

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 2			Lot/con.	
Municipality Richmond Hill	Postal code	Plan number/ other description		
B. Individual who reviews and takes responsibility for design	n activities	T		
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	igns.ca
Telephone number (905) 671-9800	Fax number		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	
☐ Large Buildings ☐ Detection, L	ighting and Pow	er	☐ Plumbing – All Building	S
☐ Complex Buildings ☐ Fire Protecti	ion		☐ On-site Sewage System	าร
Description of designer's work Mod	el Certification		Project #:	
Heating and Cooling Load Calculations Main		Builder	Layout #:	JB-09053
Heating and Cooling Load Calculations Main Air System Design Alternate	X	Builder Project	EM Air Systems King East Developm	
Residential mechanical ventilation Design Summary O.D. GFA	2343	Model	rang Last Dovolopin	onto
Residential System Design per CAN/CSA-F280-12			Model 2350	
Residential New Construction - Forced Air		SB-12	Energy Star	
D. Declaration of Designer				
David DaCosta	declare that (c	choose one as appro	priate):	
(print name)				
☐ I review and take responsibility for th Division C of the Building Code. I am classes/categories.				
Individual BCIN:			<u>-</u>	
Firm BCIN:				
	•	•	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 requireme	ents of the Building Code.	
Basis for exempti	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 the control of the cont	of the firm.			
July 27, 2023		Mare 16		
Date		Signature of De	signer	

NOTE:

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- 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 and may not be used by any other persons without authorization. Documents for permit and/or construction are signed in red. Building Location	Heat loss and gain calcula	tion summary sheet CSA-F280-M12 Standard
Building Location Site: King East Developments Note: King East Developments Lot: Lo	These documents issued for the use of	
Address (Model): Model 2350 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-09053
Address (Model): Model 2350 Site: King East Developments	Building L	ocation
City and Province: Richmond Hill Postal code: Calculations based on Dimensional information based on: Architectural Design Inc.Mar/2023 Attachment: Detached Front Itacing: East/West Assumed? Yest No. of Levels: 3 Ventilated? Included Air tightness: 1961-Present (ACH=3.57) Assumed? Yest Weather location: Richmond Hill Wind exposure: Sheltered 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: 2343 Sensible Eff. at -0C 75% COoling 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 D: Style D: Style D: Style D: Style D: Style A: As per Selected OBC SB12 Energy Star R Style B:		
Calculations based on	Model:	Lot:
Dimensional information based on: Architectural Design Inc.Mar/2023	City and Province: Richmond Hill	Postal code:
Attachment: Detached Front facing: East/West Assumed? Yest No. of Levels: 3 Ventilated? Included Air tightness: 1961-Present (ACH=3.57) Assumed? Yest 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: 2343 Sensible Eff. at -0C 75% Heating design conditions Cuddor 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 Ceilings Style B: As per Selected OBC SB12 Energy Star R 31 Doors Style B: As per Selected OBC SB12 Energy Star R 31 Doors 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 Doors 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 Doors Style B:	Calculations	based on
No. of Levels: 3	Dimensional information based on:	chitectural Design Inc.Mar/2023
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: 2343 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 D: Floors on soil Ceilings Style A: As per Selected OBC SB12 Energy Star R 25 Style B: As per Selected OBC SB12 Energy Star R 25 Style B: As per Selected OBC SB12 Energy Star R 25 Style B: As per Selected OBC SB12 Energy Star R 25 Style B: As per Selected OBC SB12 Energy Star R 25 Style B: As per Selected OBC SB12 Energy Star R 25 Style B: Style B: As per Selected OBC SB12 Energy Star R 25 Style B: Style B: As per Selected OBC SB12 Energy Star R 25 Style B: Style A: As per Selected OBC SB12 Energy Star R 25 Style B: Style A: As per Selected OBC SB12 Energy Star R 25 Style B: Styl	Attachment: Detached	Front facing: East/West Assumed? Yes
HRV? VanEE V150E75NS Internal shading: Light-translucent Occupants: 5 Sensible Eff. at -25C 60% Apparent Effect. at -0C 80% Units: Imperial Area Sq ft: 2343 Sensible Eff. at -25C 60% Apparent Effect. at -0C 80% Units: Imperial Area Sq ft: 2343 Heating design conditions Cooling 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 D: Floors on soil Ceilings Style A: As per Selected OBC SB12 Energy Star R 25 Style B: Style B: As per Selected OBC SB12 Energy Star R 25 Style B: As per Selected OBC SB12 Energy Star R 25 Style B: As per Selected OBC SB12 Energy Star R 25 Style B: As per Selected OBC SB12 Energy Star R 25 Style B: As per Selected OBC SB12 Energy Star R 25 Style B: As per Selected OBC SB12 Energy Star R 25 Style B: St	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: 2343 Sensible Eff. at -0C 75%	Weather location: Richmond Hill	Wind exposure: Sheltered
Sensible Eff. at -0C 75% Heating design conditions Cooling design conditions	HRV? VanEE V150E75NS	Internal shading: Light-translucent Occupants: 5
Heating design conditions Outdoor temp	Sensible Eff. at -25C 60% Apparent Effect. at -0C 80%	Units: Imperial Area Sq ft: 2343
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 B: Style C: Style C: Style D: Style D: Floors on soil Ceilings Style A: As per Selected OBC SB12 Energy Star R 25 Style B: Style B: As per Selected OBC SB12 Energy Star R Style B: Style B: As per Selected OBC SB12 Energy Star R Style B: Style B: Style C: Style B: Style A: As per Selected OBC SB12 Energy Star R 31 Doors Style B: Style B	Sensible Eff. at -0C 75%	
Above grade walls Style A: As per OBC SB12	Heating design conditions	Cooling design conditions
Style A: As per OBC SB12 Energy Star R 22 + 5ci Style A: As per OBC SB12 Energy Star R 20	Outdoor temp -5.8 Indoor temp: 72 Mean soil temp: 50	Outdoor temp 88 Indoor temp: 75 Latitude: 44
Style B: Style C: Style D: Style D: Style D: Style A: As per Selected OBC SB12 Energy Star Style B: Style B: Style B: As per Selected OBC SB12 Energy Star R Style B: Style B: As per Selected OBC SB12 Energy Star R Style B: Style B: As per Selected OBC SB12 Energy Star R Style B: Style B: As per Selected OBC SB12 Energy Star R Style B: Style B: Style C: Style B:	Above grade walls	Below grade walls
Style C: Style D: Style D: Style D: Style D: Style A: As per Selected OBC SB12 Energy Star Style A: As per Selected OBC SB12 Energy Star R Style B: Style B: Style B: As per Selected OBC SB12 Energy Star R Exposed floors Style C: Style A: As per Selected OBC SB12 Energy Star R Style B: Style C: Style B: Style A: As per Selected OBC SB12 Energy Star R Windows Style B: Style A: As per Selected OBC SB12 Energy Star R Style B: Style A: As per Selected OBC SB12 Energy Star R Style B: Style A: As per Selected OBC SB12 Energy Star R Style A: As per Selected OBC SB12 Energy Star R Style A: As per Selected OBC SB12 Energy Star R Style B: Style A: As per Selected OBC SB12 Energy Star R Style C: Style A: As per Selected OBC SB12 Energy Star R Style C: Style B: Style A: As per Selected OBC SB12 Energy Star R Style C: Style B: Style C: Style C: Style C: Style B: Style C: Styl	Style A: As per OBC SB12 Energy Star R 22 + 5ci	Style A: As per OBC SB12 Energy Star R 20ci
Style D: Floors on soil Style A: As per Selected OBC SB12	Style B:	Style B:
Floors on soil Style A: As per Selected OBC SB12 Energy Star Style B: Style B: As per Selected OBC SB12 Energy Star R Exposed floors Style C: Style A: As per Selected OBC SB12 Energy Star R Style B: Style C: Style A: As per Selected OBC SB12 Energy Star R Windows Style B: St	Style C:	Style C:
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Style B: Style B: As per Selected OBC SB12 Energy Star R Exposed floors Style C: Style A: As per Selected OBC SB12 Energy Star R 31 Doors Style B: Style A: As per Selected OBC SB12 Energy Star R 4.00 Style B: Style A: As per Selected OBC SB12 Energy Star R 4.00 Style C: Style B: Skylights Style C: Style B: Skylights Style C: 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	Floors on soil	Ceilings
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. Windows Style B: Style B: Style B: Skylights Style C: Style B: Skylights Style C: Style B: Style C: Style B: Skylights Style C: Style B: Style C: Style B: Skylights Style C: Style B: Style C: Styl	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. Windows Style B: St	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 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. 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	Style A: As per Selected OBC SB12 Energy Star R 31	Doors
Style A: As per Selected OBC SB12 Energy Star R 4.00 Style C: Style B: Style C: Style A: As per Selected OBC SB12 Energy Star R 2. Style D: 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	Style B:	Style A: As per Selected OBC SB12 Energy Star R 4.00
Style B: Style C: Style A: As per Selected OBC SB12 Energy Star R 2. 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	Windows	Style B:
Style C: Style A: As per Selected OBC SB12 Energy Star R 2. 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	Style A: As per Selected OBC SB12 Energy Star R 4.00	Style C:
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	Style B:	Skylights
Attached documents: As per Shedule 1 Heat Loss/Gain Caculations based on CSA-F280-12 Effective R-Values Notes: Residential New Construction - Forced Air	Style C:	Style A: As per Selected OBC SB12 Energy Star R 2.03
Notes: Residential New Construction - Forced Air	Style D:	Style B:
	Attached documents: As per Shedule 1 Heat Loss/G	ain Caculations based on CSA-F280-12 Effective R-Values
Calculations performed by	Notes: Residential New C	onstruction - Forced Air
·	Calculations p	erformed by
Name: David DaCosta Postal code: L4T 0A4	Name: David DaCosta	Postal code: L4T 0A4
Company: gtaDesigns Inc. Telephone: (905) 671-9800	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

Date:

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

July 27, 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

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Project: King East I	Developm	nents		Model:			Model	2350				Sy	stem 1	1	В	ppropriate Building Co ndividual I	ode.	32964	otner design Man	er unde	Sector (C subse	David DaCo	ortne		oject # yout #		-00267 -09053
DESIGN LOAD SPECIFICATION	s		1	AIR DISTR	IBUTION 8	& PRESSU	JRE				F	URNACE/	AIR HAND	DLER DA	ГА:		Е	OILER/V	VATER HEA	TER DAT	Γ A :				A/C UNIT D	ATA:		
Level 1 Net Load Level 2 Net Load Level 3 Net Load	13,494 t 12,763 t 13,575 t	otu/h otu/h	,	Equipment Additional Available D	Equipmer Design Pre	nt Pressui essure	re Drop		0.5 " 0.225 " 0.275 "	w.c. w.c.	N Ir	lake lodel nput Btu/h		Carr 59SC5B06 600	0E1714 00		N II	/lake /lodel nput Btu/			Ту	ype			Carrier Cond Coil		2.5 T 2.5 2.5	on .
Level 4 Net Load		otu/h		Return Bra	•		ive Lengt	h	300 ft			utput Btu	h'	580				Output Bt										
Total Heat Loss	39,832 h			R/A Plenur					0.138 "			.s.p.		0.5		W.C.	<u> </u>	lin.Outpu	ut Btu/h		Α\	WH						
Total Heat Gain	24,209 k	otu/h		S/A Plenun					0.14 "			Vater Tem	•			leg. F.	L				Orang		ower DATA:					
Building Volume Vb	29025 f			Heating Air Cooling Air		oportionin	g Facter		0.0231 c	fm/btuh	A	FUE ux. Heat		97					peed Selecte						Blower Typ (Brushle		CM BC 12.3.1.	5.(2))
Ventilation Load	1,336 E						R/A Temp			eg. F.	5	B-12 Pack	age	Energy	Star		C	heck	920 cf	m C	Cool. Check	· -	920 cf	m				
Ventilation PVC Supply Branch and Grill Sizing	79.5 0	tm		Diffuser lo	ss _	0.01 '	S/A Temp 'w.c.		128 d	eg. F.	т	emp. Rise	>>>	58	deg. F.		н	leat.	920 cf	m C	Cooling	_	920 cf	m	Design Airf	low _	920 c	fm
-							Lev	al 1										-			Level	2				_		
S/A Outlet No.	1	2	3	4	5		Levi	# I							6	7	8	9	10	11	Level							
Room Use	BASE	BASE	•	•	F.AREA										KIT/GRT H	•	DIN	FOY		STUDY								
Btu/Outlet	2891	2891	2891	2411	2411										2851	2851	1838	3097	832	1295								
Heating Airflow Rate CFM	67	67	67	56	56										66	66	42	72	19	30								
Cooling Airflow Rate CFM	11	11	11	5	5										105	105	92	40	15	69								
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
Actual Duct Length	35	30	25	12	27										27	35	34	29	31	5								
Equivalent Length	100	90	90	110	100	70	70	70	70	70	70	70	70	70	80	110	100	90	130	80	70	70	70	70	70	70	70	70
Total Effective Length	135	120	115	122	127	70	70	70	70	70	70	70	70	70	107	145	134	119	161	85	70	70	70	70	70	70	70	70
Adjusted Pressure	0.10	0.11	0.11	0.11	0.10	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.12	0.09	0.10	0.11	0.08	0.15	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19
Duct Size Round	5	5	5	5	5										6	6	6	5	4	5								
Outlet Size	3x10	3x10	3x10	3x10	3x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	3x10	3x10	3x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10
Trunk	D	D	С	F	G		1	-10							С	D	E	G	G	A	Level							
S/A Outlet No.	12	13	14	15	16	17	Leve 18	19	20	21	22										Levei	4						
Room Use	MAST	MAST	ENS	BATH	LAUN	BED 4	BED 4	BATH2	VAN	BED 3	BED 2																	
Btu/Outlet	1500	1500	1272	644	679	1637	1637	170	614	2766	1155																	
Heating Airflow Rate CFM	35	35	29	15	16	38	38	4	14	64	27																	
Cooling Airflow Rate CFM	50	50	32	11	59	47	47	2	16	94	42																	
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
Actual Duct Length	46	42	47	41	50	47	42	32	34	36	31																	
Equivalent Length	140	140	160	130	140	100	90	120	110	100	120	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70
Total Effective Length	186	182	207	171	190	147	132	152	144	136	151	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70
Adjusted Pressure	0.07	0.07	0.06	0.08	0.07	0.09	0.10	0.09	0.09	0.10	0.09	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19
Duct Size Round	5	5	4	3	5	5	5	2	3	6	5																	
Outlet Size	3x10	3x10	3x10	3x10	3x10	3x10	3x10	3x10	3x10	4x10	3x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10
Trunk	СС	D	E	E	E	F	F	F	F_	G	С																	
Return Branch And Grill Sizing		(Grill Press	ure Loss		0.02 '	w.c					R	eturn Tru	ınk Duct S	Sizing					s	Supply Trui	nk Duct	Sizing					
R/A Inlet No.	1R	2R	3R	4R	5R	6R	7R	8R	9R	10R	11R	Ti	runk		CFM P	ress. R	Round	Rect.	Size	Т	runk C.	.CFM	H.CFM P	ress.	Round	Rect.	Size	
Inlet Air Volume CFM	156	359	105	150	150																							
Duct Design Pressure	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12		rop		920	0.05	15.5	24x10		Α.	-	919	919	0.06	15.0	26x8	20x10	
Actual Duct Length	6	22	52	38	46							Z			815	0.05	15.0	26x8	20x10	В		580	530	0.06	12.5	18x8	14x10	
Equivalent Length	75	165	115	135	200	50	50	50	50	50	50	Y			659	0.05	14.0	22x8	18x10	C	-	209	194	0.07	8.5	8x8	107	
Total Effective Length	81	187	167	173	246	50	50	50	50	50	50	X										371	336	0.06	11.0	14x8	10x10	
Adjusted Pressure	0.15	0.06	0.07	0.07	0.05	0.24	0.24	0.24	0.24	0.24	0.24	W	1							E	_	193	102	0.06	8.5	8x8	107	
Duct Size Round	7.0	10.5	6.0	7.5	8.0							٧								F		270	359	80.0	10.0	12x8	10x10	
Inlet Size	FLC	8	8	8	8		_					U T								G H	•	153	210	0.08	8.5	8x8	107	
Inlet Size	х	х 30	x 14	X 14	x 14	x	х	x	x	х	x	T S									1							
met Size		30	14	14	14							S R								'								
Trunk	z	Υ		Υ	Υ							Q								K								
																				_								



Total Heat Loss

Total Heat Gain

39,832 btu/h

24,209 btu/h

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 Sys	tems		Date:		July 27	2023		_		Wea	ather Data	Richmo	ond Hill	44	-5.8 88	B 20	50				Page 4
2012 OBC		Project:	King East Devel	opments	м	lodel:		Model	2350			System 1	He	at Loss ^T	77.8 deg. F		Ht gain ^T	12.8 de	eg. F			P L	roject # ayout #	PJ-00267 JB-09053
				5.40	<u>-</u>																			
Bum 64	Level 1 t. exposed wall A			BASE 95 A	=	48 A	F.AREA	Α		Α		Α	Α		Α		Α		Α		Α		А	
	t. exposed wall B			95 A B		40 A		В В		R		В	R		В		В		В		В		В	
ruii i.	Ceiling height			4.0 AG		4.0 A		4.0 AG		4.0 AG		4.0 AG	4.0 AG		4.0 AG		4.0 AG		4.0 AG		4.0 AG		4.0 A	•
	Floor area			713 Area		230 A		Area		Area		Area	Area		Area		Area		Area		Area		Ar	
Expo	posed Ceilings A			Α		Α Α		A		A		A	A		A		A		A		A		A	ou .
	posed Ceilings B			В		В		В		В		В	В		В		В		В		В		В	
	Exposed Floors			Flr		F		Flr		Flr		Flr	Flr		Flr		Flr		Flr		Flr		FI	r
Gr	Fross Exp Wall A			380		192																		
	Fross Exp Wall B																							
	Components		oss Gain	Loss	Gain	L	oss Gai	n Loss	Gain	Loss	Gain	Loss Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Lo	ss Gain
	North Shaded	4.00	19.45 11.73	10 195																				
	East/West	4.00	19.45 29.66	5 97																				
	South	4.00	19.45 22.60	5 97	113																			
WOB Windows I		3.55	21.92 27.86																					
	Skylight	2.03	38.33 89.12				400																	
	Doors	4.00	19.45 3.20 3.73 0.61	360		21 171	408	67 105																
	exposed walls A exposed walls B	20.84	3.73 0.61 3.64 0.60	360	221	1/1		105																
	posed Ceilings A	59.22	1.31 0.67																					
	posed Ceilings B	27.65	2.81 1.44																					
	Exposed Floors	29.80	2.61 0.23																					
Foundation Conduct				3780			1910																	
Total Conductive	Heat Loss			4169			2318																	
Total Conductive	Heat Gain				600			172																
Air Leakage	Heat Loss/Gain		1.0264 0.0533	4279	32		2379	9																
	Case 1		0.10 0.09																					
Ventilation	Case 2		16.80 13.82																					
	Case 3	x	0.05 0.09	224	57		125	16																
	Case 3	^																						
He	leat Gain People		239																					
He Ap	Heat Gain People	1 =.25 pe	239 rcent 3918																					
He Ap Duc	Heat Gain People Appliances Loads Luct and Pipe loss	1 =.25 pe	239 ercent 3918 10%																					
He Ap	Heat Gain People	1 =.25 pe	239 rcent 3918	8672	895		4822	257																
He App Duc Level HL Total Level HG Total Run ft. Run ft. Expc Expc	leat Gain People ppliances Loads tot and Pipe loss 13,494 1,152 Level 2 L exposed wall B Ceiling height Floor area posed Ceilings A posed Ceilings A Exposed Floors	1 =.25 pe	239 ercent 3918 10% al HL for per room	KIT/GF 57 A B 10.0 408 Area A B Fir	895	26 A B 10.0 162 A A B	DIN	F6 29 A B 10.0 137 Area A B F1r	YO	WR 11 A B 10.0 24 Area A B Fir		STUDY 18 A B 0.0 0.0 101 Area A B Fir	A B 10.0 Area A B Fir		A B 10.0 Area A B Fir		A B 10.0 Area A B Fir	1	A B 10.0 Area A B Fir		A B 10.0 Area A B Fir		A B 10.0 Ar A B Fir	
Run ft. c	leat Gain People ppliances Loads tot and Pipe loss 13,494 1,152 Level 2 t. exposed wall B Ceiling height Floor area posed Ceilings B Exposed Floors Exposed Floors	1 =.25 pe	239 ercent 3918 10% al HL for per room	KIT/GF 57 A B 10.0 408 Area A B	895	10.0 162 A A B	DIN	F0 29 A B 10.0 137 Area A B		11 A B 10.0 24 Area A B		18 A B 0.0 201 Area A B	B 10.0 Area A B		B 10.0 Area A B		B 10.0 Area A B	1	B 10.0 Area A B		B 10.0 Area A B		10.0 Ar A B	
Run ft. c	Level 2 Level 2 Level 2 Lexposed wall A Lexposed wall A Lexposed wall B Lexposed ceilings A posed Ceilings B Exposed Floors Gross Exp Wall A Gross Exp Wall B	1 =.25 pe Tot Total i	239 rcent 3318 10% al HL for per room HG per room x 1.3	KIT/GF 57 A B 10.0 408 Area A B Fir 570	895 RT	10.0 162 A A B F	DIN inrea	29 A B 10.0 137 Area A B Fir 290		11 A B 10.0 24 Area A B Fir		18 A B 0.0 201 Area A B Fir	B 10.0 Area A B Fir	Gain	B 10.0 Area A B Fir	Gair	B 10.0 Area A B Fir		B 10.0 Area A B Fir	Gain	B 10.0 Area A B Fir		10.0 Ar A B Fli	,
Run ft. c	leat Gain People ppliances Loads tot and Pipe loss 13,494 1,152 Level 2 Lexposed wall A e. exposed wall B Ceiling height Floor area posed Ceilings A posed Ceilings A posed Ceilings A posed Floors Gross Exp Wall B Gross Exp Wall B Grospoents	1 =.25 pe Tot Total i	239 rcent 3918 10% al HL for per room x 1.3 mail	KIT/GF 57 A B 10.0 408 Area A B Fir	895	10.0 162 A A B F 260	DIN area	Fi 29 A B 10.0 137 Area A B Fir 290		11 A B 10.0 24 Area A B Fir		18 A B 0.0 201 Area A B Fir	B 10.0 Area A B	Gain	B 10.0 Area A B Fir	Gain	B 10.0 Area A B	1 Gain	B 10.0 Area A B	Gain	B 10.0 Area A B		10.0 Ar A B Fli	
Run ft. c	leat Gain People ppliances Loads tot and Pipe loss 13,494 1,152 Level 2 t. exposed wall B Ceiling height Floor area posed Ceilings B Exposed Floors Exposed	1 = .25 pe Tot Total I	239 rcent 3918 10% al HL for per room x 1.3 HG per room x 1.3 OSS Gain 19.45 11.73	KIT/GF 57 A B 10.0 408 Area A B Fir 570	RT Gain	10.0 162 A A B F	DIN area	29 A 10.0 137 Area A B Fir 290	Gain	11 A B 10.0 24 Area A B Fir 110		18 A B 0.0 201 Area A B Fir	B 10.0 Area A B Fir	Gain	B 10.0 Area A B Fir	Gain	B 10.0 Area A B Fir		B 10.0 Area A B Fir	Gain	B 10.0 Area A B Fir		10.0 Ar A B Fli	,
Level HL Total Level HG Total Run ft. Expc Expc Expc Expc Expc Gr Gr	leat Gain People ppliances Loads tot and Pipe loss 13,494 1,152 Level 2 L exposed wall A L exposed wall B Ceiling height Floor area posed Ceilings B Exposed Floor Siross Exp Wall B Components North Shaded East/West South	1 =.25 pe Tot Total i	239 rcent 3918 10% al HL for per room x 1.3 mail mai	KIT/GF 57 A B 10.0 408 Area A B Fir 570	895 RT Gain 2729	10.0 162 A A B F 260	DIN area	29 A 10.0 137 Area A B Fir 290		11 A B 10.0 24 Area A B Fir 110	Gain	18 A B 0.0 201 Area A B Fir	B 10.0 Area A B Fir	Gain	B 10.0 Area A B Fir	Gain	B 10.0 Area A B Fir		B 10.0 Area A B Fir	Gain	B 10.0 Area A B Fir		10.0 Ar A B Fli	,
Level HL Total Level HG Total Run ft. Expc Expc Expc Expc Gr Gr	leat Gain People ppliances Loads tot and Pipe loss 13,494 1,152 Level 2 L exposed wall B Ceiling height Floor area posed Ceilings B Exposed Floors Exposed Floors Fross Exp Wall B Components North Shaded East/West South	1 = .25 pe Total I R-Values L 4.00 4.00	239 rcent 3918 10% 10% al HL for per room HG per room x 1.3 10	KIT/GF 57 A B 10.0 408 Area A B Fir 570 Loss	895 RT Gain 2729	10.0 162 A A B F 260	DIN area	29 A 10.0 137 Area A B Fir 290	Gain	11 A B 10.0 24 Area A B Fir 110 Loss	Gain	18 A B B 0.0	B 10.0 Area A B Fir	Gain	B 10.0 Area A B Fir	Gain	B 10.0 Area A B Fir		B 10.0 Area A B Fir	Gain	B 10.0 Area A B Fir		10.0 Ar A B Fli	,
Level HL Total Level HG Total Run ft. Expc Expc Expc Expc Gr Gr	Level 2 Level 2 Lexposed wall 8 Lexposed ceilings 8 Exposed Ceilings 8 Exposed Floors Gross Exp Wall A Horns Shaded North Shaded LexpWest	1 = .25 pe Total I R-Values L 4.00 4.00 4.00 1.99 2.03	oss Gain 19.45 11.73 19.45 22.60 39.10 24.56 39.31 89.12	KIT/GF 57 A B 10.0 408 Area A B Fir 570 Loss	895 RT Gain 2729	10.0 162 A A B F 260	DIN area	29 A 10.0 137 Area A B Fir 290	Gain 415	11 A B 10.0 24 Area A B Fir 110 Loss	Gain	18 A B B 0.0	B 10.0 Area A B Fir	Gain	B 10.0 Area A B Fir	Gain	B 10.0 Area A B Fir		B 10.0 Area A B Fir	Gain	B 10.0 Area A B Fir		10.0 Ar A B Fli	,
Run ft. Expc Expc Expc Expc Expc Expc Expc Exp	leat Gain People ppliances Loads 13,494 1,152 Level 2 Level 2 Lexposed wall A Lexposed wall B Ceiling height Floor area posed Ceilings A posed Ceilings A posed Ceilings A posed Ceilings A posed Floor Seross Exp Wall B Components North Shaded East/West South xisting Windows Skylight Doors	1 = .25 pe Total I R-Values L- 4.00 4.00 4.00 1.99 2.03	oss Gain 19.45 11.73 19.45 22.60 39.10 24.56 38.33 89.12 19.45 3.20	KIT/GF 57 A B 10.0 408 Area A B Fir 570 Loss 12 233	Gain 2729 271	B 10.0 162 A A B F 260 L 16	DIN rea	29 A 10.0 137 Area A B Fir 290 n Loss 188	Gain 72 415	11 A B 10.0 24 Area A B Fir 110 Loss	Gain 203	18 A B 0.0.0 201 Area A B Fir 180 Loss Gain 12 233 27	B 10.0 Area A B Fir Loss	Gain	B 10.0 Area A B Fir	Gain	B 10.0 Area A B Fir		B 10.0 Area A B Fir	Gain	B 10.0 Area A B Fir		10.0 Ar A B Fli	,
He App Duc Level HL Total Level HG Total Run ft. Run ft. Run ft. Grand Experiment Experi	leat Gain People ppliances Loads 13,494 1,152 Level 2 L exposed wall A Leyel 2 L exposed wall B Ceiling height Floor area posed Ceilings A posed Ceilings B Exposed Floors Tross Exp Wall B Components North Shaded East/West South xisting Windows Skylight Doors exposed walls A	1 = .25 pe Total I R-Values Lt 4.00 4.00 4.00 4.00 4.00 2.03 4.00 2.140	oss Gain 19.45 11.73 19.45 29.66 19.45 22.66 19.45 22.66 38.33 89.12 19.45 3.20 3.64 0.60	KIT/GF 57 A B 10.0 408 Area A B Fir 570 Loss	Gain 2729 271	10.0 162 A A B F 260	DIN rea	29 A 10.0 137 Area A B Fir 290 n Loss 188	Gain 415	11 A B 10.0 24 Area A B Fir 110 Loss	Gain 203	18 A B B 0.0	B 10.0 Area A B Fir Loss	Gain	B 10.0 Area A B Fir	Gain	B 10.0 Area A B Fir		B 10.0 Area A B Fir	Gain	B 10.0 Area A B Fir		10.0 Ar A B Fli	,
He App Duc Level HL Total Level HG Total Run ft. Run ft. Expc Exp Gr Gr Gr	leat Gain People ppliances Loads 13,494 1,152 Level 2 Level 2 Lexposed wall A Lexposed wall A Lexposed wall A Lexposed Ceilings A Lexposed Ceilin	1 = .25 pe Total I R-Values L 4.00 4.00 4.00 1.99 2.03 4.00 21.40 8.50	oss Gain 19.45 11.73 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	KIT/GF 57 A B 10.0 408 Area A B Fir 570 Loss 12 233	Gain 2729 271	B 10.0 162 A A B F 260 L 16	DIN rea	29 A 10.0 137 Area A B Fir 290 n Loss 188	Gain 72 415	11 A B 10.0 24 Area A B Fir 110 Loss	Gain 203	18 A B 0.0.0 201 Area A B Fir 180 Loss Gain 12 233 27	B 10.0 Area A B Fir Loss	Gain	B 10.0 Area A B Fir	Gain	B 10.0 Area A B Fir		B 10.0 Area A B Fir	Gain	B 10.0 Area A B Fir		10.0 Ar A B Fli	,
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He App Duc Level HL Total Level HG Total Run ft. Run ft. Expc Expc Exp Gr Gr Net e Expc Expc Expc Expc Expc Expc Expc Expc	Level 2 Level 3 Level 4 Level 4 Level 5 Level 5 Level 6 Level 6 Level 8 Level 8 Level 8 Level 8 Level 8 Level 9 Level	1 = .25 pe Total I R-Values L 4.00 4.00 4.00 4.00 2.03 4.00 21.40 8.50 59.22 27.65	oss Gain 19.45 11.73 19.45 29.66 39.10 24.56 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 x	KIT/GI 57 A B 10.0 408 Area A B Fir 570 Loss 92 1788 12 233	Gain 2729 271 279 3279	B 10.0 162 A A B F 260 L 16	DIN series and series are series and series and series and series and series are series and series and series and series are series and series	29 A 10.0 137 Area A B Fir 290 188 14 27 146 229 8	Gain 72 419 14 15533 137 19 703	11 A B 10.0 24 Area A B FIr 110 Loss 9 175	Gain 203 60	18 A B B 0.0 O O O O O O O O O O O O O O O O O O	B 10.0 Area A B Fir	Gain	B 10.0 Area A B Fir	Gain	B 10.0 Area A B Fir		B 10.0 Area A B Fir	Gain	B 10.0 Area A B Fir		10.0 Ar A B	,
Expense of the second of the s	Level 2 Level 2 Level 2 Lexposed wall A Cellings he posed Cellings A posed Cellings B Exposed walls B posed Cellings B Exposed Floors the telloss Heat Loss Heat Loss Heat Loss Heat Loss Heat Loss Heat Loss Lase I posed Cellings B Loss Cellings B Exposed Floors Loss Cellings B Loss	1 = .25 pe Total I R-Values L 4.00 4.00 4.00 4.00 2.03 4.00 21.40 8.50 59.22 27.65	oss Gain 19.45 11.73 19.45 22.60 19.45 22.60 19.45 3.20 3.64 0.60 19.45 3.20 3.64 0.60 19.45 3.20 3.64 0.60 3.10 4.51 1.31 0.67 2.81 1.44 2.61 0.23 x	KIT/GI 57 A B 10.0 408 Area A B Fir 570 Loss 92 1788 12 233	Gain 2729 279 3279 175	B 10.0 162 A A B F 260 L 16	DIN	29 A B 10.0 137 Area A B Fir 290 1146 229 8 146 229 8 188 14 26 334 18	Gain 72 419 14 15533 137 19 703	11 A B 10.0 24 Area A B FIr 110 Loss 9 175 101 367	Gain 203 60 264 14	18 A B B 0.0 O O O O O O O O O O O O O O O O O O	B 10.0 Area A B Fir	Gain	B 10.0 Area A B Fir	Gain	B 10.0 Area A B Fir		B 10.0 Area A B Fir	Gain	B 10.0 Area A B Fir		10.0 Ar A B	,
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Run ft. Run ft. Run ft. Run ft. Run ft. Expc Expc Expc Expc Expc Expc Expc Exp	leat Gain People pplilances Loads 13,494 1,152 Level 2 L exposed wall A Level 2 L exposed wall B Ceiling height Floor area posed Ceilings B Exposed floors South North Shaded East/West South North Shaded East/West South Listing Windows Skylight Doors exposed walls B Exposed Floors Exposed Floors Exposed Ceilings B Exposed Floors	1 = .25 pe Total I R-Values L- 4.00 4.00 4.00 4.00 1.99 2.03 4.00 21.40 8.50 59.22 27.65 29.80	oss Gain 19.45 11.73 19.45 22.60 39.10 24.56 38.33 89.12 19.45 22.60 39.10 1.31 1.31 0.67 2.81 1.44 2.61 0.23 x 0.4801 0.0533 0.05 0.09 16.80 13.82 0.05 0.09 170 0.05 0.09 18.80 1.382 0.05 0.09 18.80 1.382 0.05 0.09 18.80 1.382 0.05 0.09 18.80 1.382 0.05 0.09 18.80 1.382 0.05 0.09 18.80 1.382	KIT/GF 57 A B 10.0 408 Area A B Fir 570 Loss 92 1788 12 233 466 1694	Gain 2729 279 3279 175	B 10.0 162 A A B F 260 L 16	DIN	29 A B 10.0 137 Area A B Fir 290 1146 229 8 146 229 8 188 14 26 334 18	72 415 14 150 133 137 19 703 69 37	11 A B 10.0 24 Area A B FIr 110 Loss 9 175 101 367	Gain 203 60 264 14	18 A B B 0.0 O 101 Area A B FIr 1880	B 10.0 Area A B Fir Loss 11 1 2 0 0 0 5 5	Gain	B 10.0 Area A B Fir	Gain	B 10.0 Area A B Fir		B 10.0 Area A B Fir	Gain	B 10.0 Area A B Fir		10.0 Ar A B	,
He App Duc Level HL Total Level HG Total Level HG Total Run ft. Run ft. Run ft. Expc Expc Expc Expc Expc Expc Expc Exp	leat Gain People ppliances Loads 13,494 1,152 Level 2 L exposed wall A Ceiling height Floor area posed Ceilings A posed Ceilings B Exposed Floors Tross Exp Wall B Components North Shaded East/West South North Shaded East/West Skylight Doors Exposed Walls A posed Ceilings B Exposed Floors Exposed Wall B Components Skylight Doors Exposed Walls A posed Ceilings B Exposed Walls A posed Ceilings B Exposed Walls B Exposed Walls B Exposed Floors Exposed Floo	1 = .25 pe Total I R-Values L 4.00 4.00 4.00 1.99 2.03 4.00 21.40 8.50 59.22 27.65 29.80 x	oss Gain 19.45 11.73 19.45 29.66 19.45 22.66 19.45 22.66 19.45 22.61 38.33 89.12 19.45 1.51 1.31 0.67 2.81 1.44 2.61 0.23 x 0.4801 0.0533 0.05 0.09 16.80 13.82 0.05 0.09 16.80 13.82 19.95 1.51 1.51 1.51	KIT/GF 57 A B 10.0 408 Area A B Fir 570 Loss 122 233 1788 220 0.5	Gain 2729 271 279 3279 175 310 490	B B 10.0 162 A A B F F F F F F F F F F F F F F F F F	DIN	10.0 137 Area A B Fir 290 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.	72 415 72 415 14 150 33 137 19 703 69 37	11 A B 10.0 24 Area A B Fir 110 Loss 9 175 101 367	Gain 203 60 264 14 25	18 A B 0.0 101 Area A B Fir 80 Loss Gain 12 233 27 405 45 31 1.0 97	B 10.0 Area A B Fir Loss 11 1 2 0 0 0 5 5	Gain	B 10.0 Area A B Fir	Gain	B 10.0 Area A B Fir		B 10.0 Area A B Fir	Gain	B 10.0 Area A B Fir		10.0 Ar A B	,
Run ft. Run ft. Run ft. Run ft. Run ft. Expc Expc Expc Expc Expc Expc Expc Exp	leat Gain People pplilances Loads 13,494 1,152 Level 2 L exposed wall A Level 2 L exposed wall B Ceiling height Floor area posed Ceilings B Exposed floors South North Shaded East/West South North Shaded East/West South Listing Windows Skylight Doors exposed walls B Exposed Floors Exposed Floors Exposed Ceilings B Exposed Floors	1 = .25 pe Total I R-Values L. 4.00 4.00 4.00 4.00 1.99 2.03 4.00 21.40 8.50 59.22 27.65 29.80 x	oss Gain 19.45 11.73 19.45 22.60 39.10 24.56 38.33 89.12 19.45 22.60 39.10 1.31 1.31 0.67 2.81 1.44 2.61 0.23 x 0.4801 0.0533 0.05 0.09 16.80 13.82 0.05 0.09 170 0.05 0.09 18.80 1.382 0.05 0.09 18.80 1.382 0.05 0.09 18.80 1.382 0.05 0.09 18.80 1.382 0.05 0.09 18.80 1.382 0.05 0.09 18.80 1.382	KIT/GF 57 A B 10.0 408 Area A B Fir 570 Loss 92 1788 12 233 466 1694	Gain 2729 271 279 3279 175 310 490	B B 10.0 162 A A B F F F F F F F F F F F F F F F F F	DIN	10.0 137 Area A B Fir 290 1 Loss 144 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	72 415 72 415 14 150 33 137 19 703 69 37	11 A B 10.0 24 Area A B Fir 110 Loss 9 175 101 367	Gain 203 60 264 14 25	18 A B B 0.0 O O O O O O O O O O O O O O O O O O	B 10.0 Area A B Fir Loss 11 1 2 0 0 0 5 5 9 9	Gain	B 10.0 Area A B Fir	Gain	B 10.0 Area A B Fir		B 10.0 Area A B Fir	Gain	B 10.0 Area A B Fir		10.0 Ar A B	,

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

Man 16Cot 2

David DaCosta

Energy Star



39,832

24,209

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

SB-12 Package

Energy Star

e-mail hvac@gtadesigns.ca

																			-	-					_				
		Builder:	EM A	Air Systems	<u> </u>	ı	Date:			July 27, 20	23		_	_				Weather Data		hmond Hill	44	-5.8	88	20 50)		Projec	ct# F	Page 5 PJ-00267
2012 OBC		Project:	King East	t Developn	nents	M	odel: _			Model 235	50		_	S	ystem	1		Heat Loss ^	T 77.8 deg	F	Ht gain ^T	12.	8 deg. F				Layou		JB-09053
	Level 3				MAST			ENS		BATH		LAU	N		BED 4			BATH2	v	AN	BE	D 3		BED 2					
	posed wall A			3	84 A B		19 A			8 A		8 A		27	A B		A B		6 A		30 A		12			A B		A B	
	posed wall B Ceiling height			11.	-		9.0	•	9	В 0	,	B 9.0		9.0	В		9.0	3	В 9.0		B 11.0		9.0	В	9.	_		9.0	
	Floor area			31	0 Area		92 A		•	4 Area		56 Area		236			32 A		32 Area	1	213 Area		175			Area		Area	
	ed Ceilings A ed Ceilings B			31	0 A B		92 A		•	4 A B		56 A B		236	A B		32 A B		32 A B		213 A B		175	A B		A B		A B	
Exp	oosed Floors				Flr		F			Flr		14 Fir		204			29 F		29 Flr		Flr		1	Fir		Flr		Flr	
	s Exp Wall A s Exp Wall B			37	4		171		7	2		72		243					54		330		108						
	Components				Loss	Gain	L	oss Ga	ain		Gain	Loss	Gain		Loss	Gain	L	oss Gain	Los	s Gain	Loss	Gain		Loss G	ain	Loss	Gain	Loss	Gain
N	lorth Shaded East/West	4.00 4.00		11.73 29.66 3	622	949	14	272	415	9 175	106	9 17	5 106	30	584	890			7	136 208	35 6	81 103	0						
	South	4.00	19.45	22.60	022	949	14	212	415					4	78	90				130 200		78 9		311	362				
Existi	ing Windows	1.99 2.03		24.56 89.12																									
	Skylight Doors	4.00	19.45	3.20																									
Net expe	osed walls A	21.40 8.50	3.64 9.15	0.60 34 1.51	1243	205	157	571	94 6	3 229	38	63 22	9 38	209	760	125			47	171 28	291 10	58 17	4 92	334	55				
Expose	ed Ceilings A	59.22	1.31	0.67 31	0 407	208	92	121	62 6	4 84	43	56 7	4 38	236	310	159	32	42 2:	2 32	42 22	213 2	80 14	3 175	230	118				
Expose	ed Ceilings B	27.65 29.80	2.81 2.61	1.44 0.23								14 3	7 3	204	533	47	29	76	7 29	76 7									
Foundation Conductive		29.80	2.61	0.23								14 3	, 3	204	533	47	29	76	7 29	76 7									
Total Conductive	Heat Loss Heat Gain				2273	1362		964	571	488	186	51	184		2264	1310		118		425 264	20	96 144	6	876	534				
Air Leakage He	at Loss/Gain		0.2659 0	0.0533	604	73		256	30	130		13			602	70		31		113 14		57 7		233	28		1		
Ventilation	Case 1		0.03	0.09																									
Vendiadon	Case 2	х	16.80 0.05	13.82 0.09	122	129		52	54	26	18	2	8 17		122	124		6	3	23 25	1	13 13	7	47	51				
	Gain People	4 05		239 3918	2	478							.=-	1		239					1	23			239				
Applia Duct a	ances Loads and Pipe loss	1 =.25 pe	ercent	10%								1.0	979	1	287	155	1	15	3 1	54 26							i		
Level HL Total	13,575		al HL for per		3000			1272	050	644		67			3274	0.100		170		614	27			1155	4400				
Level HG Total	11,850	Iotai	HG per room	X 1.3		2654	L		852		278		1548	1 1		2468	L	4	b	428	l L	246	8		1108				
	Level 4																												
	posed wall A posed wall B				A B		A			A B		A B			A B		A B		A B		A R			A R		A B		A B	
	Ceiling height											_									_			_					
Fynose	Floor area ed Ceilings A				Area A		Α	rea		Area A		Area A			Area A		A	Area A	Area A	1	Area A			Area A		Area A		Area A	
Expose	ed Ceilings B				В		Е	1		В		В			В		В	3	В		В		1	В		В		В	
	s Exp Wall A				Flr		F	lr		Flr		Flr			Flr		F	ir	Flr		Flr		- 1	Flr		Flr		Flr	
Gross	s Exp Wall B																												
	Components lorth Shaded	R-Values L		n 11.73	Loss	Gain	L	oss Ga	in	Loss	Gain	Loss	Gain	т г	Loss	Gain	L	oss Gain	Los	s Gain	Loss	Gain	T [Loss G	ain	Loss	Gain	Loss	Gain
	East/West	4.00	19.45	29.66																									
Eviati	South ing Windows	4.00 1.99		22.60 24.56																									
Existi	Skylight	2.03		89.12																									
Not own	Doors osed walls A	4.00 21.40	19.45 3.64	3.20 0.60																									
	osed walls B	8.50	9.15	1.51																									
Expose	ed Ceilings A	59.22 27.65	1.31 2.81	0.67 1.44																									
Exp	ed Ceilings B	29.80	2.81	0.23																									
Foundation Conductive																													
Total Conductive	Heat Loss Heat Gain																												
Air Leakage He	at Loss/Gain			0.0533																									
Ventilation	Case 1		0.00 16.80	0.09 13.82																									
	Case 3	х	0.05	0.09																									
	Gain People ances Loads	1 =.25 pe	ercent	239 3918																									
Duct a	ind Pipe loss			10%																									
Level HL Total Level HG Total	0		al HL for per HG per room																										
	-			-			_								-		L	1		1									

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

Man Hotel

David DaCosta

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



Exhaust only / forced air system

Part 6 design

HRV WITH DUCTING / forced air system

HRV simplified connection to forced air system

HRV full ducting/not coupled to forced air system

1 2

3 x

4

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

Project # Layout #

David DaCosta

Page 6 PJ-00267 JB-09053

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

Package: Project:	Energy Star Richmond Hill	Model:	Model 2350)
	RESIDENTIAL MECHANICAL For systems serving one dwelling unit & co			
-				
	Location of Installation	Total Ve	entilation Capacity 9.32.3.	3(1)
Lot #	Plan #	Bsmt & Master Bdrm	2 @ 21.2 cfr	
Township	Richmond Hill	Other Bedrooms Bathrooms & Kitchen	3 @ 10.6 cfr 5 @ 10.6 cfr	
Roll #	Permit #	Other rooms	4 @ 10.6 cfr Total	m 42.4 cfm 169.6
Address				
		Principal	Ventilation Capacity 9.32.	3.4(1)
<u> </u>	Builder		4 0 040 7	04.0
Name	EM Air Systems	Master bedroom Other bedrooms	1 @ 31.8 cfr 3 @ 15.9 cfr	
Address	EM Alr Systems	Other bedrooms	Total	79.5
City		Princ	sinal Exhaust Ean Canacit	
Tel	Fax	Make	ipal Exhaust Fan Capacit Model	Location
1 61		VanEE	V150E75NS	Base
	Installing Contractor			
Name	-	127 cfm	80	.0 Sones or Equiv.
Address			eat Recovery Ventilator	
0		Make	VanEE	
City		Model	V150E75NS 127 cfm high	80 cfm low
Tel	Fax	Sensible efficiency @ Sensible efficiency @	-25 deg C	60% 75%
			ance HRV/ERV to within 10	
	Combustion Appliances 9.32.3.1(1)	Supple	emental Ventilation Capac	city
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 capac Less principal exhaust REQUIRED suppleme	capacity	169.6 79.5 90.1 cfm
		Sur	oplemental Fans 9.32.3.5.	
	Heating System	Location	cfm Model	Sones
x	Forced air	Ens	50 XB50	0.3
	Non forced air Electric space heat (if over 10% of heat load)	Bath	50 XB50	0.3
l x	House Type 9.32.3.1(2) Type a) or b) appliances only, no solid fuel	all fans HVI listed	Make Broan	or Equiv.
II	Type I except with solid fuel (including fireplace)			
III L	Any type c) appliance		Designer Certification	
IV Other	Type I or II either electric space heat Type I, II or IV no forced air		s ventilation system has be Ontario Building Code.	en aesigned
	System Design Option	Name	David DaCosta	

	Designer (Certification										
I hereby certify that this ventilation system has been designed												
in accordance w	ith the Ontario B	uilding Code.	•									
		_										
Name	David D	aCosta										
	41	1600										
Signature	7 6 20100	6 2										
HRAI#	5190	BCIN #	32964									
Date	July 27	, 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)

Project # PJ-00267 Layout # JB-09053

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								
Application	No:			Model/Certification Nur	mber							
A.	Project Information											
Building nui	mber, street name				Unit numl	ber	Lot/Con					
		N	Model 2350									
Municipality	Richmond Hill		Postal code	Reg. Plan number / oth	ner descrip	otion						
B.	Prescriptive Compliance [indicate the build	ding code	compliance option	being employed in the	house de	esign]						
	SB-12 Performance* [SB-12 - 3.1.2.]	*Attach	energy performa	ance results using	an appr	oved softwa	re (see g	uide)				
V	ENERGY STAR®* [SB-12 - 3.1.3.]	*Attach	Builder 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. E	quip. Efficiency		Spac	ce Heating Fu	uel Sourc	е				
✓	Zone 1 (< 5000 degree days)		2% AFUE	✓ Gas		Propane		Solid Fuel				
	Zone 2 (≥ 5000 degree days)	_ ≥ 8	34% < 92% AFUE	Oil		Electric		Earth Energy				
R	atio of Windows, Skylights & Glass (W, S	& G) to V	Vall Area		Other	Building Cha		ics				
Area of	Walls = 316.4 m² or 3405.9 ft²			Log/Post&Beam		ICF Above (☐ ICF Basement				
, o o .				Slab-on-ground	1.1	Walkout Bas						
		W,S	&G % = <u>10%</u>	Air Conditioning	1.1							
Area of W	$I, S \& G = 31.12 \text{ m}^2 \text{ or } 335.0 \text{ ft}^2$			☐ Air Sourced Heat Pump (ASHP)								
				☐ Ground Source F		. ,						
SB-12 Pe	rformance Reference Building Design Pac	kage ind	dicating the pres	criptive package to	be com	pared for co	mpliance					
SB-1	2 Referenced Building Package (input desi	gn packa	ge):									
D. Building Specifications [provide values and ratings of the energy efficiency components proposed, or attach ENERGY STAR BOP form]												
	Mini	mum RS	SI/R-Values or									

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)

Page 8 Project # PJ-00267

Layout # JB-09053

Project Design Verification [Subsection 3.1.2. Performance Compliance] The annual energy consumption using Subsection 3.1.1. SB-12 Reference Building Package is GJ (1J=1000MJ) The annual energy consumption of this house as designed is The software used to simulate the annual energy use of the building is: The building is being designed using an air tightness baseline of: OBC reference ACH, NLA or NLR default values (no depressurization test required) Targeted ACH, NLA or NLR. Depressurization test to meet ACH50 or NLR or NLA Reduction of overall thermal performance of the proposed building envelope is not more than 25% of the envelope of the compliance package it is compared against (3.1.2.1.(6)). Standard Operating Conditions Applied (A-3.1.2.1 - 4.6.2) Reduced Operating Conditions for Zero-rated homes Applied (A-3.1.2.1 - 4.6.2.5) On Site Renewable(s): Other Types: ENERGY STAR or R-2000 Performance Design Verification [Subsection 3.1.3. Other Acceptable Compliance Methods] The NRCan "ENERGY STAR for New Homes Standard Version 12.6" technical requirements, applied to this building design result in the building performance meeting or exceeding the prescriptive performance requirements of the Supplementary Standard SB12 (A-3.1.3.1). The NRCan, "2012 R-2000 Standard" technical requirements, applied to this building design result in the building performance meeting or exceeding the prescriptive performance requirements of the Supplementary Standard SB12 (A-3.1.3.1). Performance Energy Modeling Professional Energy Evaluator/Advisor/Rater/CEM Name and company: Accreditation or Evaluator/Advisor/Rater License # **BUILDING KNOWLEDGE CANADA** 5506 **ENERGY STAR or R-2000** Energy Evaluator/Advisor/Rater/Name and company: Evaluator/Advisor/Rater License # ANGELA BUSTAMANTE 5506 G. Designer(s) [name(s) & BCIN(s), if applicable, of person(s) providing information herein to substantiate that design meets building code] Name **BCIN** Signature Mane Holita 32964 David DaCosta

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	Core / Option	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		
	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 PJ-00267 Project # Layout # JB-09053

Vent

Case

Case

Package: **Energy Star** System: System 1 Project: Richmond Hill Model:

Model 2350 Air Leakage Calculations

Building Air Leakage Heat Loss													
В	LRairh	Vb	HL^T	HLleak									
0.018 0.328 29025 77.8 13316													

	Building Air Leakage Heat Gain							
В	LRairh	Vb	HG^T	HG Leak				
0.018	0.092	29025	12.8	618				

	Air Leakage Heat Loss/Gain Multiplier Table (Section 11)								
Level	Level	Building	Level Conductive	Air Leakage Heat Loss					
Level	Factor (LF)	Air	Heat Loss (HLclevel)	Multiplier					
Level 1	0.5		6487	1.0264					
Level 2	0.3	13316	8321	0.4801					
Level 3	0.2	13316	10017	0.2659					
Level 4	0		0	0.0000					

		Air Leakage Heat Gain
HG LEAK	618	0.0533
BUILDING CONDUCTIVE HEAT GAIN	0.0555	
•		
Highest Ceiling Height	23.0	FT 7.01 M

1	2	3	4
(LF)	(LF)	(LF)	(LF)
1.0	0.6	0.5	0.4
	0.4	0.3	0.3
		0.2	0.2
			0.1

Leve	ls this Dwel	ling
	3	

Hignest Ceiling Height	23.0 FT	7.01 M	

ventilation C	alculations

ent,			Ventilation	n Heat Loss		
>	С	PVC	HL^T	(1-E) HRV	HLbvent	
	1.08	79.5	77.8	0.20	1336	Ī
						_

Ventilation Heat Loss

Ventilation Heat Gain								
С	PVC	HG^T	HGbvent					
1.1	79.5	12.8	1099					

Ventilation Heat Gain

Case 1

Case 2

Case 3

Ventilation Heat Gain (Forced Air Systems)

Ventilation Heat Gain (Exhaust Only Systems)

	Case 1 - Exhaust Only							
l	LF	HLbvent	LVL Cond. HL	Multiplier				
1	0.5		6487	0.10				
2	0.3	1336	8321	0.05				
3	0.2	1330	10017	0.03				

Case 1 - Exh	aust Only	Multiplier
HGbvent	1099	0.09
Building	11608	0.05

	Level	LF	HLbvent	LVL Cond. HL	Multiplier	
	Level 1	0.5		6487	0.10	
	Level 2	0.3	1336	8321	0.05	
	Level 3	0.2		10017	0.03	
	Level 4	0		0	0.00	
Case 2						

Case 1

Ventilation Heat Loss (Exhaust only Systems)

Ventilation Heat Loss (Direct Ducted Systems)	Ventilation Heat Gain (Direct Ducted Systems)

			Multiplier
С	HL^T	(1-E) HRV	16.80
1.08	77.8	0.20	10.00

		Multiplier
С	HG^T	13.82
1.08	12.8	13.02

Watts

Ventilation Heat Loss (Forced Air Systems)				
	HLbvent	Multiplier		
Total Ventilation Load	1336	0.05		
		HLbvent		

Case 3

		Vent Heat Gain	Multiplier
HGbvent	HG*1.3	1099	0.09
1099	1	1099	0.09

Foundation Conductive Heatloss Level 1	Level 1	1668 Watts	5690 Btu/h	
Foundation Conductive Heatloss Level 2	Level 2	Watts	Btu/h	

Clab on Crade Foundation Conductive Heatless	141.44	D. //
Slab on Grade Foundation Conductive Heatloss	Watts	Btu/h

Walk Out Basement Foundation Conductive Heatloss

Btu/h

Envelope Air Leakage Calculator

Supplemental tool for CAN/CSA-F280

Weather Statio	n Description
Province:	Ontario
Region:	Richmond Hill
Weather Station Location:	Open flat terrain, grass
Anemometer height (m):	10
Local Sh	ielding
Building Site:	Suburban, forest ▼
Walls:	Heavy ▼
Flue:	Heavy ▼
Highest Ceiling Height (m):	7.01
Building Cor	nfiguration
Type:	Detached
Number of Stories:	Two
Foundation:	Full
House Volume (m³):	821.99
Air Leakage/	Ventilation
Air Tightness Type:	Present (1961-) (ACH=3.57)
Custom BDT Data:	ELA @ 10 Pa. 322.44 cm ²
Custom BDT Data.	3.57 ACH @ 50 Pa
Mechanical Ventilation (L/s):	Total Supply: Total Exhaust:
	39.75
Flue #:	#1 #2 #3 #4
Diameter (mm):	0 0 0 0
Heating Air Leakage Rate (ACH/H):	0.328
Cooling Air Leakage Rate (ACH/H):	0.092

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		High conductivity: moist soil	
Water Table:		Normal (7-10 m, 23-33 Ft)	
Fou	ındatio	on Dimensions	
Floor Length (m):	16.48		
Floor Width (m):	5.32		
Exposed Perimeter (m):	43.59		
Wall Height (m):	2.74		
Depth Below Grade (m):	1.52	Insulation Configuration	
Window Area (m²):	1.86		
Door Area (m²):	1.95		
	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): 1668			



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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	

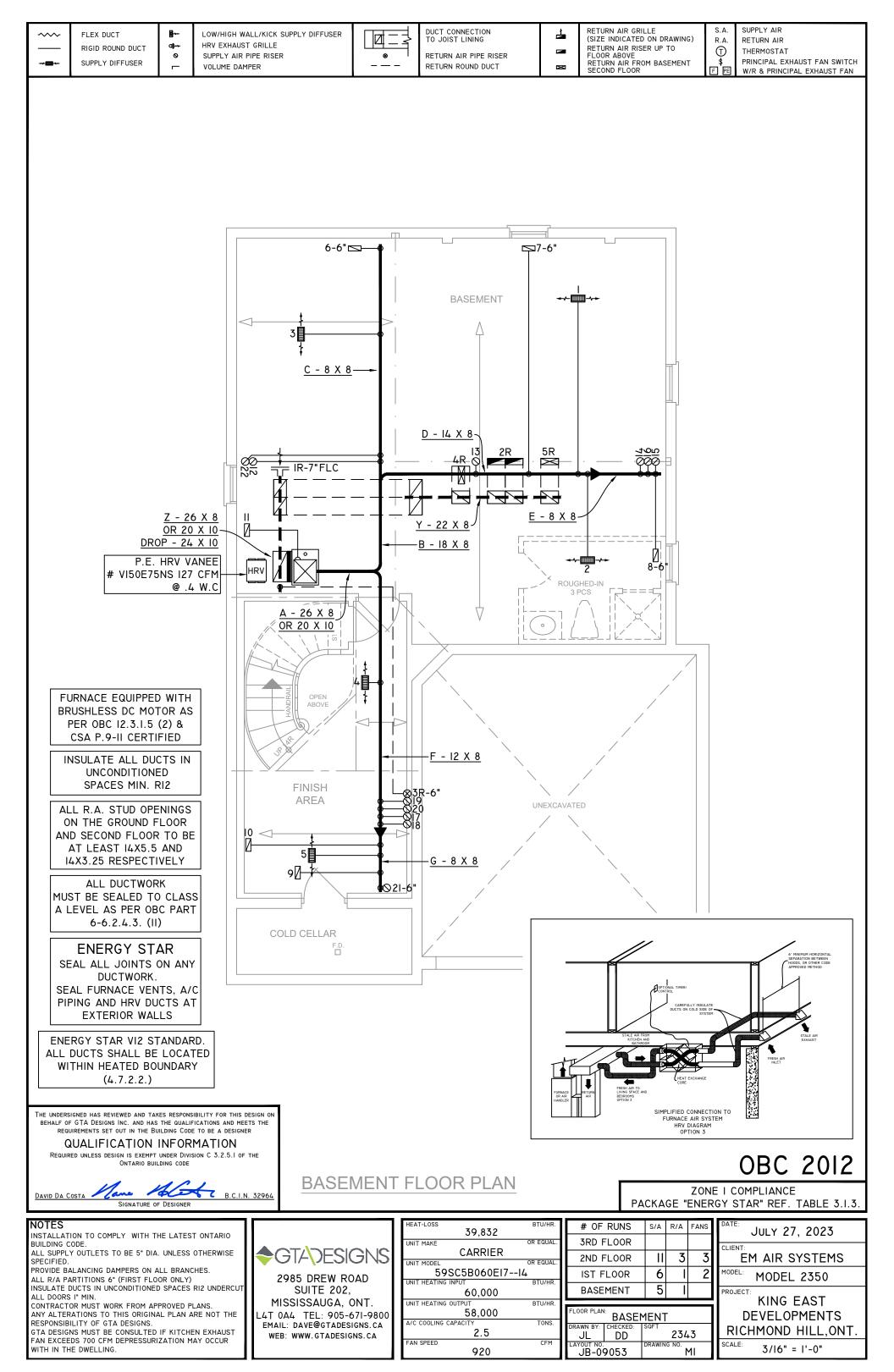


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Effective R-Value – Ex	posed Ceiling with Attic
Insulation	R60
Exterior Air Film	0.17
Effective Insulation	58.61
Drywall	0.44
Effective R-Value	59.22

Effective R-Value – Expos	sed 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 SUPPLY AIR PIPE RISER VOLUME DAMPER

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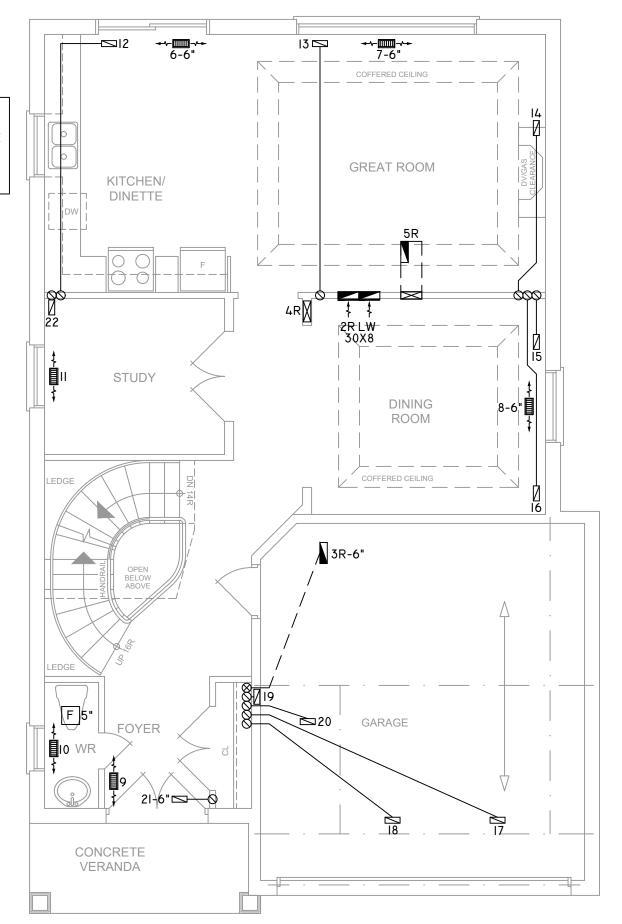
DUCT CONNECTION TO JOIST LINING RETURN AIR PIPE RISER RETURN ROUND DUCT

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

KITCHEN EXHAUST 100 CFM MIN. 6" ALL OTHER FANS SHALL BE A MIN. OF 50 CFM OR OTHERWISE NOTED AS PER 9.32.3.5



CIRCULATION PRINCIPAL FAN SWITCH TO BE CENTRALLY LOCATED

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 ONTARIO BUILDING CODE

B.C.I.N. 32964

FIRST FLOOR PLAN

HEAT-LOSS

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

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

39,032	
UNIT MAKE	OR EQUAL.
CARRIER	
UNIT MODEL	OR EQUAL.
59SC5B060EI7I	-
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	

30 032

BTU/HR.

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S/A	R/A	FANS
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	GROUND		0R		H
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JL	DD		234	٠3	H
LAYOUT NO.		DRAWIN	IG NO.		H
JB-0	9053		1	12	Н

JULY 27, 2023 CLIENT EM AIR SYSTEMS MODEL: **MODEL 2350** PROJECT:

KING EAST **DEVELOPMENTS** RICHMOND HILL, ONT. SCALE: 3/16" = 1'-0"

FLEX DUCT RIGID ROUND DUCT SUPPLY DIFFUSER

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

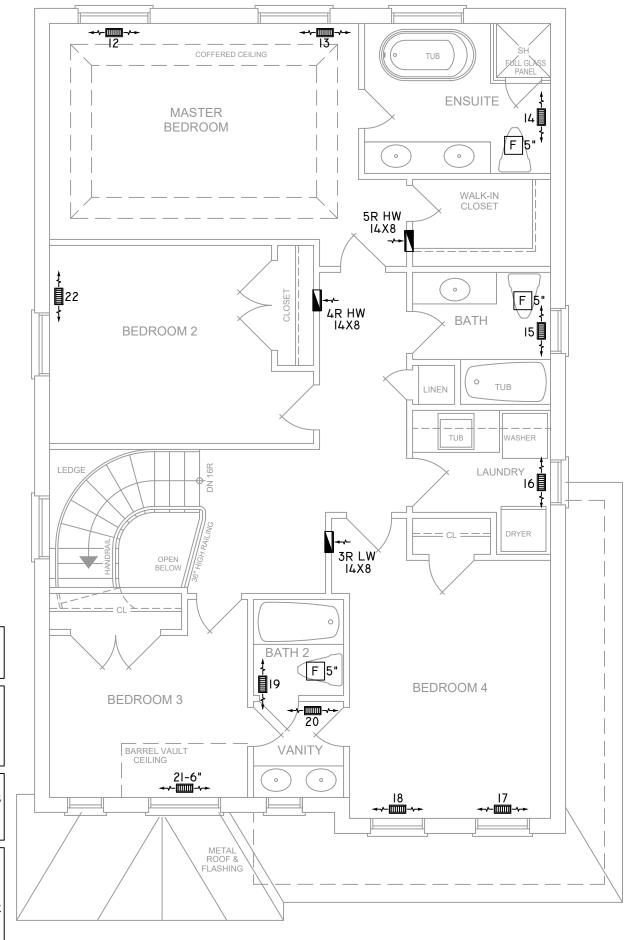
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DUCT CONNECTION TO JOIST LINING RETURN AIR PIPE RISER RETURN ROUND DUCT

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



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 ONTARIO BUILDING CODE

lane 1866 B.C.I.N. 32964

SECOND FLOOR PLAN 'A'

HEAT-LOSS

OBC 2012

JULY 27, 2023

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

CLIENT:

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.

GTADESIGNS

2985 DREW ROAD SUITE 202,

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

39,832		
UNIT MAKE 01	R EQUAL.	
CARRIER		
UNIT MODEL 0	R EQUAL.	
59SC5B060E17I4		
UNIT HEATING INPUT	BTU/HR.	ı
60,000		
UNIT HEATING OUTPUT	BTU/HR.	ī
58,000		
A/C COOLING CAPACITY	TONS.	ı
2.5		
FAN SPEED	CFM	ı
920		
		_

30 032

# OF RUNS	S/A	R/A	FANS
3RD FLOOR			
2ND FLOOR	Ш	3	3
IST FLOOR	6	I	2
BASEMENT	5	I	
FLOOR PLAN: SECOND	FLO	OR	

JL

JB-09053

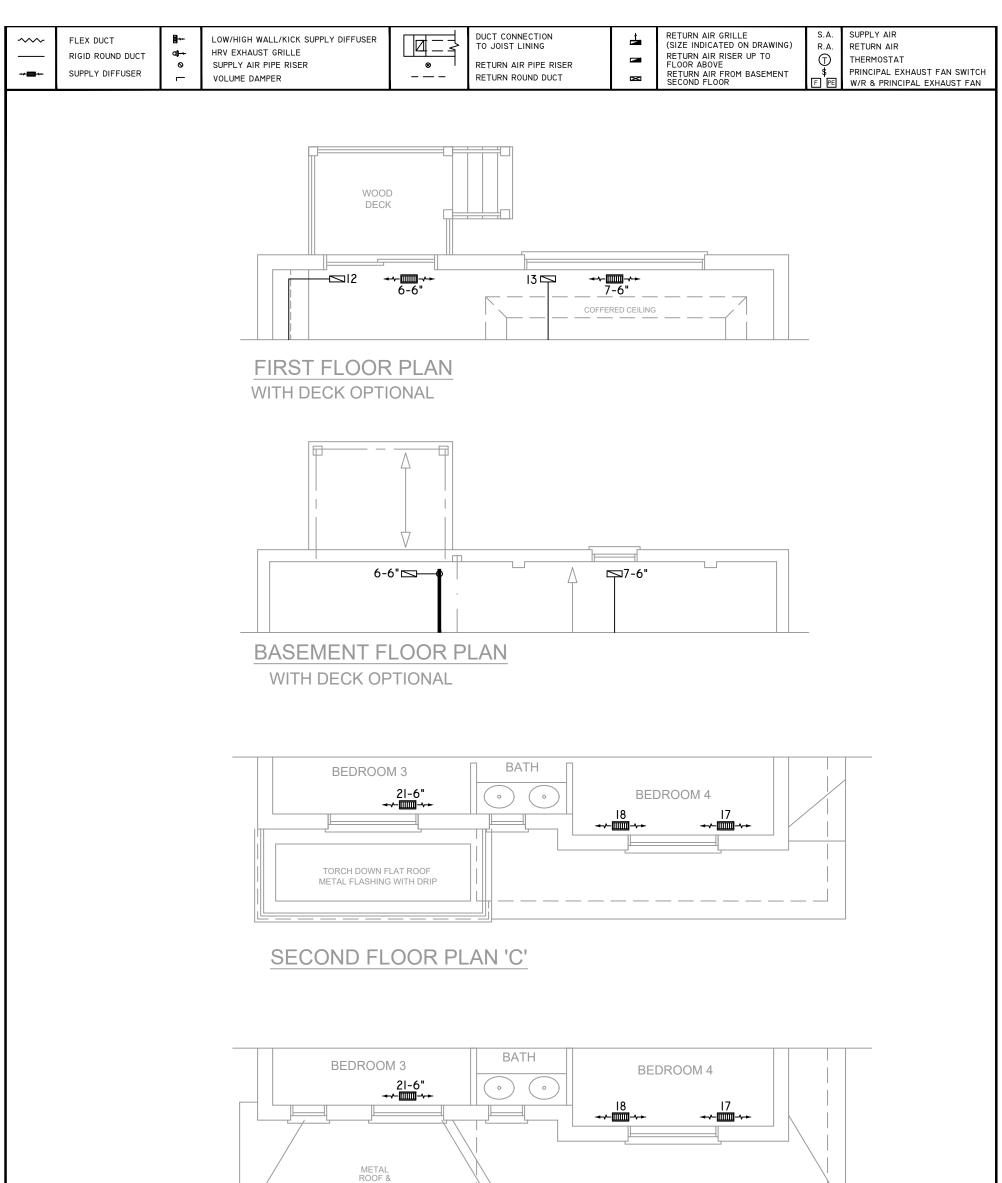
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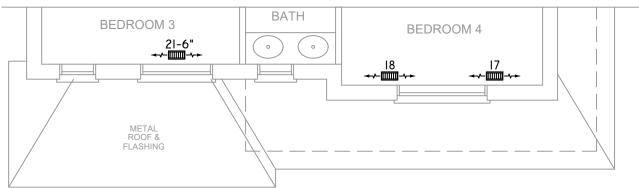
2343

M3

EM AIR SYSTEMS
MODEL 2350
PROJECT: KING EAST
DEVELOPMENTS
RICHMOND HILL, ONT

3/16" = 1'-0"





SECOND FLOOR PLAN 'B'

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 SIGNATURE OF DESIGNER

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

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.



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39,832	втоляк.
UNIT MAKE	OR EQUAL.
CARRIER	
UNIT MODEL	OR EQUAL.
59SC5B060EI7I	
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	

		<u> </u>		•
# OF RUNS	S/A	R/A	FANS	Ī
3RD FLOOR				
2ND FLOOR	Ш	3	3	
IST FLOOR	6	I	2	
BASEMENT	5			
FLOOR PLAN: PARTIAL	DI AN	1(5)		İ
IARHAL	LA	N(S)		

DD

JB-09053

2343

M4

JULY 27, 2023
CLIENT: EM AIR SYSTEMS
MODEL 2350
PROJECT: KING EAST

DEVELOPMENTS RICHMOND HILL, ONT. 3/16" = 1'-0"