

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 87-4 LOB BLK 39			Lot: Lot/con.
Municipality Brampton	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 dave@gtadesigns.ca
Telephone number (905) 671-9800		Fax number (647) 494-9643	Cell number (416) 268-6820
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-00067
		Layout #:	JB-02494
Heating and Cooling Load Calculations		Builder	Highcastle Homes
Air System Design		Project	Riverwalk Phase 2
Residential mechanical ventilation Design Summary		Model	87-4 LOB BLK 39
Residential System Design per CAN/CSA-F280-12		SB-12	Package J
Residential New Construction - Forced Air			
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>August 17, 2016</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 Highcastle Homes				Layout No.	
and may not be used by any other persons without authorization. Documents for permit and/or construction are signed in red.				JB-02494	
Building Location					
Address (Model): 87-4 LOB BLK 39			Site: Riverwalk Phase 2		
Model:			Lot:		
City and Province: Brampton			Postal code:		
Calculations based on					
Dimensional information based on: Highcastle Homes					
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: Brampton			Wind exposure: Sheltered		
HRV? VanEE		60H	Internal shading: Light-translucent		Occupants: 6
Sensible Eff. at -25C 55%		Apparent Effect. at -0C 68%	Units: Imperial		Area Sq ft: 4289
Sensible Eff. at -0C 65%					
Heating design conditions			Cooling design conditions		
Outdoor temp -2.2 Indoor temp: 72 Mean soil temp 48			Outdoor temp 86 Indoor temp: 75 Latitude: 44		
Above grade walls			Below grade walls		
Style A: As per Selected OBC SB12 Package J R 22			Style A: As per Selected OBC SB12 Package J R 12		
Style B: Existing Walls (When Applicable) R 12			Style B:		
Style C:			Style C:		
Style D:			Style D:		
Floors on soil			Ceilings		
Style A: As per Selected OBC SB12 Package J			Style A: As per Selected OBC SB12 Package J R 50		
Style B:			Style B: As per Selected OBC SB12 Package J R 31		
Exposed floors			Style C:		
Style A: As per Selected OBC SB12 Package J R 31			Doors		
Style B:			Style A: As per Selected OBC SB12 Package J R 3.01		
Windows			Style B:		
Style A: As per Selected OBC SB12 Package J R 3.15			Style C:		
Style B: Existing Windows (When Applicable) R 1.99			Skylights		
Style C:			Style A: As per Selected OBC SB12 Package J R 2.03		
Style D:			Style B:		
Attached documents: As per Shedule 1					
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: (416) 268-6820		
City: Mississauga			E-mail dave@gtadesigns.ca		

SB-12 Package J

Builder: **Highcastle Homes**

Date: **August 17, 2016**

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: **Riverwalk Phase 2**

Model: **87-4 LOB BLK 39**

System 1

Individual BCIN: 32964

David DaCosta

Project # **PJ-00067**
Layout # **JB-02494**

DESIGN LOAD SPECIFICATIONS		AIR DISTRIBUTION & PRESSURE		FURNACE/AIR HANDLER DATA:		BOILER/WATER HEATER DATA:		A/C UNIT DATA:	
Level 1 Net Load	25,362 btu/h	Equipment External Static Pressure	0.5 "w.c.	Make	Amana	Make	Type	Amana	4.0 Ton
Level 2 Net Load	26,942 btu/h	Additional Equipment Pressure Drop	0.225 "w.c.	Model	GMEC96-1004CNA	Model		Cond.-----	4.0
Level 3 Net Load	25,932 btu/h	Available Design Pressure	0.275 "w.c.	Input Btu/h	100000	Input Btu/h		Coil -----	4.0
Level 4 Net Load	2,129 btu/h	Return Branch Longest Effective Length	300 ft	Output Btu/h	96000	Output Btu/h			
Total Heat Loss	80,365 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	44,173 btu/h	S/A Plenum Pressure	0.14 "w.c.	Water Temp	deg. F.	Blower DATA:			
Combo System HL + 10%	88,401 Btu/h	Heating Air Flow Proportioning Factor	0.0206 cfm/btuh	AFUE	96%	Blower Speed Selected:	W2	Blower Type	ECM
Building Volume Vb	50620 ft³	Cooling Air Flow Proportioning Factor	0.0374 cfm/btuh	Aux. Heat				(Brushless DC OBC 12.3.1.5.(2))	
Ventilation Load	3,580 Btu/h.	R/A Temp	70 deg. F.	SB-12 Package	Package J	Heating Check	1653 cfm	Cooling Check	1653 cfm
Ventilation PVC	95.4 cfm	S/A Temp	124 deg. F.						
Supply Branch and Grill Sizing		Diffuser loss	0.01 "w.c.	Temp. Rise>>>	54 deg. F.	Selected cfm>	1653 cfm	Cooling Air Flow Rate	1653 cfm

	Level 1														Level 2													
S/A Outlet No.	1	2	3	4	5	6									7	8	9	10	11	12	13	14	15	16	33			
Room Use	BASE	BASE	BASE	BASE	BASE	LAND									KIT/FAM	KIT/FAM	KIT/FAM	DIN	DIN	FOY	LIV	LIV	MUD	DEN	KIT/FAM			
Btu/Outlet	5045	5045	5045	5045	5045	140									2559	2559	2559	3113	3113	2846	1713	1713	1267	2939	2559			
Heating Airflow Rate CFM	104	104	104	104	104	3									53	53	53	64	64	59	35	35	26	60	53			
Cooling Airflow Rate CFM	32	32	32	32	32	0									88	88	88	92	92	68	82	82	7	67	88			
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	26	23	21	50	20	17									28	22	31	27	35	33	41	50	30	35	12			
Equivalent Length	100	100	70	70	90	80	70	70	70	70	70	70	70	70	90	100	75	80	140	70	85	140	80	90	100	70	70	70
Total Effective Length	126	123	91	120	110	97	70	70	70	70	70	70	70	70	118	122	106	107	175	103	126	190	110	125	112	70	70	70
Adjusted Pressure	0.10	0.11	0.14	0.11	0.12	0.13	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.11	0.11	0.12	0.12	0.07	0.13	0.10	0.07	0.12	0.10	0.12	0.19	0.19	0.19
Duct Size Round	6	6	6	6	6	2									6	6	6	6	6	5	6	6	4	5	6			
Outlet Size	4x10	4x10	4x10	4x10	4x10	3x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	3x10	4x10	4x10	3x10	3x10	4x10	4x10	4x10	4x10
Trunk	C	A	E	B	E	A									A	E	F	E	A	A	B	C	C	C	F			

	Level 3														Level 3													
S/A Outlet No.	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32												
Room Use	MAST	MAST	ENS 2	BED 2	BED 2	BED 3	BED 3	ENS 3	BED 4	BED 5	BED 5	ENS 4	LAUN	WIC	WC	ENS 1												
Btu/Outlet	2262	2262	815	1654	1654	1484	1484	205	2773	3237	3237	1607	1909	1350	146	1982												
Heating Airflow Rate CFM	47	47	17	34	34	31	31	4	57	67	67	33	39	28	3	41												
Cooling Airflow Rate CFM	62	62	12	53	53	50	50	4	67	60	60	24	38	14	1	40												
Duct Design Pressure	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	
Actual Duct Length	45	48	30	46	47	51	61	44	56	67	77	69	51	55	39	45												
Equivalent Length	185	105	115	130	150	125	150	130	110	130	160	160	130	160	110	160	70	70	70	70	70	70	70	70	70	70	70	
Total Effective Length	230	153	145	176	197	176	211	174	166	197	237	229	181	215	149	205	70	70	70	70	70	70	70	70	70	70	70	
Adjusted Pressure	0.06	0.08	0.09	0.07	0.07	0.07	0.06	0.07	0.08	0.07	0.05	0.06	0.07	0.06	0.09	0.06	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	6	6	3	5	5	5	5	2	6	6	6	5	5	4	2	5												
Outlet Size	4x10	4x10	3x10	3x10	3x10	3x10	3x10	4x10	4x10	4x10	4x10	3x10	3x10	3x10	3x10	3x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	
Trunk	A	F	F	F	A	B	C	B	D	D	D	D	D	D	B	B												

Return Branch And Grill Sizing												Return Trunk Duct Sizing					Supply Trunk Duct Sizing				
Grill Pressure Loss												CFM					CFM				
R/A Inlet No.	1R	2R	3R	4R	5R	6R	7R	8R	9R	10R	11R	Trunk	CFM	Press.	Round	Rect. Size	Trunk	CFM	Press.	Round	Rect. Size
Inlet Air Volume CFM	244	496	245	154	154	103	103	154				Drop	1653	0.04	20.5	24x16	A	1126	0.05	17.0	26x10 22x12
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	Z	1408	0.04	19.0	34x10 26x12	B	764	0.05	14.5	24x8 18x10
Actual Duct Length	9	14	22	33	21	55	56	44				Y	514	0.04	13.0	18x8 14x10	C	546	0.05	13.0	18x8 14x10
Equivalent Length	190	165	90	155	165	250	255	195	50	50	50	X					D	290	0.05	10.0	12x8 10x10
Total Effective Length	199	179	112	188	186	305	311	239	50	50	50	W					E	527	0.07	12.0	16x8 12x10
Adjusted Pressure	0.06	0.07	0.10	0.06	0.06	0.04	0.04	0.05	0.24	0.24	0.24	V					F	203	0.07	8.5	8x8 107
Duct Size Round	8.0	11.5	8.5	8.0	8.0	6.0	6.0	8.0				U					G				
Inlet Size	FLC	8	8	8	8	8	8	8				T					H				
" "	x	x	x	x	x	x	x	x	x	x	x	S					I				
Inlet Size	9X6	30	14	14	14	14	14	14				R					J				
Trunk	Z	Z	Y	Z	Y	Y	Y	Y				Q					K				

2012 OBC

Builder: Highcastle Homes

Date: August 17, 2016

Project: Riverwalk Phase 2

Model: 87-4 LOB BLK 39

System 1

Weather Data Brampton 44 -2.2 86 20 48.2

Heat Loss ^T 74.2 deg. F Ht gain ^T 11 deg. F GTA: 4289

Project # PJ-00067
Layout # JB-02494

Level 1

	BASE	LAND	A	A	A	A	A	A	A	A	A	A	A
Run ft. exposed wall A	169 A	1 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	5.0 AG	5.0 AG	5.0 AG	5.0 AG	5.0 AG	5.0 AG	5.0 AG	5.0 AG	5.0 AG	5.0 AG	5.0 AG	5.0 AG	5.0 AG
Floor area	1409 Area	171 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	845	5											
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	3.15	23.56	11.31														
East/West	3.15	23.56	27.75	6	141	166											
South	3.15	23.56	21.28	10	236	213											
WOB Windows	3.15	23.56	28.32														
Skylight	2.03	36.55	88.23														
Doors	3.01	24.65	3.65	21	518	77											
Net exposed walls A	8.50	8.73	1.29	808		1046	5		6								
Net exposed walls B	14.49	5.12	0.76														
Exposed Ceilings A	50.00	1.48	0.76														
Exposed Ceilings B	22.86	3.25	1.66														
Exposed Floors	22.05	3.37	0.23														
Foundation Conductive Heatloss	On Grade () or Above																
Total Conductive	Heat Loss																
	Heat Gain																
Air Leakage	Heat Loss/Gain	0.7937	0.0402														
Ventilation	Case 1	0.09	0.05														
	Case 2	25.64	11.88														
	Case 3	x	0.04	0.05													
Heat Gain People			239														
Appliances Loads	1 = 25 percent		6701	1.0		1675											
Duct and Pipe loss			10%														
Level 1 HL Total	25,362	Total HL for per room															
Level 1 HG Total	4,312	Total HG per room x 1.3															

Level 2

	KIT/FAM	DIN	FOY	LIV	MUD	DEN	A	A	A	A	A	A	A
Run ft. exposed wall A	71 A	63 A	9 A	28 A	9 A	25 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	11.0	11.0	20.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0
Floor area	817 Area	201 Area	59 Area	210 Area	131 Area	150 Area	Area	Area	Area	Area	Area	Area	Area
Exposed Ceilings A	A	A	59 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	781	693	180	308	99	275							
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	3.15	23.56	11.31														
East/West	3.15	23.56	27.75	110	2591	3052	52	1225	1443	39	919	1082	49	1154	1360		
South	3.15	23.56	21.28	75	1767	1596											
Existing Windows	1.99	37.29	22.15														
Skylight	2.03	36.55	88.23														
Doors	3.01	24.65	3.65														
Net exposed walls A	14.49	5.12	0.76	596	3052	452	641	3282	487	124	635	94	259	1326	197	78	399
Net exposed walls B	8.50	8.73	1.29														
Exposed Ceilings A	50.00	1.48	0.76														
Exposed Ceilings B	22.86	3.25	1.66														
Exposed Floors	22.05	3.37	0.23														
Foundation Conductive Heatloss	On Grade () or Above																
Total Conductive	Heat Loss																
	Heat Gain																
Air Leakage	Heat Loss/Gain	0.3369	0.0402														
Ventilation	Case 1	0.04	0.05														
	Case 2	25.64	11.88														
	Case 3	x	0.04	0.05													
Heat Gain People			239														
Appliances Loads	1 = 25 percent		6701	1.0		1675	1.0		1675				1.0		1675		
Duct and Pipe loss			10%														
Level 2 HL Total	26,942	Total HL for per room															
Level 2 HG Total	22,481	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

Dave DaCosta

Dave DaCosta

SB-12 Package

Package J

Total Heat Loss	80,365	btu/h
Total Heat Gain	44,173	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: Package J
Project: Brampton
Model: 87-4 LOB BLK 39

RESIDENTIAL MECHANICAL VENTILATION DESIGN SUMMARY

For systems serving one dwelling unit & conforming to the Ontario Building Code, O.egc 159/93

Location of Installation

Lot #	Plan #
Township	
Brampton	
Roll #	Permit #
Address	

Total Ventilation Capacity 9.32.3.3(1)

Bsmt & Master Bdrm	2 @ 21.2 cfm	42.4 cfm
Other Bedrooms	4 @ 10.6 cfm	42.4 cfm
Bathrooms & Kitchen	6 @ 10.6 cfm	63.6 cfm
Other rooms	6 @ 10.6 cfm	63.6 cfm
Total		<u>212</u>

Builder

Name	
Highcastle Homes	
Address	
City	
Tel	Fax

Principal Ventilation Capacity 9.32.3.4(1)

Master bedroom	1 @ 31.8 cfm	31.8 cfm
Other bedrooms	4 @ 15.9 cfm	63.6 cfm
Total		<u>95.4</u>

Principal Exhaust Fan Capacity

Make	Model	Location
VanEE	60H	Base
107 cfm		Sones

Heat Recovery Ventilator

Make	VanEE
Model	60H
107 cfm high	53 cfm low
Sensible efficiency @ -25 deg C	55%
Sensible efficiency @ 0 deg C	65%

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 |

Supplemental Ventilation Capacity

Total ventilation capacity	212.0
Less principal exhaust capacity	95.4
REQUIRED supplemental vent. Capacity	<u>116.6</u> cfm

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 |

Supplemental Fans 9.32.3.5.

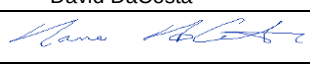
Location	cfm	Model	Sones
ENS 1	50	AER50C	0.5
ENS 2	50	AER50C	0.5
ENS 3	50	AER50C	0.5

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 August 17, 2016

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 |

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

Page 7
Project # PJ-00067
Layout # JB-02494

This form is used by a designer to demonstrate that the energy efficiency design of a house complies with the building code

For use by Principal Authority

Application No:	Model/Certification Number
-----------------	----------------------------

A. Project Information

Building number, street name	Unit number	Lot/Con
87-4 LOB BLK 39		
Municipality	Postal code	Reg. Plan number / other description
Brampton		

B. Compliance Option

☒ SB-12 Prescriptive [SB-12 - 2.1.1.]	A B C D E F G H I J K L M or 2.1.1.10 (Additions)	Package J
prescriptive trade-offs used (Specify 2.1.1.2. or 2.1.1.3.sentences being employed):		
☐ SB-12 Performance* [SB-12 - 2.1.2.]	* Attach energy performance calculations using an approved software	
☐ Energy Star®* [SB-12 - 2.1.3.]	* Attach Builder Option Package [BOP] form	
☐ EnerGuide 80® *	* House must be evaluated by NRCAN advisor and meet a rating of 80	

C. Project Design Conditions

Climatic Zone (SB-1):	Heating Equipment	Space Heating Fuel Source
☒ Zone 1 (< 5000 degree days)	☒ ≥ 90% AFUE	☒ Gas ☐ Propane ☐ Solid Fuel
☐ Zone 2 (≥ 5000 degree days)	☐ ≥ 78% < 90% AFUE	☐ Oil ☐ Electric ☐ Earth Energy

Windows+Skylights+Glass Doors	Other Building Conditions
Area of Walls = 498 m ²	☐ ICF Basement ☐ Walkout Basement ☐ Log/Post&Beam
Area of W,S&G = 62 m ²	☐ ICF Above Grade ☐ Slab-on-ground
W,S & G % = 12%	

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

Building Component	RSI / R values	Building Component	Efficiency Ratings
Thermal Insulation		Windows & Doors¹	
Ceiling with Attic Space	50	Windows/Sliding Glass Doors	1.8
Ceiling without Attic Space	31	Skylights	2.8
Exposed Floor	31	Mechanicals	
Walls Above Grade	22	Heating Equip.(AFUE or condensing type)	94%
Basement Walls	12	HRV Efficiency (SRE% at 0° C)	60%
Slab (all >600mm below grade)	x	DHW Heater (EF)	0.67
Slab (edge only ≤600mm below grade)	10	DWHR (CSA B55.1 Efficiency)	
Slab (all ≤600mm below grade, or heated)	10		

E. Performance Design Verification [complete applicable sections if SB-12 Performance, Energy Star or EnerGuide80 options used]

SB-12 Performance:
The annual energy consumption using Subsection 2.1.1. SB-12 Package _____ is _____ Gj (1 Gj =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 leakage of _____ air changes per hour @50Pa.

Energy Star: Submit the BOP form with Energy Advisor's certification on completion.

Energy Star and EnerGuide80:
Evaluator/Advisor/Rater Name: _____ Evaluator/Advisor/Rater Licence #: _____

F. House Designer [name & BCIN, if applicable, of person providing information herein to substantiate that design meets building code]

Name	BCIN	Signature
David DaCosta	32964	

Package: Project: Package J Brampton System: Model: System 1 87-4 LOB BLK 39

Air Leakage Calculations

Building Air Leakage Heat Loss				
B	LRairh	Vb	HL^T	HLleak
0.018	0.324	50620	74.2	21901

Building Air Leakage Heat Gain				
B	LRairh	Vb	HG^T	HG Leak
0.018	0.094	50620	11	939

Air Leakage Heat Loss/Gain Multiplier Table (Section 11)				
Level	Level Factor (LF)	Building Air	Level Conductive Heat Loss	Air Leakage Heat Loss Multiplier
Level 1	0.5	21901	13797	0.7937
Level 2	0.3		19502	0.3369
Level 3	0.2		21596	0.2028
Level 3	0.2		21596	0.2028

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	
	939		0.0402
BUILDING CONDUCTIVE HEAT GAIN		23337	

Levels this Dwelling	
3	

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	95.4	74.2	0.32	2446	1.1	95.4	11	1133	

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	1133	0.05			
	Level 1	0.5	2446	13797	0.09	Building	23337				
	Level 2	0.3		19502	0.04						
	Level 3	0.2		21596	0.02						
	Level 3	0.2		21596	0.02						

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	25.64	C	HG^T	11.88		
	1.08	74.2	0.32		1.08	11			

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	2446	0.04	HGbvent	HG*1.3	1133		0.05
				1133	1			

Foundation Conductive Heatloss Level 1		3781	Watts	12902	Btu/h
Foundation Conductive Heatloss Level 2			Watts		Btu/h

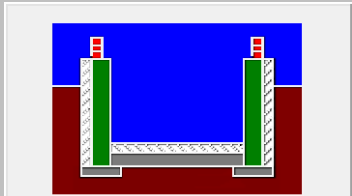
Envelope Air Leakage Calculator

Supplemental tool for CAN/CSA-F280

Weather Station Description				
Province:	Ontario ▼			
Region:	Brampton ▼			
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:	Detached			
Number of Stories:	Two			
Foundation:	Shallow			
House Volume (m ³):	1433.56			
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:	
	47.7		47.7	
Flue #:	#1	#2	#3	#4
Diameter (mm):	0	0	0	0
Heating Air Leakage Rate (ACH/H):		0.324		
Cooling Air Leakage Rate (ACH/H):		0.094		

Residential Foundation Thermal Load Calculator

Supplemental tool for CAN/CSA-F280

Weather Station Description		
Province:	Ontario	▼
Region:	Brampton	▼
Site Description		
Soil Conductivity:	High conductivity: moist soil	▼
Water Table:	Normal (7-10 m, 23-33 Ft)	▼
Foundation Dimensions		
Floor Length (m):	17.54	 Insulation Configuration
Floor Width (m):	8.37	
Exposed Perimeter (m):	51.82	
Wall Height (m):	2.74	
Depth Below Grade (m):	1.22	
Window Area (m ²):	1.49	
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):		3781

SUPPLY AIR
RETURN AIR
THERMOSTAT
PRINCIPAL EXHAUST FAN SWITCH
WIR & PRINCIPAL EXHAUST FAN

S.A.
R.A.
Ⓢ
Ⓡ
Ⓢ
Ⓡ

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

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

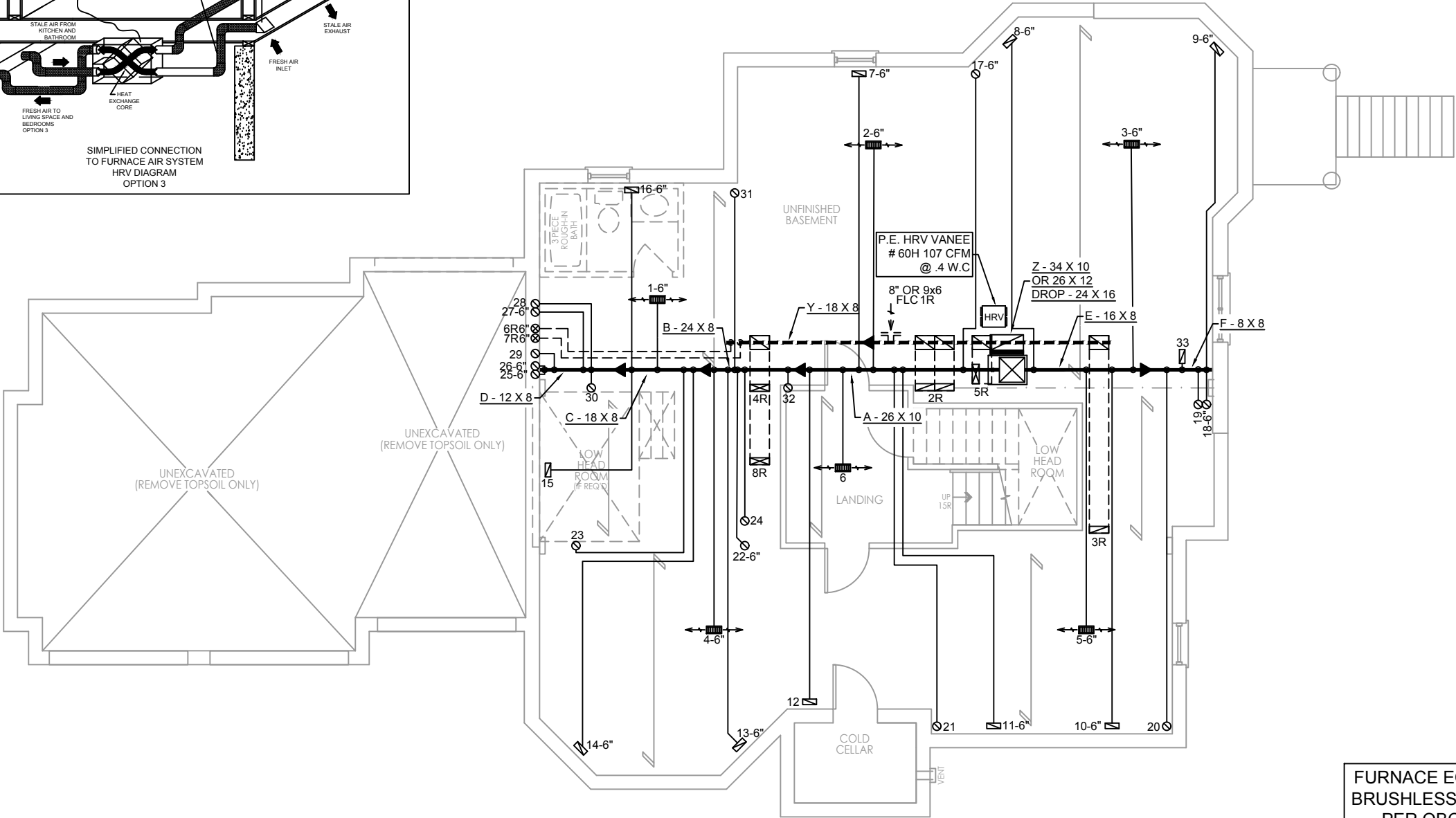
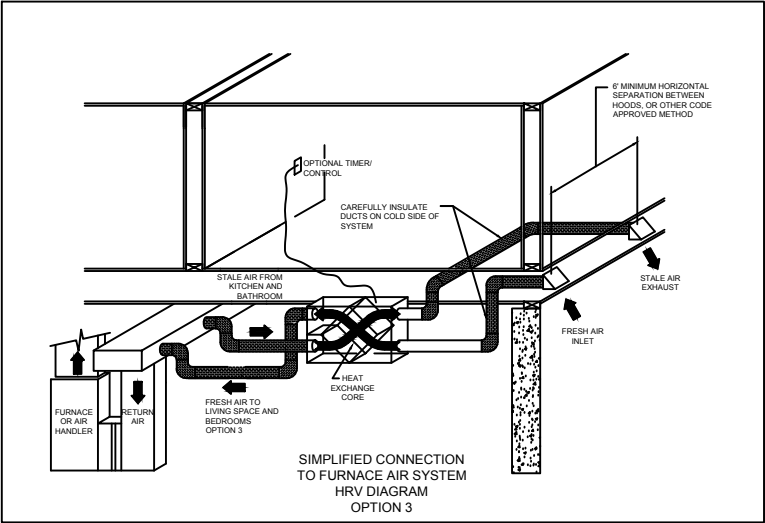
LOW/HIGH WALL/KICK
HRV EXHAUST GRILL
SUPPLY AIR PIPE RISER
VOLUME DAMPER

Ⓢ
Ⓡ
Ⓢ
Ⓡ

FLEX DUCT
RIDIT ROUND DUCT
SUPPLY DIFFUSER

Ⓢ
Ⓡ
Ⓢ
Ⓡ

Ⓢ
Ⓡ
Ⓢ
Ⓡ



FURNACE EQUIPPED WITH
BRUSHLESS DC MOTOR AS
PER OBC 12.3.1.5 (2)

INSULATE ALL DUCTS IN
UNCONDITIONED
SPACES MIN. R12

ALL DUCTWORK
MUST BE SEALED TO
CLASS A LEVEL AS PER
OBC PART 6-6.2.4.3. (11)

OBC 2012

ZONE 1 COMPLIANCE
PACKAGE "J" REF. TABLE 2.1.1.2.A

NOTES
INSTALLATION TO COMPLY WITH
THE LATEST ONTARIO BUILDING
CODE.
ALL SUPPLY OUTLETS TO BE 5"
DIA. UNLESS OTHERWISE
SPECIFIED.
ALL R/A PARTITIONS 6" (FIRST
FLOOR ONLY)
INSULATE DUCTS IN
UNCONDITIONED SPACES R12
UNDERCUT ALL DOORS 1" MIN.
HEATING CONTRACTOR MUST
WORK FROM APPROVED PLANS.
ANY ALTERATIONS TO THIS
ORIGINAL PLAN ARE NOT THE
RESPONSABILITY OF GTA
DESIGNS.
GTA DESIGNS MUST BE
CONSULTED IF KITCHEN
EXHAUST EXCEEDS 700 CFM
DEPRESSURIZATION MAY OCCUR
WITHIN THE DWELLING

gtaDesigns

2985 DREW ROAD
SUITE 202,
MISSISSAUGA, ONT.
L4T 0A4 TEL: 416-268-6820
e-mail: dave@gtadesigns.ca
web: www.gtadesigns.ca

HEAT-LOSS	BTU/HR.		
80,365			
UNIT MAKE	AMANA		
UNIT MODEL	GMEC96-1004CNA		
UNIT HEATING INPUT	BTU/HR.		
100,000			
UNIT HEATING OUTPUT	BTU/HR.		
96,000			
A/C COOLING CAPACITY	TONS.		
4.0			
FAN SPEED	CFM		
1653			
# OF RUNS	S/A	R/A	FANS
3RD FLOOR			
2ND FLOOR	16	5	5
1ST FLOOR	11	2	2
BASEMENT	6	1	

DATE:	AUGUST 17, 2016	
CLIENT:	HIGHCASTLE HOMES	
MODEL:	87-4 LOB BLK 39	
PROJECT:	RIVERWALK PHASE 2 BRAMPTON,ONT.	
SCALE:	1/8" = 1'-0"	
FLOOR PLAN:	BASEMENT	
DRAWN BY:	CHECKED:	SQFT
JL	DD	4289
LAYOUT NO.	DRAWING NO.	
JB-02494	M1	

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

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

S.A.
R.A.
T
F

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

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

LOWHIGH WALL/KICK
HRY EXHAUST GRILL
SUPPLY AIR PIPE RISER
VOLUME DAMPER

LOWHIGH WALL/KICK
HRY EXHAUST GRILL
SUPPLY AIR PIPE RISER
VOLUME DAMPER

FLEX DUCT
RIDIT ROUND DUCT
SUPPLY DIFFUSER

Wavy line symbol

Arrow symbol

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

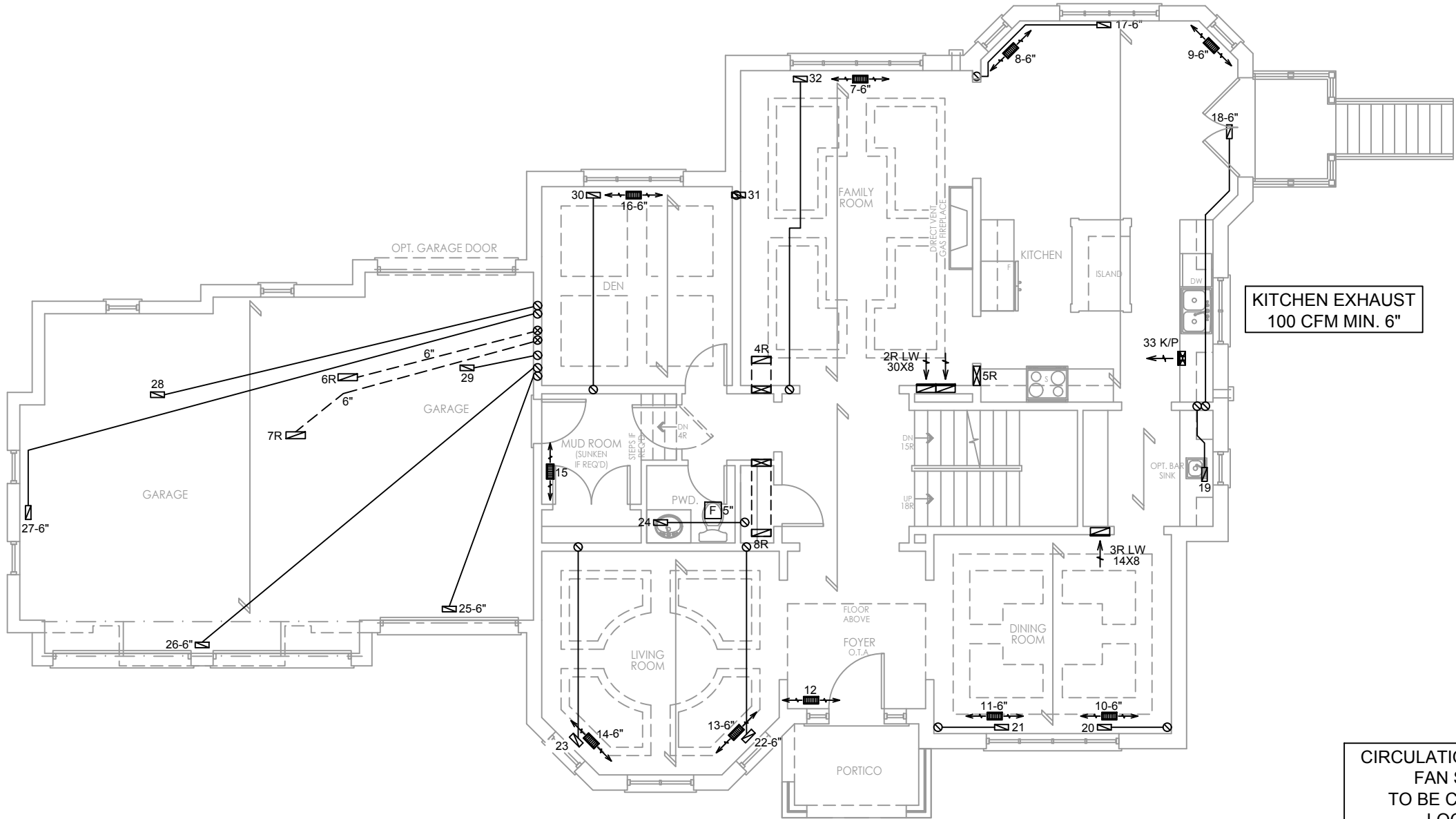
QUALIFICATION INFORMATION

Required unless design is exempt under Division C 3.2.5.1 of the Ontario building code

David Da Costa

Signature of Designer

B.C.I.N. 32964



CIRCULATION PRINCIPAL
FAN SWITCH
TO BE CENTRALLY
LOCATED

INSULATE ALL DUCTS IN
UNCONDITIONED
SPACES MIN. R12

ALL DUCTWORK
MUST BE SEALED TO
CLASS A LEVEL AS PER
OBC PART 6-6.2.4.3. (11)

OBC 2012

ZONE 1 COMPLIANCE
PACKAGE "J" REF. TABLE 2.1.1.2.A

NOTES
INSTALLATION TO COMPLY WITH THE LATEST ONTARIO BUILDING CODE.
ALL SUPPLY OUTLETS TO BE 5" DIA. UNLESS OTHERWISE SPECIFIED.
ALL R/A PARTITIONS 6" (FIRST FLOOR ONLY)
INSULATE DUCTS IN UNCONDITIONED SPACES R12 UNDERCUT ALL DOORS 1" MIN.
HEATING CONTRACTOR MUST WORK FROM APPROVED PLANS. ANY ALTERATIONS TO THIS ORIGINAL PLAN ARE NOT THE RESPONSABILITY OF GTA DESIGNS.
GTA DESIGNS MUST BE CONSULTED IF KITCHEN EXHAUST EXCEEDS 700 CFM DEPRESSURIZATION MAY OCCUR WITHIN THE DWELLING

gtaDesigns

2985 DREW ROAD
SUITE 202,
MISSISSAUGA, ONT.
L4T 0A4 TEL: 416-268-6820
e-mail: dave@gtadesigns.ca
web: www.gtadesigns.ca

HEAT-LOSS	80,365			BTU/HR.
UNIT MAKE	AMANA			
UNIT MODEL	GMEC96-1004CNA			
UNIT HEATING INPUT	100,000			BTU/HR.
UNIT HEATING OUTPUT	96,000			BTU/HR.
A/C COOLING CAPACITY	4.0			TONS.
FAN SPEED	1653			CFM
# OF RUNS	S/A	R/A	FANS	
3RD FLOOR				
2ND FLOOR	16	5	5	
1ST FLOOR	11	2	2	
BASEMENT	6	1		

DATE:		AUGUST 17, 2016	
CLIENT:		HIGHCASTLE HOMES	
MODEL:		87-4 LOB BLK 39	
PROJECT:		RIVERWALK PHASE 2 BRAMPTON,ONT.	
SCALE:		1/8" = 1'-0"	
FLOOR PLAN:		GROUND FLOOR	
DRAWN BY:	CHECKED:	SQFT	
JL	DD	4289	
LAYOUT NO.		DRAWING NO.	
JB-02494		M2	

