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: **Model 3625 - Lot 36**		Lot:	36
		Lot/con.	
Municipality: **Richmond Hill**	Postal code:	Plan number/ other description:	

B. Individual who reviews and takes responsibility for design activities

Name: **David DaCosta**		Firm: **gtaDesigns Inc.**	
Street address: **2985 Drew Road, Suite 202**		Unit no.	Lot/con.
Municipality: **Mississauga**	Postal code: **L4T 0A4**	Province: **Ontario**	E-mail: hvac@gtadesigns.ca
Telephone number: **(905) 671-9800**	Fax number:	Cell number:	

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-09125**
Heating and Cooling Load Calculations	**Main**	**X**	Builder	**EM Air Systems**	
Air System Design	**Alternate**		Project	**King East Developments**	
Residential mechanical ventilation Design Summary	**O.D. GFA**	**3632**	Model	**Model 3625 - Lot 36**	
Residential System Design per CAN/CSA-F280-12					
Residential New Construction - Forced Air			SB-12	**Energy Star**	

D. Declaration of Designer

I David DaCosta 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: **32964**

Basis for exemption from registration: **Division C 3.2.4.1. (4)**

❑ 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.

September 19, 2023

Date

Signature of Designer

NOTE:

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.
2. Schedule 1 does not require to be completed a holder of a license, temporay license, or a certificate of authorization, issed by the Ontario Associstion 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

Heat loss and gain calculation summary sheet

CSA-F280-M12 Standard Form No. 1

These documents issued for the use of **EM Air Systems**

and may not be used by any other persons without authorization. Documents for permit and/or construction are signed in red.

Layout No. **JB-09125**

Building Location

Address (Model):	**Model 3625 - Lot 36**	Site:	**King East Developments**
Model:		Lot:	**36**
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: **3632**
Sensible Eff. at -0C	**75%**				

Heating design conditions

Outdoor temp **-5.8** Indoor temp: **72** Mean soil temp: **50**

Cooling design conditions

Outdoor temp **88** Indoor temp: **75** Latitude: **44**

Above grade walls

Style A: **As per OBC SB12 Energy Star R 22 + 5ci**

Style B:

Style C:

Style D:

Below grade walls

Style A: **As per OBC SB12 Energy Star R 20ci**

Style B:

Style C:

Style D:

Floors on soil

Style A: **As per Selected OBC SB12 Energy Star**

Style B:

Ceilings

Style A: **As per Selected OBC SB12 Energy Star R 60**

Style B: **As per Selected OBC SB12 Energy Star R 31**

Style C:

Exposed floors

Style A: **As per Selected OBC SB12 Energy Star R 31**

Style B:

Doors

Style A: **As per Selected OBC SB12 Energy Star R 4.00**

Style B:

Style C:

Windows

Style A: **As per Selected OBC SB12 Energy Star R 4.00**

Style B:

Style C:

Style D:

Skylights

Style A: **As per Selected OBC SB12 Energy Star R 2.03**

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**

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

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

Project # PJ-00267
Layout # JB-09125

Builder: EM Air Systems
Date: September 19, 2023
Project: King East Developments
Model: Model 3625 - Lot 36

System 1

DESIGN LOAD SPECIFICATIONS

Level 1 Net Load	24,854	btu/h
Level 2 Net Load	19,442	btu/h
Level 3 Net Load	19,792	btu/h
Level 4 Net Load	0	btu/h
Total Heat Loss	64,088	btu/h
Total Heat Gain	38,674	btu/h
Building Volume Vb	46537	ft³
Ventilation Load	1,336	Btuh.
Ventilation PVC	79.5	cfm
Supply Branch and Grill Sizing		

AIR DISTRIBUTION & PRESSURE

Equipment External Static Pressure	0.5	"w.c.
Additional Equipment Pressure Drop	0.225	"w.c.
Available Design Pressure	0.275	"w.c.
Return Branch Longest Effective Length	300	ft
R/A Plenum Pressure	0.138	"w.c.
S/A Plenum Pressure	0.14	"w.c.
Heating Air Flow Proportioning Factor	0.0204	cfm/btuh
Cooling Air Flow Proportioning Facter	0.0339	cfm/btuh
R/A Temp	70	deg. F.
S/A Temp	125	deg. F.
Diffuser loss	0.01	"w.c.

FURNACE/AIR HANDLER DATA:

Make	Carrier	
Model	59SC5B080E17--16	
High Input	80000	
High Output	78000	
E.s.p.	0.50	" W.C.
Water Temp		deg. F.
AFUE	98%	
Aux. Heat		
SB-12 Package	Energy Star	
Temp. Rise>>>	55	deg. F.

BOILER/WATER HEATER DATA:

Make Type
Model
Input Btu/h
Output Btu/h
Min.Output Btu/h AWH

Blower DATA:

Blower Speed Selected: Yellow
Blower Type ECM (Brushless DC OBC 12.3.1.5.(2))
Check 1310 cfm Cool. Check 1310 cfm
Heat. 1310 cfm Cooling 1310 cfm Design Airflow 1310 cfm

A/C UNIT DATA:

Carrier 3.5 Ton
Model:
Cond.---------- 3.5
Coil ---------- 3.5

Level 1

S/A Outlet No.	1	2	3	4	5	6
Room Use	BASE	BASE	BASE	BASE	BASE	F.AREA
Btu/Outlet	4047	4047	4047	4047	4047	4621
Heating Airflow Rate CFM	83	83	83	83	83	94
Cooling Airflow Rate CFM	31	31	31	31	31	9
Duct Design Pressure	0.13	0.13	0.13	0.13	0.13	0.13
Actual Duct Length	41	26	39	40	56	52
Equivalent Length	90	130	110	150	140	160
Total Effective Length	131	156	149	190	196	212
Adjusted Pressure	0.10	0.08	0.09	0.07	0.07	0.06
Duct Size Round	6	6	6	6	6	7
Outlet Size	4x10	4x10	4x10	4x10	4x10	4x10
Trunk	B	F	E	C	D	D

Level 2

S/A Outlet No.	7	8	9	10	11	12	13	14	15
Room Use	KIT	KIT	DIN	LIV	FOY	WR	MUD	GRT	GRT
Btu/Outlet	2284	2284	1353	3358	2225	493	2136	2655	2655
Heating Airflow Rate CFM	47	47	28	69	45	10	44	54	54
Cooling Airflow Rate CFM	105	105	79	86	29	2	14	100	100
Duct Design Pressure	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13
Actual Duct Length	33	42	44	62	60	5	7	23	26
Equivalent Length	80	120	140	120	150	80	90	80	140
Total Effective Length	113	162	184	182	210	85	97	103	166
Adjusted Pressure	0.12	0.08	0.07	0.07	0.06	0.15	0.13	0.13	0.08
Duct Size Round	6	6	6	6	5	3	4	6	6
Outlet Size	4x10	4x10	4x10	4x10	3x10	3x10	3x10	4x10	4x10
Trunk	B	E	C	D	D	A	A	F	F

Level 3

S/A Outlet No.	16	17	18	19	20	21	22	23	24	25	26	27	28
Room Use	MAST	MAST	BED 4	BATH	OFF	OFF	BED 3	BED 3	BATH2	BED 2	WIC	WC	ENS
Btu/Outlet	2223	2223	1312	791	2083	2083	2202	2202	1093	1385	566	171	1457
Heating Airflow Rate CFM	45	45	27	16	43	43	45	45	22	28	12	3	30
Cooling Airflow Rate CFM	69	69	38	13	65	65	62	62	11	29	6	1	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
Actual Duct Length	74	63	51	58	72	67	76	82	82	38	30	35	41
Equivalent Length	110	120	180	150	170	140	120	130	140	110	130	140	120
Total Effective Length	184	183	231	208	242	207	196	212	222	148	160	175	161
Adjusted Pressure	0.07	0.07	0.06	0.06	0.05	0.06	0.07	0.06	0.06	0.09	0.08	0.07	0.08
Duct Size Round	6	6	5	3	6	6	6	6	4	4	3	2	4
Outlet Size	4x10	4x10	3x10	3x10	4x10	4x10	4x10	4x10	3x10	3x10	3x10	3x10	3x10
Trunk	E	E	C	C	D	D	C	C	C	F	F	F	F

Level 4

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	255	345	200	105	150	150	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	40	11	19	82	36	38	68				
Equivalent Length	135	130	135	165	140	105	155	50	50	50	50
Total Effective Length	175	141	154	247	176	143	223	50	50	50	50
Adjusted Pressure	0.07	0.08	0.08	0.05	0.07	0.08	0.05	0.24	0.24	0.24	0.24
Duct Size Round	9.0	10.0	8.0	6.0	7.5	7.5	6.0				
Inlet Size	8	8	8	8	8	8	8				
" "	x	x	x	x	x	x	x	x	x	x	x
Inlet Size	14	30	14	14	14	14	14				
Trunk	Y	Z	Y	Y	Z	Z	Y				

Return Trunk Duct Sizing

Trunk	CFM	Press.	Round	Rect. Size	
Drop	1310	0.05	18.0	24x12	
Z	1310	0.05	18.0	30x10	24x12
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	1310	1309	0.05	18.0	30x10	24x12
B	991	991	0.05	16.0	30x8	22x10
C	580	642	0.05	13.5	20x8	16x10
D	284	376	0.05	11.5	14x8	12x10
E	274	220	0.07	9.5	10x8	127
F	303	264	0.07	9.5	10x8	127
G						
H						
I						
J						
K						

Heatloss/Gain Calculations CSA-F280-12

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

e-mail hvac@gtadesigns.ca

2012 OBC

Builder:	EM AIr Systems	Date:	September 19, 2023
Project:	King East Developments	Model:	Model 3625 - Lot 36

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-09125

Level 1

	BASE	F.AREA									
Run ft. exposed wall A	58 A	29 A	A	A	A	A	A	A	A	A	A
Run ft. exposed wall B	91 B	B	B	B	B	B	B	B	B	B	B
Ceiling height	7.0 AG	7.0 AG	7.0 AG	7.0 AG	7.0 AG	7.0 AG	7.0 AG	7.0 AG	7.0 AG	7.0 AG	7.0 AG
Floor area	1237 Area	267 Area	Area	Area	Area	Area	Area	Area	Area	Area	Area
Exposed Ceilings 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
Exposed Floors	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr
Gross Exp Wall A	406	203									
Gross Exp Wall B	819										

Components	R-Values	Loss	Gain	BASE	Loss	Gain	F.AREA	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	10	195	226			
WOB Windows Including Doors	4.00	19.45	27.86	82	1595	2285			
Skylight	2.03	38.33	89.12						
Doors	4.00	19.45	3.20				21	408	67
Net exposed walls A	20.84	3.73	0.61	396		243	182		112
Net exposed walls B	21.40	3.64	0.60	737	2679	441			
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					5159			1790	
Total Conductive Heat Loss					9628			2199	
Total Conductive Heat Gain						3195			179
Air Leakage Heat Loss/Gain		1.0655	0.0558		10258	178		2343	10
Ventilation Case 1		0.06	0.05						
Ventilation Case 2		16.80	13.82						
Ventilation Case 3	x	0.04	0.05		347	168		79	9
Heat Gain People			239						
Appliances Loads	1 =.25 percent		5199						
Duct and Pipe loss			10%						
Level HL Total	24,854		Total HL for per room		20233			4621	
Level HG Total	4,862		Total HG per room x 1.3			4604			258

Level 2

	KIT	DIN	LIV	FOY	WR	MUD	GRT				
Run ft. exposed wall A	38 A	15 A	31 A	20 A	8 A	18 A	47 A	A	A	A	A
Run ft. exposed wall B	B	B	B	B	B	B	B	B	B	B	B
Ceiling height	10.0	10.0	10.0	10.0	10.0	12.0	10.0	10.0	10.0	10.0	10.0
Floor area	361 Area	174 Area	180 Area	98 Area	30 Area	98 Area	569 Area	Area	Area	Area	Area
Exposed Ceilings 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
Exposed Floors	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr
Gross Exp Wall A	380	150	310	200	80	216	470				
Gross Exp Wall B											

Components	R-Values	Loss	Gain	KIT	Loss	Gain	DIN	Loss	Gain	LIV	Loss	Gain	FOY	Loss	Gain	WR	Loss	Gain	MUD	Loss	Gain	GRT	Loss	Gain
North Shaded	4.00	19.45	11.73																9	175	106	30	584	352
East/West	4.00	19.45	29.66	72	1400	2136				54	1050	1602	14	272	415							60	1167	1780
South	4.00	19.45	22.60	11	214	249	16	311	362															
Existing Windows	1.99	39.10	24.56																					
Skylight	2.03	38.33	89.12																					
Doors	4.00	19.45	3.20										23	447	74				21	408	67			
Net exposed walls A	21.40	3.64	0.60	297	1080	178	134	487	80	256	931	153	163	593	97	80	291	48	186	676	111	380	1381	227
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 Heat Loss					2694			798			1981			1312			291			1260			3132	
Total Conductive Heat Gain						2562			442			1755			586			48			284			2359
Air Leakage Heat Loss/Gain		0.6593	0.0558		1776	143		526	25		1306	98		865	33		192	3		830	16		2065	132
Ventilation Case 1		0.03	0.05																					
Ventilation Case 2		16.80	13.82																					
Ventilation Case 3	x	0.04	0.05		97	135		29	23		71	93		47	31		10	3		45	15		113	124
Heat Gain People			239																					
Appliances Loads	1 =.25 percent		5199	1.5		1950	1.0		1300													1.5		1950
Duct and Pipe loss			10%																					
Level HL Total	19,442		Total HL for per room		4567			1353			3358			2225			493			2136			5310	
Level HG Total	18,338		Total HG per room x 1.3			6226			2326			2529			845			69			409			5934

Total Heat Loss	64,088	btu/h
Total Heat Gain	38,674	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

SB-12 Package

Energy Star

GTADESIGNS

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

e-mail hvac@gtadesigns.ca

Heatloss/Gain Calculations CSA-F280-12

Builder: EM Air Systems Date: September 19, 2023 Weather Data: Richmond Hill 44 -5.8 88 20 50

2012 OBC Project: King East Developments Model: Model 3625 - Lot 36 **System 1** Heat Loss ^T 77.8 deg. F Ht gain ^T 12.8 deg. F Project # PJ-00267 Layout # JB-09125

Level 3

	MAST	BED 4	BATH	OFF	BED 3	BATH2	BED 2	WIC	WC	ENS	
Run ft. exposed wall A	44 A	13 A	11 A	37 A	31 A	8 A	11 A	7 A	3 A	19 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	596 Area	196 Area	59 Area	368 Area	229 Area	82 Area	208 Area	133 Area	18 Area	101 Area	Area
Exposed Ceilings A	596 A	196 A	59 A	368 A	229 A	82 A	208 A	133 A	18 A	101 A	A
Exposed Ceilings B	B	B	B	B	B	B	B	B	B	B	B
Exposed Floors	Flr	Flr	Flr	29 Flr	229 Flr	82 Flr	39 Flr	Flr	Flr	Flr	Flr
Gross Exp Wall A	396	117	99	333	279	72	99	63	27	171	
Gross Exp Wall B											

Components		R-Values	Loss	Gain	MAST Loss	MAST Gain	BED 4 Loss	BED 4 Gain	BATH Loss	BATH Gain	OFF Loss	OFF Gain	BED 3 Loss	BED 3 Gain	BATH2 Loss	BATH2 Gain	BED 2 Loss	BED 2 Gain	WIC Loss	WIC Gain	WC Loss	WC Gain	ENS Loss	ENS Gain	Loss	Gain
North Shaded		4.00	19.45	11.73											8	156	94	16	311	188						
East/West		4.00	19.45	29.66	60	1167	1780				76	1478	2254	60	1167	1780							18	350	534		
South		4.00	19.45	22.60				16	311	362	8	156	181														
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	336	1222	201	101	367	60	91	331	54	257	934	154	219	796	131	64	233	38	83	302	50	63	229	38	27	98	16	153	556	92				
Net exposed walls B		8.50	9.15	1.51																							
Exposed Ceilings A		59.22	1.31	0.67	596	783	401	196	257	132	59	78	40	368	483	247	229	301	154	82	108	55	208	273	140	133	175	89	18	24	12	101	133	68				
Exposed Ceilings B		27.65	2.81	1.44																							
Exposed Floors		29.80	2.61	0.23							29	76	7	229	598	52	82	214	19	39	102	9															
Foundation Conductive Heatloss																											
Total Conductive	Heat Loss					3172			936			564			2972			2862			710			988			404			122			1039					
	Heat Gain						2381			554			275			2662			2117			206			386			127			28			693				
Air Leakage	Heat Loss/Gain		0.3661	0.0558		1161	133		343	31		206	15		1088	148		1048	118		260	11		362	22		148	7		45	2		380	39				
Ventilation	Case 1		0.02	0.05																							
	Case 2		16.80	13.82																							
	Case 3	x	0.04	0.05		114	126		34	29		20	14		107	140		103	112		26	11		36	20		15	7		4	1		37	37				
Heat Gain People				239	2		478	1		239							1		239				1		239												
Appliances Loads		1 =.25 percent		5199																							
Duct and Pipe loss				10%													1	391	236	1	97	21															
Level HL Total	19,792	Total HL for per room				4447			1312			791			4167			4404			1093			1385			566			171			1457				
Level HG Total	15,474	Total HG per room x 1.3					4053			1109			396			3836			3667			323			867			183			41			999			

Level 4

Run ft. exposed wall 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			
Ceiling height																												
Floor 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			
Exposed Ceilings 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			
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	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	0.0558																								
Ventilation	Case 1		0.00	0.05																								
	Case 2		16.80	13.82																								
	Case 3	x	0.04	0.05																								
Heat Gain People				239																								
Appliances Loads		1 =.25 percent		5199																								
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

SB-12 Package: Energy Star

Total Heat Loss	64,088	btu/h
Total Heat Gain	38,674	btu/h

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e-mail hvac@gtadesigns.ca

Project # PJ-00267
Layout # JB-09125

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 3625 - Lot 36

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	x	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 19, 2023		

GTADESIGNS
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e-mail dave@gtadesigns.ca

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

Project # PJ-00267
Layout # JB-09125

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 3625 - Lot 36			
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)	☑ ≥ 92% AFUE	☑ Gas ☐ Propane ☐ Solid Fuel
☐ Zone 2 (≥ 5000 degree days)	☐ ≥ 84% < 92% AFUE	☐ Oil ☐ Electric ☐ Earth Energy

Ratio of Windows, Skylights & Glass (W, S & G) to Wall Area		Other Building Characteristics
Area of Walls = 454.3 m² or 4889.9 ft²	W,S &G % = 13%	☐ 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 = 57.6 m² or 620.0 ft²		

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

SB-12 Referenced Building Package (input design package): Package A1 Table: 3.1.3.

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·ft·F) but not both.

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

Project # PJ-00267
Layout # JB-09125

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 #
BUILDING KNOWLEDGE CANADA	5506

ENERGY STAR or R-2000

Energy Evaluator/Advisor/Rater/Name and company:	Evaluator/Advisor/Rater License #
ANGELA BUSTAMANTE	5506

G. Designer(s) [name(s) & BCIN(s), if applicable, of person(s) providing information herein to substantiate that design meets building code]

Name	BCIN	Signature
David DaCosta	32964	

BUILDING KNOWLEDGE CANADA INC.
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

ENERGY STAR HIGH EFFICIENCY HAUTE EFFICACITÉ

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 spak 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	SRE ≥75% SRE @ 0 °C, ≥ 0.57 L/s/W	0.1	√		
Electrical Savings	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**

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Project # PJ-00267
Layout # JB-09125

Package: Energy Star **System:** System 1
Project: Richmond Hill **Model:** Model 3625 - Lot 36

Air Leakage Calculations

Building Air Leakage Heat Loss				
B	LRairh	Vb	HL^T	HLleak
0.018	0.387	46537	77.8	25202

Building Air Leakage Heat Gain				
B	LRairh	Vb	HG^T	HG Leak
0.018	0.108	46537	12.8	1162

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	25202	11826	1.0655
Level 2	0.3		11468	0.6593
Level 3	0.2		13768	0.3661
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

		Air Leakage Heat Gain
HG LEAK	1162	0.0558
BUILDING CONDUCTIVE HEAT GAIN	20838	

Levels this Dwelling
3

Highest Ceiling Height	28.0 FT	8.53 M

Ventilation Calculations

Vent

Ventilation Heat Loss

Ventilation Heat Loss				
C	PVC	HL^T	(1-E) HRV	HLbvent
1.08	79.5	77.8	0.20	1336

Ventilation Heat Gain

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

Case 1

Ventilation Heat Loss (Exhaust only Systems)

Case 1 - Exhaust Only				
Level	LF	HLbvent	LVL Cond. HL	Multiplier
Level 1	0.5	1336	11826	0.06
Level 2	0.3		11468	0.03
Level 3	0.2		13768	0.02
Level 4	0		0	0.00

Ventilation Heat Gain (Exhaust Only Systems)

Case 1 - Exhaust Only		Multiplier
HGbvent	1099	0.05
Building	20838	

Case 2

Ventilation Heat Loss (Direct Ducted Systems)

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

Ventilation Heat Gain (Direct Ducted Systems)

		Multiplier
C	HG^T	13.82
1.08	12.8	

Case 3

Ventilation Heat Loss (Forced Air Systems)

	HLbvent	Multiplier
Total Ventilation Load	1336	0.04

Ventilation Heat Gain (Forced Air Systems)

		Vent Heat Gain	Multiplier
HGbvent	HG*1.3	1099	0.05
1099	1		

Foundation Conductive Heatloss Level 1	Level 1	1574	Watts	5371	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		463	Watts	1578	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

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):	8.53

Building Configuration	
Type:	Detached
Number of Stories:	Two
Foundation:	Shallow
House Volume (m^3):	1317.93

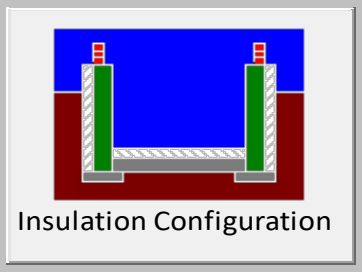
Air Leakage/Ventilation				
Air Tightness Type:	Present (1961-) (ACH=3.57)			
Custom BDT Data:	ELA @ 10 Pa.	322.44	cm^2	
	3.57	ACH @ 50 Pa		
Mechanical Ventilation (L/s):	Total Supply:	Total Exhaust:		
	39.75	39.75		

Flue #:	#1	#2	#3	#4
Diameter (mm):	0	0	0	0

Heating Air Leakage Rate (ACH/H):	**0.387**
Cooling Air Leakage Rate (ACH/H):	**0.108**

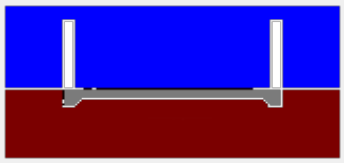
Residential Foundation Thermal Load Calculator

Supplemental tool for CAN/CSA-F280

Weather Station Description		
Province:	Ontario	
Region:	Richmond Hill	
Site Description		
Soil Conductivity:	High conductivity: moist soil	
Water Table:	Normal (7-10 m, 23-33 Ft)	
Foundation Dimensions		
Floor Length (m):	**14.68**	 Insulation Configuration
Floor Width (m):	**3.76**	
Exposed Perimeter (m):	**26.52**	
Wall Height (m):	**2.74**	
Depth Below Grade (m):	**0.61**	
Window Area (m^2):	**0.93**	
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):	**1574**	

Residential Slab on Grade 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)	
Floor Dimensions		
Length (m):	**12.03**	 Insulation Configuration
Width (m):	**7.02**	
Exposed Perimeter (m):	**27.74**	
Radiant Slab		
Heated Fraction of the Slab:	**0**	
Fluid Temperature (°C):	**33**	
Design Months		
Heating Month	**1**	
Foundation Loads		
Heating Load (Watts):	**463**	

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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	T	THERMOSTAT
			VOLUME DAMPER					$	PRINCIPAL EXHAUST FAN SWITCH
								F PE	W/R & PRINCIPAL EXHAUST FAN

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

ALL R.A. STUD OPENINGS ON THE GROUND FLOOR AND SECOND FLOOR TO BE AT LEAST I4X5.5 AND I4X3.25 RESPECTIVELY

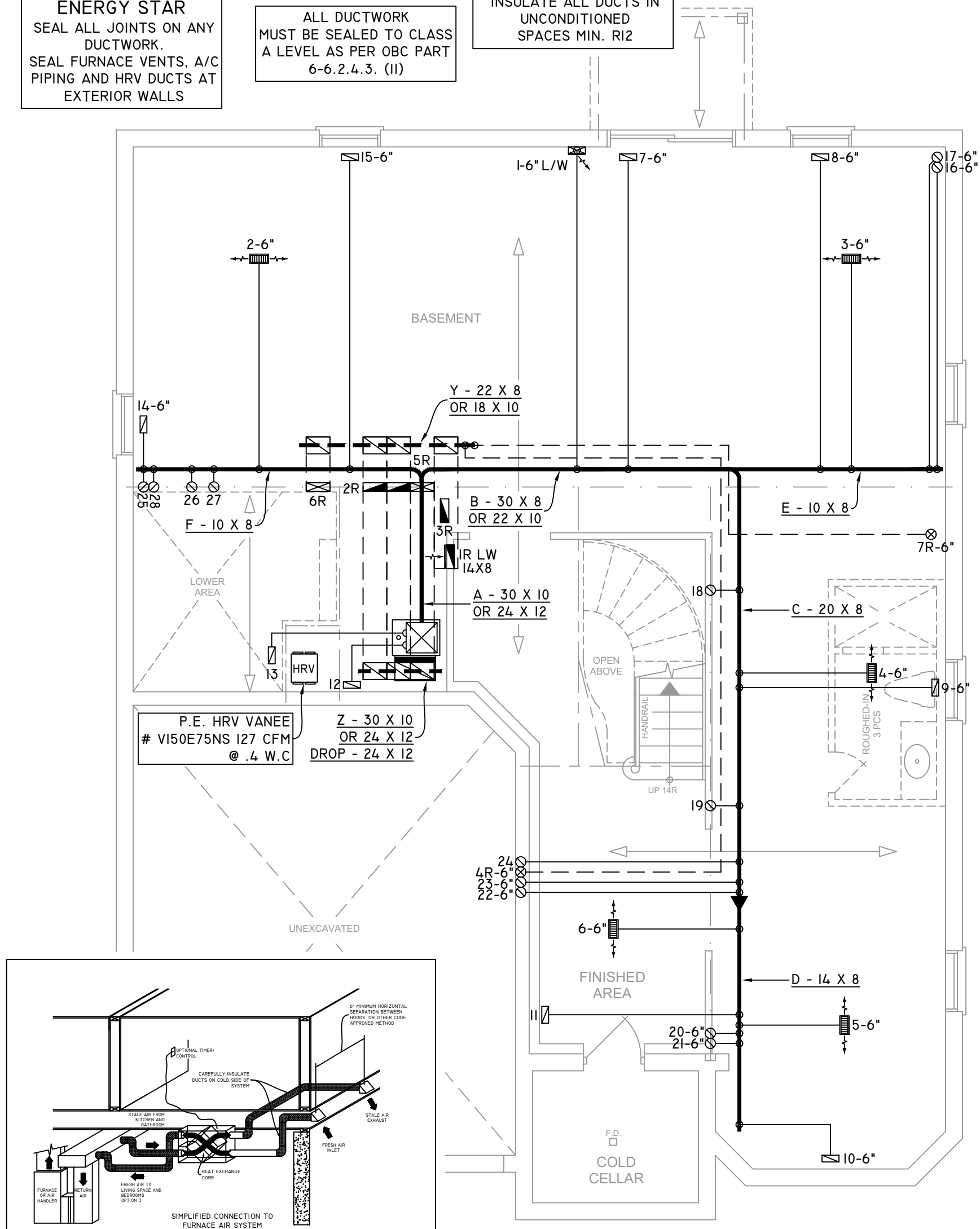
FURNACE EQUIPPED WITH BRUSHLESS DC MOTOR AS PER OBC I2.3.I.5 (2) & CSA P.9-II CERTIFIED

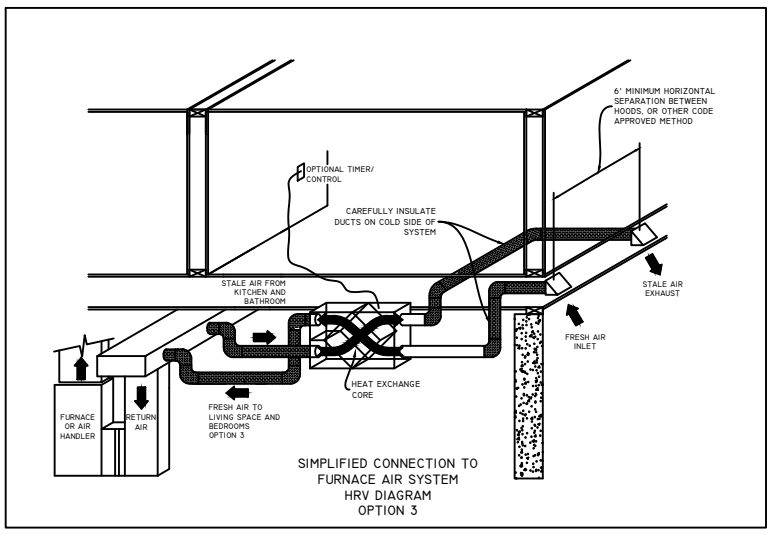
ENERGY STAR

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

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

INSULATE ALL DUCTS IN UNCONDITIONED SPACES MIN. RI2





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.I 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 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	64,088 BTU/HR.
UNIT MAKE	CARRIER OR EQUAL.
UNIT MODEL	59SC5B080EI7--I6 OR EQUAL.
UNIT HEATING INPUT	80,000 BTU/HR.
UNIT HEATING OUTPUT	78,000 BTU/HR.
A/C COOLING CAPACITY	3.5 TONS.
FAN SPEED	1310 CFM

# OF RUNS	S/A	R/A	FANS
3RD FLOOR			
2ND FLOOR	13	4	4
IST FLOOR	9	2	2
BASEMENT	6	I	

FLOOR PLAN: BASEMENT			
DRAWN BY: JL	CHECKED: DD	SQFT 3632	
LAYOUT NO. JB-09125		DRAWING NO. MI	

DATE: SEPTEMBER 19, 2023
CLIENT: EM AIR SYSTEMS
MODEL: MODEL 3625 - LOT 36
PROJECT: KING EAST DEVELOPMENTS RICHMOND HILL,ONT.
SCALE: 3/16" = I'-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) RETURN AIR RISER UP TO FLOOR ABOVE RETURN AIR FROM BASEMENT SECOND FLOOR	S.A. R.A. T $ F PE	SUPPLY AIR RETURN AIR THERMOSTAT PRINCIPAL EXHAUST FAN SWITCH W/R & PRINCIPAL EXHAUST FAN

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

ALL R.A. STUD OPENINGS ON THE GROUND FLOOR AND SECOND FLOOR TO BE AT LEAST I4X5.5 AND I4X3.25 RESPECTIVELY

CIRCULATION PRINCIPAL FAN SWITCH TO BE CENTRALLY LOCATED

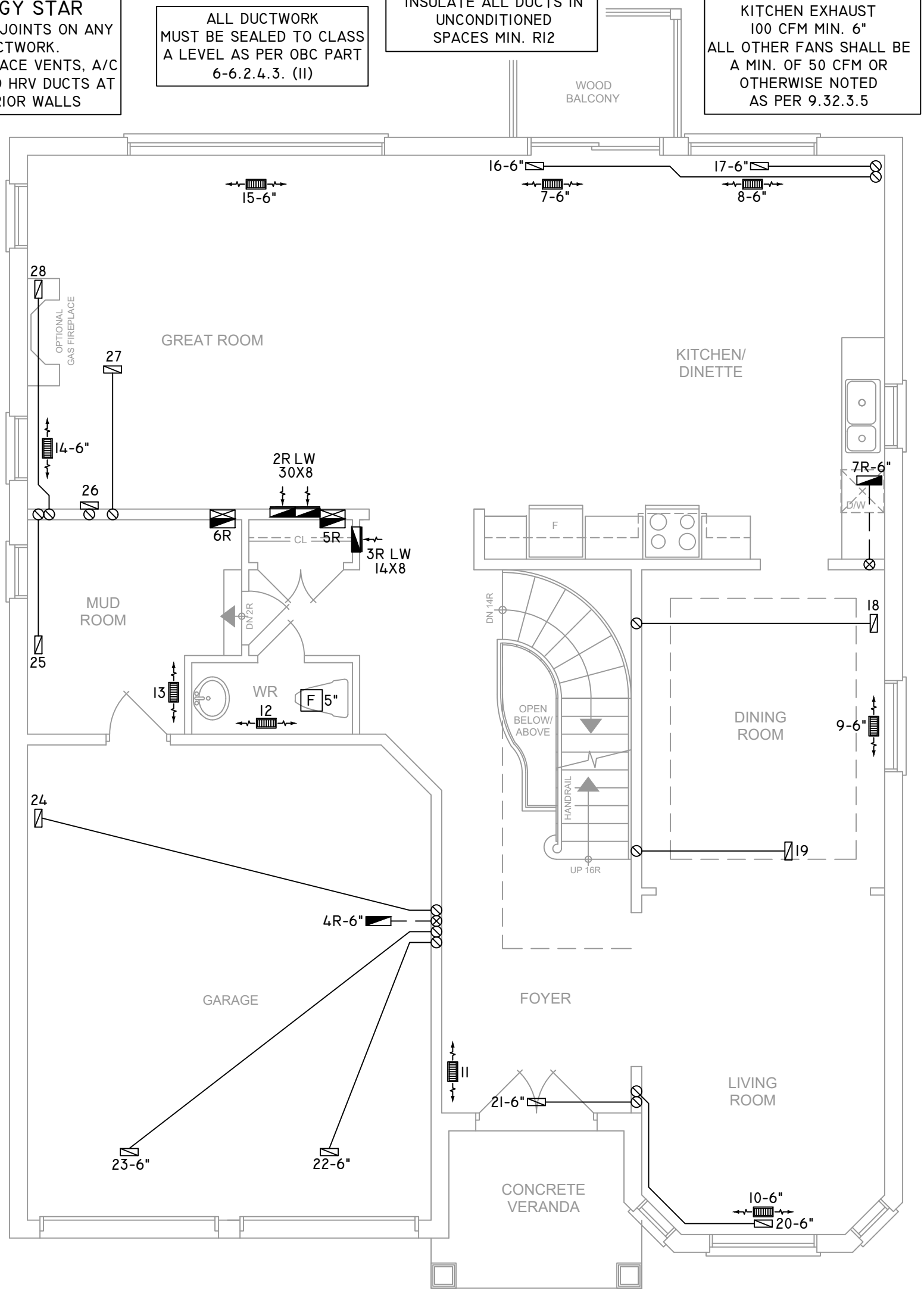
ENERGY STAR

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

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

INSULATE ALL DUCTS IN UNCONDITIONED SPACES MIN. RI2

KITCHEN EXHAUST I00 CFM MIN. 6"
ALL OTHER FANS SHALL BE A MIN. OF 50 CFM OR OTHERWISE NOTED AS PER 9.32.3.5



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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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WEB: WWW.GTADESIGNS.CA

HEAT-LOSS	64,088 BTU/HR.
UNIT MAKE	CARRIER OR EQUAL.
UNIT MODEL	59SC5B080EI7--I6 OR EQUAL.
UNIT HEATING INPUT	80,000 BTU/HR.
UNIT HEATING OUTPUT	78,000 BTU/HR.
A/C COOLING CAPACITY	3.5 TONS.
FAN SPEED	I310 CFM

# OF RUNS	S/A	R/A	FANS
3RD FLOOR			
2ND FLOOR	I3	4	4
IST FLOOR	9	2	2
BASEMENT	6	I	

FLOOR PLAN: GROUND FLOOR		
DRAWN BY: JL	CHECKED: DD	SQFT 3632
LAYOUT NO. JB-09125		DRAWING NO. M2

DATE: SEPTEMBER I9, 2023
CLIENT: EM AIR SYSTEMS
MODEL: MODEL 3625 - LOT 36
PROJECT: KING EAST DEVELOPMENTS RICHMOND HILL,ONT.
SCALE: 3/16" = I'-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) RETURN AIR RISER UP TO FLOOR ABOVE RETURN AIR FROM BASEMENT SECOND FLOOR	S.A. R.A. T $ F PE	SUPPLY AIR RETURN AIR THERMOSTAT PRINCIPAL EXHAUST FAN SWITCH W/R & PRINCIPAL EXHAUST FAN		

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INSULATE ALL DUCTS IN UNCONDITIONED SPACES MIN. RI2

ENERGY STAR

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

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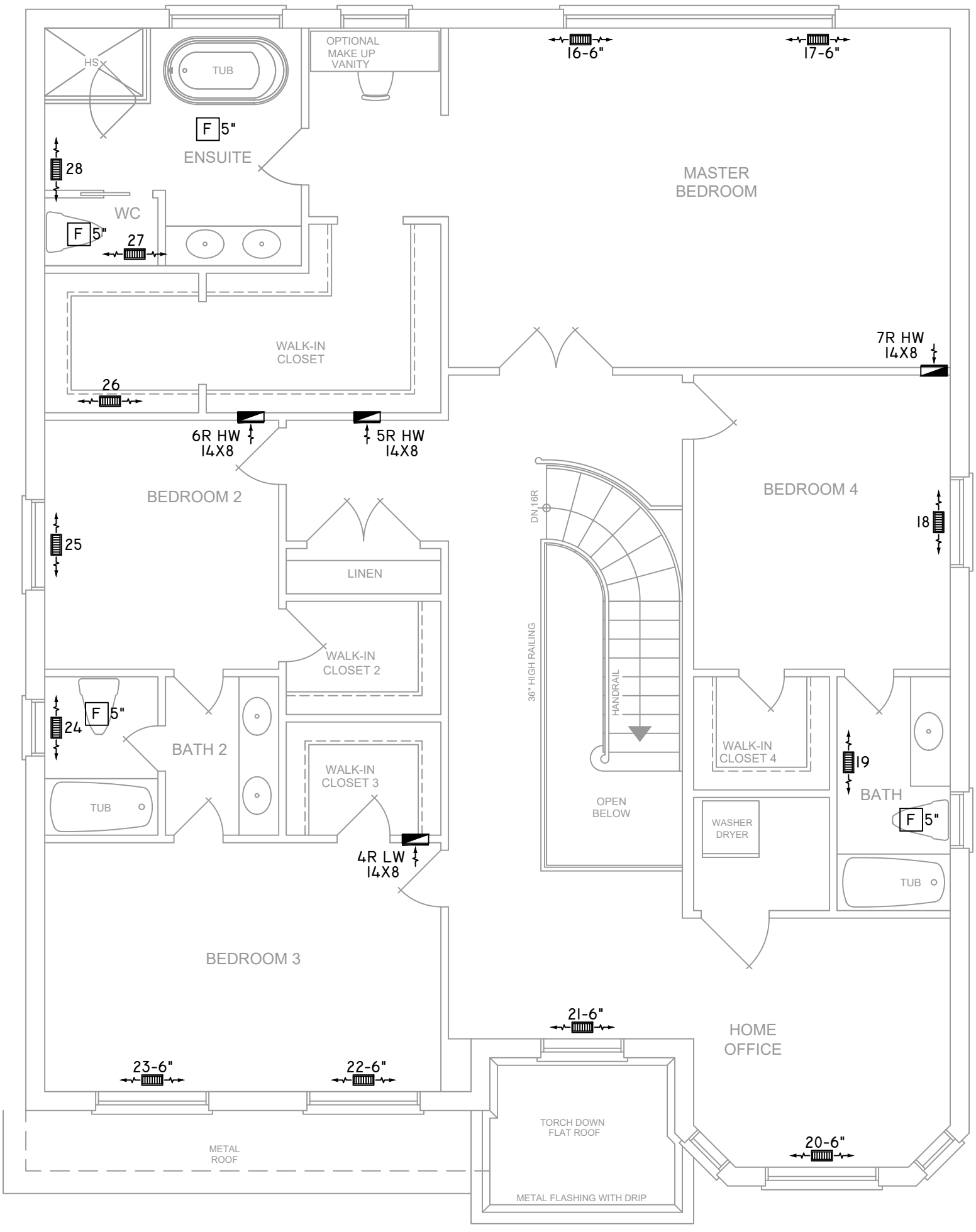

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DAVID DA COSTA B.C.I.N. 32964

SIGNATURE OF DESIGNER

OBC 2012

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

NOTES

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A/C COOLING CAPACITY	3.5 TONS.
FAN SPEED	1310 CFM

# OF RUNS	S/A	R/A	FANS
3RD FLOOR			
2ND FLOOR	13	4	4
IST FLOOR	9	2	2
BASEMENT	6	I	

FLOOR PLAN: SECOND FLOOR		
DRAWN BY: JL	CHECKED: DD	SQFT 3632
LAYOUT NO. JB-09125	DRAWING NO. M3	

DATE: SEPTEMBER 19, 2023
CLIENT: EM AIR SYSTEMS
MODEL: MODEL 3625 - LOT 36
PROJECT: KING EAST DEVELOPMENTS RICHMOND HILL,ONT.
SCALE: 3/16" = I'-0"