


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 2665				Lot/con.	
Municipality		Postal code	Plan number/ other description		
Richmond Hill					
B. Individual who reviews and takes responsibility for design activities					
Name			Firm		
David DaCosta			gtaDesigns Inc.		
Street address			Unit no.	Lot/con.	
2985 Drew Road, Suite 202					
Municipality		Postal code	Province	E-mail	
Mississauga		L4T 0A4	Ontario	hvac@gtadesigns.ca	
Telephone number		Fax number		Cell number	
(905) 671-9800					
C. Design activities undertaken by individual identified in Section B. [Building Code Table 3.5.2.1 of Division C]					
<input type="checkbox"/> House		<input checked="" type="checkbox"/> HVAC – House		<input type="checkbox"/> Building Structural	
<input type="checkbox"/> Small Buildings		<input type="checkbox"/> Building Services		<input type="checkbox"/> Plumbing – House	
<input type="checkbox"/> Large Buildings		<input type="checkbox"/> Detection, Lighting and Power		<input type="checkbox"/> Plumbing – All Buildings	
<input type="checkbox"/> Complex Buildings		<input type="checkbox"/> Fire Protection		<input type="checkbox"/> On-site Sewage Systems	
Description of designer's work			Model Certification		Project #:
					PJ-00267
					Layout #:
					JB-09126
Heating and Cooling Load Calculations		Main	X	Builder	
Air System Design		Alternate		Project	
Residential mechanical ventilation Design Summary		O.D. GFA	2671	Model	
Residential System Design per CAN/CSA-F280-12				Model 2665	
Residential New Construction - Forced Air				SB-12	Energy Star
D. Declaration of Designer					
<p>I, <u>David DaCosta</u> declare that (choose one as appropriate):</p> <p style="text-align: center;">(print name)</p> <p><input type="checkbox"/> I review and take responsibility for the design work on behalf of a firm registered under subsection 3.2.4 Division C of the Building Code. I am qualified, and the firm is registered, in the appropriate classes/categories.</p> <p style="margin-left: 150px;">Individual BCIN: _____</p> <p style="margin-left: 150px;">Firm BCIN: _____</p> <p><input checked="" type="checkbox"/> I review and take responsibility for the design and am qualified in the appropriate category as an "other designer" under subsection 3.2.5 of Division C, of the Building Code.</p> <p style="margin-left: 150px;">Individual BCIN: <u>32964</u></p> <p style="margin-left: 150px;">Basis for exemption from registration: <u>Division C 3.2.4.1. (4)</u></p> <p><input type="checkbox"/> The design work is exempt from the registration and qualification requirements of the Building Code.</p> <p style="margin-left: 150px;">Basis for exemption from registration and qualification: _____</p>					
<p>I certify that:</p> <p>1. The information contained in this schedule is true to the best of my knowledge.</p> <p>2. I have submitted this application with the knowledge and consent of the firm.</p>					
<u>September 13, 2023</u> Date			 Signature of Designer		

NOTE:

- 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, temporary license, or a certificate of authorization, issued by the Ontario Association of Architects. Schedule 1 is also not required to be completed by a holder of a license to practise, a limited licence to practise, or a certificate of authorization, issued by the Association of Professional Engineers of Ontario.

Heat loss and gain calculation summary sheet				CSA-F280-M12 Standard Form No. 1	
These documents issued for the use of EM Air Systems				Layout No.	
and may not be used by any other persons without authorization. Documents for permit and/or construction are signed in red.				JB-09126	
Building Location					
Address (Model): Model 2665			Site: King East Developments		
Model:			Lot:		
City and Province: Richmond Hill			Postal code:		
Calculations based on					
Dimensional information based on:			Architectural Design Inc.Feb/2023		
Attachment: Detached			Front facing: East/West		Assumed? Yes
No. of Levels: 3 Ventilated? Included			Air tightness: 1961-Present (ACH=3.57)		Assumed? Yes
Weather location: Richmond Hill			Wind exposure: Sheltered		
HRV? VanEE V150E75NS			Internal shading: Light-translucent		Occupants: 5
Sensible Eff. at -25C 60%		Apparent Effect. at -0C 80%		Units: Imperial	Area Sq ft: 2671
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/Gain Caculations based on CSA-F280-12 Effective R-Values			
Notes: Residential New Construction - Forced Air					
Calculations performed by					
Name: David DaCosta			Postal code: L4T 0A4		
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: **September 13, 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: **King East Developments**

Model: **Model 2665**

System 1

Individual BCIN: 32964

David DaCosta

Project # **PJ-00267**
Layout # **JB-09126**

DESIGN LOAD SPECIFICATIONS		AIR DISTRIBUTION & PRESSURE		FURNACE/AIR HANDLER DATA:		BOILER/WATER HEATER DATA:		A/C UNIT DATA:	
Level 1 Net Load	14,396 btu/h	Equipment External Static Pressure	0.5 "w.c.	Make	Carrier	Make	Type	Carrier	2.5 Ton
Level 2 Net Load	14,017 btu/h	Additional Equipment Pressure Drop	0.225 "w.c.	Model	59SC5B060E17--14	Model		Model:	
Level 3 Net Load	14,650 btu/h	Available Design Pressure	0.275 "w.c.	High Input	60000	Input Btu/h		Cond.-----	2.5
Level 4 Net Load	0 btu/h	Return Branch Longest Effective Length	300 ft	High Output	58000	Output Btu/h		Coil -----	2.5
Total Heat Loss	43,063 btu/h	R/A Plenum Pressure	0.138 "w.c.	E.s.p.	0.50 " W.C.	Min.Output Btu/h	AWH		
Total Heat Gain	26,384 btu/h	S/A Plenum Pressure	0.14 "w.c.	Water Temp	deg. F.	Blower DATA:			
		Heating Air Flow Proportioning Factor	0.0214 cfm/btuh	AFUE	97%	Blower Speed Selected:	Orange	Blower Type	ECM
Building Volume Vb	32496 ft³	Cooling Air Flow Proportioning Factor	0.0349 cfm/btuh	Aux. Heat		(Brushless DC OBC 12.3.1.5.(2))			
Ventilation Load	1,336 Btuh.	R/A Temp	70 deg. F.	SB-12 Package	Energy Star	Check	920 cfm	Cool. Check	920 cfm
Ventilation PVC	79.5 cfm	S/A Temp	128 deg. F.						
Supply Branch and Grill Sizing		Diffuser loss	0.01 "w.c.	Temp. Rise>>>	58 deg. F.	Heat.	920 cfm	Cooling	920 cfm
								Design Airflow	920 cfm

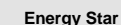
	Level 1														Level 2													
S/A Outlet No.	1	2	3	4											5	6	7	8	9	10								
Room Use	BASE	BASE	BASE	F.AREA											KIT	KIT	FAM	LAUN	FOY	GRT								
Btu/Outlet	3843	3843	3843	2866											1525	1525	2827	2280	3166	2695								
Heating Airflow Rate CFM	82	82	82	61											33	33	60	49	68	58								
Cooling Airflow Rate CFM	14	14	14	5											72	72	96	67	46	95								
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		
Actual Duct Length	27	31	36	42											33	27	30	12	49	38								
Equivalent Length	110	100	130	120	70	70	70	70	70	70	70	70	70	70	110	120	90	90	100	130	70	70	70	70	70	70		
Total Effective Length	137	131	166	162	70	70	70	70	70	70	70	70	70	70	143	147	120	102	149	168	70	70	70	70	70	70		
Adjusted Pressure	0.09	0.10	0.08	0.08	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.09	0.09	0.11	0.13	0.09	0.08	0.19	0.19	0.19	0.19	0.19	0.19		
Duct Size Round	6	6	6	5											6	6	6	5	5	6								
Outlet Size	4x10	4x10	4x10	3x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	3x10	3x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10		
Trunk	E	C	D	F											C	C	E	A	F	D								

	Level 3											Level 4													
S/A Outlet No.	11	12	13	14	15	16	17	18	19	20	21														
Room Use	MAST	MAST	BED 2	BATH 2	BED 3	BED 3	WIC 3	COMP	BATH	BED 4	ENS														
Btu/Outlet	1477	1477	1075	905	1503	1503	716	2825	626	994	1547														
Heating Airflow Rate CFM	32	32	23	19	32	32	15	60	13	21	33														
Cooling Airflow Rate CFM	47	47	28	11	47	47	20	91	15	36	35														
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
Actual Duct Length	44	35	18	64	67	63	59	68	45	44	49														
Equivalent Length	100	120	100	180	170	160	150	130	110	120	130	70	70	70	70	70	70	70	70	70	70	70	70	70	70
Total Effective Length	144	155	118	244	237	223	209	198	155	164	179	70	70	70	70	70	70	70	70	70	70	70	70	70	70
Adjusted Pressure	0.09	0.08	0.11	0.05	0.05	0.06	0.06	0.07	0.08	0.08	0.07	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	4	5	5	4	6	3	4	4														
Outlet Size	3x10	3x10	3x10	3x10	3x10	3x10	3x10	4x10	3x10	3x10	3x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10
Trunk	E	E	A	F	F	F	F	F	C	D	D														

Return Branch And Grill Sizing					Grill Pressure Loss					0.02 "w.c				
R/A Inlet No.	1R	2R	3R	4R	5R	6R	7R	8R	9R	10R	11R			
Inlet Air Volume CFM	154	406	105	105	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			
Actual Duct Length	15	19	65	38	38									
Equivalent Length	110	130	165	140	160	50	50	50	50	50	50			
Total Effective Length	125	149	230	178	198	50	50	50	50	50	50			
Adjusted Pressure	0.09	0.08	0.05	0.07	0.06	0.24	0.24	0.24	0.24	0.24	0.24			
Duct Size Round	7.0	10.5	6.0	6.0	8.0									
Inlet Size	FLC	8	8	8	8									
" "	x	x	x	x	x	x	x	x	x	x	x			
Inlet Size		30	14	14	14									
Trunk	Y	Y	Y	Z										

Return Trunk Duct Sizing				
Trunk	CFM	Press.	Round	Rect. Size
Drop	920	0.05	15.5	24x10
Z	770	0.05	14.5	24x8 18x10
Y	665	0.05	14.0	22x8 18x10
X				
W				
V				
U				
T				
S				
R				
Q				

Supply Trunk Duct Sizing						
Trunk	C.CFM	H.CFM	Press.	Round	Rect. Size	
A	919	921	0.05	15.5	28x8	22x10
B	556	561	0.06	12.5	18x8	14x10
C	353	355	0.07	10.5	12x8	10x10
D	180	194	0.07	8.5	8x8	107
E	203	206	0.08	8.5	8x8	107
F	268	288	0.05	10.0	12x8	10x10
G						
H						
I						
J						
K						



2012 OBC

Builder: EM Air Systems

Date: September 13, 2023

Project: King East Developments

Model: Model 2665

System 1

Weather Data Richmond Hill 44 -5.8 88 20 50

Heat Loss ^T 77.8 deg. F Ht gain ^T 12.8 deg. F

Project # PJ-00267
Layout # JB-09126

Level 3				MAST		BED 2		BATH 2		BED 3		WIC 3		COMP		BATH		BED 4		ENS																										
Run ft. exposed wall A				37 A		11 A		6 A		26 A		6 A		33 A		7 A		10 A		23 A		A		A																						
Run ft. exposed wall B				B		B		B		B		B		B		B		B		B		B		B																						
Ceiling height				9.0		9.0		9.0		9.0		9.0		9.0		9.0		9.0		9.0		9.0		9.0																						
Floor area				386 Area		149 Area		72 Area		144 Area		35 Area		276 Area		76 Area		128 Area		121 Area		Area		Area																						
Exposed Ceilings A				386 A		149 A		72 A		144 A		35 A		276 A		76 A		128 A		121 A		A		A																						
Exposed Ceilings B				B		B		B		B		B		B		B		B		B		B		B																						
Exposed Floors				Flr		Flr		72 Flr		144 Flr		35 Flr		74 Flr		Flr		Flr		Flr		Flr		Flr																						
Gross Exp Wall A				333		99		54		234		54		297		63		90		207																										
Gross Exp Wall B																																														
Components				R-Values	Loss	Gain	Loss		Gain		Loss		Gain		Loss		Gain		Loss		Gain		Loss		Gain																					
North Shaded				4.00	19.45	11.73	32		622 949		16		311 188		9		175 106		41		797 1216		10		195 297		31		603 919		9		175 203		16		311 362		16		311 475					
East/West				4.00	19.45	29.66																																								
South				4.00	19.45	22.60																																								
Existing Windows				1.99	39.10	24.56																																								
Skylight				2.03	38.33	89.12																																								
Doors				4.00	19.45	3.20																																								
Net exposed walls A				21.40	3.64	0.60	301		1094 180		83		302 50		45		164 27		193 702		115		44		160 26		266		967		159		54		196 32		74		269 44		191 694		114			
Net exposed walls B				8.50	9.15	1.51																																								
Exposed Ceilings A				59.22	1.31	0.67	386		507 259		149		196 100		72		95 48		144 189		97		35		46 24		276		363		185		76		100 51		128 168		86 121		159 81					
Exposed Ceilings B				27.65	2.81	1.44																																								
Exposed Floors				29.80	2.61	0.23																																								
Foundation Conductive Heatloss																																														
Total Conductive							2224				809		621		2064		492		2126				471		748		1165				670															
Air Leakage							619		76		225 18		173 11		574 80		137 19		591 70				131 16		208 27		324 37																			
Heat Loss/Gain				0.2781	0.0547																																									
Case 1																																														
Case 2																																														
Case 3				x		0.05	0.09																																							
Heat Gain People							239				1		104 127		239		25 31		108 111				24 25		38 43		59 58																			
Appliances Loads				1 =.25 percent	4436												0.5		555																											
Duct and Pipe loss						10%					1		79 20		1 264 170		1 63 35																													
Level HL Total				14,650	Total HL for per room		2955				1075		905		318		2700				572		2825		2622		626		426		994		1041		1547		995									
Level HG Total				12,167	Total HG per room x 1.3		2682		811																																					

Level 4				A		A		A		A		A		A		A		A		A		A	
Run ft. exposed wall A				A		A		A		A		A		A		A		A		A		A	
Run ft. exposed wall B				B		B		B		B		B		B		B		B		B		B	
Ceiling height																							
Floor area				Area		Area		Area		Area		Area		Area		Area		Area		Area		Area	
Exposed Ceilings A				A		A		A		A		A		A		A		A		A		A	
Exposed Ceilings B				B		B		B		B		B		B		B		B		B		B	
Exposed Floors				Flr		Flr		Flr		Flr		Flr		Flr		Flr		Flr		Flr		Flr	
Gross Exp Wall A																							
Gross Exp Wall B																							
Components				R-Values	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	
North Shaded				4.00	19.45	11.73																	
East/West				4.00	19.45	29.66																	
South				4.00	19.45	22.60																	
Existing Windows				1.99	39.10	24.56																	
Skylight				2.03	38.33	89.12																	
Doors				4.00	19.45	3.20																	
Net exposed walls A				21.40	3.64	0.60																	
Net exposed walls B				8.50	9.15	1.51																	
Exposed Ceilings A				59.22	1.31	0.67																	
Exposed Ceilings B				27.65	2.81	1.44																	
Exposed Floors				29.80	2.61	0.23																	
Foundation Conductive Heatloss																							
Total Conductive	Heat Loss																						
	Heat Gain																						
Air Leakage	Heat Loss/Gain			0.0000	0.0547																		
Ventilation	Case 1			0.00	0.09																		
	Case 2			16.80	13.82																		
	Case 3			x	0.05	0.09																	
Heat Gain People					239																		
Appliances Loads				1 ≈.25 percent	4436																		
Duct and Pipe loss					10%																		
Level HL Total	0			Total HL for per room																			
Level HG Total	0			Total HG per room x 1.3																			

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



David DaCosta

Package: Energy Star
Project: Richmond Hill
Model: Model 2665

RESIDENTIAL MECHANICAL VENTILATION DESIGN SUMMARY

For systems serving one dwelling unit & conforming to the Ontario Building Code, O.reg 332/12

Location of Installation	
Lot #	Plan #
Township	Richmond Hill
Roll #	Permit #
Address	

Builder	
Name	EM Air Systems
Address	
City	
Tel	Fax

Installing Contractor	
Name	
Address	
City	
Tel	Fax

Combustion Appliances 9.32.3.1(1)		
a)	x	Direct vent (sealed combustion) only
b)		Positive venting induced draft (except fireplaces)
c)		Natural draft, B-vent or induced draft fireplaces
d)		Solid fuel (including fireplaces)
e)		No combustion Appliances

Heating System		
x	Forced air	
	Non forced air	
	Electric space heat (if over 10% of heat load)	

House Type 9.32.3.1(2)		
I	x	Type a) or b) appliances only, no solid fuel
II		Type I except with solid fuel (including fireplace)
III		Any type c) appliance
IV		Type I or II either electric space heat
Other		Type I, II or IV no forced air

System Design Option		
1	Exhaust only / forced air system	
2	HRV WITH DUCTING / forced air system	
3	HRV simplified connection to forced air system	
4	HRV full ducting/not coupled to forced air system	
	Part 6 design	

Total Ventilation Capacity 9.32.3.3(1)				
Bsmt & Master Bdrm	2 @	21.2 cfm	42.4	cfm
Other Bedrooms	3 @	10.6 cfm	31.8	cfm
Bathrooms & Kitchen	5 @	10.6 cfm	53	cfm
Other rooms	5 @	10.6 cfm	53	cfm
Total			180.2	

Principal Ventilation Capacity 9.32.3.4(1)				
Master bedroom	1 @	31.8 cfm	31.8	cfm
Other bedrooms	3 @	15.9 cfm	47.7	cfm
Total			79.5	

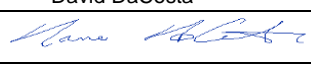
Principal Exhaust Fan Capacity				
Make	Model		Location	
VanEE	V150E75NS		Base	
127 cfm			80.0 Sones	or Equiv.

Heat Recovery Ventilator			
Make	VanEE		
Model	V150E75NS		
	127 cfm high		80 cfm low
Sensible efficiency @ -25 deg C			60%
Sensible efficiency @ 0 deg C			75%

Note: Installer to balance HRV/ERV to within 10 percent of PVC

Supplemental Ventilation Capacity		
Total ventilation capacity	180.2	
Less principal exhaust capacity	79.5	
REQUIRED supplemental vent. Capacity	100.7	cfm

Supplemental Fans 9.32.3.5.			
Location	cfm	Model	Sones
Ens	50	XB50	0.3
Bath	50	XB50	0.3
Bath 2	50	XB50	0.3
all fans HVI listed		Make	Broan or Equiv.

Designer Certification			
I hereby certify that this ventilation system has been designed in accordance with the Ontario Building Code.			
Name	David DaCosta		
Signature			
HRAI #	5190	BCIN #	32964
Date	September 13, 2023		



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

Energy Efficiency Design Summary: Performance & Other Acceptable Compliance Methods (Building Code Part 9, Residential)

Page 7
Project # PJ-00267
Layout # JB-09126

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 Principal Authority	
Application No:	Model/Certification Number

A. Project Information

Building number, street name	Unit number	Lot/Con
Model 2665		
Municipality	Postal code	Reg. Plan number / other description
Richmond Hill		

B. Prescriptive Compliance [indicate the building code compliance option being employed in the house design]

<input type="checkbox"/> SB-12 Performance* [SB-12 - 3.1.2.]	*Attach energy performance results using an approved software (see guide)
<input checked="" type="checkbox"/> ENERGY STAR** [SB-12 - 3.1.3.]	*Attach Builder Option Package [BOP] form
<input type="checkbox"/> R-2000** [SB-12 - 3.1.3.]	*Attach R-2000 HOT2000 Report

C. Project Building Design Conditions

Climatic Zone (SB-1):	Heat. Equip. Efficiency	Space Heating Fuel Source
<input checked="" type="checkbox"/> Zone 1 (< 5000 degree days)	<input checked="" type="checkbox"/> ≥ 92% AFUE	<input checked="" type="checkbox"/> Gas <input type="checkbox"/> Propane <input type="checkbox"/> Solid Fuel
<input type="checkbox"/> Zone 2 (≥ 5000 degree days)	<input type="checkbox"/> ≥ 84% < 92% AFUE	<input type="checkbox"/> Oil <input type="checkbox"/> Electric <input type="checkbox"/> Earth Energy
Ratio of Windows, Skylights & Glass (W, S & G) to Wall Area		Other Building Characteristics
Area of Walls = 329.9 m ² or 3550.9 ft ²	W, S & G % = 10%	<input type="checkbox"/> Log/Post&Beam <input type="checkbox"/> ICF Above Grade <input type="checkbox"/> ICF Basement
Area of W, S & G = 33.54 m ² or 361.0 ft ²		<input type="checkbox"/> Slab-on-ground <input type="checkbox"/> Walkout Basement
		<input checked="" type="checkbox"/> Air Conditioning <input type="checkbox"/> Combo Unit
		<input type="checkbox"/> Air Sourced Heat Pump (ASHP)
		<input type="checkbox"/> Ground Source Heat Pump (GSHP)

SB-12 Performance Reference Building Design Package indicating the prescriptive package to be compared for compliance

SB-12 Referenced Building Package (input design package):

D. Building Specifications [provide values and ratings of the energy efficiency components proposed, or attach ENERGY STAR BOP form]

Building Component	Minimum RSI/R-Values or Maximum U-Value ¹		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)	x	x	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·ft²·F) but not both.



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e-mail dave@gtadesigns.ca

Energy Efficiency Design Summary:
Performance & Other Acceptable Compliance Methods
(Building Code Part 9, Residential)

Page 8
Project # PJ-00267
Layout # JB-09126

E. 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 _____ GJ

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): Solar: _____
Other Types: _____

F. 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: BUILDING KNOWLEDGE CANADA
Accreditation or Evaluator/Advisor/Rater License #: 5506

ENERGY STAR or R-2000

Energy Evaluator/Advisor/Rater/Name and company: ANGELA BUSTAMANTE
Evaluator/Advisor/Rater License #: 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
David DaCosta	32964	



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

T | 1-800-267-6830

F | 519-658-6103 E | info@buildingknowledge.ca

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



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
Supplementary Information		Third Party Evaluator:	BUILDING KNOWLEDGE CANADA
		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	
	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			
	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 with the Ground	Core	RSI 3.72 (R 21.1) below grade	Core Minimum	✓	R20 blanket	
	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			
Windows (Fenestrations)	Core	ENERGY STAR Zone 2 UV1.4 and/or ER29	Core Minimum	✓	Zone 2	
	Option	N/A	n/a			
	Core	Total area of all windows to max. 20% of above grade wall area.	Core Minimum	✓		
Fireplace	Core	Gas fireplace spark ignition if installed	#N/A	✓		
Space Heating	Core	Min. 96% AFUE ENERGY STAR fuel fired furnace	Core Minimum	✓		
	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	Level 1 (DT 2.5ach / 0.18 nlr) (AT 3.0ach/0.26nlr)	Core Minimum	✓		
	Option	N/A	n/a			
Ventilation (HRV / ERV)	Core	65% SRE @0 °C and 55% SRE @ -25 °C	Core Minimum			
	Option	≥75% SRE @ 0 °C	0.2	✓		
	Req'd	Interconnected to the Furnace Fan	Required	✓		
	Req'd	HRV balanced	Required	✓		
Electrical Savings	Electrical	SRE ≥75% SRE @ 0 °C, ≥ 0.57 L/s/W	0.1	✓		
	Core	75% ENERGY STAR lighting	Core Minimum			
	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".

Total BOP Option Credits (Must be ≥ 1.8 Credits)

1.8

Package:
Project:
Energy Star
Richmond Hill
System:
Model:
System 1
Model 2665

Air Leakage Calculations

Building Air Leakage Heat Loss				
B	LRairh	Vb	HL^T	HLleak
0.018	0.328	32496	77.8	14908

Building Air Leakage Heat Gain				
B	LRairh	Vb	HG^T	HG Leak
0.018	0.092	32496	12.8	692

Air Leakage Heat Loss/Gain Multiplier Table (Section 11)				
Level	Level Factor (LF)	Building Air	Level Conductive Heat Loss (HLclevel)	Air Leakage Heat Loss Multiplier
Level 1	0.5	14908	6607	1.1282
Level 2	0.3		9085	0.4923
Level 3	0.2		10720	0.2781
Level 4	0		0	0.0000

Levels			
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

HG LEAK		Air Leakage Heat Gain	
	692		
BUILDING CONDUCTIVE HEAT GAIN	12648		0.0547

Levels this Dwelling
3

Highest Ceiling Height	23.0 FT	7.01 M
------------------------	---------	--------

Ventilation Calculations

Vent	Ventilation Heat Loss					Ventilation Heat Gain				Vent	
	Ventilation Heat Loss					Ventilation Heat Gain					
	C	PVC	HL^T	(1-E) HRV	HLbvent	C	PVC	HG^T	HGbvent		
	1.08	79.5	77.8	0.20	1336	1.1	79.5	12.8	1099		
Case 1						Case 1					
Case 1	Ventilation Heat Loss (Exhaust only Systems)					Ventilation Heat Gain (Exhaust Only Systems)					Case 1
	Case 1 - Exhaust Only					Case 1 - Exhaust Only		Multiplier			
	Level	LF	HLbvent	LVL Cond. HL	Multiplier	HGbvent	1099	0.09			
	Level 1	0.5	1336	6607	0.10	Building	12648				
	Level 2	0.3		9085	0.04						
	Level 3	0.2		10720	0.02						
Level 4	0	0		0.00							
Case 2						Case 2					
Case 2	Ventilation Heat Loss (Direct Ducted Systems)					Ventilation Heat Gain (Direct Ducted Systems)					Case 2
				Multiplier				Multiplier			
	C	HL^T	(1-E) HRV	16.80		C	HG^T	13.82			
	1.08	77.8	0.20			1.08	12.8				
Case 3						Case 3					
Case 3	Ventilation Heat Loss (Forced Air Systems)					Ventilation Heat Gain (Forced Air Systems)					Case 3
			HLbvent	Multiplier				Vent Heat Gain	Multiplier		
	Total Ventilation Load		1336	0.05		HGbvent	HG*1.3	1099	0.09		
						1099	1				

Foundation Conductive Heatloss Level 1	Level 1	1674	Watts	5713	Btu/h
Foundation Conductive Heatloss Level 2	Level 2		Watts		Btu/h
Slab on Grade Foundation Conductive Heatloss			Watts		Btu/h
Walk Out Basement Foundation Conductive Heatloss			Watts		Btu/h

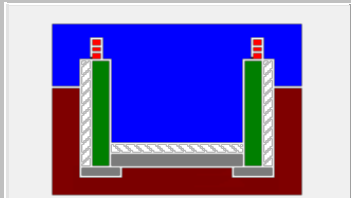
Envelope Air Leakage Calculator

Supplemental tool for CAN/CSA-F280

Weather Station Description				
Province:	Ontario			
Region:	Richmond Hill			
Weather Station Location:	Open flat terrain, grass			
Anemometer height (m):	10			
Local Shielding				
Building Site:	Suburban, forest			
Walls:	Heavy			
Flue:	Heavy			
Highest Ceiling Height (m):	7.01			
Building Configuration				
Type:	Detached			
Number of Stories:	Two			
Foundation:	Full			
House Volume (m ³):	920.29			
Air Leakage/Ventilation				
Air Tightness Type:	Present (1961-) (ACH=3.57)			
Custom BDT Data:	ELA @ 10 Pa. 322.44 cm ²			
	3.57 ACH @ 50 Pa			
Mechanical Ventilation (L/s):	Total Supply:		Total Exhaust:	
	39.75		39.75	
Flue #:	#1	#2	#3	#4
Diameter (mm):	0	0	0	0
Heating Air Leakage Rate (ACH/H):		0.328		
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 Description		
Soil Conductivity:	High conductivity: moist soil ▼	
Water Table:	Normal (7-10 m, 23-33 Ft) ▼	
Foundation Dimensions		
Floor Length (m):	18.52	 <p>Insulation Configuration</p>
Floor Width (m):	5.25	
Exposed Perimeter (m):	38.40	
Wall Height (m):	2.74	
Depth Below Grade (m):	1.52	
Window Area (m ²):	2.32	
Door Area (m ²):	1.95	
Radiant Slab		
Heated Fraction of the Slab:	0	
Fluid Temperature (°C):	33	
Design Months		
Heating Month	1	
Foundation Loads		
Heating Load (Watts):		1674



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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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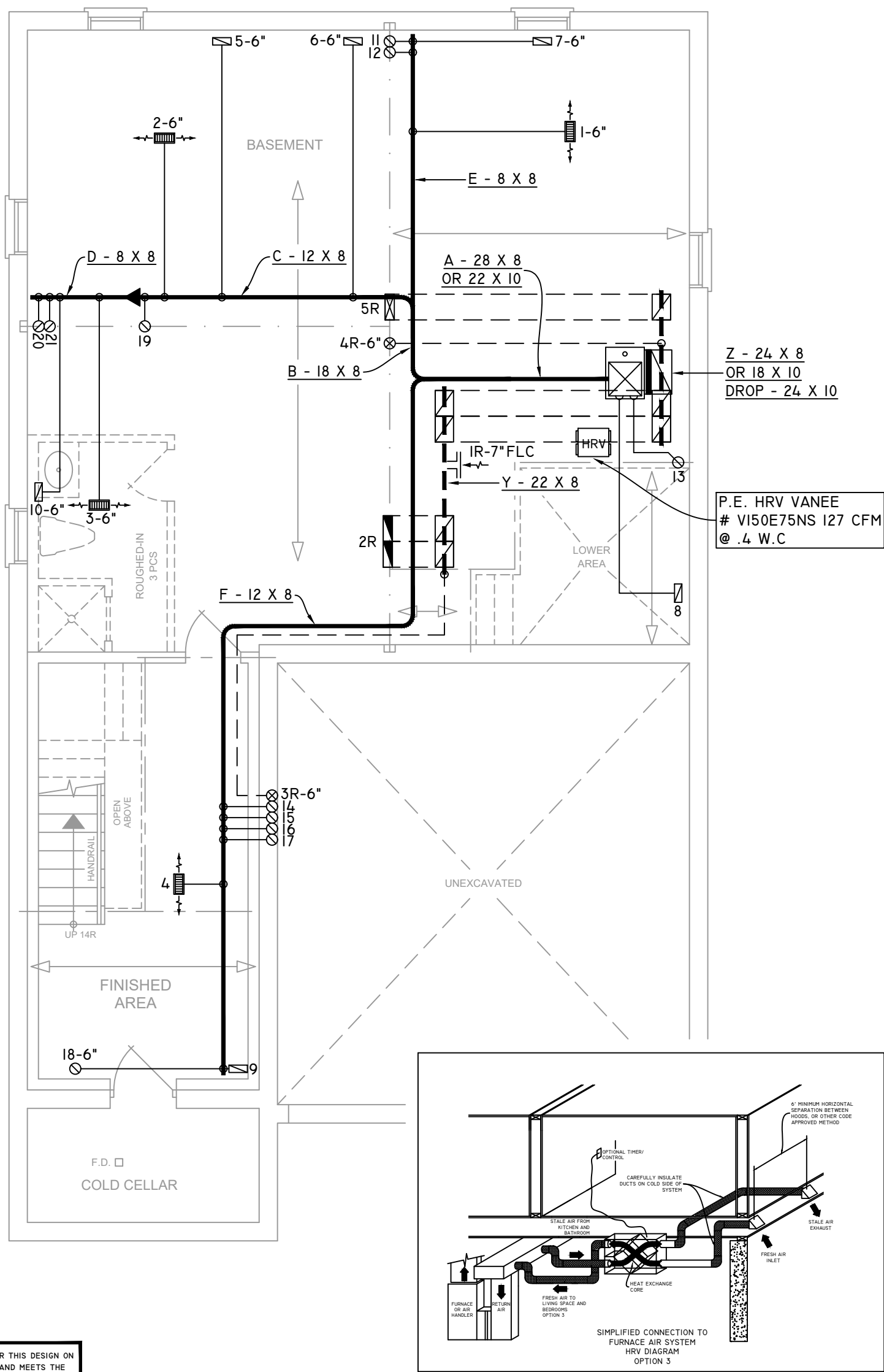
Effective R-Value – Exposed Ceiling with Attic

Insulation	R60
Exterior Air Film	0.17
Effective Insulation	58.61
Drywall	0.44
Effective R-Value	59.22

Effective R-Value – Exposed Ceiling with Flat Roofs

Insulation	R31
Exterior Air Film	0.17
Effective Insulation	27.04
Drywall	0.44
Effective R-Value	27.65

	FLEX DUCT		LOW/HIGH WALL/KICK SUPPLY DIFFUSER		DUCT CONNECTION TO JOIST LINING		RETURN AIR GRILLE (SIZE INDICATED ON DRAWING)	S.A.	SUPPLY AIR
	RIGID ROUND DUCT		HRV EXHAUST GRILLE		RETURN AIR PIPE RISER		RETURN AIR RISER UP TO FLOOR ABOVE	R.A.	RETURN AIR
	SUPPLY DIFFUSER		SUPPLY AIR PIPE RISER		RETURN ROUND DUCT		RETURN AIR FROM BASEMENT SECOND FLOOR		THERMOSTAT
			VOLUME DAMPER						PRINCIPAL EXHAUST FAN SWITCH
									W/R & PRINCIPAL EXHAUST FAN



- FOR THE PURPOSE OF HEATLOSS/GAIN CALCULATIONS ALL ELEVATIONS HAVE BEEN CONSIDERED
- 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. R12
- 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

DAVID DA COSTA  B.C.I.N. 32964

SIGNATURE OF DESIGNER

BASEMENT FLOOR PLAN 'A', 'B', 'C', 'D'

OBC 2012

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

NOTES

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 R12 UNDERCUT ALL DOORS 1" 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.





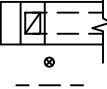












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L4T 0A4 TEL: 905-671-9800
EMAIL: DAVE@GTADESIGNS.CA
WEB: WWW.GTADESIGNS.CA

HEAT-LOSS	43,063	BTU/HR.
UNIT MAKE	CARRIER	OR EQUAL.
UNIT MODEL	59SC5B060E17--14	OR EQUAL.
UNIT HEATING INPUT	60,000	BTU/HR.
UNIT HEATING OUTPUT	58,000	BTU/HR.
A/C COOLING CAPACITY	2.5	TONS.
FAN SPEED	920	CFM

# OF RUNS	S/A	R/A	FANS
3RD FLOOR			
2ND FLOOR	11	3	3
1ST FLOOR	6	1	2
BASEMENT	4	1	

FLOOR PLAN:	BASEMENT
DRAWN BY:	JL
CHECKED:	DD
SQFT	2671
LAYOUT NO.	JB-09126
DRAWING NO.	MI

DATE:	SEPTEMBER 13, 2023
CLIENT:	EM AIR SYSTEMS
MODEL:	MODEL 2665
PROJECT:	KING EAST DEVELOPMENTS RICHMOND HILL, ONT.
SCALE:	3/16" = 1'-0"

	FLEX DUCT		LOW/HIGH WALL/KICK SUPPLY DIFFUSER		DUCT CONNECTION TO JOIST LINING		RETURN AIR GRILLE (SIZE INDICATED ON DRAWING)	S.A.	SUPPLY AIR
	RIGID ROUND DUCT		HRV EXHAUST GRILLE		RETURN AIR PIPE RISER		RETURN AIR RISER UP TO FLOOR ABOVE	R.A.	RETURN AIR
	SUPPLY DIFFUSER		SUPPLY AIR PIPE RISER		RETURN ROUND DUCT		RETURN AIR FROM BASEMENT SECOND FLOOR		THERMOSTAT
			VOLUME DAMPER						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

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

CIRCULATION PRINCIPAL
FAN SWITCH
TO BE CENTRALLY
LOCATED

INSULATE ALL DUCTS IN
UNCONDITIONED
SPACES MIN. R12

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 V12 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

DAVID DA COSTA  B.C.I.N. 32964
SIGNATURE OF DESIGNER

FIRST FLOOR PLAN 'A' 'D'

OBC 2012

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

NOTES

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 R12 UNDERCUT
ALL DOORS 1" 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.



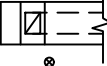














2985 DREW ROAD
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L4T 0A4 TEL: 905-671-9800
EMAIL: DAVE@GTADESIGNS.CA
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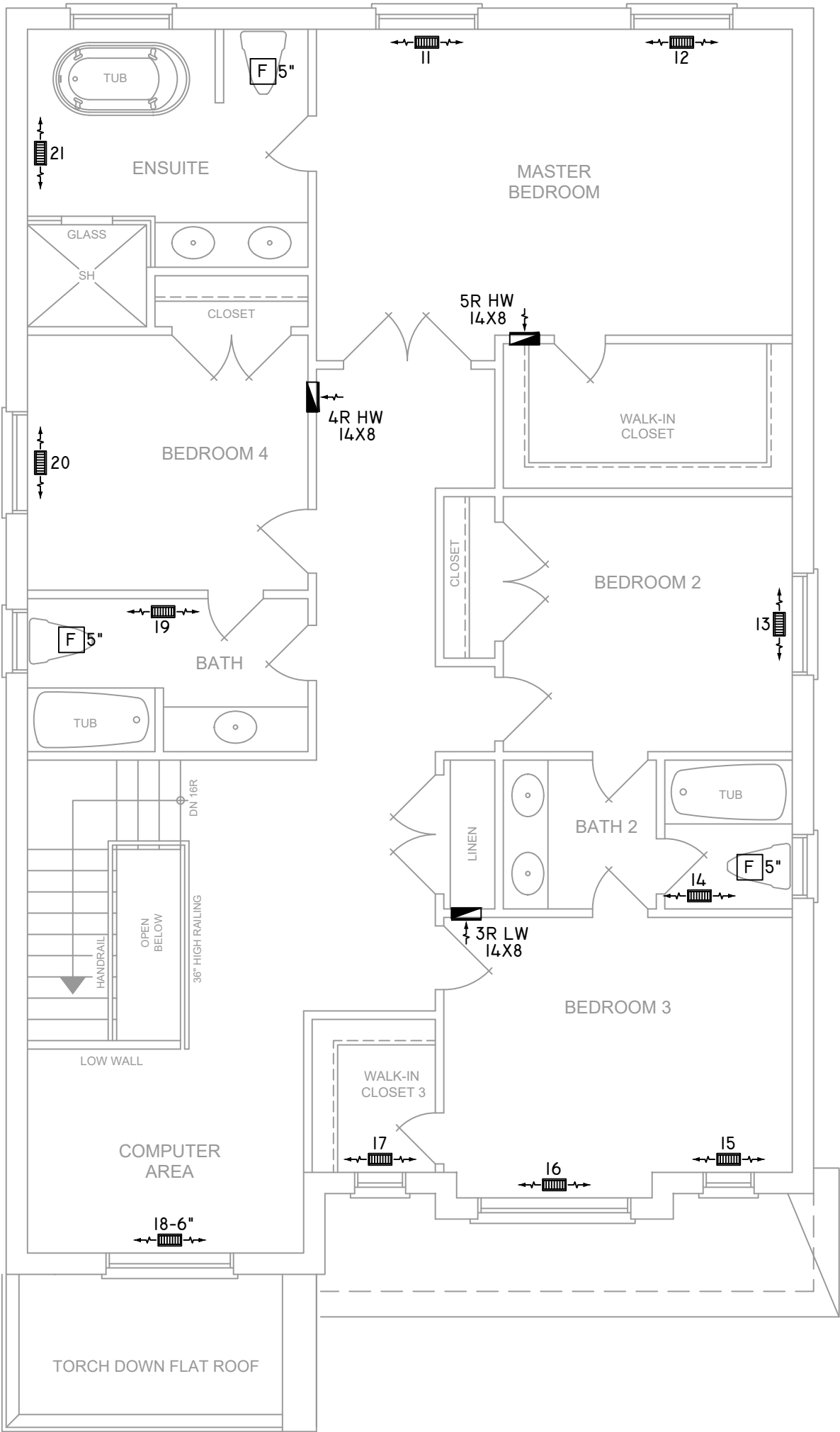
HEAT-LOSS	43,063	BTU/HR.
UNIT MAKE	CARRIER	OR EQUAL.
UNIT MODEL	59SC5B060EI7--14	OR EQUAL.
UNIT HEATING INPUT	60,000	BTU/HR.
UNIT HEATING OUTPUT	58,000	BTU/HR.
A/C COOLING CAPACITY	2.5	TONS.
FAN SPEED	920	CFM

# OF RUNS	S/A	R/A	FANS
3RD FLOOR			
2ND FLOOR	11	3	3
1ST FLOOR	6	1	2
BASEMENT	4	1	

FLOOR PLAN:		GROUND FLOOR
DRAWN BY:	CHECKED:	SQFT
JL	DD	2671
LAYOUT NO.	DRAWING NO.	
JB-09126	M2	

DATE:	SEPTEMBER 13, 2023
CLIENT:	EM AIR SYSTEMS
MODEL:	MODEL 2665
PROJECT:	KING EAST DEVELOPMENTS RICHMOND HILL, ONT.
SCALE:	3/16" = 1'-0"

	FLEX DUCT		LOW/HIGH WALL/KICK SUPPLY DIFFUSER		DUCT CONNECTION TO JOIST LINING		RETURN AIR GRILLE (SIZE INDICATED ON DRAWING)	S.A.	SUPPLY AIR
	RIGID ROUND DUCT		HRV EXHAUST GRILLE		RETURN AIR PIPE RISER		RETURN AIR RISER UP TO FLOOR ABOVE	R.A.	RETURN AIR
	SUPPLY DIFFUSER		SUPPLY AIR PIPE RISER		RETURN ROUND DUCT		RETURN AIR FROM BASEMENT SECOND FLOOR		THERMOSTAT
			VOLUME DAMPER						PRINCIPAL EXHAUST FAN SWITCH W/R & PRINCIPAL EXHAUST FAN



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

INSULATE ALL DUCTS IN
UNCONDITIONED
SPACES MIN. R12

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 V12 STANDARD.
ALL DUCTS SHALL BE LOCATED
WITHIN HEATED BOUNDARY
(4.7.2.2.)

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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

DAVID DA COSTA



B.C.I.N. 32964

SIGNATURE OF DESIGNER

SECOND FLOOR PLAN 'A'

OBC 2012

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

NOTES

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 R12 UNDERCUT
ALL DOORS 1" MIN.
CONTRACTOR MUST WORK FROM APPROVED PLANS.
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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
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EMAIL: DAVE@GTADESIGNS.CA
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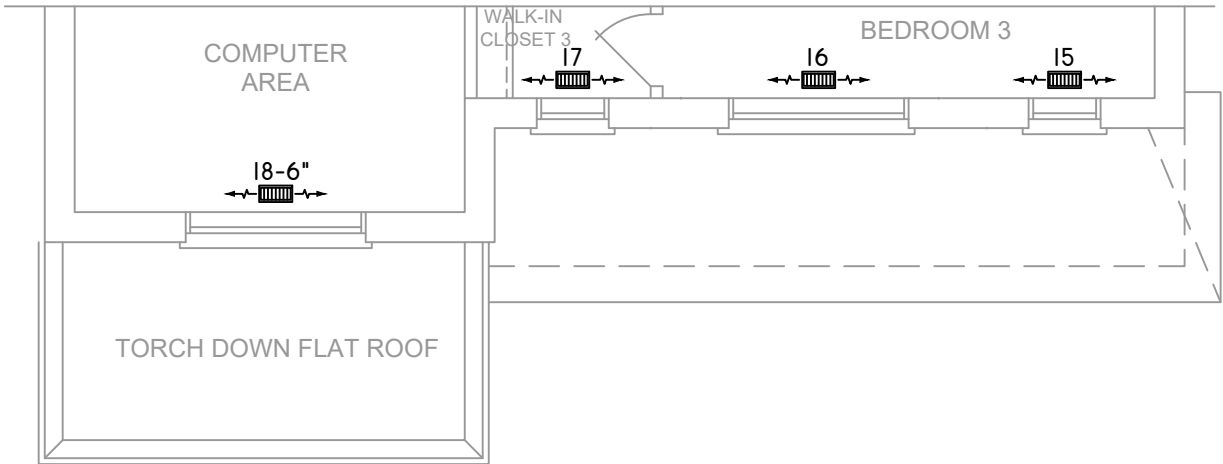
HEAT-LOSS	43,063	BTU/HR.
UNIT MAKE	CARRIER	OR EQUAL.
UNIT MODEL	59SC5B060E17--14	OR EQUAL.
UNIT HEATING INPUT	60,000	BTU/HR.
UNIT HEATING OUTPUT	58,000	BTU/HR.
A/C COOLING CAPACITY	2.5	TONS.
FAN SPEED	920	CFM

# OF RUNS	S/A	R/A	FANS
3RD FLOOR			
2ND FLOOR	11	3	3
1ST FLOOR	6	1	2
BASEMENT	4	1	

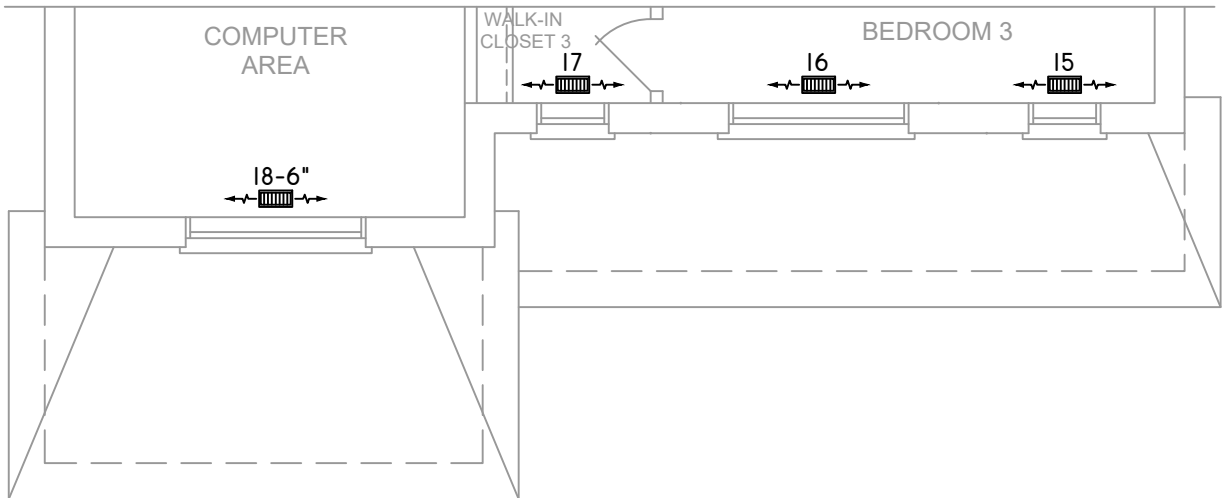
FLOOR PLAN: SECOND FLOOR		
DRAWN BY: JL	CHECKED: DD	SQFT 2671
LAYOUT NO. JB-09126	DRAWING NO. M3	

DATE:	SEPTEMBER 13, 2023
CLIENT:	EM AIR SYSTEMS
MODEL:	MODEL 2665
PROJECT:	KING EAST DEVELOPMENTS RICHMOND HILL, ONT.
SCALE:	3/16" = 1'-0"

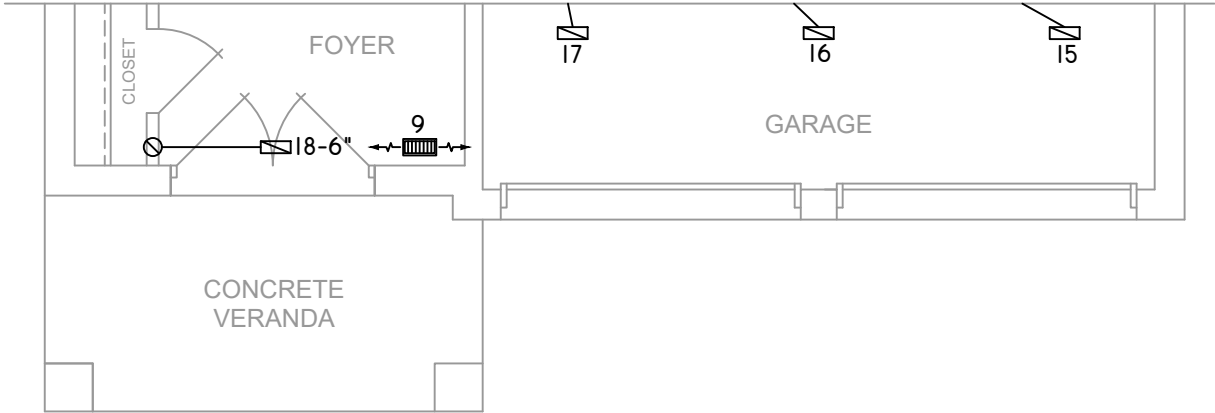
	FLEX DUCT		LOW/HIGH WALL/KICK SUPPLY DIFFUSER		DUCT CONNECTION TO JOIST LINING		RETURN AIR PIPE RISER		RETURN ROUND DUCT		RETURN AIR GRILLE (SIZE INDICATED ON DRAWING)	S.A. R.A. T \$ F PE	SUPPLY AIR RETURN AIR THERMOSTAT PRINCIPAL EXHAUST FAN SWITCH W/R & PRINCIPAL EXHAUST FAN
	RIGID ROUND DUCT		HRV EXHAUST GRILLE		SUPPLY AIR PIPE RISER		RETURN AIR RISER UP TO FLOOR ABOVE		RETURN AIR FROM BASEMENT SECOND FLOOR				
	SUPPLY DIFFUSER		VOLUME DAMPER										



SECOND FLOOR PLAN `C`



SECOND FLOOR PLAN `B`




FIRST FLOOR PLAN `B` `C`

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QUALIFICATION INFORMATION

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DAVID DA COSTA



B.C.I.N. 32964

SIGNATURE OF DESIGNER

OBC 2012

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

NOTES
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INSULATE DUCTS IN UNCONDITIONED SPACES R12 UNDERCUT ALL DOORS 1" MIN.
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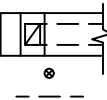












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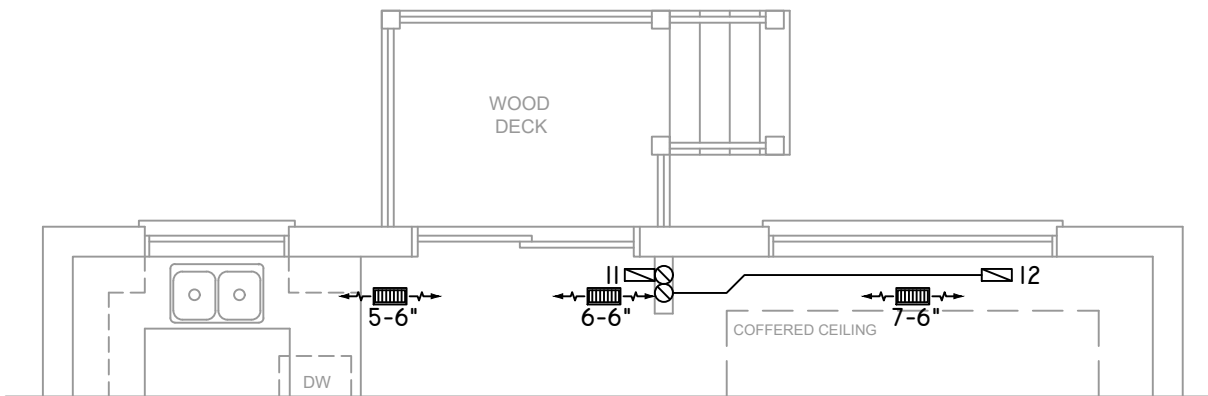
HEAT-LOSS	43,063	BTU/HR.
UNIT MAKE	CARRIER	OR EQUAL.
UNIT MODEL	59SC5B060E17--14	OR EQUAL.
UNIT HEATING INPUT	60,000	BTU/HR.
UNIT HEATING OUTPUT	58,000	BTU/HR.
A/C COOLING CAPACITY	2.5	TONS.
FAN SPEED	920	CFM

# OF RUNS	S/A	R/A	FANS
3RD FLOOR			
2ND FLOOR	11	3	3
1ST FLOOR	6	1	2
BASEMENT	4	1	

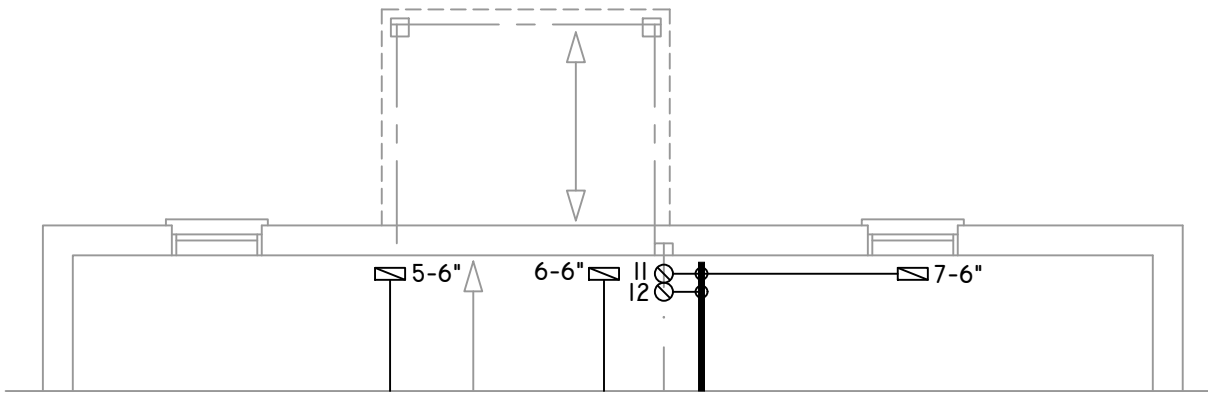
FLOOR PLAN:		
PARTIAL PLAN(S)		
DRAWN BY:	CHECKED:	SQFT
JL	DD	2671
LAYOUT NO.	DRAWING NO.	
JB-09126	M4	

DATE:	SEPTEMBER 13, 2023
CLIENT:	EM AIR SYSTEMS
MODEL:	MODEL 2665
PROJECT:	KING EAST DEVELOPMENTS RICHMOND HILL,ONT.
SCALE:	3/16" = 1'-0"

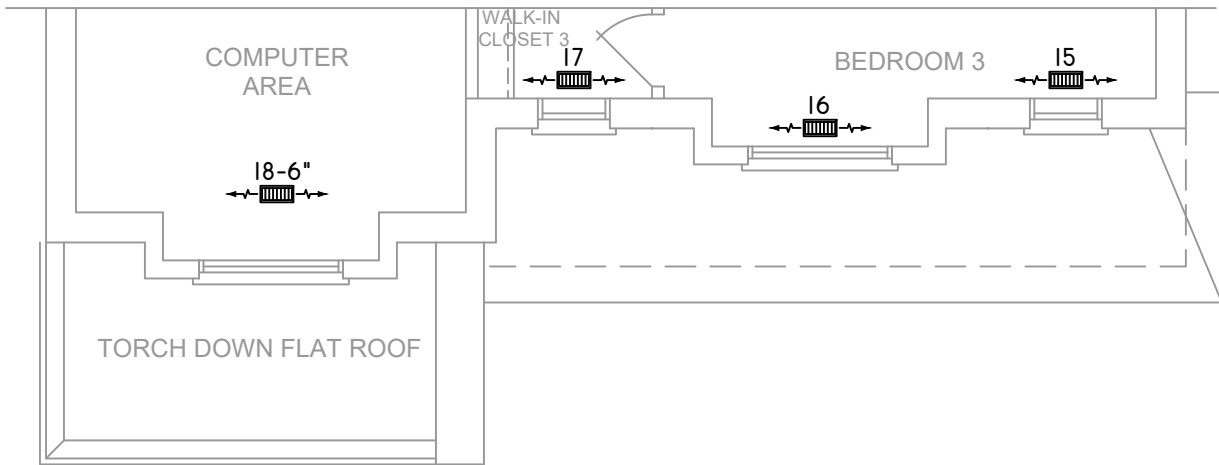
	FLEX DUCT		LOW/HIGH WALL/KICK SUPPLY DIFFUSER		DUCT CONNECTION TO JOIST LINING		RETURN AIR GRILLE (SIZE INDICATED ON DRAWING)	S.A.	SUPPLY AIR
	RIGID ROUND DUCT		HRV EXHAUST GRILLE		RETURN AIR PIPE RISER		RETURN AIR RISER UP TO FLOOR ABOVE	R.A.	RETURN AIR
	SUPPLY DIFFUSER		SUPPLY AIR PIPE RISER		RETURN ROUND DUCT		RETURN AIR FROM BASEMENT SECOND FLOOR		THERMOSTAT
			VOLUME DAMPER						PRINCIPAL EXHAUST FAN SWITCH W/R & PRINCIPAL EXHAUST FAN



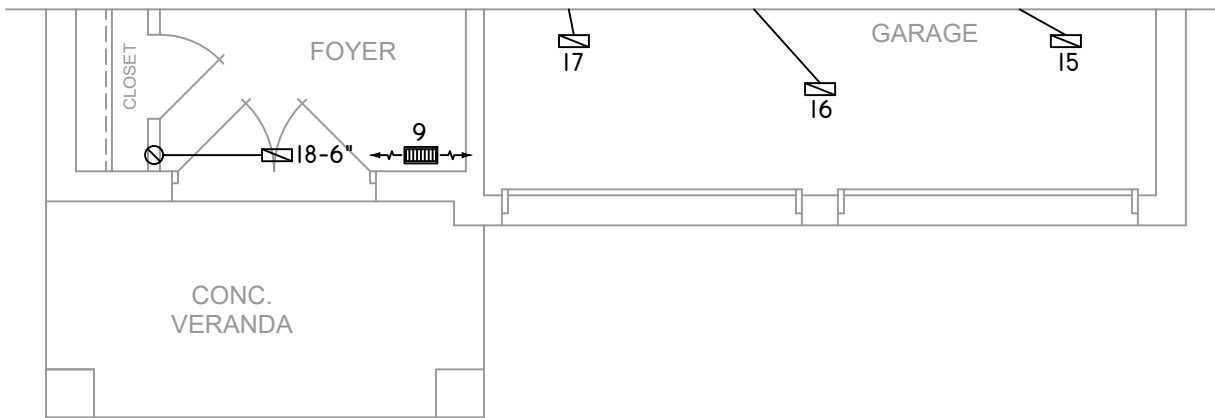
FIRST FLOOR PLAN 'A'B'C'D'
WITH DECK OPTIONAL



BASEMENT FLOOR PLAN 'A'B'C'D'
WITH DECK OPTIONAL



SECOND FLOOR PLAN 'D'



FIRST FLOOR PLAN 'D'

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DAVID DA COSTA  B.C.I.N. 32964
SIGNATURE OF DESIGNER

OBC 2012

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

NOTES

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**GTADESIGNS**

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FAN SPEED	920	CFM

# OF RUNS	S/A	R/A	FANS
3RD FLOOR			
2ND FLOOR	11	3	3
1ST FLOOR	6	1	2
BASEMENT	4	1	

FLOOR PLAN:		
PARTIAL PLAN(S)		
DRAWN BY: JL	CHECKED: DD	SQFT 2671
LAYOUT NO. JB-09126	DRAWING NO. M5	

DATE:	SEPTEMBER 13, 2023
CLIENT:	EM AIR SYSTEMS
MODEL:	MODEL 2665
PROJECT:	KING EAST DEVELOPMENTS RICHMOND HILL, ONT.
SCALE:	3/16" = 1'-0"