

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		65-2 Lot 32	Lot: 32
Municipality		Postal code	Plan number/ other description
Brampton			
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	dave@gtadesigns.ca
Telephone number	Fax number	Cell number	
(905) 671-9800	(647) 494-9643	(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	
Heating and Cooling Load Calculations Air System Design Residential mechanical ventilation Design Summary Residential System Design per CAN/CSA-F280-12 Residential New Construction - Forced Air		Project #:	PJ-00067
		Layout #:	JB-02079
		Builder	Highcastle Homes
		Project	Riverwalk Phase 2
		Model	65-2 Lot 32
		SB-12	Package J
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>May 4, 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-02079	
Building Location					
Address (Model): Lot 32			Site: Riverwalk Phase 2		
Model: 65-2			Lot: 32		
City and Province: Brampton			Postal code:		
Calculations based on					
Dimensional information based on:					
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		40H+	Internal shading: Light-translucent		Occupants: 6
Sensible Eff. at -25C 55%		Apparent Effect. at -0C 72%	Units: Imperial		Area Sq ft: 4200
Sensible Eff. at -0C 66%					
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 3.55			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		

Builder: **Highcastle Homes**

Date: **May 4, 2016**

Project: **Riverwalk Phase 2**

Model: **65-2 Lot 32**

System 1

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

Page 3
Project # PJ-00067
Layout # JB-02079

DESIGN LOAD SPECIFICATIONS		AIR DISTRIBUTION & PRESSURE		FURNACE/AIR HANDLER DATA:		BOILER/WATER HEATER DATA:		A/C UNIT DATA:	
Level 1 Net Load	27,978 btu/h	Equipment External Static Pressure	0.5 "w.c.	Make	Amana	Make	Type	Amana	4.0 Ton
Level 2 Net Load	28,655 btu/h	Additional Equipment Pressure Drop	0.225 "w.c.	Model	GMEC96-1004CNA	Model		Cond.-----	4.0
Level 3 Net Load	21,277 btu/h	Available Design Pressure	0.275 "w.c.	Input Btu/h	100000	Input Btu/h		Coil -----	4.0
Level 4 Net Load	3,339 btu/h	Return Branch Longest Effective Length	300 ft	Output Btu/h	96000	Output Btu/h			
Total Heat Loss	81,249 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	47,616 btu/h	S/A Plenum Pressure	0.14 "w.c.	Water Temp	deg. F.	Blower DATA:			
Combo System HL + 10%	89,374 Btu/h	Heating Air Flow Proportioning Factor	0.0203 cfm/btuh	AFUE	96%	Blower Speed Selected:	W2	Blower Type	ECM
Building Volume Vb	48622 ft³	Cooling Air Flow Proportioning Factor	0.0347 cfm/btuh	Aux. Heat				(Brushless DC OBC 12.3.1.5.(2))	
Ventilation Load	3,274 Btu/h.	R/A Temp	70 deg. F.	SB-12 Package	Package J	Heating Check	1653 cfm	Cooling Check	1642 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.	24	25	26	27	28	29									13	14	15	16	17	18	19	20	21	22	23
Room Use	BASE	BASE	BASE	BASE	BASE	BASE									LAUND	KIT	KIT	FAM	FAM	DIN	FOY	LIV	LIV	DEN	PWD
Btu/Outlet	4663	4663	4663	4663	4663	4663									4199	2888	2888	2682	2682	3097	1627	2279	2279	3170	865
Heating Airflow Rate CFM	95	95	95	95	95	95									85	59	59	55	55	63	33	46	46	64	18
Cooling Airflow Rate CFM	31	31	31	31	31	31									80	84	84	102	102	64	65	107	107	82	4
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		
Actual Duct Length	33	34	36	47	49	64									24	45	36	38	45	54	57	74	74	79	69
Equivalent Length	80	100	120	120	110	120	70	70	70	70	70	70	70	70	100	90	80	130	110	130	110	140	130		
Total Effective Length	113	134	156	167	159	184	70	70	70	70	70	70	70	70	124	135	116	168	155	184	167	174	184		
Adjusted Pressure	0.12	0.10	0.08	0.08	0.08	0.07	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.10	0.10	0.11	0.08	0.08	0.07	0.08	0.07	0.06		
Duct Size Round	6	6	6	6	6	6									6	6	6	6	6	6	5	7	7	6	4
Outlet Size	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	3x10	4x10	4x10	3x10		
Trunk	H	B	C	D	D	G									H	B	B	C	C	D	D	G	G	F	F

	Level 3														Level 3									
	1	2	3	4	5	6	7	8	9	10	11	12	30		31	32								
S/A Outlet No.	MAST	MAST	BED 2	BATH 2	BED 5	T BATH	BED 4	BED 4	WIC 2	WIC	ENS	ENS	BATH 3		BED 3	BED 3								
Room Use	MAST	MAST	BED 2	BATH 2	BED 5	T BATH	BED 4	BED 4	WIC 2	WIC	ENS	ENS	BATH 3		BED 3	BED 3								
Btu/Outlet	1666	1666	2482	1261	3466	1091	1974	1974	1716	881	1141	1141	815		1670	1670								
Heating Airflow Rate CFM	34	34	50	26	71	22	40	40	35	18	23	23	17		34	34								
Cooling Airflow Rate CFM	57	57	60	17	85	20	39	39	29	7	22	22	25		47	47								
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
Actual Duct Length	52	52	66	77	91	87	97	105	32	28	37	39	48		59	55								
Equivalent Length	110	120	130	110	170	140	150	160	150	140	130	110	160	70	130	100	70	70	70	70	70	70	70	70
Total Effective Length	162	172	196	187	261	227	247	265	182	168	167	149	208	70	189	155	70	70	70	70	70	70	70	70
Adjusted Pressure	0.08	0.08	0.07	0.07	0.05	0.06	0.05	0.05	0.07	0.08	0.08	0.09	0.06	0.19	0.07	0.08	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19
Duct Size Round	5	5	5	4	7	4	5	5	4	3	4	4	4		5	5								
Outlet Size	3x10	3x10	3x10	3x10	4x10	3x10	3x10	3x10	3x10	3x10	3x10	3x10	3x10	4x10	3x10	3x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10
Trunk	H	B	C	D	F	F	F	F	H	H	H	H	C		C	C								

Return Branch And Grill Sizing												Return Trunk Duct Sizing					Supply Trunk Duct Sizing					
R/A Inlet No.	1R	2R	3R	4R	5R	6R	7R	8R	9R	10R	11R	Trunk	CFM	Press.	Round	Rect. Size	Trunk	CFM	Press.	Round	Rect. Size	
Inlet Air Volume CFM	150	100	100	100	361	362	200	280				Drop	1653	0.05	19.5	24x14	A	1339	0.05	18.0	30x10	24x12
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	1653	0.05	19.5	36x10	B	246	0.08	9.0	8x8
Actual Duct Length	52	63	46	64	43	31	49	15				Y	761	0.05	14.5	24x8	C	1093	0.05	16.5	32x8	24x10
Equivalent Length	195	155	155	195	165	130	170	155	50	50	50	X					D	754	0.05	14.5	24x8	18x10
Total Effective Length	247	218	201	259	208	161	219	170	50	50	50	W					E					
Adjusted Pressure	0.05	0.05	0.06	0.05	0.06	0.07	0.05	0.07	0.24	0.24	0.24	V					F	255	0.05	10.0	12x8	10x10
Duct Size Round	8.0	6.0	6.0	6.0	10.5	10.5	9.0	8.0				U					G	188	0.07	8.0	8x8	8x7
Inlet Size	8	8	8	8	8	8	8	FLC				T					H	313	0.07	10.0	12x8	10x10
" "	x	x	x	x	x	x	x	x	x	x	x	S					I					
Inlet Size	14	30	14	14	30	30	14					R					J					
Trunk	Z	Y	Z	Y	Y	Z	Y	Z				O					K					

2012 OBC

Builder: Highcastle Homes

Date: May 4, 2016

Project: Riverwalk Phase 2

Model: 65-2 Lot 32

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: 4200

Project # PJ-00067
Layout # JB-02079

Level 1

BASE

Run ft. exposed wall A	229	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	3.0	AG	3.0	AG	3.0	AG	3.0	AG	3.0	AG	3.0	AG	3.0
Floor area	1860	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	687												
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	3.55	20.90	10.91	3	63	33											
East/West	3.55	20.90	27.35	9	188	246											
South	3.55	20.90	20.89	9	188	188											
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	645		835											
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 ()			13934													
Total Conductive	Heat Loss			14891													
	Heat Gain					1378											
Air Leakage	Heat Loss/Gain	0.8389	0.0432	12492		60											
Ventilation	Case 1		0.07			0.05											
	Case 2		22.44			11.88											
	Case 3	x	0.04			0.05											
Heat Gain People				595		62											
Appliances Loads	1 = .25 percent			1.5		2581											
Duct and Pipe loss			10%														
Level 1 HL Total	27,978		Total HL for per room	27978													
Level 1 HG Total	5,306		Total HG per room x 1.3			5306											

Level 2

KIT

FAM

DIN

FOY

LIV

DEN

PWD

LAUND

Run ft. exposed wall A	47	A	34	A	26	A	8	A	29	A	27	A	12	A	39	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
Ceiling height	10.0		10.0		10.0		10.0		10.0		10.0		10.0		10.0		10.0	
Floor area	485	Area	252	Area	325	Area	118	Area	156	Area	127	Area	75	Area	167	Area	Area	Area
Exposed Ceilings 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
Exposed Floors	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr
Gross Exp Wall A	470		340		260		80		290		270		120		390			
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	3.55	20.90	10.91	11	230	120													
East/West	3.55	20.90	27.35	70	1463	1915													
South	3.55	20.90	20.89	14	293	292													
Existing Windows	1.99	37.29	22.15																
Skylight	2.03	36.55	88.23																
Doors	3.01	24.65	3.65	10	247	37													
Net exposed walls A	14.49	5.12	0.76	365	1869	277													
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			4101															
	Heat Gain					2641													
Air Leakage	Heat Loss/Gain	0.3684	0.0432	1511		114													
Ventilation	Case 1		0.03			0.05													
	Case 2		22.44			11.88													
	Case 3	x	0.04			0.05													
Heat Gain People				164		120													
Appliances Loads	1 = .25 percent			0.5		860													
Duct and Pipe loss			10%																
Level 2 HL Total	28,655		Total HL for per room	5776															
Level 2 HG Total	25,406		Total HG per room x 1.3			4855													

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

Package J

Total Heat Loss	81,249	btu/h
Total Heat Gain	47,616	btu/h

2012 OBC	Builder: Highcastle Homes	Date: May 4, 2016	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: 4200	Project # PJ-00067	Layout # JB-02079
	Project: Riverwalk Phase 2	Model: 65-2 Lot 32															

Level 3				MAST			BATH 3			BED 2			BATH 2			BED 5			T BATH			BED 4			WIC 2			WIC			ENS					
Run ft. exposed wall A				25	A		7	A		A		24	A		17	A		41	A		6	A		25	A		16	A		8	A		26	A		
Run ft. exposed wall B					B			B		B			B			B			B			B			B			B			B					
Ceiling height				8.0			8.0		8.0		8.0		8.0		8.0		8.0		8.0		8.0		8.0		8.0		8.0		8.0		8.0		8.0			
Floor area				350	Area		55	Area		Area		260	Area		82	Area		200	Area		73	Area		250	Area		65	Area		118	Area		156	Area		
Exposed Ceilings A				350	A		55	A		A		260	A		82	A		200	A		73	A		250	A		65	A		118	A		156	A		
Exposed Ceilings B					B			B		B			B			B			B			B			B			B			B					
Exposed Floors					Flr			Flr		Flr			Flr			Flr			Flr			Flr			Flr			Flr			Flr					
Gross Exp Wall A				200			56					192			136			328			48			200			128			64			208			
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	Loss	Gain	Loss	Gain				
North Shaded		3.55	20.90	10.91	9	188	98																							7	146	76				
East/West		3.55	20.90	27.35	45	941	1231	16	334	438																			21	439	574					
South		3.55	20.90	20.89	9	188	188						33	690	689	9	188	188																		
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	137	702	104	40	205	30			159	814	121	127	650	96	286	1465	217	38	195	29	168	860	128	114	584	87	64	328	49	180	922	137
Net exposed walls B		8.50	8.73	1.29																																
Exposed Ceilings A		50.00	1.48	0.76	350	519	266	55	82	42			260	386	198	82	122	62	200	297	152	73	108	55	250	371	190	65	96	49	118	175	90	156	232	119
Exposed Ceilings B		22.86	3.25	1.66																																
Exposed Floors		22.05	3.37	0.23																																
Foundation Conductive Heatloss																																				
Total Conductive		Heat Loss																																		
		Heat Gain																																		
Air Leakage		Heat Loss/Gain																																		
Ventilation				0.2732	0.0432	693	82																													
		Case 1			0.02	0.05																														
		Case 2			22.44	11.88																														
		Case 3		x	0.04	0.05																														
Heat Gain People					239	2	101	86	25	23			1	76	46	239	38	16		106	69	30	17		110	57		48	24		27	7	70	41		
Appliances Loads		1 =.25 percent			6882																															
Duct and Pipe loss					10%																															
Level 3 HL Total		21,277				3332			815				2482		1261		3466		1091		3949		1716		825		881		2283		1282					
Level 3 HG Total		14,179				3292			721			311	1736		491			2459		579		2272		825		212										

Level 3				BED 3		A		A		A		A		A		A		A		A		A	
Run ft. exposed wall A	27	A																					
Run ft. exposed wall B		B																					
Ceiling height	8.0			8.0		8.0		8.0		8.0		8.0		8.0		8.0		8.0		8.0		8.0	
Floor area	245	Area			Area		Area		Area		Area		Area		Area		Area		Area		Area		Area
Exposed Ceilings A	245	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	216																						
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
North Shaded	3.55	20.90	10.91																				
East/West	3.55	20.90	27.35	32	669	875																	
South	3.55	20.90	20.89	36	752	752																	
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	148	758	112																	
Net exposed walls B	8.50	8.73	1.29																				
Exposed Ceilings A	50.00	1.48	0.76	245	364	186																	
Exposed Ceilings B	22.86	3.25	1.66																				
Exposed Floors	22.05	3.37	0.23																				
Foundation Conductive Heatloss																							
Total Conductive																							
Heat Loss				2543																			
Heat Gain					1926																		
Air Leakage	Heat Loss/Gain	0.2732	0.0432	695	83																		
Ventilation	Case 1		0.02		0.05																		
Case 2		22.44	11.88																				
Case 3	x	0.04	0.05																				
Heat Gain People			239																				
Appliances Loads	1 = .25 percent		6882																				
Duct and Pipe loss			10%																				
Level 4 HL Total	3,339			3339																			
Level 4 HG Total	2,725				2725																		

Total Heat Loss	81,249	btu/h
Total Heat Gain	47,616	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

Package J

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:

Lot 32

RESIDENTIAL MECHANICAL VENTILATION DESIGN SUMMARY

For systems serving one dwelling unit & conforming to the Ontario Building Code, O. Reg. 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	5 @ 10.6 cfm	53 cfm
Total		<u>201.4</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	40H+	Base
80 cfm		Sones

Heat Recovery Ventilator

Make	VanEE
Model	40H+
80 cfm high	40 cfm low
Sensible efficiency @ -25 deg C	55%
Sensible efficiency @ 0 deg C	66%

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	201.4
Less principal exhaust capacity	95.4
REQUIRED supplemental vent. Capacity	<u>106.0</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.

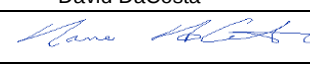
Location	cfm	Model	Sones
Bath	50	AER50C	0.5
Pwd	50	AER50C	0.5
T.Bath	50	AER50C	0.5

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 May 4, 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@gtadesigns.ca

Page 7
Project # PJ-00067
Layout # JB-02079

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	65-2 Lot 32	Unit number	Lot/Con
Municipality	Brampton	Postal code	Reg. Plan number / other description

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 = 435 m ²	☐ ICF Basement ☐ Walkout Basement ☐ Log/Post&Beam
Area of W,S&G = 77 m ²	☐ ICF Above Grade ☐ Slab-on-ground
W,S & G % = 18%	

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	1.6
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 Lot 32

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>0.385</td><td>48622</td><td>74.2</td><td>24983</td></tr></table>					Building Air Leakage Heat Loss					B	LRairh	Vb	HL^T	HLleak	0.018	0.385	48622	74.2	24983	<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>0.112</td><td>48622</td><td>11</td><td>1080</td></tr></table>					Building Air Leakage Heat Gain					B	LRairh	Vb	HG^T	HG Leak	0.018	0.112	48622	11	1080																														
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Air Leakage Heat Loss/Gain Multiplier Table (Section 11)																																																																					
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			0.1																																																																		
<table><tr><th colspan="2"></th><th>Air Leakage Heat Gain</th></tr><tr><td colspan="2">HG LEAK</td><td>1080</td></tr><tr><td colspan="2">BUILDING CONDUCTIVE HEAT GAIN</td><td>24999</td></tr></table>							Air Leakage Heat Gain	HG LEAK		1080	BUILDING CONDUCTIVE HEAT GAIN		24999	<table><tr><th colspan="4">Levels this Dwelling</th></tr><tr><td colspan="4">3</td></tr></table>					Levels this Dwelling				3																																														
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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	0.28	2141	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	2141	14891	0.07	Building	24999				
	Level 2	0.3		20347	0.03						
Level 3	0.2	18291		0.02							
Level 3	0.2	18291		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	22.44		C	HG^T	11.88			
	1.08	74.2	0.28			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		2141	0.04		HGbvent	HG*1.3	1133	0.05		
						1133	1				

Foundation Conductive Heatloss Level 1

4084

Watts

13934

Btu/h

Foundation Conductive Heatloss Level 2

Watts

Btu/h

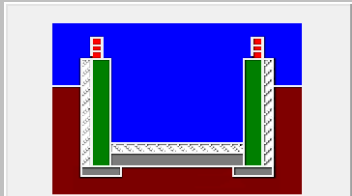
Envelope Air Leakage Calculator

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):	8.84			
Building Configuration				
Type:	Detached			
Number of Stories:	Two			
Foundation:	Full			
House Volume (m ³):	1376.98			
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):		0.385		
Cooling Air Leakage Rate (ACH/H):		0.112		

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):	28.93	 Insulation Configuration
Floor Width (m):	5.97	
Exposed Perimeter (m):	69.80	
Wall Height (m):	2.74	
Depth Below Grade (m):	1.83	
Window Area (m ²):	1.95	
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):		4084

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

S.A.
R.A.
T
F

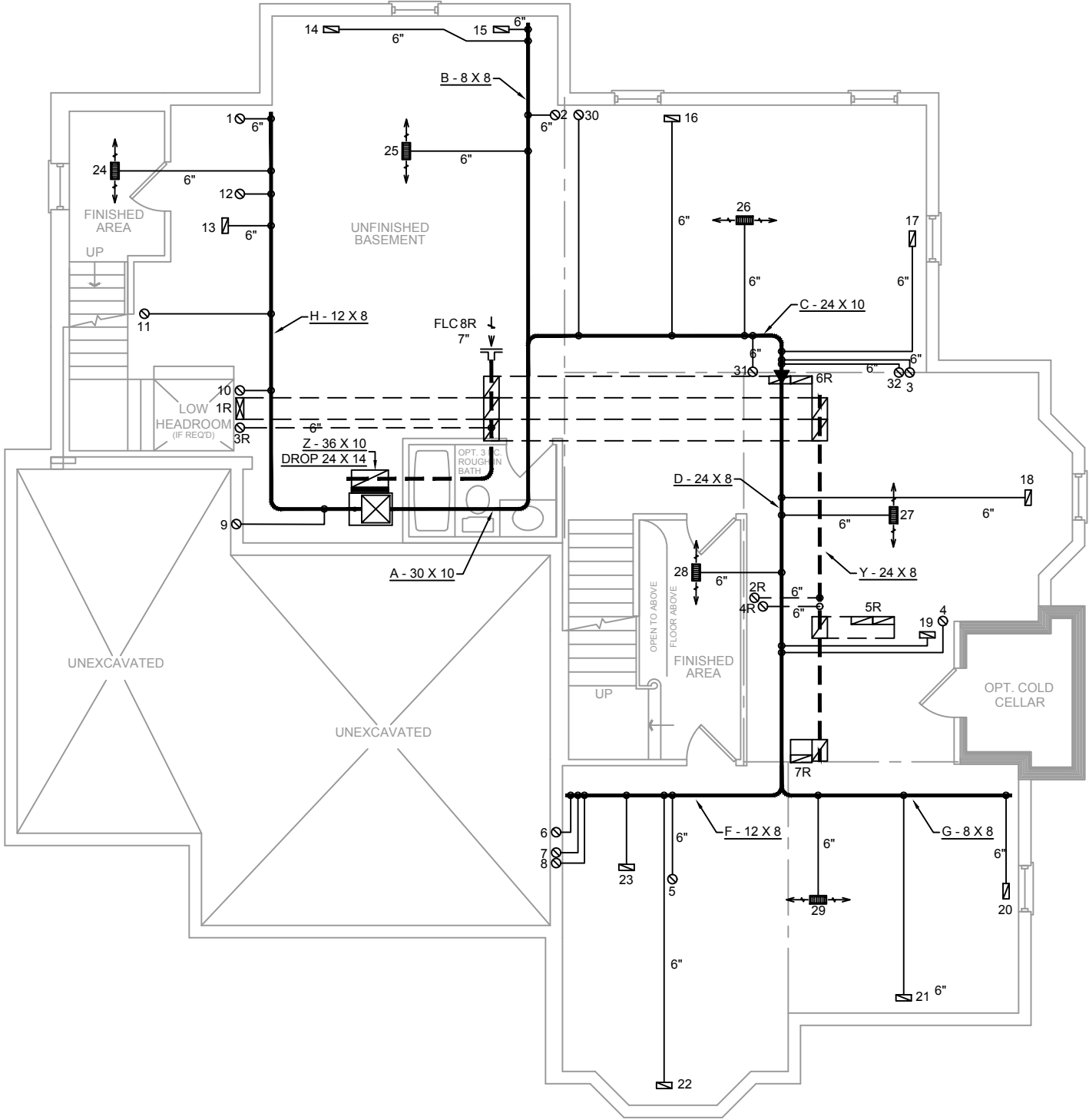
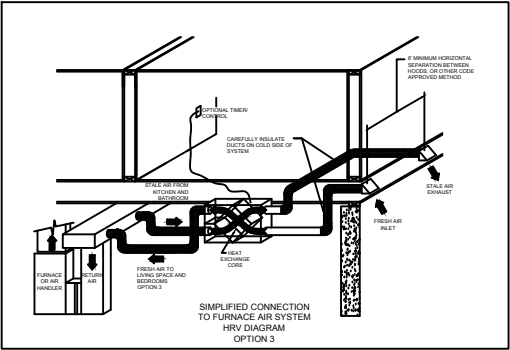
RETURN AIR GRILLE
(SIZE INDICATED ON DRAWING)
RETURN AIR RISER UP TO
FLOOR ABOVE
RETURN AIR FROM BASEMENT
SECOND FLOOR

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

LOW/HIGH WALL/KICK SUPPLY DIFFUSER
HRYV 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)
- FOR THE PURPOSE OF
HEATLOSS/GAIN
CALCULATIONS ALL
ELEVATIONS HAVE BEEN
CONSIDERED



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.
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
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.		
	81,249		
UNIT MAKE	OR EQUAL.		
	AMANA		
UNIT MODEL	OR EQUAL.		
	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	15	4	5
1ST FLOOR	11	3	2
BASEMENT	6	2	

DATE:	MAY 4, 2016		
CLIENT:	HIGHCASTLE HOMES		
MODEL:	65-2 LOT 32		
PROJECT:	RIVERWALK PHASE 2 BRAMPTON,ONT.		
SCALE:	1/8" = 1'-0"		
FLOOR PLAN:	BASEMENT		
DRAWN BY:	CHECKED:	SQFT	
RB	DD	4200	
LAYOUT NO.	DRAWING NO.		
JB-02079	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

OBC 2012

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

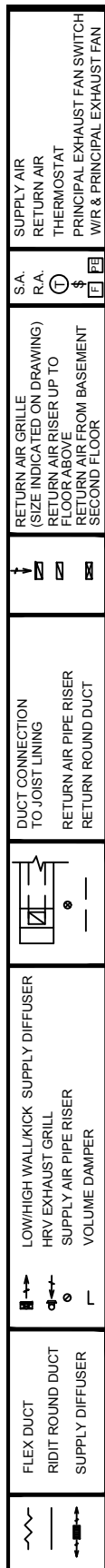


ZONE 1 COMPLIANCE
PACKAGE "J" REF. TABLE 2.1.1.2.A

 **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.	
81,249			
UNIT MAKE		OR EQUAL.	
AMANA			
UNIT MODEL		OR EQUAL.	
GMCE96-1004CNA			
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	15	4	5
1ST FLOOR	11	3	2
BASEMENT	6	2	

DATE: MAY 4, 2016		
CLIENT: HIGHCASTLE HOMES		
MODEL: 65-2 LOT 32		
PROJECT: RIVERWALK PHASE 2 BRAMPTON, ONT.		
SCALE: 1/8" = 1'-0"		
FLOOR PLAN: GROUND FLOOR		
DRAWN BY: RB	CHECKED: DD	SQFT 4200
LAYOUT NO. JB-02079		DRAWING NO. M2



DATE: MAY 4, 2016		
CLIENT: HIGHCASTLE HOMES		
MODEL: 65-2 LOT 32		
PROJECT: RIVERWALK PHASE 2 BRAMPTON, ONT.		
SCALE: 1/8" = 1'-0"		
FLOOR PLAN: SECOND FLOOR		
DRAWN BY: RB	CHECKED: DD	SQFT 4200
LAYOUT NO. JB-02079		DRAWING NO. M3