

Schedule 1: Designer Information

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

A. Project Information				
Building number, street name			Lot:	
Model 2700			Lot/con.	
Municipality Richmond Hill	Postal code	Plan number/ other description		
B. Individual who reviews and takes responsibility for design	n activities			
Name David DaCosta		Firm	gtaDesigns Inc.	
Street address 2985 Drew Road			Unit no.	Lot/con.
Municipality Mississauga	Postal code L4T 0A4	Province Ontario	E-mail hvac@gtades	signs.ca
Telephone number (905) 671-9800	Fax number	L	Cell number	
C. Design activities undertaken by individual identified in Se	ction B. [Buil	lding Code Table 3	.5.2.1 of Division C]	
☐ House ☑ HVAC – Ho	use		☐ Building Structural	
☐ Small Buildings ☐ Building Ser	vices		☐ Plumbing – House	
	ighting and Pow	er	☐ Plumbing – All Building	s
☐ Complex Buildings ☐ Fire Protecti	ion		☐ On-site Sewage System	ns
Description of designer's work Mod	el Certification		Project #:	
Heating and Cooling Load Calculations Main	X	Builder	Layout #:	JB-09156
Heating and Cooling Load Calculations Main Air System Design Alternate	^	Project	EM Alr Systems King East Developm	
Residential mechanical ventilation Design Summary O.D. GFA Residential System Design per CAN/CSA-F280-12	2700	Model	Model 2700 WO	
Residential New Construction - Forced Air		SB-12	Energy Star	,
D. Declaration of Designer				
I David DaCosta (print name)	declare that (c	choose one as appro	opriate):	
☐ I review and take responsibility for th Division C of the Building Code. I am classes/categories. Individual BCIN:				
Firm BCIN:			_	
☑ I review and take responsibility for t designer" under subsection 3.2.5 of	•	•	opriate category as an "other	
Individual BCIN:	3296	64		
Basis for exempti	on from registra	tion:	Division C 3.2.4.1. (4)	•
☐ The design work is exempt from the	registration and	qualification requirement	ents of the Building Code.	
Basis for exemption	on from registra	tion and qualification:		
I certify that:				
The information contained in this schedule is true to the best of my	/ knowledge.			
I have submitted this application with the knowledge and consent of	of the firm.			
September 21, 2023		Mare 14		
Date		Signature of De	esigner	

NOTE:

Page 1

- 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 qualifications under Subsections 3.2.4. and 3.2.5.of Division C.
- Schedule 1 does not require to be completed a holder of a license, temporay license, or a certificate of authorization, issed 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 licence to
 practise, or a certificate of authorization, issued by the Association of Professional Engineers of Ontario.



2985 Drew Road, Suite 202, Mississauga, Ontario L4T 0A4 Tel: 905-671-9800 e-mail hvac@gtadesigns.ca

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These documents issued for the use of Bullding Location and may not be used by any other persons without authorization. Documents for permit and/or construction are signed in red. Bullding Location Address (Model): Model 2700 WOB Site: King East Developments Model: Lot: City and Province: Richmond Hill Postal code: Calculations based on Dimensional information based on: Architectural Design Inc.Feb/2023 Attachment: Detached Front facing: East/West Assumed? Yes No. of Levels: 3 Ventilated? Included Air tightness: 1961-Present (ACH=3.57) Assumed? Yes Weather location: Richmond Hill Wind exposure: Sheltered HRV7 VanEE V150E75NS Internal shading: Light-translucent Occupants: 5 Sensible Eff. at -0C 75% Heating design conditions Cutdoor temp -5.8 Indoor temp: 72 Mean soil temp: 50 Outdoor temp 88 Indoor temp: 75 Latitude: 44 Above grade walls Style A: As per OBC SB12 Energy Star R 22 + 5ci Style A: As per OBC SB12 Energy Star R 20 Style B: Style C: Style D: Floors on soil Cellings Style A: As per Selected OBC SB12 Energy Star R 31 Doors Style B: Style B	Heat loss and gain calcula	ation summary sheet CSA-F280-M12 Standard
Building Location	These documents issued for the use of	-
Address (Model): Model 2700 WOB Site: King East Developments	and may not be used by any other persons without authorization. Documents	for permit and/or construction are signed in red. JB-09156
Address (Model): Model 2700 WOB Site: King East Developments	Building L	ocation
City and Province: Richmond Hill		
Calculations based on Dimensional information based on: Architectural Design Inc.Feb/2023 Attachment: Detached Southerment: Detached Southerment: Detached Southerment: Sou	Model:	Lot:
Dimensional information based on: Attachment: Detached Front facing: East/West Assumed? Yes Weather location: Richmond Hill Wind exposure: Sheltered HRV? VanEE V150E75NS Internal shading: Light-translucent Occupants: 5 Sensible Eff. at-25C 60% Apparent Effect at-0C 80% Units: Imperial Area Sq ft: 2700 Sensible Eff. at-0C 75% Heating design conditions Cooling design conditions Outdoor temp 45.8 Indoor temp: 72 Mean soil temp: 50 Outdoor temp 88 Indoor temp: 75 Latitude: 44 Above grade walls Style A: As per OBC SB12 Energy Star R 22 + 5ci Style A: As per OBC SB12 Energy Star R 22 + 5ci Style B: Style C: Style C: Style C: Style C: Style C: Style B: Style A: As per Selected OBC SB12 Energy Star Style B: Style B: Style A: As per Selected OBC SB12 Energy Star Style B: Style B: Style A: As per Selected OBC SB12 Energy Star Style B: Style B: Style A: As per Selected OBC SB12 Energy Star Style B: Style B: Style A: As per Selected OBC SB12 Energy Star R 31 Doors Style B: Style A: As per Selected OBC SB12 Energy Star R 31 Windows Style B: Style A: As per Selected OBC SB12 Energy Star R 4.6 Style B: Style A: As per Selected OBC SB12 Energy Star R 4.6 Style B: Style A: As per Selected OBC SB12 Energy Star R 4.6 Style B: Style B: Style A: As per Selected OBC SB12 Energy Star R 4.6 Style B: Styl	City and Province: Richmond Hill	Postal code:
Attachment: Detached Front facing: East/West Assumed? Yes	Calculations	s based on
No. of Levels: 3	Dimensional information based on:	rchitectural Design Inc.Feb/2023
Weather location: Richmond Hill	Attachment: Detached	Front facing: East/West Assumed? Yes
HRV?	No. of Levels: 3 Ventilated? Included	Air tightness: 1961-Present (ACH=3.57) Assumed? Yes
Sensible Eff. at -25C 60% Apparent Effect, at -0C 80% Units: Imperial Area Sq ft: 2700 Sensible Eff. at -0C 75% Heating design conditions Outdoor temp -5.8 Indoor temp: 72 Mean soil temp: 50 Outdoor temp 88 Indoor temp: 75 Latitude: 44 Above grade walls Style A: As per OBC SB12 Energy Star R 22 + 5ci Style A: As per OBC SB12 Energy Star R 20 Style B: Style C: Style C: Style D: Floors on soil Exposed floors Style B: Style	Weather location: Richmond Hill	Wind exposure: Sheltered
Sensible Eff. at -0C 75%	HRV? VanEE V150E75NS	Internal shading: Light-translucent Occupants: 5
Heating design conditions Cutdoor temp	Sensible Eff. at -25C 60% Apparent Effect. at -0C 80%	Units: Imperial Area Sq ft: 2700
Outdoor temp	Sensible Eff. at -0C 75%	
Above grade walls Style A: As per OBC SB12 Energy Star R 22 + 5ci Style A: As per OBC SB12 Energy Star R 20c Style B: Style C: Style C: Style C: Style D: Style D: Style D: Style D: Style B: Style A: As per Selected OBC SB12 Energy Star R 20c Style A: As per Selected OBC SB12 Energy Star Style A: As per Selected OBC SB12 Energy Star R 20c Style B: S	Heating design conditions	Cooling design conditions
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Exposed floors Style A: As per Selected OBC SB12 Energy Star R 31 Doors Style B: Style A: As per Selected OBC SB12 Energy Star R 4.0 Windows Style B: Style B: Style A: As per Selected OBC SB12 Energy Star R 4.00 Style C: Style B: Skylights Style C: Style A: As per Selected OBC SB12 Energy Star R 2.0 Style B: Style A: As per Selected OBC SB12 Energy Star R 2.0 Style B: Style B: Style B: Attached documents: As per Shedule 1 Heat Loss/Gain Caculations based on CSA-F280-12 Effective R-Values Notes: Residential New Construction - Forced Air Calculations performed by Name: David DaCosta Postal code: L4T 0A4	Style A: As per Selected OBC SB12 Energy Star	Style A: As per Selected OBC SB12 Energy Star R 60
Style A: As per Selected OBC SB12 Energy Star R 31 Doors Style B: Style A: As per Selected OBC SB12 Energy Star R 4.0 Windows Style B: Style B: Style B: Skylights Style A: As per Selected OBC SB12 Energy Star R 4.00 Style C: Style B: Style B: Style C: Style B:	Style B:	Style B: As per Selected OBC SB12 Energy Star R 31
Style B: Style A: As per Selected OBC SB12 Energy Star R 4.00	Exposed floors	Style C:
Windows Style A: As per Selected OBC SB12 Energy Star R 4.00 Style C: Style B: Skylights Style C: Style A: As per Selected OBC SB12 Energy Star R 2.0 Style D: Style B: Attached documents: As per Shedule 1 Heat Loss/Gain Caculations based on CSA-F280-12 Effective R-Values Notes: Residential New Construction - Forced Air Calculations performed by Name: David DaCosta Postal code: L4T 0A4	Style A: As per Selected OBC SB12 Energy Star R 31	Doors
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Style B: Style C: Style A: As per Selected OBC SB12 Energy Star R 2.0 Style D: Attached documents: As per Shedule 1 Heat Loss/Gain Caculations based on CSA-F280-12 Effective R-Values Notes: Residential New Construction - Forced Air Calculations performed by Name: David DaCosta Postal code: L4T 0A4	Windows	Style B:
Style C: Style A: As per Selected OBC SB12 Energy Star R 2.0 Style D: Attached documents: As per Shedule 1 Heat Loss/Gain Caculations based on CSA-F280-12 Effective R-Values Notes: Residential New Construction - Forced Air Calculations performed by Name: David DaCosta Postal code: L4T 0A4	Style A: As per Selected OBC SB12 Energy Star R 4.00	Style C:
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Attached documents: As per Shedule 1 Heat Loss/Gain Caculations based on CSA-F280-12 Effective R-Values Notes: Residential New Construction - Forced Air Calculations performed by Name: David DaCosta Postal code: L4T 0A4	Style C:	Style A: As per Selected OBC SB12 Energy Star R 2.03
Notes: Residential New Construction - Forced Air Calculations performed by Name: David DaCosta Postal code: L4T 0A4	Style D:	Style B:
Calculations performed by Name: David DaCosta Postal code: L4T 0A4	Attached documents: As per Shedule 1 Heat Loss/0	Sain Caculations based on CSA-F280-12 Effective R-Values
Name: David DaCosta Postal code: L4T 0A4	Notes: Residential New C	Construction - Forced Air
	Calculations p	erformed by
Company: dtaDesigns Inc. Tolophone: /0051 574 0000	Name: David DaCosta	Postal code: L4T 0A4
Telephone. (aus) of 1-aout	Company: gtaDesigns Inc.	Telephone: (905) 671-9800
Address: 2985 Drew Road, Suite 202 Fax:	Address: 2985 Drew Road, Suite 202	Fax:
City: Mississauga E-mail hvac@gtadesigns.ca	City: Mississauga	E-mail hvac@gtadesigns.ca



EM Air Systems

Builder:

Air System Design

SB-12 **Energy Star** 2985 Drew Road, Suite 202, Mississauga, Ontario L4T 0A4 Tel: 905-671-9800 e-mail hvac@gtadesigns.ca

Date: September 21, 2023 I review and take responsibility for the design work and am qualified in the appropriate category as an "other designer" under Division C subsection 3.2.5. of the Building Code.

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Part	Project: King East [Developm	ents		Model:		N	Model 270	00 WOB				Sy	stem 1	ı		Building C		32964	. Man	n /4	l et i		David DaCo	sta		ject # yout #		-00267 -09156
Mathitation	DESIGN LOAD SPECIFICATION	S		1	AIR DISTR	RIBUTION	& PRESS	URE				F	URNACE/	AIR HANI	DLER DA	ГА:			BOILER/	WATER HEA	TER DA	TA:			[A/C UNIT D	ATA:		
Mathematic Mat	Level 2 Net Load	14,748 b	tu/h	,	Additional	I Equipme	ent Pressu			0.225 "\	w.c.	N	Model	5	59SC5B06	0E1714			Model	u/h		ту	/pe			Model:			on
Mathitan	Level 4 Net Load	0 b	tu/h	F	Return Bra	anch Lon	gest Effec	tive Length	1	300 ft		Н	ligh Outpu	t	580	00			Output E	Btu/h						Coil		2.5	
Paris Pari	Total Heat Loss	48,687 b	tu/h	F	R/A Plenu	m Pressu	re			0.138 "\	w.c.	E	.s.p.		0.5	0 "	W.C.		Min.Outp	out Btu/h		A۱							
Mathematic lange 1.14 1.15 1.	Total Heat Gain	27,477 k	tu/h)			leg. F.							ower DATA:					
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Part	Ventilation Load	1,336 E	Btuh.					R/A Temp		70 d	eg. F.	s	B-12 Pack	age	Energy	/ Star			Check	920 cf	m (Cool. Check	k	920 cf	m				
Mathematical Math	Ventilation PVC	79.5 c	fm					S/A Temp		128 d	eg. F.									·			_						
Mathematical Control of Math	Supply Branch and Grill Sizing			I	Diffuser lo	oss _	0.01	"w.c.				Т	emp. Rise	>>> _	58	deg. F.			Heat.	<u>920</u> cf	m (Cooling		920 cf	m	Design Airf	low	<u>920</u> c	:fm
Mathematic Mat								Leve	11													Level	2						
Mathematic Name Mathematic	S/A Outlet No.	1	2	3	4	5										6	7	8	9	10	11	12							
Mathematical Mat	Room Use				BASE	F.AREA											KIT/FAM P	KIT/FAM	LAUN	FOY	WR	GRT							
Color Decision Processor Color Color Decision Processor Color Decis	Btu/Outlet	4532	4532	4532	4532	1044										2062	2062	2062	2001	2779	586	3195							
Part	Heating Airflow Rate CFM	86	86	86	86	20										39	39	39	38	53	11	60							
Action Lethorship	Cooling Airflow Rate CFM	30	30	30	30	2										78	78	78	61	40	12	92							
Equipment Figure	Duct Design Pressure	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13
Trial Process Final Process Fi	Actual Duct Length	42	42	8	15	8										48	41	44	43	24	13	8							
Ministrian Min	Equivalent Length	140	150	110	90	120	70	70	70	70	70	70	70	70	70	110	90	100	110	70	100	130	70	70	70	70	70	70	70
Dark Review Fig.	Total Effective Length	182	192	118	105	128	70	70	70	70	70	70	70	70	70	158	131	144	153	94	113	138	70	70	70	70	70	70	70
Mile	Adjusted Pressure	0.07	0.07	0.11	0.12	0.10	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.08	0.10	0.09	0.08	0.14	0.12	0.09	0.19	0.19	0.19	0.19	0.19	0.19	0.19
Triange Tria	Duct Size Round	6	6	6	6	3										6	6	6	5	5	3	6							
Second Line	Outlet Size	4x10	4x10	4x10	4x10	3x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	3x10	3x10	3x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10
Section Sect	Trunk	В	В	Α	С	Α										В	В	В	A	C	С								
Rounding May Reful	<u> </u>																					Level	4						
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Equivalent Length 140 110 140 140 130 100 130 13										0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13
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Return Branch And Grill Sizing Special Pressure Special				-	-			-		4×10	4×10	4×10	4v10	4×10	4v10	4×10	4×10	4×10	4×10	4v10	4v10	4v10	4v10	4×10	4v10	4×10	4×10	4v10	4v10
Return Branch And Grill Sizing Rotation Branch And Grill Sizing Significant Free North Color Sizing Significant Free North Color Sizing Sizing								Δ		4210	4210	4210	47.10	4810	43.10	4210	4810	4210	4210	40	4410	4210	44.10	4210	44.10	4210	47.10	4410	4210
R/A Inlet No. 1R 2R 3R 4R 5R 6R 7R 8R 9R 10R 11R Trunk CFM Press. Round Rect. Size Trunk C.CFM H.CFM Press. Round Rect. Size Trunk C.CFM H.CFM Press. Round Rect. Size Inlet Air Volume CFM 181 424 105 105 105 105 105 105 105 105 105 105	Trum																												
Find Lair Volume CFM 181 424 105													_								-								
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Inlet Size FLC 8 <t< td=""><td>•</td><td></td><td></td><td>0.07</td><td></td><td></td><td>0.24</td><td>0.24</td><td>0.24</td><td>0.24</td><td>0.24</td><td>0.24</td><td>W</td><td>'</td><td></td><td></td><td></td><td></td><td></td><td></td><td>- 1</td><td>E</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<>	•			0.07			0.24	0.24	0.24	0.24	0.24	0.24	W	'							- 1	E							
" " OR X X X X X X X X X X X X X X X I T H Inlet Size 9x6 30 14 14 14 14		8.0	11.5	6.0	6.0	6.0							V								- 1	F							
Inlet Size 9x6 30 14 14 14 14 15 S I S J	Inlet Size		8	8	8	8							U								(G							
R J	" "	OR	x	x	x	x	x	x	x	x	x	x	Т								ı	Н							
	Inlet Size	9x6	30	14	14	14							s								- 1	I							
<u>Trunk</u> <u>z z z z Q </u>													R									J							
	Trunk	Z	Z	Z	Z								Q								_	K							



Heatloss/Gain Calculations CSA-F280-12

2985 Drew Road, Suite 202, Mississauga, Ontario L4T 0A4 Tel: 905-671-9800

e-mail hvac@gtadesigns.ca

		Builder:	EM A	r Syster	ms		D	Date:		Se	eptember 21	, 2023				Weath	ner Data	Richmond Hil	I 44	-5.8 88	3 20	50				Page 4
2012 OBC		Project:	King East	Develop	pments		Мо	odel:		N	Model 2700 \	WOB			System 1	Heat	Loss ^T 7	7.8 deg. F	Ht gain ^T	12.8 de	eg. F			Proje Layo		J-00267 B-09156
	Level 1				-	BASE			F.AREA																	
Run	ft. exposed wall A				116 A			10 A			Α		Α		Α	Α		Α	Α		Α		Α		Α	
	ft. exposed wall B				33 B			В			В		B		В	B		B	В		В		В		В	
Kuii																										
	Ceiling height				6.0 AG			6.0 A		'	6.0 AG		6.0 AG	6	.0 AG	6.0 AG	,	6.0 AG	6.0 AG		6.0 AG		6.0 AG		6.0 AG	
	Floor area			!	925 Are	ea		116 A	Area		Area		Area		Area	Area		Area	Area		Area		Area		Area	
E	Exposed Ceilings A				Α			Α	4		Α		Α		Α	Α		Α	Α		Α		Α		Α	
	Exposed Ceilings B				В			В	3		В		В		В	В		В	В		В		В		В	
_	Exposed Floors				Fir				- Ir		Fir		Flr		Fir	Flr		Flr	Flr		Flr		Fir		Flr	
								60			• • •							• • •			• • •		• • • •		• • •	
	Gross Exp Wall A				696			60																		
	Gross Exp Wall B				297																					
	Components	R-Values L	oss Gair	1	Lo	ss Ga	in	L	.oss G	ain	Loss	Gain	Loss	Gain	Loss Gain	Loss	Gain	Loss Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain
	North Shaded	4.00	19.45	11.73	5	97	59																			
	East/West	4.00	19.45	29.66																						
	South				10	195	226																			
		4.00		22.60																						
WOB Window	ws Including Doors	4.00			53	1031	1477																			
	Skylight	2.03	38.33	89.12																						
	Doors	4.00	19.45	3.20	21	408	67																			
Ne	et exposed walls A	20.84	3.73		660		405	60		37																
	et exposed walls B	21.40	3.64			887	146			٠.																
		-				301	140																			
	xposed Ceilings A	59.22	1.31	0.67																						
E	xposed Ceilings B	27.65	2.81	1.44																						
	Exposed Floors	29.80	2.61	0.23												1 1				11						
Foundation Cond	ductive Heatloss					6786			542																	
	Heat Loss					9404			542																	
Total Conductive	Heat Gain						2380			37																
Ala I aalaasa			0.0004						470	31																
Air Leakage	Heat Loss/Gain			0600		8298	143		478	2																
	Case 1		0.07	0.08																						
Ventilation	Case 2		16.80	13.82																						
	Case 3	х	0.05	0.08		427	194		25	3																
	Heat Gain People			239																						
	Appliances Loads	1 =.25 pe	rcont	4352																						
		1 =.25 pe	ii Ceiii																							
	Duct and Pipe loss			10%																						
Level HL Total Level HG Total	19,173 3,586		tal HL for per HG per room		1	8129	3531		1044	55																
	Level 2				69 A	T/FAM		16 A			FOY 27 A		WR 6 A		GRT I1 A	A		A	A		A		A		A	
	ft. exposed wall A				69 A B	T/FAM		16 A B	4		27 A B		6 A B		11 A B	В		В	В		В		В		В	
	ft. exposed wall A			1	69 A	T/FAM		16 A	4		27 A	1	6 A	. 10	11 A B		1			1				1		
	n ft. exposed wall A n ft. exposed wall B Ceiling height				69 A B			16 A B 13.0	A 3	1	27 A B 0.0	1	6 A B 10.0	10	11 А В .0	B 10.0	1	B 0.0	B 10.0	1	B 0.0		B 10.0	1	B 10.0	
Run	n ft. exposed wall A n ft. exposed wall B Ceiling height Floor area				69 A B 10.0 573 Are			16 A B 13.0 67 A	A 3 Area	1	27 A B 0.0 88 Area	1	6 A B 10.0 31 Area	10	11 A B .0 96 Area	B 10.0 Area	11	B 0.0 Area	B 10.0 Area	1	B 0.0 Area		B 10.0 Area	1	B 10.0 Area	
Run	n ft. exposed wall A n ft. exposed wall B Ceiling height Floor area Exposed Ceilings A				69 A B 10.0 573 Are			16 A B 13.0 67 A A	A Area A	1	27 A B 0.0 88 Area A	1	6 A B 10.0 31 Area A	10	11 A B .0 96 Area A	B 10.0 Area A	11	B 0.0 Area A	B 10.0 Area A	1	B 0.0 Area A		B 10.0 Area A	1	B 10.0 Area A	
Run	n ft. exposed wall A n ft. exposed wall B Ceiling height Floor area Exposed Ceilings A Exposed Ceilings B				69 A B 10.0 573 Are A B	ea		16 A B 13.0 67 A A B	A 3 Area A 3	1	27 A B 0.0 88 Area A B	1	6 A B 10.0 31 Area A B	10	11 A B .0 06 Area A B	B 10.0 Area A B	1	B 0.0 Area A B	B 10.0 Area A B	1	B 0.0 Area A B		B 10.0 Area A B	1	B 10.0 Area A B	
Run E E	n ft. exposed wall A n ft. exposed wall B Ceiling height Floor area Exposed Ceilings A Exposed Ceilings B Exposed Floors			!	69 A B 10.0 573 Are A B Fir	ea		16 A B 13.0 67 A A B	A 3 Area A 3	1	27 A B 0.0 88 Area A B Fir	1	6 A B 10.0 31 Area A B Fir	10 29	11 A B .0 06 Area A B	B 10.0 Area A	11	B 0.0 Area A	B 10.0 Area A	1	B 0.0 Area A		B 10.0 Area A	1	B 10.0 Area A	
Run E E	n ft. exposed wall A n ft. exposed wall B Ceiling height Floor area Exposed Ceilings A Exposed Ceilings B Exposed Floors Gross Exp Wall A			!	69 A B 10.0 573 Are A B	ea		16 A B 13.0 67 A A B	A 3 Area A 3	1	27 A B 0.0 88 Area A B	1	6 A B 10.0 31 Area A B	10	11 A B .0 06 Area A B	B 10.0 Area A B	11	B 0.0 Area A B	B 10.0 Area A B	1	B 0.0 Area A B		B 10.0 Area A B	1	B 10.0 Area A B	
Run E E	nft. exposed wall A nft. exposed wall B Ceilling height Floor area Exposed Ceilings A Exposed Ceilings B Exposed Floors Gross Exp Wall A Gross Exp Wall A				69 A B 10.0 573 Are A B Fir	ea		16 A B 13.0 67 A A B Fi 208	A Area A B Fir	11	27 A B 0.0 88 Area A B Fir		6 A B 10.0 31 Area A B Fir	10 2: 4:	11 A B .0 .0 66 Area A B Fir	B 10.0 Area A B Fir		B 0.0 Area A B Fir	B 10.0 Area A B Fir		B 0.0 Area A B Fir		B 10.0 Area A B Fir		B 10.0 Area A B Fir	
Run E E	n ft. exposed wall A n ft. exposed wall B Ceiling height Floor area Exposed Ceilings A Exposed Ceilings B Exposed Floors Gross Exp Wall A	R-Values L	oss Gair		69 A B 10.0 573 Are A B Fir	ea		16 A B 13.0 67 A A B Fi 208	A Area A B Fir	1	27 A B 0.0 88 Area A B Fir	1 Gain	6 A B 10.0 31 Area A B Fir	10 29	11 A B .0 06 Area A B	B 10.0 Area A B Fir	1 ^l Gain	B 0.0 Area A B	B 10.0 Area A B	1 Gain	B 0.0 Area A B Fir	Gain	B 10.0 Area A B	1 Gain	B 10.0 Area A B Fir	Gain
Run E E	nft. exposed wall A nft. exposed wall B Ceiling height Floor area Exposed Ceilings A Exposed Floors Gross Exp Wall A Gross Exp Wall B Components				69 A B 10.0 573 Are A B Fir	ea		16 A B 13.0 67 A A B Fi 208	A Area A B Fir	11	27 A B 0.0 88 Area A B Fir		6 A B 10.0 31 Area A B Fir	10 2: 4:	11 A B .0 .0 66 Area A B Fir	B 10.0 Area A B Fir		B 0.0 Area A B Fir	B 10.0 Area A B Fir		B 0.0 Area A B Fir		B 10.0 Area A B Fir		B 10.0 Area A B Fir	Gain
Run E E	nft. exposed wall A nft. exposed wall B Ceiling height Floor area Exposed Ceilings B Exposed Floors Gross Exp Wall A Gross Exp Wall B Components North Shaded	4.00	19.45	11.73	69 A B 10.0 573 Are A B Fir 690	ea ss Ga	iin	16 A B 13.0 67 A A B F 208	A Area A B Fir	10 2 ain 106	27 A B 0.0 88 Area A B Fir 270	Gain	6 A B 10.0 31 Area A B Fir	10 2: 4:	11 A B .0 .0 66 Area A B Fir	B 10.0 Area A B Fir		B 0.0 Area A B Fir	B 10.0 Area A B Fir		B 0.0 Area A B Fir		B 10.0 Area A B Fir		B 10.0 Area A B Fir	Gain
Run E E	nft. exposed wall A nft. exposed wall B Ceiling height Floor area Exposed Ceilings A Exposed Ceilings B Exposed Floors Gross Exp Wall B Components North Shaded East/West	4.00 4.00	19.45 19.45	11.73	69 A B 10.0 573 Are A B Fir 690	ea ss Ga		16 A B 13.0 67 A A B F 208	A Area A B Fir	10 2 ain 106	27 A B 0.0 88 Area A B Fir	Gain	6 A B 10.0 31 Area A B Fir 60 Loss	10 2: 4 Sain	11 A B .0 16 Area A B Fir 10 Loss Gain	B 10.0 Area A B Fir		B 0.0 Area A B Fir	B 10.0 Area A B Fir		B 0.0 Area A B Fir		B 10.0 Area A B Fir		B 10.0 Area A B Fir	Gain
Run E E	nft. exposed wall A nft. exposed wall A nft. exposed wall B Ceiling height Floor area Exposed Ceilings B Exposed Floors Gross Exp Wall A Gross Exp Wall B Components North Shaded East/West South	4.00 4.00 4.00	19.45 19.45 19.45	11.73 29.66 22.60	69 A B 10.0 573 Are A B Fir 690	ea ss Ga	iin	16 A B 13.0 67 A A B F 208	A Area A B Fir	10 2 ain 106	27 A B 0.0 88 Area A B Fir 270	Gain	6 A B 10.0 31 Area A B Fir	10 2: 4 Sain	11 A B .0 .0 66 Area A B Fir	B 10.0 Area A B Fir		B 0.0 Area A B Fir	B 10.0 Area A B Fir		B 0.0 Area A B Fir		B 10.0 Area A B Fir		B 10.0 Area A B Fir	Gain
Run E E	nft. exposed wall A nft. exposed wall A nft. exposed wall B Ceiling height Floor area Exposed Ceilings B Exposed Floors Gross Exp Wall A Gross Exp Wall B Components North Shaded East/West South Existing Windows	4.00 4.00 4.00 1.99	19.45 19.45 19.45 39.10	11.73 29.66 22.60 24.56	69 A B 10.0 573 Are A B Fir 690	ea ss Ga	iin	16 A B 13.0 67 A A B F 208	A Area A B Fir	10 2 ain 106	27 A B 0.0 88 Area A B Fir 270	Gain	6 A B 10.0 31 Area A B Fir 60 Loss	10 2: 4 Sain	11 A B .0 16 Area A B Fir 10 Loss Gain	B 10.0 Area A B Fir		B 0.0 Area A B Fir	B 10.0 Area A B Fir		B 0.0 Area A B Fir		B 10.0 Area A B Fir		B 10.0 Area A B Fir	Gain
Run E E	oft. exposed wall A oft. exposed wall B Ceiling height Floor area Exposed Ceilings A Exposed Ceilings B Exposed Floors Gross Exp Wall B Components North Shaded East/West South Existing Windows Skylight	4.00 4.00 4.00 1.99 2.03	19.45 19.45 19.45 39.10 38.33	11.73 29.66 22.60 24.56 39.12	69 A B 10.0 573 Are A B Fir 690	ea ss Ga	iin	16 A B 13.0 67 A A B F 208 Lt	AArea AArea AA BBEIT IN IN I	2 ain 106	27 A B 0.0 88 Area A B Fir 270 Loss	Gain 593	6 A B 10.0 31 Area A B Fir 60 Loss	10 2: 4 Sain	11 A B .0 16 Area A B Fir 10 Loss Gain	B 10.0 Area A B Fir		B 0.0 Area A B Fir	B 10.0 Area A B Fir		B 0.0 Area A B Fir		B 10.0 Area A B Fir		B 10.0 Area A B Fir	Gain
Run	oft. exposed wall A oft. exposed wall A oft. exposed wall B Ceiling height Floor area Exposed Ceilings A Exposed Ceilings B Exposed Floors Gross Exp Wall A Gross Exp Wall B Components North Shaded East/West South Existing Windows Skylight Doors	4.00 4.00 4.00 1.99 2.03 4.00	19.45 19.45 19.45 39.10 38.33 19.45	11.73 29.66 22.60 24.56 39.12 3.20	69 A B 10.0 573 Are A B Fir 690 Lo	ea	iin 2432	16 A B 13.0 67 A A B F 208 LL 9	A Area A A B B B B B B B B B B B B B B B B B	106 106	27 A B 0.0 88 Area A B Fir 270 Loss 20 389	Gain 593	6 A B 10.0 31 Area A B Fir 60 Loss 9	4: 4: 4: 4: 4: 4: 4: 4: 4: 4: 4: 4: 4: 4	11 A B B	B 10.0 Area A B Fir Loss		B 0.0 Area A B Fir	B 10.0 Area A B Fir		B 0.0 Area A B Fir		B 10.0 Area A B Fir		B 10.0 Area A B Fir	Gain
Run	oft. exposed wall A oft. exposed wall B Ceiling height Floor area Exposed Ceilings A Exposed Ceilings B Exposed Floors Gross Exp Wall B Components North Shaded East/West South Existing Windows Skylight	4.00 4.00 4.00 1.99 2.03	19.45 19.45 19.45 39.10 38.33	11.73 29.66 22.60 24.56 39.12 3.20	69 A B 10.0 573 Are A B Fir 690 Lo	ea	iin 2432	16 A B 13.0 67 A A B F 208 Lt	AArea AArea AA BBEIT IN IN I	106 106	27 A B 0.0 88 Area A B Fir 270 Loss	Gain 593	6 A B 10.0 31 Area A B Fir 60 Loss	10 2: 4 Sain	11 A B B	B 10.0 Area A B Fir Loss		B 0.0 Area A B Fir	B 10.0 Area A B Fir		B 0.0 Area A B Fir		B 10.0 Area A B Fir		B 10.0 Area A B Fir	Gain
Run	aft. exposed wall A tf. exposed wall A tf. exposed wall B Celling height Floor area Exposed Ceilings A Exposed Floors Gross Exp Wall A Gross Exp Wall B Components North Shaded East/West South Existing Windows Skylight Doors et exposed walls A	4.00 4.00 4.00 1.99 2.03 4.00	19.45 19.45 19.45 39.10 38.33 19.45	11.73 29.66 22.60 24.56 39.12 3.20	69 A B 10.0 573 Are A B Fir 690 Lo	ea	iin 2432	16 A B 13.0 67 A A B F 208 LL 9	A Area A A B B B B B B B B B B B B B B B B B	106 106	27 A B 0.0 88 Area A B Fir 270 Loss 20 389	Gain 593	6 A B 10.0 31 Area A B Fir 60 Loss 9	4: 4: 4: 4: 4: 4: 4: 4: 4: 4: 4: 4: 4: 4	11 A B B	B 10.0 Area A B Fir Loss		B 0.0 Area A B Fir	B 10.0 Area A B Fir		B 0.0 Area A B Fir		B 10.0 Area A B Fir		B 10.0 Area A B Fir	Gain
Run E E	oft. exposed wall A oft. exposed wall A oft. exposed wall B Ceiling height Floor area Exposed Ceilings B Exposed Floors Gross Exp Wall B Components North Shaded East/West South Existing Windows Skylight Doors et exposed walls A et exposed walls B	4.00 4.00 4.00 1.99 2.03 4.00 21.40 8.50	19.45 19.45 19.45 39.10 38.33 19.45 3.64 9.15	11.73 29.66 22.60 24.56 39.12 3.20 0.60	69 A B 10.0 573 Are A B Fir 690 Lo	ea	iin 2432	16 A B 13.0 67 A A B F 208 LL 9	A Area A A B B B B B B B B B B B B B B B B B	106 106	27 A B 0.0 88 Area A B Fir 270 Loss 20 389	Gain 593	6 A B 10.0 31 Area A B Fir 60 Loss 9	4: 4: 4: 4: 4: 4: 4: 4: 4: 4: 4: 4: 4: 4	11 A B B	B 10.0 Area A B Fir Loss		B 0.0 Area A B Fir	B 10.0 Area A B Fir		B 0.0 Area A B Fir		B 10.0 Area A B Fir		B 10.0 Area A B Fir	Gain
Run E E Ne Ne	oft. exposed wall A oft. exposed wall A oft. exposed wall B Ceiling height Floor area Exposed Ceilings A Exposed Floors Gross Exp Wall A Gross Exp Wall B Components North Shaded East/West South Existing Windows Skylight Doors et exposed walls A et exposed walls B Exposed Ceilings A	4.00 4.00 1.99 2.03 4.00 21.40 8.50 59.22	19.45 19.45 19.45 39.10 38.33 19.45 3.64 9.15	11.73 29.66 22.60 24.56 39.12 3.20 0.60 1.51 0.67	69 A B 10.0 573 Are A B Fir 690 Lo	ea	iin 2432	16 A B 13.0 67 A A B F 208 LL 9	A Area A A B B B B B B B B B B B B B B B B B	106 106	27 A B 0.0 88 Area A B Fir 270 Loss 20 389	Gain 593	6 A B 10.0 31 Area A B Fir 60 Loss 9	4: 4: 4: 4: 4: 4: 4: 4: 4: 4: 4: 4: 4: 4	11 A B B	B 10.0 Area A B Fir Loss		B 0.0 Area A B Fir	B 10.0 Area A B Fir		B 0.0 Area A B Fir		B 10.0 Area A B Fir		B 10.0 Area A B Fir	Gain
Run E E Ne Ne	aft. exposed wall A tf. exposed wall A tf. exposed wall B Celling height Floor area Exposed Cellings A Exposed Floors Gross Exp Wall B Components North Shaded East/West South Existing Windows Skylight Doors et exposed Cellings A et exposed Cellings B Exposed Cellings B Exposed Cellings B Exposed Cellings B	4.00 4.00 4.00 1.99 2.03 4.00 21.40 8.50 59.22 27.65	19.45 19.45 19.45 39.10 38.33 19.45 3.64 9.15 1.31 2.81	11.73 29.66 22.60 24.56 39.12 3.20 0.60 1.51 0.67	69 A B 10.0 573 Are A B Fir 690 Lo	ea	iin 2432	16 A B 13.0 67 A A B F 208 LL 9	A Area A A B B B B B B B B B B B B B B B B B	106 106	27 A B 0.0 88 Area A B Fir 270 Loss 20 389	Gain 593	6 A B 10.0 31 Area A B Fir 60 Loss 9	4: 4: 4: 4: 4: 4: 4: 4: 4: 4: 4: 4: 4: 4	11 A B B	B 10.0 Area A B Fir Loss		B 0.0 Area A B Fir	B 10.0 Area A B Fir		B 0.0 Area A B Fir		B 10.0 Area A B Fir		B 10.0 Area A B Fir	Gain
Run E E Not Not Not E E	Inf. exposed wall A Inf. exposed wall A Inf. exposed wall B Ceiling height Floor area Exposed Ceilings B Exposed Floors Gross Exp Wall B Components North Shaded East/West South Existing Windows Skylight Doors et exposed walls A et exposed walls B Exposed Ceilings B Exposed Ceilings B Exposed Floors	4.00 4.00 1.99 2.03 4.00 21.40 8.50 59.22	19.45 19.45 19.45 39.10 38.33 19.45 3.64 9.15 1.31 2.81 2.61	11.73 29.66 22.60 24.56 89.12 3.20 0.60 1.51 0.67 1.44 0.23	69 A B 10.0 573 Are A B Fir 690 Lo	ea	iin 2432	16 A B 13.0 67 A A B F 208 LL 9	A Area A A B B B B B B B B B B B B B B B B B	106 106	27 A B 0.0 88 Area A B Fir 270 Loss 20 389	Gain 593	6 A B 10.0 31 Area A B Fir 60 Loss 9	4: 4: 4: 4: 4: 4: 4: 4: 4: 4: 4: 4: 4: 4	11 A B B	B 10.0 Area A B Fir Loss		B 0.0 Area A B Fir	B 10.0 Area A B Fir		B 0.0 Area A B Fir		B 10.0 Area A B Fir		B 10.0 Area A B Fir	Gain
Run E E NN NN E E E Foundation Cond	oft. exposed wall A oft. exposed wall A oft. exposed wall B Ceiling height Floor area Exposed Ceilings B Exposed Floors Gross Exp Wall B Components North Shaded East/West South Existing Windows Skylight Doors et exposed walls A et exposed walls B Exposed Ceilings A Exposed Ceilings B Exposed Ceilings B Exposed Ceilings A Exposed Floors B Expose	4.00 4.00 4.00 1.99 2.03 4.00 21.40 8.50 59.22 27.65	19.45 19.45 19.45 39.10 38.33 19.45 3.64 9.15 1.31 2.81 2.61	11.73 29.66 22.60 24.56 39.12 3.20 0.60 1.51 0.67	69 A B 10.0 573 Ard A B FIr 690 Lo:	ss Ga 11595 :	iin 2432	16 A B 13.0 67 A A B F 208 LL 9	A A A A A A A A A A A A A A A A A A A	106 106	27 A B 0.0 88 Area A B Fir 270 Loss 20 389 26 506 814	Gain 593	6 A B B 10.0 31 Area A B Fir 60 Loss 9 175 51 185	4: 4: 4: 4: 4: 4: 4: 4: 4: 4: 4: 4: 4: 4	11 A B B -0 16 Area A B Fir 10 10 Loss Gain 67 67 68 67 67 68 68 67 68 68 68 68 68 68 68 68 68 68 68 68 68	B 10.0 Area A B Fir Loss		B 0.0 Area A B Fir	B 10.0 Area A B Fir		B 0.0 Area A B Fir		B 10.0 Area A B Fir		B 10.0 Area A B Fir	Gain
Run E E Not Not Not E E	and the exposed wall A and the exposed wall B celling height Floor area exposed Cellings A exposed Cellings B Exposed Floors Gross Exp Wall B Components North Shaded East/West South Existing Windows Skylight Doors et exposed walls B exposed Cellings A et exposed walls B Exposed Floors Such Peat Loss Heat Loss Heat Loss	4.00 4.00 4.00 1.99 2.03 4.00 21.40 8.50 59.22 27.65	19.45 19.45 19.45 39.10 38.33 19.45 3.64 9.15 1.31 2.81 2.61	11.73 29.66 22.60 24.56 89.12 3.20 0.60 1.51 0.67 1.44 0.23	69 A B 10.0 573 Ard A B FIr 690 Lo:	ss Ga 1595 :	364	16 A B 13.0 67 A A B F 208 LL 9	A Area A A B B B B B B B B B B B B B B B B B	106 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	27 A B 0.0 88 Area A B Fir 270 Loss 20 389	Gain 593 83 134	6 A B 10.0 31 Area A B Fir 60 Loss 9	100 2: 4: 4: 33in 3: 3: 3: 3: 3: 3: 3: 3: 3: 3: 3: 3: 3:	11 A B 0.0 16 Area A B Filr 10 10 10 10 10 10 10 10 10 10 10 10 10	B 10.0 Area A B Fir Loss		B 0.0 Area A B Fir	B 10.0 Area A B Fir		B 0.0 Area A B Fir		B 10.0 Area A B Fir		B 10.0 Area A B Fir	Gain
No. No. No. No. No. No. No. Toundation Cond	oft. exposed wall A oft. exposed wall A celling height Floor area Exposed Cellings A Exposed Floors Gross Exp Wall A Components North Shaded East/West South Existing Windows Skylight Doors et exposed walls A et exposed Walls A Exposed Cellings B Exposed Cellings B Exposed Floors Suctive Heat Coss Heat Loss Heat Gain	4.00 4.00 4.00 1.99 2.03 4.00 21.40 8.50 59.22 27.65	19.45 19.45 19.45 39.10 38.33 19.45 3.64 9.15 1.31 2.81 2.61	11.73 29.66 22.60 24.56 39.12 3.20 0.60 1.51 0.67 1.44 0.23	69 A B 10.0 573 Ard A B Fir 690 Lo	ea ss Ga 1595 :	364 2796	16 A B 13.0 67 A A B F 208 L 9	A 3 Area A 3 B 5 F 1 F 1 F 1 F 1 F 1 F 1 F 1 F 1 F 1 F	106 279	27 A B B 0.0 888 Area A B Fir 270 Loss 20 389 26 506 224 814	Gain 593 83 134 810	6 A B B 10.0 31 Area A B Fir 60 Loss 9 175 51 185 360	10 2: 4 4 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	11 A B B	B 10.0 Area A B Fir Loss		B 0.0 Area A B Fir	B 10.0 Area A B Fir		B 0.0 Area A B Fir		B 10.0 Area A B Fir		B 10.0 Area A B Fir	Gain
Run E E NN NN E E E Foundation Cond	and the exposed wall A and the exposed wall B celling height Floor area exposed Cellings A exposed Cellings B Exposed Floors Gross Exp Wall B Components North Shaded East/West South Existing Windows Skylight Doors et exposed walls B exposed Cellings A et exposed walls B Exposed Floors Such Peat Loss Heat Loss Heat Loss	4.00 4.00 4.00 1.99 2.03 4.00 21.40 8.50 59.22 27.65	19.45 19.45 19.45 39.10 38.33 19.45 3.64 9.15 1.31 2.81 2.61	11.73 29.66 22.60 24.56 89.12 3.20 0.60 1.51 0.67 1.44 0.23	69 A B 10.0 573 Ard A B Fir 690 Lo	ss Ga 1595 :	364	16 A B 13.0 67 A A B F 208 L 9	A A A A A A A A A A A A A A A A A A A	106 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	27 A B 0.0 88 Area A B Fir 270 Loss 20 389 26 506 814	Gain 593 83 134 810	6 A B B 10.0 31 Area A B Fir 60 Loss 9 175 51 185	100 2: 4: 4: 33in 3: 3: 3: 3: 3: 3: 3: 3: 3: 3: 3: 3: 3:	11 A B 0.0 16 Area A B Filr 10 10 10 10 10 10 10 10 10 10 10 10 10	B 10.0 Area A B Fir Loss		B 0.0 Area A B Fir	B 10.0 Area A B Fir		B 0.0 Area A B Fir		B 10.0 Area A B Fir		B 10.0 Area A B Fir	Gain
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Run E E Note Note Total Conductive Air Leakage	Inf. exposed wall A Inf. exposed wall A Inf. exposed wall B Ceiling height Floor area Exposed Ceilings B Exposed Floors Gross Exp Wall B Components North Shaded East/West South Existing Windows Skylight Doors et exposed walls B Exposed Walls Exposed Ceilings A Exposed Ceilings B Exposed Floors Suctive Heat Coss Heat Loss/Gain Heat Loss/Gain Heat Loss/Gain Case 2	4.00 4.00 4.00 1.99 2.03 4.00 21.40 8.50 59.22 27.65 29.80	19.45 19.45 19.45 39.10 38.33 19.45 3.64 9.15 1.31 2.81 2.61	11.73 29.66 22.60 24.56 39.12 3.20 0.60 1.51 0.67 1.44 0.23 x	69 A B B 110.0 573 Ara A B Fir 6690 Lo	SSS Ga :: 11595 :: 122210 :: 133805 :: 122209	364 364 168	16 A B 13.0 67 A A B F 208 L 9	A A A A A A A A A A A A A A A A A A A	200 200 200 279 17	27 A B 0.0 88 Area A B Fir 270 Loss 20 389 26 506 224 814	Sain 593 83 134 810 49	6 A B B 10.0 31 Area A B Fir 60 Loss 9 175 51 185 360 209	203 : 31 31 31 234 14	11 A B B	B 10.0 Area A B Fir Loss		B 0.0 Area A B Fir	B 10.0 Area A B Fir		B 0.0 Area A B Fir		B 10.0 Area A B Fir		B 10.0 Area A B Fir	Gain
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Net E E E Foundation Cond Total Conductive Air Leakage Ventilation	Inf. exposed wall A Inf. exposed wall A Inf. exposed wall B Ceiling height Floor area Exposed Ceilings B Exposed Floors Gross Exp Wall B Components North Shaded East/West South Existing Windows Skylight Doors et exposed walls A et exposed walls B Exposed Ceilings B Exposed Ceilings B Exposed Floors Juctive Heatloss Heat Loss/Gain Heat Loss/Gain Case 2 Case 3 Leas Gain People Appliances Loads	4.00 4.00 4.00 1.99 2.03 4.00 21.40 8.50 59.22 27.65 29.80	19.45 19.45 19.45 39.10 38.33 19.45 3.64 9.15 1.31 2.81 2.61 0.5805 0.04 16.80	11.73 29.66 22.50 24.56 89.12 0.60 1.51 0.67 1.44 0.23 x 0.08 13.82 0.08	69 A B B 110.0 573 Ara A B Fir 6690 Lo	SSS Ga 22210 22210 22209 173	364 364 168	16 A B 13.0 67 A A B F 208 L 9	A 3 3 3 4 7 8 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	200 200 200 279 17	27 A B 0.0 88 Area A B Fir 270 Loss 20 389 26 506 224 814	Sain 593 83 134 810 49	6 A B B 10.0 31 Area A B Fir 60 Loss 9 175 51 185 360 209	100 2: 4: 4: 4: 4: 4: 4: 4: 4: 4: 4: 4: 4: 4:	11 A B B	B 10.0 Area A B Fir Loss		B 0.0 Area A B Fir	B 10.0 Area A B Fir		B 0.0 Area A B Fir		B 10.0 Area A B Fir		B 10.0 Area A B Fir	Gain
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Net E E E Foundation Cond Total Conductive Air Leakage Ventilation	Inf. exposed wall A Inf. exposed wall A Inf. exposed wall B Ceiling height Floor area Exposed Ceilings B Exposed Floors Gross Exp Wall B Components North Shaded East/West South Existing Windows Skylight Doors et exposed walls A et exposed walls B Exposed Ceilings B Exposed Ceilings B Exposed Floors Juctive Heatloss Heat Loss/Gain Heat Loss/Gain Case 2 Case 3 Leas Gain People Appliances Loads	4.00 4.00 1.99 2.03 4.00 21.40 8.50 22.2 27.65 29.80	19.45 19.45 19.45 39.10 38.33 19.45 3.64 9.15 1.31 2.81 2.61 0.5805 0.04 16.80	11.73 29.66 24.56 89.12 3.20 0.60 1.51 0.67 1.44 0.23 x	69 A B B 10.0 For a B B Fire Series S	SSS Ga 22210 22210 22209 173	364 22796 168	16 A B 13.0 67 A A B B F 208 L L 1778	A 3 3 3 4 7 8 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	279 17	27 A B 0.0 88 Area A B Fir 270 Loss 20 389 26 506 224 814	Sain 593 83 134 810 49	6 A B B 10.0 31 Area A B Fir 60 Loss 9 175 51 185 360 209	100 2: 4: 4: 4: 4: 4: 4: 4: 4: 4: 4: 4: 4: 4:	11 A B B 10 16 Area A B Fir 10 10 Loss Gain 10 10 1381 22' 11965 90: 1141 5	B 10.0 Area A B Fir Loss		B 0.0 Area A B Fir	B 10.0 Area A B Fir		B 0.0 Area A B Fir		B 10.0 Area A B Fir		B 10.0 Area A B Fir	Gain
Run E E Note Note Note Air Leakage Ventilation	and the exposed wall A and the exposed wall B celling height Floor area Exposed Cellings A Exposed Cellings B Exposed Floors Gross Exp Wall B Components North Shaded East/West South Existing Windows Skylight Doors et exposed walls A et exposed Walls B Exposed Floors Heat Gain Heat Loss Heat Gain Heat Loss Gain Heat Gain Heat Gain People Appliances Loads Duct and Pipe loss Lating People Suctive Hoat Case 2 Case 3 Heat Gain People Appliances Loads Duct and Pipe loss Lating People Suctive Hoats Case 1 Case 2 Case 3 Heat Gain People Appliances Loads Duct and Pipe loss 14,748	4.00 4.00 4.00 1.99 2.03 4.00 21.40 8.50 59.22 27.65 29.80 x	19.45 19.45 19.45 39.10 38.31 38.33 19.45 3.64 9.15 1.31 2.61 2.61 0.5805 0.04 16.80 0.05	11.73 22.66 22.60 24.56 33.20 0.60 1.51 1.44 0.23 0.60 0.08 13.82 0.60 0.08 13.82 239 4352	69 A B B 10.0 For a B B Fire Series S	ss Ga 11595 :: 22210 :: 173 :: 6187	2432 364 2796 168 228 22176	16 A B 13.0 67 A A B B F 208 L L 1778	A 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	106 2 279 17 23 1088	27 A B B 0.0 88 Area A B Fir 2770 Loss 20 389 26 506 814 1709 992 78	Sain 593 83 134 810 49 66	6 A B B 10.0 31 Area A B Fir 60 Loss 0 175 1 185 360 209	203 : 31 31 31 44 14 19 1	11 A B B 10 16 Area A B Fiir 10 10 Loss Gain 10 10 1381 22' 11965 900 1141 5 11965 900 1141 5 11965 900 1141 5	B 10.0 Area A B Fir Loss		B 0.0 Area A B Fir	B 10.0 Area A B Fir		B 0.0 Area A B Fir		B 10.0 Area A B Fir		B 10.0 Area A B Fir	Gain
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I review and take responsibility for the design work and am qualified in the appropriate category as an "other designer" under 32964

Division C subsection 3.2.5. of the Building Code. Individual BCIN:

Man 16Cot 2

David DaCosta

SB-12 Package **Energy Star**



48,687

27,477

btu/h

Total Heat Loss

Total Heat Gain

Heatloss/Gain Calculations CSA-F280-12

2985 Drew Road, Suite 202, Mississauga, Ontario L4T 0A4 Tel: 905-671-9800

e-mail hvac@gtadesigns.ca

Builder:	EM Air Systoms		Date:	Sontombor 21	2022		Weather Data	Pichmond Hill	44 -5	0 00 20	50		
Bulluer.	LW All Systems		Date.			Suntain 4			44 -0.	0 00 20	30	P	Pa roject # PJ-0
Project:	King East Developmen	ts	Model:	Model 2700 W	/OB	System 1	Heat Loss ^T	77.8 deg. F	Ht gain ^T	12.8 deg. F		L	ayout # JB-0
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	306	•	99	216	99	261	126	99	225	• •			
P-Value I d	nee Gain I	oss Gain	Loss	Gain Loss I	Gain Loss Ga	ain Loss Gain	Loss Gain	Loss Gain	Loss Ga	in Loss	Gain	Loss Gain	Loss Ga
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8.50	9.15 1.51	207 20	2 257 229	172 190 226	121 02 122	62 490 236 424	00 119 60	151 109 101	135 177	04			
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29.80	2.61 0.23		60 15	14 180 470	41 93 243	21 9 23 2							
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	al HL for per room			2862	1459	2393	994 495	1122		1369			
	al HL for per room IG per room x 1.3	222	29	2862	1984	934 2148	495	1072				Α	A
	al HL for per room IG per room x 1.3	222		2862	1459	2393	994 495	1122 1072		1369 A B		A B	A B
	Id HL for per room IG per room x 1.3	222 A B	A B	2 2862 546 A B	1984 1459 A B	934 2393 2148 A B	A B	A B	A B	A B		В	В
	al HL for per room	A B Area A	A B Area A	2 2862 2862 A B Area A	1984 Area A	2393 2148 A B Area A	A B Area A	A B Area A	A B Area A	A B Area A		B Area A	B Area A
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	al HL for per room IG per room x 1.3	A B Area A	A B Area A	2 2862 2862 A B Area A	1984 Area A	2393 2148 A B Area A	A B Area A	A B Area A	A B Area A	A B Area A		B Area A	B Area A
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R-Values LC 4.00 4.00 4.00 1.99 2.03	Al HL for per room IG per room x 1.3 ISS Gain 19.45 11.73 19.45 29.66 19.45 22.60 19.45 22.60 39.10 24.56 38.33 89.12 19.45 3.20 3.64 0.60 9.15 1.51	A B Area A B B Fir	A B Area A B Fir	2862 546 A B Area A B Fir	A B Area A B FIr	934 2393 2148 A B Area A B Fir	A B Area A B Fir	A B Area A B Fir	A B Area A B Fir	A B Area A B Fir	Gain	B Area A B Fir	B Area A B Fir
R-Values Lt. 4.00 4.00 4.00 4.00 2.03 4.00 21.40 8.50 59.22 27.65	HL for per room G per room x 1.3	A B Area A B B Fir	A B Area A B Fir	2862 546 A B Area A B Fir	A B Area A B FIr	934 2393 2148 A B Area A B Fir	A B Area A B Fir	A B Area A B Fir	A B Area A B Fir	A B Area A B Fir	Gain	B Area A B Fir	B Area A B Fir
R-Values Lc 4.00 4.00 4.00 1.99 2.03 4.00 21.40 8.50 59.22	BI HL for per room IG per room x 1.3 Gain	A B Area A B B Fir	A B Area A B Fir	2862 546 A B Area A B Fir	A B Area A B FIr	934 2393 2148 A B Area A B Fir	A B Area A B Fir	A B Area A B Fir	A B Area A B Fir	A B Area A B Fir	Gain	B Area A B Fir	B Area A B Fir
R-Values Lt. 4.00 4.00 4.00 4.00 2.03 4.00 21.40 8.50 59.22 27.65	HL for per room G per room x 1.3	A B Area A B B Fir	A B Area A B Fir	2862 546 A B Area A B Fir	A B Area A B FIr	934 2393 2148 A B Area A B Fir	A B Area A B Fir	A B Area A B Fir	A B Area A B Fir	A B Area A B Fir	Gain	B Area A B Fir	B Area A B Fir
R-Values Lt. 4.00 4.00 4.00 4.00 2.03 4.00 21.40 8.50 59.22 27.65	HL for per room G per room x 1.3	A B Area A B B Fir	A B Area A B Fir	2862 546 A B Area A B Fir	A B Area A B FIr	934 2393 2148 A B Area A B Fir	A B Area A B Fir	A B Area A B Fir	A B Area A B Fir	A B Area A B Fir	Gain	B Area A B Fir	B Area A B Fir
R-Values Lt. 4.00 4.00 4.00 4.00 2.03 4.00 21.40 8.50 59.22 27.65	BSS Gain 19.45 11.73 19.45 22.60 19.45 22.60 38.33 89.12 19.45 3.20 3.64 0.60 9.15 1.51 1.31 0.67 2.81 1.44 2.61 0.23 0.000 0.0600 0.00 0.08	A B Area A B B Fir	A B Area A B Fir	2862 546 A B Area A B Fir	A B Area A B FIr	934 2393 2148 A B Area A B Fir	A B Area A B Fir	A B Area A B Fir	A B Area A B Fir	A B Area A B Fir	Gain	B Area A B Fir	B Area A B Fir
R-Values Lc 4.00 4.00 4.00 1.99 2.03 4.00 21.40 8.50 59.22 27.65 29.80	DES Gain 1 1.73 19.45 11.73 19.45 29.66 39.10 24.56 38.33 89.12 19.45 3.20 3.64 0.60 9.15 1.51 1.31 0.67 2.81 1.44 2.61 0.23 0.0000 0.0600 0.000 0.0600 0.000 0.08 16.80 13.82	A B Area A B B Fir	A B Area A B Fir	2862 546 A B Area A B Fir	A B Area A B FIr	934 2393 2148 A B Area A B Fir	A B Area A B Fir	A B Area A B Fir	A B Area A B Fir	A B Area A B Fir	Gain	B Area A B Fir	B Area A B Fir
R-Values Lt. 4.00 4.00 4.00 4.00 1.99 2.03 4.00 2.140 8.50 59.22 27.65 29.80	HL for per room G per room x 1.3	A B Area A B B Fir	A B Area A B Fir	2862 546 A B Area A B Fir	A B Area A B FIr	934 2393 2148 A B Area A B Fir	A B Area A B Fir	A B Area A B Fir	A B Area A B Fir	A B Area A B Fir	Gain	B Area A B Fir	B Area A B Fir
R-Values Lc 4.00 4.00 4.00 1.99 2.03 4.00 21.40 8.50 59.22 27.65 29.80	SE Gain 1 1 1 1 1 1 1 1 1	A B Area A B B Fir	A B Area A B Fir	2862 546 A B Area A B Fir	A B Area A B FIr	934 2393 2148 A B Area A B Fir	A B Area A B Fir	A B Area A B Fir	A B Area A B Fir	A B Area A B Fir	Gain	B Area A B Fir	B Area A B Fir
R-Values Lt. 4.00 4.00 4.00 4.00 21.40 8.50 59.22 27.65 29.80 x x 1 = .25 per	HL for per room G per room x 1.3	A B Area A B B Fir	A B Area A B Fir	2862 546 A B Area A B Fir	A B Area A B FIr	934 2393 2148 A B Area A B Fir	A B Area A B Fir	A B Area A B Fir	A B Area A B Fir	A B Area A B Fir	Gain	B Area A B Fir	B Area A B Fir
	R-Values Lc 4.00 4.00 4.00 1.99 2.03 4.00 21.40 8.50 59.22 27.65 29.80	R-Values Loss Gain	Name	Node Node	Node Mode Mode	Node Node	Node	Node Node	Node 270 WOB Node Node	Node Node	Node Node	Node Node	Project: King East Developments

Division C subsection 3.2.5. of the Building Code. Individual BCIN:

Man Hotel

David DaCosta

Energy Star



2985 Drew Road, Suite 202, Mississauga, Ontario L4T 0A4 Tel: 905-671-9800 e-mail hvac@gtadesigns.ca

System Design Option
Exhaust only / forced air system

HRV WITH DUCTING / forced air system

Part 6 design

HRV simplified connection to forced air system HRV full ducting/not coupled to forced air system

1 2

3 x

Project # Layout # Page 6 PJ-00267 JB-09156

I review and take responsibility for the design work and am qualified in the appropriate category as an "other designer" under

Division C subsection 3.2.5. of the Building Code. Individual BCIN: 32964 for David DaCosta

Package:	Energy Star								
Project:	Richmond Hill		Model:		Mode	l 2700	WO	В	
	RESIDENTIAL MECHANICAL	VFI	NTII ATION DE	SIGN S	UMN	IΔRY	,		
	For systems serving one dwelling unit & co				_				
	, ,		<u> </u>	,	<u> </u>				
	Location of Installation	1 F	Total	Ventilation	ո Capac	ity 9.32	2.3.3(1)	
Lot #	Plan #		Bsmt & Master Bdrm	n		21.2		42.4	-
Township	Richmond Hill		Other Bedrooms Bathrooms & Kitcher	n		10.6 10.6	cfm	31.8 53	ctm cfm
Roll #	Permit #]	Other rooms		4 @			42.4 169.6	-
Address] <u>L</u>							
		. F	Principa	al Ventilat	on Cap	acity 9.	32.3.	4(1)	
Name	Builder	4	Master bedroom		1 @	31.8	ofm	31.8	ofm
IName	EM Alr Systems		Other bedrooms			15.9		47.7	
Address						Total		79.5	
City			Pri	ncipal Exh	aust Fa	n Capa	city		
Tel	Fax	1	Make	-	Mode			Location	
		<u> </u>	VanEE	\	/150E75	SNS		Base	
Marea	Installing Contractor	4	407				00.0	0	
Name			127 cfm				80.0	Sones	or Equiv.
Address		1 6		Heat Reco	very Ve	entilato	r		
			Make		VanE	E			
City			Model	127 cfm	V150E7	5NS		90	cfm low
Tel	Fax		Sensible efficiency @	@ -25 deg				60% 75%	, <u>)</u>
		- L	Note: Installer to ba		V/ERV to	o within	10 pe	ercent of F	PVC
, ,	Combustion Appliances 9.32.3.1(1)	1 F	Supp	plemental	Ventilat	ion Ca	oacity	/	
a) x b) c) d) e)	Direct vent (sealed combustion) only Positive venting induced draft (except fireplaces) Natural draft, B-vent or induced draft fireplaces Solid fuel (including fireplaces) No combustion Appliances		Total ventilation cap Less principal exhau REQUIRED supplen	ust capacity		ity		169.6 79.5 90.1	cfm
] [S	Supplemen	tal Fans	9.32.3	.5.		
	Heating System	1	Location		m	Mode		Sone	
X	Forced air Non forced air Electric space heat (if over 10% of heat load)		Ens Bath		0 0	XB50 XB50		0.3 0.3	
I X	House Type 9.32.3.1(2) Type a) or b) appliances only, no solid fuel Type I except with solid fuel (including fireplace)] L	all fans HVI listed	Mak	e Bro	an		or Equiv.	
III	Any type c) appliance			Designe					
IV Other	Type I or II either electric space heat Type I, II or IV no forced air		I hereby certify that t in accordance with the	this ventila	ion syste	em has	been	designed	

	Designer Certification										
I hereby certify th	I hereby certify that this ventilation system has been designed										
in accordance wi	in accordance with the Ontario Building Code.										
Name	David D	aCosta									
	47	1660									
Signature	- Earne	40 6 2									
HRAI#	5190	BCIN #	32964								
Date	September	21, 2023									
		•									



Energy Efficiency Design Summary: Performance & Other Acceptable Compliance Methods

2985 Drew Road, Suite 202, Mississauga, Ontario L4T 0A4 Tel: 905-671-9800 Fax: 647-494-9643 e-mail dave@gtadesigns.ca (Building Code Part 9, Residential)

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Project # PJ-00267
Layout # JB-09156

This form is used by a designer to demonstrate that the energy efficiency design of a house complies with the building code using the Performance or Other Acceptable Compliance Methods described in Subsections 3.1.2. and 3.1.3. of SB-12,

This form must accurately reflect the information contained on the drawings and specifications being submitted. Refer to Supplementary Standard SB-12 for details about building code compliance requirements. Further information about energy efficiency requirements for new buildings is available from the provincial building code website or the municipal building department.

		-	For use by Princip	al Authority							
A l' 4'	NI		or use by Fillicip								
Application	No:			Model/Certification Nur	mber						
	Project Information						T				
Building nur	mber, street name				Unit number	er	Lot/Con				
		Mode	I 2700 WOB								
Municipality	Richmond Hill	Po	ostal code	Reg. Plan number / oth	ner descript	ion					
B.	B. Prescriptive Compliance [indicate the building code compliance option being employed in the house design]										
	SB-12 Performance* [SB-12 - 3.1.2.]	*Attach e	nergy performa	ance results using	an appro	ved softwa	re (see g	uide)			
V	ENERGY STAR®* [SB-12 - 3.1.3.]	*Attach B	uilder Option F	Package [BOP] for	m						
	R-2000®* [SB-12 - 3.1.3.]	*Attach R	-2000 HOT200	00 Report							
C.	Project Building Design Conditions										
	Climatic Zone (SB-1):	Heat. Equ	uip. Efficiency		Space	Heating Fu	uel Sourc	е			
V	Zone 1 (< 5000 degree days)	✓ ≥ 92%	AFUE	✓ Gas		Propane		Solid Fuel			
	Zone 2 (≥ 5000 degree days)	□ ≥ 849	% < 92% AFUE	☐ Oil		Electric		Earth Energy			
R	atio of Windows, Skylights & Glass (W, S	& G) to Wa	III Area		Other E	Building Cha	aracterist	ics			
Area of	Walls = 382.9 m² or 4121.9 ft²			Log/Post&Beam		ICF Above (Grade	☐ ICF Basement			
Area or	Walls = <u>382.9</u> m² or <u>4121.9</u> ft²			☐ Slab-on-ground		Walkout Bas	sement				
		W,S &0	3 % = <u>9%</u>	☑ Air Conditioning	1.1	Combo Unit					
Area of W	$I, S \& G = 34.84 \text{ m}^2 \text{ or } 375.0 \text{ ft}^2$			☐ Air Sourced Heat	t Pump (AS	SHP)					
				☐ Ground Source F	Heat Pump	(GSHP)					
SB-12 Pe	rformance Reference Building Design Pac	kage indic	cating the preso	criptive package to	be comp	ared for co	mpliance				
SB-1	SB-12 Referenced Building Package (input design package):										
D.	Building Specifications [provide values an	nd ratings of	the energy efficie	ncy components propo	osed, or at	tach ENERG	Y STAR BO	OP form]			
	<u> </u>				•			-			

Building Component		I/R-Values or n U-Value¹	Building Component	Efficiency Ratings
Thermal Insulation	Nominal	Effective	Windows & Doors Provide U-Value ⁽¹⁾ or ER rating	
Ceiling with Attic Space	60	59.22	Windows/Sliding Glass Doors	1.4
Ceiling without Attic Space	31	27.65	Skylights	2.8
Exposed Floor	31	29.80	Mechanicals	
Walls Above Grade	22 +5.0ci	21.40	Heating Equip.(AFUE)	96%
Basement Walls	20.0ci	20.84	HRV Efficiency (SRE% at 0°C)	75%
Slab (all >600mm below grade)	х	х	DHW Heater (EF)	0.95
Slab (edge only ≤600mm below grade)	10	11.13	DWHR (CSA B55.1 (min. 42% efficiency))	42.0% #Showers 2
Slab (all ≤600mm below grade, or heated)	10	11.13	Combined Heating System	

⁽¹⁾ U value to be provided in either W/(m²·K) or Btu/(h·ft·F) but not both.



Energy Efficiency Design Summary: Performance & Other Acceptable Compliance Methods

2985 Drew Road, Suite 202, Mississauga, Ontario L4T 0A4 Tel: 905-671-9800 Fax: 647-494-9643 e-mail dave@gtadesigns.ca (Building Code Part 9, Residential)

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E. Project Design Verification [Subsection 3.1.2. Performance Compliance]

The ar	nnual energy consumption using Subsection 3.1.1. SB-12 Re	ference Building Pa	ckage is	GJ (1J=1000MJ)
The	annual energy consumption of this house as designed is		GJ	
The	software used to simulate the annual energy use of the build	ing is:		
The build	ling is being designed using an air tightness baseline of:			
	OBC reference ACH, NLA or NLR default values (no depres	ssurization test requ	uired)	
	Targeted ACH, NLA or NLR. Depressurization test to meet		ACH50 or NLR or NLA	
	Reduction of overall thermal performance of the proposed bis compared against (3.1.2.1.(6)).	ouilding envelope is	not more than 25% of the	ne envelope of the compliance package it
	Standard Operating Conditions Applied (A-3.1.2.1 - 4.6.2)			
	Reduced Operating Conditions for Zero-rated homes Applie	ed (A-3.1.2.1 - 4.6.2	.5)	
	On Site Renewable(s): Solar:			
	Other Types:			
F.	ENERGY STAR or R-2000 Performance Design Ver	fication [Subsection	n 3.1.3. Other Acceptable	Compliance Methods]
	The NRCan "ENERGY STAR for New Homes Standard Verbuilding performance meeting or exceeding the prescriptive			
	The NRCan, "2012 R-2000 Standard" technical requirement exceeding the prescriptive performance requirements of the		0 0	0.
Perform	ance Energy Modeling Professional			
Energy Ev	/aluator/Advisor/Rater/CEM Name and company:	Accreditation or Eva	lluator/Advisor/Rater Licen	se#
	BUILDING KNOWLEDGE CANADA		5506	
ENERG	Y STAR or R-2000			
Energy E	/aluator/Advisor/Rater/Name and company:	Evaluator/Advisor/R	ater License #	
	ANGELA BUSTAMANTE		5506	
G.	Designer(s) [name(s) & BCIN(s), if applicable, of person(s) pro	viding information her	ein to substantiate that de	sign meets building code]
Name		BCIN	Signature	
	David DaCosta	32964	10	ane Alexa

Form authorized by OHBA, OBOA, LMCBO. Revised December 1, 2016.



50 Fleming Drive, Unit # 6, Cambridge, ON, N1T 2B1

ENERGY STAR® for New Homes Version Ontario 17.1 Revision 2 BOP Form Zone 1 Ontario



T | 1-800-267-6830 F | 519-658-6103 E | nfo@buildingknowledge.ca

General Details		House Details	
Performance or Prescriptive :	Prescriptive	ESEnrolment ID:	
Attached or Detached or MURB:	Detached	Site/Phase:	KING EAST PH 2&3
Province / Territory :	ON	LOT :	
Zone :	Zone 1 Heating Degree Days	Street # and Name:	
Service Organization (SO) number :	55 - Enerquality	Street Type:	
Builder number :	TBD	City:	RICHMOND HILL
Builder Name:	PLAZACORP	Postal Code (or FSA) :	
		Model:	ALL MODELS
		Third Party Evaluator:	BUILDING KNOWLEDGE CANADA
Supplementa	ry Information	Evaluator Name:	ANGELA BUSTAMANTE
		Evaluator Number:	5506

Building Component Optio		BOP Selection Description	BOP Option Credits	Measure Selected (Check) √	Nominal Efficiency Values (Optional)	Notes (Optional)
Ceilings Below Attic	Core	RSI 10.43 (R 59.2)	Core Minimum	√	R60	
3	Option	N/A	n/a			
Cathedral Ceilings and Flat Roofs	Core	RSI 4.87 (R 27.7)	Core Minimum	√	R31	
	Option	N/A	n/a			
Ceilings Below Attic and Cathedral Ceilings/Flat Roofs	Option	N/A	n/a			
Walls Above Grade	Core	RSI 3.08 (R 17.5)	Core Minimum			
walls Above Grade	Option	RSI 3.72 (R 21.1)	0.7	√	R22+R5	
Floors Over Unheated Spaces	Core	RSI 5.25 (29.8)	Core Minimum	√	R31	
Foundation Walls Below or in Contact	Core	RSI 3.72 (R 21.1) below grade	Core Minimum	√	R20 blanket	
with the Ground	Option	N/A	n/a			
Unheated Floors on Ground Above Frost Line	Core	RSI 1.96 (R 11.1)	Core Minimum	√	R10 if applicable	
Unheated Floors on Ground Below Frost Line	Option	N/A	n/a			
Heated Floors on Ground	Core	N/A	n/a			
Slabs on Grade with Integral Footing	Core	N/A	n/a			
	Core	ENERGY STAR Zone 2 UV1.4 and/or ER29	Core Minimum	√	Zone 2	
Windows (Fenestrations)	Option	N/A	n/a			
Williams (Tellestrations)	Core	Total area of all windows to max. 20% of above grade wall area.	Core Minimum	√		
Fireplace	Core	Gas fireplace spak ignition if installed	#N/A	√		
Space Heating	Core	Min. 96% AFUE ENERGY STAR fuel fired furnace	Core Minimum	√		
	Reg'd	Supply ducts and 1m return sealed	Required	√		
Domestic Water Heating	Core	Instantaneous min. EF or UEF 0.80 Tank EF or UEF 0.80 (direct vent (sealed))	Core Minimum	,		
	Option	Instantaneous condensing min. UEF 0.95	0.4	√		
Drain Water Heat Recovery	Option	≥ 42% to ≤ 54% - two showers	0.3	√	42%	
Airtightness		Level 1 (DT 2.5ach / 0.18 nlr) (AT 3.0ach/0.26nlr)	Core Minimum	√		
-	Option		n/a			
Ventilation (HRV / ERV)	Core Option	65% SRE @0 °C and 55% SRE @ -25 °C ≥75% SRE @ 0 °C	Core Minimum 0,2	√		
		Interconnected to the Furnace Fan	0.2 Required	v V		
	Rea'd	HRV balanced	Required	V		
	Electrical	SRE ≥75% SRE @ 0 °C, ≥ 0.57 L/s/W	0.1	√		
Electrical Savings		75% ENERGY STAR lighting	Core Minimum			
Licetical Savings	Option	100% ENERGY STAR lighting	0.1	√		
ENERGY STAR Certified Appliances	Option	N/A	n/a			

NOTE: Thermal resistance values under "BOP Selection Description" are listed in effective values, unless indicated with "nominal".



2985 Drew Road, Suite 202, Mississauga, Ontario L4T 0A4 Tel: 905-671-9800 e-mail hvac@gtadesigns.ca

Page 8 Project # PJ-00267

Layout # JB-09156

Energy Star Richmond Hill System: Model: System 1 Model 2700 WOR Package:

Project	t: Richmond Hill	Model: Model 2700 WOB
	Air Leakage Ca	Calculations
	Building Air Leakage Heat Loss B LRairh Vb HL^T HLleak 0.018 0.387 32411 77.8 17552	Building Air Leakage Heat Gain B LRairh Vb HG^T HG Leak 0.018 0.108 32411 12.8 809
╟		Levels
	Air Leakage Heat Loss/Gain Multiplier Table (Section 11)	1 2 3 4
	Level Level Building Level Conductive Air Leakage He Factor (LF) Air Heat Loss (HLclevel) Multiplie	Heat Loss (LF) (LF) (LF)
	Level 1 0.5 9946 0.8824 Level 2 0.3 17552 9070 0.5805 Level 3 0.2 17552 10402 0.3375	0.4 0.3 0.3
	Level 3 0.2 10402 0.3375 Level 4 0 0 0.0000	
	Air Leakage He	
		53 M
	Ventilation Ca	alculations
	Ventilation Heat Loss	Ventilation Heat Gain
Vent	Ventilation Heat Loss C PVC HL^T (1-E) HRV HLbvent 1.08 79.5 77.8 0.20 1336	Ventilation Heat Gain C PVC HG^T HGbvent 1.1 79.5 12.8 1099
	Case 1	Case 1
	Ventilation Heat Loss (Exhaust only Systems)	Ventilation Heat Gain (Exhaust Only Systems)
Case 1	Case 1 - Exhaust Only Level LF HLbvent LVL Cond. HL Multiplier Level 1 0.5 9946 0.07 Level 2 0.3 9070 0.04 Level 3 0.2 10402 0.03 Level 4 0 0 0.00	Case 1 - Exhaust Only Multiplier HGbvent 1099 Building 13497 0.08
	Case 2	Case 2
2	Ventilation Heat Loss (Direct Ducted Systems)	Ventilation Heat Gain (Direct Ducted Systems)
Case	C HL^T (1-E) HRV 1.08 77.8 0.20 16.80	Multiplier Φ Θ Θ Θ Θ Θ Θ Θ Θ Θ
	Case 3	Case 3
8	Ventilation Heat Loss (Forced Air Systems)	Ventilation Heat Gain (Forced Air Systems)
Case	Total Ventilation Load 1336 0.05	Vent Heat GainMultiplierHGbventHG*1.310990.08
Found	dation Conductive Heatloss Level 1 Level 1	2000 Watts 6824 Btu/h
Found	dation Conductive Heatloss Level 2 Level 2	Watts Btu/h
Slab	on Grade Foundation Conductive Heatloss	Watts Btu/h
Walk	Out Basement Foundation Conductive Heatloss	148 Watts 504 Btu/h

Envelope Air Leakage Calculator

Supplemental tool for CAN/CSA-F280

Weather Station	Description
Province:	Ontario $lacksquare$
Region:	Richmond Hill
Weather Station Location:	Open flat terrain, grass
Anemometer height (m):	10
Local Shie	lding
Building Site:	Suburban, forest ▼
Walls:	Heavy ▼
Flue:	Heavy ▼
Highest Ceiling Height (m):	8.53
Building Conf	iguration
Type:	Detached
Number of Stories:	Two
Foundation:	Shallow
House Volume (m³):	917.88
Air Leakage/V	entilation
Air Tightness Type:	Present (1961-) (ACH=3.57)
Custom BDT Data:	322.44 cm ² 3.57 ACH @ 50 Pa
Mechanical Ventilation (L/s):	Total Supply: Total Exhaust: 39.75 39.75
Flue #:	#1 #2 #3 #4
Diameter (mm):	0 0 0 0
Heating Air Leakage Rate (ACH/H):	0.387
Cooling Air Leakage Rate (ACH/H):	0.108

Residential Foundation Thermal Load Calculator

Supplemental tool for CAN/CSA-F280

Weather Station Description			
Province:		Ontario	
Region:		Richmond Hill	
	Site D	escription	
Soil Conductivity:		High conductivity: moist soil ▼	
Water Table:		Normal (7-10 m, 23-33 Ft) ▼	
Fou	ındatio	n Dimensions	
Floor Length (m):	18.75		
Floor Width (m):	4.88		
Exposed Perimeter (m):	38.40		
Wall Height (m):	2.74		
Depth Below Grade (m):	0.91	Insulation Configuration	
Window Area (m²):	1.39		
Door Area (m²):	1.95		
	Radi	ant Slab	
Heated Fraction of the Slab:	0		
Fluid Temperature (°C):	33		
Desi		n Months	
Heating Month	1		
	Founda	ation Loads	
Heating Load (Watts):	Heating Load (Watts): 2000		

Residential Slab on Grade Thermal Load Calculator

Supplemental tool for CAN/CSA-F280

Weather Station Description			
Province:		Ontario	
Region:		Richmond Hill	
	Site D	escription	
Soil Conductivity:		High conductivity: moist soil ▼	
Water Table:		Normal (7-10 m, 23-33 Ft)	
	Floor D	Pimensions	
Length (m):	8.69		
Width (m):	0.61	- 	
Exposed Perimeter (m):	10.06	Insulation Configuration	
	Radi	ant Slab	
Heated Fraction of the Slab:	0		
Fluid Temperature (°C):	33		
	Desig	n Months	
Heating Month			
Foundation Loads			
Heating Load (Watts):		148	



2985 Drew Road, Suite 202 Mississauga, Ontario L4T 0A4

Tel: 905-671-9800 email: hvac@gtadesigns.ca

Effective R-Value Calculations

Effective R-Value - Above Grade Walls			
Insulation R22+5ci			
Exterior Air Film	0.17		
Hollow Vinyl Siding	0.62		
Continuous Insulation	5.00		
Effective Cavity Insulation	14.49		
Drywall	0.44		
Interior Air Film	0.68		
Effective R-Value	21.40		

Effective R-Value - Below Grade Walls			
Insulation	R20ci		
Concrete Foundation	0.44		
Interior Air Film	0.68		
Continuous Insulation	20.0		
Effective R-Value	21.12		

Effective R-Value – Exposed Floors			
Insulation	R31		
Exterior Air Film	0.17		
Effective Cavity Insulation	28.72		
Interior Air Film	0.91		
Continuous Insulation	0.00		
Effective R-Value	29.80		

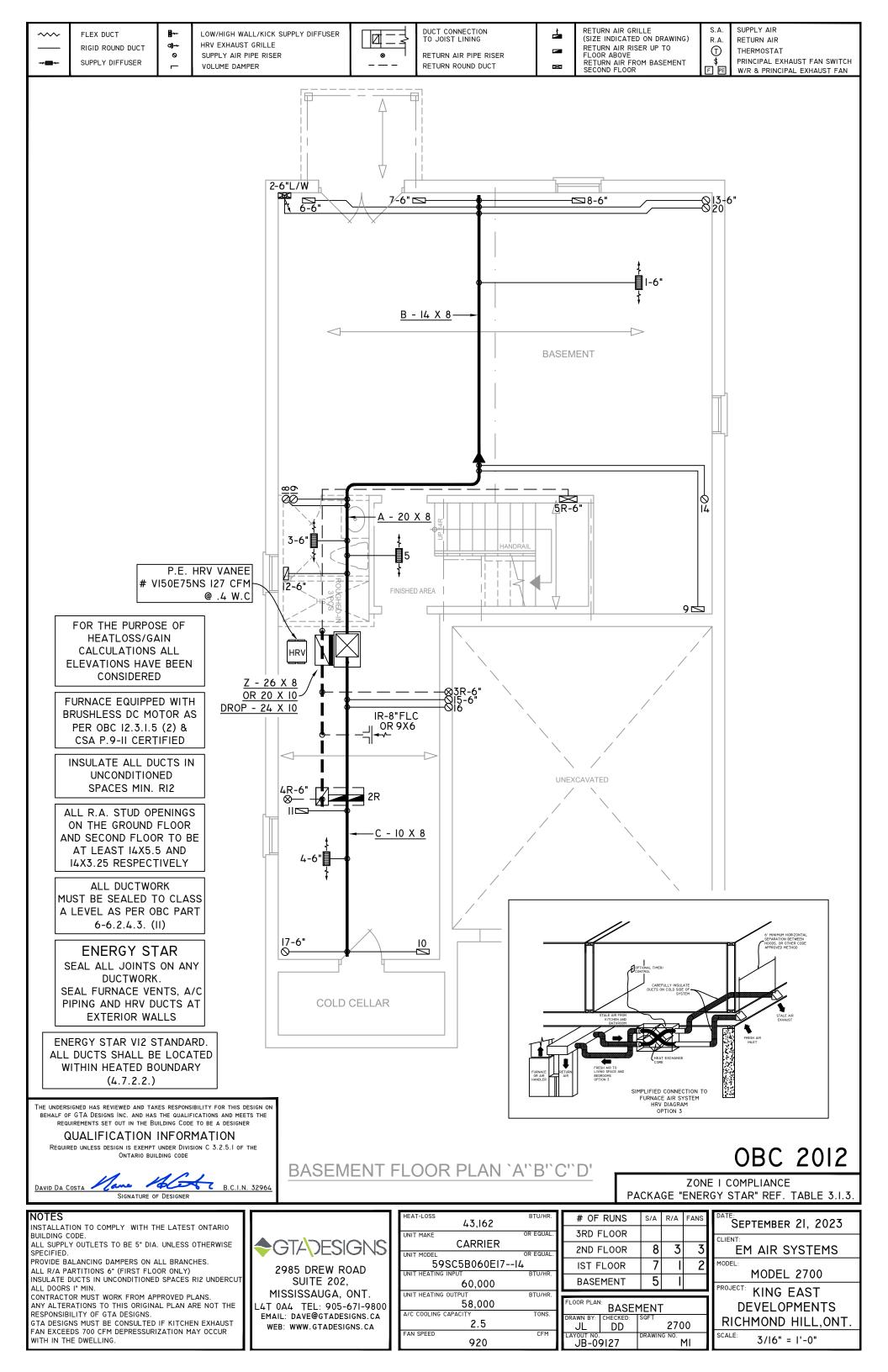


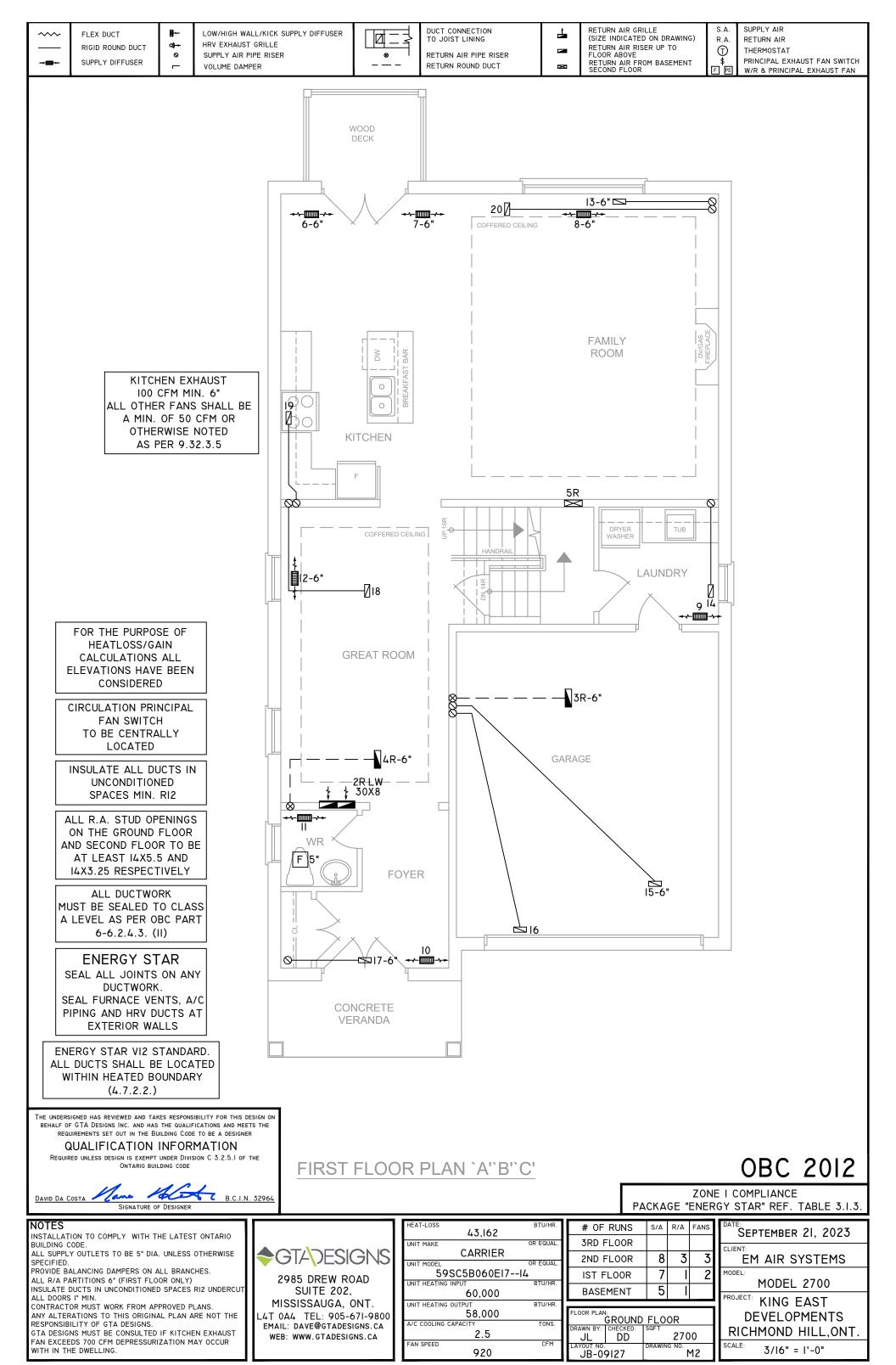
2985 Drew Road, Suite 202 Mississauga, Ontario L4T 0A4

Tel: 905-671-9800 email: hvac@gtadesigns.ca

Effective R-Value – Exposed Ceiling with Attic			
Insulation	R60		
Exterior Air Film	0.17		
Effective Insulation	58.61		
Drywall	0.44		
Effective R-Value	59.22		

Effective R-Value – Exposed Ceiling with Flat Roofs			
Insulation	R31		
Exterior Air Film	0.17		
Effective Insulation	27.04		
Drywall	0.44		
Effective R-Value	27.65		





FLEX DUCT RIGID ROUND DUCT SUPPLY DIFFUSER

LOW/HIGH WALL/KICK SUPPLY DIFFUSER HRV EXHAUST GRILLE oll⊶ 0 SUPPLY AIR PIPE RISER VOLUME DAMPER

8

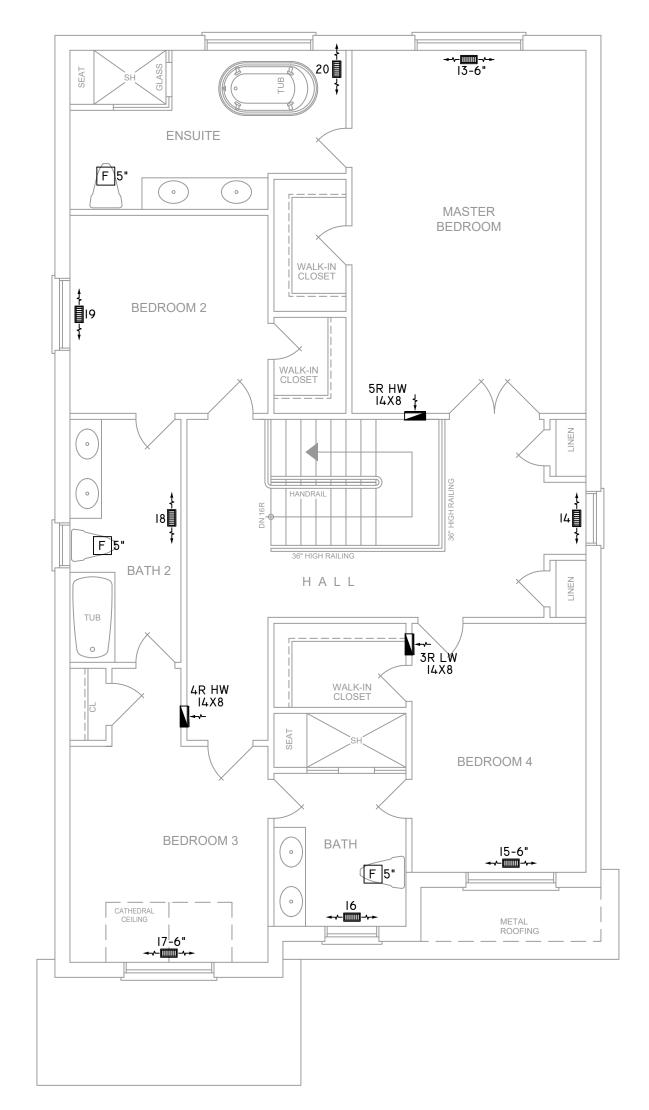
TO JOIST LINING RETURN AIR PIPE RISER RETURN ROUND DUCT

DUCT CONNECTION

RETURN AIR GRILLE (SIZE INDICATED ON DRAWING) 4 RETURN AIR RISER UP TO FLOOR ABOVE RETURN AIR FROM BASEMENT SECOND FLOOR \mathbf{x}

R.A 1

SUPPLY AIR RETURN AIR THERMOSTAT PRINCIPAL EXHAUST FAN SWITCH W/R & PRINCIPAL EXHAUST FAN



FOR THE PURPOSE OF **HEATLOSS/GAIN** CALCULATIONS ALL **ELEVATIONS HAVE BEEN** CONSIDERED

INSULATE ALL DUCTS IN UNCONDITIONED SPACES MIN. RI2

ALL R.A. STUD OPENINGS ON THE GROUND FLOOR AND SECOND FLOOR TO BE AT LEAST 14X5.5 AND 14X3.25 RESPECTIVELY

ALL DUCTWORK MUST BE SEALED TO CLASS A LEVEL AS PER OBC PART 6-6.2.4.3. (II)

ENERGY STAR SEAL ALL JOINTS ON ANY DUCTWORK.

SEAL FURNACE VENTS, A/C PIPING AND HRV DUCTS AT EXTERIOR WALLS

ENERGY STAR VI2 STANDARD. ALL DUCTS SHALL BE LOCATED WITHIN HEATED BOUNDARY (4.7.2.2.)

THE UNDERSIGNED HAS REVIEWED AND TAKES RESPONSIBILITY FOR THIS DESIGN ON BEHALF OF GTA DESIGNS INC. AND HAS THE QUALIFICATIONS AND MEETS THE REQUIREMENTS SET OUT IN THE BUILDING CODE TO BE A DESIGNER

QUALIFICATION INFORMATION

Required unless design is exempt under Division C 3.2.5.1 of the $$\operatorname{\textsc{Ontario}}$$ building code

Ane 166 B.C.I.N. 32964

SECOND FLOOR PLAN 'A'B'C'

OBC 2012

ZONE I COMPLIANCE PACKAGE "ENERGY STAR" REF. TABLE 3.1.3.

INSTALLATION TO COMPLY WITH THE LATEST ONTARIO BUILDING CODE.

ALL SUPPLY OUTLETS TO BE 5" DIA. UNLESS OTHERWISE SPECIFIED. PROVIDE BALANCING DAMPERS ON ALL BRANCHES.

ALL R/A PARTITIONS 6" (FIRST FLOOR ONLY) INSULATE DUCTS IN UNCONDITIONED SPACES RI2 UNDERCUT ALL DOORS I" MIN.

CONTRACTOR MUST WORK FROM APPROVED PLANS.
ANY ALTERATIONS TO THIS ORIGINAL PLAN ARE NOT THE RESPONSIBILITY OF GTA DESIGNS. GTA DESIGNS MUST BE CONSULTED IF KITCHEN EXHAUST

FAN EXCEEDS 700 CFM DEPRESSURIZATION MAY OCCUR WITH IN THE DWELLING.



2985 DREW ROAD SUITE 202,

MISSISSAUGA, ONT. L4T 0A4 TEL: 905-671-9800 EMAIL: DAVE@GTADESIGNS.CA WEB: WWW.GTADESIGNS.CA

HEAT-LOSS	BTU/HR.
43,162	
UNIT MAKE	OR EQUAL.
CARRIER	
UNIT MODEL	OR EQUAL.
59SC5B060EI7	-14
UNIT HEATING INPUT	BTU/HR.
60,000	
UNIT HEATING OUTPUT	BTU/HR.
58,000	
A/C COOLING CAPACITY	TONS.
2.5	
FAN SPEED	CFM
920	

· ·			
# OF RUNS	S/A	R/A	FANS
3RD FLOOR			
2ND FLOOR	8	3	3
IST FLOOR	7	I	2
BASEMENT	5	I	
FLOOR PLAN: SECOND FLOOR			

2700

M3

CHECKED

DD

JB-09127

SEPTEMBER 21, 2023 CLIENT **EM AIR SYSTEMS** MODEL MODEL 2700 PROJECT: KING EAST **DEVELOPMENTS** RICHMOND HILL, ONT.

3/16" = 1'-0"

FLEX DUCT RIGID ROUND DUCT SUPPLY DIFFUSER

LOW/HIGH WALL/KICK SUPPLY DIFFUSER HRV EXHAUST GRILLE ₫~ 0 SUPPLY AIR PIPE RISER VOLUME DAMPER



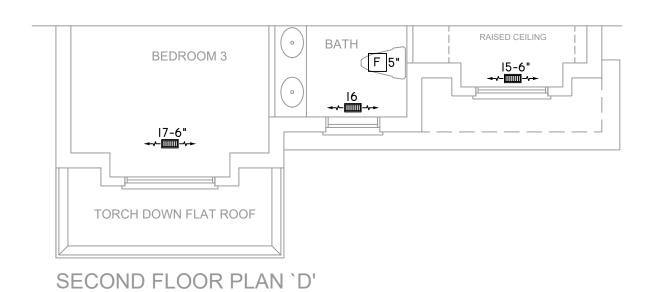
DUCT CONNECTION TO JOIST LINING RETURN AIR PIPE RISER RETURN ROUND DUCT

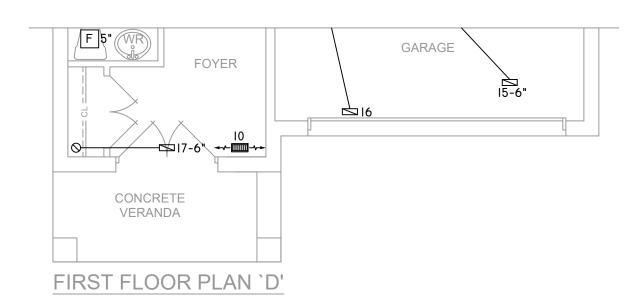
4 \boxtimes

RETURN AIR GRILLE (SIZE INDICATED ON DRAWING) RETURN AIR RISER UP TO FLOOR ABOVE RETURN AIR FROM BASEMENT SECOND FLOOR

R.A 1

SUPPLY AIR RETURN AIR THERMOSTAT PRINCIPAL EXHAUST FAN SWITCH W/R & PRINCIPAL EXHAUST FAN





THE UNDERSIGNED HAS REVIEWED AND TAKES RESPONSIBILITY FOR THIS DESIGN ON BEHALF OF GTA DESIGNS INC. AND HAS THE QUALIFICATIONS AND MEETS THE REQUIREMENTS SET OUT IN THE BUILDING CODE TO BE A DESIGNER QUALIFICATION INFORMATION Required unless design is exempt under Division C 3.2.5.1 of the $$\operatorname{\textsc{Ontario}}$$ building code

Ane 16 B.C.I.N. 32964

OBC 2012

ZONE I COMPLIANCE PACKAGE "ENERGY STAR" REF. TABLE 3.1.3.

INSTALLATION TO COMPLY WITH THE LATEST ONTARIO BUILDING CODE. ALL SUPPLY OUTLETS TO BE 5" DIA. UNLESS OTHERWISE

SPECIFIED.
PROVIDE BALANCING DAMPERS ON ALL BRANCHES.

ALL R/A PARTITIONS 6" (FIRST FLOOR ONLY) INSULATE DUCTS IN UNCONDITIONED SPACES RI2 UNDERCUT

ALL DOORS I" MIN. CONTRACTOR MUST WORK FROM APPROVED PLANS.
ANY ALTERATIONS TO THIS ORIGINAL PLAN ARE NOT THE

RESPONSIBILITY OF GTA DESIGNS.
GTA DESIGNS MUST BE CONSULTED IF KITCHEN EXHAUST
FAN EXCEEDS 700 CFM DEPRESSURIZATION MAY OCCUR WITH IN THE DWELLING.



SUITE 202, MISSISSAUGA, ONT. L4T 0A4 TEL: 905-671-9800 EMAIL: DAVE@GTADESIGNS.CA WEB: WWW.GTADESIGNS.CA

43,162	BTO/FIK.		
UNIT MAKE	OR EQUAL.		
CARRIER			
UNIT MODEL	OR EQUAL.		
59SC5B060EI7I4			
UNIT HEATING INPUT	BTU/HR.		
60,000			
UNIT HEATING OUTPUT	BTU/HR.		
58,000			
A/C COOLING CAPACITY	TONS.		
2.5			
FAN SPEED	CFM		
920			

ГА	CNA	GL	LINL	(6) 3)		
# OF RUNS	S/A	R/A	FANS	DATE:		
3RD FLOOR				CLIENT		
2ND FLOOR	8	3	3			
IST FLOOR	7		2	MODEL	:	
BASEMENT	5	- 1				
BAGETTERT	Ū			PROJEC	2	
FLOOR PLAN: PARTIAL PLAN(S)						
JL CHECKED: DD	SQFT	270	00	RIC	_	
LAVOUT NO	DDAWIN	CNO		CCALE.		

JB-09127

M4

4	SEPTEMBER 21, 2023			
	CLIENT:			
5	EM AIR SYSTEMS			
)	MODEL:			
4	MODEL 2700			
ı				
┛	PROJECT: KING EAST			
	DEVELOPMENTS			
ı	RICHMOND HILL,ONT.			

3/16" = 1'-0"