

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:	61-B
Model 1750 - Lot 61-B				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]					
☐ House ☒ HVAC – House ☐ Building Structural ☐ Small Buildings ☐ Building Services ☐ Plumbing – House ☐ Large Buildings ☐ Detection, Lighting and Power ☐ Plumbing – All Buildings ☐ Complex Buildings ☐ Fire Protection ☐ On-site Sewage Systems					
Description of designer's work			Model Certification		Project #:
					PJ-00267
					Layout #:
					JB-09495
Heating and Cooling Load Calculations		Main	X	Builder	
Air System Design		Alternate		Project	
Residential mechanical ventilation Design Summary		O.D. GFA	1742	Model	
Residential System Design per CAN/CSA-F280-12				Model 1750 - Lot 61-B	
Residential New Construction - Forced Air				SB-12	
				Energy Star	
D. Declaration of Designer					
I, <u>David DaCosta</u> declare that (choose one as appropriate): (print name) ☐ 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. Individual BCIN: _____ Firm BCIN: _____ ☒ 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. Individual BCIN: <u>32964</u> Basis for exemption from registration: <u>Division C 3.2.4.1. (4)</u> ☐ The design work is exempt from the registration and qualification requirements of the Building Code. Basis for exemption from registration and qualification:					
I certify that:					
1. The information contained in this schedule is true to the best of my knowledge.					
2. I have submitted this application with the knowledge and consent of the firm.					
<u>June 20, 2024</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				Layout No.	
and may not be used by any other persons without authorization. Documents for permit and/or construction are signed in red.				JB-09495	
Building Location					
Address (Model): Model 1750 - Lot 61-B			Site: King East Developments		
Model:			Lot: 61-B		
City and Province: Richmond Hill			Postal code:		
Calculations based on					
Dimensional information based on:			Architectural Design Inc. May/2024		
Attachment: Semi			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: 4
Sensible Eff. at -25C 60%		Apparent Effect. at -0C 80%		Units: Imperial	Area Sq ft: 1742
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**

Date: **June 20, 2024**

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 1750 - Lot 61-B**

System 1

Individual BCIN: 32964

David DaCosta

Project # **PJ-00267**
Layout # **JB-09495**

DESIGN LOAD SPECIFICATIONS		AIR DISTRIBUTION & PRESSURE		FURNACE/AIR HANDLER DATA:		BOILER/WATER HEATER DATA:		A/C UNIT DATA:	
Level 1 Net Load	10,462 btu/h	Equipment External Static Pressure	0.5 "w.c.	Make	Carrier	Make	Type	Carrier - ASHP	1.5 Ton
Level 2 Net Load	8,878 btu/h	Additional Equipment Pressure Drop	0.225 "w.c.	Model	59SC5B040E14~10	Model		Model:	
Level 3 Net Load	8,798 btu/h	Available Design Pressure	0.275 "w.c.	High Input	40000 BTU/h	Input Btu/h		Cond.-----	1.5
Level 4 Net Load	0 btu/h	Return Branch Longest Effective Length	300 ft	High Output	39000 BTU/h	Output Btu/h		Coil -----	1.5
Total Heat Loss	28,138 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	16,745 btu/h	S/A Plenum Pressure	0.14 "w.c.	Water Temp	deg. F.	Blower DATA:			
Building Volume Vb	20732 ft³	Heating Air Flow Proportioning Factor	0.0197 cfm/btuh	Thermal Eff.	98%	Blower Speed Selected:	Blue	Blower Type	ECM
Ventilation Load	1,069 Btu/h.	Cooling Air Flow Proportioning Factor	0.0331 cfm/btuh	Electric Heat		(Brushless DC OBC 12.3.1.5.(2))			
Ventilation PVC	63.6 cfm	R/A Temp	70 deg. F.			Check	555 cfm	Cool. Check	555 cfm
Supply Branch and Grill Sizing		S/A Temp	135 deg. F.			Heat.	555 cfm	Cooling	555 cfm
		Diffuser loss	0.01 "w.c.	Temp. Rise>>>	65 deg. F.	Design Airflow	555 cfm		

	Level 1														Level 2													
S/A Outlet No.	1	2	3												4	5	6	7	8									
Room Use	BASE	BASE	BASE												KIT	GRT	WR	FOY	LAUN									
Btu/Outlet	3487	3487	3487												2035	3102	888	2286	567									
Heating Airflow Rate CFM	69	69	69												40	61	18	45	11									
Cooling Airflow Rate CFM	12	12	12												116	89	22	26	34									
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	27	20	25												30	24	32	29	12									
Equivalent Length	110	120	100	70	70	70	70	70	70	70	70	70	70	70	90	80	80	90	130	70	70	70	70	70	70			
Total Effective Length	137	140	125	70	70	70	70	70	70	70	70	70	70	70	120	104	112	119	142	70	70	70	70	70	70			
Adjusted Pressure	0.09	0.09	0.10	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.11	0.13	0.12	0.11	0.09	0.19	0.19	0.19	0.19	0.19	0.19			
Duct Size Round	5	5	5												6	6	3	5	4									
Outlet Size	3x10	3x10	3x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	3x10	3x10	3x10	4x10	4x10	4x10	4x10	4x10	4x10			
Trunk	B	B	C												B	B	C	C	C									

	Level 3														Level 4													
S/A Outlet No.	9	10	11	12	13	14																						
Room Use	P.BED	P.BED	ENS	BED 3	BED 2	BATH																						
Btu/Outlet	1451	1451	1455	2002	2171	268																						
Heating Airflow Rate CFM	29	29	29	39	43	5																						
Cooling Airflow Rate CFM	48	48	33	48	56	3																						
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	48	53	32	45	43	27																						
Equivalent Length	130	140	150	90	140	150	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70			
Total Effective Length	178	193	182	135	183	177	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70			
Adjusted Pressure	0.07	0.07	0.07	0.10	0.07	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	0.19	0.19	0.19	0.19	0.19				
Duct Size Round	5	5	4	6	6	2																						
Outlet Size	3x10	3x10	3x10	4x10	4x10	3x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10			
Trunk	B	B	B	C	C	C																						

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	103	242	105	105							
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	5	9	39	49							
Equivalent Length	155	165	140	160	50	50	50	50	50	50	50
Total Effective Length	160	174	179	209	50	50	50	50	50	50	50
Adjusted Pressure	0.07	0.07	0.07	0.06	0.24	0.24	0.24	0.24	0.24	0.24	0.24
Duct Size Round	6.0	9.0	6.0	6.0							
Inlet Size	FLC	8	8	8							
" "	x	x	x	x	x	x	x	x	x	x	x
Inlet Size		14	14	14							
Trunk	Z	Z	Z	Z							

Return Trunk Duct Sizing				
Trunk	CFM	Press.	Round	Rect. Size
Drop	555	0.06	12.5	24x10
Z	555	0.06	12.5	18x8 14x10
Y				
X				
W				
V				
U				
T				
S				
R				
Q				

Supply Trunk Duct Sizing					
Trunk	C.CFM	H.CFM	Press.	Round	Rect. Size
A	555	555	0.07	12.0	16x8 12x10
B	356	325	0.07	10.5	12x8 10x10
C	199	230	0.07	9.0	8x8 10x7
D					
E					
F					
G					
H					
I					
J					
K					

2012 OBC

Builder: EM Air

Date: June 20, 2024

Weather Data Richmond Hill 44 -5.8 88 20 50

Project # PJ-00267
Layout # JB-09495

Project: King East Developments

Model: Model 1750 - Lot 61-B

System 1

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

Level 1

Run ft. exposed wall A	110	A	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	B	B	B
Ceiling height	4.0	AG	4.0	AG	4.0	AG	4.0	AG	4.0	AG	4.0	AG	4.0
Floor area	676	Area	Area	Area	Area	Area	Area	Area	Area	Area	Area	Area	Area
Exposed Ceilings A	A	A	A	A	A	A	A	A	A	A	A	A	A
Exposed Ceilings B	B	B	B	B	B	B	B	B	B	B	B	B	B
Exposed Floors	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr
Gross Exp Wall A	440												
Gross Exp Wall B													

Components	R-Values	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	5	97	148											
South	4.00	19.45	22.60	10	195	226											
WOB Windows Including Doors	4.00	19.45	27.86														
Skylight	2.03	38.33	89.12														
Doors	4.00	19.45	3.20	21	408	67											
Net exposed walls A	21.12	3.68	0.61	404		245											
Net exposed walls B	21.40	3.64	0.60														
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																	
Air Leakage	Heat Loss/Gain	0.8753	0.0569														
Ventilation	Case 1	0.10	0.11														
	Case 2	16.80	13.82														
	Case 3	x	0.06	0.11	332	79											
Heat Gain People			239														
Appliances Loads	1 = .25 percent		2831														
Duct and Pipe loss			10%														
Level HL Total	10,462			10462													
Level HG Total	1,045				1045												

Level 2

Run ft. exposed wall A	15	A	46	A	10	A	29	A	10	A	A	A	A	A	A	A	A
Run ft. exposed wall B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
Ceiling height	10.0		10.0		10.0		10.0		10.0		10.0		10.0		10.0		10.0
Floor area	222	Area	258	Area	27	Area	104	Area	60	Area	Area	Area	Area	Area	Area	Area	Area
Exposed Ceilings A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Exposed Ceilings B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
Exposed Floors	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr
Gross Exp Wall A	150		460		100		290		100								
Gross Exp Wall B																	

Components	R-Values	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	35	681	1038											
South	4.00	19.45	22.60	13	253	294											
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	102	371	61	440	1600	263	87	316	52	264	960	158	100	364
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			x														
Total Conductive																	
Air Leakage	Heat Loss/Gain	0.4985	0.0569														
Ventilation	Case 1	0.06	0.11														
	Case 2	16.80	13.82														
	Case 3	x	0.06	0.11	80	160		122	98	35	50		90	58		22	7
Heat Gain People			239														
Appliances Loads	1 = .25 percent		2831														
Duct and Pipe loss			10%														
Level HL Total	8,878			1.5		1062	1.5		1062				1.0		708		
Level HG Total	8,634				2035	3502		3102	2684		888	666		2286	770		567

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

Name

David DaCosta

SB-12 Package

Energy Star

Total Heat Loss	28,138	btu/h
Total Heat Gain	16,745	btu/h

2012 OBC

Builder: EM Air

Date: June 20, 2024

Project: King East Developments

Model: Model 1750 - Lot 61-B

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 # P3-00267
Layout # JB-09495

Level 3

Run ft. exposed wall A	29 A	21 A	29 A	16 A	A	A	A	A	A	A	A	A
Run ft. exposed wall B	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	9.0
Floor area	387 Area	98 Area	171 Area	157 Area	69 Area	Area	Area	Area	Area	Area	Area	Area
Exposed Ceilings A	387 A	98 A	171 A	157 A	69 A	A	A	A	A	A	A	A
Exposed Ceilings B	B	B	B	B	B	B	B	B	B	B	B	B
Exposed Floors	4 Flr	Flr	17 Flr	157 Flr	34 Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr
Gross Exp Wall A	261	189	261	144								
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	20	389	593	16	311	475	16	311	475	20	389	593				
East/West	4.00	19.45	29.66	22	428	497													
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	219	796	131	173	629	103	245	891	147	124	451	74				
Net exposed walls B	8.50	9.15	1.51																
Exposed Ceilings A	59.22	1.31	0.67	387	508	260	98	129	66	171	225	115	157	206	106	69	91	46	
Exposed Ceilings B	27.65	2.81	1.44																
Exposed Floors	29.80	2.61	0.23	4	10	1				17	44	4	157	410	36	34	89	8	
Foundation Conductive Heatloss																			
Total Conductive																			
Heat Loss				2132				1069						1456			179		
Heat Gain					1482			644			740			809			54		
Air Leakage	Heat Loss/Gain	0.2999	0.0569	639	84			321	37		441	42		437	46		54	3	
Ventilation	Case 1		0.03																
Case 2			16.80																
Case 3	x		0.06																
Heat Gain People			239	2	131	170		66	74	1	90	85		89	93		11	6	
Appliances Loads	1 =.25 percent		2831																
Duct and Pipe loss			10%																
Level HL Total	8,798			2902				1455			2002			2171		1	23	5	
Level HG Total	7,066				2879				981			1438			1679			89	

Level 4

Run ft. exposed wall A	A	A	A	A	A	A	A	A	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	B	B	B	B	B	B	B	B	B
Ceiling height																			
Floor area	Area	Area	Area	Area	Area	Area	Area	Area	Area	Area	Area	Area	Area	Area	Area	Area	Area	Area	Area
Exposed Ceilings A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Exposed Ceilings B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
Exposed Floors	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	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	0.0569																
Ventilation	Case 1		0.00																
Case 2			16.80																
Case 3	x		0.06																
Heat Gain People			239																
Appliances Loads	1 =.25 percent		2831																
Duct and Pipe loss			10%																
Level HL Total	0																		
Level HG Total	0																		

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

David DaCosta

SB-12 Package

Energy Star

Total Heat Loss	28,138	btu/h
Total Heat Gain	16,745	btu/h

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 1750 - Lot 61-B

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
Address	
City	
Tel	Fax

Installing Contractor	
Name	
Address	
City	
Tel	Fax

Combustion Appliances 9.32.3.1(1)		
a)	☒	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	
☒	Forced air
☐	Non forced air
☐	Electric space heat (if over 10% of heat load)

House Type 9.32.3.1(2)		
I	☒	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	2 @	10.6 cfm	21.2	cfm
Bathrooms & Kitchen	4 @	10.6 cfm	42.4	cfm
Other rooms	3 @	10.6 cfm	31.8	cfm
Total			137.8	

Principal Ventilation Capacity 9.32.3.4(1)				
Master bedroom	1 @	31.8 cfm	31.8	cfm
Other bedrooms	2 @	15.9 cfm	31.8	cfm
Total			63.6	

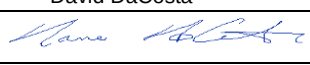
Principal Exhaust Fan Capacity			
Make	Model	Location	
VanEE	V150E75NS	Base	
127 cfm		80.0 Sones	or Equiv.

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	137.8
Less principal exhaust capacity	63.6
REQUIRED supplemental vent. Capacity	74.2 cfm

Supplemental Fans 9.32.3.5.			
Location	cfm	Model	Sones
Ens	50	XB50	0.3
Bath	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	June 20, 2024		



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-09495

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 Model 1750 - Lot 61-B	Unit number	Lot/Con
Municipality Richmond Hill	Postal code	Reg. Plan number / other description

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

☐ SB-12 Performance* [SB-12 - 3.1.2.]	*Attach energy performance results using an approved software (see guide)
☒ ENERGY STAR** [SB-12 - 3.1.3.]	*Attach Builder Option Package [BOP] form
☐ 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
☒ Zone 1 (< 5000 degree days) ☐ Zone 2 (≥ 5000 degree days)	☒ ≥ 92% AFUE ☐ ≥ 84% < 92% AFUE	☒ Gas ☐ Propane ☐ Solid Fuel ☐ Oil ☐ Electric ☐ Earth Energy
Ratio of Windows, Skylights & Glass (W, S & G) to Wall Area		Other Building Characteristics
Area of Walls = <u>100</u> m ² or <u>1076.4</u> ft ²	W,S & G % = <u>15.0</u> %	☐ Log/Post&Beam ☐ ICF Above Grade ☐ ICF Basement ☐ Slab-on-ground Walkout Basement ☐ Air Conditioning Combo Unit ☒ Air Sourced Heat Pump (ASHP) ☐ Ground Source Heat Pump (GSHP)
Area of W, S & G = <u>15</u> m ² or <u>161.5</u> ft ²		

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

Page 8
Project # PJ-00267
Layout # JB-09495

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: _____ Accreditation or Evaluator/Advisor/Rater License # _____

ENERGY STAR or R-2000

Energy Evaluator/Advisor/Rater/Name and company: _____

Angela Bustamante, Building Knowledge Canada

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 :	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
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	✓		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	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: Energy Star **System:** System 1
Project: Richmond Hill **Model:** Model 1750 - Lot 61-B

Air Leakage Calculations																																																																
<table><tr><th colspan="5">Building Air Leakage Heat Loss</th></tr><tr><th>B</th><th>LRairh</th><th>Vb</th><th>HL^T</th><th>HLleak</th></tr><tr><td>0.018</td><td>0.326</td><td>20732</td><td>77.8</td><td>9456</td></tr></table>					Building Air Leakage Heat Loss					B	LRairh	Vb	HL^T	HLleak	0.018	0.326	20732	77.8	9456	<table><tr><th colspan="5">Building Air Leakage Heat Gain</th></tr><tr><th>B</th><th>LRairh</th><th>Vb</th><th>HG^T</th><th>HG Leak</th></tr><tr><td>0.018</td><td>0.091</td><td>20732</td><td>12.8</td><td>436</td></tr></table>					Building Air Leakage Heat Gain					B	LRairh	Vb	HG^T	HG Leak	0.018	0.091	20732	12.8	436																									
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Air Leakage Heat Loss/Gain Multiplier Table (Section 11)																																																																
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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	63.6	77.8	0.20	1069	1.1	63.6	12.8	879		
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	879	0.11			
	Level 1	0.5	1069	5402	0.10	Building	7668				
	Level 2	0.3		5691	0.06						
	Level 3	0.2		6307	0.03						
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		1069	0.06		HGbvent		HG*1.3	879	0.11	
						879	1				

Foundation Conductive Heatloss Level 1	Level 1	1378	Watts	4701	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

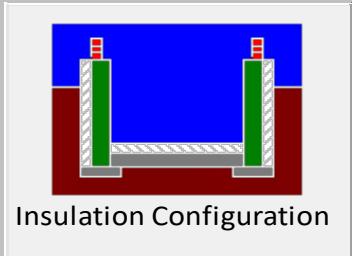
Envelope Air Leakage Calculator

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):	6.71			
Building Configuration				
Type:	Semi-Detached			
Number of Stories:	Two			
Foundation:	Full			
House Volume (m ³):	587.13			
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):		0.326		
Cooling Air Leakage Rate (ACH/H):		0.091		

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):	17.23	 Insulation Configuration
Floor Width (m):	3.64	
Exposed Perimeter (m):	33.53	
Wall Height (m):	2.74	
Depth Below Grade (m):	1.52	
Window Area (m ²):	1.39	
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):		1378



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



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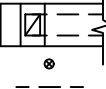
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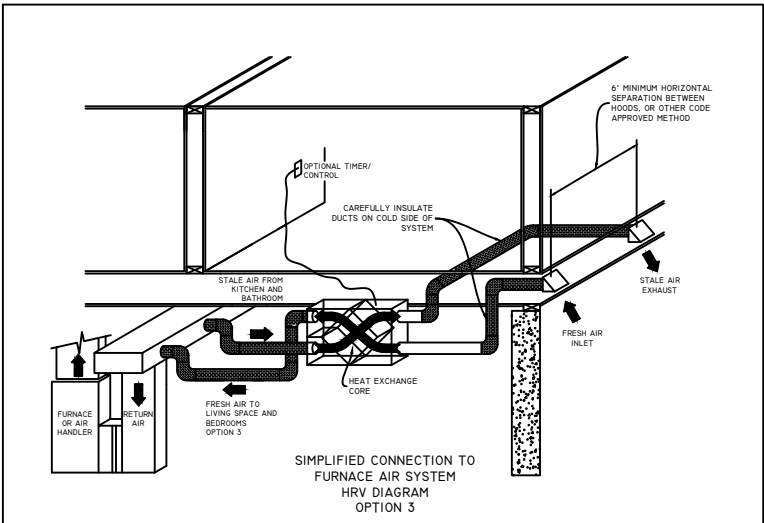
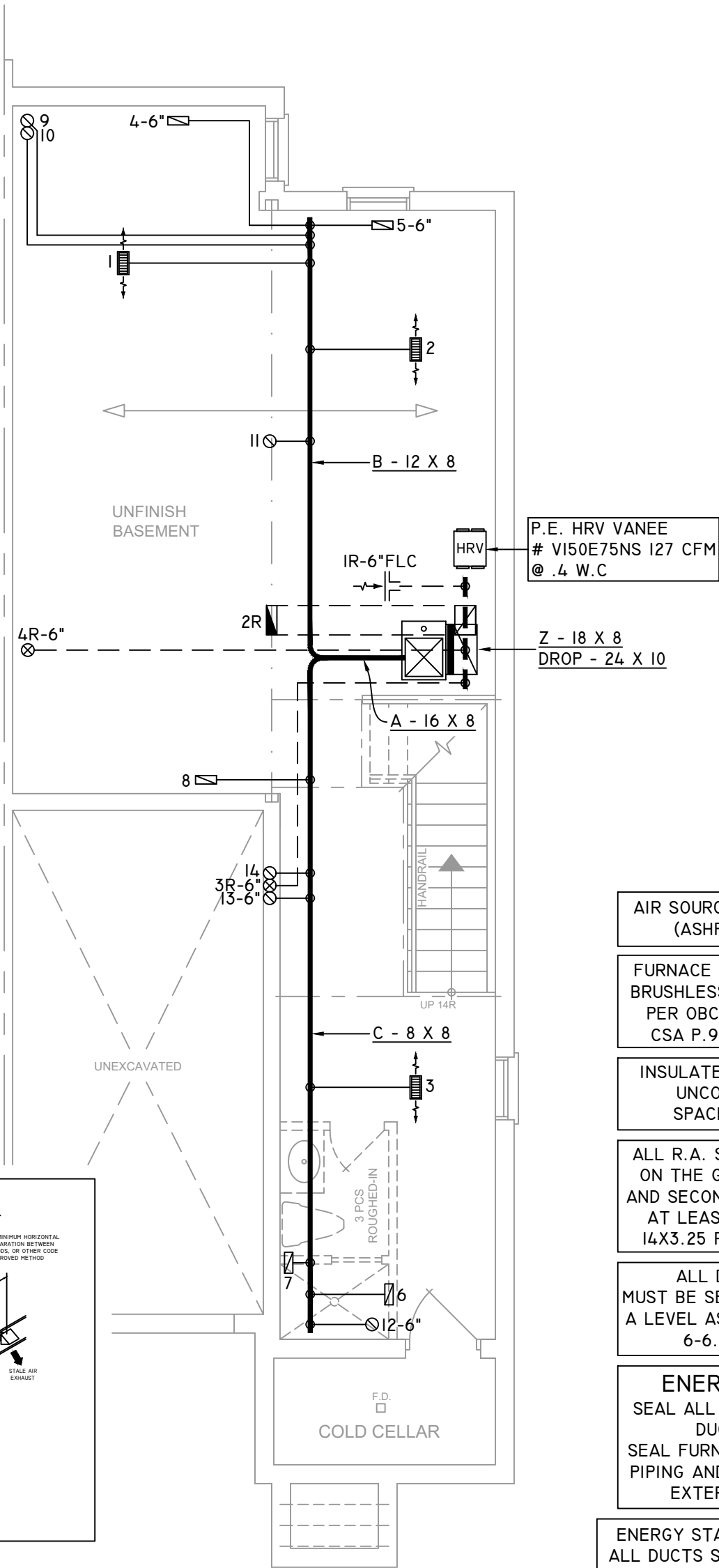
Effective R-Value – Exposed Ceiling with Attic

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



AIR SOURCED HEAT PUMP (ASHP) REQUIRE

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

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.



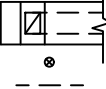
2985 DREW ROAD
SUITE 202,
MISSISSAUGA, ONT.
L4T 0A4 TEL: 905-671-9800
EMAIL: DAVE@GTADESIGNS.CA
WEB: WWW.GTADESIGNS.CA

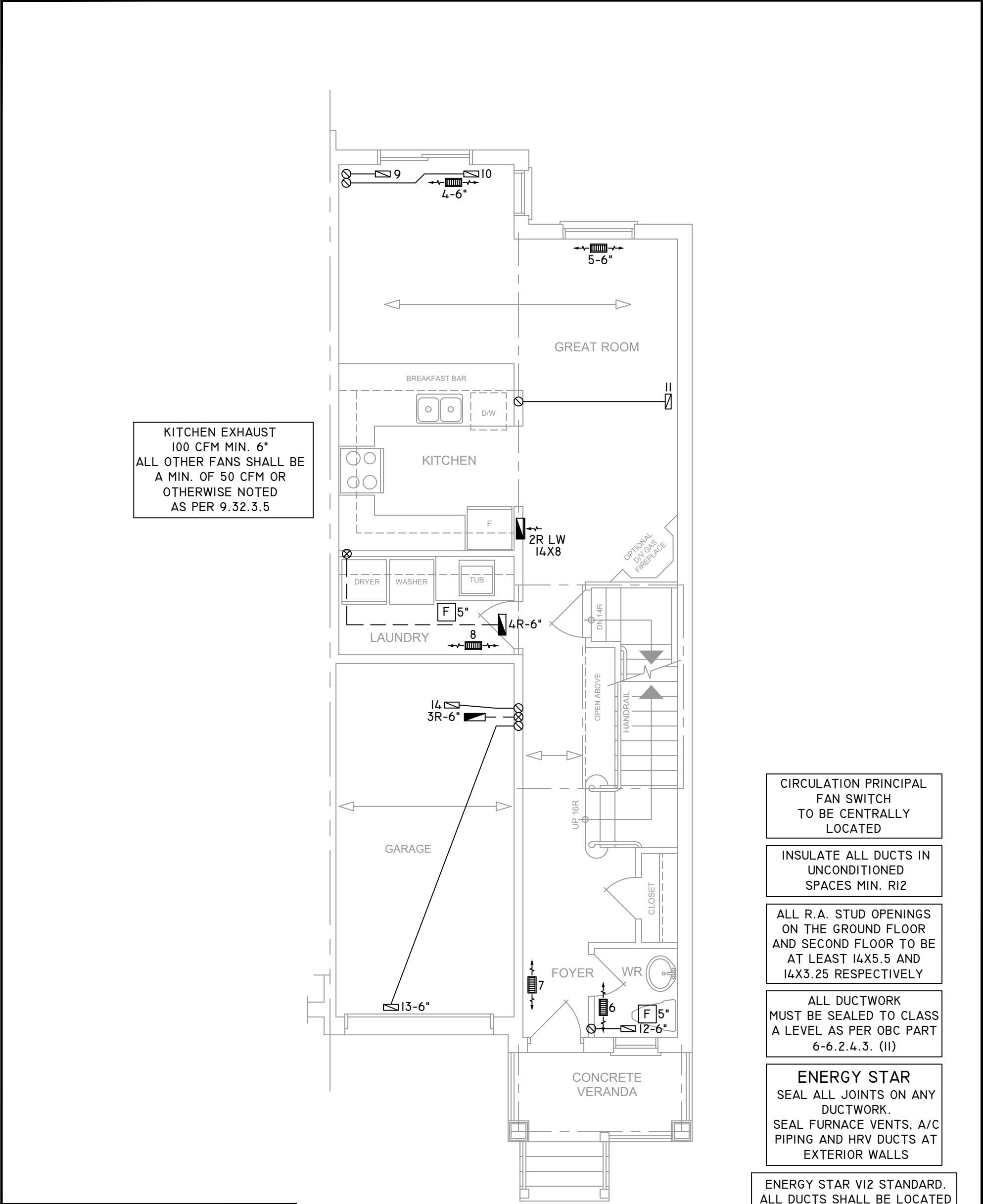
HEAT-LOSS	28,138	BTU/HR.
UNIT MAKE	CARRIER	OR EQUAL.
UNIT MODEL	59SC5B040E14--10	OR EQUAL.
UNIT HEATING INPUT	40,000	BTU/HR.
UNIT HEATING OUTPUT	39,000	BTU/HR.
ASHP CAPACITY	1.5	TONS.
FAN SPEED	555	CFM

# OF RUNS	S/A	R/A	FANS
3RD FLOOR			
2ND FLOOR	6	2	2
1ST FLOOR	5	1	3
BASEMENT	3	1	

FLOOR PLAN: BASEMENT	
DRAWN BY: JL	CHECKED: DD
LAYOUT NO. JB-09495	DRAWING NO. MI
SQFT 1742	

DATE:	JUNE 20, 2024
CLIENT:	EM AIR SYSTEMS
MODEL:	MODEL 1750 - LOT 61-B
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 AIR GRILLE (SIZE INDICATED ON DRAWING)	S.A.	SUPPLY AIR
	RIGID ROUND DUCT		HRV EXHAUST GRILLE		RETURN ROUND DUCT		RETURN AIR RISER UP TO FLOOR ABOVE		RETURN AIR FROM BASEMENT SECOND FLOOR	R.A.	RETURN AIR
	SUPPLY DIFFUSER		VOLUME DAMPER								THERMOSTAT
											PRINCIPAL EXHAUST FAN SWITCH W/R & PRINCIPAL EXHAUST FAN



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

CIRCULATION PRINCIPAL
FAN SWITCH
TO BE CENTRALLY
LOCATED

INSULATE ALL DUCTS IN
UNCONDITIONED
SPACES MIN. 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)

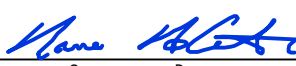
ENERGY STAR
SEAL ALL JOINTS ON ANY
DUCTWORK.
SEAL FURNACE VENTS, A/C
PIPING AND HRV DUCTS AT
EXTERIOR WALLS

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

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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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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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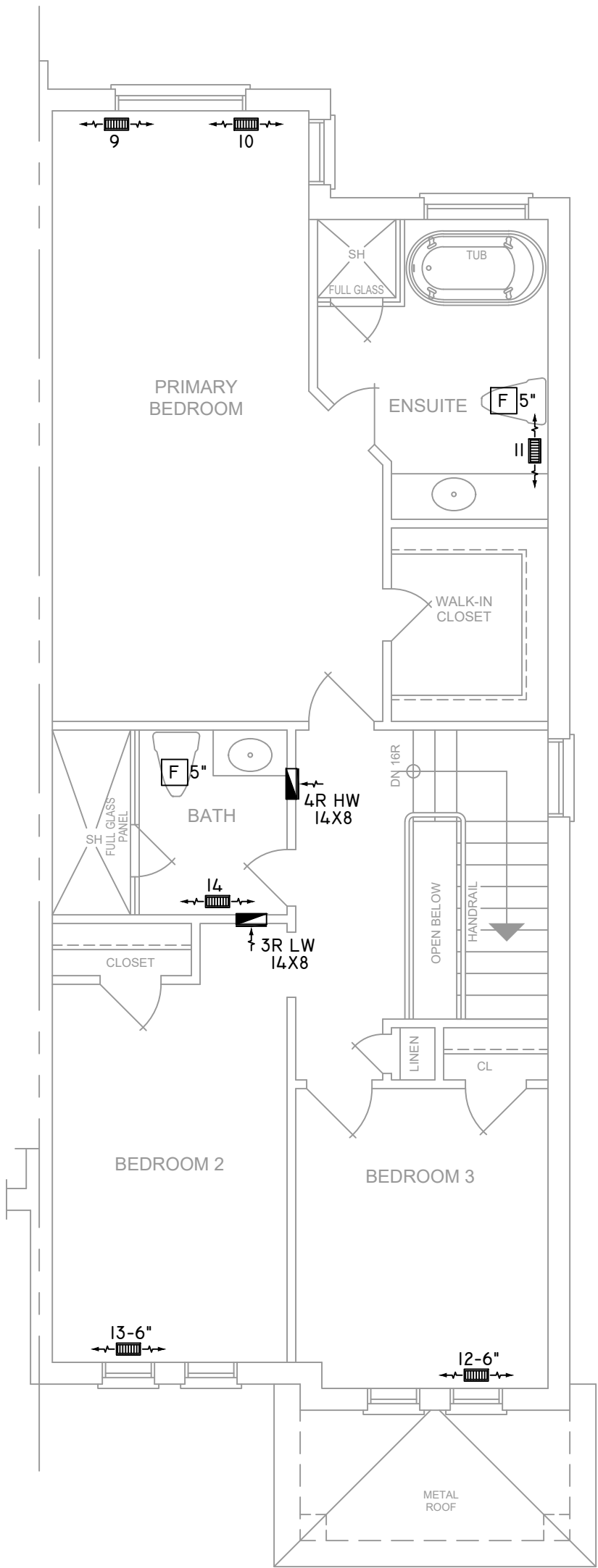
HEAT-LOSS	28,138	BTU/HR.
UNIT MAKE	CARRIER	OR EQUAL.
UNIT MODEL	59SC5B040EI4--10	OR EQUAL.
UNIT HEATING INPUT	40,000	BTU/HR.
UNIT HEATING OUTPUT	39,000	BTU/HR.
ASHP CAPACITY	1.5	TONS.
FAN SPEED	555	CFM

# OF RUNS	S/A	R/A	FANS
3RD FLOOR			
2ND FLOOR	6	2	2
1ST FLOOR	5	1	3
BASEMENT	3	1	

FLOOR PLAN:	
GROUND FLOOR	
DRAWN BY: JL	CHECKED: DD
LAYOUT NO. JB-09495	DRAWING NO. M2

DATE:	JUNE 20, 2024
CLIENT:	EM AIR SYSTEMS
MODEL:	MODEL 1750 - LOT 61-B
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		RETURN AIR PIPE RISER		RETURN AIR RISER UP TO FLOOR ABOVE		RETURN AIR FROM BASEMENT SECOND FLOOR		RETURN AIR FROM BASEMENT SECOND FLOOR		
	SUPPLY DIFFUSER		VOLUME DAMPER		RETURN AIR PIPE RISER		RETURN AIR RISER UP TO FLOOR ABOVE		RETURN AIR FROM BASEMENT SECOND FLOOR		RETURN AIR FROM BASEMENT SECOND FLOOR		



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)

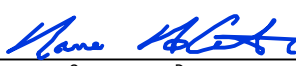
ENERGY STAR
SEAL ALL JOINTS ON ANY DUCTWORK.
SEAL FURNACE VENTS, A/C PIPING AND HRV DUCTS AT EXTERIOR WALLS

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

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SIGNATURE OF DESIGNER

OBC 2012

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

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INSULATE DUCTS IN UNCONDITIONED SPACES R12 UNDERCUT ALL DOORS 1" MIN.
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UNIT HEATING OUTPUT	39,000	BTU/HR.
ASHP CAPACITY	1.5	TONS.
FAN SPEED	555	CFM

# OF RUNS	S/A	R/A	FANS
3RD FLOOR			
2ND FLOOR	6	2	2
1ST FLOOR	5	1	3
BASEMENT	3	1	

FLOOR PLAN: SECOND FLOOR		
DRAWN BY: JL	CHECKED: DD	SQFT 1742
LAYOUT NO. JB-09495	DRAWING NO. M3	

DATE:	JUNE 20, 2024
CLIENT:	EM AIR SYSTEMS
MODEL:	MODEL 1750 - LOT 61-B
PROJECT:	KING EAST DEVELOPMENTS RICHMOND HILL,ONT.
SCALE:	3/16" = 1'-0"