


Use one form for each individual who reviews and takes responsibility for design activities with respect to the project.

<b>A. Project Information</b>				
Building number, street name <b>65-3 - W.O.B.</b>			Lot:	
			Lot/con.	
Municipality <b>Brampton</b>	Postal code	Plan number/ other description		
<b>B. Individual who reviews and takes responsibility for design activities</b>				
Name <b>David DaCosta</b>		Firm <b>gtaDesigns Inc.</b>		
Street address <b>2985 Drew Road, Suite 202</b>		Unit no.	Lot/con.	
Municipality <b>Mississauga</b>	Postal code <b>L4T 0A4</b>	Province <b>Ontario</b>	E-mail <a href="mailto:dave@gtadesigns.ca">dave@gtadesigns.ca</a>	
Telephone number <b>(905) 671-9800</b>		Fax number <b>(647) 494-9643</b>	Cell number <b>(416) 268-6820</b>	
<b>C. Design activities undertaken by individual identified in Section B. [Building Code Table 3.5.2.1 of Division C]</b>				
<input type="checkbox"/> House <input checked="" type="checkbox"/> HVAC – House <input type="checkbox"/> Building Structural <input type="checkbox"/> Small Buildings <input type="checkbox"/> Building Services <input type="checkbox"/> Plumbing – House <input type="checkbox"/> Large Buildings <input type="checkbox"/> Detection, Lighting and Power <input type="checkbox"/> Plumbing – All Buildings <input type="checkbox"/> Complex Buildings <input type="checkbox"/> Fire Protection <input type="checkbox"/> On-site Sewage Systems				
<b>Description of designer's work</b>		<b>Model Certification</b>		<b>Project #</b> <b>PJ-00067</b>
				<b>Layout #</b> <b>JB-01488</b>
Heating and Cooling Load Calculations		Builder	Highcastle Homes	
Air System Design		Project	Riverwalk Phase 2	
Residential mechanical ventilation Design Summary		Model	65-3 - W.O.B.	
Residential System Design per CAN/CSA-F280-12		SB-12	Package J	
Residential New Construction - Forced Air				
<b>D. Declaration of Designer</b>				
<p>I, <u>David DaCosta</u> declare that (choose one as appropriate):</p> <p style="text-align: center;">(print name)</p> <p><input type="checkbox"/> I review and take responsibility for the design work on behalf of a firm registered under subsection 3.2.4 Division C of the Building Code. I am qualified, and the firm is registered, in the appropriate classes/categories.</p> <p style="margin-left: 150px;">Individual BCIN: _____</p> <p style="margin-left: 150px;">Firm BCIN: _____</p> <p><input checked="" type="checkbox"/> I review and take responsibility for the design and am qualified in the appropriate category as an "other designer" under subsection 3.2.5 of Division C, of the Building Code.</p> <p style="margin-left: 150px;">Individual BCIN: <u>32964</u></p> <p style="margin-left: 150px;">Basis for exemption from registration: <u>Division C 3.2.4.1. (4)</u></p> <p><input type="checkbox"/> The design work is exempt from the registration and qualification requirements of the Building Code.</p> <p style="margin-left: 150px;">Basis for exemption from registration and qualification:</p>				
<p>I certify that:</p> <p>1. The information contained in this schedule is true to the best of my knowledge.</p> <p>2. I have submitted this application with the knowledge and consent of the firm.</p>				
<u>January 22, 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 <b>Highcastle Homes</b>				Layout No.	
and may not be used by any other persons without authorization. Documents for permit and/or construction are signed in red.				<b>JB-01488</b>	
Building Location					
Address (Model): <b>65-3 - W.O.B.</b>			Site: <b>Riverwalk Phase 2</b>		
Model:			Lot:		
City and Province: <b>Brampton</b>			Postal code:		
Calculations based on					
Dimensional information based on:			n/a		
Attachment: <b>Detached</b>		Front facing: <b>East/West</b>		Assumed? <b>Yes</b>	
No. of Levels: <b>3</b> Ventilated? <b>Included</b>		Air tightness: <b>1961- Present (ACH=3.57)</b>		Assumed? <b>Yes</b>	
Weather location: <b>Brampton</b>		Wind exposure: <b>Shelterd</b>			
HRV? <b>VanEE</b> <b>40H+</b>		Internal shading: <b>Light-translucent</b> Occupants: <b>5</b>			
Sensible Eff. at -25C <b>55%</b> Apparent Effect. at -0C <b>72%</b>		Units: <b>Imperial</b>		Area Sq. ft <b>4013</b>	
Heating design conditions			Cooling design conditions		
Outdoor temp <b>-2.2</b> Indoor temp: <b>72</b> Mean soil temp <b>48</b>			Outdoor temp <b>86</b> Indoor temp: <b>75</b> Latitude: <b>44</b>		
Above grade walls			Below grade walls		
Style A: <b>As per Selected OBC SB12 Package J R 22</b>			Style A: <b>As per Selected OBC SB12 Package J R 12</b>		
Style B: <b>Existing Walls (When Applicable) R 12</b>			Style B:		
Style C:			Style C:		
Style D:			Style D:		
Floors on soil			Ceilings		
Style A: <b>As per Selected OBC SB12 Package J</b>			Style A: <b>As per Selected OBC SB12 Package J R 50</b>		
Style B:			Style B: <b>As per Selected OBC SB12 Package J R 31</b>		
Exposed floors			Style C:		
Style A: <b>As per Selected OBC SB12 Package J R 31</b>			Doors		
Style B:			Style A: <b>As per Selected OBC SB12 Package J R 3.01</b>		
Windows			Style B:		
Style A: <b>As per Selected OBC SB12 Package J R 3.15</b>			Style C:		
Style B: <b>Existing Windows (When Applicable) R 1.99</b>			Skylights		
Style C:			Style A: <b>As per Selected OBC SB12 Package J R 2.03</b>		
Style D:			Style B:		
Attached documents: <b>As per Shedule 1</b>					
Notes: <b>Residential New Construction - Forced Air</b>					
Calculations performed by					
Name: <b>David DaCosta</b>			Postal code: <b>L4T 0A4</b>		
Company: <b>gtaDesigns Inc.</b>			Telephone: <b>(905) 671-9800</b>		
Address: <b>2985 Drew Road, Suite 202</b>			Fax: <b>(416) 268-6820</b>		
City: <b>Mississauga</b>			E-mail <b>dave@gtadesigns.ca</b>		

Builder: **Highcastle Homes**

2015

January 22, 2016

Project: **Riverwalk Phase 2**

Model: **65-3 - W.O.B.**

**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* David DaCosta

Page 3  
Project # **PJ-00067**  
Layout # **JB-01488**

DESIGN LOAD SPECIFICATIONS		AIR DISTRIBUTION & PRESSURE		FURNACE/AIR HANDLER DATA:		BOILER/WATER HEATER DATA:		A/C UNIT DATA:	
Level 1 Net Load	28,244 btu/h	Equipment External Static Pressure	0.5 "w.c.	Make	Amana	Make	Type	Amana	3.5 Ton
Level 2 Net Load	26,567 btu/h	Additional Equipment Pressure Drop	0.225 "w.c.	Model	GMEC961004CN	Model		Cond.-----	3.5
Level 3 Net Load	19,770 btu/h	Available Design Pressure	0.275 "w.c.	Input Btu/h	100000	Input Btu/h		Coil -----	3.5
Level 4 Net Load	0 btu/h	Return Branch Longest Effective Length	300 ft	Output Btu/h	96000	Output Btu/h			
Total Heat Loss	74,581 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	38,685 btu/h	S/A Plenum Pressure	0.14 "w.c.	Water Temp	deg. F.	Blower DATA:			
Total Heat Loss + 10%	82,039 Btu/h.	Heating Air Flow Proportioning Factor	0.0222 cfm/btuh	AFUE	96%	Blower Speed Selected:	W2	Blower Type	ECM
Building Volume Vb	51540 ft³	Cooling Air Flow Proportioning Factor	0.0331 cfm/btuh	Aux. Heat				(Brushless DC OBC 12.3.1.5.(2))	
Ventilation Load	2,574 Btu/h.	R/A Temp	70 deg. F.	SB-12 Package	Package J	Heating Check	1653 cfm	Cooling Check	1280 cfm
Ventilation PVC	75 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	1280 cfm

S/A Outlet No.	Level 1 Outlets													Level 2 Outlets									
	21	22	23	24	25	26	27							11	12	13	14	15	16	17	18	19	20
Room Use	BASE	BASE	BASE	BASE	BASE	BASE	BASE							LAUND	DEN	FAM	FAM	KIT	KIT	DIN	LIV	LIV	FOY
Btu/Outlet	4035	4035	4035	4035	4035	4035	4035							3582	2987	1696	1696	2280	2280	2296	2942	2942	3867
Heating Airflow Rate CFM	89	89	89	89	89	89	89							79	66	38	38	51	51	51	65	65	86
Cooling Airflow Rate CFM	25	25	25	25	25	25	25							94	87	50	50	86	86	72	86	86	61
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	50	54	35	20	34	26	31							54	59	58	68	37	31	8	27	37	44
Equivalent Length	110	100	140	120	90	120	120	90	90	90	90	90	90	140	180	120	130	100	110	140	100	90	110
Total Effective Length	160	154	175	140	124	146	151	90	90	90	90	90	90	194	239	178	198	137	141	148	127	127	154
Adjusted Pressure	0.08	0.08	0.07	0.09	0.10	0.09	0.09	0.14	0.14	0.14	0.14	0.14	0.14	0.07	0.05	0.07	0.07	0.09	0.09	0.09	0.10	0.10	0.08
Duct Size Round	6	6	6	6	6	6	6							6	6	5	5	6	6	6	6	6	6
Outlet Size	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	3x10	3x10	4x10	4x10	4x10	4x10	4x10	4x10
Trunk	B	B	B	A	D	E	A							B	C	C	C	A	A	D	E	E	E

	Level 3 Outlets										Level 4 Outlets															
S/A Outlet No.	1	2	3	4	5	6	7	8	9	10																
Room Use	MAST	MAST	ENS	ENS 2	BED 2	BED 3	BED 3	WIC	S.ENS	BED 4																
Btu/Outlet	1795	1795	2323	764	2425	2647	2647	1597	1380	2399																
Heating Airflow Rate CFM	40	40	51	17	54	59	59	35	31	53																
Cooling Airflow Rate CFM	41	41	39	13	42	45	45	15	12	51																
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	81	97	67	20	31	57	61	63	69	69																
Equivalent Length	200	180	120	160	120	130	140	150	150	170	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	
Total Effective Length	281	277	187	180	151	187	201	213	219	239	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	
Adjusted Pressure	0.05	0.05	0.07	0.07	0.09	0.07	0.06	0.06	0.06	0.05	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	
Duct Size Round	5	5	5	3	6	5	5	5	4	6																
Outlet Size	3x10	3x10	3x10	3x10	4x10	3x10	3x10	3x10	3x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	
Trunk	C	C	A	A	D	D	D	D	B	C																

Return Branch And Grill Sizing		Grill Pressure Loss		0.02 "w.c.							
R/A Inlet No.	1R	2R	3R	4R	5R	6R	7R	8R	9R	10R	11R
Inlet Air Volume CFM	100	140	100	120	433	230	230	150	150		
Duct Design Pressure	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12
Actual Duct Length	48	16	51	38	26	6	18	14	10		
Equivalent Length	210	145	205	215	145	145	190	175	175	70	70
Total Effective Length	258	161	256	253	171	151	208	189	185	70	70
Adjusted Pressure	0.05	0.07	0.05	0.05	0.07	0.08	0.06	0.06	0.06	0.17	0.17
Duct Size Round	6.0	7.5	6.0	7.5	11.0	8.5	9.0	6.0	6.0		
Inlet Size	8	8	8	8	8	8	8	FLC	FLC		
" "	x	x	x	x	x	x	x	x	x	x	x
Inlet Size	14	14	14	14	30	14	14				
Trunk	Z	Z	Y	Z	Y	Z	Z	Y	Z		

Return Trunk Duct Sizing					
Trunk	CFM	Press.	Round	Rect. Size	
Drop	1653	0.05	19.5	24x14	
Z	1070	0.05	16.5	32x8 24x10	
Y	683	0.05	14.0	22x8 18x10	
X					
W					
V					
U					
T					
S					
R					
Q					

Supply Trunk Duct Sizing					
Trunk	CFM	Press.	Round	Rect. Size	
A	1000	0.05	16.0	30x8 22x10	
B	652	0.05	14.0	22x8	
C	274	0.05	10.0	12x8 10x10	
D	653	0.06	13.5	20x8 16x10	
E	306	0.08	9.5	10x8	
F					
G					
H					
I					
J					
K					

2012 OBC

Builder: Highcastle Homes

Date: January 22, 2016

Project: Riverwalk Phase 2

Model: 65-3 - W.O.B.

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: 4013

Project # PJ-00067  
Layout # JB-01488

## Level 1

### BASE

Run ft. exposed wall A	205	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Run ft. exposed wall B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
Ceiling height	2.0	AG	AG	AG	AG	AG	AG	AG	AG	AG	AG	AG	AG	AG	AG	AG
Floor area	1845	Area	Area	Area	Area	Area	Area	Area	Area	Area	Area	Area	Area	Area	Area	Area
Exposed Ceilings A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Exposed Ceilings 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
Gross Exp Wall A	410															
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	3	71	34											
East/West	3.15	23.56	27.75	106	2497	2941											
South	3.15	23.56	21.28	12	283	255											
Existing Windows	1.99	37.29	22.15														
Skylight	2.03	36.55	88.23														
Doors	3.01	24.65	3.65	40	986	146											
Net exposed walls A	8.50	8.73	1.29	249		322											
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	Slab On Grade (x)			13063													
Total Conductive	Heat Loss			16899													
	Heat Gain				3699												
Air Leakage	Heat Loss/Gain	0.6381	0.0474	10783	175												
Ventilation	Case 1	0.05	0.05														
	Case 2	22.44	11.88														
	Case 3	x	0.03	562	169												
Heat Gain People					239												
Appliances Loads	1 =.25 percent				7029												
Duct and Pipe loss					10%												
Level 1 HL Total	28,244		Total HL for per room	28244													
Level 1 HG Total	5,256		Total HG per room x 1.3		5256												

## Level 2

### LAUND

### DEN

### FAM

### KIT

### DIN

### LIV

### FOY

Run ft. exposed wall A	32	A	29	A	31	A	38	A	21	A	33	A	20	A	A	A	A
Run ft. exposed wall B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
Ceiling height	11.0		11.0		11.0		11.0		11.0		14.0		15.0				
Floor area	160	Area	204	Area	365	Area	400	Area	328	Area	240	Area	108	Area	Area	Area	Area
Exposed Ceilings A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Exposed Ceilings B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
Exposed Floors	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr
Gross Exp Wall A	352		319		341		418		231		462		300				
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														
South	3.15	23.56	21.28														
Existing Windows	1.99	37.29	22.15														
Skylight	2.03	36.55	88.23														
Doors	3.01	24.65	3.65	42	1035	153											
Net exposed walls A	14.49	5.12	0.76	310	1587	235	289	1480	219	301	1541	229	353	1808	268	204	1045
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	Slab On Grade (x)																
Total Conductive	Heat Loss			2623				2187			2484			3339		1681	
	Heat Gain				389				1052		1338				2072		729
Air Leakage	Heat Loss/Gain	0.3326	0.0474	872	18			727	50		826	63		1111	98	559	35
Ventilation	Case 1	0.03	0.05														
	Case 2	22.44	11.88														
	Case 3	x	0.03	87	18			73	48		83	61		111	95	56	33
Heat Gain People																	
Appliances Loads	1 =.25 percent																
Duct and Pipe loss																	
Level 2 HL Total	26,567		Total HL for per room	3582				2987			3392			4560		2296	
Level 2 HG Total	22,975		Total HG per room x 1.3		2837				2637			3044			5228		2179

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	74,581	btu/h
Total Heat Gain	38,685	btu/h

[illegible][illegible]

Total Heat Loss	74,581	btu/h
Total Heat Gain	38,685	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*

David DaCosta

Package: **Package J**  
Project: **Brampton** Model: **65-3 - W.O.B.**

## 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	

Builder	
Name	Highcastle Homes
Address	
City	
Tel	Fax

Installing Contractor	
Name	
Address	
City	
Tel	Fax

Combustion Appliances 9.32.3.1(1)	
a)	<input type="checkbox"/> Direct vent (sealed combustion) only
b)	<input checked="" type="checkbox"/> Positive venting induced draft (except fireplaces)
c)	<input type="checkbox"/> Natural draft, B-vent or induced draft fireplaces
d)	<input type="checkbox"/> Solid fuel (including fireplaces)
e)	<input type="checkbox"/> No combustion Appliances

Heating System	
<input checked="" type="checkbox"/>	Forced air
<input type="checkbox"/>	Non forced air
<input type="checkbox"/>	Electric space heat (if over 10% of heat load)

House Type 9.32.3.1(2)	
I	<input checked="" type="checkbox"/> Type a) or b) appliances only, no solid fuel
II	<input type="checkbox"/> Type I except with solid fuel (including fireplace)
III	<input type="checkbox"/> Any type c) appliance
IV	<input type="checkbox"/> Type I or II either electric space heat
Other	<input type="checkbox"/> Type I, II or IV no forced air

System Design Option	
1	<input type="checkbox"/> Exhaust only / forced air system
2	<input type="checkbox"/> HRV WITH DUCTING / forced air system
3	<input checked="" type="checkbox"/> HRV simplified connection to forced air system
4	<input type="checkbox"/> HRV full ducting/not coupled to forced air system
Part 6 design	

Total Ventilation Capacity 9.32.3.3(1)			
Bsmt & Master Bdrm	2 @ 20 cfm	40 cfm	
Other Bedrooms	3 @ 10 cfm	30 cfm	
Bathrooms & Kitchen	5 @ 10 cfm	50 cfm	
Other rooms	5 @ 10 cfm	50 cfm	
Total		170	

Principal Ventilation Capacity 9.32.3.4(1)			
Master bedroom	1 @ 30 cfm	30 cfm	
Other bedrooms	3 @ 15 cfm	45 cfm	
Total		75	

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	63%

Supplemental Ventilation Capacity	
Total ventilation capacity	170.0
Less principal exhaust capacity	75.0
REQUIRED supplemental vent. Capacity	95.0 cfm

Supplemental Fans 9.32.3.5.			
Location	cfm	Model	Sones
S.Ens	50	770	2.5
Pwd.	50	770	2.5
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	<i>David DaCosta</i>		
HRAI #	5190	BCIN #	32964
Date	January 22, 2016		

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-01488

This form is used to summarize the energy efficiency design of the project. Information on completing this form is on the reverse

For use by Principal Authority

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

## A. Project Information

Building number, street name <b>65-3 - W.O.B.</b>		Unit number	Lot/Con
Municipality <b>Brampton</b>	Postal code	Reg. Plan number / other description	

## B. Compliance Option

<input checked="" type="checkbox"/> SB-12 Prescriptive [SB-12 - 2.1.1.]	Table: Package: A B C D E F G H I J K L M	<b>Package J</b>
<input type="checkbox"/> SB-12 Performance* [SB-12 - 2.1.2.]	* Attach energy performance calculations using an approved software	
<input type="checkbox"/> Energy Star®* [SB-12 - 2.1.3.]	* Attach BOP form	
<input type="checkbox"/> 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		
<input checked="" type="checkbox"/> Zone 1 (< 5000 degree days)	<input checked="" type="checkbox"/> ≥ 90% AFUE	<input checked="" type="checkbox"/> Gas	<input type="checkbox"/> Propane	<input type="checkbox"/> Solid Fuel
<input type="checkbox"/> Zone 2 (≥ 5000 degree days)	<input type="checkbox"/> ≥ 78% < 90% AFUE	<input type="checkbox"/> Oil	<input type="checkbox"/> Electric	<input type="checkbox"/> Earth Energy

Windows+Skylights+Glass Doors		Other Building Conditions			
Gross Wall Area =	395 m²	% Windows+ 13%	<input type="checkbox"/> ICF Basement	<input type="checkbox"/> Walkout Basement	<input type="checkbox"/> Log/Post&Beam
Gross Window+ Area =	50 m²		<input type="checkbox"/> ICF Above Grade	<input type="checkbox"/> Slab-on-ground	

## 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
<b>Thermal Insulation</b>		<b>Windows &amp; Doors<sup>1</sup></b>	
Ceiling with Attic Space	50	Windows/Sliding Glass Doors	1.8
Ceiling without Attic Space	31	Skylights	2.8
Exposed Floor	31	<b>Mechanicals</b>	
Walls Above Grade	22	Space Heating Equip. <sup>2</sup>	94%
Basement Walls	12	HRV Efficiency (%)	60%
Slab (all >600mm below grade)	x	DHW Heater (EF)	0.67
Slab (edge only ≤600mm below grade)	10	NOTES	
Slab (all ≤600mm below grade, or heated)	10	1. Provide U-Value in W/m2.K, or ER rating 2. Provide AFUE or indicate if condensing type combined system used	

## 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:** BOP form attached. The house will be labeled on completion by:  
**Energy Star and EnerGuide80:**  
Evaluator/Advisor/Rater Name: \_\_\_\_\_ Evaluator/Advisor/Rater Licence #: \_\_\_\_\_

## F. Designers [names of designers who are responsible for the building code design and whose plans accompany the permit application]

Architectural	Mechanical <b>David DaCosta</b> 
---------------	--

Package:  
Project:

Package J  
Brampton

System:  
Model:

System 1  
65-3 - W.O.B.

## Air Leakage Calculations

Building Air Leakage Heat Loss				
B	LRairh	Vb	HL <sup>^</sup> T	HL <sub>leak</sub>
0.018	0.313	51540	74.2	21566

Building Air Leakage Heat Gain				
B	LRairh	Vb	HG <sup>^</sup> T	HG Leak
0.018	0.091	51540	11	924

Air Leakage Heat Loss/Gain Multiplier Table (Section 11)				
Level	Level Factor (LF)	Building Air	Level Conductive Heat Loss	Air Leakage Heat Loss Multiplier
1	0.5	21566	16899	0.6381
2	0.3		19451	0.3326
3	0.2		14248	0.3027
4	0		0	0.0000

Levels			
1	2	3	4
(LF)	(LF)	(LF)	(LF)
1.0	0.6	0.5	0.4
	0.4	0.3	0.3
		0.2	0.2
			0.1

HG LEAK		Air Leakage Heat Gain	
	924		
BUILDING CONDUCTIVE HEAT GAIN	19487		0.0474

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	75	74.2	0.28	1683	1.1	75	11	891		
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	891	0.05			
	1	0.5	1683	16899	0.05	Building	19487				
	2	0.3		19451	0.03						
	3	0.2		14248	0.02						
4	0	0		0.00							
Case 2						Case 2					
Case 2	Ventilation Heat Loss (Direct Ducted Systems)					Ventilation Heat Gain (Direct Ducted Systems)					Case 2
				Multiplier				Multiplier			
	C	HL^T	(1-E) HRV	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		1683	0.03		HGbvent		HG*1.3	891	0.05	

Foundation Conductive Heatloss Level 1

3828

Watts

13063

Btu/h

Foundation Conductive Heatloss Level 2

Watts

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*

David DaCosta



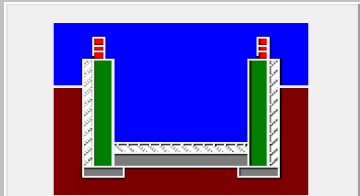
# Envelope Air Leakage Calculator

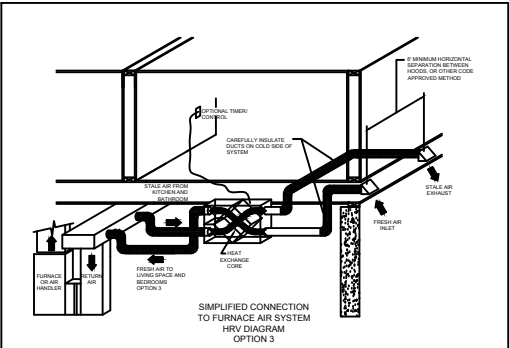
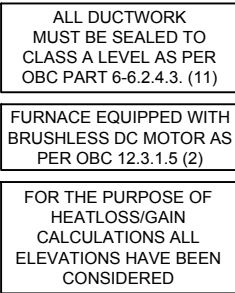
Supplemental tool for CAN/CSA-F280

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):	6.40			
Building Configuration				6.4
Type:	Detached ▼			
Number of Stories:	Two ▼			
Foundation:	Shallow ▼			
House Volume (m <sup>3</sup> ):	566.3 1459.61			
Air Leakage/Ventilation				
Air Tightness Type:	Present (1961-) (ACH=3.57) ▼			
Custom BDT Data:	ELA @ 10 Pa. ▼ 185.83 cm <sup>2</sup> 3.57 ACH @ 50 Pa			
Mechanical Ventilation (L/s):	Total Supply:		Total Exhaust:	
	37.5		37.5	
Flue Size				
Flue #:	#1	#2	#3	#4
Diameter (mm):	0	0	0	0
Envelope Air Leakage Rate				
Heating Air Leakage Rate (ACH/H):		0.313		
Cooling Air Leakage Rate (ACH/H):		0.091		

# Residential Foundation Thermal Load Calculator

Supplemental tool for CAN/CSA-F280

Weather Station Description		
Province:	Ontario	▼
Region:	Brampton	▼
Site Description		
Soil Conductivity:	High conductivity: moist soil	▼
Water Table:	Normal (7-10 m, 23-33 Ft)	▼
Foundation Dimensions		
Floor Length (m):	24.14	 <p>Insulation Configuration</p>
Floor Width (m):	7.10	
Exposed Perimeter (m):	62.48	
Wall Height (m):	2.74	
Depth Below Grade (m):	1.52	
Window Area (m <sup>2</sup> ):	11.24	
Door Area (m <sup>2</sup> ):	3.72	
Radiant Slab		
Heated Fraction of the Slab:	0	
Fluid Temperature (°C):	23	
Design Months		
Heating Month	1	
Foundation Loads		
Heating Load (Watts):		3828



# 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.

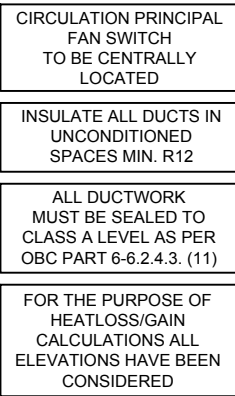
GTA DESIGNS MUST BE CONSULTED IF KITCHEN EXHAUST EXCEEDS 700 CFM

DEPRESSURIZATION MAY OCCUR WITHIN THE DWELLING

 **gtaDesigns**  
2985 DREW ROAD  
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MISSISSAUGA, ONT.  
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e-mail: [dave@gtadesigns.ca](mailto:dave@gtadesigns.ca)  
web: [www.gtadesigns.ca](http://www.gtadesigns.ca)

HEAT-LOSS		74,581		BTU/HR.
UNIT MAKE				
AMANA				
UNIT MODEL				
GMEC961004CN				
UNIT HEATING INPUT		BTU/HR.		
100,000				
UNIT HEATING OUTPUT		BTU/HR.		
96,000				
A/C COOLING CAPACITY		TONS.		
3.5				
FAN SPEED		CFM		
1653				
# OF RUNS	S/A	R/A	FANS	
3RD FLOOR				
2ND FLOOR	10	4	3	
1ST FLOOR	10	3	3	
BASEMENT	6	2		

DATE: JANUARY 22, 2016		
CLIENT: HIGHCASTLE HOMES		
MODEL: 65-3 W.O.B.		
PROJECT: RIVERWALK PHASE 2 BRAMPTON, ONT.		
SCALE: 1/8" = 1'-0"		
FLOOR PLAN: BASEMENT		
DRAWN BY: RB	CHECKED: DD	SQFT 4013
LAYOUT NO. JB-01488	DRAWING NO. M1	



# OBC 2012

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

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HEAT-LOSS		74,581		BTU/HR.	
UNIT MAKE					
AMANA					
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GMEC961004CN					
UNIT HEATING INPUT			BTU/HR.		
100,000					
UNIT HEATING OUTPUT			BTU/HR.		
96,000					
A/C COOLING CAPACITY			TONS.		
3.5					
FAN SPEED			CFM		
1653					
# OF RUNS	S/A	R/A	FANS		
3RD FLOOR					
2ND FLOOR	10	4	3		
1ST FLOOR	10	3	3		
BASEMENT	6	2			

DATE: JANUARY 22, 2016		
CLIENT: HIGHCASTLE HOMES		
MODEL: 65-3 W.O.B.		
PROJECT: RIVERWALK PHASE 2 BRAMPTON,ONT.		
SCALE: 1/8" = 1'-0"		
FLOOR PLAN: GROUND FLOOR		
DRAWN BY: RB	CHECKED: DD	SQFT 4013
LAYOUT NO. JB-01488		DRAWING NO. M2

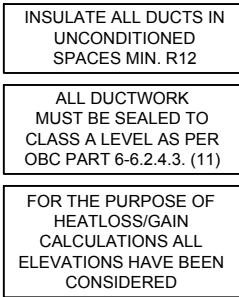
The undersigned has reviewed and takes responsibility for this design on behalf of GTA Designs Inc. and has the qualifications and meets the requirements set out in the Building Code to be a designer

**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

**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.  
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 CONSULTED IF KITCHEN  
 EXHAUST EXCEEDS 700 CFM  
 DEPRESSURIZATION MAY OCCUR  
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HEATING-LOSS		BTU/HR.	
74,581			
UNIT MAKE			
AMANA			
UNIT MODEL			
GMEC961004CN			
UNIT HEATING INPUT		BTU/HR.	
100,000			
UNIT HEATING OUTPUT		BTU/HR.	
96,000			
A/C COOLING CAPACITY		TONS.	
3.5			
FAN SPEED		CFM	
1653			
# OF RUNS	S/A	R/A	FANS
3RD FLOOR			
2ND FLOOR	10	4	3
1ST FLOOR	10	3	3
BASEMENT	6	2	

DATE: JANUARY 22, 2016		
CLIENT: HIGHCASTLE HOMES		
MODEL: 65-3 W.O.B.		
PROJECT: RIVERWALK PHASE 2 BRAMPTON,ONT.		
SCALE: 1/8" = 1'-0"		
FLOOR PLAN: THIRD FLOOR		
DRAWN BY: RB	CHECKED: DD	SOFT 4013
LAYOUT NO. JB-01488		DRAWING NO. M3



# OBC 2012

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

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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.  
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HEAT-LOSS		74,581		BTU/HR.
UNIT MAKE				
AMANA				
UNIT MODEL				
GMEC961004CN				
UNIT HEATING INPUT		BTU/HR.		
100,000				
UNIT HEATING OUTPUT		BTU/HR.		
96,000				
A/C COOLING CAPACITY		TONS.		
3.5				
FAN SPEED		CFM		
1653				
# OF RUNS	S/A	R/A	FANS	
3RD FLOOR				
2ND FLOOR	10	4	3	
1ST FLOOR	10	3	3	
BASEMENT	6	2		

DATE: <b>JANUARY 22, 2016</b>		
CLIENT: <b>HIGHCASTLE HOMES</b>		
MODEL: <b>65-3 W.O.B.</b>		
PROJECT: <b>RIVERWALK PHASE 2 BRAMPTON,ONT.</b>		
SCALE: <b>1/8" = 1'-0"</b>		
FLOOR PLAN: <b>PARTIAL ELEVATIONS</b>		
DRAWN BY: <b>RB</b>	CHECKED: <b>DD</b>	SQFT <b>4013</b>
LAYOUT NO. <b>JB-01488</b>		DRAWING NO. <b>M4</b>

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

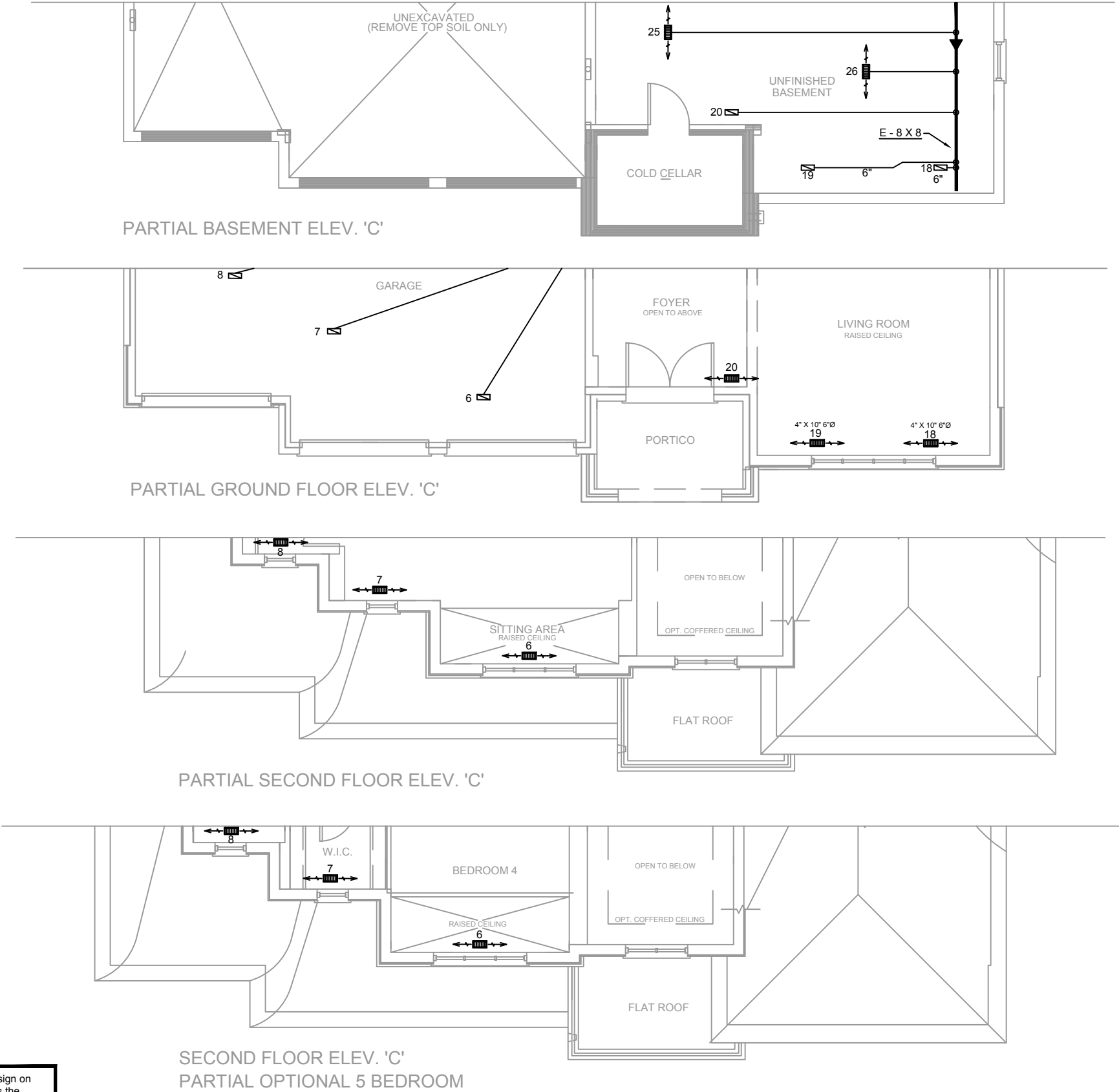
S.A.  
R.A.  
THERMOSTAT  
PRINCIPAL EXHAUST FAN SWITCH  
W/R & PRINCIPAL EXHAUST FAN

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



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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

**NOTES**

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HEAT-LOSS	BTU/HR.		
74,581			
UNIT MAKE	AMANA		
UNIT MODEL	GMEC961004CN		
UNIT HEATING INPUT	BTU/HR.		
100,000			
UNIT HEATING OUTPUT	BTU/HR.		
96,000			
A/C COOLING CAPACITY	TONS.		
3.5			
FAN SPEED	CFM		
1653			
# OF RUNS	S/A	R/A	FANS
3RD FLOOR			
2ND FLOOR	10	4	3
1ST FLOOR	10	3	3
BASEMENT	6	2	

DATE:	JANUARY 22, 2016		
CLIENT:	HIGHCASTLE HOMES		
MODEL:	65-3 W.O.B.		
PROJECT:	RIVERWALK PHASE 2 BRAMPTON,ONT.		
SCALE:	1/8" = 1"-0"		
FLOOR PLAN:	THIRD FLOOR		
DRAWN BY:	CHECKED:	SQFT	
RB	DD	4013	
LAYOUT NO.	DRAWING NO.		
JB-01488	M5		