CITY OF RICHMOND HILL BUILDING DIVISION

09/03/2021

Schedule 1: Designer Information

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

A. Pro	ject Information				i cijocciy	maganar	
	number, street name				Unit no.	Lot/con.	
Municipa	lity	Postal code	Plan number/ other des	scription			
RICHMON	•			•			
B. Indiv	vidual who reviews and tak	es responsibility f	or design activities				
Name		<u> </u>	Firm				
	L O'ROURKE		HVAC DESIGNS LTD.				
Street ad				Unit no.		Lot/con.	
375 FINL		Postal code	Province	202 E-mail		N/A	
Municipa AJAX	шу	L1S 2E2	ONTARIO		vacdesigns.ca		
	ne number	Fax number		Cell nun			
(905) 61		(905) 619-2375		()			
C. Desi	ign activities undertaken by	individual identif	ied in Section B. [Buil	lding Co	de Table 3.5.2.1 OF	Division C]	
☐ Hot	use	⊠ HVAC	C – House		☐ Building Struc	ctural	
☐ Sm	all Buildings		ng Services		Plumbing – H	ouse	
	ge Buildings mplex Buildings		tion, Lighting and Pov rotection	wer	□ Plumbing – A□ On-site Sewa		
	on of designer's work	<u> </u>	Model:	2010	OII-Site Sewa	ge Systems	
•	OSS / GAIN CALCULATIONS		wiodei.	Mill Po	and		
DUCT SI				WIIII I (mu		
	NTIAL MECHANICAL VENTILA		MARY Project:	CENTRE	FIELD (WEST GORMLEY)	
	NTIAL SYSTEM DESIGN per C	SA-F280-12			·		
D. Deci	aration of Designer						
I	MICHAEL O'ROURKE	(print name)		_ de	clare that (choose one a	as appropriate):	
	I review and take responsibili	ty for the design work	on behalf of a firm registe	ered unde	er subsection 3.2.4 of		
_	Division C, of the Building Co				appropriat	e Sity of Biohmand L	1:11
	classes/categories.				Cumona		
	Individual BCIN:					Building Division	วท
	Firm BCIN:				HVAC RE	VIEWED	
\boxtimes	I review and take responsibili	ty for the design and	am qualified in the approp	riate cate	gory as an "other		
	designer" under subsection	3.2.5.of Di vis	ion C, of the Building Code	e.	la itia la c	PXV	
	Individual BCIN:	19669			Initials:		
	Basis for exemption	on from registration a	nd qualification:	O.B.C	SENTENCE 3.2.4.	1 (4)	
	The design work is exempt	from the registra	ation and qualification requ	uirements	of the Building Code.		
	Basis for exemption from regi	stration and qualifica	tion:				
I certify t	hat:						
	 The information containe I have submitted this app 		dule is true to the best of r vledge and consent of the		edge.		
				m	hehart Okounh	/	
	April 21, 2021			1111	repart Stounk	e.	
	Date	-			Signature of	Designer	

NOTE

- 1. For the purposes of this form, "individual" means the "person" referred to in Clause 3.2.4.7(1) d).of Division C, Article 3.2.5.1. of Division C, and all other persons who are exempt from qualification under Subsections 3.2.4. and 3.2.5. of Division C.
- 2. Schedule 1 is not required to be completed by a holder of a license, temporary license, or a certificate of authorization, issued by the Ontario Association of Architects. Schedule 1 is also not required to be completed by a holder of a license to practise, a limited license to practise, or a certificate of authorization, issued by the Association of Professional Engineers of Ontario.

Tel: 905.619.2300 Fax: 905.619.2375 Web: www.hvacdesigns.ca E-mail: info@hvacdesigns.ca

CITY OF RICHMOND HILL BUILDING DIVISION

SITE NAME: CENTREFIELD (WEST GORMLEY) DATE: Apr-21 WINTER NATURAL AIR CHANGE RATE 0.236 CSA-F280-12 LO# 87540 SUMMER NATURAL AIR CHANGE RATE 0.072 BUILDER: ROYAL PINE HOMES TYPE: 2010 GFA: 1742 HEAT GAIN ΔT °F. 13 SB-12 PERFORMANCE

	ROYAL PINE	HOME	S				TYPE:	2010					A: 1742			LO# 8	7540		SU	MMER N	IATURAL AIR C	HANGE RATE 0.07	2 HEAT GAIN	ΔT °F. 13 SE	3-12 PERFOR	RMANCE
ROOM USE			MBR			ENS					BE	D-2		BED-3	3				BATH							
EXP. WALL			14			22					1	0		42					0				RECE	VED		
CLG. HT.			9			9						9		11					9							
	FACTORS																					Per:	jocelyn	aquilar		
GRS.WALL AREA	LOSS GAIL	ı l	126			198					ç	90		462					0					aganai		
GLAZING	2000 07	1	LOSS	GAIN		LOSS	GAIN					SS GAI	N	LOSS	GAIN					SAIN						
NORTH	21.8 16.0	0	0	0	0	0	0					0 0		0	0			0	0	0						
				-							-									-						
EAST			0	0	0	0	0				28 6	10 116			1496			0	0	0						
SOUTH			0	0	23	501	573				0	0 0		1198	1369			0	0	0						
WEST	21.8 41.6	32	697	1330	9	196	374				0	0 0	0	0	0			0	0	0						
SKYLT.	35.8 101.	2 0	0	0	0	0	0				0	0 0	0	0	0			0	0	0						
DOORS	25.8 4.3	0	0	0	0	0	0				0	0 0	0	0	0			0	0	0						
NET EXPOSED WALL	4.2 0.7	94	395	65	166	698	115				62 2	61 43	3 371	1560	257			0	0	0						
NET EXPOSED BSMT WALL ABOVE GR			0	0	0	0	0					0 0		0	0			0	0	ō						
EXPOSED CLG			392	175	105	138	62				-	31 10			149			70	92	41						
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			-	U	-	-	-				-							0		-			Richmond Hi	City of I	Richmo	nd Hill
EXPOSED FLOOR	2.6 0.4	0	0	0	0	0	0				176 4	59 76	5 21	55	9			51	133	22			Connorm	City of	110111110	
BASEMENT/CRAWL HEAT LOSS			0			0						0		0					0					Ru	Iding D	ivision
SLAB ON GRADE HEAT LOSS			0			0						0		0					0					54	lianing D	14101011
SUBTOTAL HT LOSS	l	1	1484			1533					15	61		3986		l		1	225	1			HV/AC	DEVIE		
SUB TOTAL HT GAIN	l	1		1570			1123					138	35		3305	l		1		63			HVAC	REVIE		
LEVEL FACTOR / MULTIPLIER	1	0.20	0.17		0.20	0.17					0.20 0.	17	0.20	0.17		1		0.20	0.17	1						
AIR CHANGE HEAT LOSS			246			254					2	58		660					37							
AIR CHANGE HEAT GAIN				57			41					50	, I		120					2				PX	\/	
DUCT LOSS			0	٥.		0	٠.				1	82	′ I	465					26	-			Initials:	1 /	. v	
			U			U	•						.	403	404				20	_			IIIIIIais			
DUCT GAIN		1 _		0	_		0					23			431			1 _		7						
HEAT GAIN PEOPLE	240	2		480	0		0				1	24			240			0		0						
HEAT GAIN APPLIANCES/LIGHTS				643			0					64	3		643					0						
TOTAL HT LOSS BTU/H			1730			1787					20	002		5110					289							
							1513								6160					93						
TOTAL HT GAIN x 1.3 BTU/H				3575			1513					331	16		0100					3 3						
				3575	l		1513					331	16							33			1	1		
ROOM USE				3575			1513		K/B/G			331	16	LAUNI			PWD	<u> </u>	FOY	93					BAS	
				3575			1513		K/B/G 49			331	16	LAUNI 7			PWD 12		FOY 36	93					BAS 120	
ROOM USE				3575			1513					331	16							93						
ROOM USE EXP. WALL	FACTORS			3575			1513		49			331	16	7			12		36	53					120	
ROOM USE EXP. WALL CLG. HT.	FACTORS			3575			1513		49 10			331	16	7 9			12 10		36 11	93					120 10	
ROOM USE EXP. WALL CLG. HT. GRS.WALL AREA	FACTORS			3575			1513		49 10 495	GAIN		331	16	7 9 63)		12 10 121		36 11 382						120 10 1200	,
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ROOM USE EXP. WALL CLG. HT. GRS.WALL AREA GLAZING NORTH EAST SOUTH WEST SKYLT. DOORS NET EXPOSED WALL NET EXPOSED WALL NET EXPOSED GLG EXPOSED FLOOR BASEMENT/CRAWL HEAT LOSS SUBTOTAL HT GAIN LEVEL FACTOR / MULTIPLIER	FACTORS LOSS GAIN 21.8 16.0 21.8 41.6 21.8 24.5 21.8 41.6 35.8 101. 25.8 4.3 4.2 0.7 3.7 0.6 1.3 0.6 2.8 1.3	; ; ;		3575			1513	0 71 80 0 0 344 0 0 31	49 10 495 LOSS 0 0 1547 1743 0 0 1446 0 0 87 0 0 4823	0 0 1768 3324 0 0 238 0 0 39 0		331	0 0 33 0 0 0 30 0 0 56 0	7 9 63 LOSS 0 719 0 0 126 0 74 0 0 0 919	GAIN 0 0 822 0 0 21 0 33 0	0 0 0 0 0 20 101 0 0	12 10 121 COSS GAIN 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 20 65 0 0 50 247 0 0	36 11 382 LOSS 0 436 1416 0 0 1292 1037 0 0 0 4181	GAIN 0 831 1618 0 0 213 171 0 0					1200 10 1200 1200 1200 1200 1200 1200 1	S GAIN 0 0 75 291 0 85 0 0 0 0
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ROOM USE EXP. WALL CLG. HT. GRS.WALL AREA GLAZING NORTH EAST SOUTH WEST SKYLT. DOORS NET EXPOSED WALL NET EXPOSED BASH WALL ABOVE GR EXPOSED CLG NO ATTIC EXPOSED CLG EXPOSED CLG EXPOSED FLOOR BASEMENT/CRAWL HEAT LOSS SLAB ON GRADE HEAT LOSS SUBTOTAL HT LOSS SUBTOTAL HT GAIN LEVEL FACTOR / MULTIPLIER AIR CHANGE HEAT LOSS	FACTORS LOSS GAIN 21.8 16.0 21.8 41.6 21.8 24.5 21.8 41.6 35.8 101. 25.8 4.3 4.2 0.7 3.7 0.6 1.3 0.6 2.8 1.3	; ; ;		3575			1913	0 71 80 0 0 344 0 0 31	49 10 495 LOSS 0 0 1547 1743 0 0 1446 0 0 87 0 0 4823	0 0 1768 3324 0 0 238 0 0 39 0		331	0 0 33 0 0 0 30 0 0 56 0	7 9 63 LOSS 0 719 0 0 126 0 74 0 0 0 919	GAIN 0 0 822 0 0 0 21 0 33 0	0 0 0 0 0 20 101 0 0	12 10 121 COSS GAIN 0	0 20 65 0 0 50 247 0 0	36 11 382 LOSS 0 436 1416 0 0 1292 1037 0 0 0 4181	GAIN 0 831 16618 0 0 0 177 177 0 0 0 0 0 0 0 0 0 0 0 0 0					1200 10 1200 1200 1200 1200 1200 1200 1	S GAIN 0 0 75 291 0 85 0 0 0 0
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ROOM USE EXP. WALL CLG. HT. GRS.WALL AREA GLAZING NORTH EAST SOUTH WEST SKYLT. DOORS NET EXPOSED WALL NET EXPOSED WALL NET EXPOSED BASH WALL ABOVE GR EXPOSED CLG EXPOSED CLG EXPOSED FLOOR BASEMENT/CRAWL HEAT LOSS SUB TOTAL HT GAIN LEVEL FACTOR / MULTIPLIER AIR CHANGE HEAT LOSS AIR CHANGE HEAT LOSS AIR CHANGE HEAT LOSS DUCT GAIN DUCT GAIN HEAT GAIN PEOPLE	FACTORS LOSS GAIN 21.8 16.6 21.8 41.8 21.8 41.8 21.8 41.9 35.8 101. 25.8 4.3 4.2 0.7 3.7 0.6 1.3 0.6 2.8 1.3 2.6 0.4	; ; ;		3575			1913	0 71 80 0 0 344 0 0 31 0	49 10 495 LOSS 0 0 1547 1743 0 0 1446 0 0 87 0 0 4823	0 0 1768 3324 0 0 238 0 0 39 0 5369		331	0 0 0 33 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	7 9 63 LOSS 0 719 0 0 126 0 74 0 0 0 919	GAIN 0 0 0 822 0 0 0 21 0 0 33 0 0 0 875	L 0 0 0 0 0 2 20 1011 0 0 0	12 10 121 OSS GAIN 0	0 20 65 0 0 50 247 0 0 0	36 11 382 LOSS 0 436 1416 0 0 1292 1037 0 0 0 0 4181	3AIN 0 8831 16618 0 0 0 213 1771 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0					1200 10 1200 LOSS 0 0 0 0 0 0 3 655 7 152 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	S GAIN 0 0 75 291 0 85 0 0 0 0 0 451
ROOM USE EXP. WALL CLG. HT. GRS.WALL AREA GLAZING NORTH EAST SOUTH WEST SVILT. DOORS NET EXPOSED WALL NET EXPOSED WALL NET EXPOSED CLG EXPOSED CLG ON ATTIC EXPOSED CLG EXPOSED FLOOR BASEMENT/CRAWL HEAT LOSS SLAB ON GRADE HEAT LOSS SUB TOTAL HT GAIN LEVEL FACTOR / MULTIPLIER AIR CHANGE HEAT LOSS AIR CHANGE HEAT CAIN DUCT LOSS DUCT GAIN HEAT GAIN PEOPLE HEAT GAIN APPLIANCES/LIGHTS	FACTORS LOSS GAIN 21.8 16.6 21.8 41.8 21.8 41.8 21.8 41.9 35.8 101. 25.8 4.3 4.2 0.7 3.7 0.6 1.3 0.6 2.8 1.3 2.6 0.4	; ; ;		3575			1913	0 71 80 0 0 344 0 0 31 0	49 10 495 LOSS 0 0 1547 1743 0 0 1446 0 0 0 4823 0.24 1168	0 0 1768 3324 0 0 238 0 0 39 0		33	0 0 0 33 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	7 9 63 LOSS 0 0 0 719 0 0 0 126 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	GAIN 0 0 0 822 0 0 0 0 33 3 0 0 875 32 0	0 0 0 0 0 20 101 0 0 0 0	12 10 121 OSS GAIN 0	0 20 65 0 0 50 247 0 0 0	36 111 382 LOSS 0 436 1446 0 0 1292 1037 0 0 0 0 4181 0 0.24 1013	GAIN 0 831 1618 0 0 213 1771 0 0 0 0 22833 103 0 0 0					1200 10 1200 LOSS 0 0 0 0 0 0 3 65 7 152 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	S GAIN 0 0 75 291 0 85 0 0 0 0 0 451
ROOM USE EXP. WALL CLG. HT. GRS.WALL AREA GLAZING NORTH EAST SOUTH WEST SKYLT. DOORS NET EXPOSED WALL NET EXPOSED WALL NET EXPOSED BASH WALL ABOVE GR EXPOSED CLG EXPOSED CLG EXPOSED FLOOR BASEMENT/CRAWL HEAT LOSS SUB TOTAL HT GAIN LEVEL FACTOR / MULTIPLIER AIR CHANGE HEAT LOSS AIR CHANGE HEAT LOSS AIR CHANGE HEAT LOSS DUCT GAIN DUCT GAIN HEAT GAIN PEOPLE	FACTORS LOSS GAIN 21.8 16.6 21.8 41.8 21.8 41.8 21.8 41.9 35.8 101. 25.8 4.3 4.2 0.7 3.7 0.6 1.3 0.6 2.8 1.3 2.6 0.4	; ; ;		3575			1913	0 71 80 0 0 344 0 0 31 0	49 10 495 LOSS 0 0 1547 1743 0 0 0 1446 0 0 0 4823 0 0.24 1168	0 0 1768 3324 0 0 238 0 0 39 0 5369		331	0 0 0 33 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	7 9 63 LOSS 0 719 0 0 126 0 74 0 0 0 919	GAIN 0 0 0 822 0 0 0 21 0 0 33 0 0 0 875	0 0 0 0 0 20 101 0 0 0 0	12	0 20 65 0 0 50 247 0 0 0 0	36 11 382 LOSS 0 436 1446 0 0 0 1292 1037 0 0 0 0 4181 0.24 1013	GAIN 0 831 1618 0 0 213 1771 0 0 0 0 22833 103 0 0 0					1200 10 1200 LOSS 0 0 0 0 0 0 3 655 7 152 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	S GAIN 0 0 75 291 0 85 0 0 0 0 0 451

TOTAL HEAT GAIN BTU/H:

29592

TONS: 2.47

LOSS DUE TO VENTILATION LOAD BTU/H: 1336

STRUCTURAL HEAT LOSS: 33038

TOTAL COMBINED HEAT LOSS BTU/H: 34374



SITE NAME: CENTREFIELD (WEST GORMLEY)

33.29 btu/ft2 375 Finley Ave. Suite 202 Ajax, ON L1S 2E2
CITY OF RICHMONTol: 905.619.2300 Fax: 905.619.2375
BUIL Web: www.hvacdesigns.cal E-mail: info@hvacdesigns.ca

 Q_{9}/Q_{87540}

B	BUILDER:	ROYAL	<u>. PINE HO</u>	MES		TYPE: 2010		DATE: A	Apr-21	GFA:	1742	LO# 8	7540		
						furnace pressure	0.6								
HEATING CFM	875		COO	LING CFM	875	furnace filter	0.05				,	*CARRIER	AFUE = 9	97 %	
TOTAL HEAT LOSS	33,038		TOTAL H	EAT GAIN	29,372	a/c coil pressure	0.2			59TN6/	\-060-14V	600 ⊏	INPUT (BTU/H) = 6		
AIR FLOW RATE CFM	26.48		AIR FLOW F	RATE CFM	29.79	available pressure				FA	N SPEED		OUTPUT (BTU/H) = §	58,000	
						for s/a & r/a	0.35				LOW	820 io	celvn aquilar		
RUN COUNT	4th	3rd	2nd	1st	Bas					N	IEDLOW	875	DESIGN CFM = _	875	_
S/A	0	0	8	6	3	plenum pressure s/a	0.18	r/a pressure	0.17		MEDIUN	0	CFM @ .6	" E.S.P.	
R/A	0	0	4	2	1	max s/a dif press. loss	0.02	r/a grille press. Loss	0.02	MED	UM HIGH	0			
All S/A diffusers 4"x10" un	less noted	d otherw	vise on lay	out.		min adjusted pressure s/a	0.16	adjusted pressure r/a	0.15		HIGH	1520	TEMPERATURE RISE _	61	
All S/A runs 5"Ø unless no	ted other	wise on	layout.			·		· · · · · · · · · · · · · · · · · · ·					· -		

All S/A diffusers 4"x10" unle	ess note	d otherwis	se on layout.		_	min adjusted pressure s/a	0.16	adjusted pressure r/a	0.15			HIGH	1520	Т	EMPERAT	URE RISE	61	°F
All S/A runs 5"Ø unless not	ed other	wise on la	ayout.														-	
RUN #	1	2	4	5	6	7	10	13	14	15	17	18	19	20	21	22		
ROOM NAME	MBR	ENS	BED-	2 BED-3	BED-3	BATH	MBR	K/B/G	K/B/G	K/B/G	LAUND	PWD	FOY	FOY	BAS	BAS		
RM LOSS MBH.	0.86	1.79	2.00	2.56	2.56	0.29	0.86	2.00	2.00	2.00	1.07	1.17	2.60	2.60	2.90	2.90		
CFM PER RUN HEAT	23	47	53	68	68	8	23	53	53	53	28	31	69	69	77	77		
RM GAIN MBH.	1.79	1.51	3.32	3.08	3.08	0.09	1.79	2.69	2.69	2.69	2.02	0.21	1.91	1.91	0.20	0.20		
CFM PER RUN COOLING	53	45	99	92	92	3	53	80	80	80	60	6	57	57	6	6		
ADJUSTED PRESSURE	0.17	0.17	0.16	0.16	0.16	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17		
ACTUAL DUCT LGH.	40	25	48	55	46	29	33	4	19	24	41	22	34	36	24	13		
EQUIVALENT LENGTH	110	130	130	190	170	150	110	150	150	170	190	160	110	130	160	160		
TOTAL EFFECTIVE LENGTH	150	155	178	245	216	179	143	154	169	194	231	182	144	166	184	173		
ADJUSTED PRESSURE	0.11	0.11	0.09	0.07	0.08	0.1	0.12	0.11	0.1	0.09	0.07	0.09	0.12	0.1	0.09	0.1		
ROUND DUCT SIZE	5	4	6	6	6	4	5	5	5	5	5	4	5	5	5	5		
HEATING VELOCITY (ft/min)	169	539	270	347	347	92	169	389	389	389	206	356	507	507	565	565		
COOLING VELOCITY (ft/min)	389	516	505	469	469	34	389	587	587	587	441	69	419	419	44	44		
OUTLET GRILL SIZE	3X10	3X10	4X10	4X10	4X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10	3X10		
TRUNK	С	С	В	Α	Α	В	С	В	С	С	В	В	Α	Α	С	С		

RUN#	25
ROOM NAME	BAS
RM LOSS MBH.	2.90
CFM PER RUN HEAT	77
RM GAIN MBH.	0.20
CFM PER RUN COOLING	6
ADJUSTED PRESSURE	0.17
ACTUAL DUCT LGH.	35
EQUIVALENT LENGTH	120
TOTAL EFFECTIVE LENGTH	155
ADJUSTED PRESSURE	0.11
ROUND DUCT SIZE	5
HEATING VELOCITY (ft/min)	565
COOLING VELOCITY (ft/min)	44
OUTLET GRILL SIZE	3X10
TRUNK	A

SUPPLY AIR TRUNK SIZE																	RETURN A	IR TRUN	K SIZE					
	TRUNK	STATIC	ROUND	RECT			VELOCITY			TRUNK	STATIC	ROUND	RECT			VELOCITY		TRUNK	STATIC	ROUND	RECT			VELOCITY
	CFM	PRESS.	DUCT	DUCT			(ft/min)			CFM	PRESS.	DUCT	DUCT			(ft/min)		CFM	PRESS.	DUCT	DUCT			(ft/min)
TRUNK A	351	0.07	9.8	12	Х	8	527		TRUNK G	0	0.00	0	0	Х	8	0	TRUNK O	0	0.05	0	0	Х	8	0
TRUNK B	524	0.07	11.4	16	Х	8	590		TRUNK H	0	0.00	0	0	Х	8	0	TRUNK P	0	0.05	0	0	Х	8	0
TRUNK C	353	0.09	9.2	10	Х	8	635		TRUNK I	0	0.00	0	0	Х	8	0	TRUNK Q	0	0.05	0	0	Х	8	0
TRUNK D	0	0.00	0	0	Х	8	0		TRUNK J	0	0.00	0	0	Х	8	0	TRUNK R	0	0.05	0	0	Х	8	0
TRUNK E	0	0.00	0	0	Х	8	0		TRUNK K	0	0.00	0	0	Х	8	0	TRUNK S	0	0.05	0	0	Х	8	0
TRUNK F	0	0.00	0	0	Х	8	0		TRUNK L	0	0.00	0	0	Х	8	0	TRUNK T	0	0.05	0	0	Х	8	0
																	TRUNK U	0	0.05	0	0	Х	8	0
																	TRUNK V	0	0.05	0	0	Х	8	0
RETURN AIR #	1	2	3	4	5	6										BR	TRUNK W	0	0.05	0	0	Х	8	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		TRUNK X	770	0.05	14.3	24	Х	8	578
AIR VOLUME	95	85	85	75	330	105	0	0	0	0	0	0	0	0	0	100	TRUNK Y	490	0.05	12.1	18	Х	8	490
PLENUM PRESSURE	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	TRUNK Z	0	0.05	0	0	Х	8	0
ACTUAL DUCT LGH.	57	46	56	55	18	35	1	1	1	1	1	1	1	1	1	14	DROP	875	0.05	15	24	Х	10	525
EQUIVALENT LENGTH	165	205	175	215	190	155	0	0	0	0	0	0	0	0	0	150								
TOTAL EFFECTIVE LH	222	251	231	270	208	190	1	1	1	1	1	1	1	1	1	164								
ADJUSTED PRESSURE	0.07	0.06	0.06	0.05	0.07	0.08	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	14.80	0.09								
ROUND DUCT SIZE	6	6	6	6	9.6	6	0	0	0	0	0	0	0	0	0	5.7								
INLET GRILL SIZE	8	8	8	8	6	6	0	0	0	0	0	0	0	0	0	8								
	X	X	X	X	Х	X	Χ	Х	X	X	Х	X	X	X	Х	X								
INLET GRILL SIZE	14	14	14	14	24	10	0	0	0	0	0	0	0	0	0	14	1							



CITY OF RICHMOND HILTel: 905.619.2300 Fax: 905.619.2375
BUILDING Web Www Macdesigns.ca E-mail: info@hvacdesigns.ca

87540 0 0 / 0 3 / 2 0 2 1

TYPE: 2010
SITE NAME: CENTREFIELD (WEST GORMLEY)

RESIDENTIAL MECHANICAL VENTILATION DESIGN SUMMARY

LO#

RESIDENTIAL MESTIANISAL V	
OMBUSTION APPLIANCES 9.32.3.1(1)	SUPPLEMENTAL VENTILATION CAPACITE CEIVED 9.32.3.
a) Direct vent (sealed combustion) only	Total Ventilation Capacity Per:jocelyn.age_ilar cfm
b) Positive venting induced draft (except fireplaces)	Less Principal Ventil. Capacity 63.6 cfm
c) Natural draft, B-vent or induced draft gas fireplace	Required Supplemental Capacity 53.0 cfm
d) Solid Fuel (including fireplaces)	
e) No Combustion Appliances	PRINCIPAL EXHAUST FAN CAPACITY
,	Model: VANEE 65H Location: BSMT
EATING SYSTEM	63.6 cfm HVI Approve
Forced Air Non Forced Air	PRINCIPAL EXHAUST HEAT LOSS CALCULATION
	CFM ΔT °F FACTOR % LOSS 63.6 CFM X 78 F X 1.08 X 0.25
Electric Space Heat	SUPPLEMENTAL FANS BY INSTALLING CONTRACTOR
OUSE TYPE 9.32.1(2)	Location Model cfm HVI Sones ENS BY INSTALLING CONTRACTOR 50 ✓ 3.5
	BATH BY INSTALLING CONTRACTOR 50 ✓ 3.5
Type a) or b) appliance only, no solid fuel	PWD BY INSTALLING CONTRACTOR 50 ✓ 3.5
II Type I except with solid fuel (including fireplaces)	HEAT RECOVERY VENTILATOR 9.32.3.1
III Any Type c) appliance	Model: VANEE 65H 155 cfm high 64 cfm low
IV Type I, or II with electric space heat	75 % Sensible Efficiency V HVI Approve
Other: Type I, II or IV no forced air	@ 32 deg F (0 deg C)
	City of Richmond
YSTEM DESIGN OPTIONS O.N.H.W.P.	Lot: City of Richmond Concession Building Divi
1 Exhaust only/Forced Air System	Township HVACPREVIEWED
2 HRV with Ducting/Forced Air System	Address
HRV Simplified/connected to forced air system	Roll # Initials:
4 HRV with Ducting/non forced air system	
Part 6 Design	BUILDER: ROYAL PINE HOMES
	Name:
OTAL VENTILATION CAPACITY 9.32.3.3(1)	Address:
Basement + Master Bedroom 2 @ 21.2 cfm 42.4 cfm	City:
Other Bedrooms 2 @ 10.6 cfm 21.2 cfm	Telephone #: Fax #:
Kitchen & Bathrooms <u>4</u> @ 10.6 cfm <u>42.4</u> cfm	INSTALLING CONTRACTOR
Other Rooms1 @ 10.6 cfm1	Name:
Table 9.32.3.A. TOTAL 116.6 cfm	Address:
	City:
RINCIPAL VENTILATION CAPACITY REQUIRED 9.32.3.4.(1)	
1 Bedroom 31.8 cfm	Telephone #: 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.
	. 0.
	Signature: Mehan Offine.
5 Bedroom 95.4 cfm	HRAI# 001820
TOTAL 63.6 cfm	Date: April-21 PROPRIATE CATEGORY AS AN "OTHER DESIGNER" UNDER DIVISION C, 3.2.5 OF THE BUILDING CODE.



LO#: 87540

09/03/2021

RECEIVED

CSA F280-12 Residential Heat Loss and	d Heat Gain Calculations

Builder: ROYAL PINE HOMES

Per: jocelyn.aguilar

Formula Sheet (For Air Leakage / Ventiliation Calculation)

Date: 4/21/2021

ouse Volume			
Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft ³)
Bsmt	777	10	7770
First	777	10	7847.7
Second	978	9	8802
Third	0	9	0
Fourth	0	9	0
		Total:	24,419.7 ft ³
		Total:	691.5 m ³

Model: 2010

Volume Calculation

Air Change & Delta T Data	
WINTER NATURAL AIR CHANGE RATE	0.236
SUMMER NATURAL AIR CHANGE RATE	0.072

Design Temperature Difference											
	Tin °C	Tout °C	ΔT °C	ΔT °F							
Winter DTDh	22	-21	43	78							
Summer DTDc	24	31	7	13							

5.2.3.1 Heat Loss due to Air Leakage

6.2.6 Sensible Gain due to Air Leakage

	$HL_{airb} =$	LR_{airh}	$\times \frac{V_b}{3.6} \times D$	$TD_h \times$	1.2
х	192.08	X	43 °C	х	1.2

$$HG_{salb} = LR_{airc} \times \frac{V_b}{3.6} \times DTD_c \times 1.2$$
0.072 × 192.08 × 7°C × 3.6

= 8032 Btu/h

2354 W

= 401 Btu/h

5.2.3.2 Heat Loss due to Mechanical Ventilation

6.2.7 Sensible heat Gain due to Ventilation

$$HL_{vairb} = PVC \times DTD_h \times 1.08 \times (1 - E)$$

$$HL_{vairb} = PVC \times DTD_h \times 1.08 \times (1 - E)$$

64 CFM

0.236

78 °F x 1.08

1336 Btu/h

64 CFM x 13 °F x 1.08 x 0.25

220 Btu/h

117 W

5.2.3.3 Calculation of Air Change Heat Loss for Each Room (Floor Multiplier Section)

$$HL_{airr} = Level \; Factor \; \times \; HL_{airbv} \; \times \{ \left(HL_{agcr} + \; HL_{bgcr} \right) \div \left(HL_{agclevel} + HL_{bgclevel} \right) \}$$

Level	Level Factor (LF)	HLairve Air Leakage + Ventilation Heat Loss (Btu/h)	Level Conductive Heat Loss: (HL _{clevel})	Air Leakage Heat Loss Multiplier (LF x HLairbv / HLlevel)
1	0.5		4,679	0.858
2	0.3	1	9,946	0.242
3	0.2	8,032	9,708	0.165
4	0		0	0.000
5	0		0	0.000

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PXV

Initials:

0.25

^{*}HLairbv = Air leakage heat loss + ventilation heat loss

^{*}For a balanced or supply only ventilation system HLairve = 0



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 09/03/2021

ASSUMED (Y/N):

MODEL: 2010

SFQT: 1742 **LO#** 87540

BUILDER: ROYAL PINE HOMES

SITE: CENTREFIELD (WEST GORMLEY)

jocelyn.aguilar

DESIGN ASSUMPTIONS

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

BUILDING DATA

AIR CHANGES PER HOUR:

ATTACHMENT: ATTACHED # OF STORIES (+BASEMENT): 3

2.50

ERONT FACES: ASSUMED (Y/N):

WIND EXPOSURE: SHELTERED ASSUMED (Y/N): Y

HOUSE VOLUME (ft³): 24419.7 ASSUMED (Y/N): Y

INTERNAL SHADING: BLINDS/CURTAINS ASSUMED OCCUPANTS: 4

INTERIOR LIGHTING LOAD (Btu/h/ft²): 1.27 DC BRUSHLESS MOTOR (Y/N): Y

FOUNDATION CONFIGURATION BCIN 1 DEPTH BELOW GRADE: 7.0 ft

LENGTH: 52.0 ft WIDTH: 22.0 ft EXPOSED PERIMETER: 120.0 ft

3 ach/hr to be used

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

INDIVIDUAL BCIN: 19669 MICHAEL O'ROURKE





CITY OF RICHMOND HVAC Designs Ltd.
BUILDING D3755Finley Ave, Suite 202

O9/03/202 Ajax ON, L1S 2E2

905-619-2300

RECEIVED

Residential Foundation Thermal Load Calculator

Supplemental tool for CAN/CSA-F280

We	ather Sta	tion Description
Province: Region:	Ontario Richmon	•
region.		escription
Soil Conductivity:		conductivity: dry sand, loam, clay
Water Table:		7-10 m, 23-33 ft)
	•	n Dimensions
Floor Length (m):	15.8	
Floor Width (m):	6.7	
Exposed Perimeter (m):	36.6	
Wall Height (m):	3.0	
Depth Below Grade (m):	2.13	Insulation Configuration
Window Area (m²):	0.9	
Door Area (m²):	1.9	
	Radi	ant Slab
Heated Fraction of the Slab:	0	
Fluid Temperature (°C):	33	
	Desig	n Months
Heating Month	1	
	Founda	tion Loads
Heating Load (Watts):		1156

TYPE: 2010 **LO#** 87540



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

RECEIVED
Per:____jocelyn.aguilar_

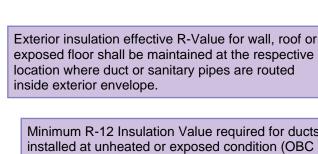
Air Infiltration Residential Load Calculator

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	
L	ocal Shielding	
Building Site:	Suburban, forest	
Walls:	Heavy	
Flue:	Heavy	
Highest Ceiling Height (m):	6.74	
Build	ing Configuration	
Type:	Semi	
Number of Stories:	Two	
Foundation:	Full	
House Volume (m³):	691.5	
Air Le	akage/Ventilation	
Air Tightness Type:	Energy Star Detached (2.5	ACH)
Custom BDT Data:	ELA @ 10 Pa.	645.5 cm ²
	2.50	ACH @ 50 Pa
Mechanical Ventilation (L/s):	Total Supply	Total Exhaust
	30.0	30.0
	Flue Size	
Flue #:	#1 #2 \#3 #4	
Diameter (mm):	0 0 0	
Natura	al Infiltration Rates	
Heating Air Leakage Rate (AC	CH/H): 0.236	
Cooling Air Leakage Rate (AC	cH/H): 0.072	

TYPE: 2010 **LO#** 87540

3 ach to be used



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

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

HRV Unit shall be energy qualified complete with sealed and insulated connection to outdoor vent hoods per Energy Star Technical Specification 4.7.1.2. When HRV is used as principal fan, the controller shall be wired to the HRV Unit and interconnected to the furnace fan. HRV shall be designed for operation at outside temperature of -25°C and a flow of minimum 30 L/s (64 CFM)

This review does not exempt the owner, designer and the builder from complying with all applicable regulations and by-laws of the City of Richmond Hill and the Ontario Building Code.

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

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

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

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

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

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

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

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

Richmond Hill

City of Richmond Hill **Building Division**

REVIEWED

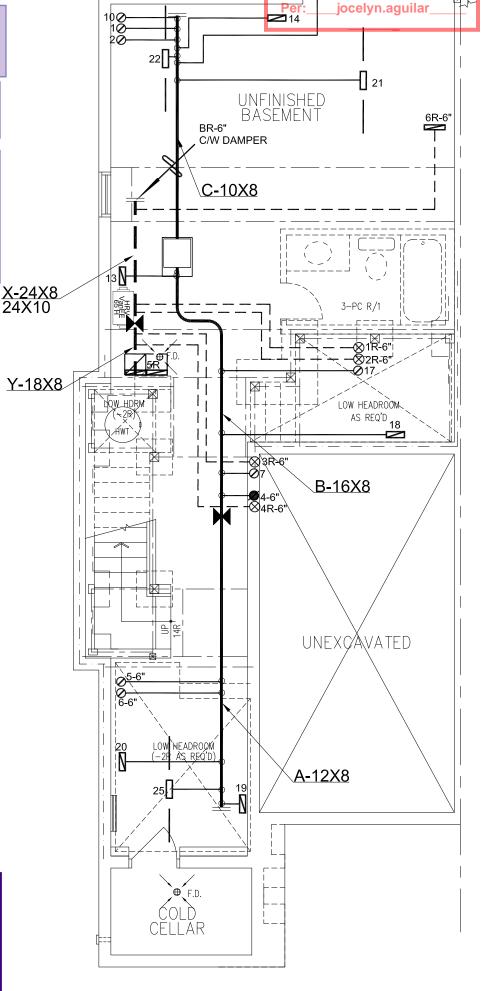
By:_PxV

Date: **SEPT 8/2021**

Building Permit #: **BP#-2021-50734**

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

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



TY OF RICHMOND HILL

BUILDING DIVISION

Ensure that R-Values and U-Values used for heat

loss and heat gain calculations are consistent with the values specified by SB-12 Performance

and the values used for architectural design.

Compliance:___

Energy Modeling/air leak tes

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

SB-12 PERFORMANCE

Tivite Besieve Bib.	AC DESIGNO ETD.									
	HVAC LEGEND									
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	2.	REVISED AS PER ARCHITECTURALS	APR/2021
	SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		14"x8" RETURN AIR GRILLE		RETURN AIR STACK ABOVE	1.	REVISED TO PERFORMANCE	SEPT/2020
	SUPPLY AIR GRILLE 6" BOOT	0	SUPPLY AIR STACK FROM 2nd FLOOR	<u></u>	30"x8" RETURN AIR GRILLE	\bowtie	RETURN AIR STACK 2nd FLOOR	No.	Description	Date
	SUPPLY AIR BOOT ABOVE	25	6" SUPPLY AIR STACK 2nd FLOOR		FRA- FLOOR RETURN AIR GRILLE	X	REDUCER		REVISIONS	

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ROYAL PINE HOMES

Project Name

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

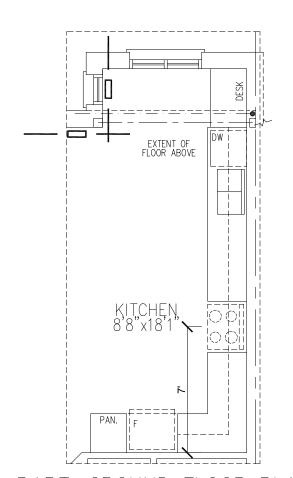
Specializing in Residential Mechanical Design Services

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.

		OSS 34374	BTU/H	# OF RUNS	S/A	R/A	FANS	She
	MAKE	UN I T DATA		3RD FLOOR				
	(CARRIER		2ND FLOOR	8	4	2	
	MODEL 59TI	N6A-060-14\	/	1ST FLOOR	6	2	2	
	INPUT	60	MBTU/H	BASEMENT	3	1	0	Date
	OUTPUT	50	MBTU/H	ALL S/A DIFFU:	SERS	4 "x10)"	Sca
	COOLING	58		UNLESS NOTE				
ре	OOOLING	2.5	TONS	UNLESS NOTE				_
	FAN SPEED	875	cfm @ 0.6" w.c.	ON LAYOUT. U DOORS 1" min.				L

S	Sheet Title							
	BASEMENT							
	HEATING							
_	LAYOUT							
		., (1001						
	Date SEPT/2020							
	Scale	3/16" = 1'-0"						
Ø	В	CIN# 19669						
	LO#	87540						

2010

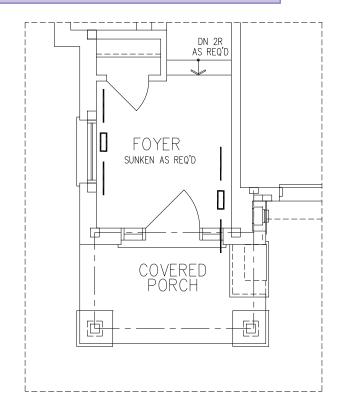


PART. GROUND FLOOR PLAN <u>OPT. KITCHEN</u>LAYOUT

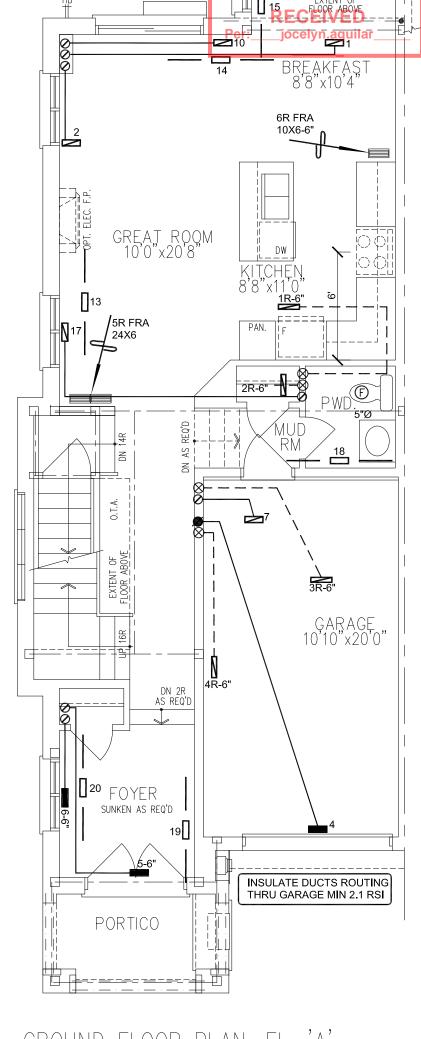
Space between studs and joists used as return ducts shall be separated from unused portion as per OBC 2012 Div.B 6.2.4.7(6)

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

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



GROUND FLOOR PLAN, EL. 'B'



CITY OF RICHMOND HILL BUILDING DIVISION

GROUND FLOOR PLAN, EL. 'A'

EW THE D

CSA-F280-12

SB-12 PERFORMANCE

	HVAC LEGEND									
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	2.	REVISED AS PER ARCHITECTURALS	APR/2021
	SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		14"x8" RETURN AIR GRILLE	N	RETURN AIR STACK ABOVE	1.	REVISED TO PERFORMANCE	SEPT/2020
	SUPPLY AIR GRILLE 6" BOOT	0	SUPPLY AIR STACK FROM 2nd FLOOR		30"x8" RETURN AIR GRILLE	×	RETURN AIR STACK 2nd FLOOR	No.	Description	Date
	SUPPLY AIR BOOT ABOVE	Ø	6" SUPPLY AIR STACK 2nd FLOOR		FRA- FLOOR RETURN AIR GRILLE	X	REDUCER		REVISIONS	

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ROYAL PINE HOMES

Project Name

CENTREFIELD (WEST GORMLEY) RICHMOND HILL, ONTARIO

HVA DESIGNS LTD.

375 Finley Ave. Suite 202 - Ajax, Ontario L1S 2E2 Tel. 905.619.2300 - 905.420.5300 Fax 905.619.2375 Email: info@hvacdesigns.ca Web: www.hvacdesigns.ca

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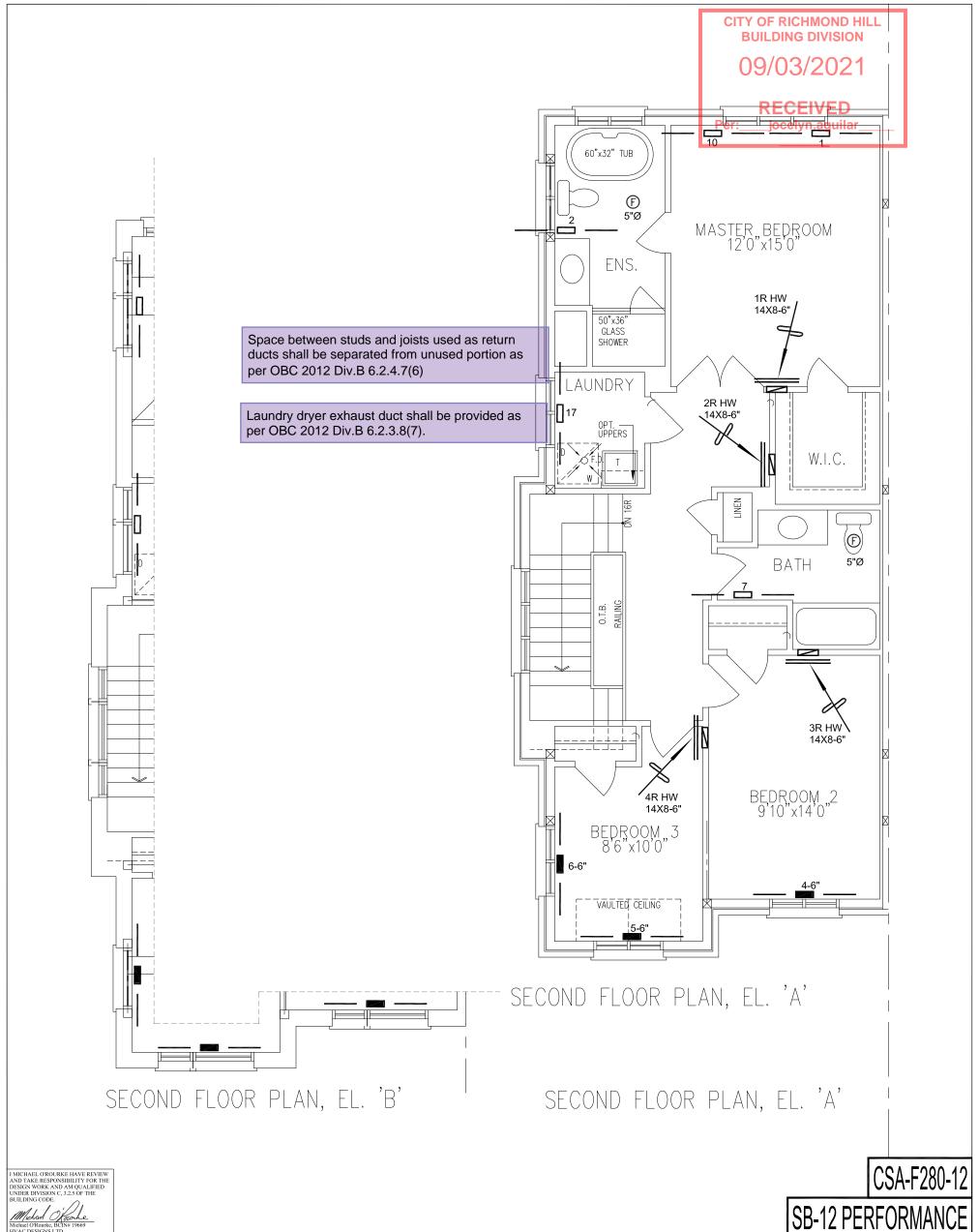
Installation to comply with the latest Ontario Building Code. All supply branch outlets shall be equipped with a manual balancing damper. Ductwork which passes through the garage or unheated spaces shall be adequately insulated and be gas-proofed.

FIRST FLOOR
HEATING
LAYOUT

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

BCIN# 19669 LO# 87540

2010 1742 so



HVAC DESIGNS ETD:										
	HVAC LEGEND									
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	2.	REVISED AS PER ARCHITECTURALS	APR/2021
	SUPPLY AIR GRILLE		6" SUPPLY AIR BOOT ABOVE		14"x8" RETURN AIR GRILLE	N	RETURN AIR STACK ABOVE	1.	REVISED TO PERFORMANCE	SEPT/2020
	SUPPLY AIR GRILLE 6" BOOT	0	SUPPLY AIR STACK FROM 2nd FLOOR		30"x8" RETURN AIR GRILLE	×	RETURN AIR STACK 2nd FLOOR	No.	Description	Date
	SUPPLY AIR BOOT ABOVE	Ø	6" SUPPLY AIR STACK 2nd FLOOR		FRA- FLOOR RETURN AIR GRILLE	X	REDUCER	REVISIONS		

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ROYAL PINE HOMES

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CENTREFIELD (WEST GORMLEY)
RICHMOND HILL, ONTARIO

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SECOND FLOOR HEATING LAYOUT

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

LO# 87540

2010

742 sqf