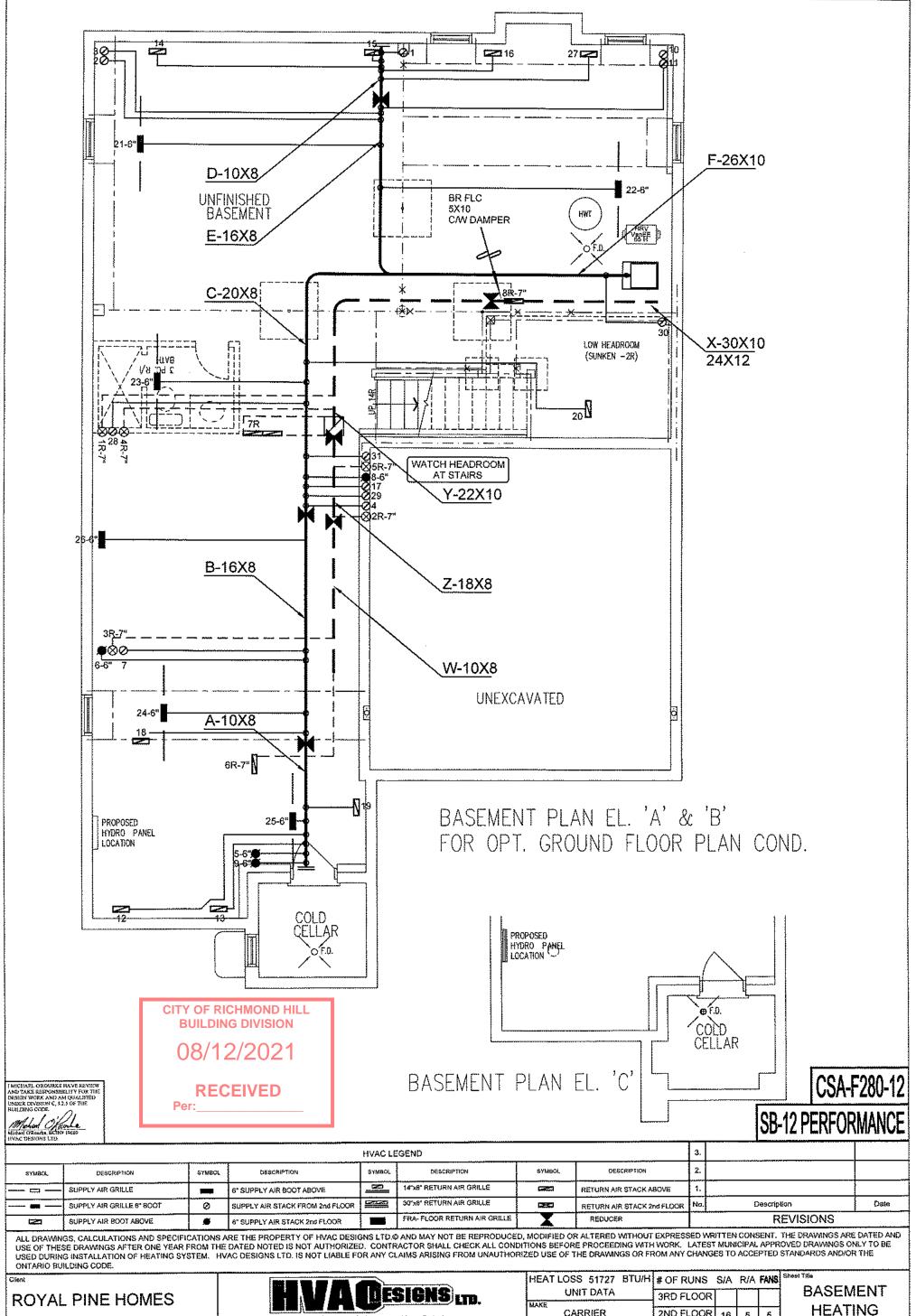
CITY OF RICHMOND HILL BUILDING DIVISION

08/12/2021

**RECEIVED** 

Per:\_\_\_\_

TYPE: 4504 LO# 91148 OPT. GROUND - 5 BED 4 BATH



Project Name

CENTREFIELD (WEST GORMLEY) RICHMOND HILL, ONTARIO OPT. GROUND -

5 BED 4 BATH 4504

# 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 3223 sqft adequately insulated and be gas-proofed.

REALLO	ISS 5172	7 BIU/H	# OF RUNS	S/A	R/A	FANS		1100
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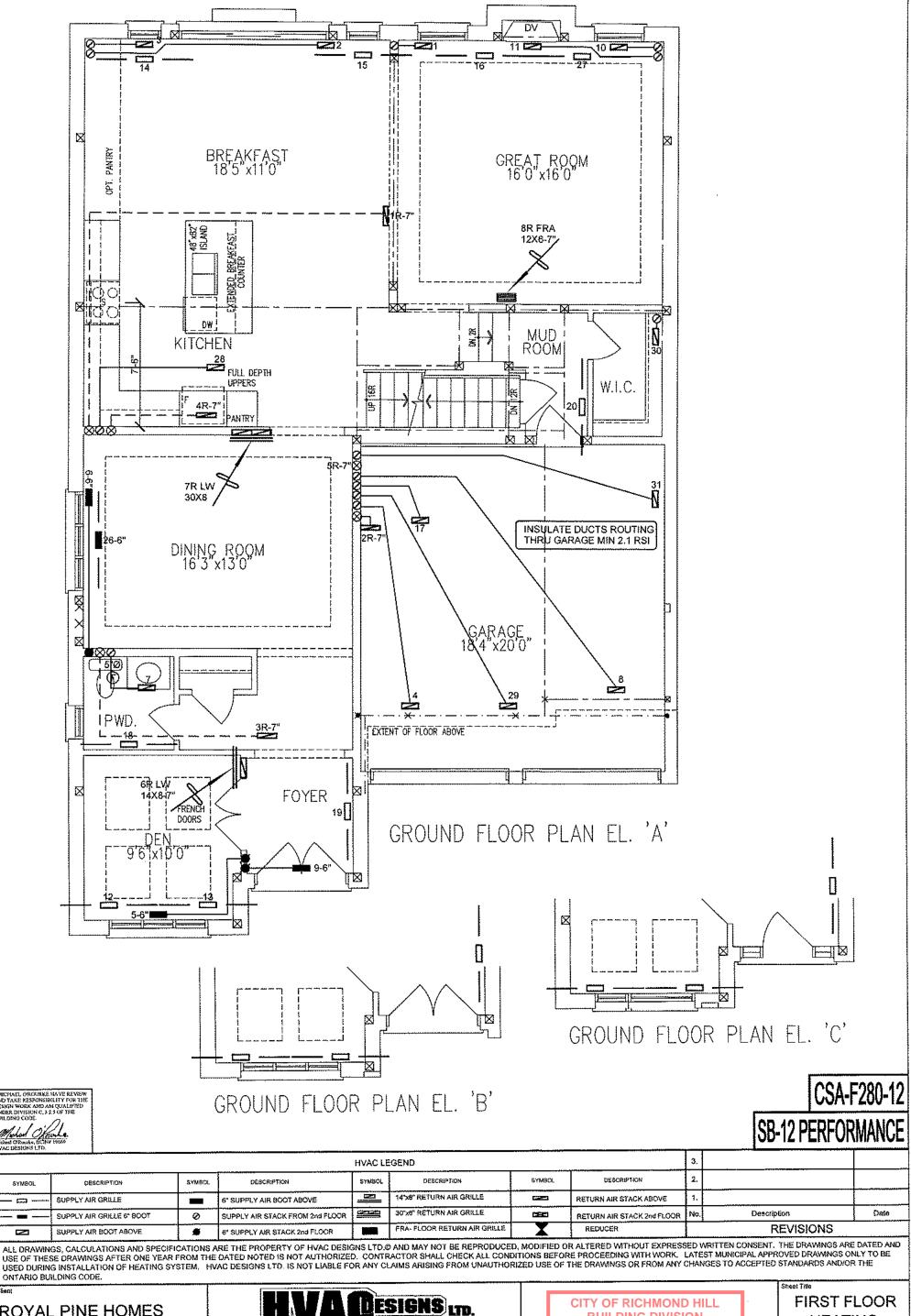
LAYOUT

JUNE/2021

3/16" = 1'-0"

BCIN# 19669

91148



#### **ROYAL PINE HOMES**

Project Name

**CENTREFIELD (WEST GORMLEY)** RICHMOND HILL, ONTARIO OPT. GROUND -

5 BED 4 BATH

4504 3223 sqft

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.

**BUILDING DIVISION** 

08/12/2021

**RECEIVED** 

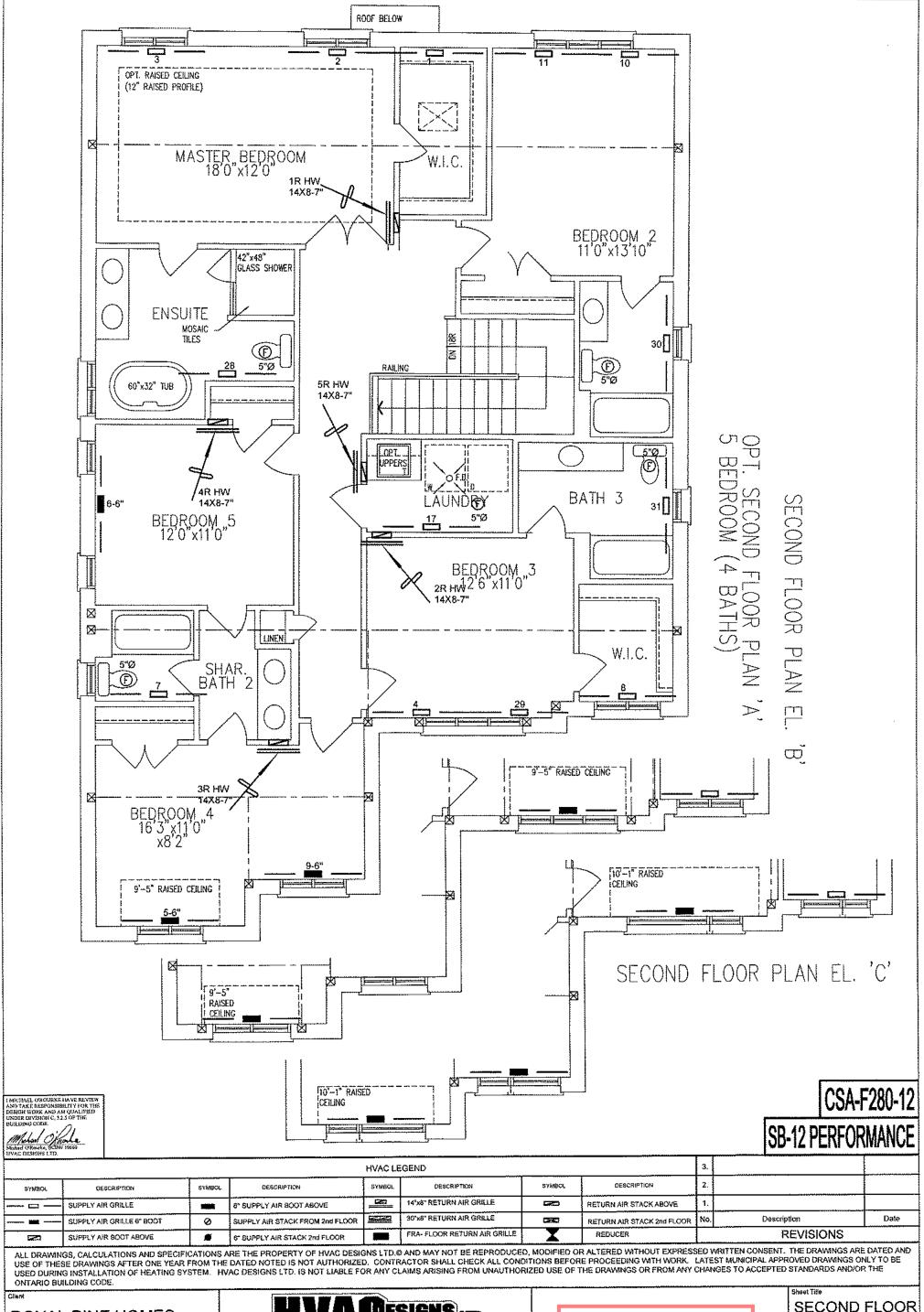
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**HEATING** LAYOUT

JUNE/2021 3/16" = 1'-0"

BCIN# 19669

LO# 91148



### **ROYAL PINE HOMES**

Project Name

CENTREFIELD (WEST GORMLEY) RICHMOND HILL, ONTARIO OPT. GROUND -

5 BED 4 BATH 4504

3223 sqft

# DESIGNS LTD.

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.

CITY OF RICHMOND HILL **BUILDING DIVISION** 

08/12/2021

RECEIVED

SECOND FLOOR **HEATING** LAYOUT

JUNE/2021 3/16" = 1'-0"

BCIN# 19669

91148 LO#

#### 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 des	scription [	<u>L.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,</u>
RICHMOND HILL		1		
B. Individual who reviews and	takes responsibility f	or design activities		
Name	Section Control of the Control of th	Firm		
MICHAEL O'ROURKE		HVAC DESIGNS LTD.		
Street address 375 FINLEY AVE			Unit no.	Lot/con.
Municipality	Postal code	Province	202 E-mail	N/A
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 identif	ied in Section B. (Build	Ing Code Table 3.5.7.1	OF Division C1
				: -: -: -: -: -: -: -: -: -: -: -: -
House		C – House	🗀 Building	
☐ Small Buildings ☐ Large Buildings	U Buildi □ Detec	ng Services Bion, Lighting and Pov	Plumbing	ı – House
Complex Buildings		rotection		ı – All Buildings iewage Systems
Description of designer's work		Model:	···	<u> </u>
HEAT LOSS / GAIN CALCULATIONS	3			
DUCT SIZING RESIDENTIAL MECHANICAL VENTI	I ATION DESIGN SUM	MARV	OPT. GROUND & OPT 2ND	
RESIDENTIAL SYSTEM DESIGN per	CSA-F280-12	Project:	CENTREFIELD (WEST GOR	MLEY)
D. Declaration of Designer		L		
MICHAEL O'ROUR			deciare that (abance	
	(print name)		declare that (choose	оне аз арргорпаце);
I review and take responsi Division C, of the Building classes/categories.	bility for the design work Code. I am qualified, and	on behalf of a firm register of the firm is registered, in the	red under subsection 3.2.4.c he appr	of opriate
Individual BCIN Firm BCIN:	1:			OF RICHMOND HILL UILDING DIVISION
I review and take responsi designer" under subsect	bility for the design and a tion 3.2.5.of Di visi	am qualified in the appropri ion C, of the Building Code	ate category as an "other	8/12/2021
Individual BCIN				
Basis for exemp	otion from registration an	ıd qualification:	O.B.C SENTENCE :	3.24 E (4 EIVED
The design work is exempt Basis for exemption from n	from the registra egistration and qualificat	tion and qualification requir	rements of the Building Cod	
certify that:				
The information contai	ned in this scheo pplication with the knowl	fule is true to the best of my ledge and consent of the fil	y knowledge. rm,	, and the
June 7, 2021	<u></u>		Michael OX	We.
13-4-				
Date			Signatu	re of Designer

<sup>1.</sup> 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.

HOWIOUAL BOW: 19669

STRUCTURAL HEAT LOSS: 49598

TOTAL COMBINED HEAT LOSS BTWH: \$1199

2183

14737

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1697 2375

362

530

308

LOSS DUE TO VENTILATION LOAD BTURL 2004

**TOMS: 3.52** 

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HEAT GAIN PEOPLE

DUCT GAIN

TOTAL HT LOSS BTUM

HEAT GARLAPPLIANCESALIGHTS TOTAL HT GAIN x 1.3 BTWH TOTAL HEAT GAIN BTU/H:

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315 Finley Ave. Suite 202 Ajax, ON L.1S 2E2 Tet: 905.619.2300 Fax: 905.619.2375 Web: www.hvacdasigns.ca E-mail: info@tvacdasigns.ca

MICHAEL O'ROURKE

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1		استقيبيليييا حم حما	<u> </u>		<u>जिस्तिक इत्राह्तक इत्</u>





TYPE: SITE NAME:

INDIVIDUAL BCIN: 19669

MII OBLE.

4504

CENTREFIELD (WEST GORMLEY)

LO#

90464

VEST GORMLEY)

OPT. GROUND & OPT 2ND

RESIDENTIAL MECHANICAL VENTILATION DESIGN SUMMARY

#### COMBUSTION APPLIANCES 9.32.3.1(1) SUPPLEMENTAL VENTILATION CAPACITY 9,32,3,5, a) V Direct vent (sealed combustion) only Total Ventilation Capacity 190,8 र्टीत Positive venting induced draft (except fireplaces) Less Principal Ventil, Capacity 95.4 cfm Natural draft, B-vent or induced draft gas fireplace c) Required Supplemental Capacity 95.4 cťm Solid Fuel (including fireplaces) PRINCIPAL EXHAUST FAN CAPACITY No Combustion Appliances e) [ Model; VANEE 65H Location: BSMT **HEATING SYSTEM** 95.4 ✓ HVI Approved Forced Air Non Forced Air PRINCIPAL EXHAUST HEAT LOSS CALCULATION % ( OSS 95.4 CFM 78 F 1,08 D.25 Electric Space Heat SUPPLEMENTAL FANS BY INSTALLING CONTRACTOR Location Model Sones HOUSE TYPE 9.32.1(2) ENS BY INSTALLING CONTRACTOR 3.5 ENS-4/5 BY INSTALLING CONTRACTOR 50 3.5 Type a) or b) appliance only, no solid fuel ENS 3 BY INSTALLING CONTRACTOR 50 3.5 W/R BY INSTALLING CONTRACTOR 50 3.5 Type I except with solid fuel (including fireplaces) HEAT RECOVERY VENTILATOR 9.32.3.11 Any Type c) appliance Madel; VANEE 65H 155 ofm high 64 cím kyw Type I, or II with electric space heat % Sensible Efficiency HVI Approved Other: Type I, II or IV no forced air @ 32 deg F ( 0 deg C) LOCATION OF INSTALLATION SYSTEM DESIGN OPTIONS ONNWP Concession Exhaust only/Forced Air System Township HRV with Ducting/Forced Air System Address 3 HRV Simplifled/connected to forced air system Rall# Building Permit # HRV with Ducting/non forced air system BUILDER: ROYAL PINE HOMES Part 6 Design Name: TOTAL VENTILATION CAPACITY 9.32.3.3(1) Address; Basement + Master Bedroom 2 @ 21.2 cfm 42.4 cfm City: Other Bedrooms @ 10.6 cfm 42.4 cfm Telephone #: Fex#: Kitchen & Bathrooms @ 10.6 cfm 53 cfm. INSTALLING CONTRACTOR CITY OF RICHMOND HILL Other Rooms @ 10.6 cfm 53.0 cim Name: Table 9.32.3.A. TOTAL 190.8 cfm Address: City: PRINCIPAL VENTILATION CAPACITY REQUIRED 9.32.3.4.(1) Telephone #: Bedroom 31.8 cfm DESIGNER CERTIFICATION Bedroom 47.7 cfm I hereby certify that this ventilation system has been designed in accordance with the Ontano Building Cod 3 Bedroom 63.6 cfm HVAC Designs Ltd. Name: Bedroom 79.5 cfm Signature: 5 Bedroom 95.4 HRAI# TOTAL 95.4 ctm REVIEW AND TAKE RESPONIBILITY FOR THE DESIGN WORK AND AM QUALIFIED IN THE AF RIATE CATEGORY AS AN "OTHER DESIGNER" UNDER DIVISION C, 3.2.5 OF THE BUILDING CODE

MICHAEL O'ROURKE

		Date: 6/7/2021				0.068		ure Difference	Tout *C AT *C AT *F	-21 43 78	31 7 13		eakage		1.2 = 191 W	= 652 Btu/h	ntilation		0.25 = 330 Btu/h			801LD1 )8/1 RE	IN	G 2/	DI 2	20	SI(	ON
l Heat Gain Calculations	ntiliation Calculation}	NE HOMES	Air Change & Delta T Data		WINTER NATURAL AIR CHANGE RATE	SOMMEN WATONAL AIR CHANGE RAIE		Design Temperature Difference	F	22			6.2.6 Sensible Gain due to Air Leakage	$HG_{salb} = LR_{airc} \times \frac{V_b}{2c} \times DTD_c \times 1.2$	× 7°C ×		6.2.7 Sensible heat Gain due to Ventilation	$HL_{pairb} = PVC \times DTD_h \times 1.08 \times (1 - E)$	95 CFM × 13 °F × 1.08 × 0	Room (Floor Multiplier Section)	$L_{bgcr}$ ) $\div$ $\{HL_{agclevel} + HL_{bgclevel}\}$	Level Conductive Heat Air Leakage Heat Loss Multiplier (LF x toss: (Hr.thwol)	78 6779		14,521 0.175		0.000	
CSA F280-12 Residential Heat Loss and Heat Gain Calculations	Formula Sheet (For Air Leakage / Ventiliation Calculation)	504 Builder: ROYAL PINE HOMES	Volume Calculation		Floor Height (ft) Volume (ft <sup>3</sup> )		14530		0	417			יינייין וופמן דימים חתם ולי און להמצממה	$\frac{V_b}{3.6} \times DTD_h \times 1.2$	43 °C × 1.2 = 3727 W =	= 12718 Btu/h	5.2.3.2 Heat Loss due to Mechanical Ventilation	$HL_{vairb} = PVC \times DTD_h \times 1.08 \times (1 - E)$	1.08 × 0.25 = 2004 Btu/h	5.2.3.3 Calculation of Air Change Heat Loss for Each Room (Floor Multiplier Section)	$HL_{airr} = Level\ Factor \times HL_{airbv} \times \{(HL_{agcr} + HL_{bgcr}) + (HL_{agclevel} + HL_{bgclevel})\}$	Levei Levei Factor (LF) Ventilation Heat Loss toss: (BRILY)	1 0.5 8.378		12,718		0 5	*Hlairbv = Air leakage heat loss + ventilation heat loss *For a balanced or supply only ventilation system Hlairve = 0
		LO#: 90464 Model: 4504	Volume	House Volume	Floor Area (ft²)	1453	First 1453 10	200	0	2	Total:	100 1100	2777 Udd F0777	$HL_{airb} = LR_{airh} \times \frac{V_b}{3.6} \times DTD_h \times 1.2$	0.219 × 328.53 ×		5,2,3,2 Heat Loss due to	$HL_{vairb} = PVC \times Di$	95 CFM x 78 °F x		•							*H;





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**

			LO33 AND GAI	14 DOITHSTAIN	1 JILLI	
MODEL:	4504		OPT. GROUND & (	OPT 2ND	BUILDER: ROYAL PINE HOMES	
SFQT:	3223	LO#	90464		SITE: CENTREFIELD (WEST	GORMLEY)
DESIGN A	SSUMPTIONS					
HEATING			°F	COOLING		°F
OUTDOOF	R DESIGN TEMP.		-6	OUTDOOR	DESIGN TEMP.	88
INDOOR D	ESIGN TEMP.		72	INDOOR D	ESIGN TEMP. (MAX 75°F)	75
BUILDING	DATA					
АТТАСНМ	ENT:		DETACHED	# OF STOR	IES (+BASEMENT):	3
FRONT FA	CES:		EAST	ASSUMED	(Y/N):	Y
AIR CHAN	GES PER HOUR:		2.50	ASSUMED	(Y/N):	Y
AIR TIGHT	NESS CATEGORY:		TIGHT	ASSUMED	(Y/N):	Y
WIND EXP	OSURE:	;	SHELTERED	ASSUMED	(Y/N):	Y
HOUSE VO	LUME (ft³):		41767.0	ASSUMED	(Y/N):	Υ
INTERNAL	SHADING:	BLINDS	/CURTAINS	ASSUMED	OCCUPANTS:	6
INTERIOR I	.IGHTING LOAD (Btu/	h/ft²):	1.40	DC BRUSHI	ESS MOTOR (Y/N):	Υ
FOUNDATI	ON CONFIGURATION		BCIN_1	ОЕРТН ВЕЦ	OW GRADE:	6.0 ft
LENGTH:	46.0 ft	WIDTH:	37.0 ft	EXPOSED P	ERIMETER:	166.0 ft

2012 OBC - COMPLIANCE PACKAGE		<del></del>	~~~~~
Component	CITY OF RICHMOND HILL BUILDING DIVISION	Compliance SB-12 PER	e Package FORMANCE
	08/12/2021	Nominal	Min. Eff.
Ceiling with Attic Space Minimum RSI (R)-Value	00/12/2021	60	59.20
Ceiling Without Attic Space Minimum RSI (R)-Value		31	27.70
Exposed Floor Minimum RSI (R)-Value	RECEIVED	31	29.80
Walls Above Grade Minimum RSI (R)-Value	Per:	22+1.5	18.50
Basement Walls Minimum RSI (R)-Value		20	21.12
Below Grade Slab Entire surface > 600 mm below grade I	Minimum RSI (R)-Value	-	
Edge of Below Grade Slab ≤ 600 mm Below Grade Minim		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





CITY OF RICHMOND HILL BUILDING DIVISION

08/12/2021

RECEIVED

Per:

HVAC Designs Ltd. 375 Finley Ave, Suite 202 Ajax ON, L1S 2E2 905-619-2300

## Residential Foundation Thermal Load Calculator

Supplemental tool for CAN/CSA-F280

W	eather Stat	ion Description
Province:	Ontario	
Region:	Richmond	Hill
	Site De	scription
Soil Conductivity:	Normal co	onductivity: dry sand, loam, clay
Water Table:	Normal (7	-10 m, 23-33 ft)
	Foundation	Dimensions
Floor Length (m):	14.0	
Floor Width (m):	11.3	
Exposed Perimeter (m):	0.0	
Wall Height (m):	2.7	
Depth Below Grade (m):	1.83	Insulation Configuration
Window Area (m²):	1.9	
Door Area (m²):	1.9	
	Radia	nt Slab
Heated Fraction of the Slab:	0	
Fluid Temperature (°C):	33	
	Design	Months
Heating Month	1	
	Foundati	on Loads
Heating Load (Watts):		1638

TYPE: 4504 LO# 90464 OPT. GROUND & OPT 2ND



CITY OF RICHMOND HILL BUILDING DIVISION

08/12/2021

RECEIVED
Per:

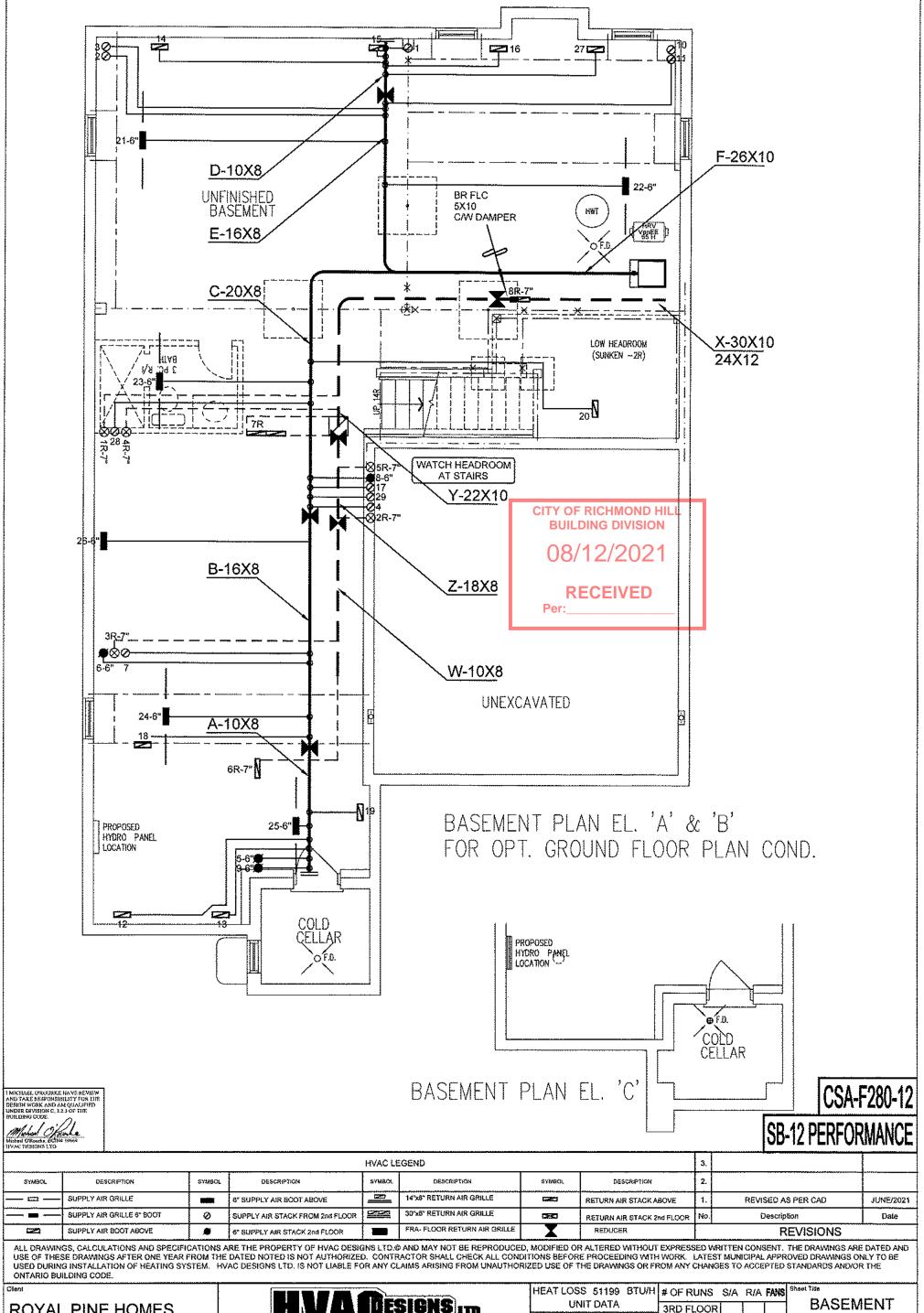
HVAC Designs Ltd. 375 Finley Ave, Suite 202 Ajax ON, L1S 2E2 905-619-2300

# **Air Infiltration Residential Load Calculator**

Supplemental tool for CAN/CSA-F280

Weather	r Station Description
Province:	Ontario
Region:	Richmond Hill
Weather Station Location:	Open flat terrain, grass
Anemometer height (m):	10
Lo	ocal Shielding
Building Site:	Suburban, forest
Walls:	Heavy
Flue:	Heavy
Highest Ceiling Height (m):	6.40
Buildi	ng Configuration
Туре:	Detached
Number of Stories:	Two
Foundation:	Full
House Volume (m³):	1182.7
Air Lea	kage/Ventilation
Air Tightness Type:	Energy Star Detached (2.5 ACH)
Custom BDT Data:	ELA @ 10 Pa. 1104.1 cm²
	2.50 ACH @ 50 Pa
Mechanical Ventilation (L/s):	Total Supply Total Exhaust
	45.0 45.0
	Flue Size
Flue #:	#1 #2 #3 #4
Diameter (mm):	0 0 0 0
Natural Natural	l Infiltration Rates
Heating Air Leakage Rate (ACI	H/H): 0.219
Cooling Air Leakage Rate (ACH	ч/н): <b>0.068</b>

TYPE: 4504 LO# 90464 OPT. GROUND & OPT 2ND



**ROYAL PINE HOMES** 

4504

CENTREFIELD (WEST GORMLEY) RICHMOND HILL, ONTARIO

OPT. GROUND & OPT 2ND

3223 sqft

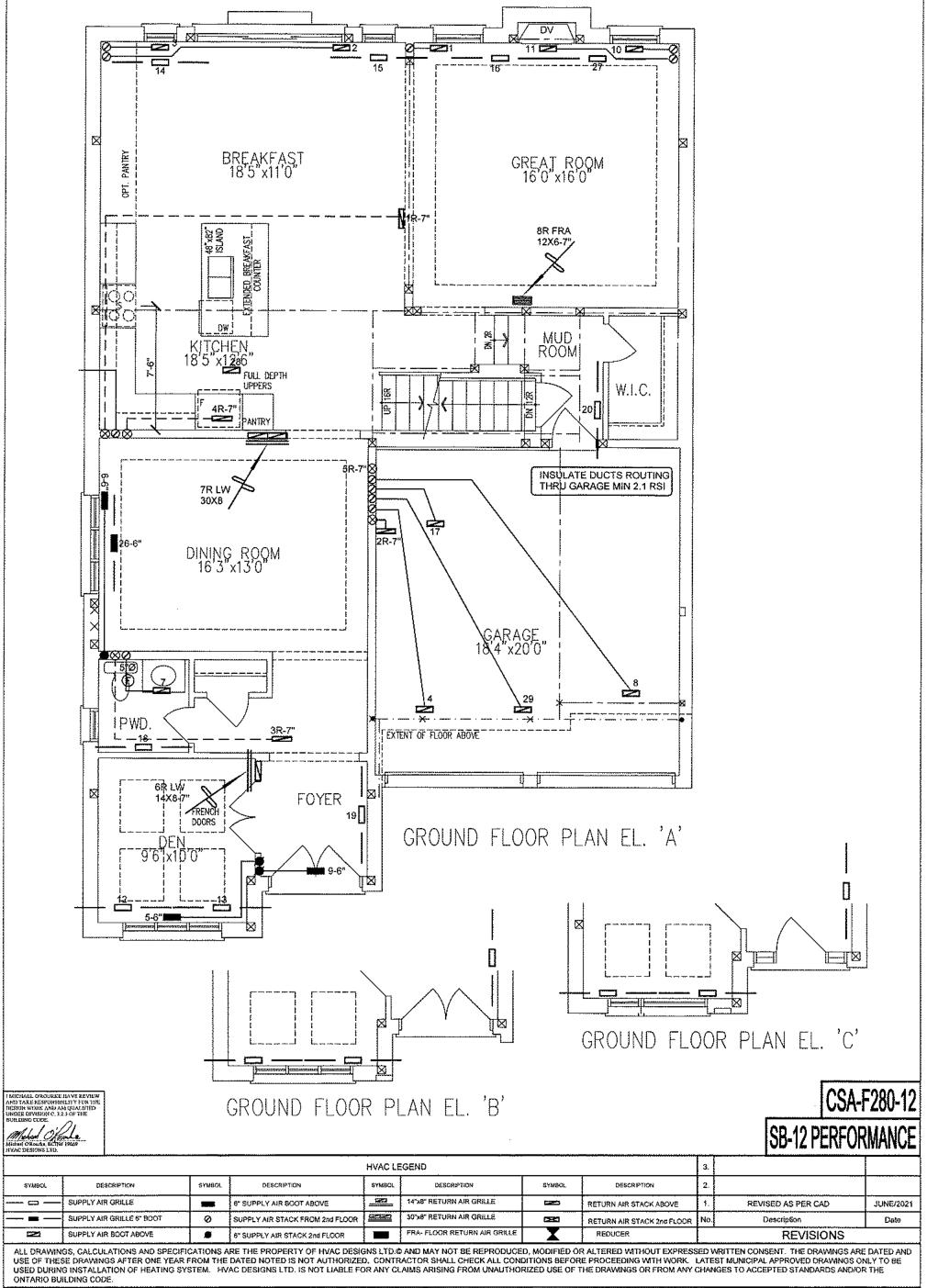
375 Finley Ave. Suite 202 - Ajax, Ontario Tel, 905,619.2300 - 905.420.5300 Fax 905.619.2375 Email: info@hvacdesigns.ca Web: www.hvacdesigns.ca

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.

1	HEAT LOSS 51199	8TU/H	# OF RUNS	S/A	R/A	FANS	81
	UNIT DATA		3RD FLOOR				
	MAKE CARRIER		2ND FLOOR	14	5	4	
	MODEL 59TN6A-060-14V		1ST FLOOR	10	3	2	
	INPUT 60	мвти/н	BASEMENT	5	1	0	D:
	о <del>чтрит</del> 58	мети/н	ALL S/A DIFFU				S:
e	COOLING 3.5	TONS	ON LAYOUT. A	LL S/A	RUN	S 5"Ø	L
	FAN SPEED 1370	cfm @ 0.6" w.c.	ON LAYOUT, U DOORS 1" min.	NDER	CUT		ı.

**HEATING** LAYOUT APR/2021 3/16" = 1'-0" BCIN# 19669 90464 LO#



Cllent

#### **ROYAL PINE HOMES**

Project Nam

CENTREFIELD (WEST GORMLEY)
RICHMOND HILL, ONTARIO

OPT. GROUND & OPT 2ND 4504 3223 sqft

# 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

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.

CITY OF RICHMOND HILL BUILDING DIVISION

08/12/2021

**RECEIVED** 

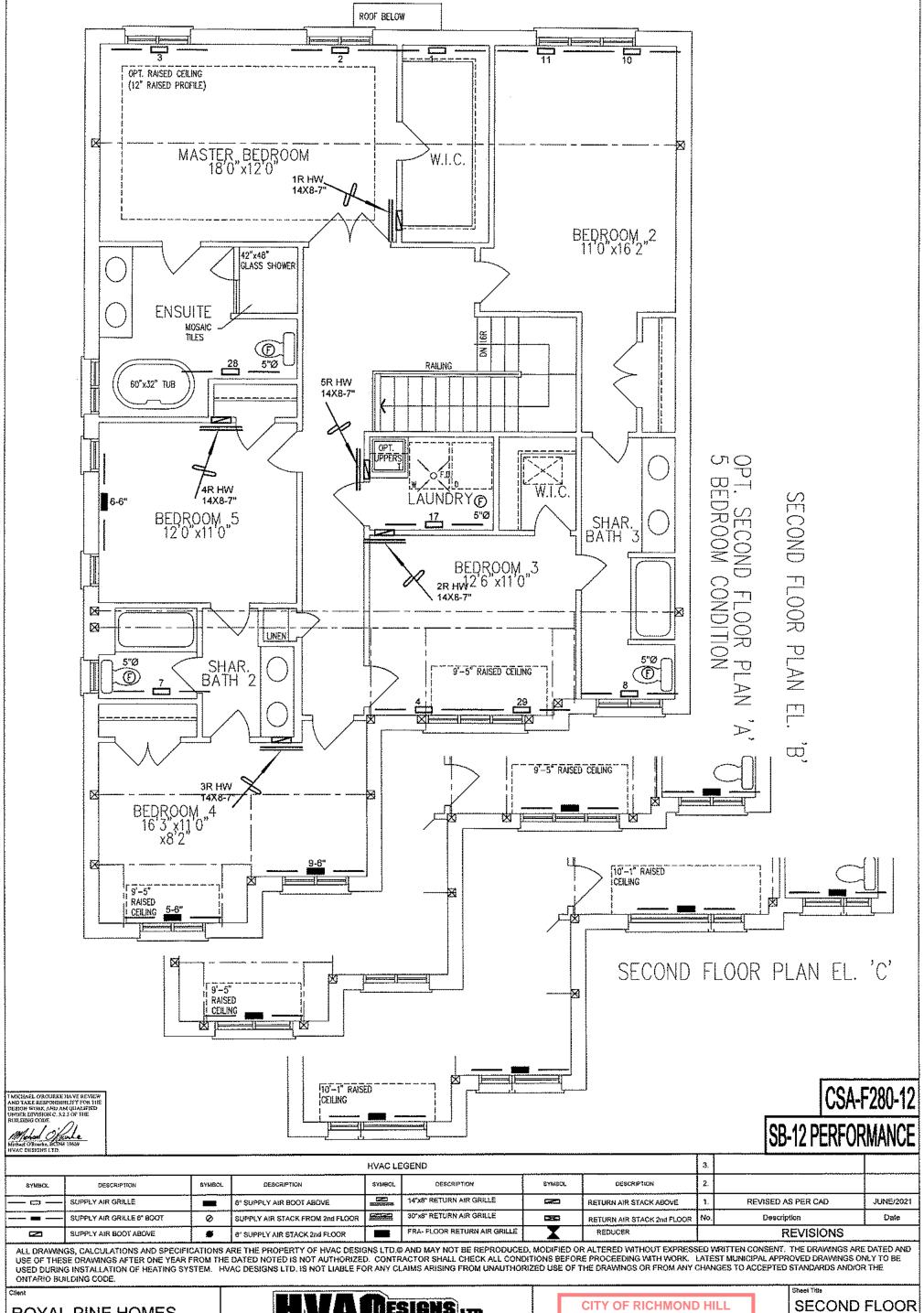
FIRST FLOOR HEATING

LAYOUT

Date APR/2021 Scale 3/16" = 1'-0"

BCIN# 19669

LO# 90464



### **ROYAL PINE HOMES**

**CENTREFIELD (WEST GORMLEY)** RICHMOND HILL, ONTARIO

OPT. GROUND & OPT 2ND

3223 sqft 4504

# **LESIGNS** 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.

**BUILDING DIVISION** 

08/12/2021

**RECEIVED** 

Per:

**HEATING** LAYOUT

APR/2021 3/16" = 1'-0"

LO#

BCIN# 19669

90464

#### Schedule 1: Designer Information

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

Municipality RICHMOND HILL  B. Individual who reviews and takes responsibility for design activities  Name MICHAEL O'ROURKE  Street address 375 FINLEY AVE  Municipality  Postal code  Plan number/ other description  CITY OF RICHMOND HILL  BLUILDING DIVISION  08/12/2021  Lot/con. N/A  N/A  Postal code  Province  E-mail  RECEIVED	A. Project Information					
B. Individual Wino reviews and takes responsibility for design activities   B. Individual Wino reviews and takes responsibility for design activities   B. Individual Wino reviews and takes responsibility for design activities   B. Individual Wino reviews and takes responsibility for design activities   B. Individual Wino reviews and takes 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 qualification registration and qualification:    P. Postal code   Province   Email   Lotron. WA   WA   L15 2E2   ONTARIO   Info@thvacdesigns.ca   Cell number   (205 619-2375   Cell number   (2	Building number, street name				Unit no.	Lot/con.
B. Individual who reviews and takes responsibility for design activities Name Name   Firm	Municipality	Postal code	Plan number/ other des	scription		
Name   HWAC DESIGNS LTD.   08/12/2021	RICHMOND HILL	<u> </u>			CITY OF RIC	CHMOND HILL
MICHAEL OROURKE  Street address  Street address  Street address  Junit o.  Lol/con.  N/A  Municipality  L18 2E2  ONTARIO  Fax number  [905) 619-2300  C. Design activities undertaken by individual identified in Section B. [Building Code Table 3.5.2.1 OF Division C]  House  Small Buildings  HVAC — House  Building Services  Building Services  Plumbing — All Buildings  Description of designers work  HEAT LOSS / GAIN CALCULATIONS  DUCT SIZING  RESIDENTIAL MECHANICAL VENTILATION DESIGN SUMMARY  RESIDENTIAL MSTEM DESIGN per CSA-7280-12  D. Declaration of Designer  I michael  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  classes/categories.  Individual BCIN: Firm BCIN:  The design work is exempt from the registration and qualification:  O. B.C. SENTENCE 3.2.4.1 (4)  The design work is exempt from the registration and qualification:  O. B.C. SENTENCE 3.2.4.1 (4)  The design work is exempt from the registration and qualification:  O. B.C. SENTENCE 3.2.4.1 (4)  The idesign work is exempt from the registration and qualification requirements of the Building Code.  Basis for exemption from registration and qualification and qualification requirements of the Building Code.  Basis for exemption from registration and qualification requirements of the Building Code.  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 23, 2021		and takes responsibility f				a miniolali
Street address   Stre			l		00/14	2/2024
Postal code			INAC DESIGNS LID.		UO/ L4	li oticon
AJAX						
Telephone number (905) 619-2300 (905) 619-2375 (905	Municipality	• • • • • • • • • • • • • • • • • • •	1	E-mail	REC	EIVED
(905) 619-2300 [906) 619-2375 [907] 619-2300 [908] 619-2375 [907] 619-2300 [908]	AJAX	·····	ONTARIO	info@l	vacdes <mark>ign</mark> s.ca	
G. Design activities undertaken by individual identified in Section B. [Building Code Table 3.5.2.1 OF Division C]    House	, ,	• • • • • • • • • • • • • • • • • • •		Cell nu	mber	
House	<u> </u>				)	
House	C. Design activities undert	aken by individual identif	ied in Section B. [Buik	ding Co	de Table 3.5.2.1 Ol	Division C]
Small Buildings   Detection, Lighting and Power   Plumbing - House   Detection   Detection   Detection   Detection   Detection   Orn-site Sewage Systems	D. Havas			asteres en e		
□ Large Buildings □ Detection, Lighting and Power □ Plumbing — All Buildings □ Complex Buildings □ Fire Protection □ On-site Sewage Systems  Description of designers work  HEAT LOSS / GAIN CALCULATIONS DUCT SIZING OPT. GROUND & OPT 2ND  RESIDENTIAL MECHANICAL VENTILATION DESIGN SUMMARY RESIDENTIAL SYSTEM DESIGN per CSA-F280-12  D. Declaration of Designer  I MICHAEL O'ROURKE (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  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 Di vision C, of the Building Code.  Individual BCIN: Basis for exemption from registration and qualification:  O.B.C SENTENCE 3.2.4.1 (4)  The design work is exempt Basis for exemption from registration and qualification requirements of the Building Code.  Basis for exemption from registration and qualification requirements of the Building Code.  Basis for exemption from registration and qualification requirements of the Building Code.  Basis for exemption from registration and qualification requirements of the Building Code.  Basis for exemption from registration and qualification requirements of the Building Code.  Basis for exemption from registration and qualification requirements of the Building Code.  Basis for exemption from registration and qualification requirements of the Building Code.  Basis for exemption from registration and qualification requirements of the Building Code.  1 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.						
Description of designer's work HEAT LOSS / GAIN CALCULATIONS DUCT SIZING RESIDENTIAL MECHANICAL VENTILATION DESIGN SUMMARY RESIDENTIAL SYSTEM DESIGN per CSA-F280-12  D: Declaration of Designer    MICHAEL O'ROURKE	Large Buildings	🗀 Detec	ction, Lighting and Po	wer		
HEAT LOSS / GAIN CALCULATIONS DUCT SIZING RESIDENTIAL MECHANICAL VENTILATION DESIGN SUMMARY RESIDENTIAL SYSTEM DESIGN per CSA-F280-12  D. Declaration of Designer  I MICHAEL O'ROURKE (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 Di vision C, of the Building Code.  Individual BCIN: Firm BCIN:  I review and take responsibility for the design and am qualification: Division C, of the Building Code. Individual BCIN: Basis for exemption from registration and qualification: DEC SENTENCE 3.2.4.1 (4)  The design work is exempt from the registration and qualification requirements of the Building Code. Basis for exemption from registration and qualification:  1 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 23, 2021		☐ Fire F	Protection		☐ On-site Set	wage Systems
DUCT SIZING RESIDENTIAL MECHANICAL VENTILATION DESIGN SUMMARY RESIDENTIAL SYSTEM DESIGN per CSA-F280-12  D. Declaration of Designer  I MICHAEL O'ROURKE (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 Di vision C, of the Building Code.  Individual BCIN: 19669 Basis for exemption from registration and qualification: O.B.C SENTENCE 3.2.4.1 (4)  The design work is exempt from the registration and qualification requirements of the Building Code.  1 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 23, 2021		FIGNIO	Model:	4504		
RESIDENTIAL MECHANICAL VENTILATION DESIGN SUMMARY RESIDENTIAL SYSTEM DESIGN per CSA-F280-12  D. Declaration of Designer:    MICHAEL O'ROURKE   declare that (choose one as appropriate):		IUNS		OPT. G	ROUND & OPT 2ND	
Project: CENTREFIELD (WEST GORMILEY)  D. Declaration of Designer    MICHAEL O'ROURKE		ENTILATION DESIGN SUM	WARY			
MICHAEL O'ROURKE			Project:	CENTRI	EFIELD (WEST GORMI	EY)
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:	D. Declaration of Designer				(8.55/8.65/8.65/9.48/8/3/9.65	
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:	MICHAEL O'R	MIRVE		de	clare that (choose on	e as appropriate):
Division C, of the Building Code. I am qualified, and the firm is registered, in the classes/categories.    Individual BCIN:		(print name)			•	,, , ,
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 Di vision C, of the Building Code.  Individual BCIN: 19669 Basis for exemption from registration and qualification: O.B.C SENTENCE 3.2.4.1 (4)  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 23, 2021	Division C, of the Bui	ponsibility for the design work liding Code. I am qualified, an	on behalf of a firm registed the firm is registered, in t	red unde the		riate
designer" under subsection 3.2.5.of Di vision C, of the Building Code.  Individual BCIN: 19669 Basis for exemption from registration and qualification: O.B.C SENTENCE 3.2.4.1 (4)  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 23, 2021						
Basis for exemption from registration and qualification:  O.B.C SENTENCE 3.2.4.1 (4)  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 23, 2021					gory as an "other	
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Date Signature of Designer	April 23, 2021			100	Rebuil OXTON	Le.
	Date				<del></del>	<del>*************************************</del>

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.

<sup>2.</sup> 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.

IL DESIGNS ....

INDRVEDUAL BCIN: 19669

MICHAEL O'ROURKE

Total Combined Heat Loss BTUM: 53980 STRUCTURAL HEAT LOSS; 51976

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I REVIEW AND TAKE RESPONSBULITY FOR THE DESKAN WCAK AND AM QUALIFIED IN THE APPROPRATE CATEGORY AS AN "OTHER BESIGKER" UNDER DIVISION C, 3.2.5 OF THE BUILDING CODE.

TONS: 3.54

42464

TOTAL HEAT GAIN BTUIRS

Loss due to ventilation load bture, 2004

375 Fihley Ave. Suite 202 Ajax, ON £18 2£2 7el: 905.619.2300 Fax: 905.619.2375 Web: www.hvacdosigns.ca E-mail: info@hvacdeslgns.ca Ľ. AFUE = 97 % INPUT (BTU/H) = 60,000 OUTPUT (BTU/H) = **58,000** DESIGN CFM = 1370 CFM @ 6 ES.P. 8

FEMPERATURE RISE

820 0 0 1370 1520

MEDIUM MEDLOW

> r/a pressure r/a grille press. Loss adjusted pressure r/a

0.18 0.02 0.15

plenum pressure s/a max s/a dif press. loss min adjusted pressure s/a

Bas

otherwise on layout

Ali S/A diffusers 4"x10" unless noted Ali S/A tuns 5"@ unless noted otherwi

MEDIUM HIGH HIGH

90464

3223 GFA

DATE: Apr-21

OPT. GROUND & OPT 2ND

4504

TYPE

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

0.6 0.05 0.2

0.35

available pressure for s/a & r/a alc coit pressure furnace pressure furnace filter

1370 42,134 32,52

COOLING CFM
TOTAL HEAT GAIN AIR FLOW RATE CFM

1370 51,976 26.36

HEATING CFM TOTAL HEAT LOSS AR FLOW RATE CFM

4

RUN COUNT

\*\*CARRIER #<u></u>

8

59TN6A-060-14V

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Ali S/A runs 5"/2 unless noted otherwise on layout.		ROOM NAME	CFM PER RUN HEAT	RM GAIN MBH	CFM PER RUN COOLING	ADJUSTED PRESSURE	ACTUAL DUCT LGH	EQUIVALENT LENGTH	TOTAL EFFECTIVE LENGT	ADJUSTED PRESSURE	ROUND DUCT SIZE	HEATING VELOCITY (flymin)	COOLING VELOCITY (Minin)	OUTLET GRILL SIZE			ROOM NAME	RM LOSS MBH	CFM PER RUN HEAT	RM GAIN MBH	CFM PER RUN COOLING	ADJUSTED PRESSURE	ACTUAL DUCT 1GH	EQUIVALENT LENGTH	TOTAL EFFECTIVE LENGTH	ADSUSTED PRESSURE	NEATING VELOCITY (Tranis)	CODLING VELOCITY (firmin)	OUTLET GRILL SIZE	1		SUPPLY AIR INDIA SIZE		134		18	. E	TR	TRI
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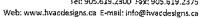
ACTUAL DUCT LGH. EQUIVALENT LENGTH 40JUSTED PRESSURE

PLENUM PRESSURE

RETURN AIR # AIR VOLUME TOTAL EFFECTIVE LH

ROUND DUCT SIZE NLET GRILL SIZE INLET GRILL SIZE







TYPE: SITE NAME: 4504

LO#

90464

SITE NAME: CENTREFIELD (M	VEST GORMLEY)				OPT. GROUND & OPT 2	ND		
	RESIDENTIAL MEC	HANICAL V	/ENTILA	TION DES	GN SUMMARY			
COMBUSTION APPLIANCES		9.32.3.1(1)	SUP	PLEMENTAL	VENTILATION CAPACITY			9.32.3.5
a) Direct vent (sealed combustion) only			Total	Ventilation Ca	apacity	190.8		clu
b) Positive venting Induced draft (except				Principal Ven	tii. Capacity	95.4		cám
c) Natural draft, B-vent or induced draft g	Y OF RICHMO as freplace BUILDING DIV	ISION	Requ	ired Supplem	ental Capacity	95.4	_	cím
d) Solid Fuel (including fireplaces)	00/40/0	004	PRIN	CIPAL EXHA	UST FAN CAPACITY			
e) No Combustion Appliances	08/12/2	021		Modet:	VANEE 65H	Location:	f	BSM7
HEATING SYSTEM	RECEIV	ED		95,4	cfm			HVI Approved
Forced Air	Non Forced Air		PRIN	CIPAL EXHA	UST HEAT LOSS CALCULATION		***************************************	***************************************
				сғи 95.4 СҒМ	Δ1°F Χ 78F Χ	FACTOR 1.08	х	% LOSS 0.25
Electric Space Heat			SUP	LEMENTAL	FANS BYINS	TALLING CON	ITRACTO	
				Location	Model	cfm	HVI	Sones
HOUSE TYPE		9.32.1(2)	ļ	ENS	BY INSTALLING CONTRACTOR	50		3.5
Type a) or b) appliance of	nly no colid frot			ENS-4/5 ENS 3	BY INSTALLING CONTRACTOR BY INSTALLING CONTRACTOR	50	1	3.5
1 Type a) or b) appliance of	rny, no som ruer		-	W/R	BY INSTALLING CONTRACTOR	50 50	+;+	3.5 3.5
II Type I except with solid fi	uel (including fireplaces)	1	Ļ	******	DI Markena Son House	······································		9.0
	` * . ′		HEAT	RECOVERY	VENTILATOR	<del>* .* .*</del>	••••	9.32.3.11.
III Any Typé c) appliance			Ĺ	Model:	VANEE 65H			
		İ		155	cfm high	64		c(tr) low
IV Type i, or II with electric s	space heat			75	% Sensible Efficiency		7	HVI Approved
Other. Type I, II or IV no forced air			ļ		@ 32 deg F ( 0 deg C)	·····		***************************************
			[I OC	YION OF ING	STALLATION			
SYSTEM DESIGN OPTIONS	······································	O.N.H.W.P.	1.00	1110/11/01 1110	, many top			
			Lot:			Concession		
1 Exhaust only/Forced Air 5	System							***************************************
<u> </u>			Town	ship	·····	Plan:		
2 HRV with Ducting/Forced	Air System		Addre	\$\$				
✓ 3 HRV Simplified/connected	i lo forced air system		Roll #			Building Perr	nit#	
4 HRV with Ducling/non for	ced air system		BUILI	DER:	ROYAL PINE HOMES			***************************************
Part 6 Design			Name					
TOTAL VENTILATION CAPACITY		9.32.3.3(1)	Addre	SS:				
Basement + Master Bedroom2	@ 21.2 cfm <u>42.4</u>	cfm	City:					***************************************
Other Bedrooms 4	@ 10.6 cfm 42.4	cfm		none #:		Fax#:		
Kitchen & Bathrooms 5	@ 10.6 cfm53	cám	INST	ALLING CON	TRACTOR			
Other Rooms 5	@ 10.6 cfm 53.0	cấn	Name	<b>:</b>				
Table 9,32,3,A.	TOTAL 190.8	cfm	Addre	95:				
			City:					
PRINCIPAL VENTILATION CAPACITY REQUIRED	9	32.3.4.(1)		·····				
1 Sedroom	31.8	cfins	Telepi	rone #:		Fax#:		<del>~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~</del>
2 Bedroom	47.7	ofm	l here		this ventilation system has been d	esigned		
3 Bedroom	63.6	cfm.		ordance with	the Ontario Building Code. HVAC Designs Ltd.			
4 Bedroom	79.5	cfm	Signa	ture;	Michael	1 Ofmile		
5 Bedroom	95.4	c/m:	HRAI	#		001820		
TOTAL	95.4 cfm		Date:			April-21		
REVIEW AND TAKE RESPONSILTY FOR THE D		FIED IN THE APP		ATEGORY AS AF	TOTHER DESIGNER" UNDER DIVISION C		LÉMG COD	Ē.

INDIVIDUAL BCIN: 19669

MICHAEL O'ROURKE



			CSA F28	A F280-12 Residential Heat Loss and Heat Gain Calculations Formula Sheet (For Air Leakage / Ventiliation Calculation)	Loss and Heat Gain	Calculations alculation)				
1.0#: 90464	10464	Model: 4504		Builder	Builder: ROYAL PINE HOMES				Date: 4/73/2021	3/2021
		Volume Calculation	uc			Air Cha	Air Change & Deita T Data	Data		
Hoisse Volume		***************************************		,,,,		MANAGE NATIONAL AIS CHANGE BATE	A19 CHANGE PA	1 2 2	665.6	
Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)			SUMMER NATURAL AR CHANGE RATE	AIR CHANGE R	ATE	0.073	
Bsmt First	1453	11	14530							
Second	1770	6	15930				Design Temperature Difference	erature Differ	сепсе	
Third	0	6	Q				Tin "C	Tout °C	AT °C	ΔT°F
Fourth	Û	6	0					-21	43	78
		Total:	46,443,0 ft³			Summer DTDc	24	31	7	13
		-								
	5.2.	5.2.3.1 Heat Loss due to Air Leakage	tir Leakage			6.2.6 Sensible	6.2.6 Sensible Gain due to Air Leakage	ir teakage		
	HLairb ==	$HL_{airb} = LR_{airh} \times \frac{V_b}{3 \kappa} \times DTD_h \times 1.2$	$DTD_h \times 1.2$		Ξ	$HG_{salb} = LR_{airc} \times \frac{V_b}{2-c} >$	$\frac{V_b}{2c} \times DTD_c \times 1.2$	2		
0.233	× 365.31	x 43°C	× 1.2	= 4411 W	= 0.073	365.31 x	7 °C ×	1.2	"	226 W
				= 15051 Btu/h					12	772 Btu/h
	5.2.3.2 Ht	5.2.3.2 Heat Loss due to Mechanical Ventilation	nical Ventilation			6.2.7 Sensible heat Gain due to Ventilation	eat Gain due to	o Ventilation		
	HLvairb ==	$HL_{pairb} = PVC \times DTD_n \times 1.08 \times (1 - E)$	$1.08\times(1-E)$		$HL_{\rm b}$	$HL_{\nu\alpha trb} = PVC \times DTD_h \times 1.08 \times (1 - E)$	(1.08 × (1 –	- E)		
95 CFM	78 °F	x 1.08	x 0.25	= 2004 Btu/h	95 CFM	x 13°F x	1.08 ×	0.25	<u></u>	330 Btu/h
			5.2.3.3 Calculat	culation of Air Change Heat Loss for Each Room (Floor Multiplier Section)	oss for Each Room (Floc	r Multiplier Section)				
	(	$HL_{a}$	ur = Level Facto	$r \times HL_{airbv} \times \{(HL)\}$	$^{'agcr} + HL_{bgcr}) + ($	$HL_{uirr} = Level\ Factor \times HL_{airbv} \times \{(HL_{agcr} + HL_{bgcr}) + (HL_{agclevel} + HL_{bgclevel})\}$	(			
Per:_	BUI	Level	Level Factor (LF)	Hairve Air Leakage + Ventitation Heat Loss (Btu/h)	Level Conductive Heat Loss: {HL <sub>clevel</sub> }	Level Conductive Heat Air Leakage Heat Loss Multiplier (LF x Loss: {HL <sub>clevel</sub> } HLairbv / HLievel}	iplier (LF x			
RE	LD	4-7	0.5		8,365	0.900				
EC	IN	2	0.3		13,890	0.325				
E	G	8	0.2	15,051	14,190	0.212				
ΞΙ'	D	4	0	1	0	0,000				
VI	IV	2	0		0	0.000				
ED	ND ISIC	*HLairbv = 4 *For a balan	Htairby = Air leakage heat loss + ventilation heat loss For a balanced or supply only ventilation system Hair	*HLairby = Air leakage heat loss + ventilation heat loss *For a balanced or supply only ventilation system Hlairve = 0	0=					
	111 N									



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**

MODEL:	4504		OPT. GROUND &	OPT 2ND	BUILDER: ROYAL PINE HOMES	)
SFQT:	3223	LO#	90464		SITE: CENTREFIELD (WEST	f GORMLEY)
DESIGN A	SSUMPTIONS					
HEATING			°F	COOLING	3	°F
OUTDOOR	R DESIGN TEMP.		-6	OUTDOO	DR DESIGN TEMP.	88
INDOOR D	DESIGN TEMP.		72	INDOOR	DESIGN TEMP. (MAX 75°F)	75
BUILDING	DATA					
ATTACHM	IENT:		DETACHED	# OF STO	DRIES (+BASEMENT):	3
FRONT FA	CES:		EAST	ASSUME	D (Y/N):	Y
AIR CHAN	GES PER HOUR:		2.50	ASSUME	D (Y/N):	Υ
AIR TIGHT	NESS CATEGORY:		TIGHT	ASSUME	D (Y/N):	Υ
WIND EXP	OSURE:		SHELTERED	ASSUME	D (Y/N):	Υ
HOUSE VC	DLUME (ft³):		46443.0	ASSUME	D (Y/N):	Υ
INTERNAL	SHADING:	BLIND	S/CURTAINS	ASSUME	D OCCUPANTS:	6
INTERIOR	LIGHTING LOAD (Btu/)	n/ft²):	1.40	DC BRUS	HLESS MOTOR (Y/N):	Y
FOUNDAT	ION CONFIGURATION		BCIN_1	<b>D</b> EPTH В	ELOW GRADE:	7.0 f
LENGTH:	46.0 ft	WIDTH:	37.0 ft	EXPOSED	PERIMETER:	166.0 f

2012 OBC - COMPLIANCE PACKAGE	CITY OF RICHMOND HILL BUILDING DIVISION	Compliance	Package
Component		SB-12 PERI	FORMANCE
	08/12/2021	Nominal	Min. Eff.
Ceiling with Attic Space Minimum RSI (R)-Value	00/12/2021	60	59.20
Ceiling Without Attic Space Minimum RSI (R)-Value	DEOEN/ED	31	27.70
Exposed Floor Minimum RSI (R)-Value	RECEIVED	31	29.80
Walls Above Grade Minimum RSI (R)-Value	Per:	22+1.5	18.50
Basement Walls Minimum RSI (R)-Value		20	21.12
Below Grade Slab Entire surface > 600 mm below gra	de Minimum RSI (R)-Value	-	-
Edge of Below Grade Slab ≤ 600 mm Below Grade Mi	nimum 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





CITY OF RICHMOND HILL BUILDING DIVISION

08/12/2021

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HVAC Designs Ltd. 375 Finley Ave, Suite 202 Ajax ON, L1S 2E2 905-619-2300

### Residential Foundation Thermal Load Calculator

Supplemental tool for CAN/CSA-F280

W	eather Sta	tion Description
Province:	Ontario	
Region:	Richmon	liht b
	Site D	escription
Soil Conductivity:	Normal c	onductivity: dry sand, loam, clay
Water Table:	Normal (	7-10 m, 23-33 ft)
	Foundatio	n Dimensions
Floor Length (m):	14.0	
Floor Width (m):	11.3	
Exposed Perimeter (m):	0.0	
Wall Height (m):	3.0	
Depth Below Grade (m):	2.13	Insulation Configuration
Window Area (m²):	1.9	
Door Area (m²):	1.9	
	Radia	ant Slab
Heated Fraction of the Slab:	0	
Fluid Temperature (°C):	33	
	Desigr	Months
Heating Month	1	
	Founda	tion Loads
Heating Load (Watts):		1635

**TYPE:** 4504 **LO#** 90464

OPT. GROUND & OPT 2ND



CITY OF RICHMOND HILL BUILDING DIVISION

08/12/2021

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Per:\_\_\_\_\_

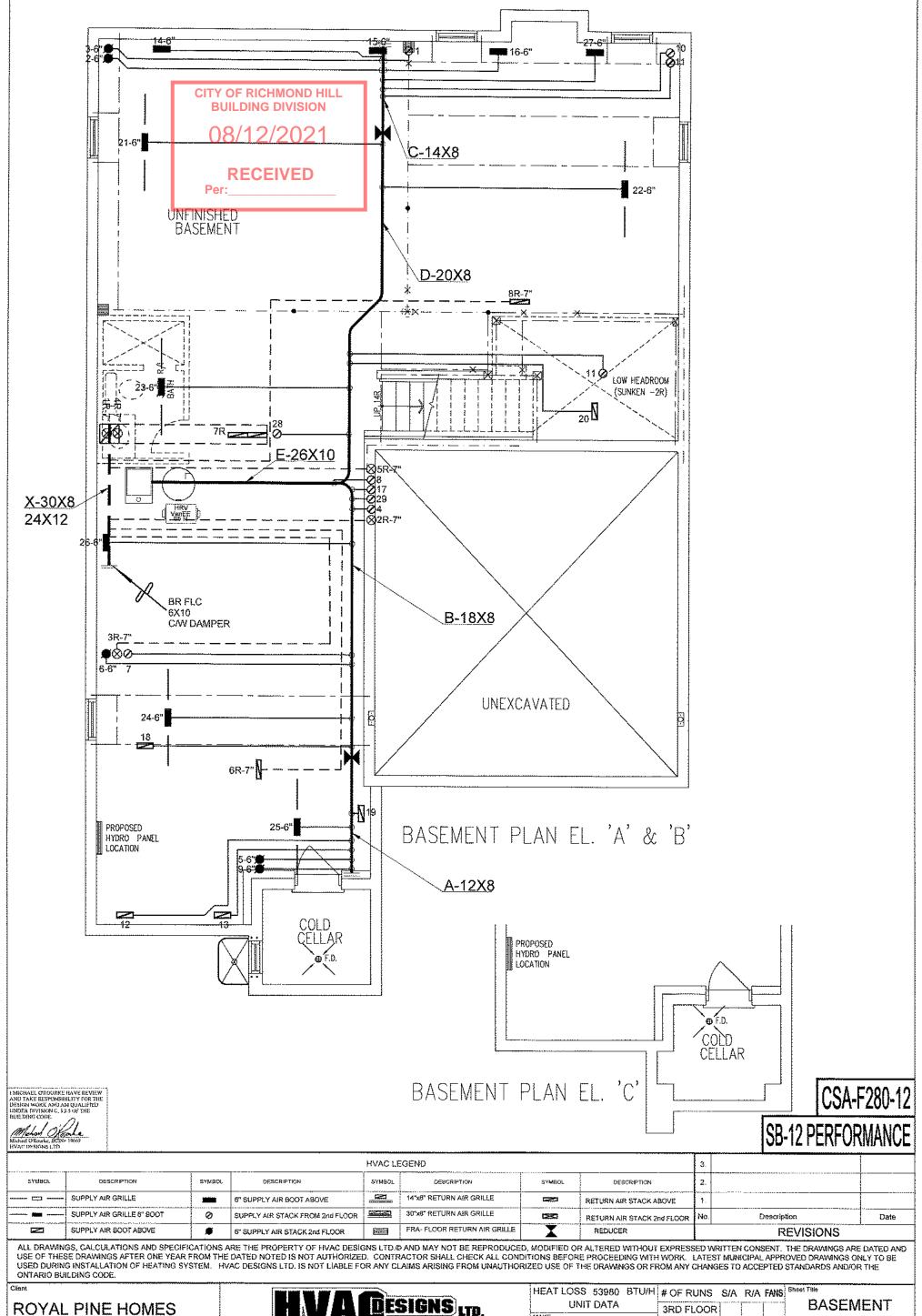
HVAC Designs Ltd. 375 Finley Ave, Suite 202 Ajax ON, L1S 2E2 905-619-2300

## **Air Infiltration Residential Load Calculator**

Supplemental tool for CAN/CSA-F280

Weather St	tation Description
Province:	Ontario
Region:	Richmond Hill
Weather Station Location:	Open flat terrain, grass
Anemometer height (m):	10
Loca	al Shielding
Building Site:	Suburban, forest
Walls:	Heavy
Flue:	Heavy
Highest Ceiling Height (m):	7.01
Building	; Configuration
Type:	Detached
Number of Stories:	Two
Foundation:	Full
House Volume (m³):	1315.1
Air Leaka	age/Ventilation
Air Tightness Type:	Energy Star Detached (2.5 ACH)
Custom BDT Data:	ELA @ 10 Pa. 1227.7 cm²
	2.50 ACH @ 50 Pa
Mechanical Ventilation (L/s):	Total Supply Total Exhaust
	45.0 45.0
FI	lue Size
Flue #:	#1 #2 #3 #4
Diameter (mm):	0 0 0 0
Natural In	nfiltration Rates
Heating Air Leakage Rate (ACH/	/H): 0.233
Cooling Air Leakage Rate (ACH/	(H): 0.073

TYPE: 4504 LO# 90464 OPT. GROUND & OPT 2ND



**CENTREFIELD (WEST GORMLEY)** RICHMOND HILL, ONTARIO

OPT. GROUND & OPT 2ND 4504 3223 sqft

# DESIGNS

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. FAN SPEED

HEATL	.088 5398	0 BIU/H	# OF RUNS	S/A	R/A	FANS	) or
	UNIT DAT	A	3RD FLOOR	]	<del></del>		
I MAKE				L	Ì	<u> </u>	)
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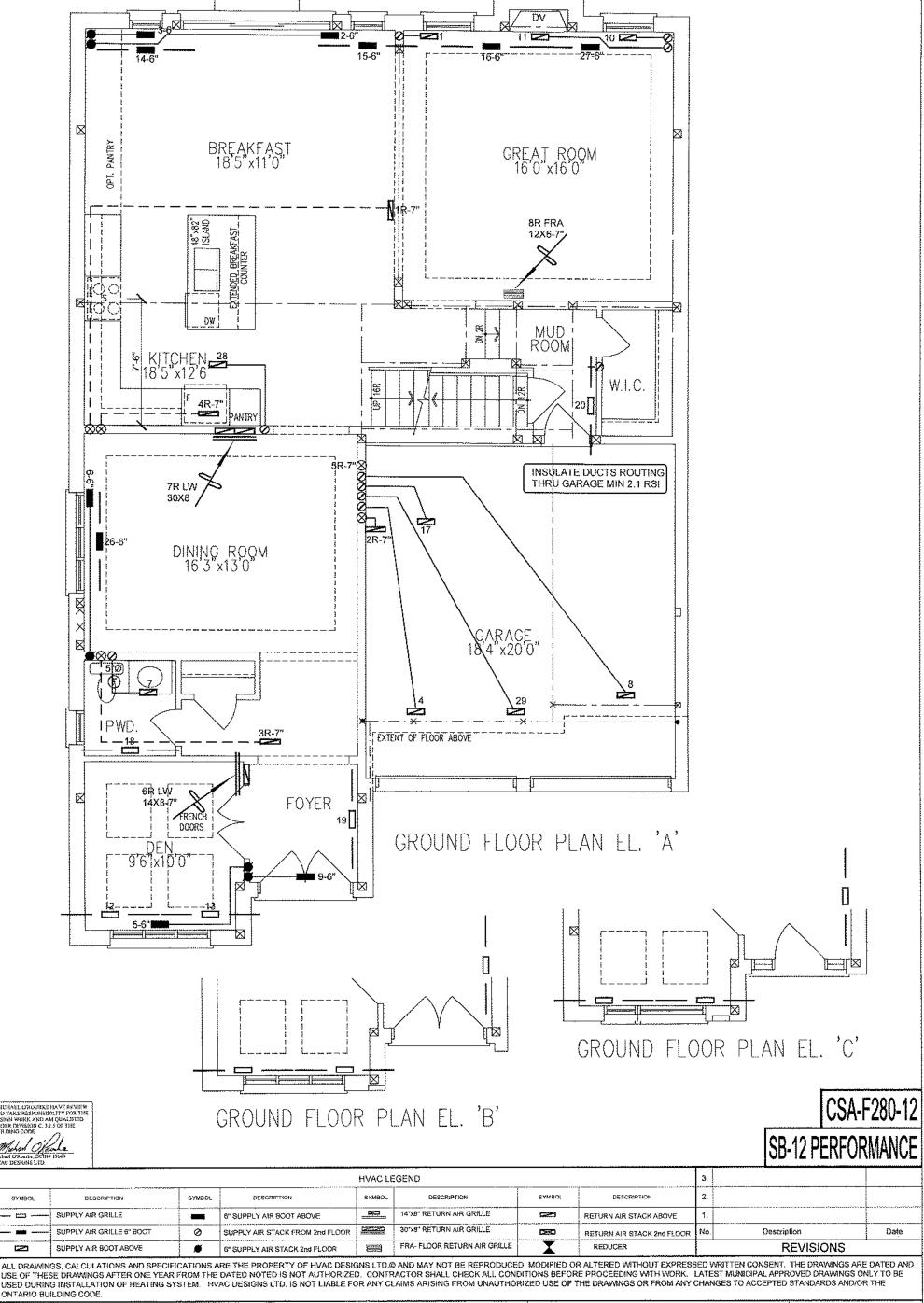
c(m @ 0.6" w.c.

1370

ON LAYOUT, UNDERCUT

DOORS 1" min. FOR R/A

**HEATING** LAYOUT APR/2021 3/16" = 1'-0" BCIN# 19669 90464 LO#



USE OF THESE DRAWINGS AFTER ONE YEAR FROM THE DATED NOTED IS NOT AUTHORIZED. CONTRACTOR SHALL CHECK ALL CONDITIONS BEFORE PROCEEDING WITH WORK. LATEST MUNICIPAL APPROVED DRAWINGS ONLY TO BE USED DURING INSTALLATION OF HEATING SYSTEM. HVAC DESIGNS LTD, IS NOT LIABLE FOR ANY CLAIMS ARISING FROM UNAUTHORIZED USE OF THE DRAWINGS OR FROM ANY CHANGES TO ACCEPTED STANDARDS AND/OR THE ONTARIO BUILDING CODE.

#### ROYAL PINE HOMES

CENTREFIELD (WEST GORMLEY) RICHMOND HILL, ONTARIO

OPT. GROUND & OPT 2ND

3223 sqft 4504

# DESIGNS LTD.

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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.

**CITY OF RICHMOND HILL BUILDING DIVISION** 

08/12/2021

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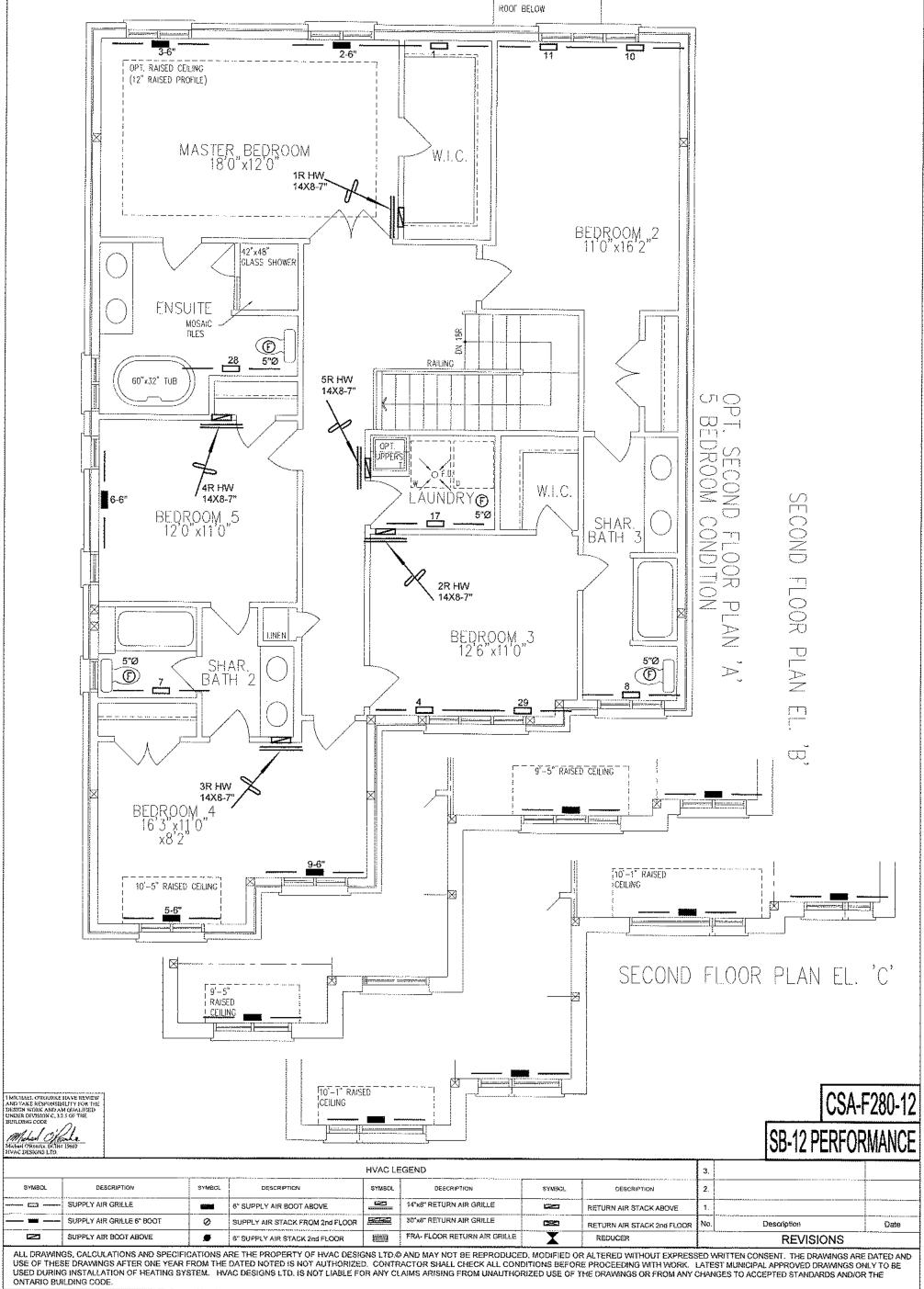
FIRST FLOOR **HEATING** LAYOUT

APR/2021

3/16" = 11-0"

BCIN# 19669 LO# 90464

Per:\_



#### **ROYAL PINE HOMES**

CENTREFIELD (WEST GORMLEY) RICHMOND HILL, ONTARIO

OPT. GROUND & OPT 2ND

4504

# DESIGNS LTD.

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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 3223 sqft adequately insulated and be gas-proofed.

CITY OF RICHMOND HILL **BUILDING DIVISION** 

08/12/2021

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SECOND FLOOR **HEATING** LAYOUT

APR/2021 3/16" = 1'-0" BCIN# 19669

LO# 90464

#### Schedule 1: Designer Information

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

	Project Information					
Build	ing number, street name				Unit na.	Lot/con.
Muni	cipality	Postal code	Plan number/ other	er description	<u> </u>	<u>-</u>
RICHA	MOND HILL	İ				
B. li	ndividual who reviews and ta	kes responsibility	for design activitie	9		
Name	ė		Firm	**************************************	44400000889888888	
	IAEL O'ROURKE		HVAC DESIGNS	LTD.		
:	t address			Unit no.		Lot/con.
	INLEY AVE		·	202		N/A
AJAX	cipality (	Postal code L1S 2E2	Province	E-mail	_	
	hone number		ONTARIO	info@hvacdes	igns.ca	
,	619-2300	Fax number (905) 619-2375	<b>;</b>	Cell number ( )		
C. D	esign activities undertaken	by individual identii	ied in Section B. [	Building Code Tab	le 3.5.2.1 OF [	livision C]
	louse	⊠ HVA	C – House		Building Stru	ctural
	Small Buildings	🖵 Buildi	ing Services		Plumbing F	louse
_ <b>_</b> _ (	_arge Buildings Complex Buildings	☐ Detec ☐ Fire F	ction, Lighting and Protection		Plumbing – A On-site Sewa	
	iption of designer's work		Mod	lel: 4504		
	LOSS / GAIN CALCULATIONS					
	TSIZING DENTIAL MECHANICAL VENTIL	ATION DEGLON OUT	I A DV	OPT, GROUND		
RESIL	DENTIAL SYSTEM DESIGN per	ation design sum: CSA-F280-12	Proj	ect: CENTREFIELD (	WEST GORMLEY	) ·
	eclaration of Designer					
I	MICHAEL O'ROURK				-4 (-1	
		(print name)		Gedate in	at (choose one a	is appropriate);
<u> </u>	f review and take responsib Division C, of the Building C classes/categories.	ility for the design work ode. I am qualified, an	on behalf of a firm red d the firm is registered	gistered under subsec I, in the	ction 3.2.4.of appropriat	е
	Individual BCIN: Firm BCIN:		***************************************			
X	I review and take responsib designer" under subsection	lity for the design and a on 3.2.5.of Di vis	am qualified in the appion C, of the Building	propriate category as a Code.	an "other	
	Individual BCIN:	19669				
	Basis for exempl	ion from registration ar	nd qualification:	O.B.C SENT	ENCE 3.2.4.	1 (4)
0	The design work is exempt Basis for exemption from re	from the registra	tion and qualification	requirements of the Ru		
l certif	y that:	ground and quanton	1015.			
	The information contain     H have submitted this ap	ed in this scheo plication with the know	dule is true to the best ledge and consent of	of my knowledge. the firm.		
	June 7, 2021			Michan	1 Office	<i>l</i>
*********	Date	<del></del>			Signature of	Decignor
		·····			osimme pt	nengitet

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 CITY Offsario 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

08/12/2021

**RECEIVED** 

Per:\_

CSA-F286-12 88-12 PERFORMANCE

2 2

HEAT LOSS AT "F. HEAT GAIN AT "F.

WINTER NATURAL AIR CHANGE RATE 0,219 SUMMER NATURAL AIR CHANGE RATE 0.068

DATE: Jun-21 LO# 87612

E0 = =

BED-3

36 36

GFA: 3223

OPT. GROUND TYPE: 4504

SITE HAME: CENTREFIELD (WEST GORMLEY)
BUILDER: ROYAL PINE HOMES
ROOM USE

136 LOSS

88 S

280 -055

208

378 OSS

GRB.WALL AREA LOSS GAIN

**FACTORS** 

CLG. HT.

EXP. WALL

**CITY OF RICHMOND HILL BUILDING DIVISION** 

**RECEIVED** 

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9 3 4 4 5 8 9

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9 38 o 17

41.5 101.2

DOORS

NET EXPOSED WALL EXPOSED CLG

NÉT EXPOSED BSMT WALL, ABOVE OR

41.6 24.9

£2.8 21.8 21.8 21.8 35.8 26.8

NORTH SOUTH WEST SKYLT.

GLAZING

EA8T

в 765 7

9 28 0 0

\$2

NO ATTIC EXPOSED CLG

EXPOSED FLOOR basement/crawl heat loss SLAB ON GRADE HEAT LOBS SUBTOTAL HT LOSS LEVEL FACTOR / MULTIPLIER AIR CHANGE HEAT LOSS air change heat gain DUCT LOSS **DUCT GAIN** 

4.3 6.4 6.4 6.4 6.4 6.4

0.19 107

0.20

995

0 0 1294

3 6 6

0 0 \$

91,0

0.20 679

9.19

0.20

0.19

0.29

0.18 648

0.20

\$169

63.0

6.19 622

0,20

SUB TOTAL HT GAIN

390

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9 \$ 52

246

HEAT GAIN PEOPLE TOTAL HT LOSS BTUM

HEAT GAIN APPLIANCESILIGHTS

0 0 0 0 0 0 0 0 0

Ξ

8

**‡** 

134

410

676

637

3782

1512

1838

3307

435 724 724 724

9.000

Per:

72 LOSS 162

MICHAEL O'RDURKE

TOTAL COMBINED HEAT LOSS BTUM: 49972

STRUCTURAL HEAT LOSS: 48302

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	GAIN						GRS.								NET EXPOSED WALL	SMT W	ã	C EX	EXPOSED FLOOR	AWL	SADE:	SUBTOTAL HT LOSS	SUB TOTAL MT GAIN	OR/A	NGE	NGE	_		HEAT GAIN PEOPLE	PLIAN	HT E.	OAHN.
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I HEVIEW AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFIED IN THE APPROPRATT CATEGORY AS AN "OTHER DESIGNER" UNDER DIVISION C, 3.2.5 OF THE BUILDING CODE.

LOSS DUE 70 VENTILATION LOAD BTURE 1670

TONS: 3.44

41276

TOTAL HEAT GAIN BTURK

MICHAEL O'ROURKE

	INDIVIDUAL
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SITE NAME: CENTREFIELD (WEST GORMLEY) BUILDER: ROYAL PINE HOMES	COOLING CFM TOTAL HEAT GAIN AIR FLOW RATE CFM 2nd 1st 12 10 5 3	eyout.							525 0 4X10		ķ	- ~	_				_		_		RECT			225			4					<b>⊳</b> ø	
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E: CENT	E o o	ed other	ENS				219		298 3X10		8 2	1.99	8 5	2	0.17	3	0.09	<b>6</b> 286	357 4X10	æ	STATIC	PRESS.	0.07	0.07	90.0	200	2	o ‡	0,15	245	310 0.05	0 -7	×¥
TE NAM BUILDE	3 48,302 4 28.36 4 4th 0 0	ofed other	* MBR	2.13					4X 40 5	,									4X10		TRUMK	CFM		925		1370	-	135	0.15	3 5 5	0 5 6 6 6 6	<b>≻</b> 80∶	×¥
SS	HEATING CFM AL HEAT LOSS OW RATE CFM ZOUNT IA	uniess n	ROOM NAME RM LOSS MBH.	CFM PER RUN HEAT RM GAIN MBH.	¥ COOLING PRESSUR	ACTUAL BUCT LGH	F LENGT	ROUND DUCT SIZE G VELOCITY (fumin)	4G VÉLOCITY (NYMIN) OUTLET GRILL SIZE TOURN	4	# NOW #	RM LOSS MBH	PER RUN HEAT RM GAIN MBH	COOLING	PRESSURE DUCT LGH	T LENGT	RESSURE	ROUND DUCT SIZE G VELOCITY (filmin)	FTY (fl/min	TRUNK	K SIZE		TRUNK A	TRUNK C	TRUNK E	TRUNK			alt .	. ≝ :	<b>포</b> 뿂		
	HEATING CFM 1370 TOTAL HEATLOSS 48,302 AR FLOW RATE CFM 28,36 RUN COUNT 4th S/A 0 R/A 0	All S/A diffusers 4"x10" unless noted otherwise on All S/A runs 5"Ø unless noted otherwise on layou.	R	CFM PER RM	OFM PER RUN COOLING ADJUSTED PRESSURE	ACTUAL DUCT LGH.	TOTAL EFFECTIVE LENGTH ADJUSTED PRESSURE	ROUND DUCT SIZE HEATING VELOCITY (fumin)	COOLING VELOCITY (MININ) OUTLET GRILL SIZE TEN IN		à	RMI	ofm per run heat RM garn meh	CFM PER RUN COOLING	ADJUSTED PRESSURE ACTUAL DUCT LAH.	EDUIVALENT LENGTH	ADJUSTED PRESSURE	ROUND DUCT SIZE HEATING VELOCITY (Wmin)	COOLING VELOCITY (firmin) OUTLET GRILL SIZE	1	SUPPLY AIR TRUNK SIZE						AfR#	ž.	PLENUM PRESSURE ACTUAL DUCT LOM	EDUNALENT LENGTH	TOTAL EFFECTIVE LH ADJUSTED PRESSURE	UCT SIZE ILL SIZE	ILL SIZE
		All S/A			A A	<u> </u>	TOTAL	HEAT	1000 1000					CFM.	¥	<u>щ</u>	₹ }	HEATIN	C00114		SUPPLY		•				RETURN AIR #	AIR VOLUME	PLENUM!	EDUIVALE	ADJUSTE	ROUND DUCT SIZE INLET GRILL SIZE	INLET GRILL, SIZE



TYPE: SITE NAME:

CENTREFIELD (WEST GORMLEY)

LO#

87512

OPT, GROUND RESIDENTIAL MECHANICAL VENTILATION DESIGN SUMMARY

COMBUSTION APPLIANCES	9.32.3.1(1)	SUPPLEMENTAL	L VENTILATION CAPACITY	·	9,32,3,5
a) Direct vent (sealed combustion) only		Total Ventilation (	Capacity	180.2	_ c/m
b) Positive venting induced draft (except fireplaces)		Less Principal Ve	ntil. Capacity	79.5	<b>c</b> fm
c) Natural draft, B-vent or induced draft gas fireplace	İ	Required Supplen	nental Capacity	100.7	<b>c</b> fm
d) Solid Fue: (Including fireplaces)		1			
e) No Combustion Appliances		PRINCIPAL EXH	AUST FAN CAPACITY		
		Model:	VANEE 65H	Location:	BSMT
HEATING SYSTEM		79.5	<b>с</b> тп		HVI Approved
Forced Air Non Forced Air		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	AUST HEAT LOSS CALCULATION		
		сғм 79.5 СРМ	ΔΤ*F X 78 F X	FACTOR 1.08	%1,085 X 0,25
Electric Space Heat	l	SUPPLEMENTAL	FANS RY INS	TALLING CONT	
		Location	Model	. cfm	HVI Sones
HOUSE TYPE	9.32.1(2)	ENS	BY INSTALLING CONTRACTOR	50	√ 3.5
Type a) or b) appliance only, no solid fuel		BATH ENS-2	6Y INSTALLING CONTRACTOR  6Y INSTALLING CONTRACTOR	50 50	✓ 3.5 ✓ 3.5
		W/R	BY INSTALLING CONTRACTOR	50	√ 3.5 ✓ 3.5
If Type I except with solid fuel (including fireplaces)	İ				1
ill Any Type c) appliance	ĺ	HEAT RECOVER' Model:	Y VENTILATOR VANEE 65H	***************************************	9.32.3.11.
IV Type I, or II with electric space heat		155	cfm high	64	c/m low
Other. Type I, II or IV no forced air		75	% Sensible Efficiency @ 32 dag F ( 0 deg C)		HVI Approved
		LOCATION OF IN	STALL ATION	····	
SYSTEM DESIGN OPTIONS	O.N.H.W.P.				
1 Exhaust only/Forced Air System		Lot:		Concession	
2 HRV with Ducting/Forced Air System		Township		Plan:	
3 HRV Simplified/connected to forced air system		Address			···
4 HRV with Ducting/non forced air system		Roll #		Building Permit	t#
		BUILDER:	ROYAL PINE HOMES		
Parl 6 Design	:	Name:			
TOTAL VENTILATION CAPACITY	9.32.3.3(1)	Address:			
Sasement + Master Sedroom 2 @ 21.2 cfm 42.4	cfm	City:			
Other Bedrooms 3 @ 10.6 cfm 31.8	cfm	Telephone #:	CITY OF RICHMO	E-50#LIII	
Kachen & Sathrooms 5 @ 10.6 cm 53	cfm	INSTALLING CON		SION	
		i I	00/40/00	204	
	cfrn	Name:	- <del>U8/12/2</del> (	<del>]</del> 21	
Table 9.32.3.A. TOTAL 180.2	cfm	Address:		····	
PRINCIPAL VENTILATION CAPACITY REQUIRED	9.32.3.4.(1)	City:	RECEIVE	ED	
		Telephone #:	Per:	Fax #:	
1 Sedroom 31,8	cfm 1	Designes ceom	TIPATION.		
2 Bedroom 47.7	cfm	DESIGNER CERTI I hereby certify that In accordance with	FICATION this vertilation system has been dea the Ontario Building Code.	signeđ	
3 Bedroom 63.6	cfin	Name:	HVAC Designs Ltd.		
4 Bedroom 79.5	cim	Signature:	Milatan	Oforte.	
5 Bedroom 95.4	c/m	HRAI#		001820	
TOTAL 79.5 cfm		Date:		June-21	
I REVIEW AND TAKE RESPONDENTLY FOR THE DESIGN WORK AND AM QUAL INDIVIDUAL BCIN: 19669  Michael O'Roi Mandale.	URKE	KUPRIATE CATEGORY ÁS AI	Y "OTHER DESIGNER" UNDER DIVISION C, 3	1.2.5 OF THE BUILD	ING CODE.

WA DESIGNS LIN

LO#: 87512 ne Hoo		Forr	Formula Sheet (For Air Leakage / Ventiliation Calculation)	skage / Ventiliation C	alculation)				
	Model: 4504		Buitde	Builder: ROYAL PINE HOMES				Date: 6	Date: 6/7/2021
	Votume Calculation	u.			,	Air Change & Delta T Data	a T Data		
			<b></b>		WINTER NAT	URAL AIR CHANG	F RATE	0.349	
8smt 1453	Floor Height (ft)	Volume (ft³)	<del></del>		SUMMER NA	SUMMER NATURAL AIR CHANGE RATE	JE RATE	0.068	
	10	14530	<del></del>						
	8	14160	· · · · · ·			Design Ter	mnezature Diff.	Stenco	
Third 0	6	0	<b>Y</b> -			J. 011	Tio "C True Tion of the True True True True True True True Tru	7.17	A T 4E
Fourth 0	6	0	<b>,</b>		Winter DTDh	22	-21	43	7 87
	Total: Total:	41,767.0 ft³ 1182.7 m³			Summer DTDc	24	31	7	13
			1						
5.2.3	5.2.3.1 Heat Loss due to Air Leakage	r Leakage			6,2,6 5	6.2.6 Sensible Gain due to Air Leakage	to Air Leakage		
$HL_{airb} =$	$HL_{airb} = LR_{airh} \times \frac{V_b}{3.6} \times DTD_h \times 1.2$	$0.7D_{\rm h} \times 1.2$		TH .	$HG_{salb} = LR_{airc} \times \frac{V_b}{2.7} \times DTD_c \times 1.2$	$\frac{V_b}{2\sqrt{\epsilon}} \times DTD_c \times$	< 1.2		
0.219 x 328.53	x 43°C	× 1.2	= 3727 W	т 0.068	x 328.53	3.0 x 7°C	x 1.2	н	W 161
			= 12718 Btu/h					н	652 Btu/h
5.2.3.2 Hea	5.2.3.2 Heat Loss due to Mechanical Ventilation	ical Ventilation			6.2.7 Sen	6.2.7 Sensible heat Gain due to Ventilation	ue to Ventilation		
HLvairb =	$HL_{vairb} = PVC \times DTD_h \times 1.08 \times (1 - E)$	$.08\times(1-E)$		HL <sub>n</sub>	$HL_{vairb} = PVC \times DTD_h$	$D_h \times 1.08 \times (1-E)$	(1 – E)		
80 CFM × 78 °F	x 1.08	× 0.25	= 1670 Btu/h	80 CFM	x 13°E	× 1.08	× 0.25	L	275 8tu/h
		5.2.3.3 Calcula	5.2.3.3 Calculation of Air Change Heat Loss for Each Room (Floor Multiplier Section)	oss for Each Room (Floor	r Multiplier Section		Pe		IT) B
	HLairr	rr = Level Fact	= Level Factor × $HL_{atrbv}$ × $\{(HL_{agcr} + HL_{bgcr}) + (HL_{agclevel} + HL_{bgclevel})\}$	$L_{agcr} + HL_{bgcr}) \div ($	HLagclevel + HLbg	iclevel)}		8/ <i>*</i> RE	OF JILD
	Level	Level Factor (LF)	Hairve Air Leakage + Ventilation Heat Loss (8tu/h)	Level Conductive Heat Air Leakage Heat Loss Multiplier (LF x Loss: (Ht_clevel)  Hairby / Htlevel)	Air Leakage Heat Loss Mult) HLair5v / HLlevel)	: Multiplier (LF x Llevel)		12/2 CEI	RICHN ING D
	+1	0.5		8,378	0.759			2( VE	IVI
	2	0.3		13,139	0.290			) <u>;</u> E[	
	m	0.2	12,718	13,561	0.188			2	
	4	0		0	000'0			1	
		a		0	000'0		_		L



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**

MODEL:	4504		OPT. GROUND	BUILDER: ROYAL PINE HOMES	
SFQT:	3223	LO#	87512	SITE: CENTREFIELD (WEST	GORMLEY)
DESIGN A	SSUMPTIONS				
HEATING			°F	COOLING	*F
	R DESIGN TEMP.		-6	OUTDOOR DESIGN TEMP.	88
INDOOR D	DESIGN TEMP.		72	INDOOR DESIGN TEMP. (MAX 75°F)	75
BUILDING	DATA				
ATTACHM	ENT:		DETACHED	# OF STORIES (+BASEMENT):	3
FRONT FA	CES:		EAST	ASSUMED (Y/N):	Υ
AIR CHAN	GES PER HOUR:		2.50	ASSUMED (Y/N):	Y
AIR TIGHT	NESS CATEGORY:		TIGHT	ASSUMED (Y/N):	γ
WIND EXP	OSURE:		SHELTERED	ASSUMED (Y/N);	Y
HOUSE VO	DLUME (ft³):		41767.0	ASSUMED (Y/N):	Υ
INTERNAL	SHADING:	BLINDS	/CURTAINS	ASSUMED OCCUPANTS:	5
INTERIOR	LIGHTING LOAD (Btu/I	h/ft²):	1.40	DC BRUSHLESS MOTOR (Y/N):	Υ
FOUNDATI	ON CONFIGURATION		BCIN_1	DEPTH BELOW GRADE:	6.0 f
LENGTH:	46.0 ft	WIDTH:	37.0 ft	EXPOSED PERIMETER:	166.0 ft

2012 OBC - COMPLIANCE PACKAGE			***************************************
Component	CITY OF RICHMOND HILL BUILDING DIVISION	Compliance Package SB-12 PERFORMANCE	
	08/12/2021	Nominal	Min. Eff.
Ceiling with Attic Space Minimum RSI (R)-Value	00/12/2021	60	59.20
Ceiling Without Attic Space Minimum RSI (R)-Value		31	27.70
Exposed Floor Minimum RSI (R)-Value	RECEIVED	31	29.80
Walls Above Grade Minimum RSI (R)-Value	Per:	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 8CIN: 19669 MICHAEL O'ROURKE





# **Residential Foundation Thermal Load Calculator**

Supplemental tool for CAN/CSA-F280

Weather Station Description									
Province:	Ontario								
Region:	Richmor	d 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):	14.0								
Floor Width (m):	11.3	Echnologie propagatina de la francesia	Since the same transactive appears to the past of an experience of the past of the same of						
Exposed Perimeter (m):	0.0								
Wall Height (m):	2.7		SECRETARISE CONTRACTOR						
Depth Below Grade (m):	1.83	lns.	ulation Configuration						
Window Area (m²):	1.9	# ###################################							
Door Area (m²):	1.9								
	Radi	nt Slab							
Heated Fraction of the Slab:	0		CITY OF RICHMOND HILL BUILDING DIVISION						
Fluid Temperature (°C):	33		08/12/2021						
	Design	Months	RECEIVED						
Heating Month	1		Per:						
	Founda	ion Loads							
Heating Load (Watts):			1638						

TYPE: 4504 LO# 87512

OPT. GROUND



## **Air Infiltration Residential Load Calculator**

Supplemental tool for CAN/CSA-F280

Weather Stati	on De	script	ion	-						
Province:	Onta	rio								
Region:	Richr	nond l	Hill							
Weather Station Location:	Oper	ı flat te	errain,	grass						
Anemometer height (m):	10									
Local St	ieldin	g	···········	-						
Building Site:	Subu	rban, f	orest	*****						
Walls:	Heav	у								
Flue:	Heav	у			:					
Highest Ceiling Height (m):	6.40									
Building Configuration										
Type:	Deta	ched								
Number of Stories:	Two									
Foundation: Full										
House Volume (m³):	1182.7									
Air Leakage/	Venti	latio	1							
Air Tightness Type:	Energ	y Star	Detacl	ned (2.	5 ACH)					
Custom BDT Data:	ELA @	9 10 Pa	a.	·····	1104.1 cm²					
	2.50				ACH @ 50 Pa					
Mechanical Ventilation (L/s):	To	tal Sup	ply		Total Exhaust					
		37.5			37.5					
Flue	Size									
Flue #:	#1	#2	#3	#4						
Diameter (mm):	0	0	0	0						
Natural Infilt	ration	Rate	S							
Heating Air Leakage Rate (ACH/H):		C	.21							
Cooling Air Leakage Rate (ACH/H):		0	.06	8						

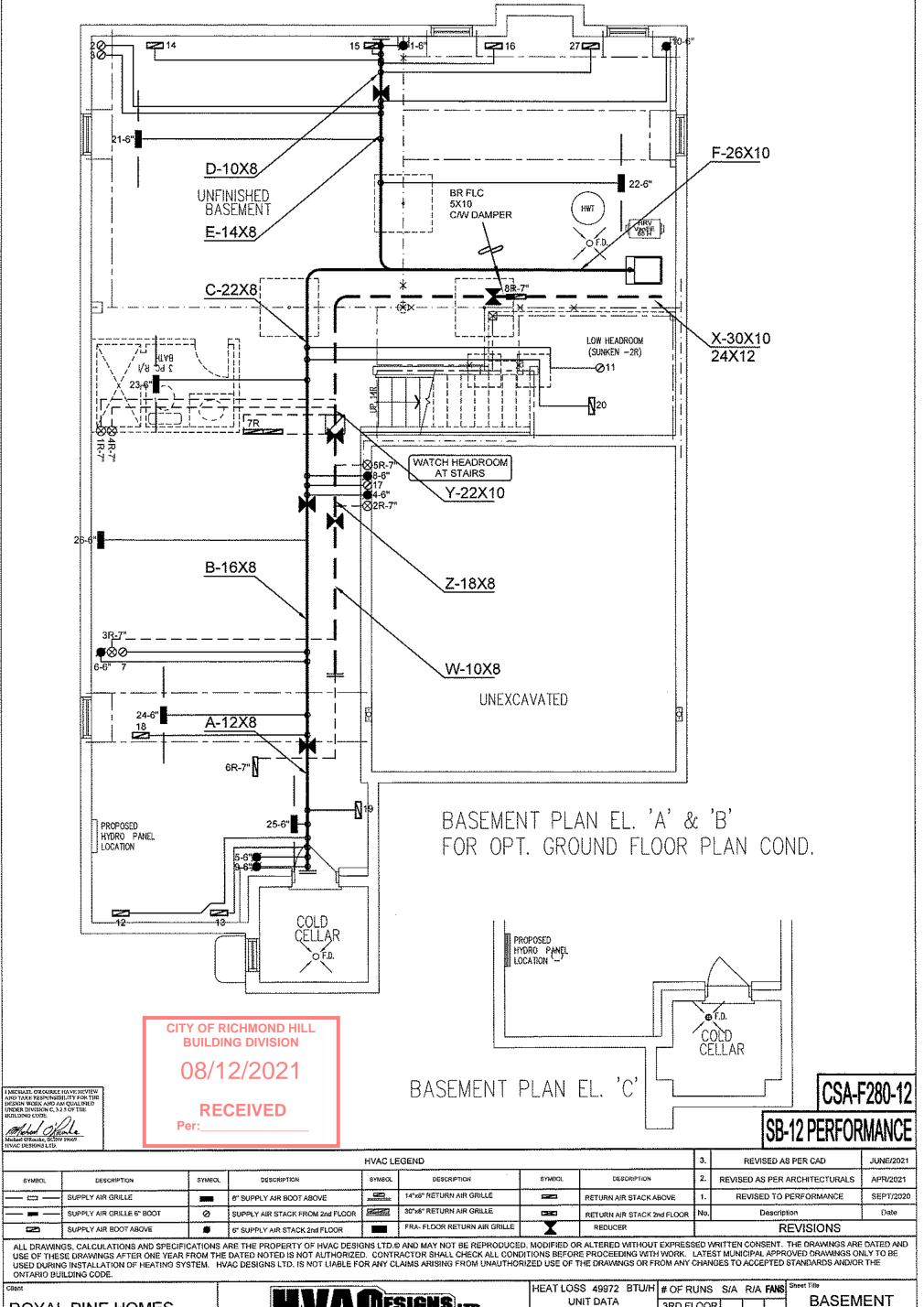
CITY OF RICHMOND HILL BUILDING DIVISION

08/12/2021

**RECEIVED** 

Per:

TYPE: 4504 LO# 87512 OPT. GROUND



CENTREFIELD (WEST GORMLEY) RICHMOND HILL, ONTARIO

OPT. GROUND

4504 3223 sqft

DESIGNS LTD. 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.

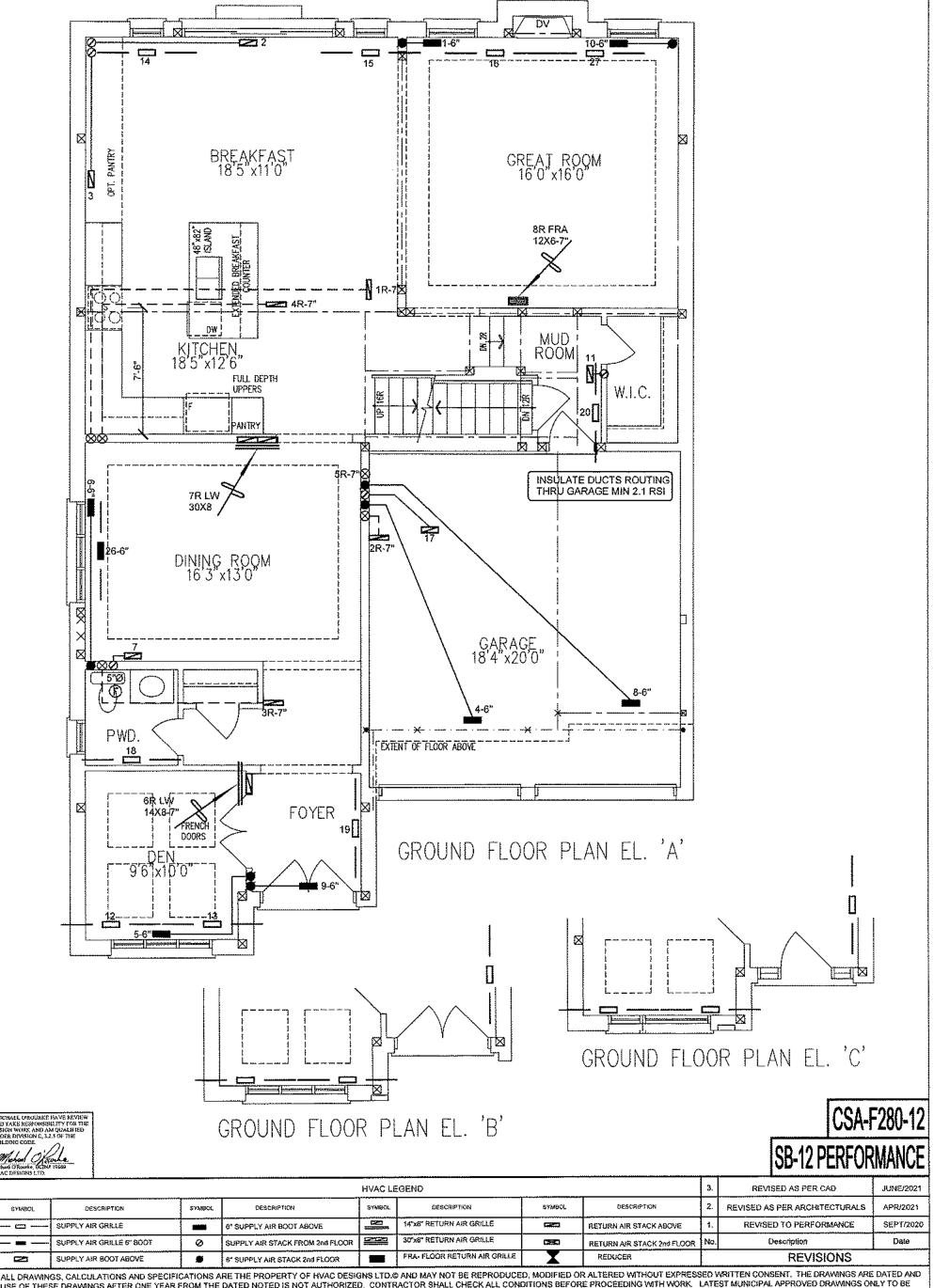
60 MBTU/H BASEMENT 5 1 0  OUTPUT	ı	REAT LOSS 49972	RIOW	# OF RUNS	S/A	RIA	FANS	- moo
CARRIER 2ND FLOOR 12 5 5  MODEL 59TN6A-060-14V 1ST FLOOR 10 3 2  INPUT 60 MBTU/H BASEMENT 5 1 0 Dai OUTPUT ALL S/A DIFFUSERS 4 "x10" UNLESS NOTED OTHERWISE COOLING TONS ON LAYOUT. ALL S/A RUNS 5"Ø	ı	******		3RD FLOOR				
59TN6A-060-14V		CARRIER		2ND FLOOR	12	5	5	
60 MBTU/H BASEMENT 5 1 0 Screen Couling Tons On Layout, ALL S/A DIFFUSERS 4 "X10" Screen Cooling Tons On Layout, ALL S/A RUNS 5"Ø		59TN6A-060-14V	1	1ST FLOOR	10	3	2	
58 MBTU/H ALL S/A DIFFUERS 4 "X10" UNLESS NOTED OTHERWISE COOLING TONS ON LAYOUT. ALL S/A RUNS 5"Ø			MOTUM	BASEMENT	5	1	0	Date
COOLING TONS ON LAYOUT, ALL S/A RUNS 5"Z	-		MBTU/H	ALL S/A DIFFU	SERS	4 "x10	<b>)</b> "	Scale
3,722,00	9	3.5	TONS					. ,

FAN SPEED

1370

ON LAYOUT, UNDERCUT DOORS 1" min. FOR R/A

HEATING LAYOUT SEPT/2020 3/16" = 1'-0" BCIN# 19669 87512 LO#



USE OF THESE DRAWINGS AFTER ONE YEAR FROM THE DATED 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

OPT. GROUND

4504 3223 sqft

## 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

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.

**CITY OF RICHMOND HILL BUILDING DIVISION** 

08/12/2021

RECEIVED

FIRST FLOOR **HEATING LAYOUT** 

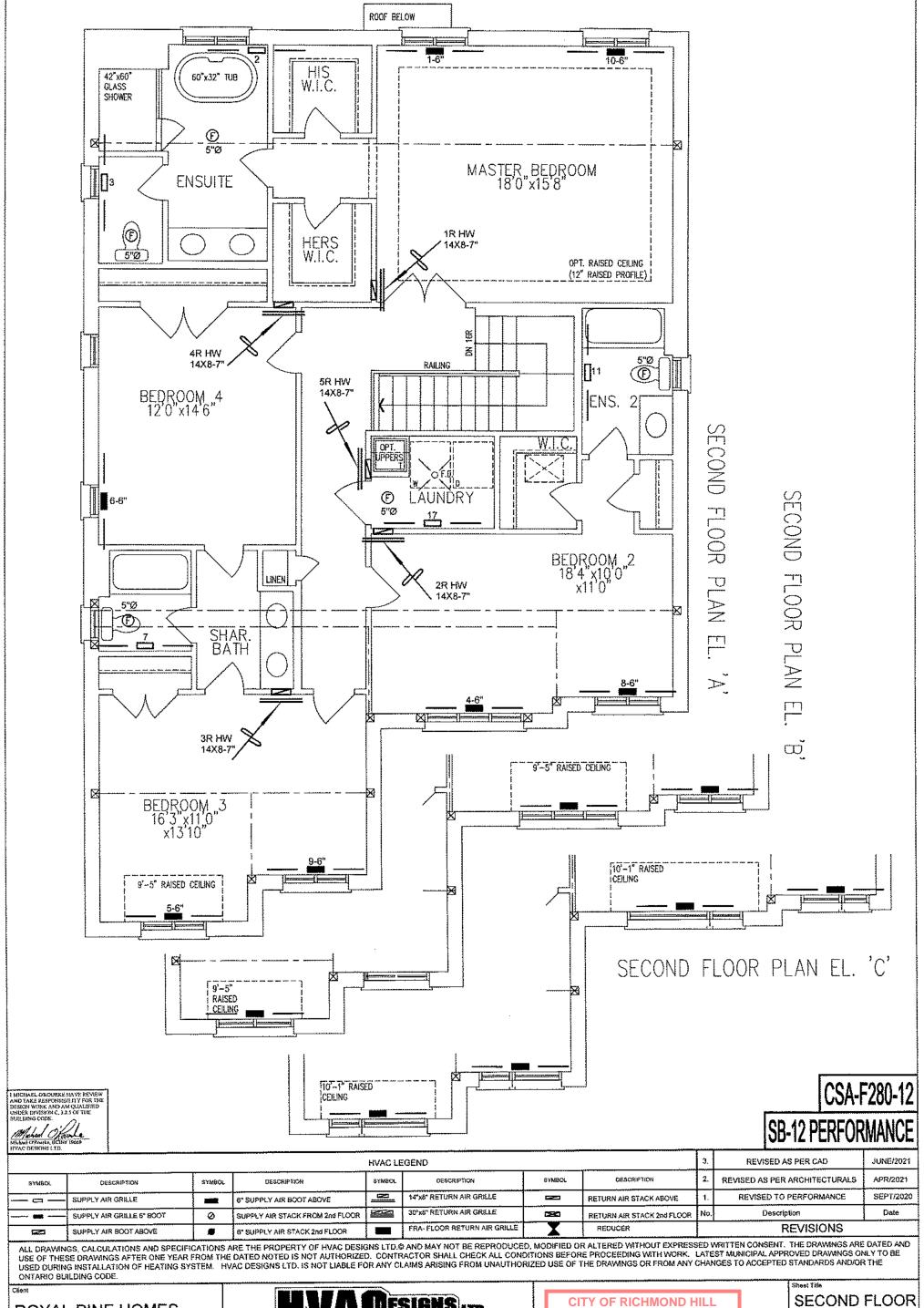
SEPT/2020 3/16" = 1'-0"

BCIN# 19669

LO#

87512

Per:



Project Name

CENTREFIELD (WEST GORMLEY) RICHMOND HILL, ONTARIO

OPT. GROUND

4504

3223 sqft

# 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

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.

CITY OF RICHMOND HILL BUILDING DIVISION

08/12/2021

**RECEIVED** 

Per:\_

SECOND FLOOF HEATING LAYOUT

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

BCIN# 19669 LO# 87512

## 08/12/2021

## 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	217-27		Unit no.	Lot/con.		
Municipality	Postal code	This				
(RICHMOND HILL	rostat code	Plan number/ other des	cription			
<u> </u>						
B. Individual who reviews and takes in Name	esponsibility to	r design activities				
MICHAEL O'ROURKE		HVAC DESIGNS LTD.				
Street address	***************************************	3,,,,,,	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 (905) 619-2300	Fax number		Cell number			
	(905) 619-2375		( )			
C. Design activities undertaken by inc	lividual identific	ed in Section B. [Build	ing Code Table 3,5.2.	1 OF Division C]		
☐ House☐ Small Buildings	IXI HVAC	– House g Services		g Structural ng Hous <del>e</del>		
☐ Large Buildings	C Detecti	on, Lighting and Pov	ver 🚨 Plumbir	ig – House ig – All Buildings		
☐ Complex Buildings	☐ Fire Pr	otection	☐ On-site	Sewage Systems		
Description of designer's work		Model:	4504			
HEAT LOSS / GAIN CALCULATIONS DUCT SIZING			OPTINIANA, E DED A DA	NT:		
RESIDENTIAL MECHANICAL VENTILATION	N DESIGN SUMM	OPT IN LAW - 5 BED 4 BATH				
RESIDENTIAL SYSTEM DESIGN per CSA-		Project:	CENTREFIELD (WEST GO	RMLEY)		
D. Declaration of Designer						
IMICHAEL O'ROURKE			declare that (choose	e one as appropriate):		
	nt name)	·····	acoust that follows	e one as appropriate).		
I review and take responsibility for Division C, of the Building Code. I classes/categories.	r the design work o am qualified, and	on behalf of a firm register the firm is registered, in the		i.of propriate		
individual BCIN: Firm BCIN:						
I review and take responsibility for designer under subsection 3.2	the design and an 5.of Di visio	n qualified in the appropri n C, of the Building Code	ate category as an "other			
Individual BCIN:	19669					
Basis for exemption from	om registration and	qualification:	O.B.C SENTENCE	3.2.4.1 (4)		
The design work is exempt Basis for exemption from registrat	from the registration	on and qualification requir	ements of the Building Co	ode.		
I certify that:						
<ol> <li>The information contained</li> <li>I have submitted this application</li> </ol>	in this schedu on with the knowle	ile is true to the best of my	y knowledge. m.			
June 7, 2021			Michael Ox	De.		
Date			Signa	ture of Designer		

NOT

<sup>1.</sup> 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 ticense, 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.

CSA-F280-12

SB-12 PERFORMANCE

ENS-1

GAIN 112 0

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80 LOSS 152

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MICHAEL O'ROBAKE

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MICHAEL O'ROURKE

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≩ 3	No Combustion Appliances N	Depressurization limit	Civic address:		96
E 8	Solid Fuel (including Fireplaces)	5 pa Depress limit	Name: ROYAL PINE HOMES	House ID#:	o####################################
8 2	✓ Direct Vent (sealed combustion)	No Dep Limit	Address:	nouse ip#:	
1 是 法	Positive Venting Induced Draft	Pascals limit	City;	P.C.	
4 8	Natural Draft or B-Vent Atmosph	1 E	Phone:	Fax:	ā
<b>E</b> 0	Lowest Depressurization Lin	nitPa.	Email Address:	-	
В	✓ Clothes Dryer(s)	(150 cfm default)	Name: HVAC DESIGNS LTD.	HRAI#: 001820	
Z Z	Downdraft Cook Top	(220 cfm default)	Address: 375 FINLEY AVENUE		
<b>E E</b>	Other (exhaust)	(over 150 cfm)	City: AJAX	P.C. L1\$ 2E2	
a s	Depressurization test/Calc. Required	Yes No	Phone: (905) - 619 - 2300	Fax: (905) - 619 - 2375	•
C	Bsmt & Master Bedroom 2 @	20 cfm 40 cfm	Email Address:info@hvacdes		GNER
	Other Bedrooms 5 @	10 cfm 50 cfm		m design to be in acoprdance with:	14 (1 (1 (1 (1 (1 (1 (1 (1 (1 (1 (1 (1 (1
2 1	Bathrooms & Kitchens 6 @	10 cfm 60 cfm	✓ CSA F326 M-91	$M \cdot \Delta$	
N A	Other Hab. Rooms 5 @	<del></del>	R-2000	mill VIV	
]₹ 3	Total Ventilation Capacity (	(VC) <u>200</u> cfm	Signature:	Date: 6/10/202	
2 20		***************************************	Controls Functioning	Fans operating and clean	К
	Minimum Continuou	s Exhaust	Filters Clean	Flow measuring stations	
	Kitchen(s) @ 60 cfm	=cfm	Dampers Accessible	insulated ducts sealed	S S
9 5	Bathroom(s) @ 20 cfm	= cfm	Drain loop and connection	Label supply/exhaust hood	3
3	Total	cfm	Distribution to all habitable re	· · · · · · · · · · · · · · · · · · ·	2
<u> </u>			<del></del>	uous mode Interlocked	NSTALLATION CHEC
<b>4</b> 5	Minimum Intermittel Kitchen(s) 1 @ 100 cfm		Kitchen intake grease filter	Kitchen exh. 40" to range	ğ i
本	***************************************	= <u>100</u> cfm	Exhaust 4" above grade	Supply 18" above grade	418
	***************************************	= <u>250</u> cfm	Supply intake 6' from exhaust	-	2
E	Total	350cfm	Supply intake 3' from other ex	· · · · · · · · · · · · · · · · · · ·	
F	Location: BSMT			Y airflow measured	L
	Manufacturer/Model: VANEE 65H	<b>✓</b> HVI rated	cfm High	cfm Low	8
, 10	Design Airflow 155 cfm high		I	ST airflow measured	5 5
2 2	HRV/ERV 75 % Sensible Efficience		cfm High	cfm Low	2 S
1988 2	HRV/ERV 64 % Sensible Efficiency	-	Name:		200
		E 25 C 37 Wolls	Address:	HRAI#:	M
G	1 Location: ENS	50 cfm 3.5 Sones	City:		
2	Manufacturer/Model: N/A	✓ TVC ✓ HVI		P.C. Fax:	
	2 Location: ENS-4/5	50 cfm 3.5 Sones	Email Address:	FAX:	#
AGDITIONAL haustieoùibm	Manufacturer/Model: N/A	✓ TVC ✓ HVI	i certify this ventilation system	install to he in accordance with	NSTALLER
	3 Location: ENS-2/3	50 cfm 3.5 Sones	CSA F326 M-91	install to be in accordance with:	2
8	Manufacturer/Model: N/A	✓ TVC ✓ HVI	R-2000		
9	4 Location: W/R	50 cfm 3.5 Sones	Signature:	Date:	
	Manufacturer/Model: N/A	✓ TVC ✓ HVI			
	•	<u> </u>			250
Prepared By	HVAC DESIGNS LTD.	HRAI#: 001820	Job Name:		
Signature:	A A		CITY OF RICHMOND HIL	L	
		6/10/2021	91 A JILDING DOMBUSIN		
	MILITIX		08/12/2021		
O <sub>A</sub>	TIPAT		RECEIVED		
0.7	Company of the State of the Sta	© Copyright HRAI		Ventilation WORKSHEET W-2	08/10
				· · · · · · · · · · · · · · · · · · ·	



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**

MODEL:	4504		OPT IN LAW - 5	BED 4 BATH	BUILDER: ROYAL PINE HOME	<u> </u>
SFQT:	3223	LO#	91147		SITE: CENTREFIELD (WES	
DESIGN A	SSUMPTIONS					
HEATING			°F	COOLING		°F
	R DESIGN TEMP. DESIGN TEMP.		-6 72		OR DESIGN TEMP. DESIGN TEMP. (MAX 75°F)	88
			, _	#WDOOK	DESIGN TEMP. (IMAX 75 F)	75
BUILDING	DATA	<del></del>	·	······································	<del></del>	
ATTACHM	ENT:		DETACHED	# OF STO	DRIES (+BASEMENT):	3
FRONT FA	CES:		EAST	ASSUME	D (Y/N):	Y
AIR CHANG	GES PER HOUR:		2.50	ASSUME	D (Y/N):	Y
AIR TIGHT	NESS CATEGORY:		TIGHT	ASSUME	D (Y/N):	Y
WIND EXP	OSURE:		SHELTERED	ASSUME	D (Y/N):	Y
HOUSE VO	LUME (ft³):		41767.0	ASSUME	D (Y/N):	Υ
INTERNAL	SHADING:	BLINDS	/CURTAINS	ASSUME	D OCCUPANTS:	7
INTERIOR I	JGHTING LOAD (Btu/i	n/ft²):	1.27	DC BRUS	HLESS MOTOR (Y/N):	Y
FOUNDATI	ON CONFIGURATION		BCIN_1	<b>БЕРТН</b> В	ELOW GRADE:	6.0 ft
LENGTH:	46.0 ft	WIDTH:	37.0 ft	EXPOSED	PERIMETER:	166.0 ft

2012 OBC - COMPLIANCE PACKAGE		·	
Component	CITY OF RICHMOND HILL BUILDING DIVISION	Compliance SB-12 PERI	Package FORMANCE
	08/12/2021	Nominal	Min. Eff.
Ceiling with Attic Space Minimum RSI (R)-Value	00/1-/-0-1	60	59.20
Ceiling Without Attic Space Minimum RSI (R)-Value		31	27.70
Exposed Floor Minimum RSI (R)-Value	RECEIVED	31	29.80
Walls Above Grade Minimum RSI (R)-Value	Per:	22+1.5	18.50
Basement Walls Minimum RSI (R)-Value		20	21.12
Below Grade Slab Entire surface > 600 mm below gr	ade Minimum RSI (R)-Value	_	-
Edge of Below Grade Slab ≤ 600 mm Below Grade N	finimum RSI (R)-Value	10	10
Heated Slab or Slab ≤ 600 mm below grade Minimu	m RSI (R)-Value	10	11.13
Windows and Sliding Glass Doors Maximum U-Value	e	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





08/12/2021

HVAC Designs Ltd. 375 Finley Ave, Suite 202 Ajax ON, L1S 2E2 905-619-2300

### **RECEIVED**

Per:

## Residential Foundation Thermal Load Calculator

Supplemental tool for CAN/CSA-F280

W	eather Sta	tion Description						
Province:	Ontario							
Region:	Richmon	d Hill						
	Site D	escription						
Soil Conductivity: Normal conductivity: dry sand, loam, clay								
Water Table: Normal (7-10 m, 23-33 ft)								
	Foundatio	n Dimensions						
Floor Length (m):	14.0							
Floor Width (m):	11.3							
Exposed Perimeter (m):	0.0							
Wall Height (m):	2.7	Service Control of Con						
Depth Below Grade (m):	1.83	Insulation Configuration						
Window Area (m²):	1.9							
Door Area (m²):	1.9							
	Radi	ant Slab						
Heated Fraction of the Slab:	0							
Fluid Temperature (°C):	33							
	Design	n Months						
Heating Month	1							
	Founda	tion Loads						
Heating Load (Watts):		1638						

TYPE: 4504 LO# 91147 OPT IN LAW - 5 BED 4 BATH



08/12/2021

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er:\_\_\_\_

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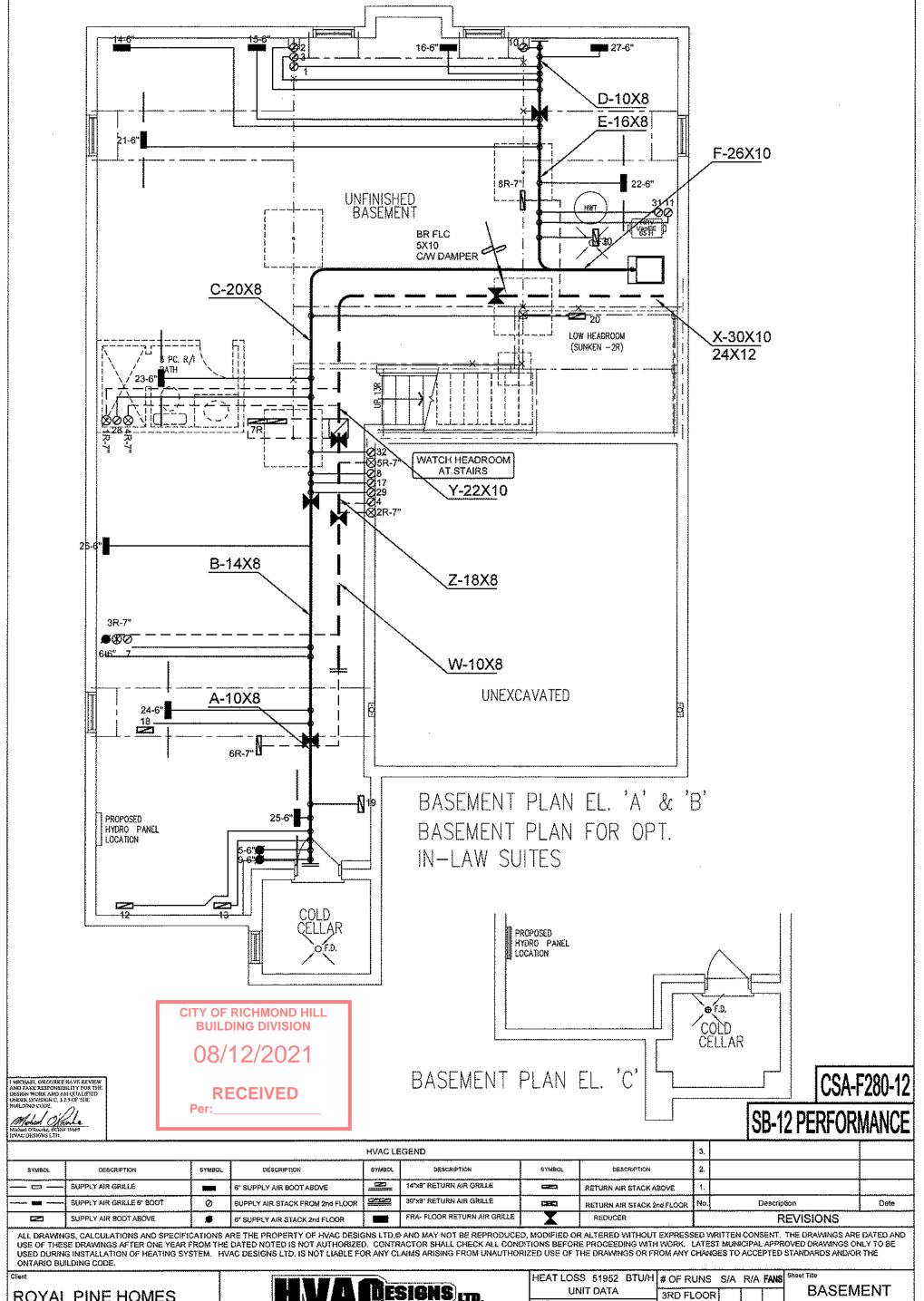
## **Air Infiltration Residential Load Calculator**

Supplemental tool for CAN/CSA-F280

Weather Sta	ition De	script	tion		
Province:	Onta	rio	<del></del>		
Region:	Richt	nond l	Hill		
Weather Station Location:	Oper	ı flat te	errain,	grass	
Anemometer height (m):	10				
Local	Shieldin	g			
Building Site:		rban, f	orest		
Walls:	Heav	у			
Flue:	Heav	У			
Highest Ceiling Height (m):	6.40				
Building (	Configur	ation			
Type:	Deta	ched			
Number of Stories:	Two				
Foundation:	Full				
House Volume (m³):	1182	.7			
Air Leakag	e/Venti	latio	<b>1</b>		
Air Tightness Type:	Energ	y Star	Detacl	ned (2.	5 ACH)
Custom BDT Data:	ELA @	9 10 Pa	3.		1104.1 cm²
	2.50				ACH @ 50 Pa
Mechanical Ventilation (L/s):	Ťα	tal Sup	ply	····i	Total Exhaust
		70.4			70.4
	ie Size				
Flue #:	#1	#2	#3	#4	
Diameter (mm):	0	0	0	0	
Natural Inf	iltration	Rate	:S		
Heating Air Leakage Rate (ACH/H	i):	0	.21	9	
Cooling Air Leakage Rate (ACH/H	):	0	.06	8	

TYPE: 4504 LO# 91147

OPT IN LAW - 5 BED 4 BATH



**CENTREFIELD (WEST GORMLEY)** RICHMOND HILL, ONTARIO

4504 3223 sqft

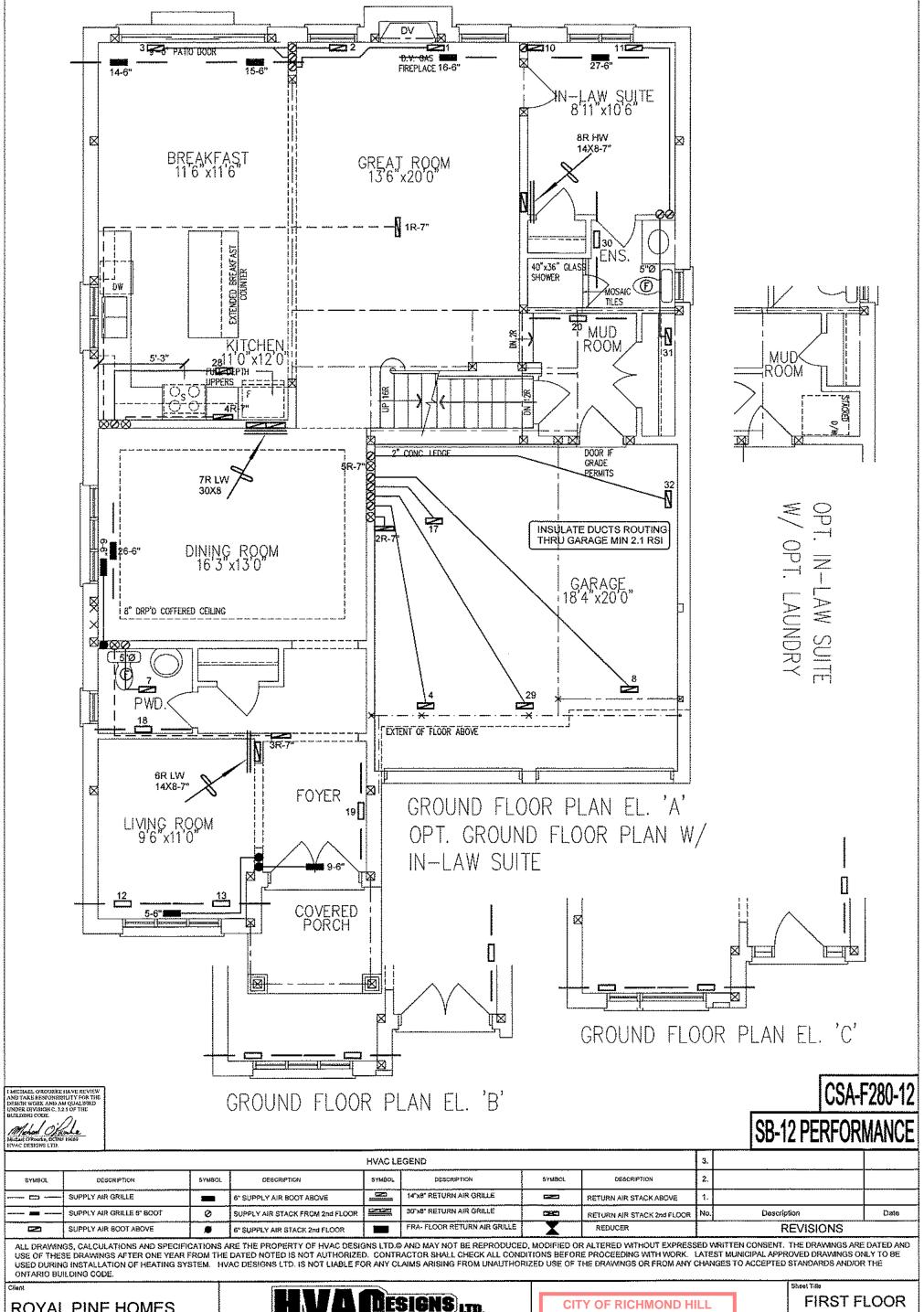
# DESIGNS LTD.

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 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. OPT IN LAW - 5 BED 4 BATH Ductwork which passes through the garage or unheated spaces shall be adequately insulated and be gas-proofed.

7	HEATI	DSS 51952	BTH/H	# OF RUNS	8/6	D/A	EANG	Sheet Title	
		UNIT DATA	D.O.	3RD FLOOR	SIM	NA	LIMINO		SEMENT
	MAKE MODEL	CARRIER		2ND FLOOR	16	5	5		EATING
	59T	N6A-060-14V	′	1ST FLOOR	11	3	3	L	AYOUT
	INPUT	60	M8TU/H	BASEMENT	5	1	0	Date	JUNE/2021
*	OUTPUT	58	MBTUAH	ALL SIA DIFFUS					3/16" = 1'-0"
е	COOLING	3.5	TONS	ON LAYOUT. AL	L S/A	RUN	S 5"Ø	В	CIN# 19669
	FAN SPEED	1370	cfint @ 0.6" w.c.	ON LAYOUT, UI DOORS 1" min.	<b>VDER</b>	CUT		LO#	91147



CENTREFIELD (WEST GORMLEY) RICHMOND HILL, ONTARIO

OPT IN LAW - 5 BED 4 BATH 3223 sqft 4504

# DESIGNS LTD.

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**BUILDING DIVISION** 

08/12/2021

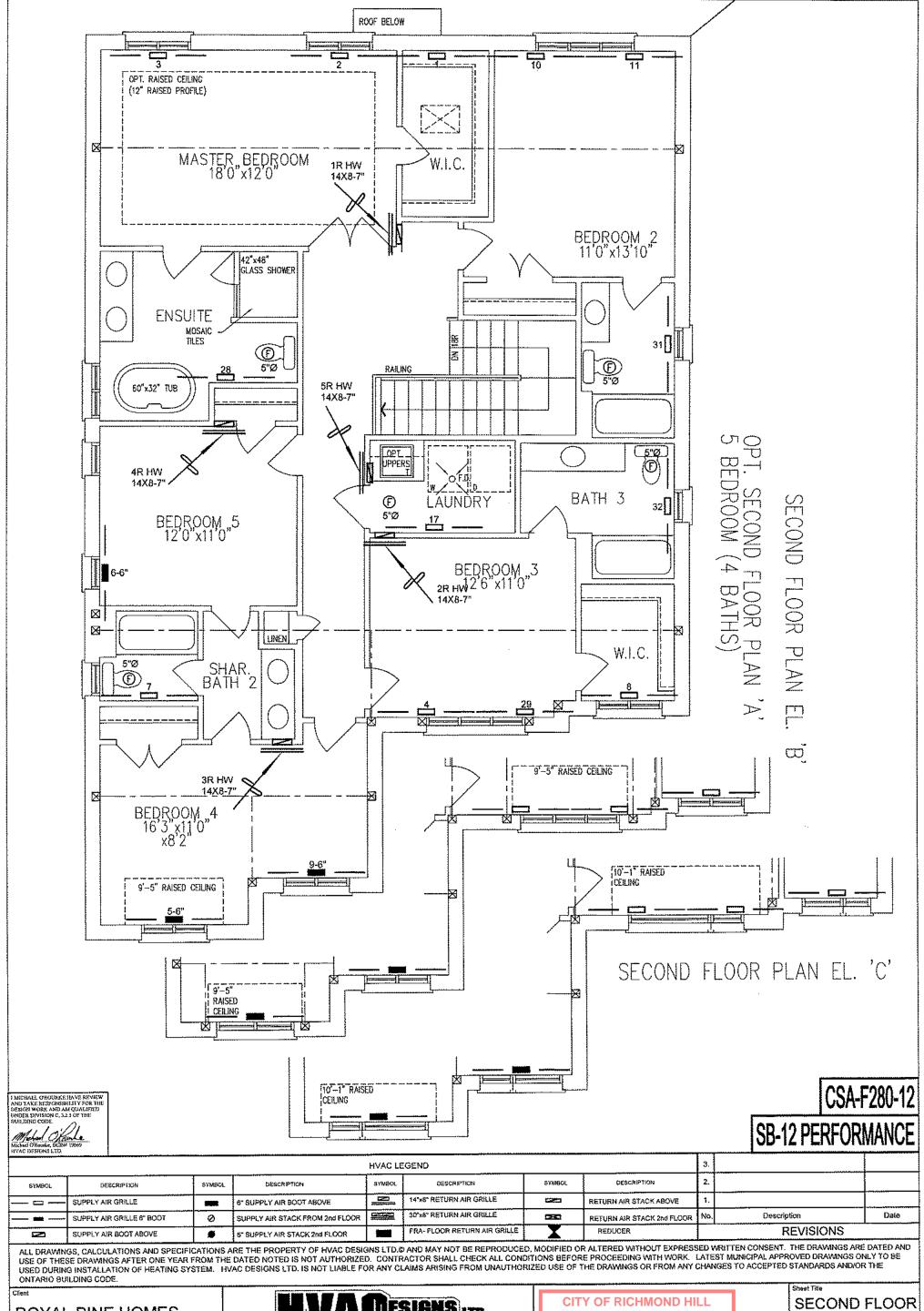
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**HEATING** LAYOUT

JUNE/2021 3/16" = 1'-0"

BCIN# 19669

.0# 91147



CENTREFIELD (WEST GORMLEY) RICHMOND HILL, ONTARIO

OPT IN LAW - 5 BED 4 BATH 3223 sqft 4504

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**BUILDING DIVISION** 

08/12/2021

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**HEATING** LAYOUT

> JUNE/2021 3/16" = 1'-0"

BCIN# 19669

LO# 91147

## 08/12/2021

### **Schedule 1: Designer Information**

RECEIVED

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				······································	<del></del>	Unit no.	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	Lot/con.
Municipality	Pos	tal code	Plan number	other desc	cription			~·····
RICHMOND HILL					·			
B. Individual who reviews	and takes resp	onsibility for	design acti	vities				
Name		<del></del>	Firm		~~~;~~~~	<u> </u>	*************	
MICHAEL O'ROURKE Street address		·······	HVAC DESIG	GNS LTD.	11-1-	<del></del>		
375 FINLEY AVE					Unit no. 202			Lat/con. N/A
Municipality		tal code	Province		E-mail	···········		······································
AJAX		2E2	ONTARIO			designs.ca		
Telephone number (905) 619-2300		number 5) 619-2375			Cell number	er		
C. Design activities under	taken by individ	ual identifie	d in Section	B. (Build	ing Code	Table 3.5.2.1 O	F Divisio	on C]
☐ House		⊠ HVAC				☐ Building St	tructura	I
Small Buildings Large Buildings			g Services on, Lighting	ond Day		Plumbing -	- House	<b>;</b>
☐ Complex Buildings		☐ Fire Pro	otection	and Pow	ve:	☐ Plumbing - ☐ On-site Se	- All Bui wage S	naings Tystems
Description of designer's work				Model:	4504			
HEAT LOSS / GAIN CALCULA DUCT SIZING	ATIONS				OOT IN LAN	us cor oue		
RESIDENTIAL MECHANICAL	VENTILATION DE	SIGN SHMMA	RY			V & OPT. 2ND		
RESIDENTIAL SYSTEM DESIG	GN per CSA-F280-	·12	47.	Project:	CENTREFIE	LD (WEST GORM	LEY)	
D. Declaration of Designe	•			1.				
MICHAEL O'	ROURKE				deda	e that (choose or	e as app	ropriate):
	(print nar	me)				•		. ,
U I review and take re Division C, of the Bu classes/categories.	sponsibility for the uilding Code. I am o	đesign work or qualified, and t	n behalf of a fi he firm is regis	rm registere stered, in th	ed under su e	bsection 3.2.4.of approp	oriat <del>e</del>	
Individua Firm BC						-		
I review and take reduced to the signer and take reduced to the signer.	sponsibility for the cubsection 3.2.5.of	design and am Di visior	qualified in th 1 C, of the Buil	ie appropria Iding Code.	ite category	as an *other		
Individua	I BC/N: 1966	iq.						
	exemption from re		qualification:	······································	O.B.C S	SENTENCE 3.2	2.4.1 (4	)
The design work is a Basis for exemption	exempt from from registration a	the registration	n and qualifica	ation require	ements of th	ne Building Code		
I certify that:								
The information     I have submitted	contained d th <del>i</del> s application w	in this schedul ith the knowled	e is true to the ige and conse	e best of my ent of the fin	knowledge m.	ι,		
June 7, 2021					Mh	land Office	Ze.	
Date				•		Signature	of Desig	ner
LOTE:		~~~~						

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.

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.

CSA-F280-12

SB-12 PERFORMANCE

2 3

HEAT LOSS AT 'F. HEAT GAIN AT "F.

WINTER NATURAL AIR CHANGE RATE 0.219 SUMMER NATURAL AIR CHANGE RATE 0.068

DATE: Jun-21 10# 90463 BED-4

GFA: 3223

OPT IN LAW & OPT, 2ND TYPE: 4604 χĶ

SITE NAME: CENTREFIELD (WEST GORMLEY)

BUILDER: ROYAL PINE HOMES
ROOM USE
EXP. WALL

MBR 22 -0

266

GAIN

GRS,WALL AREA

GLAZING

FACTORS LOSS 21.8 25.8

CLG. HT.

76.5 24.9 24.9 51.5

SOUTH EAST WEST 35.8 25.8

SKYLT DOORS.

HED-2

₩. e

102 203 203 203

296

CITY OF RICHMOND HILL **BUILDING DIVISION** 

**RECEIVED** 

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122

0 2 2 0

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184 LOSS #52 #38

GAN 128

165

#

315 200

0.20

0.29

0.30

9,19

180 0.20

5 0.20

0.20

0.19 33.1

9.20

0.20

0.19

0.20 483

0,19

9,19

0.20

8

1462

2138 0.19

0 0 25\$

0 88

SUBTOTAL HT LOSS

51.AB on grade neat loss SUB TOTAL HT GAIN LEVEL FACTOR / MULTIPLIER AIR CHANGE HEAT 1058

Basementicrawl Heat Loss

EXPOSED CLG

NO ATTIC EXPOSED CLG

EXPOSED FLOOR

NET EXPOSED WALL

RET EXPOSED BSMT WALL ABOVE OR

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2

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o 25 6

310 240 540

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2203

909

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518

3699

5992

2537

306

308

2479

o 2 3 3

25

HEAT GAIN PEOPLE

DUCT LOSS

DUCT GAIN

AIR CHANGE HEAT GAIN

HEAT GATH APPLIANCESILIGHTS TOTAL HT LOSS BTU/H

TOTAL HT GAIN x 1.3 BTUIH

MICHAEL O'ROURKE

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						••••									••••																TOTAL COMBINED
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			-:-	Ę	REALO	UNG	MORTH 25				SKYLT, 35							988	SSC	288	in in	HER.	SSC	MAIN	288	AIN		HTS	Ŧ	Ę	
	1	EAP. WALL	CLG. HT		GRS.WALL AREA LOSS GAIN	GLAZING	ION	ū	ĭos	M	9K)	200	NET EXPOSED WALL	HEY EXPOSED BSIAT WALL ABOVE OR	EXPOSED CLG	NO ATTIC EXPOSED CLG	EXPOSED FLOOR	BASEMENT/CRAWL HEAT LOSS	SLAB ON GRADE HEAT LOSS	SUSTOTAL HT LOSS	SUB TOTAL HT GAR	LEVEL FACTOR / MULTIPLIER	AIR CHANGE NEAT LOSS	AIR CHANGE HEAT GAIN	DUCT LOSS	DUCT GAIN	HEAT GAIN PEOPLE	HEAT GAIN APPLIANCESAIGHTS	TOTAL HT LOSS BTUM	TOTAL HT GAIN x 1.1 BTUR	TOTAE, HEAT GAIN BTUIH:

1 MEVIEW AND TAKE RESPONSIBILITY FOR THE DESIGN WORK AND AM QUALIFTED IN THE APPROPRIATE CATEGORY AS AN "OTHER DESIGNER" UNDER DIVISION C. 3.2.5 OF THE BUILDING CODE.

MICHAEL O'ROURKE

;	INDIVIDUAL BCIN:
M. Lond	in the second se

		\$		·								Γ-										, ,													
## RECEIVED    March   Formatic			ļ.	24 BAS	2.95	0,41	0,16	110	Ç 4	423	8 B												VELOCITY	(dina)	0	ο¢	900	90	5 4 4 c	671	490	1			
## RECEIVED    March   Formatic		37 % 10,000	1370 "E.S.P.	23 BAS	2.95 83	0.4 54.65	0.16	120	6.11	423	C C													-	<b>.</b>	∞ œ	တေထ	o ap o	သောင့်	5 6	8 <u>7</u>	!			
Statistics   Contraction   C		AFUE × 9 ITU/H) × (	YOFM # CFM @ .6 ?ERISE	22 BAS	2.95	13.0	0,16 16	120 136	0.12 6	423 66 56	47 E		CIT	ΓΥ Βι	OF JIL	F R								,	< ×	××	< × ×	< × :	* × >	××	××				
Statistics   Contraction   C		INPUT (E	DESIGN PERATUN	21 BAS	2.95 83	13	0.16 30	90 120	6.14 6	423 66	1 L			0	8/	/1	2	/2	2(	)2	21		RECT	DUCT O	, 0	00	00	300	5 5 5	225	\$4 24 ⇔	ı			
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SHALLER   FOLYAL PIECE CONTRACTOR   Type= GOT N LAWN & OPT 2ND   DATE Ann 21   DATE AND 21   DATE AND 21   DATE AND 21   DATE AND 21   DATE AND 21   DATE AND 21   DATE AND 21   DATE AND 22   DATE		N6A-060 FAN SP	MED! MED EDIUM H	l																		PN AIR T	180	Ċ											
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Site Attack				16 KT/G	9,88	88	0.16 38	178	ရှိ မ	423	Ş a												VELOCH	(Renit)	00	0	00	,	BR	205	0. € €	155	7.5	Φ×	; 7
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STITE NAME: CENTRETRIELD (WEST COCRMEN)   Type: 6504   Throng pressure 0.6			f/a   grille pre sted pres	£ 3	7. 1.13 1.13	65	717	24+ 24+ 25-		382	A												ROUND	o anci	00	0	00		0	0 7	- ·	<b>⇔</b> ←	0 0	٥×	(0)
STITE NAME: CENTREPIELD (VAEST GORMALEY)   Type: BUILDER: ROYAL PINE HOMES   Type: Royal Pine Homes   Type: Royal Pine	T, 2ND		r/a adju	11 BED-2	38		0.17 66	7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7		360 3710	u)												STATIC	9RESS. 0.00	0.00	900	0.00		0	0 4		o +-	14.80 0	٥×	
STITE NAME: CENTREPIELD (VAEST GORMALEY)   Type: BUILDER: ROYAL PINE HOMES   Type: Royal Pine Homes   Type: Royal Pine	W & OP	0.6 0.05 0.2 0.35	0.18 0.02 0.16	10 BED-2	2.8	. <del>4</del>	0.17 5.02	5 5 5 5 5 7 6 7 7 7 7 7 7 7 7 7 7 7 7 7	ရှိ အ ဦ	360 3710	ш												TRUNK	į o	00	0	00		0	0 5		o ~-	0	٥×	0
STITE NAME: CENTREPIELD (VAEST GORMALEY)   Type: BUILDER: ROYAL PINE HOMES   Type: Royal Pine Homes   Type: Royal Pine	7 2 3	essure sa filter essure assure	ure s/a s. loss ure s/a	9 3ED-4	1.80 51	8 8	0.16 76	226 226 236		433 4X10	4													DINK G	CONK H	SUNK 3	CUNK K	:					_		
STITE NAME: CENTREPIELD (WEST GORMLEY)   SATING CFM 1370   COOLNED CFM 1370   SATING CFM 14702   SATING CF	YPE: 4	Imace pr fumac /c coil pr flable pre	im press a dif pres ed press																					Æ	£ 6	#	₽ #								
STITE NAME: CENTREPIELD (WEST CORMLEY)  BUILDEE: ROYAL PINE HOMES  ANTERIOR OF 1370  COCLING CFM 1370  TOTAL HEAT GAM 41,702  WATER CRM 28,244  ANTERCEN 28,244	<b>)</b> .	A B B WG	plenu max s/a in adjust	7 IS-4/5 EN							- 1												OCHY	(QQ)	34	37	24 59								
STITE NAME: CENTREFIELD (WEST GORMLEY)											1	Ö	S-1.	4 8	3 <sub>1-</sub>	<del>,</del>	• £	4.5	:;	50	9		Ή.												-
TRUNK TRUNK	EY)	07 702 85									- i -	1													w	, 00									
TRUNK TRUNK	GORM	N 13																						×	××	· ×	××		50 CJ	200	្នន	35 G	Ö ~	œΧ	4
TRUNK TRUNK	(WEST	OLING CI HEAT GA PRATE CI	3 11 18	₽₩,	382	<u>ال</u> ال	2.4.5	24.5									\$ £	206	*		.		RECT	£ 2	<b>4</b> %	2	29 <del>4</del> 9		4 O	2.5 2.5	, æ	313	7	œΧ	1,4
TRUNK TRUNK	FFELD PINE H	CO TOTAL	\$4 \$4 se on lay	ε. Ε.Ε.Ε.Ε.Ε.Ε.Ε.Ε.Ε.Ε.Ε.Ε.Ε.Ε.Ε.Ε.Ε.Ε.Ε	38 6	33	100 S	227	577	34 × 55 × 55 × 55 × 55 × 55 × 55 × 55 ×	۵	27	MAN.	S S	83	0.16	រំ និ	194	٠,	423	4X10		ROUND	4.0	£ 5 5 4	7.5	16.3 6.3		၈၀	115 0 15	88	303	0.05	∞×	4
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TRUNK TRUNK	NAME	1370 48,442 28.28	0 0 0 ss noted	- MC		e -	7 4 5	5 to 0	4 5	¥ 5	a	25	2.95	83	<del>ξ</del> ε	0.16 57	150	207 0.08	œ (	38	4X10		TRUNK	348	517 816	187	555 1370		<del>~</del> 0	115	윤 4	280	0.05 7	∞×	4
HEATIN TOTAL HEA ARE FLOW RAI RELOW RAI SIA ARI ELOW RAI SIA ARI SIA A	SITE	IG CFM TLOSS TE CFM	10" unie ess note	RUN#	Z HEAT	COLING	T LGH.	ENGTH	T SIZE	(((/min)	TRUNK	RUN#	S MBH.	A HEAT	OLING	SSURE	ENGTH.	SSURE	T SIZE	(fermin)	TRUNK	32		NUNK A	SEK B	O MAC	KUNK E								
AIR SIA AIRS ADJUSS ACTAL EFER ADJUSS ACTAL EFER ADJUSS ACTAL EFER ADJUSS ACTAL EFER ADJUSS ACTAL EFER ADJUSS ACTAL EFER ADJUSS ROI HEATING W CODLING W OUT SURPLY AIR I SURPL		HEATIN TAL HEA LOW RAT	S/A R/A sers 4"x 5"Ø un	ROOM	PER RU	RUN CK	UAL DUC	CTIVE L	UND DUC	LET GRI		-	RM LOS	PER RUI	RES CO.	TED PRE	ALENT L	CTIVE LI FED PRE	DAID DAIC	ELOCITY TO OFF	18.1 GR	RUNKS		#	±	₽:	##			SURE	LGH	TWELH	ESSURC SIZE	1ZE	1ZE
ANTI TO TO THE RETAIN TO TO THE PARTY TO THE		TO ARR FI	S/A diffu		CFM	CFM PER	ACT ACT	TAL EFFI ADJUST	ATING V	OLING V				CFE	CFM PER	ADJUS	EQUIV	TAL EFFE ADJUST	P.O.	OLING VE	5	LY AIR							IRN AIR !	OLUME UM PRES	ML DUCT	L EFFEC	STEU PA	GRILLS	GRIELS
		L				••••••	<del></del>	δ	<u>-</u>	8		<u></u>						2	1	8		ans.		<b></b>					Ren	PLEN	ACT.	TOT.	ROU	₩. ₩.	ME

			CAL VENTILATION REC	
Λ 🚳	✓ Forced Air Non Forced air	nçadon vi Design ana Perjorman	ce of Residential Ventilation Systems	W2
	] <del>-</del>	A.1.	Roll #:	Permit #:
A) NCE		Oil Other	Lot & Plan:	
SYSTEM, APPLIAN	3	Depressurization limit	Civic address:	Service Control of th
S &	Solid Fuel (including Fireplaces)	5 pa Depress limít	Name: ROYAL PINE HOMES	House ID#:
2 8	Direct Vent (sealed combustion)	No Dep Limit	Address:	<b>5</b>
	Positive Venting Induced Draft	Pascals limit	City:	P.C.
3 8	Natural Draft or B-Vent Atmospher		Phone:	Fax: 2
9	Lowest Depressurization Limi		Email Address:	
В	✓ Clothes Dryer(s)	(150 cfm default)	Name: HVAC DESIGNS LTD.	HRAI #: 001820
EXHAUST CUIPME	Downdraft Cook Top	(220 cfm default)	Address: 375 FINLEY AVENUE, I	UNIT 202
1	Other (exhaust)	(over 150 cfm)	City: AJAX	P.C. L1S 2E2
A CONTRACTOR OF THE PERSON NAMED IN	Depressurization test/Calc. Required?	Yes No	Phone: (905) - 619 - 2300	Fax: (905) - 619 - 2375
C		20 cfm 40 cfm	Email Address:info@hvacdesig	ns.ca Other#
nou (TV	***************************************	10 cfm 50 cfm	f certify this ventilation systen	n design to be in accordance with: 👼 🦠
111		10 cfm 60 cfm	✓ CSA F326 M-91	
d de		10 cfm 50 cfm	R-2000 ////_	
<b>7</b> 5	Total Ventilation Capacity (T	/C) <u>200</u> cfm	Signature:	Pave 6/10/2021
2			Controls Functioning	Fans operating and clean
D	Minimum Continuous	Exhaust	Filters Clean	Flow measuring stations
) L	Kitchen(s) @ 60 cfm	=cfm	Dampers Accessible	Insulated ducts sealed
CAPACIT Conti	Bathroom(s) @ 20 cfm	≖cfm	Drain loop and connection	Label supply/exhaust hood
AP	Total	cfm	Distribution to all habitable room	oms (non forced air)
1 0			Forced air system Continu	ious mode Interlocked
AU)	Minimum Intermitten	t Exhaust	Kitchen intake grease filter	Kitchen exh. 40" to range
DXH TITE	Kitchen(s) <u>1</u> @ 100 cfm	= <u>100</u> cfm	Exhaust 4" above grade	Supply 18" above grade
E E	Bathroom(s) 5 @ 50 cfm	= 250 cfm	Supply intake 6' from exhaust	recommended)
III	Total	350 cfm	Supply intake 3' from other exi	haust
E			TVC system SUPPLY	airflow measured
F	Location: BSMT		cfm High	cfm Low
5	Manufacturer/Model: VANEE 65H	√ HVI rated	TVC system EXHAUS	cfm Low
y 1	Design Airflow 155 cfm high	64 cfm low	cfm High	
E 3	HRV/ERV 75 % Sensible Efficiency	@ 0°C 64 watts	<del></del>	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \
	HRV/ERV 64 % Sensible Efficiency @	0 -25°C 57 watts	Name:	HRAI#:
	<del> </del>		Address:	
G	1 Location: ENS	50 cfm 3.5 Sones	City:	P.C.
5	Manufacturer/Model: N/A	✓ TVC ✓ HVI	Phone:	Fax:
. \$	2 Location: ENS-4/5	50 cfm 3.5 Sones	Email Address:	
ADDITIONAL maustledum	Manufacturer/Model: N/A	✓ TVC ✓ HVI	I certify this ventilation system in	nstall to be in accordance with:
E	3 Location: ENS-2/3	50 cfm 3.5 Sones	CSA F326 M-91	
00 ar	Manufacturer/Model: N/A	1 TVQ / HV	R-2000	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
4 5	4 Location: W/R	50 cfm 3.5 Sones	 Signature:	Date:
	Manufacturer/Model: N/A	✓ TVd ✓ HVI		
CONTROL S	:4/:7			ĮŽĒ)
· · · · · · · · · · · · · · · · · · ·				
Prepared By	HVAC DESIGNS LTD.	001820 CITY	OF NET CHMOND HILL	
Signature:	M A	Date: 6/10/2021	Official Use:	
	- William	1 5, 29, 102,	R/12/2021	
	MANTON		01 1212021	
	1 '	<b>.</b> .		
	HRAT		RECEIVED	
	ti att. de la compressa de la	© Copyrig <mark>h</mark> t HRAI <sup>Per:</sup>	Residential \	Ventilation WORKSHEET W-2 r 08/10

			LSA F2 Forn	CSA F280-12 Kesidential Heat Loss and Heat Gain Calculations Formula Sheet (For Air Leakage / Ventiliation Calculation)	at Loss and Heat Gail akage / Ventiliation (	alculations				
1.0#: 90463	0463	Model: 4504		Builde	Builder: ROYAL PINE HOMES				Date: 6	Date: 6/7/2021
		Volume Calculation	on To			Ą	Air Change & Delta T Data	រ រី Data		
House Volume				1		WINTER NATI	URAL AIR CHANGE	ERATE	0.219	
Level Bsmt	Floor Area (ft²) 1453	Floor Height (ft)	Volume (ft³) 13077	<del></del>		SUMMER NAT	SUMMER NATURAL AIR CHANGE RATE	E RATE	0.068	
First	1453	10	14530	<del></del>	·					
Third	1//0	00 6	14160				Design Ten	Design Temperature Difference	rence	
Fourth	0	y 6	0			Winter DTDh	Tin °C	Tout °C	ΔT°C 43	AT "F 78
		Total: Total:	41,767.0 ft³ 1182.7 m³	<del></del>		Summer DTDc	24	31	7	13
	5.2.3	5.2.3.1 Heat toss due to Air Leakage	dr Leakage			5 2 6 Cm	6.2 & Countible Cale die to hie Calenda	Airlankana		
						9.4.0 36	insidie Gain due to	o Alt Leakage		
	$HL_{airb} =$	$HL_{airb} = LR_{airh} \times \frac{V_b}{3.6} \times DTD_h \times 1.2$	$DTD_h \times 1.2$		-17	$HG_{salb} = LR_{airc} \times :$	$\frac{V_b}{2c} \times DTD_c \times 1.2$	1.2		
0.219	x 328.53	x 43°C	x 1,2	= 3727 W	- 0.068	x 328.53	x 7°C ,	x 1.2	"	191 W
				= 12718 Btu/h	· ·				11	652 Btu/h
	5.2.3.2 He	5.2.3.2 Heat Loss due to Mechanical Ventifetion	ntcal Ventifetion			6.2.7 Sens	6.2.7 Sensible heat Gain due to Ventilation	e to Ventilation		
	HLvairb ≡	$HL_{vairb} = PVC \times DTD_h \times 1.08 \times (1 - E)$	$1.08 \times (1-E)$		HL	$HL_{vairb} = PVC \times DTD_h \times 1.08 \times (1 - E)$	$O_h \times 1.08 \times (1)$	1-E)		
149 CFM	x 78 °F	× 1.08	x 0.25	= 3134 Btu/h	149 CFM	X 13°F	x 1.08	x 0.25	=	516 Btu/h
									P	IT.
			5.2.3.3 Calcuta	tation of Air Change Heat Loss for Each Room (Floor Muttiplier Section)	Loss for Each Room (Flor	or Muttiplier Section)			er	Y 3U
		$HL_a$	<sub>trr</sub> = Level Fact	$HL_{airr} = Level\ Factor  imes HL_{airbv}  imes \{(HL_{agcr} + HL_{bgcr}) + (HL_{agclevel} + HL_{bgcievel})\}$	Lager + HLbger +	(HLagclevel + HLbgu	clevel)}		RE	OF R
		Level	Level Factor (LF)	HLairve Air Leakage + Ventitation Heat Loss (8tu/h)	Level Conductive Heat Loss: {HL <sub>clevel</sub> }	Level Conductive Heat Air Leakage Heat Loss Multiplier (LF x Loss: {HLews} Hairby / HLeve})	Multiplier (LF x level)		CEIV	NG DI
		1	0.5		8,378	0.759			'E	
		7	0.3		13,227	0.288			D	
		<b>.</b>	0.2	12,718	13,648	0.186			- <b>-</b>	
		4 4	0 0		0	0000				ILL
						0.000				
		*Hrairby # /	THtairby = Air leakage heat toss +	**Htairby = Air leakage heat loss + ventilation heat loss						



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**

MODEL:	4504		OPT IN LAW & O	PT. 2ND	BUILDER: ROYAL PINE HOMES	
SFQT:	3223	LO#	90463		SITE: CENTREFIELD (WEST	
DESIGN A	SSUMPTIONS					
HEATING	2 5 5 6 1 6 1 6 1 6 1 6 1 6 1 6 1 6 1 6 1		°F	COOLING		°F
	R DESIGN TEMP. DESIGN TEMP.		-6 72		DESIGN TEMP. SIGN TEMP. (MAX 75°F)	88 75
BUILDING	DATA					
ATTACHM	IENT:		DETACHED	# OF STORIE	S (+BASEMENT):	3
FRONT FA	CES:		EAST	ASSUMED (\	//N):	Υ
AIR CHAN	GES PER HOUR:		2.50	ASSUMED ()	//N}:	Y
AIR TIGHT	NESS CATEGORY:		TIGHT	ASSUMED (Y	//N):	γ
WIND EXP	OSURE:	Ç	SHELTERED	ASSUMED (Y	//N):	Υ
HOUSE VO	DLUME (ft³):		41767.0	ASSUMED (Y	(/N):	Y
INTERNAL	SHADING:	BLINDS	CURTAINS	ASSUMED O	CCUPANTS;	7
INTERIOR	LIGHTING LOAD (Btu/	h/ft²):	1.27	DC BRUSHLE	SS MOTOR (Y/N):	Y
FOUNDAT	ION CONFIGURATION		BCIN_1	DEPTH BELO	W GRADE:	6.0 ft
LENGTH:	46.0 ft	WIDTH:	37.0 ft	EXPOSED PE	RIMETER:	166.0 ft

2012 OBC - COMPLIANCE PACKAGE			
Component	CITY OF RICHMOND HILL BUILDING DIVISION	Compliance SB-12 PERI	Package
	00/40/2024	Nominal	Min. Eff.
Ceiling with Attic Space Minimum RSI (R)-Value	08/12/2021	60	59.20
Ceiling Without Attic Space Minimum RSI (R)-Value		31	27.70
Exposed Floor Minimum RSI (R)-Value	RECEIVED	31	29.80
Walls Above Grade Minimum RSI (R)-Value	Per:	22+1.5	18.50
Basement Walls Minimum RSI (R)-Value		20	21.12
Below Grade Slab Entire surface > 600 mm below gra	ide Minimum RSI (R)-Value	_	-
Edge of Below Grade Slab ≤ 600 mm Below Grade Mi	inimum RSI (R)-Value	10	10
Heated Slab or Slab ≤ 600 mm below grade Minimun	n 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





08/12/2021

RECEIVED Per:\_

HVAC Designs Ltd. 375 Finley Ave, Suite 202 Ajax ON, L1S 2E2 905-619-2300

## Residential Foundation Thermal Load Calculator

Supplemental tool for CAN/CSA-F280

W	eather Sta	tion Description
Province:	Ontario	
Region:	Richmon	d Hill
	Site D	escription
Soil Conductivity:	Normal c	onductivity: dry sand, loam, clay
Water Table:	Normal (	7-10 m, 23-33 ft)
	Foundatio	n Dimensions
Floor Length (m):	14.0	
Floor Width (m):	11.3	
Exposed Perimeter (m):	0.0	
Wall Height (m):	2.7	SECULATION SECULATION SECULATION SECULATION SECULATION SECULATION SECULATION SECULATION SECULATION SECULATION SECURATION SECULATION SECURATION SECURATION SECURITION SECURITION SECURITION SECULATION SECURITION
Depth Below Grade (m):	1.83	Insulation Configuration
Window Area (m²):	1.9	
Door Area (m²):	1.9	
	Radia	ant Slab
Heated Fraction of the Slab:	0	
Fluid Temperature (°C):	33	
	Design	Months
Heating Month	1	
	Founda	tion Loads
Heating Load (Watts):		1638

TYPE: 4504 LO# 90463 OPT IN LAW & OPT, 2ND



08/12/2021

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HVAC Designs Ltd. 375 Finley Ave, Suite 202 Ajax ON, L1S 2E2 905-619-2300

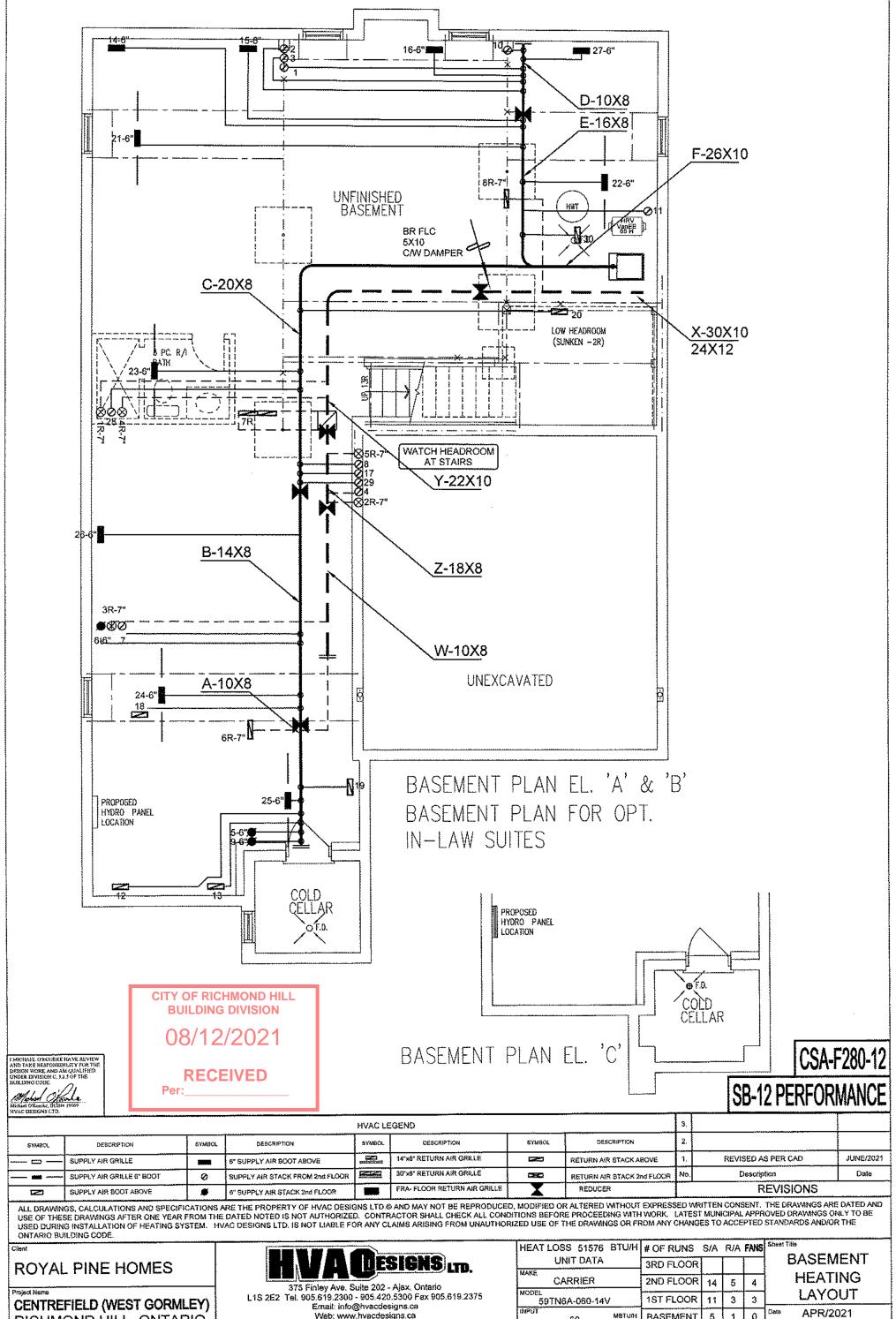
# **Air Infiltration Residential Load Calculator**

Supplemental tool for CAN/CSA-F280

Weather Sta	tion De	scrip	tion	****	
Province:	Onta	rio	• •		
Region:	Rich	mond l	Hill		
Weather Station Location:	Ope	n flat t	errain,	grass	
Anemometer height (m):	10			_	
	Shieldir	ng			
Building Site:	بببع	rban, :	forest		
Walls:	Heav				
Flue:	Heav	/y			
Highest Ceiling Height (m):	6.40				
Building C	onfigur	atior	1		
Type:	Deta	ched			
Number of Stories:	Two				
Foundation:	Full				
House Volume (m³):	1182	.7			
Air Leakage	e/Venti	latio	n		
Air Tightness Type:	Ener	gy Star	Detacl	ned (2.	5 ACH)
Custom BDT Data:	ELA (	@ 10 P	a.		1104.1 cm²
	2.50	- }			ACH @ 50 Pa
Mechanical Ventilation (L/s):	To	otal Sup	ply	,,	Total Exhaust
		70.4			70.4
Flu	e Size				
Flue #:	#1	#2	#3	#4	
Diameter (mm):	0	0	0	0	
Natural Infi	tration	Rate	es		
Heating Air Leakage Rate (ACH/H	):	(	).21	9	
Cooling Air Leakage Rate (ACH/H)	):	C	0.06	8	

TYPE: 4504 LO# 90463

OPT IN LAW & OPT, 2ND



RICHMOND HILL, ONTARIO

OPT IN LAW & OPT. 2ND 4504

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 3223 sqft adequately insulated and be gas-proofed.

HEAT LO	SS 51576	BTU/H	# OF RUNS	S/A	R/A	FANS	Shee
l	JNIT DATA		3RD FLOOR	1		ì	ļ
MAKE.	CARRIER		2ND FLOOR	14	5	4	
MODEL 59Th	V6A-060-14	V	1ST FLOOR	11	3	3	
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OUTPUT		матилн	ALL S/A DIFFU	SERS	4 "x10	) <sup>1</sup> r	Scal
58 MBTO/H			UNLESS NOTED OTHERWISE ON LAYOUT, ALL S/A RUNS 5"Ø				

DOORS 1" min. FOR R/A

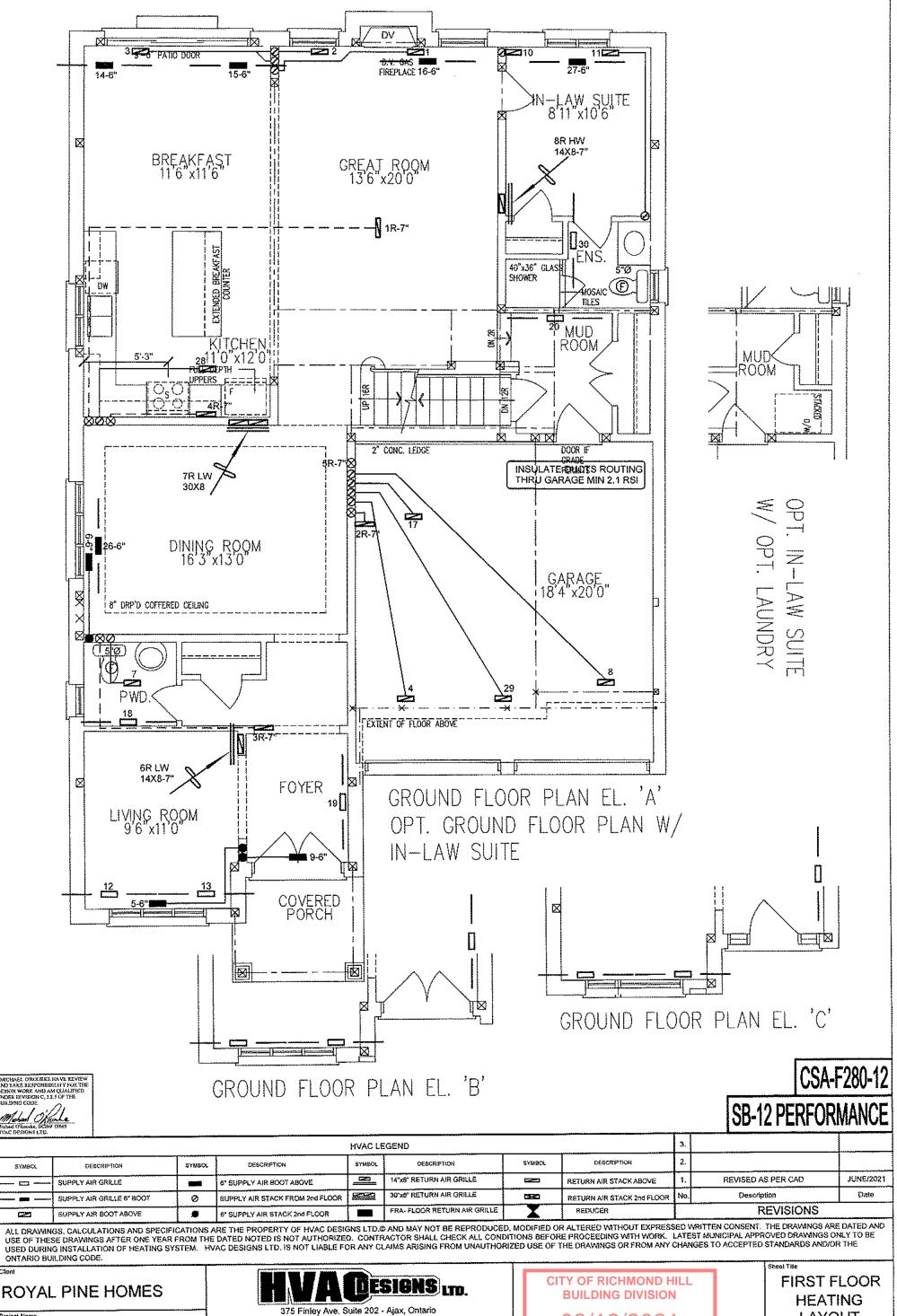
c(m @ 0,6" w.c.

3.5

1370

FAN SPEED

APR/2021 3/16" = 1'-0" BCIN# 19669 UNLESS NOTED OTHERWISE ON LAYOUT, UNDERCUT LO# 90463



**CENTREFIELD (WEST GORMLEY)** RICHMOND HILL, ONTARIO

OPT IN LAW & OPT, 2ND 3223 sqft 4504

£18 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.

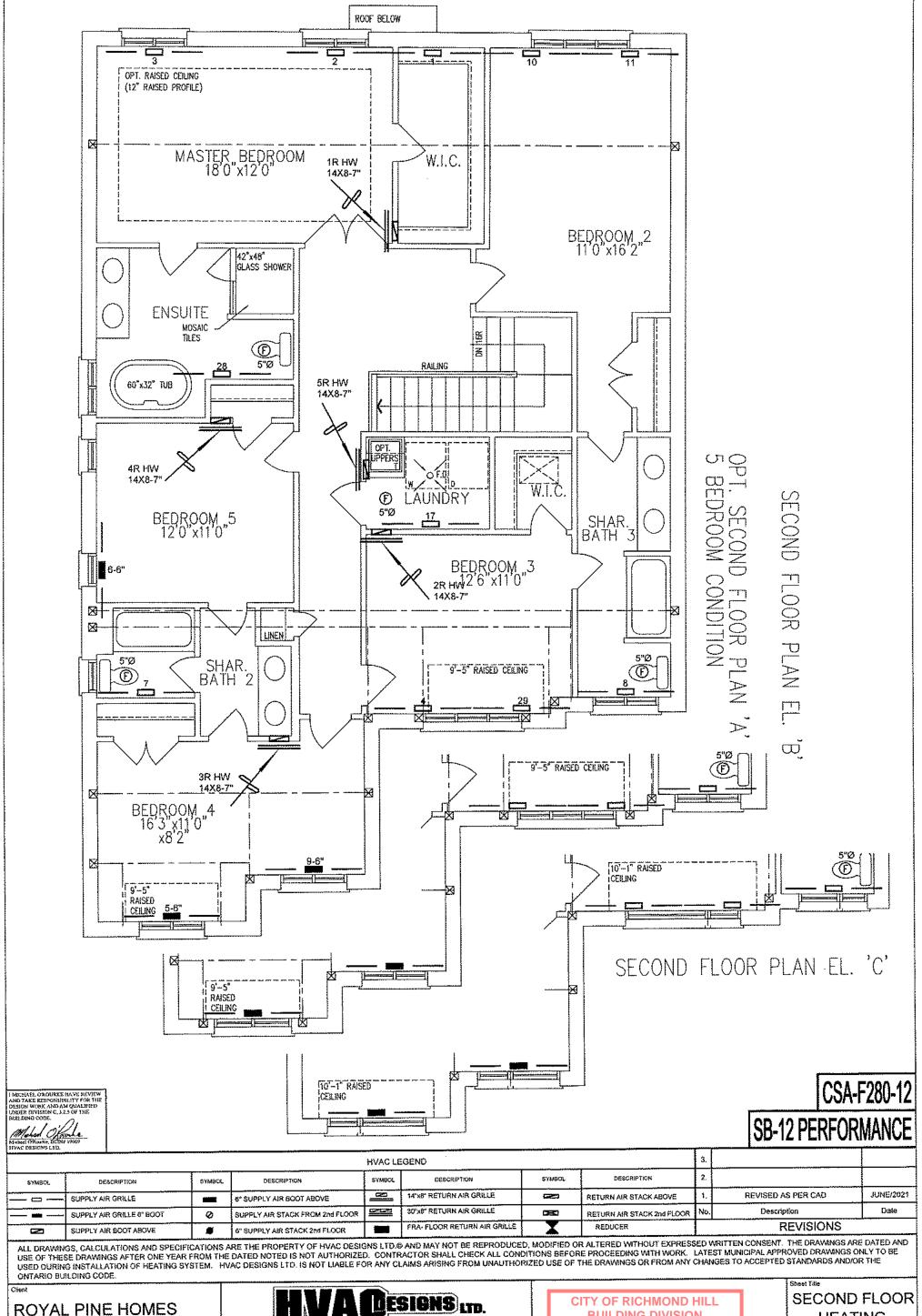
08/12/2021

**RECEIVED** 

LAYOUT

APR/2021 3/16" = 1'-0" BCIN# 19669

90463



**CENTREFIELD (WEST GORMLEY)** RICHMOND HILL, ONTARIO

OPT IN LAW & OPT. 2ND

3223 sqft 4504

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.

**BUILDING DIVISION** 

08/12/2021

Per:\_

RECEIVED

**HEATING** LAYOUT

APR/2021 3/16" = 1'-0"

BCIN# 19669

90463

### 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 de	escription	<u> </u>					
RICHMOND HILL									
B. Individual who reviews and t	akes responsibility	for design activities							
Name		Firm							
MICHAEL O'ROURKE	·····	HVAC DESIGNS LTD	),						
Street address			Unit no.	Lot/con.					
375 FINLEY AVE		<del></del>	202	N/A					
Municipality AJAX	Postal code	Province	E-mail						
Telephone number		ONTARIO	info@hvacdesigns.c	:a					
(905) 619-2300	Fax number (905) 619-2375	5	Cell number ( )						
			l' '						
C. Design activities undertaken	by individual identi	fied in Section B. [Bui	ilding Code Table 3.5	.2.1 OF Division CJ					
☐ House			<u> </u>						
☐ Small Buildings		.C House ling Services	☐ Build	ling Structural					
☐ Large Buildings	☐ Deter	ction, Lighting and P	ower 🗀 Plum	ibing – House ibing – Ali Buildings					
Complex Buildings		Protection	On-si	ite Sewage Systems					
Description of designer's work	······································	Model	*						
HEAT LOSS / GAIN CALCULATIONS	<b>S</b>								
DUCT SIZING			OPT. IN LAW						
RESIDENTIAL MECHANICAL VENTI		MARY Projec	t: CENTREFIELD (WEST	GORMLEY)					
RESIDENTIAL SYSTEM DESIGN per	Street Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Com	N992003003003003003000000000000000000000							
D. Declaration of Designer									
MICHAEL O'ROURI	KE (print name)		_ declare that (cho	oose one as appropriate):					
☐ I review and take responsibility for the design work on behalf of a firm registered under subsection 3.2.4.of Division C, of the Bulkding Code. I am qualified, and the firm is registered, in the appropriate classes/categories.									
Individual BCIN Firm BCIN;			~~~						
I review and take responsit designer" under subsect	pility for the design and ion 3.2.5.of Di	am qualified in the approp sion C, of the Building Cod	oriate category as an "oth de.	ter .					
Individual BCIN	: 19669								
	otion from registration a	nd qualification:	O.B.C SENTENCE	E. 3.2.4.1 (4)					
The design work is exempt Basis for exemption from re	from the registra	ation and qualification red							
certify that:	,			····					
The information contain		dule is true to the best of	my knowledge.						
<ol><li>I have submitted this a</li></ol>	pplication with the know	vledge and consent of the	firm.						
			med 1 de	in the DI					
				A A Company of the Co					
June 7, 2021			Muhal C	Kowhe.					
				gnature of Designer					
June 7, 2021		····		gnature of Designer					

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.

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

**CITY OF RICHMOND HILL** 

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TOTAL COMBINED HEAT LOSS BTURE 50115

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SLAB ON GRADE HEAT LOSS

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CITY OF RICHMOND HILL BUILDING DIVISION

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GRS.WALL AREA LOSS GAIN

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CLG. HT.

EXP, WALL

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2281

240

HEAT GAIN PEOPLE

BUCT LOSS **DUCT GAIN** 

\$ 0 %

o 240

LOSS DUE TO VENTILATION LOAD BTUIH:

NESIGNS LTD.

375 Floley Ave. Suite 202 Ajax, ON L1S 252 Tel: 905.619.2300 Fex; 905.619.2375 Web: www.hvacdealgns.cs. #.mail: Info@bvacdesigns.cs

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41681 Heat gain appluatesalights Total HT Loss BTUH Total HT gain x 1.3 BTUH Total heat gain btum:

MICHAEL O'ROURKE

	INDIVIDUAL BO
Mr. Int	Million Chime

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TYPE: SITE NAME:

4504

CENTREFIELD (WEST GORMLEY)

LO#

87513 OPT, IN LAW RESIDENTIAL MECHANICAL VENTILATION DESIGN SUMMARY

COMBUSTION APPLIANCES	9.32.3.1(1)	SUPPLEMENTAL VENTILATION CAPACITY	9.32,3,5
a)Direct vent (sealed combustion) only		Total Ventilation Capacity 212	ctm
b) Positive venting induced draft (except fireplaces)		Less Principal Ventil. Capacity 95.4	cím
c) Natural draft, B-vent or induced draft gas fireplace		Required Supplemental Capacity 116.6	cfm
d) Solid Fuel (including fireplaces)	İ	1	
No Combustion Appliances		PRINCIPAL EXHAUST FAN CAPACITY	
HEATING SYSTEM		Model: VANEE 65H Location: 85N	AT
	1	95.4 cfm	1 Approved
Forced Air Non Forced Air		PRINCIPAL EXHAUST HEAT LOSS CALCULATION  CFM	% LOSS
Efectric Space Heat		95.4 CFM X 78F X 1.08 X	0.25
4		SUPPLEMENTAL FANS BY INSTALLING CONTRACTOR	
HOUSE TYPE	9.32.1(2)	Location Model cfm HVI  ENS BY INSTALLING CONTRACTOR 50 ✓	Sones 3.5
		BATH BY INSTALLING CONTRACTOR 50 /	3.5
Type a) or b) appliance only, no solid fuel		ENS-2 BY INSTALLING CONTRACTOR 50 ✓	3.5
		W/R BY INSTALLING CONTRACTOR 50 ✓	3,5
If Type I except with solid fuel (including fireplaces)			
lii Any Type c) appliance		HEAT RECOVERY VENTILATOR	9,32,3,11
Control of the chappened		Model: VANEE 65H 155 cfm high 64	
IV Type I, or II with electric space heat		155 cfm high 64	cfm low
Other: Type I, II or IV no forced air			Approved
Silet. 1) port il ori vi di dicessa an		@ 32 deg F ( 0 deg C)	
SYSTEM DESIGN OPTIONS	0.000000	LOCATION OF INSTALLATION	
SYSTEM DESIGN OF HONS	O.N.H.W.P.	Lot: Concession	
1 Exhaust only/Forced Air System	ŀ	CURROSSIM1	
		Township Flan:	
2 HRV with Ducting/Forced Air System		Address	
HRV Simplified/connected to forced air system		Roll # Building Permit #	
4 HRV with Ducting/non forced air system			
Part 6 Design	ļ	BUILDER: ROYAL PINE HOMES	
		Name:	
TOTAL VENTILATION CAPACITY	9.32.3,3(1)	Address:	
Basement + Master Bedroom 2 @ 21.2 cfm 42.4	cfm	City:	
Other Bedrooms 4 @ 10.6 cfm 42.4	cfm	Telephone #: Fax #:	
Kitchen & Sethrooms6 @ 10.6 cm63.6	cim cim	INSTALLING CONTRACTOR	
Other Rooms 6 @ 10.6 c/m 63.6	cfm	Name:	
Table 9.32.3.A. TOTAL 212.0	can	Address:	
		City:	
PRINCIPAL VENTILATION CAPACITY REQUIRED	9.32.3.4.(1)		
1 Bedroom 31.8	c/m	Telephone #. Fax #:	
2 Bedroom 47.7	cfm	DESIGNER CERTIFICATION I hereby cortly that this ventilation system has been designed	
3 Bedroom 63.6	çafini	in accordance with the Ontario Building Code.  Name: HVAC Designs Ltd.	
4 Bedroom 79.5	cfm	Signature: CITY OF RICHMOND FILE  RILLI DING DIVI	
5 8edroom 95.4	cfm	HRAI# 001820	
TOTAL 95.4 cfm		Date: 08/12/2021 June-21	
INDIVIDUAL RCIN: 19669 MICHAEL O'DOL	FIED IN THE APPR	PROPRIATE CATEGORY AS AN "OTHER DESIGNER" UNDER DIVISION C, 3.25 OF THE BUILDING CODE	<u></u>
Model Office .	eivie.	RECEIVED	

Per:\_\_

375 Finley Ave. Suite 202 Ajax, ON L15 2E2 Tel: 905.619.2300 Fax: 905.619.2375 Web: www.hvacdesigns.ca E-mail: info@hvacdesigns.ca

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			CSA F2	A F280-12 Residential Heat Loss and Heat Gain Calculations	t Loss and Heat Gain	Calculations			F
			Forn	Formula Sheet (For Air Leakage / Ventiliation Calculation)	skage / Ventiliation C	alculation)			T-
#01	LO#: 87513	Model: 4504		Builde	Builder: ROYAL PINE HOMES			Date: 6/7/2021	Т
		Volume Calculation	ion			Air Change & Delta T Data			T
House Volume	**************************************			F***		TATALACTIC AND THE PART OF A STATE OF THE PART OF THE			T
Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)	<del></del>		SUMMER NATURAL AR CHANGE KATE	RATE 0.219	0.0	
Bsmt	1453	6	13077	F 7					
First	1453	10	14530						•
Second	1770	000	14160	<del></del>		Design Yemp	Differer		,
THE C		6	2	····		<b>3</b>	Tout "C AT "C	C AT 'F	
Londen	0	24.47	0 20 20 20 3	<b>ş</b>		Winter DTDh 22	-21 43		
		Total:	1182.7 m³	···-		Summer DTDc 24			
	5.2.3	5.2.3.1 Reat Loss due to Air teakage	Air teakage			6.2.6 Sensible Gain due to Air Leakage	Air teakage		т-
		Z							T
	$HL_{airb} =$	$HL_{airb} = LR_{airh} \times \frac{v_b}{3.6} \times DTD_h \times 1.2$	$DTD_h \times 1.2$		H	$HG_{salb} = LR_{atrc} \times \frac{V_b}{2} \times DTD_c \times 1.2$	1.2		
0.219	x 328.53	x 43°C	x 1.2	= 3727 W	0.068	3.6 x 328.53 x 7°C x	7.	101 14/	
								AA TCT	
				= 12718 Btu/h			11:	652 8tu/h	<del></del> -
	5.2.3.2 Hea	5.2.3.2 Heat Loss due to Mechanical Ventifation	anical Ventifation			6.2.7 Sensible heat Gain due to Ventilation	to Ventifation		
	HLvairb =	$HL_{vairb} = PVC \times DTD_h \times 1.08 \times (1 - E)$	$1.08 \times (1-E)$		$HL_{\nu}$	$HL_{vairb} = PVC \times DTD_h \times 1.08 \times (1 - E)$	– E)		····
95 CFM	₹. 87 ×	× 1.08	x 0.25	= 2004 Btu/h	95 CFM	x 13 °F x 1.08 x	0.25 =	330 8tu/h	
			5.2.3.3 Calcuta	5.2.3.3 Calculation of Air Change Heat Loss for Each Room (Floor Multiplier Section)	oss for Each Room (Floo	r Multiplier Section			
••••		:		,	,				<b></b>
L		$HL_{\iota}$	airr = Level Fact.	or $\times$ $HL_{airby} \times \{(H_i)\}$	$L_{agcr} + HL_{bgcr}) + ($	$HL_{airr} = Level Factor \times HL_{airb_{v}} \times \{(HL_{agcr} + HL_{bgcr}) + (HL_{agclevel} + HL_{bgclevel})\}$			• • • • • • • • • • • • • • • • • • • •
F	CI	Levei	Level Factor (LF)	kage + at toss	Level Conductive Heat . Loss: (HL <sub>clevel</sub> )	Level Conductive Heat Air Leakage Heat Loss Multiplier (LF x Loss: (Ht.dave) Hairby / Hllevel)			
er	TY BU	F	0.5	1010/11/	8,378	0.759			
	JIL 8/	2	0.3		13,227	0.288			
E	.DI /1		0.2	12,718	13,280	0.192			
C	INC	4	0	····	0	0.000			
E	G 2/	2	0		0	0.000			

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\*HLairbv = Air feakage heat toss + ventilation heat loss \*For a balanced or supply only ventilation system Htairve = 0

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### **HEAT LOSS AND GAIN SUMMARY SHEET**

MODEL:	4504		OPT. IN LAW	BUILDER: ROYAL PINE HOMES	,
SFQT:	3223	LO#	87513	SITE: CENTREFIELD (WEST	GORMLEY)
DESIGN A	SSUMPTIONS				
HEATING			°F	COOLING	°F
OUTDOOF	R DESIGN TEMP.		-6	OUTDOOR DESIGN TEMP.	88
INDOOR D	ESIGN TEMP.		72	INDOOR DESIGN TEMP. (MAX 75°F)	75
BUILDING	DATA				
ATTACHM	ENT:		DETACHED	# OF STORIES (+BASEMENT):	3
FRONT FA	CES:		EAST	ASSUMED (Y/N):	Υ
AIR CHAN	GES PER HOUR:		2.50	ASSUMED (Y/N):	Υ
AIR TIGHT	NESS CATEGORY:		TIGHT	ASSUMED (Y/N):	Υ
WIND EXP	OSURE:	5	SHELTERED	ASSUMED (Y/N):	Υ
HOUSE VO	LUME (ft³):		41767.0	ASSUMED (Y/N):	Y
NTERNAL	SHADING:	BLINDS	CURTAINS	ASSUMED OCCUPANTS:	6
NTERIOR I	LIGHTING LOAD (Btu/I	h/ft²);	1.40	DC BRUSHLESS MOTOR (Y/N):	Υ
OUNDATI	ON CONFIGURATION		BCIN_1	DEPTH BELOW GRADE:	6.0
ENGTH:	46.0 ft	WIDTH:	37.0 ft	EXPOSED PERIMETER:	166.01

2012 OBC - COMPLIANCE PACKAGE			
Component	Compliance SB-12 PER	e Package FORMANCE	
Calling with Anti-County Co.	08/12/2021	Nominal	Min. Eff.
Ceiling with Attic Space Minimum RSI (R)-Value	00/12/2021	60	59.20
Ceiling Without Attic Space Minimum RSI (R)-Value		31	27.70
Exposed Floor Minimum RSI (R)-Value	RECEIVED	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 gra	_	_	
Edge of Below Grade Slab ≤ 600 mm Below Grade Mir	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

W	eather Station Descri	ption
Province:	Ontario	-
Region:	Richmond Hill	
	Site Description	
Soil Conductivity:	Normal conductivity: d	ry sand, loam, clay
Water Table:	Normal (7-10 m, 23-33	ft)
	Foundation Dimension	ons
Floor Length (m):	14.0	
Floor Width (m):	11.3	
Exposed Perimeter (m):	0.0	
Wall Height (m):	2.7	Section 1
Depth Below Grade (m):	1.83   In	sulation Configuration
Window Area (m²):	1.9	
Door Area (m²):	1.9	
	Radiant Slab	
Heated Fraction of the Slab:	0	BUILDING DIVISION
Fluid Temperature (°C):	33	08/12/2021
	Design Months	RECEIVED
Heating Month	1	Per:
	Foundation Loads	· · · · · · · · · · · · · · · · · · ·
Heating Load (Watts):		1638

TYPE: 4504 LO# 87513

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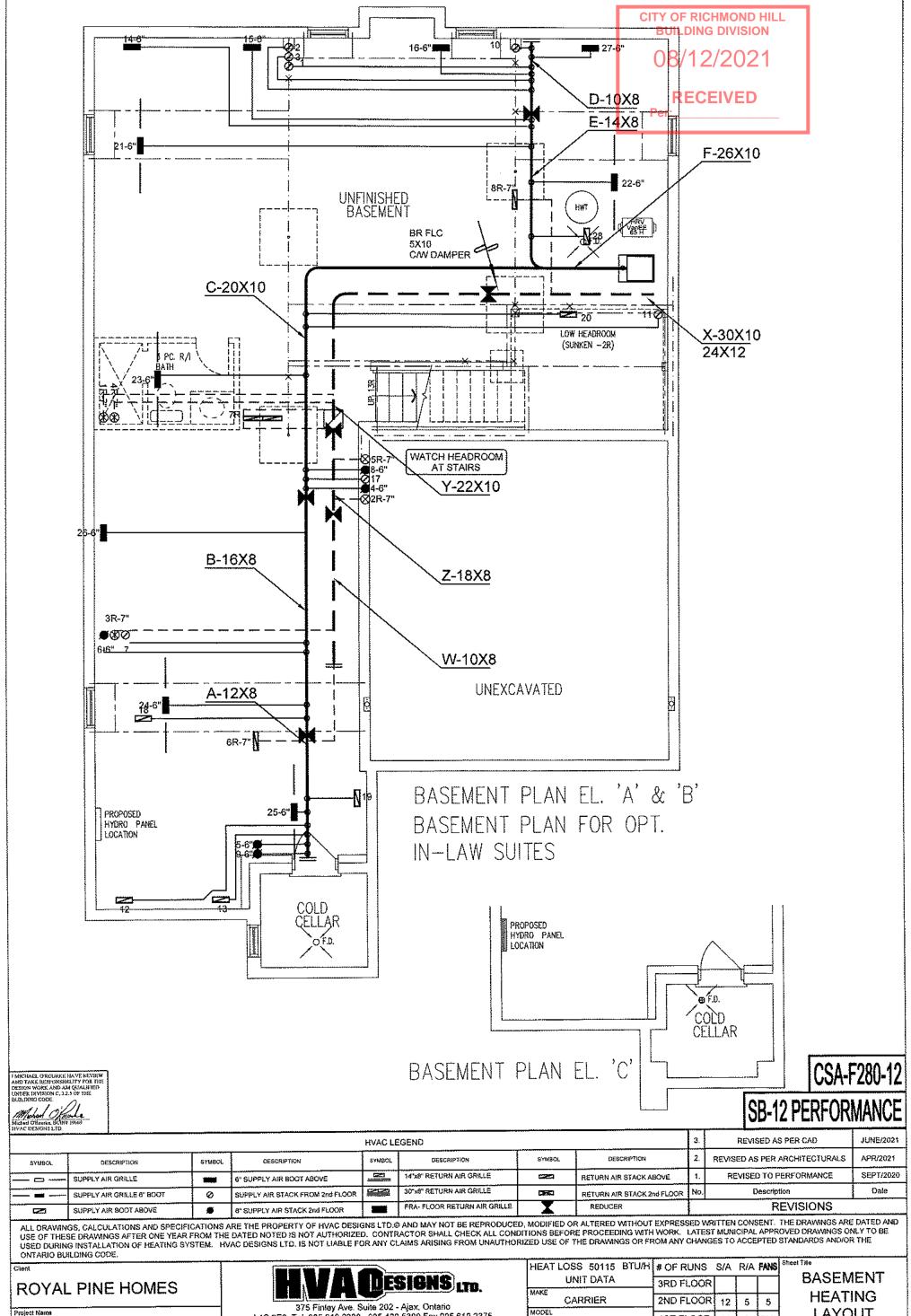
## **Air Infiltration Residential Load Calculator**

Supplemental tool for CAN/CSA-F280

Weather Statio	n De	cript	ion					
Province:	Onta	rio						
Region:	Richr	nond F						
Weather Station Location:	Oper	flat te	errain,					
Anemometer height (m):	10							
Local Sh	ieldin	g						
Building Site:	Suburban, forest							
Walls:	Heav	Heavy						
Flue:	Heav	у						
Highest Ceiling Height (m):	6.40							
Building Cor	nfigur	ation						
Type:	Deta	Detached						
Number of Stories:	Two	Two						
Foundation:	Full	Full						
House Volume (m³):	1182	.7						
Air Leakage/	Venti	ation	1					
Air Tightness Type:	Energ	y Star	Detacl	ned (2.	5 ACH)			
Custom BDT Data:	ELA @ 10 Pa.				1104.1 cm <sup>2</sup>			
2.50					ACH @ 50 Pa			
Mechanical Ventilation (L/s):	Total Supply				Total Exhaust			
		45.0			45.0			
Flue :	Size							
Flue #:	#1	#2	#3	#4				
Diameter (mm):	0	0	0	0				
Natural Infilt	ation	Rate	s		:			
Heating Air Leakage Rate (ACH/H):		0.219						
Cooling Air Leakage Rate (ACH/H):		0.068						

TYPE: 4504 LO# 87513

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CENTREFIELD (WEST GORMLEY) RICHMOND HILL, ONTARIO

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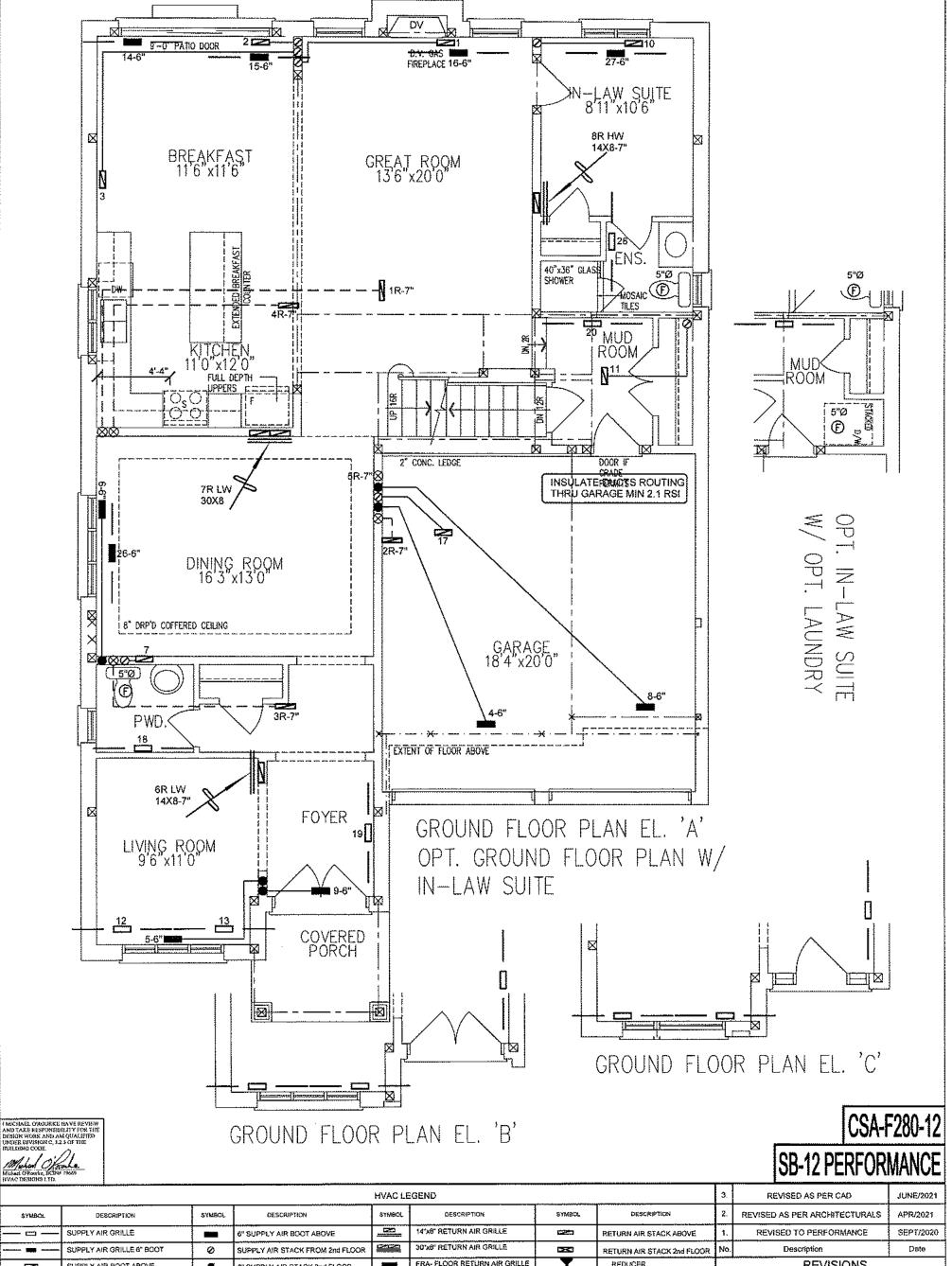
3223 sqft 4504

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.

			B10/H	# OF RUNS	S/A	R/A	FANS	~		
		NIT DATA		3RD FLOOR		ļ	$\Box$			
		ARRIER		2ND FLOOR	12	5	5			
	MODÉL 59TN	6A-060-14\	/	1ST FLOOR	11	3	3(4)	L		
	INPUT	60	METU/H	BASEMENT	5	1	0	Da		
	OUTPUT	58	MBTU/H	ALL S/A DIFFUSERS 4 "x10" UNLESS NOTED OTHERWISE						
1	COOLING	3.5	TONS	ON LAYOUT, ALL S/A RUNS 5"R UNLESS NOTED OTHERWISE						
	FAN SPEED	1370	cim @ 0,6" w.c.	ON LAYOUT, UNDERCUT DOORS 1" min. FOR R/A						

LAYOUT SEPT/2020 3/16° = 1'-0" BCIN# 19669 87513 LO#



FRA- FLOOR RETURN AIR GRILLE REDUCER REVISIONS SUPPLY AIR BOOT ABOVE

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**ROYAL PINE HOMES** 

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CITY OF RICHMOND HILL **BUILDING DIVISION** 

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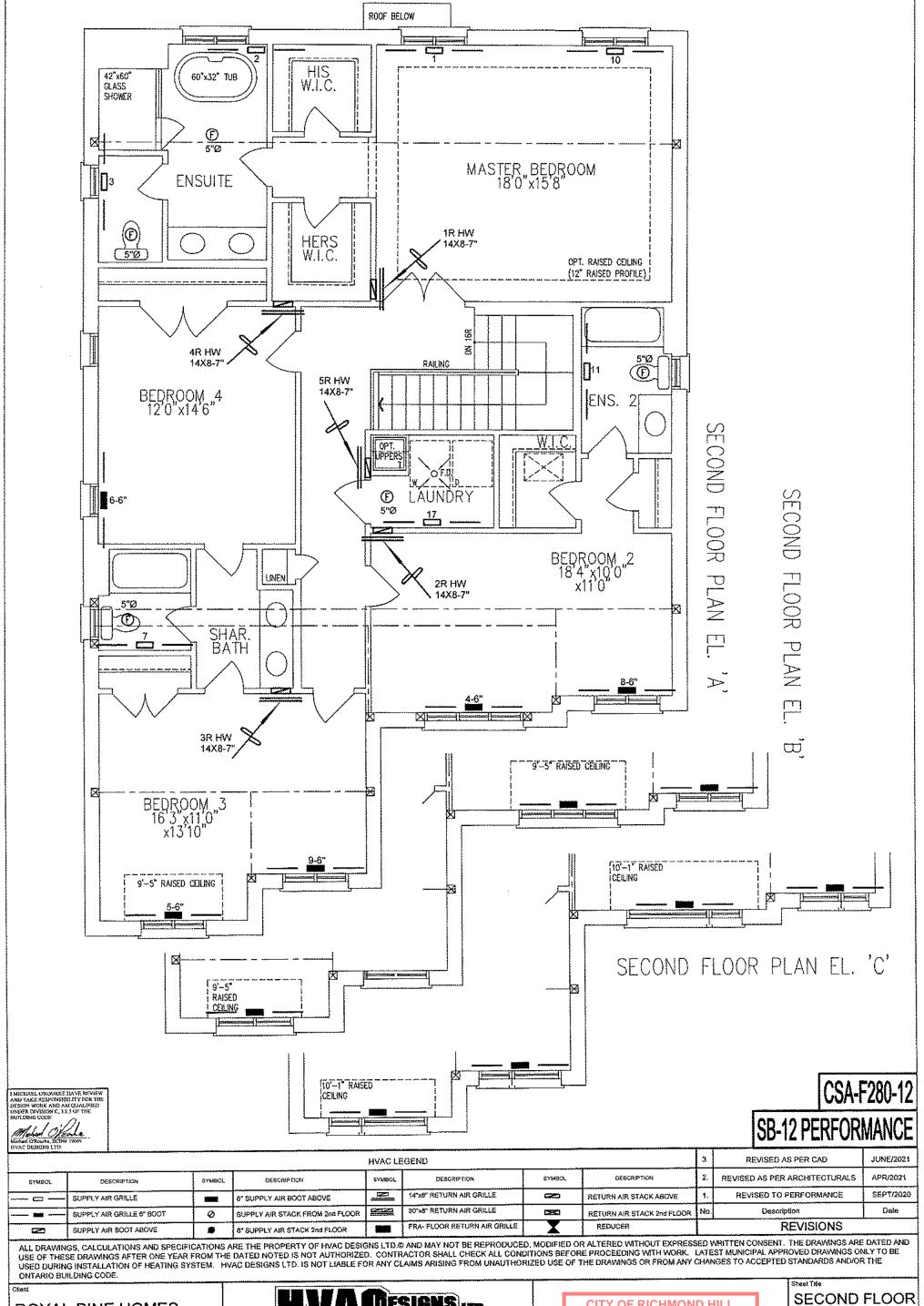
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FIRST FLOOR **HEATING** LAYOUT

SEPT/2020 3/16" = 1'-0" BCIN# 19669

\_0# 87513



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**HEATING** LAYOUT

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

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