

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	010		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	d, Suite 202		Unit no.	Lot/con.
Municipality	Postal code	Province	E-mail	
Mississauga	L4T 0A4	Ontario	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	ding Code Table 3	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	ns
Description of designer's work Mod	el Certification		Project #:	PJ-00267
			Layout #:	JB-09141
Heating and Cooling Load Calculations Main	X	Builder	EM Air Systems	
Air System Design Alternate Residential mechanical ventilation Design Summary O.D. GFA	1907	Project	King East Developm	ents
Residential mechanical ventilation Design Summary O.D. GFA Residential System Design per CAN/CSA-F280-12	1807	Model	Model 2010	
Residential New Construction - Forced Air		SB-12	Energy Star	
D. Declaration of Designer		•	•	
David DaCosta (print name)	declare that (c	choose one as appr	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	-		ropriate category as an "other	
Individual BCIN:	3296	64		
Basis for exempti	on from registrat	tion:	Division C 3.2.4.1. (4)	
☐ The design work is exempt from the	registration and	qualification requirem	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 constant of the c	of the firm.			
September 15, 2023		Mare 14	le Contraction de la contracti	
Date		Signature of D	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

Page 2

and may not be used by any other persons without authorization. Documents for Building Lot Address (Model): Model 2010 Model: City and Province: Richmond Hill Calculations Dimensional information based on: Arc Attachment: Townhome No. of Levels: 3 Ventilated? Included	Ocation Site: King East Developments Lot: Postal code:
Address (Model): Model 2010 Model: City and Province: Richmond Hill Calculations Dimensional information based on: Arc Attachment: Townhome No. of Levels: 3 Ventilated? Included	Ocation Site: King East Developments Lot: Postal code: based on
Address (Model): Model 2010 Model: City and Province: Richmond Hill Calculations Dimensional information based on: Arc Attachment: Townhome No. of Levels: 3 Ventilated? Included	Site: King East Developments Lot: Postal code: based on
Address (Model): Model 2010 Model: City and Province: Richmond Hill Calculations Dimensional information based on: Arc Attachment: Townhome No. of Levels: 3 Ventilated? Included	Site: King East Developments Lot: Postal code: based on
City and Province: Richmond Hill Calculations Dimensional information based on: Arc Attachment: Townhome No. of Levels: 3 Ventilated? Included	Postal code: based on
Calculations Dimensional information based on: Attachment: Townhome No. of Levels: 3 Ventilated? Included	based on
Dimensional information based on: Attachment: Townhome No. of Levels: 3 Ventilated? Included	
Attachment: Townhome No. of Levels: 3 Ventilated? Included	chitectural Design Inc.Jun/2023
No. of Levels: 3 Ventilated? Included	
	Front facing: East/West Assumed? Yes
Weather location: Richmond Hill	Air tightness: 1961-Present (ACH=3.57) Assumed? Yes
Troduction to duton.	Wind exposure: Sheltered
HRV? VanEE V150E75NS	Internal shading: Light-translucent Occupants: 4
Sensible Eff. at -25C 60% Apparent Effect. at -0C 80%	Units: Imperial Area Sq ft: 1807
Sensible Eff. at -0C 75%	
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	Below grade walls
Style A: As per OBC SB12 Energy Star R 22 + 5ci	Style A: As per OBC SB12 Energy Star R 20ci
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	Style A: As per Selected OBC SB12 Energy Star R 60
Style B:	Style B: As per Selected OBC SB12 Energy Star R 31
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
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 2.03
Style D:	Style B:
Attached documents: As per Shedule 1 Heat Loss/Ga	ain Caculations based on CSA-F280-12 Effective R-Values
Notes: Residential New Co	onstruction - Forced Air
Calculations pe	erformed by
Name: David DaCosta	Postal code: L4T 0A4
Company: gtaDesigns Inc.	Telephone: (905) 671-9800
Address: 2985 Drew Road, Suite 202	Fax:
City: Mississauga	E-mail hvac@gtadesigns.ca



Builder:

EM Air Systems

Date:

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

September 15, 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.

Page 3 Project # PJ-00267

System 1 Mane Alexo Project: King East Developments Model 2010 Individual BCIN: 32964 David DaCosta Lavout # JB-09141 Model: AIR DISTRIBUTION & PRESSURE BOILER/WATER HEATER DATA: DESIGN LOAD SPECIFICATIONS FURNACE/AIR HANDLER DATA: A/C UNIT DATA: Level 1 Net Load 12,984 btu/h **Equipment External Static Pressure** 0.5 "w.c. Make Make 2.0 Ton Carrie Туре Carrier Level 2 Net Load 8,856 btu/h **Additional Equipment Pressure Drop** 0.225 "w.c. Model 59SC5B040E14--10 Model Model: Level 3 Net Load 7.222 btu/h **Available Design Pressure** 0.275 "w.c. **High Input** 40000 Input Btu/h Cond.-2.0 Return Branch Longest Effective Length 39000 Level 4 Net Load 0 btu/h 300 ft **High Output** Output Btu/h Coil ---2.0 " W C ΔWH 29 063 htm/h 0.138 "w.c. 0.50 Min.Output Btu/h Total Heat Loss R/A Plenum Pressure E.s.p. **Total Heat Gain** 18,433 btu/h S/A Plenum Pressure 0.14 "w.c. Water Temp deg. F. Blower DATA: Yellow **Heating Air Flow Proportioning Factor** 0.0277 cfm/btuh AFUE Blower Speed Selected: ECM 98% Blower Type (Brushless DC OBC 12.3.1.5.(2)) **Building Volume Vb** 21401 ft¹ Cooling Air Flow Proportioning Factor 0.0437 cfm/btuh Aux. Heat Ventilation Load 1.069 Btuh. SB-12 Package Check Cool. Check 805 cfm R/A Temp 70 dea. F. **Energy Star** 805 cfm Ventilation PVC 63.6 cfm S/A Temp 115 deg. F. Supply Branch and Grill Sizing Diffuser loss 45 deg. F. 0.01 "w.c. Temp. Rise>>> Heat. 805 cfm Cooling 805 cfm Design Airflow 805 cfm Level 1 Level 2 S/A Outlet No 1 2 5 7 10 11 12 Room Use REC REC ASE STOR **FURN** OFF GRT/KIT GRT/KIT FOY FAM FAN Btu/Outlet 1616 1616 172 3232 3104 1380 1864 1740 1740 2181 1597 1597 **Heating Airflow Rate CFM** 45 45 90 86 38 52 48 48 60 44 44 24 24 18 81 56 88 88 Cooling Airflow Rate CFM 0 81 **Duct Design Pressure** 0.13 **Actual Duct Length** 36 47 18 17 25 37 24 36 34 34 36 Equivalent Length 120 100 90 80 90 100 110 70 70 70 70 70 70 70 90 120 110 120 70 70 70 70 70 70 70 70 70 Total Effective Length 156 147 108 97 115 106 147 70 70 70 70 70 70 70 114 116 154 144 156 70 70 70 70 70 70 70 70 70 **Adjusted Pressure** 0.08 0.09 0.12 0.13 0.11 0.12 0.09 0.19 0.19 0.19 0.19 0.19 0.19 0.19 0.11 0.11 0.08 0.09 0.08 0.19 0.19 0.19 0.19 0.19 0.19 0.19 0.19 0.19 **Duct Size Round** 5 5 **Outlet Size** 3x10 4x10 3x10 3x10 4x10 4x10 3x10 4x10 4x10 3x10 3x10 4x10 Trunk C D В D D Level 3 Level 4 S/A Outlet No. 13 15 16 17 19 14 18 Room Use MAST MAST FNS I AUN BFD 3 RFD 2 RATH Btu/Outlet 1085 1085 1335 89 1570 1924 135 **Heating Airflow Rate CFM** 30 30 37 43 53 4 51 51 Cooling Airflow Rate CFM 56 2 77 88 3 **Duct Design Pressure** 0.13 33 **Actual Duct Length** 41 51 27 60 51 26 **Equivalent Length** 100 120 110 100 160 150 120 70 127 70 133 161 161 220 201 146 70 70 70 70 70 70 70 70 70 70 70 70 70 70 70 70 70 70 Total Effective Length 70 70 Adjusted Pressure 0.10 0.08 0.08 0.10 0.06 0.06 0.09 0.19 **Duct Size Round** 5 5 2 2 Outlet Size 4x10 3x10 3x10 3x10 3x10 4x10 3x10 4x10 Trunk R В D C Return Branch And Grill Sizing **Grill Pressure Loss** 0.02 "w.c **Return Trunk Duct Sizing** Supply Trunk Duct Sizing 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 Round Rect. Size Inlet Air Volume CFM 180 380 105 140 **Duct Design Pressure** 0.12 0.12 0.12 0.12 0.12 0.12 0.12 0.12 0.12 0.12 0.12 805 24x10 390 373 0.08 10.5 12x8 10x10 Drop 0.06 14.5 226 205 18 57 33 805 0.08 8.5 **Actual Duct Length** Z 0.06 14.5 24 y 8 18x10 RYR 107 **Equivalent Length** 125 130 155 145 50 50 50 50 50 50 50 Υ C 415 433 0.06 11.5 16x8 12x10 **Total Effective Length** 143 139 212 178 50 50 50 50 50 50 50 х 402 332 0.06 11.0 14x8 10x10 Adjusted Pressure 0.08 0.08 0.06 0.07 0.24 0.24 0.24 0.24 0.24 0.24 0.24 w **Duct Size Round** 8.0 10.5 6.0 7.5 ν G Inlet Size U т Inlet Size 14 30 14 14 s Trunk Z Q



Total Heat Loss

Total Heat Gain

29,063 btu/h

18,433 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	stems			Date:		Septem	nber 15,	2023		_				v	Veather D	Data	Richmond I	Hill 4	4	-5.8 8	3 20	50				Page 4
2012 OBC		Project: _	King East Deve	elopmen	nts	Mo	odel:		Мо	del 2010)		_	,	System	1		Heat Los	ss ^T	77.8 deg. F	Ht gain	^T	12.8 d	eg. F			Proj Lay	ect # out #	PJ-00267 JB-09141
Pun	Level 1			14 /	REC		WF 1 A	R 2	14 A	F.BASE		STOR	2	8	FURN 3 A		9 A	OFF		A	4			A		A		A	
	ft. exposed wall B				В		В		Е.			В			В		В			В	Ē			В		В		В	
	Ceiling height			7.5			7.5 AG		7.5 A			7.5 AG			AG		7.5 AC			7.5 AG	7.5 A			7.5 AG		7.5 AG		7.5 AC	
	Floor area			227			42 Area		75 A			75 Area			2 Area		129 Ar			Area		rea		Area		Area		Ar	
E	Exposed Ceilings A				A		Α		Α			A			A		A			A	,			A		A		A	
	Exposed Ceilings B				В		В		Е			В			В		В			В	E			В		В		В	
	Exposed Floors				Flr		Flr		F			Flr			Flr		Flr			Flr		lr .		Flr		Flr		Fli	
	Gross Exp Wall A			105			8		105			135		60			68												
	Gross Exp Wall B																												
	Components	R-Values L	Loss Gain	ı	Loss	Gain	Loss	Gain	L	.oss (3ain	Loss	Gain		Loss C	3ain	Lo	ss Ga	ain	Loss Gair	n L	oss	Gain	Loss	Gain	Loss	Gain	Lo	ss Gain
	North Shaded	4.00	19.45 11.73																										
	East/West	4.00	19.45 29.66	<u> </u>													8	156	237										
	South	4.00	19.45 22.60)																									
WOB Windov	ws Including Doors	3.55	21.92 27.86	i l																									
	Skylight	2.03	38.33 89.12																										
	Doors	4.00	19.45 3.20		408	67			21	408	67																		
	let exposed walls A	20.84	3.73 0.61			52	8	5	84		52	135	83	60)	37	60		37										
	et exposed walls B	21.40	3.64 0.60																										
E	Exposed Ceilings A	59.22	1.31 0.67																										
E	Exposed Ceilings B	27.65	2.81 1.44																										
	Exposed Floors	29.80	2.61 0.23																										
Foundation Cond					1206			86		1206		1550			689			775											
Total Conductive	Heat Loss				1614			86		1614		1550			689			931											
	Heat Gain					119		5			119		83			37			274										
Air Leakage	Heat Loss/Gain		0.9326 0.0658		1505	8		80 0		1505	8	1446	5		643	2		868	18										
	Case 1		0.08 0.10																										
Ventilation	Case 2		16.80 13.82																										
	Case 3	х	0.07 0.10		113	12		6 0		113	12	108	9		48	4		65	29										
	Heat Gain People		239																										
	Appliances Loads	1 =.25 p				722																							
	Duct and Pipe loss		10%																										
Level HL Total Level HG Total	12,984 1,906		tal HL for per room HG per room x 1.3		3232	1120	1	72		3232	181	3104	126		1380	56		1864	417										
Run	n ft. exposed wall A n ft. exposed wall B Ceiling height Floor area Exposed Ceilings A			10.0 558	В		9 A B 15.0 83 Area 16 A		11 A 10.0 205 A	3 Area		A B 10.0 Area A		10.0	A B) Area A		10.0 Ar			A B 10.0 Area A	10.0 4	rea		A B 10.0 Area A		A B 10.0 Area A		10.0 Ar A	ea
E	Exposed Ceilings B				В		В		Е	3		В			В		В			В	E			В		В		В	
	Exposed Floors			77 I	Flr		Flr		158 F	lr .		Flr			Flr		Fli	r		Flr	F	lr .		Flr		Flr		Fli	
	Gross Exp Wall A			200			135		110																				
	Gross Exp Wall B			-																									
	Components				Loss	Gain	Loss	Gain	L	oss (Sain	Loss	Gain	1	Loss C	3ain	Lo	ss Ga	ain	Loss Gair	n <u>L</u>	oss	Gain	Loss	Gain	Loss	Gain	Lo	ss Gain
	North Shaded	4.00	19.45 11.73																										
	East/West	4.00	19.45 29.66		895	1364	24 4	67 712	48	934	1424																		
	South	4.00	19.45 22.60																										
	Existing Windows	1.99	39.10 24.56																										
	Skylight	2.03	38.33 89.12		070	45	10	50 58																					
A.I.	Doors	4.00	19.45 3.20		272	45			-	205	2.7																		
	et exposed walls A	21.40	3.64 0.60		509	84	93 3	38 56	62	225	37																		
	et exposed walls B	8.50	9.15 1.51				16	24 44																					
	Exposed Ceilings A	59.22	1.31 0.67				16	21 11																					
	Exposed Ceilings B Exposed Floors	27.65 29.80	2.81 1.44 2.61 0.23		204	18			158	412	36																		
Foundation Cond		43.00	2.61 U.23	1 "	201	10			136	412	30																		
	Heat Loss			1 1	1877		11	76		1571																			
Total Conductive	Heat Gain			1 1	,	1510	- ''	836			1497																		
Air Leakage	Heat Loss/Gain		0.7846 0.0658		1473	99	٥	23 55		1233	98																		
u.u.yu	Case 1		0.07 0.10		. 4, 3	33				.233	30																		
Ventilation	Case 2		16.80 13.82																										
	Case 3	х	0.07 0.10		131	158		82 87		110	157																		
	Heat Gain People	~	239		101	.00		37		. 10	.5,																		
	Appliances Loads	1 =.25 p				1083			1.5		1083																		
	Duct and Pipe loss		10%						1	280	258																		
Level HL Total	8,856	To	otal HL for per room		3481		21	81		3195																			
Level HG Total	9,000		HG per room x 1.3			3707		1272			4021																		
				_									•	-															- 1
Level HG Total						3707	l revi	1272 ew and tak	e respor	nsibility	for the de	esign work a				propriate	e catego	ory as an	"other	designer" under	Dovid F	na Canta					SE	B-12 Pa	ckage

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

Man 16Cot 2

David DaCosta

Energy Star



29,063

18,433

btu/h

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

								.=						c egtadesigns.ca							
		Builder:	EM Air Sy	stems	Date:	·	Septemb	er 15, 2023			0 4		Weather Data	Richmond Hil	I 44	-5.8 88	20	50	Pr	oject#	Page 5 PJ-00267
2012 OBC		Project:	King East Dev	elopments	Model:	·	Mode	I 2010			Systen	11	Heat Loss ^1	T 77.8 deg. F	Ht gain ^T	12.8 de	g. F			yout #	JB-09141
	Level 3			MAST		ENS	L	AUN	BED 3		BED 2		ВАТН								
	n ft. exposed wall A			11 A	8	3 A	A		9 A		10 A B		A	A	A B		A B		A	A B	
Run	ft. exposed wall B Ceiling height			B 11.0	9.0	В	9.0		B 0.0		В 11.0		B 9.0	B 9.0	9.0		В 9.0		B).0	9.0	
	Floor area			319 Area		Area	41 Are		37 Area		158 Area		57 Area	Area	Area		Area	•	Area	Area	
	Exposed Ceilings A			319 A	117		41 A	1	37 A		158 A		57 A	Α	Α		Α		Α	Α	
E	Exposed Ceilings B Exposed Floors			B Fir		B Flr	B Fir		B Flr		B Fir		B Flr	B Flr	B Fir		B Flr		B Flr	B Fir	
	Gross Exp Wall A			121	72		• • •		B1		110		• • •	• •	• • •		• • •		• •	• "	
	Gross Exp Wall B			. .																	
	Components North Shaded		.oss Gain 19.45 11.73		Gain	Loss	Gain Los	s Gain	Loss	Gain	Loss	Gain	Loss Gain	Loss Gain	Loss	Gain	Loss	Gain	Loss Gain	Loss	Gain
	East/West	4.00	19.45 29.66		860 25	486	742		25 486	742	29 564	860									
	South	4.00	19.45 22.60																		
	Existing Windows Skylight	1.99 2.03	39.10 24.56 38.33 89.12																		
	Doors	4.00	19.45 3.20																		
	et exposed walls A	21.40	3.64 0.60		55 47	171	28		56 204	33	81 294	48									
	et exposed walls B Exposed Ceilings A	8.50 59.22	9.15 1.51 1.31 0.67		214 117	154	79 41	54 28 1	37 180	92	158 208	106	57 75 38	8							
	Exposed Ceilings B		2.81 1.44		214 117	134	73 41	34 20 1	100	32	130 200	100	3, 73								
	Exposed Floors	29.80	2.61 0.23																		
Foundation Cond	Heat Loss			1318		811		54	870		1066		75								
Total Conductive	Heat Gain				1130		848	28		867		1015	38	8							
Air Leakage	Heat Loss/Gain		0.5769 0.0658		74	468	56	31 2	502	57	615	67	43 :	3							
Ventilation	Case 1		0.05 0.10 16.80 13.82																		
	Case 3	x	0.07 0.10	92	118	57	89	4 3	61	91	74	106	5 4	4							
	Heat Gain People	4 05	239 ercent 2889		478				1	239	1	239									
	Appliances Loads Duct and Pipe loss	1 =.25 pe	10%						1 137	111	1 168	125	1 12	4							
Level HL Total	7,222		tal HL for per room	2170		1335		89	1570		1924		135								
Level HG Total	7,527	Total	HG per room x 1.3		2340		1291	42		1774		2018	63	3							
	Laurel 4																				
Run	Level 4 of ft. exposed wall A			Α		Α	А		Α		Α		Α	Α	Α		Α		Α	Α	
	ft. exposed wall B			В		В	В		В		В		В	В	В		В		В	В	
	Ceiling height						_														
E	Floor area Exposed Ceilings A			Area A		Area A	Are A	a	Area A		Area A		Area A	Area A	Area A		Area A		Area A	Area A	
	Exposed Ceilings B			В		В	В		В		В		В	В	В		В		В	В	
	Exposed Floors			Flr		Flr	Fir		Flr		Flr		Flr	Flr	Flr		Flr		Flr	Flr	
	Gross Exp Wall A Gross Exp Wall B																				
	Components				Gain	Loss	Gain Los	s Gain	Loss	Gain	Loss	Gain	Loss Gain	Loss Gain	Loss	Gain	Loss	Gain	Loss Gain	Loss	Gain
	North Shaded East/West	4.00 4.00	19.45 11.73 19.45 29.66																		
	South	4.00	19.45 29.60																		
	Existing Windows	1.99	39.10 24.56	3																	
	Skylight Doors	2.03 4.00	38.33 89.12 19.45 3.20																		
N	et exposed walls A		3.64 0.60																		
	et exposed walls B		9.15 1.51																		
	Exposed Ceilings A Exposed Ceilings B		1.31 0.67 2.81 1.44																		
	Exposed Floors		2.61 0.23																		
Foundation Cond																					
Total Conductive	Heat Loss Heat Gain																				
Air Leakage	Heat Loss/Gain		0.0000 0.0658																		
Ventilation	Case 1		0.00 0.10																		
ventilation	Case 2	x	16.80 13.82 0.07 0.10																		
	Heat Gain People		239)																	
	Appliances Loads	1 =.25 pe																			
Level HL Total	Duct and Pipe loss 0	Tot	10% tal HL for per room																		
Level HG Total	0		HG per room x 1.3																		
	· <u></u>	·				· <u>-</u>				_		_								D 40 Daala	

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:

Mane Alexa

David DaCosta

SB-12 Package 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

2

3 x

4

Project # Layout #

David DaCosta

Page 6 PJ-00267 JB-09141

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 20	10	
	RESIDENTIAL MECHANICAL For systems serving one dwelling unit & cor				•	
	, or oyotome corring one arrowing arm a cor		ng to the ontaine banding	g 2020, 2.10g 20 <u>2</u> , 12		
	Location of Installation		Total V	entilation Capacity 9.32	.3.3(1)	
Lot #	Plan #		Bsmt & Master Bdrm	1 @ 21.2	cfm 21.2	cfm
Township	Richmond Hill		Other Bedrooms Bathrooms & Kitchen		cfm 21.2 cfm 53	cfm cfm
Roll #	Permit #		Other rooms	5 @ 10.6 Total	cfm 53 148.4	cfm
Address		L				
	5.11		Principal	Ventilation Capacity 9.3	32.3.4(1)	
Name	Builder		Master bedroom	1 @ 31.8	cfm 31.8	cfm
INAITIC	EM AIr Systems		Other bedrooms	2 @ 15.9		
Address	27.00			Total	63.6	
City			Princ	cipal Exhaust Fan Capa	city	
Tel	Fax		Make	Model	Location	
			VanEE	V150E75NS	Base	
.	Installing Contractor		407 (
Name		L	127 cfm		80.0 Sones	or Equiv.
Address			Н	eat Recovery Ventilator	•	
			Make	VanEE		
City			Model	V150E75NS		
Tal	Fa.:			127 cfm high		cfm low
Tel	Fax		Sensible efficiency @ Sensible efficiency @		60% 75%	
		_		ance HRV/ERV to within		
	Combustion Appliances 9.32.3.1(1)			emental Ventilation Cap		
a) x	Direct vent (sealed combustion) only			-	<u>-</u>	
b)	Positive venting induced draft (except fireplaces)		Total ventilation capac	•	148.4	
c)	Natural draft, B-vent or induced draft fireplaces Solid fuel (including fireplaces)		Less principal exhaus REQUIRED supplement		63.6 84.8	ofm
d) e)	No combustion Appliances		REQUIRED suppleme	ental vent. Capacity	64.8	cfm
e)	No combustion Appliances	ᆫ				
<u> </u>			Su	pplemental Fans 9.32.3.	.5.	
	Heating System		Location	cfm Model		es
х	Forced air		Ens	50 XB50	0.3	
	Non forced air		Bath	50 XB50	0.3	
	Electric space heat (if over 10% of heat load)					
	House Type 9.32.3.1(2)					
l x	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	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 e Ontario Building Code.	been designed	
		L				

, ,	Designer Certification I hereby certify that this ventilation system has been designed in accordance with the Ontario Building Code.											
Name	David D	aCosta										
Signature	Hans	Made										
HRAI#	5190	BCIN#	32964									
Date	September	15, 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-09141

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'	Mar	For use by Princip	,		
Application	No:		Model/Certification Nu	mber	
	Project Information			T	T
Building nur	mber, street name			Unit number	Lot/Con
		Model 2010			
Municipality	Richmond Hill	Postal code	Reg. Plan number / oth	ner description	
В.	Prescriptive Compliance [indicate the build	ding code compliance option	being employed in the	house design]	
	SB-12 Performance* [SB-12 - 3.1.2.]	*Attach energy performa	ance results using	an approved softwa	are (see guide)
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 HOT20	00 Report		
C.	Project Building Design Conditions				
	Climatic Zone (SB-1):	Heat. Equip. Efficiency		Space Heating F	uel Source
~	Zone 1 (< 5000 degree days)	≥ 92% AFUE	✓ Gas	Propane	☐ Solid Fuel
	Zone 2 (≥ 5000 degree days)	☐ ≥ 84% < 92% AFUE	☐ Oil	☐ Electric	Earth Energy
R	atio of Windows, Skylights & Glass (W, S	& G) to Wall Area		Other Building Ch	aracteristics
Area of	Walls = 350.1 m² or 3768.9 ft²		☐ Log/Post&Beam	☐ ICF Above	Grade
Alea Oi	Walls - 330.1 III 01 3706.9		☐ Slab-on-ground	│ │ Walkout Ba	sement
		W,S &G % = <u>6%</u>	☑ Air Conditioning	Combo Unit	t
Area of W	$I, S \& G = 21.74 \text{ m}^2 \text{ or } 234.0 \text{ ft}^2$		☐ Air Sourced Hea	t Pump (ASHP)	
			☐ Ground Source I	Heat Pump (GSHP)	
SB-12 Pe	rformance Reference Building Design Pac	kage indicating the pres	criptive package to	be compared for co	ompliance
SB-1	2 Referenced Building Package (input desi	ign package):			
D.	Building Specifications [provide values an	nd ratings of the energy efficie	ency components prop	osed, or attach ENERG	Y STAR BOP form]
	<u> </u>		1		-

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

(Building Code Part 9, Residential)

Page 8

Project #

PJ-00267 JB-09141 Layout #

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

E.	Project Design Verification [Subsection 3.1.2. Performa	nce Compliance]			
The ar	nnual energy consumption using Subsection 3.1.1. SB-12 R	Reference Building	y Pac	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 bui	ilding is:			
The build	ling is being designed using an air tightness baseline of:				
	OBC reference ACH, NLA or NLR default values (no depr	ressurization test	requi	ired)	
	Targeted ACH, NLA or NLR. Depressurization test to mee	et		ACH50 or NLR or NI	A
	Reduction of overall thermal performance of the proposed is compared against (3.1.2.1.(6)).	d building envelop	e is	not more than 25% o	f the 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 App	olied (A-3.1.2.1 - 4	.6.2.	5)	
	Other Types:				
F.	ENERGY STAR or R-2000 Performance Design Ve	erification [Subse	ection	3.1.3. Other Acceptab	le Compliance Methods]
	The NRCan "ENERGY STAR for New Homes Standard V building performance meeting or exceeding the prescription				
	The NRCan, "2012 R-2000 Standard" technical requirements of technical the prescriptive performance requirements of technical requirements of technical requirements.				
Perform	ance Energy Modeling Professional				
Energy E	/aluator/Advisor/Rater/CEM Name and company:	Accreditation or	Eval	uator/Advisor/Rater Lic	ense #
	BUILDING KNOWLEDGE CANADA			5506	
ENERG	Y STAR or R-2000				
Energy E	/aluator/Advisor/Rater/Name and company:	Evaluator/Advis	or/Ra	ater License #	
	ANGELA BUSTAMANTE			5506	
G.	Designer(s) [name(s) & BCIN(s), if applicable, of person(s) p	providing information	n here	ein to substantiate that	design meets building code]
Name		BCIN		Signature	
	David DaCosta	3206/			Jane 16/1

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:	Attached	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	
-		N/A	n/a			
Cathedral Ceilings and Flat Roofs	Core Option	RSI 4.87 (R 27.7) N/A	Core Minimum n/a	√	R31	
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			
Wildows (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	√		COOLING - ASHP
	Req'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	Core Option	Level 1 (DT 2.5ach / 0.18 nlr) (AT 3.0ach/0.26nlr) N/A	Core Minimum n/a	√		
Ventilation (HRV / ERV)		65% SRE @0 °C and 55% SRE @ -25 °C	Core Minimum			
	Option Rea'd	≥75% SRE @ 0 °C Interconnected to the Furnace Fan	0.2 Required	√ √		
	Rea'd	HRV balanced	Required	V		
		SRE ≥75% SRE @ 0 °C, ≥ 0.57 L/s/W	0.1 Core Minimum	√		
Electrical Savings	Core Option	75% ENERGY STAR lighting 100% ENERGY STAR lighting	0.1	√		
ENERGY STAR Certified Appliances	Option	• •	n/a	,		

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



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Page 8 Project # PJ-00267

Layout # JB-09141

System 1 Package: System: **Energy Star**

Pack Proje				inergy Sta chmond H			Sy: M	stem: lodel:			Syste Mode	em 1 I 2010		
					Air	Leaka	ge Ca	lculatio	ns					
		B 0.018	Building <i>I</i> LRairh 0.404	Air Leakage Vb 21401	Heat Loss HL^T 77.8	HLleak 12095			B 0.018	Building LRairh 0.112	Air Leakag Vb 21401	ge Heat Ga HG^T 12.8	HG Leak	
											Le	vels		-
		Air Lea	kage Heat	Loss/Gain N	/ultiplier T	able (Section	on 11)		1	1	2	3	4	
	Level	Level Factor (LF)	Building Air	Level Cor Heat Loss (nductive	Air Lea	akage He Multiplie		=	(LF)	(LF)	(LF)	(LF)	
	Level 1 Level 2	0.5 0.3	12095	648 462	34 25		0.9326 0.7846			1.0	0.6 0.4	0.5 0.3	0.4 0.3	
	Level 3 Level 4	0.2		419			0.5769 0.0000					0.2	0.2 0.1	
		HG LI	EAK		553	Air Lea	akage He	at Gain]			is Dwellin	g	
	BUILD	ING CONDUC			8404		0.0658]			3		
		Highest Cei	iing Heigh		30.0		9.14]					
			Ventilat	ion Heat Loss	VE	entilatio	n Cal	culation	ns	Ventil	ation Heat G	iain		
l _≠ ŀ							1							
Vent	С	PVC	Ventilation HL^T	Heat Loss	HLI	ovent		С	PVC	entilation I		ovent		Vent
	1.08	63.6	77.8	0.20	1(069		1.1	63.6	12.8	8	379		
		Ventilat	Cas	se 1 ss (Exhaust on	lv Systems)				Ventil	ation Heat G	Case 1	t Only Syste	ems)	_
				·			1							
Case 1	Level	LF	HLbvent	LVL Cor		Multiplier		Н	Sbvent	aust Only 879		tiplier .10		Case 1
င်ခ	Level 2 Level 3	0.5 0.3 0.2	1069	648 462 419	25	0.08 0.07 0.05		В	uilding	8404				Ca
	Level 4	0		0		0.00]							
			Cas	e 2							Case 2			
2		Ventilati	on Heat Los	s (Direct Duct	ed Systems				Ventila	ation Heat G	ain (Direct I	Oucted Syst	ems)	
Case	C 1.08	HL^T 77.8	(1-E) HRV 0.20	Multip					C 1.08	HG^T 12.8		iplier 3.82		Case
			Cas	e 3							Case 3			
3		Ventila	tion Heat Lo	oss (Forced Ai	r Systems)				Vent	ilation Heat	Gain (Force	d Air Syster	ns)	3
Case				ovent		tiplier		Н	Gbvent	HG*1.3		eat Gain	Multiplier	ase
Ö	Total Ven	tilation Load	10	069	0	.07			879	1	8	79	0.10	Ö
Fou	ındation Co	nductive H	leatloss	Level 1		Leve	11	161	5	Watts	5	512	Btu/h	
Fou	ındation Co	nductive H	leatloss	Level 2		Leve	l 2			Watts			Btu/h	
Slal	b on Grade	Foundatio	n Condu	ctive Heat	loss					Watts			Btu/h	
Wal	lk Out Base	ment Foun	dation C	onductive	Heatlos	S				Watts			Btu/h	

Envelope Air Leakage Calculator

Supplemental tool for CAN/CSA-F280

Weather S	tation Description
Province:	Ontario ▼
Region:	Richmond Hill ▼
Weather Station Location:	Open flat terrain, grass
Anemometer height (m):	10
Loc	al Shielding
Building Site:	Suburban, forest ▼
Walls:	Heavy ▼
Flue:	Heavy ▼
Highest Ceiling Height (m):	9.14
Buildin	g Configuration
Type:	Semi-Detached
Number of Stories:	Two
Foundation:	Shallow
House Volume (m ³):	606.08
Air Leak	age/Ventilation
Air Tightness Type:	Present (1961-) (ACH=3.57)
0 / 007.0 /	ELA @ 10 Pa. 322.44 cm ²
Custom BDT Data:	3.57 ACH @ 50 Pa
Mechanical Ventilation (L/s):	Total Supply: Total Exhaust:
	31.8
Flue #:	#1 #2 #3 #4
Diameter (mm):	0 0 0 0
Heating Air Leakage Rate (ACH	/H): 0.404
Cooling Air Leakage Rate (ACH	/H): 0.112

Residential Foundation Thermal Load Calculator

Supplemental tool for CAN/CSA-F280

Weather Station Description				
Province:	Province: Ontario			
Region:		Richmond Hill		
	Site D	escription		
Soil Conductivity:	Soil Conductivity: High conductivity: moist soil ▼			
Water Table:		Normal (7-10 m, 23-33 Ft)		
Fou	ındatio	on Dimensions		
Floor Length (m):	16.22			
Floor Width (m):	3.44			
Exposed Perimeter (m):	19.51			
Wall Height (m):	2.74			
Depth Below Grade (m):	0.46	Insulation Configuration		
Window Area (m²):	0.74			
Door Area (m²):	3.90			
	Radi	iant Slab		
Heated Fraction of the Slab:	0			
Fluid Temperature (°C):	33			
	Desig	n Months		
Heating Month	1			
	Founda	ation Loads		
Heating Load (Watts):		1615		



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

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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		

RETURN AIR GRILLE (SIZE INDICATED ON DRAWING) SUPPLY AIR DUCT CONNECTION TO JOIST LINING LOW/HIGH WALL/KICK SUPPLY DIFFUSER FLEX DUCT RETURN AIR HRV EXHAUST GRILLE RETURN AIR RISER UP TO FLOOR ABOVE RIGID ROUND DUCT 1 THERMOSTAT 0 RETURN AIR PIPE RISER SUPPLY AIR PIPE RISER 8 PRINCIPAL EXHAUST FAN SWITCH RETURN AIR FROM BASEMENT SUPPLY DIFFUSER VOLUME DAMPER RETURN ROUND DUCT FURNACE EQUIPPED WITH BRUSHLESS DC MOTOR AS PER OBC 12.3.1.5 (2) & CSA P.9-II CERTIFIED INSULATE ALL DUCTS IN UNCONDITIONED SPACES MIN. RI2 COLD ALL R.A. STUD OPENINGS **CELLAR** ON THE GROUND FLOOR AND SECOND FLOOR TO BE AT LEAST 14X5.5 AND **─**8-6" 1**3** 🛇 **⊘**|4 14X3.25 RESPECTIVELY 7 L/W → 9-6"⋝ 🛇 15 ALL DUCTWORK MUST BE SEALED TO CLASS IL/W <u>B - 8 X 8</u> A LEVEL AS PER OBC PART 6-6.2.4.3. (II) **ENERGY STAR** HOME **OFFICE** SEAL ALL JOINTS ON ANY DUCTWORK. SEAL FURNACE VENTS, A/C <u>A - I2 X 8</u> PIPING AND HRV DUCTS AT EXTERIOR WALLS RECREATION ROOM ENERGY STAR VI2 STANDARD. ALL DUCTS SHALL BE LOCATED WITHIN HEATED BOUNDARY (4.7.2.2.)FOR THE PURPOSE OF P.E. HRV VANEE HEATLOSS/GAIN # VI50E75NS I27 CFM CALCULATIONS ALL @ .4 W.C **ELEVATIONS HAVE BEEN CONSIDERED** 19 🛇 <u>Z - 24 X 8</u> OR 18 X 10 DROP - 24 X I0 C - 16 X 8 Ø16 ₹ =⊗3R-6" D - 14 X 8 FINISHED BASEMENT GARAGE \$5-6"H/W ŞTORAGÈ |7-6||8 |8-6||8 <u>|</u>|12-6|| LOWER **⊠**10 UNEXCAVATED SIMPLIFIED CONNECTION TO FURNACE AIR SYSTEM HRV DIAGRAM OPTION 3

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

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

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

RESPONSIBILITY OF GTA DESIGNS.

HEAT-LOSS GTADESIGNS

2985 DREW ROAD SUITE 202, MISSISSAUGA, ONT. L4T 0A4 TEL: 905-67I-9800 EMAIL: DAVE@GTADESIGNS.CA

WEB: WWW.GTADESIGNS.CA

29,063	BIOIII
UNIT MAKE	OR EQUA
CARRIER	
UNIT MODEL	OR EQUA
59SC5B040EI4I()
UNIT HEATING INPUT	BTU/HI
40,000	
UNIT HEATING OUTPUT	BTU/HI
39,000	
A/C COOLING CAPACITY	TONS
2.0	
FAN SPEED	CFM
805	

	PACKAGE "ENERGY STAR" REF. TABLE 3.1.3.						
Ì	# OF RUI	NS	S/A	R/A	FANS	DATE: SEPTEMBER 15, 2023	
	3RD FLOO	OR				CLIENT:	
	2ND FLOO	OR	7	2	3	EM AIR SYSTEMS	
	IST FLOO	R	5	I	2	MODEL: MODEL 2010	
	BASEMEN	١T	7		I	PROJECT: KING EAST	
١	FLOOR PLAN: R	۸SEM	1FN1	-		DEVEL OPMENTS	

DD

JL

JB-09141

1807

МІ

DRAWING NO

BASEMENT FLOOR PLAN 'A'

BTU/HR.

OBC 2012

ZONE I COMPLIANCE

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

FLEX DUCT RIGID ROUND DUCT SUPPLY DIFFUSER

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



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 \boxtimes

R.A 1

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

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)

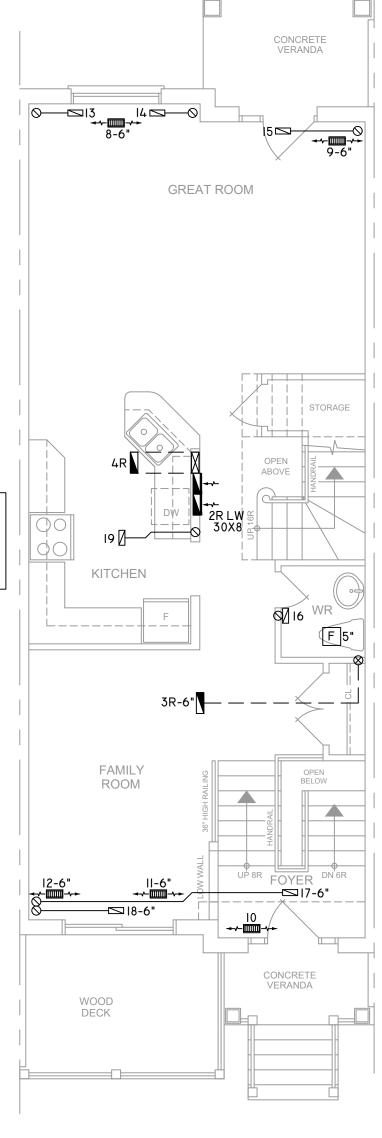
ENERGY STAR

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.)

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

> > 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



FIRST FLOOR PLAN 'A'

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

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.

GTADESIGNS

2985 DREW ROAD SUITE 202, MISSISSAUGA, ONT. L4T 0A4 TEL: 905-671-9800 EMAIL: DAVE@GTADESIGNS.CA

WEB: WWW.GTADESIGNS.CA

HEAT-LOSS 29,063	BTU/HR.
CARRIER	R EQUAL.
UNIT MODEL 0 59SC5B040EI4I0	R EQUAL.
UNIT HEATING INPUT 40,000	BTU/HR.
UNIT HEATING OUTPUT 39,000	BTU/HR.
A/C COOLING CAPACITY 2.0	TONS.
FAN SPEED 805	CFM

Γ.	А	CNA	GL	LINLI		<u>'</u>
# OF RUNS	_	S/A	R/A	FANS	ı	[
# UI RUNS		3/A	IVA	I ANS		i
3RD FLOOR						(
2ND FLOOR		7	2	3		
IST FLOOR		5	-	2		1
BASEMENT		7	١	- 1		F
				-	i	i
FLOOR PLAN: GROUNI)	FLO	0R			

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PACKAGE "ENERGY STAR" REF. TABLE 3.1.3. SEPTEMBER 15, 2023 CLIENT **EM AIR SYSTEMS** MODEL: MODEL 2010 PROJECT: KING EAST **DEVELOPMENTS** RICHMOND HILL, ONT.

3/16" = 1'-0"

OBC 2012

ZONE I COMPLIANCE

FLEX DUCT
RIGID ROUND DUCT
SUPPLY DIFFUSER

LOW/HIGH WALL/KICK SUPPLY DIFFUSER

HRV EXHAUST GRILLE
SUPPLY AIR PIPE RISER
VOLUME DAMPER



DUCT CONNECTION
TO JOIST LINING

RETURN AIR PIPE RISER
RETURN ROUND DUCT

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

S.A. R.A. T

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)

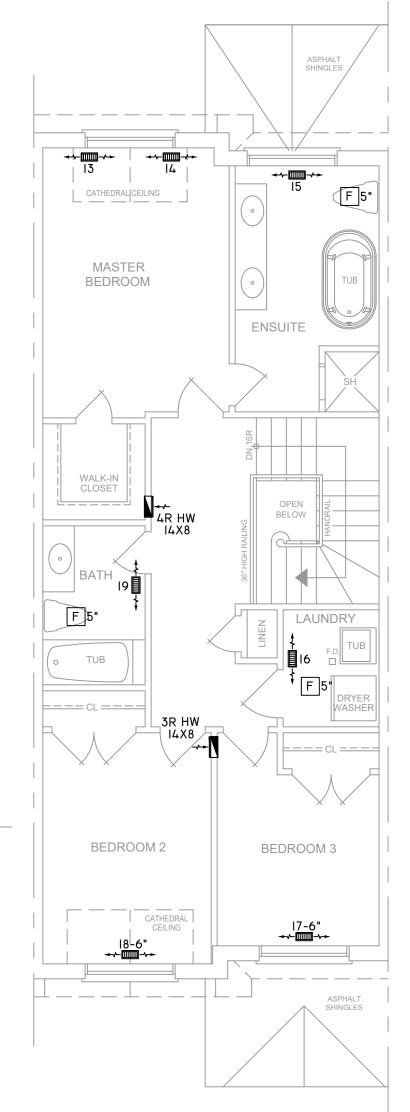
ENERGY STAR

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

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



SECOND FLOOR PLAN 'A'

17-6"

BEDROOM 3

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
ONTARIO BUILDING CODE

BEDROOM 2

DAVID DA COSTA

SIGNATURE OF DESIGNER

B.C.I.N. 32964

ALL SUPPLY OUTLETS TO BE 5" DIA. UNLESS OTHERWISE SPECIFIED.
PROVIDE BALANCING DAMPERS ON ALL BRANCHES.
ALL R/A PARTITIONS 6" (FIRST FLOOR ONLY)

BUILDING CODE.

WITH IN THE DWELLING.

INSTALLATION TO COMPLY WITH THE LATEST ONTARIO

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

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GTA DESIGNS MUST BE CONSULTED IF KITCHEN EXHAUST
FAN EXCEEDS 700 CFM DEPRESSURIZATION MAY OCCUR

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UNIT MAKE CARRIER	OR EQUAL.
UNIT MODEL 59SC5B040EI4-	OR EQUAL.
UNIT HEATING INPUT 40,000	BTU/HR.
UNIT HEATING OUTPUT 39,000	BTU/HR.
A/C COOLING CAPACITY 2.0	TONS.
FAN SPEED 805	CFM

	PACKAGE "ENERG				
# OF RUI	NS	S/A	R/A	FANS	ſ
3RD FLOOR					ŀ
2ND FLOO	OR	7	2	3	ı
IST FLOC	R	5	I	2	ſ
BASEMEN	١T	7		- 1	ŀ
FLOOR PLAN:					
FLOOR PLAN: SECOND FLOOR					۱

DD

JB-09141

1807

M3

DATE:
SEPTEMBER 15, 2023

CLIENT:
EM AIR SYSTEMS

MODEL:
MODEL 2010

PROJECT: KING EAST
DEVELOPMENTS
RICHMOND HILL,ONT.

3/16" = 1'-0"

OBC 2012

ZONE I COMPLIANCE