CITY OF RICHMOND HILL BUILDING DIVISION

03/29/2022

REVISED

Per: Schedule 1: Designer Information



Richmond Hill City of Richmond Hill

Building Division

Use one form for each individual who reviews and takes responsibility for design activities with respect to the part of the pa

A. Project Information					
Building number, street name				Unit no.	Lot/con.
Municipality RICHMOND HILL	Postal code	Plan number/ other desc	cription		
B. Individual who reviews and takes	responsibility fo	r design activities			
Name MICHAEL O'ROURKE		Firm HVAC DESIGNS LTD.			
Street address 375 FINLEY AVE			Unit no. 202		Lot/con. N/A
Municipality AJAX	Postal code L1S 2E2	Province ONTARIO	E-mail info@hvacde	esigns.ca	
Telephone number (905) 619-2300	Fax number (905) 619-2375		Cell number		
C. Design activities undertaken by in	ndividual identific	ed in Section B. [Build	ding Code T	able 3.5.2.1 O	F Division C]
☐ House ☐ Small Buildings ☐ Large Buildings ☐ Complex Buildings		g Services on, Lighting and Pow	u ver □	Building Stru Plumbing – Plumbing – On-site Sew	House
Description of designer's work HEAT LOSS / GAIN CALCULATIONS DUCT SIZING RESIDENTIAL MECHANICAL VENTILATI RESIDENTIAL SYSTEM DESIGN per CSA		Model: ARY Project:	38-12 FIN BSMT WU CENTREFIELD	JB (WEST GORMLE	EY)
D. Declaration of Designer					
I <u>MICHAEL O'ROURKE</u>	rint name)		declare t	that (choose one	e as appropriate):
☐ I review and take responsibility Division C, of the Building Code classes/categories.				section 3.2.4.of appropri	iate
Individual BCIN: Firm BCIN:					
I review and take responsibility designer under subsection 3		m qualified in the appropr n C, of the Building Code		as an "other	
Individual BCIN: Basis for exemption	19669 from registration and	d qualification:	O.B.C SEI	NTENCE 3.2.	4.1 (4)
The design work is exempt Basis for exemption from registr		on and qualification requi		Building Code.	
I certify that:					
 The information contained I have submitted this applic 		ule is true to the best of medge and consent of the f			
March 25, 2022	_		Much	nd Okoun	Le.
Date	_			Signature of	of Designer
					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.

03/29/2022

	REVIS SITE NAME: BUILDER:					VILEY)			TYPE:		MT WU	В			GFA: :	2579			DATE:							HANGE RATE 0.272		IEAT LOS				B-12 PI	CSA-F280-1
Pe	: philiposeroomuse	У			MBR			ENS			WIC			BED-2			BED-3			BED-4			BATH				Е	NS-2		B-BA	TH		
	EXP. WALL				33			21			6			16			35			34			9					9		9			
	CLG. HT.				9			9			9			9			10			9			9					9		10)		
		FACTO																															
	GRS.WALL AREA	LOSS	GAIN		297			189			54			144			350			306			81					81		63			
	GLAZING				LOSS	GAIN		LOSS	GAIN		LOSS	GAIN		LOSS	GAIN		LOSS	GAIN		LOSS	GAIN		LOSS	GAIN			L	OSS GAI	N	LOS	S GAIN	ı	
	NORTH	21.8	15.6	0	0	0	8	174	124	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			8	174 124	4 0	0	0		
	EAST	21.8	40.3	18	392	725	17	370	685	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			0	0 0	0	0	0		
	SOUTH	21.8	24.2	18	392	435	0	0	0	0	0	0	45	980	1088	43	937	1040	0	0	0	7	152	169			0	0 0	0	0	0		
	WEST	21.8	40.3	0	0	0	0	0	0	0	0	0	0	0	0	51	1111	2055	35	762	1410	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	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	0	0	0	0	0	0			0	0 0	0	0	0		
	NET EXPOSED WALL	4.2	0.7	261	1098	181	164	690	113	54	227	37	99	416	68	256	1077	177	271	1140	188	74	311	51			73	307 51	0	0	0		
	NET EXPOSED BSMT WALL ABOVE GR	3.7	0.6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			0	0 0	27	99	16		
	EXPOSED CLG	1.3	0.6	296	389	174	120	158	71	71	93	42	140	184	82	168	221	99	203	267	119	115	151	68			95	125 56	0	0	0		
	NO ATTIC EXPOSED CLG	2.8	1.3	0	0	0	0	0	0	0	0	0	35	98	44	40	112	50	40	112	50	0	0	0			0	0 0	0	0	0		
	EXPOSED FLOOR	2.6	0.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	243	634	104	0	0	0		1	0	0 0	0	0	0		
	BASEMENT/CRAWL HEAT LOSS				0			0			0			0			0			0			0			ĺ		0		270	0	1	
	SLAB ON GRADE HEAT LOSS				0			0			0			0			0			0			0			ĺ		0		0		1	
	SUBTOTAL HT LOSS				2271			1392			320			1679			3457			2916			615			ĺ		606		370	0	1	
	SUB TOTAL HT GAIN					1515			993			79			1283			3421			1871			288		ĺ		23′	1		16	1	
	LEVEL FACTOR / MULTIPLIER			0.20	0.20		0.20	0.20		0.20	0.20		0.20	0.20		0.20	0.20		0.20	0.20		0.20	0.20				0.20		0.50	0.7			
	AIR CHANGE HEAT LOSS				453			278			64			335			689			581			123					121		281	1		
	AIR CHANGE HEAT GAIN					70			46			4			59			159			87			13				11			1		
	DUCT LOSS				0			0			0			0	••		0			350	٥.		0					0		0			
	DUCT GAIN				•	0		•	0		•	0		٠	0		•	0		•••	267		•	0				0		·	0		
	HEAT GAIN PEOPLE	240		2		480	0		0	0		0	1		240	1		240	1		240	0		0			0	0	0		0		
	HEAT GAIN APPLIANCES/LIGHTS			_		470	•		0	•		0			470			470			470	ľ		0			•	0	"		0		
	TOTAL HT LOSS BTU/H				2724	•		1670	•		384	•		2014			4147			3847			737	•				727		651			
	TOTAL HT GAIN x 1.3 BTU/H					3296			1351			108			2668			5576		••••	3815			392				314	4	-	. 22		
						0200			1001			.00			2000			0010			0010			002	l				-				
	ROOM USE				DIN			FAM			KT/BR			LIV			LAUN			PWD			FOY		MUD					WU	В		BAS
	EXP. WALL				19			32			32			35			0																144
	CLG. HT.																			6			16		20					17			
					10			10			10									-			16 10		20 11					17 10)		10
		FACTO	RS		10			10			10			10			9			6 11			16 10		20 11					17 10)		10
		FACTO												10			9			11			10		11					10			
	GRS.WALL AREA				192	GAIN		323	GAIN		323	GAIN		10 354	GAIN		9	GAIN		11	GAIN		10 162	GAIN	11 222					10	0		1008
	GRS.WALL AREA GLAZING	LOSS	GAIN	0	192 LOSS	GAIN 0	۰	323 LOSS		۰	323 LOSS		0	10 354 LOSS	GAIN 0	0	9	GAIN 0		11 67 LOSS	GAIN 109	0	10 162 LOSS		11 222 LOSS GAIN					10 170 LOS	0 SS GAIN	١ 0	1008 LOSS GAI
	GRS.WALL AREA GLAZING NORTH	LOSS 21.8	15.6	0	192 LOSS 0	0	0 24	323 LOSS 0	0	0 62	323 LOSS 0	0	0	10 354 LOSS 0	0	0	9 0 LOSS	0	7	11 67 LOSS 152	109	0	10 162 LOSS 0	0	11 222 LOSS GAIN 0 0 0				0 3	10 170 LOS 0	0 BS GAIN 0	0 3	1008 LOSS GAI 0 0
	GRS.WALL AREA GLAZING NORTH EAST	21.8 21.8	15.6 40.3	0	192 LOSS 0 0	0 0	24	323 LOSS 0 523	0 967	62	323 LOSS 0 1351	0 2498	0	10 354 LOSS 0 0	0	0	9 0 LOSS 0	0	7 0	11 67 LOSS 152 0	109 0	0	10 162 LOSS 0 0	0	11 222 LOSS GAIN 0 0 0 0 0 0				3	170 LOS 0 65	0 SS GAIN 0 5 121	3	1008 LOSS GAI 0 0 65 121
	GRS.WALL AREA GLAZING NORTH EAST SOUTH	21.8 21.8 21.8 21.8	15.6 40.3 24.2	0 49	192 LOSS 0	0 0 1185	24 24	323 LOSS 0 523 523	0 967 581	62 0	323 LOSS 0 1351 0	0 2498 0	0 47	10 354 LOSS 0 0 1024	0 0 1137	0	9 0 LOSS 0	0 0 0	7 0 0	11 67 LOSS 152 0	109 0 0	0 24	10 162 LOSS 0 0 523	0 0 581	11 222 LOSS GAIN 0 0 0 0 0 0 0 0 0				3	10 170 LOS 0 65	0 SS GAIN 0 5 121 0	3	1008 LOSS GAI 0 0 65 121
	GRS.WALL AREA GLAZING NORTH EAST SOUTH WEST	21.8 21.8 21.8 21.8 21.8	15.6 40.3 24.2 40.3	0 49 0	192 LOSS 0 0 1067	0 0 1185 0	24 24 0	323 LOSS 0 523 523 0	0 967 581 0	62 0 0	323 LOSS 0 1351 0	0 2498 0 0	0 47 47	10 354 LOSS 0 0 1024 1024	0 0 1137 1893	0 0	9 0 LOSS 0	0	7 0	11 67 LOSS 152 0 0	109 0 0 0	0 24 0	10 162 LOSS 0 0 523	0 0 581 0	11 222 LOSS GAIN 0 0 0 0 0 0 0 0 0 0 0 0				3 0 0	170 LOS 0 65 0	0 SS GAIN 0 5 121 0 0	3 9 0	1008 LOSS GAI 0 0 65 121 196 218 0 0
	GRS.WALL AREA GLAZING NORTH EAST SOUTH WEST SKYLT.	21.8 21.8 21.8 21.8 21.8 35.8	15.6 40.3 24.2 40.3 101.2	0 49 0 0	192 LOSS 0 0 1067 0	0 0 1185 0	24 24 0 0	323 LOSS 0 523 523 0	0 967 581 0	62 0 0 0	323 LOSS 0 1351 0 0	0 2498 0 0 0	0 47 47 0	10 354 LOSS 0 0 1024 1024	0 0 1137 1893 0	0 0 0	9 0 LOSS 0 0 0	0 0 0 0	7 0 0 0	11 67 LOSS 152 0 0	109 0 0 0	0 24 0 0	10 162 LOSS 0 0 523 0	0 0 581 0	11 222 LOSS GAIN 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0				3 0 0	100 170 LOS 0 65 0 0	0 SS GAIN 0 5 121 0 0	3 9 0	1008 LOSS GAI 0 0 65 121 196 218 0 0
	GRS.WALL AREA GLAZING NORTH EAST SOUTH WEST SKYLT. DOORS	21.8 21.8 21.8 21.8 21.8 35.8 25.8	15.6 40.3 24.2 40.3 101.2 4.3	0 49 0 0	192 LOSS 0 0 1067 0 0	0 0 1185 0 0	24 24 0 0	323 LOSS 0 523 523 0 0	0 967 581 0 0	62 0 0 0 0	323 LOSS 0 1351 0 0	0 2498 0 0 0	0 47 47 0	10 354 LOSS 0 0 1024 1024 0	0 0 1137 1893 0 0	0 0 0 0	9 0 LOSS 0	0 0 0 0	7 0 0 0 0	11 67 LOSS 152 0 0 0	109 0 0 0 0	0 24 0 0 40	10 162 LOSS 0 0 523 0 0	0 0 581 0 0	11 222 LOSS GAIN 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 20 517 85				3 0 0 0 20	100 170 0 65 0 0 0	0 SS GAIN 0 121 0 0 0	3 9 0 0 20	1008 LOSS GAI 0 0 65 121 196 218 0 0 0 0
	GRS.WALL AREA GLAZING NORTH EAST SOUTH WEST SKYLT. DOORS NET EXPOSED WALL	21.8 21.8 21.8 21.8 21.8 25.8 4.2	15.6 40.3 24.2 40.3 101.2 4.3 0.7	0 49 0 0 0 143	192 LOSS 0 0 1067 0	0 0 1185 0 0 0 99	24 24 0 0 0 275	323 LOSS 0 523 523 0	0 967 581 0 0 0	62 0 0 0 0 261	323 LOSS 0 1351 0 0 0 0	0 2498 0 0 0 0	0 47 47 0 0 260	10 354 LOSS 0 0 1024 1024 0 0	0 0 1137 1893 0 0	0 0 0 0 0	9 0 LOSS 0 0 0	0 0 0 0 0	7 0 0 0 0 0	11 67 LOSS 152 0 0 0 0	109 0 0 0 0 0 0	0 24 0 0 40 98	10 162 LOSS 0 0 523 0 0 1034 410	0 0 581 0 0 170 68	11 222 LOSS GAIN 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 20 517 85 202 849 140				3 0 0 0 20 147	100 170 LOS 0 65 0 0 0 517 618	0 SS GAIN 0 121 0 0 0 7 85 8 102	3 9 0 0 20	1008 LOSS GAI 0 0 65 121 196 218 0 0 0 0 517 85 0 0
	GRS.WALL AREA GLAZING NORTH EAST SOUTH WEST SKYLT. DOORS NET EXPOSED WALL NET EXPOSED WALL	21.8 21.8 21.8 21.8 35.8 25.8 4.2 3.7	15.6 40.3 24.2 40.3 101.2 4.3 0.7 0.6	0 49 0 0 0 143	192 LOSS 0 0 1067 0 0 0	0 0 1185 0 0 0 99	24 24 0 0 0 275 0	323 LOSS 0 523 523 0 0 0 1157	0 967 581 0 0 0 190	62 0 0 0 0 261 0	323 LOSS 0 1351 0 0 0 0 1098	0 2498 0 0 0 0 0 181	0 47 47 0 0 260	10 354 LOSS 0 0 1024 1024 0 0 1091 0	0 0 1137 1893 0 0 180	0 0 0 0 0 0 0	9 0 LOSS 0 0 0 0 0	0 0 0 0 0	7 0 0 0 0 0 0 60	11 67 LOSS 152 0 0 0 0 0 251	109 0 0 0 0 0 41	0 24 0 0 40 98 0	10 162 LOSS 0 0 523 0 0 1034 410	0 0 581 0 0 170 68 0	11 222 LOSS GAIN 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 20 517 85 202 849 140 0 0 0				3 0 0 0 20 147 0	100 170 0 65 0 0 0	0 SS GAIN 0 121 0 0 0 7 85 8 102 0	3 9 0 0 20 0 432	1008 LOSS GAI 0 0 65 121 196 218 0 0 0 0 517 85 0 0 1591 262
	GRS.WALL AREA GLAZING NORTH EAST SOUTH WEST SKYLT. DOORS NET EXPOSED WALL NET EXPOSED BSMT WALL ABOVE GR EXPOSED CLG	21.8 21.8 21.8 21.8 35.8 25.8 4.2 3.7 1.3	15.6 40.3 24.2 40.3 101.2 4.3 0.7 0.6 0.6	0 49 0 0 0 143 0	192 LOSS 0 0 1067 0 0 601 0	0 0 1185 0 0 0 99 0	24 24 0 0 0 275 0	323 LOSS 0 523 523 0 0 0 1157 0	0 967 581 0 0 0 190 0	62 0 0 0 0 261 0	323 LOSS 0 1351 0 0 0 0 1098 0	0 2498 0 0 0 0 181 0	0 47 47 0 0 260 0	10 354 LOSS 0 0 1024 1024 0 0 1091 0	0 0 1137 1893 0 0 180 0	0 0 0 0 0 0 0	9 0 LOSS 0 0 0 0 0 0	0 0 0 0 0 0 0	7 0 0 0 0 0 0 60 0	11 67 LOSS 152 0 0 0 0 251 0	109 0 0 0 0 0 41 0	0 24 0 0 40 98 0	10 162 LOSS 0 0 523 0 0 1034 410 0	0 0 581 0 0 170 68 0	11 222 LOSS GAIN 0 0 0 0 0 0 0 0 0 0 0 0 20 517 85 202 849 140 0 0 0 0				3 0 0 0 20 147 0	100 170 0 65 0 0 517 618 0	0 SS GAIN 0 5 121 0 0 0 7 85 8 102 0	3 9 0 0 20 0 432 0	1008 LOSS GAI 0 0 65 121 196 218 0 0 0 0 517 85 0 0 1591 262 0 0
	GRS.WALL AREA GLAZING NORTH EAST SOUTH WEST SKYLT. DOORS NET EXPOSED WALL NET EXPOSED CLG NO ATTIC EXPOSED CLG	21.8 21.8 21.8 21.8 35.8 25.8 4.2 3.7 1.3 2.8	15.6 40.3 24.2 40.3 101.2 4.3 0.7 0.6 0.6 1.3	0 49 0 0 0 143 0	192 LOSS 0 0 1067 0 0 601 0	0 0 1185 0 0 0 99	24 24 0 0 0 275 0 0	323 LOSS 0 523 523 0 0 0 1157 0	0 967 581 0 0 0 190 0	62 0 0 0 0 261 0 0	323 LOSS 0 1351 0 0 0 0 1098 0	0 2498 0 0 0 0 181 0	0 47 47 0 0 260 0	10 354 LOSS 0 0 1024 1024 0 0 1091 0	0 0 1137 1893 0 0 180 0	0 0 0 0 0 0 0 0 82	9 0 LOSS 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 48	7 0 0 0 0 0 0 60 0	11 67 LOSS 152 0 0 0 0 251 0	109 0 0 0 0 0 41 0	0 24 0 0 40 98 0 0	10 162 LOSS 0 0 523 0 0 1034 410 0 0	0 0 581 0 0 170 68 0 0	11 222 LOSS GAIN 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 20 517 85 202 849 140 0 0 0 0 0 0 0 0 0				3 0 0 0 20 147 0 0	100 170 0 65 0 0 517 618 0	0 SS GAIN 0 6 121 0 0 0 7 85 8 102 0	3 9 0 0 20 0 432 0	1008 LOSS GAI 0 0 65 127 196 218 0 0 0 0 517 85 0 0 1591 262 0 0 0 0
	GRS.WALL AREA GLAZING NORTH EAST SOUTH WEST SKYLT. DOORS NET EXPOSED WALL NET EXPOSED BAMWALL ABOVE GR EXPOSED CLG NO ATTIC EXPOSED CLG EXPOSED FLOOR	21.8 21.8 21.8 21.8 35.8 25.8 4.2 3.7 1.3	15.6 40.3 24.2 40.3 101.2 4.3 0.7 0.6 0.6	0 49 0 0 0 143 0	192 LOSS 0 0 1067 0 0 601 0	0 0 1185 0 0 0 99 0	24 24 0 0 0 275 0	323 LOSS 0 523 523 0 0 0 1157 0 0	0 967 581 0 0 0 190 0	62 0 0 0 0 261 0	323 LOSS 0 1351 0 0 0 0 1098 0 0	0 2498 0 0 0 0 181 0	0 47 47 0 0 260 0	10 354 LOSS 0 0 1024 1024 0 0 1091 0	0 0 1137 1893 0 0 180 0	0 0 0 0 0 0 0	9 0 LOSS 0 0 0 0 0 0 0 0 0 108 0	0 0 0 0 0 0 0	7 0 0 0 0 0 0 60 0	11 67 LOSS 152 0 0 0 0 251 0 0	109 0 0 0 0 0 41 0	0 24 0 0 40 98 0	10 162 LOSS 0 523 0 1034 410 0 0	0 0 581 0 0 170 68 0	11 222 LOSS GAIN 0 0 0 0 0 0 0 0 0 0 0 0 20 517 85 202 849 140 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0				3 0 0 0 20 147 0	100 170 0 65 0 0 517 618 0	0 SS GAIN 0 6 121 0 0 0 7 85 8 102 0	3 9 0 0 20 0 432 0	1008 LOSS GAI 0 0 0 65 121 196 218 0 0 0 517 85 0 0 0 1591 262 0 0 0 0 0
	GRS.WALL AREA GLAZING NORTH EAST SOUTH WEST SKYLT. DOORS NET EXPOSED WALL NET EXPOSED BSMT WALL ABOVE GR EXPOSED CLG NO ATTIC EXPOSED FLOOR BASEMENT/CRAWL HEAT LOSS	21.8 21.8 21.8 21.8 35.8 25.8 4.2 3.7 1.3 2.8	15.6 40.3 24.2 40.3 101.2 4.3 0.7 0.6 0.6 1.3	0 49 0 0 0 143 0	192 LOSS 0 0 1067 0 0 601 0 0	0 0 1185 0 0 0 99 0	24 24 0 0 0 275 0 0	323 LOSS 0 523 523 0 0 0 1157 0 0	0 967 581 0 0 0 190 0	62 0 0 0 0 261 0 0	323 LOSS 0 1351 0 0 0 1098 0 0 0	0 2498 0 0 0 0 181 0	0 47 47 0 0 260 0	10 354 LOSS 0 0 1024 1024 0 0 1091 0 0	0 0 1137 1893 0 0 180 0	0 0 0 0 0 0 0 0 82	9 0 LOSS 0 0 0 0 0 0 0 0 108 0 196	0 0 0 0 0 0 0 0 48	7 0 0 0 0 0 0 60 0	11 67 LOSS 152 0 0 0 0 0 251 0 0	109 0 0 0 0 0 41 0	0 24 0 0 40 98 0 0	10 162 LOSS 0 0 523 0 1034 410 0 0 0	0 0 581 0 0 170 68 0 0	11 222 LOSS GAIN 0 0 0 0 0 0 0 0 0 0 0 0 0 0				3 0 0 0 20 147 0 0	100 170 LOS 0 65 0 0 517 618 0 0 0 0	0 SS GAIN 0 121 0 0 7 85 8 102 0 0	3 9 0 0 20 0 432 0	1008 LOSS GAI 0 0 65 127 196 218 0 0 0 0 517 85 0 0 1591 262 0 0 0 0
	GRS.WALL AREA GLAZING NORTH EAST SOUTH WEST SKYLT. DOORS NET EXPOSED WALL NET EXPOSED WALL NET EXPOSED CLG NO ATTIC EXPOSED CLG EXPOSED CLG SEXPOSED CLG SEXPOSED CLOR EXPOSED CLOR EXPOSED CLOR BASEMENTICRAWL HEAT LOSS SLAB ON GRADE HEAT LOSS	21.8 21.8 21.8 21.8 35.8 25.8 4.2 3.7 1.3 2.8	15.6 40.3 24.2 40.3 101.2 4.3 0.7 0.6 0.6 1.3	0 49 0 0 0 143 0	192 LOSS 0 0 1067 0 0 601 0 0 0	0 0 1185 0 0 0 99 0	24 24 0 0 0 275 0 0	323 LOSS 0 523 523 0 0 1157 0 0 0	0 967 581 0 0 0 190 0	62 0 0 0 0 261 0 0	323 LOSS 0 1351 0 0 0 1098 0 0 0	0 2498 0 0 0 0 181 0	0 47 47 0 0 260 0	10 354 LOSS 0 0 1024 1024 0 0 1091 0 0 0	0 0 1137 1893 0 0 180 0	0 0 0 0 0 0 0 0 82	9 0 LOSS 0 0 0 0 0 0 0 108 0 196 0	0 0 0 0 0 0 0 0 48	7 0 0 0 0 0 0 60 0	11 67 LOSS 152 0 0 0 0 251 0 0 0	109 0 0 0 0 0 41 0	0 24 0 0 40 98 0 0	10 162 LOSS 0 0 523 0 0 1034 410 0 0 0 0	0 0 581 0 0 170 68 0 0	11 222 LOSS GAIN 0				3 0 0 0 20 147 0 0	100 1770 0 0 655 0 0 0 0 517 618 0 0 0 0	0 SS GAIN 0 0 121 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	3 9 0 0 20 0 432 0	1008 LOSS GAI 0 0 0 65 12: 196 218 0 0 0 517 85 0 0 0 1591 262 0 0 0 4832
	GRS.WALL AREA GLAZING NORTH EAST SOUTH WEST SKYLT. DOORS NET EXPOSED WALL NET EXPOSED WALL NET EXPOSED CLG EXPOSED CLG EXPOSED FLOOR BASEMENT/CRAWL HEAT LOSS SLAB ON GRADE HEAT LOSS SUBTOTAL HT LOSS	21.8 21.8 21.8 21.8 35.8 25.8 4.2 3.7 1.3 2.8	15.6 40.3 24.2 40.3 101.2 4.3 0.7 0.6 0.6 1.3	0 49 0 0 0 143 0	192 LOSS 0 0 1067 0 0 601 0 0	0 0 1185 0 0 0 99 0 0	24 24 0 0 0 275 0 0	323 LOSS 0 523 523 0 0 0 1157 0 0	0 967 581 0 0 190 0 0	62 0 0 0 0 261 0 0	323 LOSS 0 1351 0 0 0 1098 0 0 0 0 0	0 2498 0 0 0 0 181 0 0	0 47 47 0 0 260 0	10 354 LOSS 0 0 1024 1024 0 0 1091 0 0	0 0 1137 1893 0 0 180 0 0 0	0 0 0 0 0 0 0 0 82	9 0 LOSS 0 0 0 0 0 0 0 0 108 0 196	0 0 0 0 0 0 0 48 0 32	7 0 0 0 0 0 0 60 0	11 67 LOSS 152 0 0 0 0 0 251 0 0	109 0 0 0 0 0 41 0 0	0 24 0 0 40 98 0 0	10 162 LOSS 0 0 523 0 1034 410 0 0 0	0 0 581 0 0 170 68 0 0	11 222 LOSS GAIN 0 0 0 0 0 0 0 0 0 0 0 0 20 517 85 202 849 140 0 0 0 0 0 0 0 0 0 1366				3 0 0 0 20 147 0 0	100 170 LOS 0 65 0 0 517 618 0 0 0 0	0 SS GAIN 0 0 121 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	3 9 0 0 20 0 432 0	1008 LOSS GAI 0 0 0 65 12: 196 21E 0 0 0 0 0 517 85 0 0 0 1591 26: 0 0 0 4832
	GRS.WALL AREA GLAZING NORTH EAST SOUTH WEST SKYLT. DOORS NET EXPOSED WALL NET EXPOSED BMT WALL ABOVE GR EXPOSED CLG NO ATTIC EXPOSED CLG BASEMENTICRAWL HEAT LOSS SLAB ON GRADE HEAT LOSS SUB TOTAL HT CAIN	21.8 21.8 21.8 21.8 35.8 25.8 4.2 3.7 1.3 2.8	15.6 40.3 24.2 40.3 101.2 4.3 0.7 0.6 0.6 1.3	0 49 0 0 0 143 0 0 0	192 LOSS 0 0 1067 0 0 601 0 0 0 0	0 0 1185 0 0 0 99 0	24 24 0 0 0 275 0 0 0	323 LOSS 0 523 523 0 0 0 1157 0 0 0 0 2203	0 967 581 0 0 0 190 0	62 0 0 0 0 261 0 0	323 LOSS 0 1351 0 0 0 1098 0 0 0 0 0 0	0 2498 0 0 0 0 181 0	0 47 47 0 0 260 0 0	10 354 LOSS 0 0 1024 1024 0 0 1091 0 0 0 0 3139	0 0 1137 1893 0 0 180 0	0 0 0 0 0 0 0 0 82 0 75	9 0 LOSS 0 0 0 0 0 0 0 108 0 196 0 0	0 0 0 0 0 0 0 0 48	7 0 0 0 0 0 60 0 0	11 67 LOSS 152 0 0 0 0 251 0 0 0 0 403	109 0 0 0 0 0 41 0	0 24 0 0 40 98 0 0 0	10 162 LOSS 0 0 523 0 0 1034 410 0 0 0 0 1967	0 0 581 0 0 170 68 0 0	11 222 LOSS GAIN 0 0 0 0 0 0 0 0 0 0 0 0 20 517 85 202 849 140 0 0 0 0 0 0 0 0 0 1366 225				3 0 0 0 20 147 0 0	100 1770 0 0 655 0 0 0 0 517 618 0 0 0 0	0 SS GAIN 0 0 121 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	3 9 0 20 0 432 0 0	1008 LOSS GAI 0 0 0 0 65 12: 196 218 0 0 0 0 517 85 0 0 0 1591 26: 0 0 0 4832 7202 688
	GRS.WALL AREA GLAZING NORTH EAST SOUTH WEST SKYLT. DOORS NET EXPOSED WALL NET EXPOSED WALL NET EXPOSED CLG EXPOSED CLG EXPOSED CLG EXPOSED FLOOR BASEMENT/CRAWL HEAT LOSS SLAB ON GRADE HEAT LOSS SUBTOTAL HT GAIN LEVEL FACTOR / MULTIPLIER	21.8 21.8 21.8 21.8 35.8 25.8 4.2 3.7 1.3 2.8	15.6 40.3 24.2 40.3 101.2 4.3 0.7 0.6 0.6 1.3	0 49 0 0 0 143 0	192 LOSS 0 0 1067 0 0 601 0 0 0 0 1668	0 0 1185 0 0 0 99 0 0	24 24 0 0 0 275 0 0	323 LOSS 0 523 523 0 0 1157 0 0 0 0 2203	0 967 581 0 0 190 0 0	62 0 0 0 0 261 0 0	323 LOSS 0 1351 0 0 0 0 1098 0 0 0 0 2449	0 2498 0 0 0 0 181 0 0	0 47 47 0 0 260 0 0	10 354 LOSS 0 0 1024 1024 0 0 1091 0 0 0 0 3139	0 0 1137 1893 0 0 180 0 0 0	0 0 0 0 0 0 0 0 82 0 75	9 0 LOSS 0 0 0 0 0 0 0 108 0 196 0 304	0 0 0 0 0 0 0 48 0 32	7 0 0 0 0 0 60 0 0	111 67 LOSS 152 0 0 0 251 0 0 0 403	109 0 0 0 0 0 41 0 0	0 24 0 0 40 98 0 0 0	10 162 LOSS 0 0 523 0 0 1034 410 0 0 0 1967	0 0 581 0 0 170 68 0 0	11 222 LOSS GAIN 0 0 0 0 0 0 0 0 0 0 0 0 20 517 85 202 849 140 0 0 0 0 0 0 1366 225 0.30 0.31				3 0 0 0 20 147 0 0	100 1770 0 0 655 0 0 0 0 517 618 0 0 0 0	0 SS GAIN 0 0 121 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	3 9 0 0 20 0 432 0	1008 LOSS GAI 0 0 0 65 12: 196 218 0 0 0 517 85 0 0 0 1591 262 0 0 0 4832 7202 688
	GRS.WALL AREA GLAZING NORTH EAST SOUTH WEST SKYLT. DOORS NET EXPOSED WALL NET EXPOSED BMT WALL ABOVE GR EXPOSED CLG NO 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	21.8 21.8 21.8 21.8 35.8 25.8 4.2 3.7 1.3 2.8	15.6 40.3 24.2 40.3 101.2 4.3 0.7 0.6 0.6 1.3	0 49 0 0 0 143 0 0 0	192 LOSS 0 0 1067 0 0 601 0 0 0 0	0 0 1185 0 0 0 99 0 0 0	24 24 0 0 0 275 0 0 0	323 LOSS 0 523 523 0 0 0 1157 0 0 0 0 2203	0 967 581 0 0 0 190 0 0 0	62 0 0 0 0 261 0 0	323 LOSS 0 1351 0 0 0 1098 0 0 0 0 0 0	0 2498 0 0 0 0 181 0 0 0	0 47 47 0 0 260 0 0	10 354 LOSS 0 0 1024 1024 0 0 1091 0 0 0 0 3139	0 0 1137 1893 0 0 180 0 0 0	0 0 0 0 0 0 0 0 82 0 75	9 0 LOSS 0 0 0 0 0 0 0 108 0 196 0 0	0 0 0 0 0 0 0 48 0 32	7 0 0 0 0 0 60 0 0	11 67 LOSS 152 0 0 0 0 251 0 0 0 0 403	109 0 0 0 0 0 41 0 0 0	0 24 0 0 40 98 0 0 0	10 162 LOSS 0 0 523 0 0 1034 410 0 0 0 0 1967	0 0 581 0 0 170 68 0 0 0	11 222 LOSS GAIN 0 0 0 0 0 0 0 0 0 0 0 0 20 517 85 202 849 140 0 0 0 0 0 0 1366 225 0.30 0.31				3 0 0 0 20 147 0 0	100 1770 0 0 655 0 0 0 0 517 618 0 0 0 0	0 SS GAIN 0 0 121 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	3 9 0 20 0 432 0 0	1008 LOSS GAI 0 0 0 65 121 196 218 0 0 0 517 85 0 0 0 1591 262 0 0 0 4832 7202 688 0.76 6478
	GRS.WALL AREA GLAZING NORTH EAST SOUTH WEST SKYLT. DOORS NET EXPOSED WALL NET EXPOSED WALL NET EXPOSED CLG EXPOSED CLG EXPOSED FLOOR BASEMENT/CRAWL HEAT LOSS SUB TOTAL HT GAIN LEVEL FACTOR MULTIPLIER AIR CHANGE HEAT LOSS AIR CHANGE HEAT COSA	21.8 21.8 21.8 21.8 35.8 25.8 4.2 3.7 1.3 2.8	15.6 40.3 24.2 40.3 101.2 4.3 0.7 0.6 0.6 1.3	0 49 0 0 0 143 0 0 0	192 LOSS 0 0 1067 0 0 601 0 0 0 0 1668	0 0 1185 0 0 0 99 0 0	24 24 0 0 0 275 0 0 0	323 LOSS 0 523 523 0 0 0 1157 0 0 0 2203	0 967 581 0 0 190 0 0	62 0 0 0 0 261 0 0	323 LOSS 0 1351 0 0 0 0 1098 0 0 0 0 0 2449	0 2498 0 0 0 0 181 0 0	0 47 47 0 0 260 0 0	10 354 LOSS 0 0 1024 1024 0 0 0 0 0 0 0 0 0 3139	0 0 1137 1893 0 0 180 0 0 0	0 0 0 0 0 0 0 0 82 0 75	9 0 LOSS 0 0 0 0 0 0 0 0 0 108 0 0 196 0 0 304	0 0 0 0 0 0 0 48 0 32	7 0 0 0 0 0 60 0 0	11 67 LOSS 152 0 0 0 0 0 251 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	109 0 0 0 0 0 41 0 0	0 24 0 0 40 98 0 0 0	10 162 LOSS 0 0 523 0 1034 410 0 0 0 1967	0 0 581 0 0 170 68 0 0	11 222 LOSS GAIN 0 0 0 0 0 0 0 0 0 0 0 0 20 517 85 202 849 140 0 0 0 0 0 0 0 0 0 1366 225 0.30 0.31				3 0 0 0 20 147 0 0	100 1770 0 0 655 0 0 0 0 517 618 0 0 0 0	0 SS GAIN 0 0 121 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	3 9 0 20 0 432 0 0	1008 GAI 0 0 0 65 12: 196 218 0 0 0 517 85 0 0 0 1591 26: 0 0 0 4832 7202 688 0.76 6478
	GRS.WALL AREA GLAZING NORTH EAST SOUTH WEST SKYLT. DOORS NET EXPOSED WALL NET EXPOSED UGA NO ATTIC EXPOSED CLG EXPOSED FLOOR BASEMENTICRAWL HEAT LOSS SUB TOTAL HT LOSS SUB TOTAL HT GAIN LEVEL FACTOR / MULTIPLIER AIR CHANGE HEAT GAIN DUCT LOSS	21.8 21.8 21.8 21.8 35.8 25.8 4.2 3.7 1.3 2.8	15.6 40.3 24.2 40.3 101.2 4.3 0.7 0.6 0.6 1.3	0 49 0 0 0 143 0 0 0	192 LOSS 0 0 1067 0 0 601 0 0 0 0 1668	0 0 1185 0 0 99 0 0 0	24 24 0 0 0 275 0 0 0	323 LOSS 0 523 523 0 0 1157 0 0 0 0 2203	0 967 581 0 0 0 190 0 0 0	62 0 0 0 0 261 0 0	323 LOSS 0 1351 0 0 0 0 1098 0 0 0 0 2449	0 2498 0 0 0 181 0 0 0 2678	0 47 47 0 0 260 0 0	10 354 LOSS 0 0 1024 1024 0 0 1091 0 0 0 0 3139	0 0 1137 1893 0 0 180 0 0 0 3210	0 0 0 0 0 0 0 0 82 0 75	9 0 LOSS 0 0 0 0 0 0 0 108 0 196 0 304	0 0 0 0 0 0 0 0 0 48 0 32	7 0 0 0 0 0 60 0 0	111 67 LOSS 152 0 0 0 251 0 0 0 403	109 0 0 0 0 41 0 0 0	0 24 0 0 40 98 0 0 0	10 162 LOSS 0 0 523 0 0 1034 410 0 0 0 1967	0 0 581 0 0 170 68 0 0 0	11 222 LOSS GAIN 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 20 517 85 202 849 140 0 0 0 0 0 0 0 0 0 1366 225 0.30 0.31 420 0 0				3 0 0 0 20 147 0 0	100 1770 0 0 655 0 0 0 0 517 618 0 0 0 0	0 SS GAIN 0 0 121 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	3 9 0 20 0 432 0 0	1008 LOSS GAI 0 0 0 0 65 12: 196 218 0 0 0 517 85 0 0 1591 26: 0 0 0 4832 7202 688 0.76 6478 46
	GRS.WALL AREA GLAZING NORTH EAST SOUTH WEST SKYLT. DOORS NET EXPOSED WALL NET EXPOSED WALL NET EXPOSED CLG EXPOSED CLG EXPOSED CLG EXPOSED FLOOR BASEMENT/CRAWL HEAT LOSS SLAB ON GRADE HEAT LOSS SUBTOTAL HT CANN LEVEL FACTOR / MULTIPLIER AIR CHANGE HEAT LOSS AIR CHANGE HEAT LOSS AIR CHANGE HEAT LOSS DUCT GAIN	21.8 21.8 21.8 21.8 35.8 35.8 4.2 3.7 1.3 2.8 2.6	15.6 40.3 24.2 40.3 101.2 4.3 0.7 0.6 0.6 1.3	0 49 0 0 0 143 0 0 0	192 LOSS 0 0 1067 0 0 601 0 0 0 0 1668	0 0 1185 0 0 0 99 0 0 0 0	24 24 0 0 0 275 0 0 0	323 LOSS 0 523 523 0 0 0 1157 0 0 0 2203	0 967 581 0 0 0 190 0 0 0 1738	62 0 0 0 0 261 0 0 0	323 LOSS 0 1351 0 0 0 0 1098 0 0 0 0 0 2449	0 2498 0 0 0 0 181 0 0 0 0	0 47 47 0 0 260 0 0 0	10 354 LOSS 0 0 1024 1024 0 0 0 0 0 0 0 0 0 3139	0 0 1137 1893 0 0 180 0 0 0 3210	0 0 0 0 0 0 0 0 0 82 0 75	9 0 LOSS 0 0 0 0 0 0 0 0 0 108 0 0 196 0 0 304	0 0 0 0 0 0 0 0 48 0 32	7 0 0 0 0 0 0 60 0 0 0	11 67 LOSS 152 0 0 0 0 0 251 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	109 0 0 0 0 0 41 0 0 0	0 24 0 0 40 98 0 0 0	10 162 LOSS 0 0 523 0 1034 410 0 0 0 1967	0 0 581 0 0 170 68 0 0 0 0	11 222 LOSS GAIN 0 0 0 0 0 0 0 0 0 0 0 0 20 517 85 202 849 140 0 0 0 0 0 0 1366 225 0.30 0.31 420 0 0 0 0 0 0 0 0 0 0 0 0 0 0				3 0 0 0 20 147 0 0 0	100 1770 0 0 655 0 0 0 0 517 618 0 0 0 0	0 0 0 0 0 0 1211 0 0 0 0 0 0 0 0 0 0 0 0	3 9 0 0 20 0 432 0 0	1008 LOSS GAI 0 0 0 65 121 196 218 0 0 0 517 85 0 0 0 1591 265 0 0 0 4832 7202 688 0.76 6478 46 0 0
	GRS.WALL AREA GLAZING NORTH EAST SOUTH WEST SKYLT. DOORS NET EXPOSED WALL NET EXPOSED BMT WALL ABOVE GR EXPOSED CLG NO 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 GAIN DUCT LOSS DUCT GAIN HEAT GAIN PEOPLE	21.8 21.8 21.8 21.8 35.8 25.8 4.2 3.7 1.3 2.8	15.6 40.3 24.2 40.3 101.2 4.3 0.7 0.6 0.6 1.3	0 49 0 0 0 143 0 0 0	192 LOSS 0 0 1067 0 0 601 0 0 0 0 1668	0 0 1185 0 0 0 99 0 0 0 0	24 24 0 0 0 275 0 0 0	323 LOSS 0 523 523 0 0 0 1157 0 0 0 2203	0 967 581 0 0 0 190 0 0 0 0	62 0 0 0 0 261 0 0	323 LOSS 0 1351 0 0 0 0 1098 0 0 0 0 0 2449	0 2498 0 0 0 181 0 0 0 2678	0 47 47 0 0 260 0 0	10 354 LOSS 0 0 1024 1024 0 0 0 0 0 0 0 0 0 3139	0 0 11137 1893 0 0 180 0 0 0 0 0 149	0 0 0 0 0 0 0 0 82 0 75	9 0 LOSS 0 0 0 0 0 0 0 0 0 108 0 0 196 0 0 304	0 0 0 0 0 0 0 0 48 0 32	7 0 0 0 0 0 60 0 0	11 67 LOSS 152 0 0 0 0 0 251 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	109 0 0 0 0 0 41 0 0 0 0	0 24 0 0 40 98 0 0 0	10 162 LOSS 0 0 523 0 1034 410 0 0 0 1967	0 0 581 0 0 170 68 0 0 0 0	11 222 LOSS GAIN 0				3 0 0 0 20 147 0 0	100 1770 0 0 655 0 0 0 0 517 618 0 0 0 0	0 0	3 9 0 20 0 432 0 0	1008 LOSS GAI 0 0 0 65 121 196 218 0 0 0 517 85 0 0 0 1591 262 0 0 0 4832 7202 688 0.76 6478 46 0 0 0
	GRS.WALL AREA GLAZING NORTH EAST SOUTH WEST SKYLT. DOORS NET EXPOSED WALL NET EXPOSED WALL NET EXPOSED CLG EXPOSED CLG EXPOSED FLOOR BASEMENT/CRAWL HEAT LOSS SUB TOTAL HT GAIN LEVEL FACTOR MULTIPLIER AIR CHANGE HEAT LOSS AIR CHANGE HEAT COSS DUCT GAIN HEAT GAIN PEOPLE HEAT GAIN APPLIANCES/LIGHTS	21.8 21.8 21.8 21.8 35.8 35.8 25.8 4.2 3.7 1.3 2.8 2.6	15.6 40.3 24.2 40.3 101.2 4.3 0.7 0.6 0.6 1.3	0 49 0 0 0 143 0 0 0	192 LOSS 0 0 1067 0 0 0 0 0 0 0 0 1668 0.31 513	0 0 1185 0 0 0 99 0 0 0 0	24 24 0 0 0 275 0 0 0 0	323 LOSS 0 523 523 0 0 0 1157 0 0 0 0 2203 0.31 677	0 967 581 0 0 0 190 0 0 0 1738	62 0 0 0 0 261 0 0 0	323 LOSS 0 1351 0 0 0 0 1098 0 0 0 0 0 2449 0 0.31 753	0 2498 0 0 0 0 181 0 0 0 0	0 47 47 0 0 260 0 0 0	10 354 LOSS 0 0 1024 1024 0 0 1091 0 0 0 3139 0.31	0 0 1137 1893 0 0 180 0 0 0 3210	0 0 0 0 0 0 0 0 0 82 0 75	9 0 LOSS 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 48 0 32	7 0 0 0 0 0 0 60 0 0 0	111 67 LOSS 152 0 0 0 251 0 0 403 0.31 124	109 0 0 0 0 0 41 0 0 0	0 24 0 0 40 98 0 0 0	10 162 LOSS 0 0 523 0 0 1034 410 0 0 0 1967 0.31 605	0 0 581 0 0 170 68 0 0 0 0	11 222 LOSS GAIN 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 20 517 85 202 849 140 0 0 0 0 0 0 0 0 0 1366 225 0.30 0.31 420 0 0 0 0 0 0 0 0 0 0 0 0 0 0				3 0 0 0 20 147 0 0 0	100 1700 0 655 0 0 0 0 517 618 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	3 9 0 0 20 0 432 0 0	1008 GAI 0 0 0 0 65 12: 196 218 0 0 0 517 85 0 0 0 1591 26: 0 0 0 4832 7202 688 0.76 6478 46 0 0 0 470
	GRS.WALL AREA GLAZING NORTH EAST SOUTH WEST SKYLT. DOORS NET EXPOSED WALL NET EXPOSED BMT WALL ABOVE GR EXPOSED CLG NO 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 GAIN DUCT LOSS DUCT GAIN HEAT GAIN PEOPLE	21.8 21.8 21.8 21.8 35.8 35.8 25.8 4.2 3.7 1.3 2.8 2.6	15.6 40.3 24.2 40.3 101.2 4.3 0.7 0.6 0.6 1.3	0 49 0 0 0 143 0 0 0	192 LOSS 0 0 1067 0 0 601 0 0 0 0 1668	0 0 1185 0 0 0 99 0 0 0 0	24 24 0 0 0 275 0 0 0 0 0	323 LOSS 0 523 523 0 0 0 1157 0 0 0 2203	0 967 581 0 0 0 190 0 0 0 0	62 0 0 0 0 261 0 0 0 0	323 LOSS 0 1351 0 0 0 0 1098 0 0 0 0 0 2449	0 2498 0 0 0 181 0 0 0 2678	0 47 47 0 0 260 0 0 0	10 354 LOSS 0 0 1024 1024 0 0 0 0 0 0 0 0 0 3139	0 0 11137 1893 0 0 180 0 0 0 0 0 149	0 0 0 0 0 0 0 0 0 82 0 75	9 0 LOSS 0 0 0 0 0 0 0 0 0 108 0 0 196 0 0 304	0 0 0 0 0 0 0 0 48 0 32	7 0 0 0 0 0 0 60 0 0 0	11 67 LOSS 152 0 0 0 0 0 251 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	109 0 0 0 0 0 41 0 0 0 0	0 24 0 0 40 98 0 0 0	10 162 LOSS 0 0 523 0 1034 410 0 0 0 1967	0 0 581 0 0 170 68 0 0 0 0	11 222 LOSS GAIN 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 20 517 85 202 849 140 0 0 0 0 0 0 1366 225 0.30 0.31 420 0 0 1786				3 0 0 0 20 147 0 0 0	100 1770 0 0 655 0 0 0 0 517 618 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	3 9 0 0 20 0 432 0 0 0	1008 LOSS GAI 0 0 0 65 121 196 218 0 0 0 517 85 0 0 0 1591 262 0 0 0 4832 7202 688 0.76 6478 46 0 0 0

TOTAL HEAT GAIN BTU/H:

36758 TONS: 3.06

LOSS DUE TO VENTILATION LOAD BTU/H: 1670

STRUCTURAL HEAT LOSS: 49539

TOTAL COMBINED HEAT LOSS BTU/H: 51208

Mehal Oxombe.



03/29/2022

PEVISE BU Per: philipheating cfm. TOTAL HEAT LOSS AIR FLOW RATE CFM RUN COUNT S/A R/A	UILDER: 49,539 23.11 4th 0	ROYAL 3rd 0 0	TOTAL HAIR FLOW F	MES PLING CFM REAT GAIN RATE CFM 1st 10 3	1145 36,484		ple max	furr a/c coil vailable for enum pre s/a dif p	pressure nace filter pressure pressure s/a & r/a essure s/a ress. loss	0.6 0.05 0.2 0.35 0.18 0.02		grille pre	DATE:	0.17 0.02			ME N	*** 060-14V SPEED LOW EDLOW MEDIUM MHIGH	*CARRIE 60 820 0 1145 0		OUTPUT	_	60,000 58,000 1145 6 " E.S.P.	/
All S/A diffusers 4"x10" unless not		wise on I	ayout.				min adjı		ssure s/a	0.16			ssure r/a		45	40	47	HIGH	1520		EMPERAT			°F
RUN # ROOM NAME RM LOSS MBH. CFM PER RUN HEAT RM GAIN MBH. CFM PER RUN COOLING ADJUSTED PRESSURE ACTUAL DUCT LGH. EQUIVALENT LENGTH TOTAL EFFECTIVE LENGTH ADJUSTED PRESSURE ROUND DUCT SIZE HEATING VELOCITY (fl/min) COOLING VELOCITY (fl/min) OUTLET GRILL SIZE TRUNK	1 MBR 1.36 31 1.65 52 0.17 39 160 199 0.09 5 228 382 3X10 D	2 ENS 1.67 39 1.35 42 0.17 58 170 228 0.08 5 286 308 3X10 D	3 WIC 0.38 9 0.11 3 0.17 35 130 165 0.1 4 103 34 3X10 D	4 BED-2 2.01 47 2.67 84 0.16 63 160 223 0.07 6 428 4X10 C	5 BED-3 2.07 48 2.79 87 0.16 67 190 257 0.06 6 245 444 4X10 B	6 BED-4 1.92 44 1.91 60 0.17 66 160 226 0.08 5 323 441 3X10 C	BATH 0.74 17 0.39 12 0.17 61 220 281 0.06 4 195 138 3X10 B	8 BED-3 2.07 48 2.79 87 0.16 68 190 258 0.06 6 245 444 4X10 B	9 BED-4 1.92 44 1.91 60 0.17 69 170 239 0.07 5 323 441 3X10 C	10 MBR 1.36 31 1.65 52 0.17 49 140 189 0.09 5 228 382 3X10 A	11 ENS-2 0.73 17 0.31 10 0.17 23 170 193 0.09 4 195 115 3X10 E	12 DIN 2.18 50 2.36 74 0.17 37 150 187 0.09 5 367 543 3X10 C	13 FAM 1.44 33 1.49 47 0.17 38 120 158 0.11 5 242 345 3X10 A	14 KT/BR 1.60 37 2.13 67 0.17 20 90 110 0.16 5 272 492 3X10 E	15 KT/BR 1.60 37 2.13 67 0.17 26 120 146 0.12 5 272 492 3X10 D	16 LIV 2.05 47 2.49 78 0.17 60 130 190 0.09 6 240 398 4X10 B	17 LAUN 0.40 9 0.79 25 0.17 52 140 192 0.09 4 103 287 3X10 C	18 PWD 0.53 12 0.20 6 0.17 6 120 126 0.14 4 138 69 3X10 E	19 FOY 2.57 59 1.11 35 0.17 52 170 222 0.08 5 433 257 3X10 B	20 MUD 1.79 41 0.31 10 0.17 17 100 117 0.15 4 470 115 3X10 E	21 BAS 3.75 87 0.49 15 0.16 25 110 135 0.12 6 444 76 4X10 E	22 BAS 3.75 87 0.49 15 0.16 46 130 176 0.09 6 444 76 4X10 A	23 B-BATH 0.65 15 0.02 1 0.17 37 130 167 0.1 4 172 11 3X10 C	24 BAS 3.75 87 0.49 15 0.16 56 130 186 0.09 6 444 76 4X10 B
RUN # ROOM NAME RM LOSS MBH. CFM PER RUN HEAT RM GAIN MBH. CFM PER RUN COOLING ADJUSTED PRESSURE ACTUAL DUCT LGH. EQUIVALENT LENGTH TOTAL EFFECTIVE LENGTH ADJUSTED PRESSURE ROUND DUCT SIZE HEATING VELOCITY (ft/min) COOLING VELOCITY (ft/min) OUTLET GRILL SIZE TRUNK	25 LIV 2.05 47 2.49 78 0.17 59 140 199 0.09 6 240 398 4X10 B	26 FAM 1.44 33 1.49 47 0.17 29 130 159 0.11 5 242 345 3X10 A	27 BAS 3.75 87 0.49 15 0.16 27 140 0.1 6 444 76 4X10 A									HV	AC		ity of R Build VIE\	ding D	ivision							
SUPPLY AIR TRUNK SIZE	TRUNK	STATIC	ROUND	RECT			VELOCITY			TRUNK	STATIC	ROUND	RECT			VELOCITY	RETURN A	AIR TRUNK	K SIZE STATIC	ROUND	RECT			VELOCITY
TRUNK A TRUNK B TRUNK C TRUNK D TRUNK E TRUNK F	271 353 562 949	PRESS. 0.09 0.06 0.06 0.06 0.06 0.00	8.3 10.2 12.1 14.8 15.8	10 12 20 26 30 0	x x x x x	8 8 8 8 8	(ft/min) 488 530 506 657 686 0		TRUNK G TRUNK H TRUNK I TRUNK J TRUNK K TRUNK L	0 0 0 0 0 0	PRESS. 0.00 0.00 0.00 0.00 0.00 0.00	DUCT 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	DUCT 0 0 0 0 0 0 0 0 0 0	x x x x x	8 8 8 8 8	(ft/min) 0 0 0 0 0	TRUNK O TRUNK P TRUNK Q TRUNK R TRUNK S TRUNK T TRUNK U TRUNK U	CFM 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	PRESS. 0.05 0.05 0.05 0.05 0.05 0.05 0.05 0	DUCT 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	DUCT 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	x x x x x	8 8 8 8 8	(ft/min) 0 0 0 0 0 0 0 0
RETURN AIR # AIR VOLUME PLENUM PRESSURE ACTUAL DUCT LGH. EQUIVALENT LENGTH TOTAL EFFECTIVE LH ADJUSTED PRESSURE ROUND DUCT SIZE INLET GRILL SIZE INLET GRILL SIZE	1 0 140 0.15 45 155 200 0.07 6.9 8 X 14	2 0 115 0.15 67 205 272 0.05 7 8 X 14	3 0 115 0.15 75 250 325 0.05 7 8 X	4 0 75 0.15 64 225 289 0.05 6 8 X	5 0 75 0.15 72 255 327 0.05 6 8 X	6 0 165 0.15 31 175 206 0.07 7.4 6 X	7 0 135 0.15 49 275 324 0.05 7.5 8 X	8 0 155 0.15 58 170 228 0.06 7.5 6 X	0 0 0.15 1 0 1 14.80 0 0 X	0 0 0.15 1 0 1 14.80 0 0 X	0 0 0.15 1 0 1 14.80 0 0 X	0 0 0.15 1 0 1 14.80 0 0 0 X	0 0 0.15 1 0 1 14.80 0 0 X	0 0 0.15 1 0 1 14.80 0 0 X	0 0 0.15 1 0 1 14.80 0 0 X	170 0.15 14 135 149 0.10 6.8 8 X	TRUNK V TRUNK W TRUNK X TRUNK Y TRUNK Z DROP	0 1145 670 155 1145	0.05 0.05 0.05 0.05 0.05 0.05	0 16.6 13.6 7.8 16.6	0 32 22 8 24	x x x x x	8 8 8 8 8 10	0 644 548 349 687

03/29/2022

TYPE: VISESITE NAME:

38-12

CENTREFIELD (WEST GORMLEY)

LO# 87663 Web: www.hvacdesigns.ca E-mail: info@hvacdesigns.ca

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

FIN BSMT WUB RESIDENTIAL MECHANICAL VENTILATION DESIGN SUMMARY

COMBUSTION APPLIANCES			9.32.3.1(1)	SUPPLEMI	ENTAL VENTILA	ATION CAPACITY			9.32.3.
a) Direct vent (sealed consideration)	City	of Rich	mond Hil	Total Ventil	ation Capacity		190.8		cfm
b) Positive venting induced draft (e	ixcept illeplaces)		g Divisior	Less Princi	pal Ventil. Capad	city	79.5	_	cfm
c) Natural draft, B-vent of induced	C REV	IEW	ED	Required S	upplemental Cap	pacity	111.3	_	cfm
d) Solid Fuel (including fireplaces)	F	PXV							
e) No Combustion Appliances	S:			PRINCIPAL	_ EXHAUST FAN	N CAPACITY			
,				Mod	lel:	VANEE 65H	Location:		BSMT
HEATING SYSTEM				79	.5 cfm			✓	HVI Approve
✓ Forced Air	Non Forced	Air		PRINCIPAL CF		AT LOSS CALCULATIO	ON FACTOR		% LOSS
				79.5			X 1.08	Х	0.25
Electric Space Heat				SUPPLEMI	ENTAL FANS	BY IN	STALLING CON	TRACT	OR
WOULD TYPE			2 22 4/2	Loca		Model	cfm	HVI	Sones
HOUSE TYPE			9.32.1(2)	EN BA		INSTALLING CONTRACTOR INSTALLING CONTRACTOR		✓ ✓	3.5 3.5
✓ I Type a) or b) applia	ince only, no solid	fuel		ENS		INSTALLING CONTRACTOR		✓	3.5
				PW	D BY	INSTALLING CONTRACTOR	50	✓	3.5
II Type I except with s	solid fuel (including	l fireplaces)	HEAT REC	OVERY VENTIL	ATOR			9.32.3.1
III Any Type c) appliar	nce			Mod		VANEE 65H			0.02.0
				15	5	cfm high	64		cfm low
IV Type I, or II with ele	ectric space heat			75	5 0	% Sensible Efficiency		1	HVI Approve
Other: Type I, II or IV no forced	air			,		2) 32 deg F (0 deg C)		النبا	TIVIAppiove
				LOCATION	OF INSTALLA	TION			
SYSTEM DESIGN OPTIONS			O.N.H.W.P.	200/11/01					
				Lot:			Concession		
1 Exhaust only/Force	d Air System			Township			Plan:		
2 HRV with Ducting/F	orced Air System								
✓ 3 HRV Simplified/con	nected to forced ai	r system		Address					
4 HRV with Ducting/r	on forced air syste	m		Roll #			Building Per	mit #	
				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	3 @ 10.6 cfm		cfm	Telephone	#-		Fax#:		
Kitchen & Bathrooms	6 @ 10.6 cfm		cfm		IG CONTRACTO	NP.	T GA II.		
_	5 @ 10.6 cfm		cfm	Name:	io con macre	,			
Table 9.32.3.A.	TOTAL	190.8	cfm	Address:					
PRINCIPAL VENTILATION CAPACITY REQ	UIRED		9.32.3.4.(1)	City:					
				Telephone	#:		Fax#:		
1 Bedroom		31.8	cfm	DESIGNER	CERTIFICATIO	N			
2 Bedroom		47.7	cfm	I hereby ce	rtify that this ven	tilation system has bee irio Building Code.	n designed		
3 Bedroom		63.6	cfm	Name:		HVAC Designs Ltd.			
4 Bedroom		79.5	cfm	Signature:		Mhe	had Ofound	e.	
5 Bedroom		95.4	cfm	HRAI#			001820		
TO	TAI 70.5	cfm		Date:			March-22		



REVISED

Per: philipose.varkey

			CSA F2	80-12 Residential Hea	at Loss and Heat Gain	Calculations				
			Form	ula Sheet (For Air Lea	kage / Ventiliation Ca	alculation)				
LO#: 8	37663	Model: 38-12		Builde	r: ROYAL PINE HOMES				Date:	3/25/2022
		Volume Calculatio	n			P	ir Change & Delt	a T Data		
				1		LAURITED ALAT		5.5.4.75		
use Volume	Floor Area (ft2)	Flaggettaight (ft)	\/ala /f±3\				URAL AIR CHANG		0.272	
Level	Floor Area (ft²) 1121	Floor Height (ft) 10	Volume (ft³) 11210			SUMMER NA	TURAL AIR CHANG	JE RATE	0.085	
Bsmt First	1121	10	11322.1							
Second	1458	9	13122				Design Te	mperature Diff	erence	
Third	0	9	0				Tin °C	Tout °C	ΔT°C	ΔT °F
Fourth	0	9	0			Winter DTDh	22	-21	43	78
	-	Total:	35,654.1 ft ³			Summer DTDc	24	31	7	13
		Total:	1009.6 m³				Į.			-
	5.2.3.	.1 Heat Loss due to A	r Leakage			6.2.6 S	ensible Gain due	to Air Leakage		
0.272		$LR_{airh} \times \frac{V_b}{3.6} \times I$ $\times 43 ^{\circ}C$		= 3962 W = 13519 Btu/h	H = 0.085	$IG_{salb} = LR_{airc} \times $ $\times $ $\times $ $\times $ $\times $ $\times $ $\times $. = =	203 W 693 Btu/h
	5.2.3.2 Hea	t Loss due to Mechar	ical Ventilation			6.2.7 Sen	sible heat Gain d	ue to Ventilatio	n	
80 CFM	$HL_{vairb} = 1$ x 78 °F	$PVC \times DTD_h \times 1$	$1.08 \times (1 - E)$ x 0.25	= 1670 Btu/h	HL ₁	$vairb = PVC \times DT$	$^{\text{T}}D_h \times 1.08 \times $ x 1.08		=	275 Btu/h
									_'	
			5.2.3.3 Calcula	tion of Air Change Heat	Loss for Each Room (Floo	or Multiplier Section)				
		HL_a	_{irr} = Level Fact	·	$(L_{agcr} + HL_{bgcr}) \div$	$(HL_{agclevel} + HL_{b}$	$_{gclevel})\}$			
		Level	Level Factor (LF)	HLairve Air Leakage + Ventilation Heat Loss (Btu/h)	Level Conductive Heat Loss: (HL _{clevel})	Air Leakage Heat Los HLairbv / H				
		1	0.5		8,878	0.761				
		2	0.3		13,196	0.307	7			
		3	0.2	13,519	13,560	0.199)			
		4	0		0	0.000)			
			0	1	0	0.000				



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HEAT LOSS AND GAIN SUMMARY SHEET

MODEL: 38-12 FIN BSMT WUB BUILDER: ROYAL PINE HOMES
SFQT: 2579 LO# 87663 SITE: CENTREFIELD (WEST GORMLEY)

DESIGN	ASSUM	1PTIONS
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DESIGN ASSUMPTIONS			
HEATING OUTDOOR DESIGN TEMP. INDOOR DESIGN TEMP. BUILDING DATA	°F -6 72	COOLING OUTDOOR DESIGN TEMP. INDOOR DESIGN TEMP. (MAX 75°F)	°F 88 75
ATTACHMENT:	DETACHED	# OF STORIES (+BASEMENT):	3
FRONT FACES:	EAST	ASSUMED (Y/N):	Υ
AIR CHANGES PER HOUR:	2.50	ASSUMED (Y/N):	Υ
AIR TIGHTNESS CATEGORY:	TIGHT	ASSUMED (Y/N):	Υ
WIND EXPOSURE:	SHELTERED	ASSUMED (Y/N):	Υ
HOUSE VOLUME (ft³):	35654.1	ASSUMED (Y/N):	Υ
INTERNAL SHADING:	BLINDS/CURTAINS	ASSUMED OCCUPANTS:	5
INTERIOR LIGHTING LOAD (B	tu/h/ft²): 1.27	DC BRUSHLESS MOTOR (Y/N):	Υ
FOUNDATION CONFIGURATION	ON BCIN_1	DEPTH BELOW GRADE:	7.0 ft
LENGTH: 53.0 ft	WIDTH: 32.0 ft	EXPOSED PERIMETER:	153.0 ft

	P. L.	City of Richmond Hill		
2012 OBC - COMPLIANCE PACKAGE Component	HVAC	Building Division REVIEWED	Compliance SB-12 PERI	e Package FORMANCE
			Nominal	Min. Eff.
Ceiling with Attic Space Minimum RSI (R)-Value	Initials:	PXV	60	59.20
Ceiling Without Attic Space Minimum RSI (R)-Value	IIIIIIais.		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	ade Minimun	n RSI (R)-Value	-	-
Edge of Below Grade Slab ≤ 600 mm Below Grade M	inimum RSI (R)-Value	10	10
Heated Slab or Slab ≤ 600 mm below grade Minimur	n RSI (R)-Valı	ıe	10	11.13
Windows and Sliding Glass Doors Maximum U-Value	<u> </u>		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

We	eather Sta	tion Description
Province:	Ontario	-
Region:	Richmon	d Hill
	Site D	escription
Soil Conductivity:	Normal o	conductivity: dry sand, loam, clay
Water Table:	Normal (7-10 m, 23-33 ft)
	Foundatio	n Dimensions
Floor Length (m):	16.2	
Floor Width (m):	9.8	
Exposed Perimeter (m):	46.6	
Wall Height (m):	3.0	
Depth Below Grade (m):	2.13	Insulation Configuration
Window Area (m²):	1.4	
Door Area (m²):	3.7	
	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):		1495

TYPE: 38-12 **LO#** 87663

FIN BSMT WUB





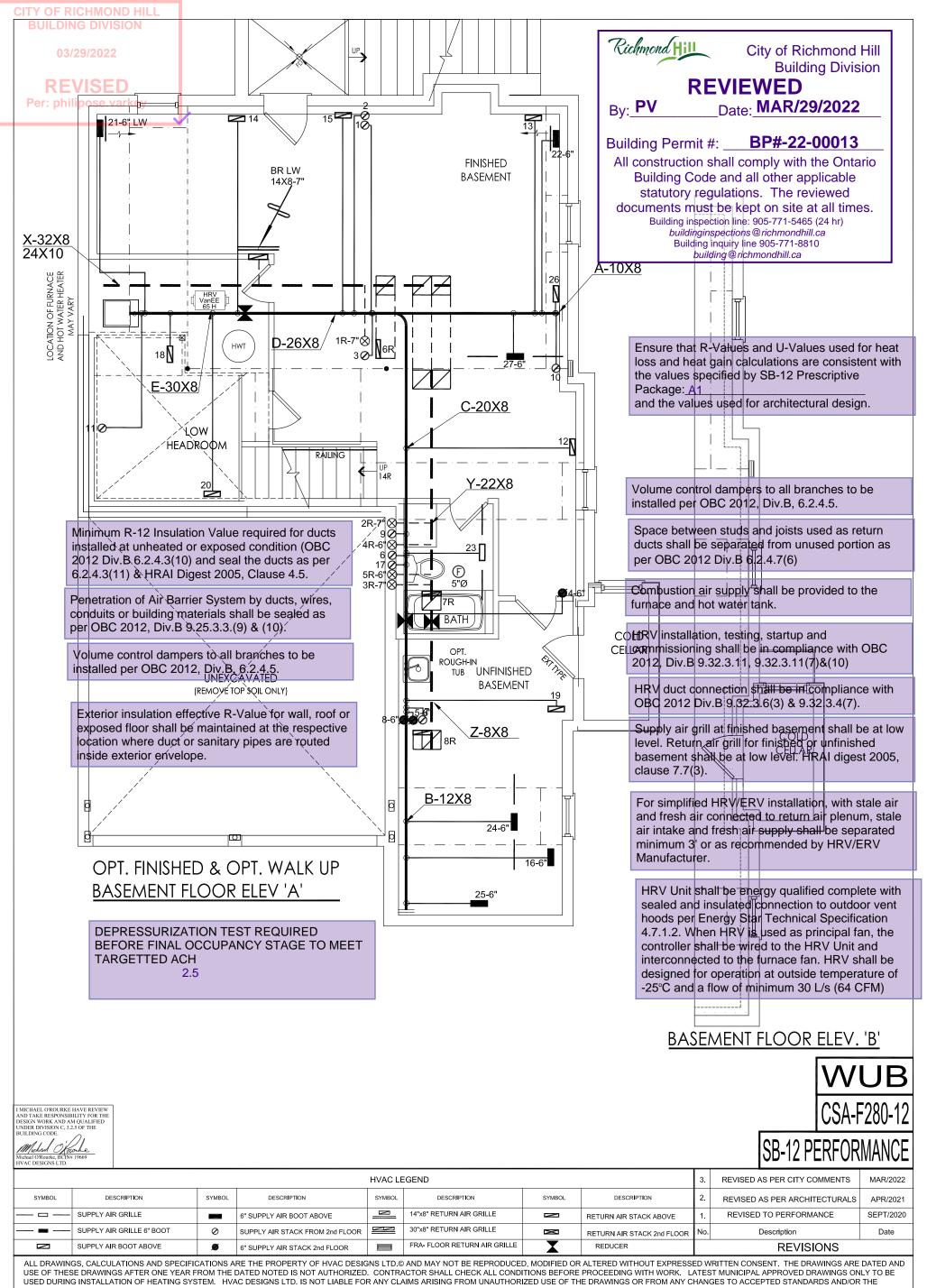
Air Infiltration Residential Load Calculator

Supplemental tool for CAN/CSA-F280

Weather S	tation Description		
Province:	Ontario		
Region:	Richmond Hill		
Weather Station Location:	Open flat terrain, gra	Richmond Hill City of Rich	
Anemometer height (m):	10	HVAC REVIEW	Division
	al Shielding	HVAC KEVIEW	EU
Building Site:	Suburban, forest	Initials:	
Walls:	Heavy	IIIIIais	
Flue:	Heavy		
Highest Ceiling Height (m):	8.84		
Building	g Configuration		
Type:	Detached		
Number of Stories:	Two		
Foundation:	Full		
House Volume (m³):	1009.6		
Air Leaka	age/Ventilation		
Air Tightness Type:	Energy Star Detache	d (2.5 ACH)	
Custom BDT Data:	ELA @ 10 Pa.	942.5 cm ²	
	2.50	ACH @ 50 Pa	
Mechanical Ventilation (L/s):	Total Supply	Total Exhaust	
	37.5	37.5	
F	·lue Size		
Flue #:	#1 #2 #3	#4	
Diameter (mm):	0 0 0	0	
Natural I	nfiltration Rates		
Heating Air Leakage Rate (ACH,	/H): 0.272		
Cooling Air Leakage Rate (ACH/	/H): 0.085		

TYPE: 38-12 **LO#** 87663

FIN BSMT WUB



ONTARIO BUILDING CODE

HEAT LOSS 51208 BTILLH # OF DUNC S/A D/A FANC Sheet Title

ROYAL PINE HOMES

Project Name

CENTREFIELD (WEST GORMLEY) RICHMOND HILL, ONTARIO

FIN BSMT WUB 38-12

2579 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.

HEAT LOSS 51200	, БТО/П	# OF RUNS	S/A	R/A	FANS	
UN I T DATA	١	3RD FLOOR				
MAKE						
CARRIER		2ND FLOOR	12	5	4	
MODEL						
59SP5A-60-14	4	1ST FLOOR	10	2	2	
INPUT	A ADTILIU		_			Dat
60	MBTU/H	BASEMENT	5	1	1	
OUTPUT	MBTU/H	ALL S/A DIFFU	SERS	4 "v10		Sca
58	INID TO/TT	UNLESS NOTE				
COOLING	TONS	ON LAYOUT. A				
3.0	. 0140	UNLESS NOTE	D OTH	HERW	ISE	

ON LAYOUT. UNDERCUT

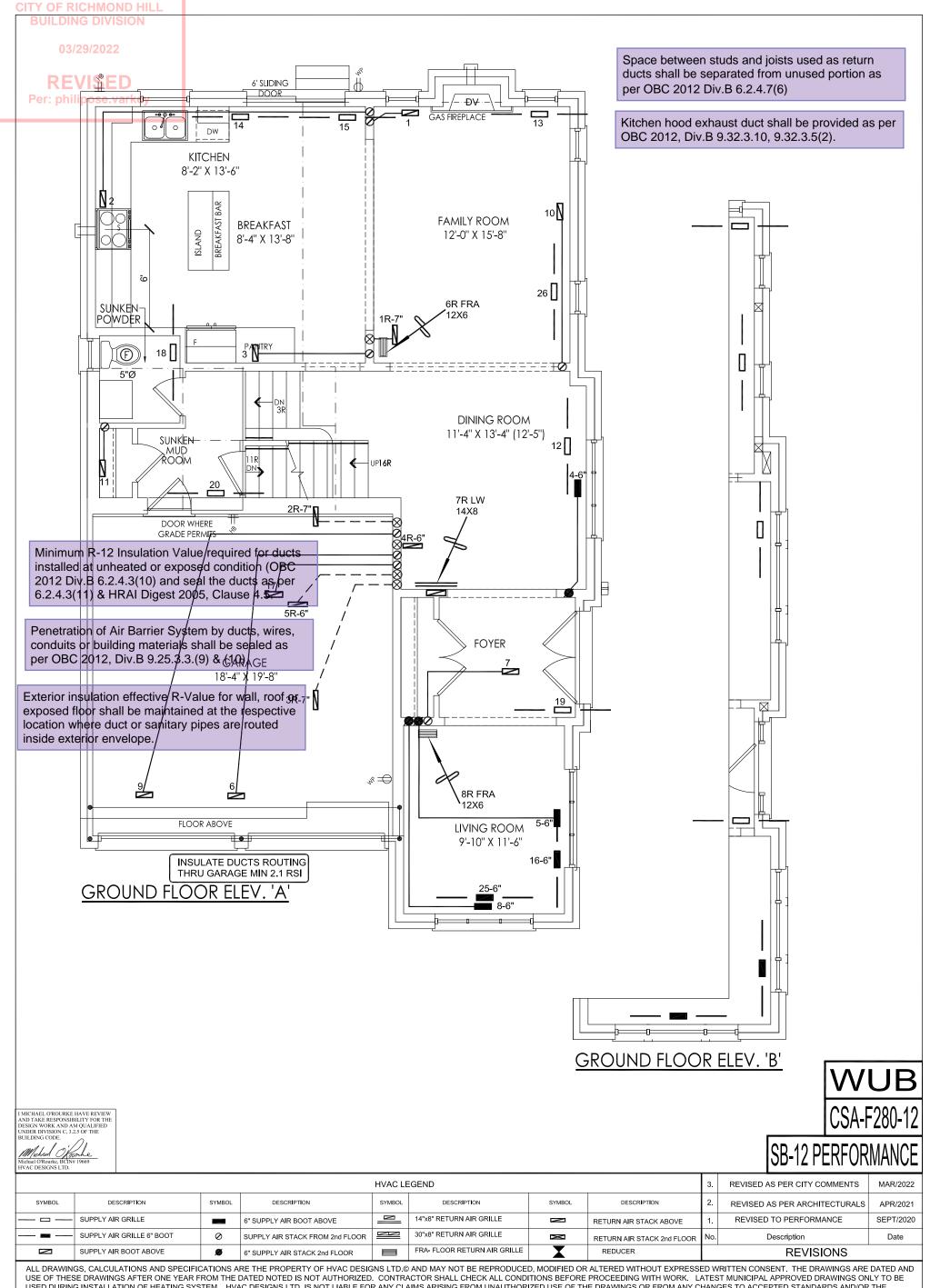
DOORS 1" min. FOR R/A

cfm @ 0.6" w.c

FAN SPEED

1145

Ś										
	BA	BASEMENT								
	Н	IEATING								
	L	.AYOUT								
	Date	SEPT/2020								
	Scale	3/16" = 1'-0"								
í	BCIN# 19669									
	LO#	87663								



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

Project Name

CENTREFIELD (WEST GORMLEY) RICHMOND HILL, ONTARIO

FIN BSMT WUB 38-12

2579 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

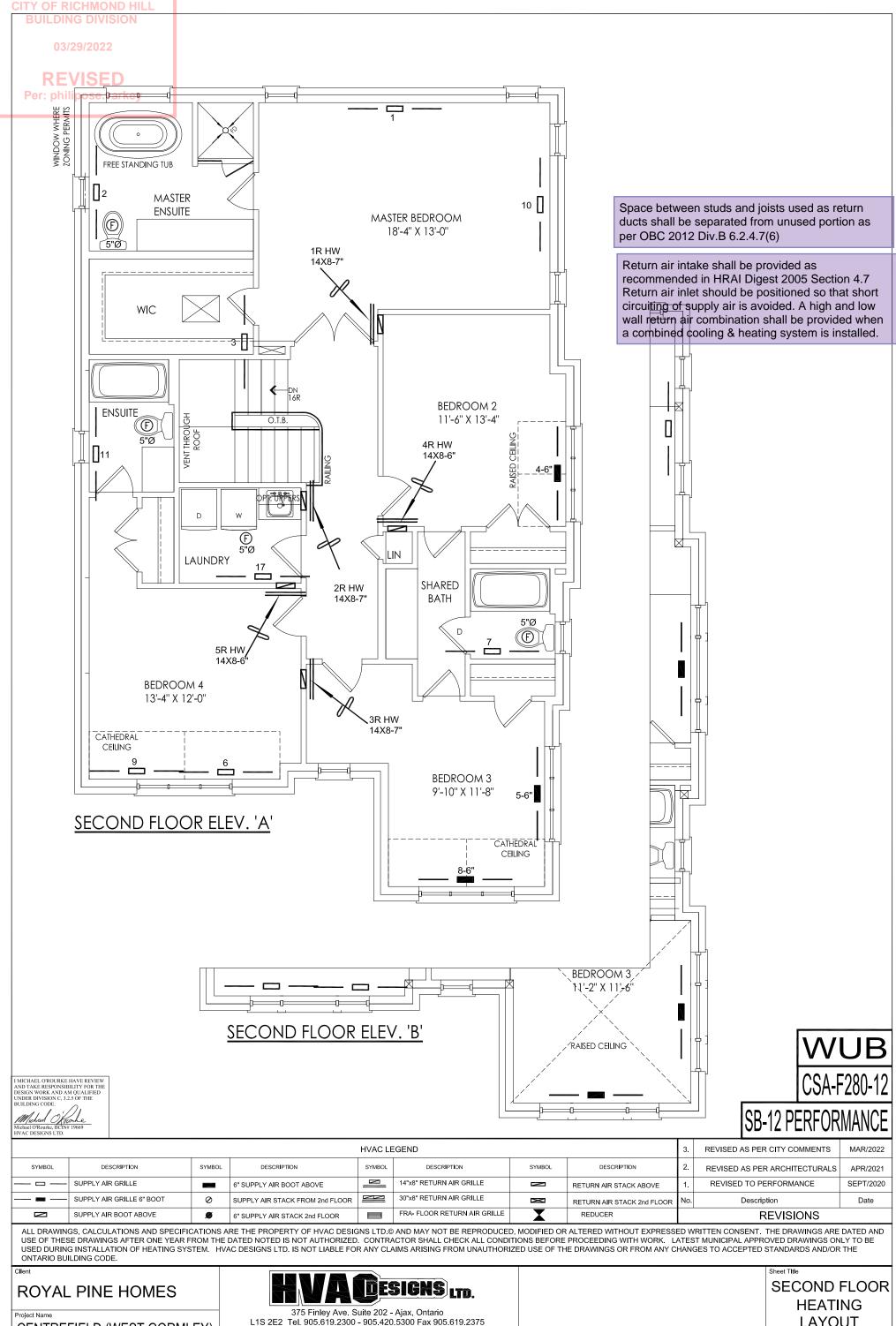
Specializing in Residential Mechanical Design Services

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.

FIRST FLOOR **HEATING** LAYOUT

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

87663 LO#



CENTREFIELD (WEST GORMLEY) RICHMOND HILL, ONTARIO

FIN BSMT WUB 38-12

2579 sqft

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.

LAYOUT

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

87663



Schedule 1: Designer Information

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

PXV

A. Pro	oject Information					
Building	number, street name				Unit no.	Loi/con.
Municip	ality	Postal code	Plan number/ other	description	<u> </u>	I
ІСНМО	ND HILL			·		
B. Ind	ividual who reviews and	takes responsibility	v for design activities	s		
lame			Firm	_		
	EL O'ROURKE		HVAC DESIGNS L	TD.		
	ddress			Unit no.		Lot/con.
	LEY AVE	In-state and	Incodes	202		N/A
Лuniciр \JAX	ality	Postal code L1S 2E2	Province ONTARIO	E-mail	designs.ca	
	one number	Fax number	01171110	Cell numbe		
	19-2300	(905) 619-237	75	()		
C. Des	sign activities undertake	n by individual iden	tified in Section B. [Building Code	Table 3.5.2.1 OI	F Division C]
		·				•
☐ Ho			AC – House		Building Stru	
	nall Buildings irge Buildings		ding Services ection, Lighting and		□ Plumbing – □ Plumbing –	
	omplex Buildings		Protection		☐ On-site Sew	
Descrip	tion of designer's work		Mod	el: 38-12		
IEAT L	OSS / GAIN CALCULATION	1 S		Benson		
RESIDE	ENTIAL MECHANICAL VEN		MMARY Proj	ect: CENTREFIEI	LD (WEST GORMLE	EY)
RESIDE	ENTIAL MECHANICAL VEN ENTIAL SYSTEM DESIGN P		MMARY Proj	ect: CENTREFIEI	LD (WEST GORMLE	EY)
RESIDE	ENTIAL MECHANICAL VEN ENTIAL SYSTEM DESIGN p claration of Designer	er CSA-F280-12	MMARY Proj			
RESIDE RESIDE	ENTIAL MECHANICAL VEN ENTIAL SYSTEM DESIGN P	er CSA-F280-12	MMARY Proj		LD (WEST GORMLE	
RESIDE RESIDE D. Dec	ENTIAL MECHANICAL VEN' ENTIAL SYSTEM DESIGN P Claration of Designer MICHAEL O'ROU	er CSA-F280-12 RKE (print name)	Froj	declar	e that (choose one	
RESIDE RESIDE D. Dec	ENTIAL MECHANICAL VEN ENTIAL SYSTEM DESIGN p claration of Designer	er CSA-F280-12 RKE (print name) sibility for the design wo	ork on behalf of a firm re	declar	e that (choose one	e as appropriate):
RESIDE RESIDE D. Dec	ENTIAL MECHANICAL VEN' ENTIAL SYSTEM DESIGN p claration of Designer MICHAEL O'ROUI I review and take respon Division C, of the Building classes/categories.	er CSA-F280-12 RKE (print name) sibility for the design wo g Code. I am qualified, a	ork on behalf of a firm re	declar	e that (choose one	e as appropriate):
RESIDE RESIDE D. Dec	ENTIAL MECHANICAL VEN' ENTIAL SYSTEM DESIGN p Claration of Designer MICHAEL O'ROUI I review and take respon Division C, of the Building	er CSA-F280-12 RKE (print name) sibility for the design wo g Code. I am qualified, a	ork on behalf of a firm re	declar	e that (choose one	e as appropriate):
RESIDE RESIDE D. Dec	ENTIAL MECHANICAL VEN' ENTIAL SYSTEM DESIGN p Claration of Designer MICHAEL O'ROUI I review and take respon Division C, of the Building classes/categories. Individual BC Firm BCIN: I review and take respon	er CSA-F280-12 RKE (print name) sibility for the design wo g Code. I am qualified, a	ork on behalf of a firm re and the firm is registered	declar gistered under su d, in the	e that (choose one ubsection 3.2.4.of appropri	e as appropriate):
RESIDE RESIDE D. Dec	ENTIAL MECHANICAL VEN' ENTIAL SYSTEM DESIGN p Claration of Designer MICHAEL O'ROUI I review and take respon Division C, of the Building classes/categories. Individual BC Firm BCIN: I review and take respon designer" under subse	er CSA-F280-12 RKE (print name) sibility for the design wo g Code. I am qualified, a IN: sibility for the design an action 3.2.5.of Di	ork on behalf of a firm re	declar gistered under su d, in the	e that (choose one ubsection 3.2.4.of appropri	e as appropriate):
RESIDE RESIDE D. Dec	ENTIAL MECHANICAL VEN' ENTIAL SYSTEM DESIGN p Claration of Designer MICHAEL O'ROUI I review and take respon Division C, of the Building classes/categories. Individual BC Firm BCIN: I review and take respon designer" under subse	er CSA-F280-12 RKE (print name) sibility for the design wo g Code. I am qualified, a IN: sibility for the design an action 3.2.5.of Di v IN: 19669	ork on behalf of a firm re and the firm is registered and am qualified in the ap vision C, of the Building	declar egistered under su d, in the propriate categor Code.	e that (choose one absection 3.2.4.of appropri - y as an "other	e as appropriate): ate
RESIDE RESIDE D. Dec	ENTIAL MECHANICAL VEN' ENTIAL SYSTEM DESIGN p Claration of Designer MICHAEL O'ROUI I review and take respon Division C, of the Building classes/categories. Individual BC Firm BCIN: I review and take respon designer" under subse	er CSA-F280-12 RKE (print name) sibility for the design wo g Code. I am qualified, a IN: sibility for the design an action 3.2.5.of Di v IN: 19669	ork on behalf of a firm re and the firm is registered	declar egistered under su d, in the propriate categor Code.	e that (choose one absection 3.2.4.of appropri	e as appropriate):
RESIDE RESIDE D. Dec	ENTIAL MECHANICAL VEN' ENTIAL SYSTEM DESIGN p Claration of Designer MICHAEL O'ROUI I review and take respon Division C, of the Building classes/categories. Individual BC Firm BCIN: I review and take respon designer" under subse	er CSA-F280-12 RKE (print name) sibility for the design wo g Code. I am qualified, a line IN: sibility for the design an action 3.2.5.of Di IN: 19669 mption from registration pt from the regist	ork on behalf of a firm reand the firm is registered and am qualified in the application C, of the Building and qualification:	declar declar declar declar declar declar declar declar declar	e that (choose one absection 3.2.4.of appropri	e as appropriate): ate
RESIDE RESIDE D. Dec	ENTIAL MECHANICAL VEN' ENTIAL SYSTEM DESIGN p Claration of Designer MICHAEL O'ROUI I review and take respon Division C, of the Building classes/categories. Individual BC Firm BCIN: I review and take respon designer" under subse Individual BC Basis for exer The design work is exem Basis for exemption from	er CSA-F280-12 RKE (print name) sibility for the design wo g Code. I am qualified, a line IN: sibility for the design an action 3.2.5.of Di IN: 19669 mption from registration pt from the regist	ork on behalf of a firm reand the firm is registered and am qualified in the application C, of the Building and qualification:	declar declar declar declar declar declar declar declar declar	e that (choose one absection 3.2.4.of appropri	e as appropriate): ate
RESIDE RESIDE D. Dec	ENTIAL MECHANICAL VEN' ENTIAL SYSTEM DESIGN p Claration of Designer MICHAEL O'ROUI I review and take respon Division C, of the Building classes/categories. Individual BC Firm BCIN: I review and take respon designer" under subse Individual BC Basis for exer The design work is exem Basis for exemption from that: 1. The information cont	er CSA-F280-12 RKE (print name) sibility for the design wo g Code. I am qualified, a IN: sibility for the design an action 3.2.5.of Di IN: 19669 mption from registration and qualified aregistration and qualified tained in this sch	ork on behalf of a firm reand the firm is registered and am qualified in the application C, of the Building and qualification:	declar de	e that (choose one ubsection 3.2.4.of appropri	e as appropriate): ate
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RESIDE	ENTIAL MECHANICAL VEN' ENTIAL SYSTEM DESIGN p Claration of Designer MICHAEL O'ROUI I review and take respon Division C, of the Building classes/categories. Individual BC Firm BCIN: I review and take respon designer" under subse Individual BC Basis for exer The design work is exem Basis for exemption from that: 1. The information cont	er CSA-F280-12 RKE (print name) sibility for the design wo g Code. I am qualified, a IN: sibility for the design an action 3.2.5.of Di IN: 19669 mption from registration and qualified aregistration and qualified tained in this sch	ork on behalf of a firm reand the firm is registered and am qualified in the application C, of the Building and qualification: tration and qualification cation:	declar declar significant declar	e that (choose one absection 3.2.4.of appropri	e as appropriate): ate

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 CITY OF RICHMOND HILL

authorization, issued by the Association of Professional Engineers of Ontario.

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

BUILDING DIVISION

03/08/2022

Per:____joshua.nabua



SITE NAME: CENTREFIE	LD (WE	ST GOR	MLEY)									DATE:			WINTE	R NATURAL AIR CH	ANGE RATE 0.227	HEAT LO	DSS ΔT °F. 78	CSA-F280-12	
BUILDER: ROYAL PINI	E HOME	S			TYPE	: 38-12			GFA	: 2579)	LO# 8	37662		SUMME	R NATURAL AIR CH	ANGE RATE 0.071	HEAT G	AIN ΔT °F. 13 SI	B-12 PERFORMANCE	
ROOM USE		MBR		Е	NS	WIG	;	Е	BED-2		BED-3		BED-4	E	BATH			ENS-2			
EXP. WALL		33		:	21	6			16		35		34		9			9			
CLG. HT.		9			9	9			9		10		9		9			9			
FACTORS																					
GRS.WALL AREA LOSS GAI	N	297		1	89	54			144		350		306		81			81			
GLAZING		LOSS	GAIN		SS GAIN	LOS	S GAIN		OSS GAIN		LOSS GAIR		OSS GAIN	L	OSS GAIN			LOSS G	AIN		
NORTH 21.8 15.0	6 0	0	0		74 124	0 0	0	0	0 0	0	0 0	0	0 0	0	0 0				124		
EAST 21.8 40.		392	725		70 685	0 0	0	0	0 0	0	0 0	0	0 0	0	0 0				0		
SOUTH 21.8 24.3		392	435		0 0	0 0	ō	1 -	980 1088				0 0	7	152 169				0		
WEST 21.8 40.		0	0		0 0	0 0	0	0	0 0	51			762 1410		0 0				0		
		0	0		0 0	0 0	0	0	0 0	0		0	0 0	1 ,	0 0				-		
		0	0		0 0	0 0	0	0	0 0	0	0 0	0		0	0 0				0		
		-	-				-	1 -						_					- 1		
NET EXPOSED WALL 4.2 0.7		1098	181		90 113	54 227			416 68	256			1140 188		311 51				51		
NET EXPOSED BSMT WALL ABOVE GR 3.7 0.6		0	0		0 0	0 0	0	0	0 0	0	0 0	0	0 0	0	0 0				0		
EXPOSED CLG 1.3 0.6		389	174		58 71	71 93	42		184 82			203	267 119	115	151 68				56		
NO ATTIC EXPOSED CLG 2.8 1.3	3 0	0	0	-	0 0	0 0	0	35	98 44	40			112 50	0	0 0				0		
EXPOSED FLOOR 2.6 0.4	1 0	0	0	0	0 0	0 0	0	0	0 0	0	0 0	243	634 104	0	0 0			0 0	0		
BASEMENT/CRAWL HEAT LOSS		0			0	0			0		0		0		0			0			
SLAB ON GRADE HEAT LOSS		0			0	0			0		0		0		0			0	- 1		
SUBTOTAL HT LOSS		2271		13	392	320)		1679		3457		2916		615			606 7	Richmond Hill	City of Rich	mond H
SUB TOTAL HT GAIN			1515		993		79		1283	3	342	1	187		288			2	231	Oity of Mori	illoria i i
LEVEL FACTOR / MULTIPLIER	0.20	0.17		0.20 0	.17	0.20 0.1	7	0.20	0.17	0.20	0.17	0.20	0.17	0.20	0.17			0.20 0.17		Building	g Divisio
AIR CHANGE HEAT LOSS		377		2	31	53			278		573		484		102			101			•
AIR CHANGE HEAT GAIN			63		41		3		53		141		77		12				1 VAC R		ED
DUCT LOSS		0			0	0	-		0		0		340		0			, ,	1		ロレ
DUCT GAIN		•	0		0	_	0		0		0		266		0			•	0		
HEAT GAIN PEOPLE 240	2		480	0	0	0	0	1	240) 1	240	1	240	0	0			0	0	'	
HEAT GAIN APPLIANCES/LIGHTS	-		470	U	0		0	l '	470		470		470	"	0				0	PXV	
TOTAL HT LOSS BTU/H		2647	470	44	523	374	-	l .	1957	'	4031		3739		717			707	ľnitials:	. , , ,	
TOTAL HT LOSS BTU/H		2041	3286		1345		107		2660		4031 555		3802		390				312		
TOTAL III GAIN X 1.5 BTO/II			3200		1343	1	107	1	2000	U	555	*	3002	1	390				012		
ROOM USE		DIN			AM		ь	1	LIV		LAUN	-		1							
	1	DIN		F	MINI .	KT/E	710		LIV		LAUN		PWD		FOY	MUD				BAS	
EXP. WALL		19			32	K1/E 32			35		0		6		FOY 16	MUD 20				BAS 170	
EXP. WALL CLG. HT.				;																	
		19		;	32	32			35		0		6		16	20				170	
CLG. HT.	N	19		;	32	32			35		0		6		16	20				170	
CLG. HT. FACTORS	N	19 10 192	GAIN	3	32 10	32 10 323			35 10	N	0 9		6 11		16 10	20 11				170 10	
CLG. HT. FACTORS GRS.WALL AREA LOSS GAIN GLAZING		19 10 192 LOSS	GAIN 0	3 LC	32 10 23	32 10 323	ı		35 10 354	N O	0 9 0		6 11 67 LOSS GAII		16 10 162	20 11 222 LOSS GAIN				170 10 1190 LOSS GAIN	
CLG. HT. FACTORS GRS.WALL AREA LOSS GAIR GLAZING NORTH 21.8 15.	6 0	19 10 192 LOSS 0		3 LC 0	32 10 23 DSS GAIN 0 0	32 10 323 LOS 0 0	S GAIN	L	35 10 354 -OSS GAIN		0 9 0 LOSS GAI	N	6 11 67 LOSS GAII 152 109	ı ı	16 10 162 LOSS GAIN	20 11 222 I LOSS GAIN 0 0 0				170 10 1190 LOSS GAIN 0 0 0	
CLG. HT. FACTORS GRS.WALL AREA LOSS GAIN GLAZING NORTH 21.8 15. EAST 21.8 40.	6 0 3 0	19 10 192 LOSS 0	0	3 LC 0 24 5	32 10 23 DSS GAIN 0 0 23 967	32 10 323 LOS	S GAIN	0 0	35 10 354 -OSS GAIN 0 0 0 0	0	0 9 0 LOSS GAI 0 0	N 7	6 11 67 LOSS GAII 152 109	I L O O	16 10 162 LOSS GAIN 0 0 0 0	20 11 222 I LOSS GAIN 0 0 0				170 10 1190 LOSS GAIN 0 0 0 3 65 121	
CLG. HT. FACTORS GRS.WALL AREAL LOSS GAIN GLAZING NORTH 21.8 15. EAST 21.8 40. SOUTH 21.8 24.	6 0 3 0 2 49	19 10 192 LOSS 0	0	3 LC 0 24 5 24 5	32 10 23 OSS GAIN 0 0 23 967 23 581	323 10 323 LOS 0 0 62 135 0 0	S GAIN 0 1 2498 0	0 0 47	35 10 354 .OSS GAIN 0 0 0 0	0 0 7 0	0 9 0 LOSS GAI 0 0	N 7 0	6 11 67 LOSS GAII 152 109 0 0	ı ı	16 10 162 LOSS GAIN 0 0	20 11 222 LOSS GAIN 0 0 0 0 0 0				170 10 1190 LOSS GAIN 0 0 0 3 65 121 9 196 218	
CLG. HT. FACTORS GRS.WALL AREA LOSS GAIN GLAZING NORTH 21.8 15. EAST 21.8 40. SOUTH 21.8 24. WEST 21.8 40.	6 0 3 0 2 49 3 0	19 10 192 LOSS 0 0 1067	0 0 1185 0	3 LC 0 24 5 24 5	32 10 23 DSS GAIN 0 0 23 967 23 581 0 0	323 10 323 LOS 0 0 62 135 0 0	S GAIN 0 1 2498 0 0	0 0 47 47	35 10 354 -OSS GAIN 0 0 0 0 1024 1137 1024 1893	0 0 7 0 3	0 9 0 LOSS GAI 0 0 0 0	7 0 0	6 11 67 LOSS GAII 152 109 0 0 0 0	I I 0 0 24 0	16 10 162 LOSS GAIN 0 0 0 0 523 581 0 0	20 11 222 LOSS GAIN 0 0 0 0 0 0 0 0 0 0 0 0				170 10 1190 LOSS GAIN 0 0 0 3 65 121 9 196 218 0 0 0	
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CLG. HT. FACTORS GRS.WALL AREAL LOSS GAIN GLAZING NORTH 21.8 15. EAST 21.8 40. SOUTH 21.8 24. WEST 21.8 40. SKYLT. 35.8 41. DOORS 25.8 4.3 NET EXPOSED WALL 4.2 0.7	6 0 3 0 2 49 3 0 .2 0 3 0 7 143	19 10 192 LOSS 0 0 1067 0 0	0 0 1185 0 0 0 99	3 LC 0 24 5 24 5 0 0 0 275 12	23 DSS GAIN 0 0 23 967 23 581 0 0 0 0	323 10 323 LOS 0 0 62 135 0 0 0 0 0 0 0 0 261 109	S GAIN 0 1 2498 0 0 0	0 0 47 47 0 0	354 LOSS GAIN 0 0 0 0 1024 1137 1024 1893 0 0 0 0	0 0 7 0 3 0 0 0	0 9 LOSS GAI 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	7 0 0 0 0	6 11 67 LOSS GAII 152 109 0 0 0 0 0 0 0 0 0 0	0 0 24 0 0 40 98	162 LOSS GAIN 0 0 0 523 581 0 0 0 1034 170 410 68	20 111 2222 I LOSS GAIN 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 20 5177 85 202 849 140				170 10 1190 LOSS GAIN 0 0 0 3 65 121 9 196 218 0 0 0 0 0 0 20 517 85 0 0 0	
CLG. HT. FACTORS GRS.WALL AREA GLAZING NORTH 21.8 15.1 EAST 21.8 40.2 SKYLT. DOORS 25.8 4.1 NET EXPOSED WALL ABOVE GR 3.7 0.6	6 0 3 0 2 49 3 0 .2 0 3 0 7 143 6 0	19 10 192 LOSS 0 0 1067 0 0 601	0 0 1185 0 0 0 99	3 LC 0 24 5 24 5 0 0 0 275 12	32 30 30 30 30 30 30 30 30 30 30 30 30 30	32 10 323 LOS 0 0 62 135 0 0 0 0 0 0 0 0 261 109 0 0	S GAIN 0 1 2498 0 0 0 0	0 0 47 47 0 0 260	354 LOSS GAIN 0 0 0 0 1024 1137 1024 1893 0 0 0 0 1091 180 0 0	0 0 0 0 3 0 0 0 0	0 9	7 0 0 0 0 0 0	6 11 67 LOSS GAII 152 109 0 0 0 0 0 0 0 0 0 0 0 0 251 41	0 0 24 0 0	162 LOSS GAIN 0 0 0 523 581 0 0 0 1034 170 410 68 0 0	20 111 2222 LOSS GAIN 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 20 517 85 202 849 140 0 0 0				170 10 1190 LOSS GAIN 0 0 0 3 65 121 9 196 218 0 0 0 0 0 0 20 517 85 0 0 0 510 1879 309	
CLG. HT. FACTORS GRS.WALL AREA GLAZING NORTH EAST 21.8 50UTH EAST 21.8 40. SKYLT. DOORS NET EXPOSED WALL NET EXPOSED BMM WALL ABOVE OR EXPOSED CLG 1.3 0.6	6 0 3 0 2 49 3 0 .2 0 3 0 7 143 6 0 0	19 10 192 LOSS 0 0 1067 0 0 601 0	0 0 1185 0 0 0 99 0	3 LC 0 24 5 0 0 0 0 275 1 1 0 0 0	32 33 35S GAIN 0 0 23 967 23 581 0 0 0 0 0 0 0 0	32 10 323 LOS 0 0 62 135 0 0 0 0 0 0 0 0 261 109 0 0	S GAIN 0 1 2498 0 0 0 0 8 181 0	0 0 47 47 0 0 260	354 LOSS GAIN 0 0 0 1024 1137 11024 1893 0 0 0 1091 180 0 0 0	0 0 7 0 3 0 0 0 0 0 0 0 82	0 9	7 0 0 0 0 0 0 0 0	6 11 67 LOSS GAII 152 109 0 0 0 0 0 0 0 0 0 0 251 41 0 0	0 0 24 0 0 40 98 0	16 10 162 LOSS GAIN 0 0 0 0 523 581 0 0 0 0 1034 170 410 68 0 0	20 111 222 LOSS GAIN 0 0 0 0 0 0 0 0 0 0 0 0 20 517 85 202 849 140 0 0 0 0 0 0				170 10 1190 LOSS GAIN 0 0 0 3 65 121 9 196 218 0 0 0 0 0 0 20 517 85 0 0 0 510 1879 309 0 0 0	
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SITE NAME: CENTREFIELD (WEST GORMLEY) BUILDER: ROYAL PINE HOMES TYPE: 38-12 DATE: Apr-21 GFA: 2579 LO# 87662 furnace pressure 0.6 HEATING CFM COOLING CFM 1145 **CARRIER AFUE = 97 % 1145 furnace filter 0.05 TOTAL HEAT LOSS 46,808 59TN6A-060-14V TOTAL HEAT GAIN 35,972 a/c coil pressure 0.2 60 INPUT (BTU/H) = 60,000AIR FLOW RATE CFM 24.46 AIR FLOW RATE CFM 31.83 OUTPUT (BTU/H) = 58.000 available pressure **FAN SPEED** for s/a & r/a 0.35 LOW 820 DESIGN CFM = 1145 MEDLOW **RUN COUNT** 4th 3rd 2nd 1st Bas 0 CFM @ .6 " E.S.P. S/A 10 4 MEDIUM 1145 12 plenum pressure s/a 0.18 r/a pressure 0.17 R/A 0 5 max s/a dif press. loss 0.02 r/a grille press. Loss 0.02 MEDIUM HIGH Ω All S/A diffusers 4"x10" unless noted otherwise on layout. °F min adjusted pressure s/a 0.16 adjusted pressure r/a HIGH 1520 TEMPERATURE RISE 47 All S/A runs 5"Ø unless noted otherwise on layout 10 13 14 15 16 17 18 19 20 22 23 24 RUN: 5 6 11 12 21 **ROOM NAME** MBR ENS WIC BED-2 BED-3 BED-4 **BATH** BED-3 BED-4 MBR ENS-2 DIN FAM KT/BR KT/BR LIV LAUN **PWD** FOY MUD BAS BAS BAS BAS RM LOSS MBH 2.02 2.09 2.47 3.51 1.32 1.62 0.37 1.96 2.02 1.87 0.72 1.87 1.32 0.71 1.38 1.54 1.54 1.97 0.39 0.51 1.72 3.51 3.51 3.51 CFM PER RUN HEAT 32 40 9 48 49 46 18 49 46 32 17 51 34 38 38 48 10 12 60 42 86 86 86 86 RM GAIN MBH 1.64 1.34 0.11 2.66 2.78 1.90 0.39 2.78 1.90 1.64 0.31 2.35 1.48 2.12 2.12 2.48 0.79 0.20 1.11 0.30 0.40 0.40 0.40 0.40 CFM PER RUN COOLING 75 79 13 52 43 85 88 61 12 88 61 52 10 47 67 67 25 6 35 10 13 13 13 .3 ADJUSTED PRESSURE 0.17 0.17 0.17 0.16 0.16 0.17 0.17 0.16 0.17 0.17 0.17 0.17 0.17 0.17 0.17 0.17 0.17 0.17 0.17 0.17 0.16 0.16 0.16 0.16 ACTUAL DUCT LGH 58 63 66 61 68 37 38 26 52 37 56 39 35 67 69 49 23 20 60 52 6 17 13 32 **EQUIVALENT LENGTH** 160 170 130 160 190 160 220 190 170 140 170 150 120 90 120 130 140 120 170 100 110 130 130 130 TOTAL EFFECTIVE LENGTH 199 228 165 223 257 226 281 258 239 189 193 187 158 110 146 190 192 126 222 117 123 162 167 186 ADJUSTED PRESSURE 0.09 0.08 0.1 0.07 0.06 0.08 0.06 0.06 0.07 0.09 0.09 0.09 0.11 0.16 0.12 0.09 0.09 0.14 0.08 0.15 0.13 0.1 0.1 0.09 **ROUND DUCT SIZE** 5 5 HEATING VELOCITY (ft/min 235 294 103 245 250 338 207 250 338 235 195 374 250 279 279 245 115 138 441 482 438 438 438 438 COOLING VELOCITY (ft/min 316 34 433 449 448 138 449 448 382 115 551 345 492 492 403 287 69 257 115 66 66 382 66 66 **OUTLET GRILL SIZE** 3X10 3X10 3X10 4X10 4X10 3X10 3X10 4X10 3X10 3X10 3X10 3X10 3X10 3X10 3X10 4X10 3X10 3X10 3X10 3X10 4X10 4X10 4X10 4X10 TRUNK D D D С В С В В С С D В C Ε В С В Α

RUN #	25	26
ROOM NAME	LIV	FAM
RM LOSS MBH.	1.97	1.38
CFM PER RUN HEAT	48	34
RM GAIN MBH.	2.48	1.48
CFM PER RUN COOLING	79	47
ADJUSTED PRESSURE	0.17	0.17
ACTUAL DUCT LGH.	59	29
EQUIVALENT LENGTH	140	130
TOTAL EFFECTIVE LENGTH	199	159
ADJUSTED PRESSURE	0.09	0.11
ROUND DUCT SIZE	6	5
HEATING VELOCITY (ft/min)	245	250
COOLING VELOCITY (ft/min)	403	345
OUTLET GRILL SIZE	4X10	3X10
TRUNK	В	Α

ROUND DUCT SIZE

INLET GRILL SIZE

INLET GRILL SIZE

8

Χ

14

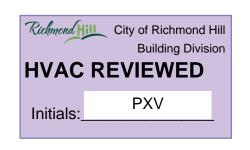
8

Х

14

8

Х



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	٩ 186	0.09	7.3	8	Х	8	419		TRUNK G	0	0.00	0	0	Х	8	0	TRUNK O	0	0.05	0	0	Х	8	0
TRUNK	358	0.06	10.3	12	Х	8	537		TRUNK H	0	0.00	0	0	Х	8	0	TRUNK P	0	0.05	0	0	Х	8	0
TRUNK (645	0.06	12.8	20	Х	8	581		TRUNK I	0	0.00	0	0	Х	8	0	TRUNK Q	0	0.05	0	0	Х	8	0
TRUNK I	950	0.06	14.8	26	Х	8	658		TRUNK J	0	0.00	0	0	Х	8	0	TRUNK R	0	0.05	0	0	Х	8	0
TRUNK	1145	0.06	15.9	30	Х	8	687		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	7	8								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	1145	0.05	16.6	32	Х	8	644
AIR VOLUME	145	115	115	75	75	165	135	155	0	0	0	0	0	0	0	165	TRUNK Y	670	0.05	13.6	22	Х	8	548
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	155	0.05	7.8	- 8	X	8	349
ACTUAL DUCT LGH.	45	67	75	64	72	31	49	58	1	1	1	1	1	1	1	14	DROP	1145	0.05	16 <mark>.</mark> 6	(24T)	(OF	RICHI	VI 0687D
EQUIVALENT LENGTH	155	205	250	225	255	175	275	170	0	0	0	0	0	0	0	135							INIO E	_
TOTAL EFFECTIVE LH	200	272	325	289	327	206	324	228	1	1	1	1	1	1	1	149					E	UILD	ING L	OIVISIO
ADJUSTED PRESSURE	0.07	0.05	0.05	0.05	0.05	0.07	0.05	0.06	14.80	14.80	14.80	14.80	14.80	14.80	14.80	0.10								

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03/08/2022

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NDIVIDUAL BCIN: 19669 MICHAEL O'ROURK

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TYPE:

SITE NAME:

38-12

LO# 87662 CENTREFIELD (WEST GORMLEY) RESIDENTIAL MECHANICAL VENTILATION DESIGN SUMMARY

OMBUSTION APPLIANCES 9.32.3.1(1)	SUPPLEMENTAL VENTILATION CAPACITY	9.32.3.5.
a)	Total Ventilation Capacity	180.2 cfm
b) Positive venting induced draft (except fireplaces)	Less Principal Ventil. Capacity	79.5 cfm
c) Natural draft, B-vent or induced draft gas fireplace	Required Supplemental Capacity	cfm
d) Solid Fuel (including fireplaces)		
e) No Combustion Appliances	PRINCIPAL EXHAUST FAN CAPACITY	
	Model: VANEE 65H	Location: BSMT
EATING SYSTEM	79.5 cfm	✓ HVI Approved
Forced Air Non Forced Air	PRINCIPAL EXHAUST HEAT LOSS CALCULATION	
5.00	79.5 CFM X 78 F X	FACTOR % LOSS 1.08 X 0.25
Electric Space Heat	SUPPLEMENTAL FANS BY INST	FALLING CONTRACTOR
OUES TYPE 0.22.4(2)	Location Model	cfm HVI Sones 50 ✓ 3.5
DUSE TYPE 9.32.1(2)	ENS BY INSTALLING CONTRACTOR BATH BY INSTALLING CONTRACTOR	50 ✓ 3.5 50 ✓ 3.5
✓ I Type a) or b) appliance only, no solid fuel	ENS-2 BY INSTALLING CONTRACTOR	50
	PWD BY INSTALLING CONTRACTOR	50 ✓ 3.5
II Type I except with solid fuel (including fireplaces)		<u> </u>
	HEAT RECOVERY VENTILATOR	9.32.3.11.
III Any Type c) appliance	Model: VANEE 65H	
IV Type I or II with electric space heat	155 cfm high	64 cfm low
IV Type I, or II with electric space heat	75 % Sensible Efficiency	✓ HVI Approved
Other: Type I, II or IV no forced air	@ 32 deg F (0 deg C)	11VI Apploved
	© -1-13 · (-1-13 -)	
	LOCATION OF INSTALLATION	
STEM DESIGN OPTIONS O.N.H.W.P.		
1 Evhauat only/Earand Air Contains	Lot:	Concession
1 Exhaust only/Forced Air System	Township	Plan:
2 HRV with Ducting/Forced Air System	Township	riaii.
	Address	
HRV Simplified/connected to forced air system		
	Roll #	Building Permit #
4 HRV with Ducting/non forced air system		
Port & Degign	BUILDER: ROYAL PINE HOMES	
Part 6 Design	Name:	
OTAL VENTILATION CAPACITY 9.32.3.3(1)	Address:	
Basement + Master Bedroom 2 @ 21.2 cfm 42.4 cfm	City:	
Other Bedrooms <u>3</u> @ 10.6 cfm <u>31.8</u> cfm	Telephone #:	Fax #:
Kitchen & Bathrooms 5 @ 10.6 cfm 53 cfm	INSTALLING CONTRACTOR	
Other Rooms <u>5</u> @ 10.6 cfm <u>53.0</u> cfm	Name:	
Table 9.32.3.A. TOTAL <u>180.2</u> cfm	Address:	
	City:	
RINCIPAL VENTILATION CAPACITY REQUIRED 9.32.3.4.(1)	Talankana #	Face the
1 Bedroom 31.8 cfm	Telephone #:	Fax #:
2 Bedroom 47.7 cfm	DESIGNER CERTIFICATION I hereby certify that this ventilation system has been of	designed
3 Bedroom 63.6 cfm	in accordance with the Ontario Building Code. Name: HVAC Designs Ltd.	
4 Bedroom 79.5 cfm	8041	1001
	Signature:	CITY OF RICHMOND
5 Bedroom 95.4 cfm	HRAI#	DUILDING DIVIS
TOTAL 79.5 cfm I REVIEW AND TAKE RESPONIBILITY FOR THE DESIGN WORK AND AM QUALIFIED IN THE APPR	Date:	April-21
INDIVIDUAL BCIN: 19669 Michael O'ROURKE	TO THE CONTESSAT TO THE VESTIGNER UNDER DIVISION C	U3/U6/202



			CSA F2	80-12 Residential Heat	Loss and Heat Gain	Calculations						
			Form	ula Sheet (For Air Leak	age / Ventiliation C	Calculation)						
LO#:	87662	Model: 38-12		Builder:	der: ROYAL PINE HOMES Date: 4/19/2021							
		Volume Calculation	1				Air Change & Delt	ta T Data				
louse Volume				1		WINTER NA	TURAL AIR CHANG	E DATE	0.227			
Level	Floor Area (ft²)	Floor Height (ft)	Volume (ft³)				TURAL AIR CHANG		0.227			
Bsmt	1121	10	11210			0011111211111		0210112	0.072			
First	1121	10	11322.1									
Second	1458	9	13122					emperature Diffe				
Third	0	9	0				Tin °C	Tout °C	ΔT °C	ΔT °F		
Fourth	0	9	0			Winter DTDh	22	-21	43	78		
		Total:	35,654.1 ft ³			Summer DTDc	24	31	7	13		
		Total:	1009.6 m³									
	5.2.3	.1 Heat Loss due to Air	r Leakage			6.2.6	Sensible Gain due	to Air Leakage				
0.227		$LR_{airh} \times \frac{V_b}{3.6} \times E_{43 ^{\circ}\text{C}}$		= 3295 W		$HG_{salb} = LR_{airc} \times $ x 280.45			= [169 W		
0.227	X 200.43	x 43 C	۸	- 3293 VV	- 0.071	x <u>200.43</u>	_ ^ / C	^	∟	103 W		
				= 11243 Btu/h					=	577 Btu/h		
	5.2.3.2 Hea	at Loss due to Mechan	ical Ventilation			6.2.7 Sei	nsible heat Gain d	ue to Ventilatio	n			
	$\mathit{HL}_{vairb} =$	$PVC \times DTD_h \times 1$	$.08 \times (1-E)$		HL	$_{vairb} = PVC \times D$	$TD_h \times 1.08 \times$	(1 - E)				
80 CFM	x <u>78 °F</u>	x <u>1.08</u>	x <u>0.25</u>	= 1670 Btu/h	80 CFM	x <u>13 °F</u>	x <u>1.08</u>	x <u>0.25</u>	= [275 Btu/h		
			5.2.3.3 Calcula	tion of Air Change Heat Lo	ss for Each Room (Flo	or Multiplier Section)						
		HLas	= Level Fact	or \times HL_{airbv} \times {(HL	+ Hl.h) ÷	(HI, a alonal + HI,	h = el = m el)}					

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		8,434	0.667
2	0.3		13,196	0.256
3	0.2	11,243	13,560	0.166
4	0		0	0.000
5	n	1	n	0.000

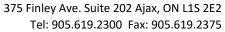
^{*}HLairbv = Air leakage heat loss + ventilation heat loss

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



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



HEAT LOSS AND GAIN SUMMARY SHEET

MODEL:	38-12		BUILDER: ROYAL PINE HOMES	
SFQT:	2579	LO# 87662	SITE: CENTREFIELD (WEST	GORMLEY)
DESIGN A	SSUMPTIONS			
HEATING		°F	COOLING	°F
OUTDOOF	R DESIGN TEMP.	-6	OUTDOOR DESIGN TEMP.	88
INDOOR D	DESIGN TEMP.	72	INDOOR DESIGN TEMP. (MAX 75°F)	75
BUILDING	i DATA			
ATTACHN	IENT:	DETACHE	D # OF STORIES (+BASEMENT):	3
FRONT FA	CES:	EA	ST ASSUMED (Y/N):	Υ
AIR CHAN	GES PER HOUR:	2.!	ASSUMED (Y/N):	Υ
AIR TIGHT	NESS CATEGORY:	TIG	ASSUMED (Y/N):	Υ
WIND EXF	POSURE:	SHELTERE	D ASSUMED (Y/N):	Υ
HOUSE VO	OLUME (ft³):	35654	.1 ASSUMED (Y/N):	Υ
INTERNAL	. SHADING:	BLINDS/CURTAIN	ASSUMED OCCUPANTS:	5
INTERIOR	LIGHTING LOAD (Btu/h,	/ft²): 1.2	DC BRUSHLESS MOTOR (Y/N):	Υ
FOUNDAT	TION CONFIGURATION	BCIN_	_1 DEPTH BELOW GRADE:	7.0 ft
LENGTH:	53.0 ft	WIDTH: 32.0	ft EXPOSED PERIMETER:	170.0 ft

2012 OBC - COMPLIANCE PACKAGE		
	Compliand	e Package
Component	SB-12 PEF	RFORMANCE
	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%	E RICHMO

INDIVIDUAL BCIN: 19669 MICHAEL O'ROURKE BUILDING DIVISION

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Residential Foundation Thermal Load Calculator

Supplemental tool for CAN/CSA-F280

We	ather Sta	tion Description								
Province:	Ontario	·								
Region:	Richmon	d Hill								
	Site D	escription								
Soil Conductivity:	Normal o	conductivity: dry sand, loam, clay								
Nater Table: Normal (7-10 m, 23-33 ft)										
Foundation Dimensions										
Floor Length (m):	16.2									
Floor Width (m):	9.8									
Exposed Perimeter (m):	0.0									
Wall Height (m):	3.0									
Depth Below Grade (m):	2.13	Insulation Configuration								
Window Area (m²):	1.1									
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	ation Loads								
Heating Load (Watts):		1693								

TYPE: 38-12 **LO#** 87662

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Air Infiltration Residential Load Calculator

Supplemental tool for CAN/CSA-F280

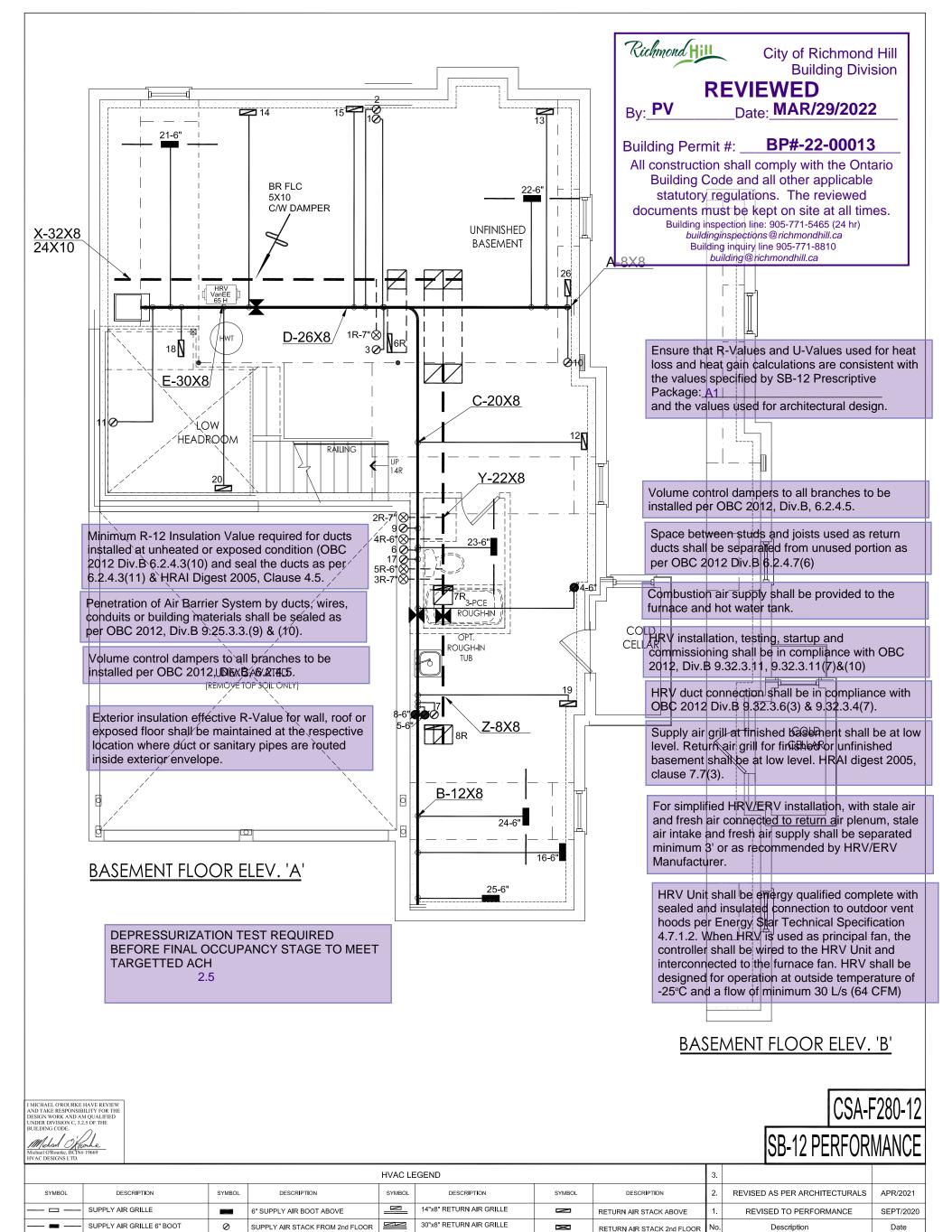
Weath	er Station Description		
Province:	Ontario		1
Region:	Richmond Hill		
Weather Station Location:	Open flat terrain, grass	S	
Anemometer height (m):	10		
	Local Shielding		
Building Site:	Suburban, forest	Richmond Hill City of Ri	chmond Hil
Walls:	Heavy	Build	ng Divisior
Flue:	Heavy	HVAC REVIEW	WED
Highest Ceiling Height (m):	6.74		
Buil	Iding Configuration	Initials: PXV	
Type:	Detached		
Number of Stories:	Two		
Foundation:	Full		
House Volume (m³):	1009.6		
Air L	eakage/Ventilation		
Air Tightness Type:	Energy Star Detached	(2.5 ACH)	
Custom BDT Data:	ELA @ 10 Pa.	942.5 cm ²	1
	2.50	ACH @ 50 Pa	
Mechanical Ventilation (L/s):	Total Supply	Total Exhaust	1
	37.5	37.5	
	Flue Size		1
Flue #:	#1 #2 #3 #4	4	1
Diameter (mm):	0 0 0 0)	
Natu	ral Infiltration Rates		
Heating Air Leakage Rate (A	ACH/H): 0.227		
Cooling Air Leakage Rate (A	ACH/H): 0.071		

TYPE: 38-12 **LO#** 87662

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SUPPLY AIR BOOT ABOVE FRA- FLOOR RETURN AIR GRILLE **REVISIONS** . 6" SUPPLY AIR STACK 2nd FLOOR ALL DRAWINGS, CALCULATIONS AND SPECIFICATIONS ARE THE PROPERTY OF HVAC DESIGNS LTD.® AND MAY NOT BE REPRODUCED, MODIFIED OR ALTERED WITHOUT EXPRESSED WRITTEN CONSENT. THE DRAWINGS ARE DATED AND USE OF THESE DRAWINGS AFTER ONE YEAR FROM THE DATED 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

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

adequately insulated and be gas-proofed.

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

	CARRIER		2ND FLOOR	12	5	4
MODEL 59TI	N6A-060-1	4V	1ST FLOOR	10	2	2
INPUT						_
INFOT	60	MBTU/H	BASEMENT	4	1	0
- OUTPUT	58	MBTU/H	ALL S/A DIFFUS			
COOLING	3.0	TONS	ON LAYOUT. A UNLESS NOTE	LL S/A	RUN	S 5"Ø

HEAT LOSS 48478 BTU/H # OF RUNS S/A R/A FANS

3RD FLOOR

ON LAYOUT. UNDERCUT

DOORS 1" min. FOR R/A

UNIT DATA

1145

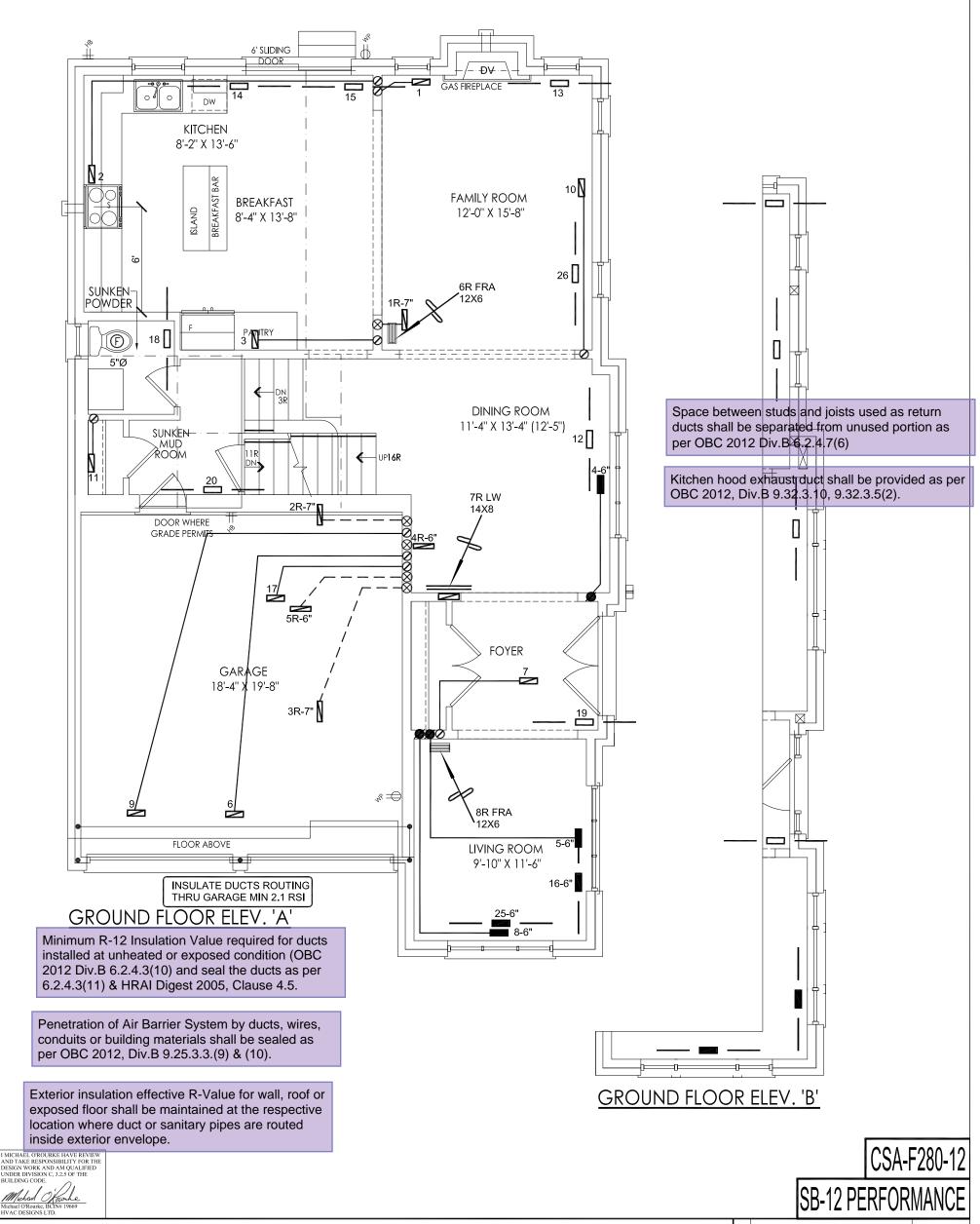
FAN SPEED

HEATING OF EXAMOND HIL SEPT/2020 /(3/16"/= 1'-0") BCIN# 19669

BASEMENT

LO#C87662

38-12



HVAC LEGEND DESCRIPTION DESCRIPTION 2. REVISED AS PER ARCHITECTURALS SYMBOL DESCRIPTION SYMBOL DESCRIPTION SYMBOL SYMBOL SUPPLY AIR GRILLE 14"x8" RETURN AIR GRILLE RETURN AIR STACK ABOVE 1. 6" SUPPLY AIR BOOT ABOVE REVISED TO PERFORMANCE SEPT/2020 30"x8" RETURN AIR GRILLE SUPPLY AIR GRILLE 6" BOOT 0 SUPPLY AIR STACK FROM 2nd FLOOR \sim No. Description Date RETURN AIR STACK 2nd FLOOR

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FRA- FLOOR RETURN AIR GRILLE

ROYAL PINE HOMES

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REVISIONS

FIRST FLOOR

HEATING TY OF RICHOPHD HIL SEPT/2020

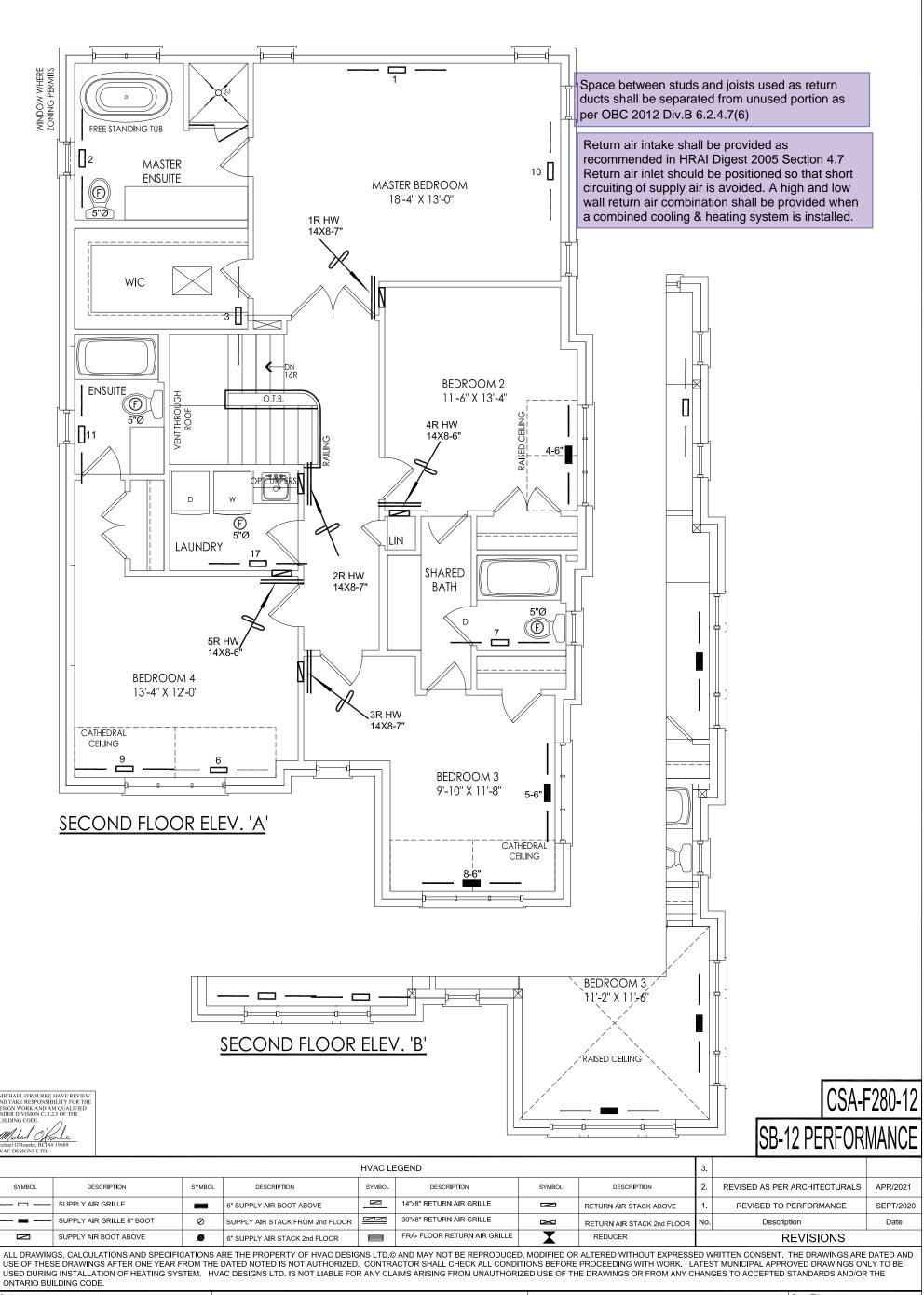
Scale / 3/16" = 1'-0" BCIN# 19669

LO#C87662

38-12

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6" SUPPLY AIR STACK 2nd FLOOR



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ROYAL PINE HOMES

Project Name

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SECOND FLOOR

HEATING Y OF EXPLOSIVE HIL SEPT/2020

Scale / 3/16" = 1'-0"

BCIN# 19669 LO#C87662

38-12