

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 87-3 Alt. 2nd FLR			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-00870
Heating and Cooling Load Calculations		Builder	Highcastle Homes	
Air System Design		Project	Riverwalk Phase 2	
Residential mechanical ventilation Design Summary		Model	87-3 Alt. 2nd FLR	
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: - The information contained in this schedule is true to the best of my knowledge. - I have submitted this application with the knowledge and consent of the firm.				
<u>August 6, 2015</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-00870	
Building Location					
Address (Model): 87-3 Alt. 2nd FLR			Site: Riverwalk Phase 2		
Model:			Lot:		
City and Province: Brampton			Postal code:		
Calculations based on					
Dimensional information based on:			N/A		
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: Shelterd		
HRV? VanEE		60H	Internal shading: Light-translucent		Occupants: 7
Sensible Eff. at -25C 55%		Apparent Effect. at -0C 68%	Units: Imperial		Area Sq ft: 7157
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		

Builder: **Highcastle Homes**

Date: **August 13, 2015**

Project: **Riverwalk Phase 2**

Model: **87-3 Alt. 2nd FLR**

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-00870**

DESIGN LOAD SPECIFICATIONS		AIR DISTRIBUTION & PRESSURE		FURNACE/AIR HANDLER DATA:		BOILER/WATER HEATER DATA:		A/C UNIT DATA:	
Level 1 Net Load	18,901 btu/h	Equipment External Static Pressure	0.5 "w.c.	Make	Amana	Make	Type	Amana	2.5 Ton
Level 2 Net Load	17,814 btu/h	Additional Equipment Pressure Drop	0.225 "w.c.	Model	GMEC96-0803BNA	Model		Cond.-----	2.5
Level 3 Net Load	20,703 btu/h	Available Design Pressure	0.275 "w.c.	Input Btu/h	80000	Input Btu/h		Coil -----	2.5
Level 4 Net Load	0 btu/h	Return Branch Longest Effective Length	300 ft	Output Btu/h	76800	Output Btu/h			
Total Heat Loss	57,418 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	28,950 btu/h	S/A Plenum Pressure	0.14 "w.c.	Water Temp	deg. F.	Blower DATA:			
Combo System HL + 10%	63,160 Btu/h	Heating Air Flow Proportioning Factor	0.0204 cfm/btuh	AFUE	96%	Blower Speed Selected:	W2	Blower Type	ECM
Building Volume Vb	42161 ft³	Cooling Air Flow Proportioning Factor	0.0362 cfm/btuh	Aux. Heat				(Brushless DC OBC 12.3.1.5.(2))	
Ventilation Load	3,940 Btu/h.	R/A Temp	70 deg. F.	SB-12 Package	Package J	Heating Check	1172 cfm	Cooling Check	1049 cfm
Ventilation PVC	105 cfm	S/A Temp	131 deg. F.						
Supply Branch and Grill Sizing		Diffuser loss	0.01 "w.c.	Temp. Rise>>>	61 deg. F.	Selected cfm>	1172 cfm	Cooling Air Flow Rate	1049 cfm

	Level 1														Level 2																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
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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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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</

	Level 3												Level 4													
S/A Outlet No.	14	15	16	17	18	19	20	21	22	23	24															
Room Use	BED 3	ENS 4	BED 4	BED 4	BED 2	BED 2	ENS 2	LAUN 2	BED 5	ENS 5	BED 3															
Btu/Outlet	1873	691	2622	2622	2115	2115	721	209	4402	1460	1873															
Heating Airflow Rate CFM	38	14	54	54	43	43	15	4	90	30	38															
Cooling Airflow Rate CFM	46	13	69	69	56	56	6	70	75	10	46															
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	78	70	85	84	84	95	82	23	37	42	84															
Equivalent Length	200	170	175	170	200	180	180	120	140	130	160	90	90	90	90	90	90	90	90	90	90	90	90	90	90	
Total Effective Length	278	240	260	254	284	275	262	143	177	172	244	90	90	90	90	90	90	90	90	90	90	90	90	90	90	
Adjusted Pressure	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.09	0.07	0.08	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	
Duct Size Round	5	3	6	6	6	6	3	5	6	4	5															
Outlet Size	3x10	3x10	4x10	4x10	4x10	4x10	3x10	3x10	4x10	3x10	3x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	
Trunk	C	C	D	D	E	E	E	A	A	A	C															

Return Branch And Grill Sizing	Grill Pressure Loss										
R/A Inlet No.	1R	2R	3R	4R	5R	6R	7R	8R	9R	10R	11R
Inlet Air Volume CFM	193	453	158	105	158	105					
Duct Design Pressure	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12
Actual Duct Length	15	58	59	29	74	27					
Equivalent Length	95	175	160	160	220	170	70	70	70	70	70
Total Effective Length	110	233	219	189	294	197	70	70	70	70	70
Adjusted Pressure	0.11	0.05	0.05	0.06	0.04	0.06	0.17	0.17	0.17	0.17	0.17
Duct Size Round	8.0	12.0	8.5	6.0	8.5	6.0					
Inlet Size	FLC	8	8	8	8	8					
" "	x	x	x	x	x	x	x	x	x	x	x
Inlet Size		30	14	14	14	14					
Trunk	Y	X	X	Z	X	Z					

Return Trunk Duct Sizing	Trunk	CFM	Press.	Round	Rect. Size
Drop		1172	0.04	18.0	24x12
Z		1172	0.04	18.0	30x10 24x12
Y		962	0.04	16.5	32x8 24x10
X		769	0.04	15.5	28x8 22x10
W					
V					
U					
T					
S					
R					
Q					

Supply Trunk Duct Sizing	Trunk	CFM	Press.	Round	Rect. Size
A		1172	0.05	17.0	26x10 22x12
B		501	0.05	12.5	18x8 14x10
C		202	0.05	9.0	8x8 10x7
D		470	0.05	12.0	16x8 12x10
E		324	0.05	10.5	12x8 10x10
F		223	0.05	9.5	10x8
G					
H					
I					
J					
K					

2012 OBC

Builder: Highcastle Homes

Date: August 13, 2015

Project: Riverwalk Phase 2

Model: 87-3 Alt. 2nd FLR

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: 7157

Project # PJ-00067
Layout # JB-00870

Level 1

BASE

Run ft. exposed wall A	125	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	2.0	AG	2.0	AG	2.0	AG	2.0	AG	2.0	AG	2.0	AG	2.0
Floor area	1276	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	250												
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	6	141	128											
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	8.50	8.73	1.29	202		261											
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 Abo			8135													
Total Conductive	Heat Loss			9311													
Air Leakage	Heat Loss/Gain	0.9560	0.0567	8901		543											
Ventilation	Case 1		0.14														
	Case 2		25.64														
	Case 3	x	0.07	688		50											
Heat Gain People			239														
Appliances Loads	1 =.25 percent		5556														
Duct and Pipe loss			10%														
Level 1 HL Total	18,901		Total HL for per room	18901													
Level 1 HG Total	810		Total HG per room x 1.3			810											

Level 2

DIN

PWD

LIV

FOY

DEN

FOY 2

Run ft. exposed wall A	21	A	7	A	41	A	10	A	32	A	17	A	A	A	A	A	A
Run ft. exposed wall B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
Ceiling height	11.0		11.0		11.0		11.0		11.0		11.0		11.0		11.0		11.0
Floor area	514	Area	94	Area	250	Area	168	Area	302	Area	65	Area	Area	Area	Area	Area	Area
Exposed Ceilings A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Exposed Ceilings B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
Exposed Floors	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr
Gross Exp Wall A	231		77		451		110		352		187						
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	13	306	361				52	1225	1443					
South	3.15	23.56	21.28	27	636	575	7	165	149								
Existing Windows	1.99	37.29	22.15														
Skylight	2.03	36.55	88.23														
Doors	3.01	24.65	3.65							26	641	95					
Net exposed walls A	14.49	5.12	0.76	191	978	145	70	358	53	399	2043	303	74	379	56	300	1536
Net exposed walls B	8.50	8.73	1.29													12	12
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 Abo		x														
Total Conductive	Heat Loss			1920				523			3268			1255		2785	
	Heat Gain					1080			202		1746				429		1683
Air Leakage	Heat Loss/Gain	0.4598	0.0567	883		61		241		11	1503		99	577		24	1281
Ventilation	Case 1		0.07														
	Case 2		25.64														
	Case 3	x	0.07	142		99		39		19	242		160	93		39	206
Heat Gain People			239														
Appliances Loads	1 =.25 percent		5556	1.0		1389					1.0		1389			1.0	
Duct and Pipe loss			10%														
Level 2 HL Total	17,814		Total HL for per room	2945				803			5013			1926		4271	
Level 2 HG Total	13,937		Total HG per room x 1.3			3419				302			4412			640	

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	57,418	btu/h
Total Heat Gain	28,950	btu/h

2012 OBC

Builder: Highcastle Homes

Date: August 13, 2015

Project: Riverwalk Phase 2

Model: 87-3 Alt. 2nd FLR

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: 7157

Project # PJ-00067
Layout # JB-00870

Level 3

Run ft. exposed wall A	29 A	7 A	45 A	35 A	10 A	A	26 A	16 A	A	A	A
Run ft. exposed wall B	B	B	B	B	B	B	B	B	B	B	B
Ceiling height	10.0	9.0	10.0	10.0	9.0	9.0	10.0	9.0	9.0	9.0	9.0
Floor area	401 Area	53 Area	375 Area	370 Area	62 Area	108 Area	278 Area	59 Area	Area	Area	Area
Exposed Ceilings A	401 A	53 A	375 A	370 A	62 A	108 A	278 A	59 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	290	63	450	350	90		260	144			
Gross Exp Wall B											

Components	R-Values	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain			
North Shaded	3.15	23.56	11.31																									
East/West	3.15	23.56	27.75	12	283	333				63	1484	1748	49	1154	1360													
South	3.15	23.56	21.28	31	730	660	7	165	149																			
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	247	1265	188	56	287	43	387	1982	294	301	1541	229	90	461	68				238	1219	181	144	737	109	
Net exposed walls B	8.50	8.73	1.29																									
Exposed Ceilings A	50.00	1.48	0.76	401	595	305	53	79	40	375	557	285	370	549	281	62	92	47	108	160	82	278	413	211	59	88	45	
Exposed Ceilings B	22.86	3.25	1.66																									
Exposed Floors	22.05	3.37	0.23																									
Foundation Conductive Heatloss																												
Total Conductive	Heat Loss				2873			530		4022			3245			553		160			3085		1023					
	Heat Gain					1485		232		2327			1869			115		82			1065		168					
Air Leakage	Heat Loss/Gain		0.2298	0.0567	660	84		122	13	924	132		746	106		127	7		37	5	709	60	235	9				
Ventilation	Case 1		0.03	0.09																								
	Case 2		25.64	11.88																								
	Case 3		x	0.07	0.09																							
Heat Gain People				239	1	212	136		39	21	1	297	214		240	172		41	11		12	8	1	228	98		76	15
Appliances Loads			1 =.25 percent	5556																								
Duct and Pipe loss				10%														1.0		1389			1	379	130	1	126	17
Level 3 HL Total			20,703	Total HL for per room		3745			691		5244			4230		721			209			4402			1460			
Level 3 HG Total			14,203	Total HG per room x 1.3			2528		346		3785			3102		172			1928			2071			272			

Level 4

Run ft. exposed wall A	A	A	A	A	A	A	A	A	A	A	A
Run ft. exposed wall B	B	B	B	B	B	B	B	B	B	B	B
Ceiling height											
Floor area	Area	Area	Area	Area	Area	Area	Area	Area	Area	Area	Area
Exposed Ceilings A	A	A	A	A	A	A	A	A	A	A	A
Exposed Ceilings B	B	B	B	B	B	B	B	B	B	B	B
Exposed Floors	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr
Gross Exp Wall A											
Gross Exp Wall B											

Components	R-Values	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain
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																		
Net exposed walls A	14.49	5.12	0.76																		
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																					
Total Conductive	Heat Loss																				
	Heat Gain																				
Air Leakage	Heat Loss/Gain	0.0000	0.0567																		
Ventilation	Case 1		0.00																		
	Case 2		25.64																		
	Case 3	x	0.07																		
Heat Gain People			239																		
Appliances Loads	1 =.25 percent		5556																		
Duct and Pipe loss			10%																		
Level 4 HL Total	0		Total HL for per room																		
Level 4 HG Total	0		Total HG per room x 1.3																		

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Division C subsection 3.2.5. of the Building Code. Individual BCIN:

32964



David DaCosta

SB-12 Package

Package J

Total Heat Loss	57,418	btu/h
Total Heat Gain	28,950	btu/h

Package: Project: Package J Brampton System: Model: System 1 87-3 Alt. 2nd FLR

Air Leakage Calculations

Building Air Leakage Heat Loss				
B	LRairh	Vb	HL ^{AT}	HL ^{leak}
0.018	0.316	42161	74.2	17803

Building Air Leakage Heat Gain				
B	LRairh	Vb	HG ^{AT}	HG ^{Leak}
0.018	0.092	42161	11	770

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	17803	9311	0.9560
Level 2	0.3		11614	0.4598
Level 3	0.2		15492	0.2298
Level 4	0		0	0.0000

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

HG LEAK		Air Leakage Heat Gain	
	770		
BUILDING CONDUCTIVE HEAT GAIN	13593		0.0567

Levels this Dwelling	
3	

Ventilation Calculations

Ventilation Heat Loss

Ventilation Heat Loss				
C	PVC	HL ^{AT}	(1-E) HRV	HL ^{bvent}
1.08	105	74.2	0.32	2693

Ventilation Heat Gain

Ventilation Heat Gain			
C	PVC	HG ^{AT}	HG ^{bvent}
1.1	105	11	1247

Case 1

Ventilation Heat Loss (Exhaust only Systems)

Case 1 - Exhaust Only				
Level	LF	HL ^{bvent}	LVL Cond. HL	Multiplier
Level 1	0.5	2693	9311	0.14
Level 2	0.3		11614	0.07
Level 3	0.2		15492	0.03
Level 4	0		0	0.00

Case 1

Ventilation Heat Gain (Exhaust Only Systems)

Case 1 - Exhaust Only		Multiplier	
HG ^{bvent}	1247	0.09	
Building	13593		

Case 2

Ventilation Heat Loss (Direct Ducted Systems)

			Multiplier
C	HL ^{AT}	(1-E) HRV	25.64
1.08	74.2	0.32	

Case 2

Ventilation Heat Gain (Direct Ducted Systems)

		Multiplier
C	HG ^{AT}	11.88
1.08	11	

Case 3

Ventilation Heat Loss (Forced Air Systems)

		HL ^{bvent}	Multiplier
Total Ventilation Load		2693	0.07

Case 3

Ventilation Heat Gain (Forced Air Systems)

		Vent Heat Gain	Multiplier
HG ^{bvent}	HG*1.3	1247	0.09
1247	1		

Foundation Conductive Heatloss Level 1

2384 Watts 8135 Btu/h

Foundation Conductive Heatloss Level 2

Watts Btu/h

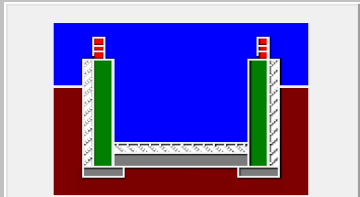
Envelope Air Leakage Calculator

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				6.4
Type:	Detached ▼			
Number of Stories:	Two ▼			
Foundation:	Full ▼			
House Volume (m ³):	566.3 1194.00			
Air Leakage/Ventilation				
Air Tightness Type:	Present (1961-) (ACH=3.57) ▼			
Custom BDT Data:	ELA @ 10 Pa. ▼ 185.83 cm ² 3.57 ACH @ 50 Pa			
Mechanical Ventilation (L/s):	Total Supply:		Total Exhaust:	
	52.5		52.5	
Flue Size				
Flue #:	#1	#2	#3	#4
Diameter (mm):	0	0	0	0
Envelope Air Leakage Rate				
Heating Air Leakage Rate (ACH/H):		0.316		
Cooling Air Leakage Rate (ACH/H):		0.092		

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):	23.25	 Insulation Configuration
Floor Width (m):	5.10	
Exposed Perimeter (m):	38.10	
Wall Height (m):	2.74	
Depth Below Grade (m):	2.13	
Window Area (m ²):	0.56	
Door Area (m ²):	3.90	
Radiant Slab		
Heated Fraction of the Slab:	0	
Fluid Temperature (°C):	29	
Design Months		
Heating Month	1	
Foundation Loads		
Heating Load (Watts):		2384

Builder: **Highcastle Homes**

Date: **August 13, 2015**

Project: **Riverwalk Phase 2**

Model: **87-3 Alt. 2nd FLR**

System 2

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

Project # **PJ-00067**
Layout # **JB-00870**

Page 3

DESIGN LOAD SPECIFICATIONS		AIR DISTRIBUTION & PRESSURE		FURNACE/AIR HANDLER DATA:		BOILER/WATER HEATER DATA:		A/C UNIT DATA:	
Level 1 Net Load	22,159 btu/h	Equipment External Static Pressure	0.5 "w.c.	Make	Amana	Make	Type	Amana	3.0 Ton
Level 2 Net Load	20,071 btu/h	Additional Equipment Pressure Drop	0.225 "w.c.	Model	GMEC96-0803BNA	Model		Cond.-----	3.0
Level 3 Net Load	19,477 btu/h	Available Design Pressure	0.275 "w.c.	Input Btu/h	80000	Input Btu/h		Coil -----	3.0
Level 4 Net Load	0 btu/h	Return Branch Longest Effective Length	300 ft	Output Btu/h	76800	Output Btu/h			
Total Heat Loss	61,707 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	30,594 btu/h	S/A Plenum Pressure	0.14 "w.c.	Water Temp	deg. F.	Blower DATA:			
Combo System HL + 10%	67,878 Btu/h	Heating Air Flow Proportioning Factor	0.0190 cfm/btuh	AFUE	96%	Blower Speed Selected:	W2	Blower Type	ECM
Building Volume Vb	51420 ft³	Cooling Air Flow Proportioning Factor	0.0383 cfm/btuh	Aux. Heat				(Brushless DC OBC 12.3.1.5.(2))	
Ventilation Load	3,940 Btu/h.	R/A Temp	70 deg. F.	SB-12 Package	Package J	Heating Check	1172 cfm	Cooling Check	1172 cfm
Ventilation PVC	105 cfm	S/A Temp	131 deg. F.						
Supply Branch and Grill Sizing		Diffuser loss	0.01 "w.c.	Temp. Rise>>>	61 deg. F.	Selected cfm>	1172 cfm	Cooling Air Flow Rate	1172 cfm

	Level 1													Level 2																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
S/A Outlet No.	1	2	3	4	5									6	7	8	9	10	11	12	13																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
Room Use	BASE	BASE	BASE	BASE	BASE									KIT	KIT	KIT	MUD	LAUN	LAUN	FAM	FAM																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
Btu/Outlet	4432	4432	4432	4432	4432									3025	3025	3025	895	3188	3188	1863	1863																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
Heating Airflow Rate CFM	84	84	84	84	84									57	57	57	17	61	61	35	35																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
Cooling Airflow Rate CFM	8	8	8	8	8									104	104	104	5	97	97	94	94																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	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	

	Level 3											Level 4														
S/A Outlet No.	14	15	16	17	18	19	20	21		23	24															
Room Use	MAST	MAST	MAST	WARD	ENS 1	WC	ENS 3	BED 6		RETR	MAST															
Btu/Outlet	1992	1992	1992	332	1500	790	1492	4394		3003	1992															
Heating Airflow Rate CFM	38	38	38	6	28	15	28	83		57	38															
Cooling Airflow Rate CFM	58	58	58	7	42	18	24	54		56	58															
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	63	54	55	35	68	70	74	42		49	60															
Equivalent Length	155	170	165	170	130	135	140	120	90	150	145	90	90	90	90	90	90	90	90	90	90	90	90	90	90	
Total Effective Length	218	224	220	205	198	205	214	162	90	199	205	90	90	90	90	90	90	90	90	90	90	90	90	90	90	
Adjusted Pressure	0.06	0.06	0.06	0.06	0.07	0.06	0.06	0.08	0.14	0.07	0.06	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	6	6	5	3	5	4	4	6		5	6															
Outlet Size	4x10	4x10	3x10	3x10	3x10	3x10	3x10	4x10	4x10	3x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	
Trunk	B	B	B	B	C	C	D	E		E	B															

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	211	365	105	158	158	190					
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	10	8	26	39	36	22					
Equivalent Length	170	130	125	200	160	175	70	70	70	70	70
Total Effective Length	180	138	151	239	196	197	70	70	70	70	70
Adjusted Pressure	0.07	0.09	0.08	0.05	0.06	0.06	0.17	0.17	0.17	0.17	0.17
Duct Size Round	8.0	10.0	6.0	8.5	8.0	8.5					
Inlet Size	FLC	8	8	8	8	8					
" "	x	x	x	x	x	x	x	x	x	x	x
Inlet Size		30	14	14	14	14					
Trunk	Z	Z		Y	Y	Y					

Return Trunk Duct Sizing	Trunk	CFM	Press.	Round	Rect. Size
Drop		1172	0.05	17.0	24x12
Z		1082	0.05	16.5	32x8 24x10
Y		506	0.05	12.5	18x8 14x10
X					
W					
V					
U					
T					
S					
R					
Q					

Supply Trunk Duct Sizing	Trunk	CFM	Press.	Round	Rect. Size
A		910	0.06	15.0	26x8 20x10
B		738	0.06	14.0	22x8 18x10
C		439	0.06	11.5	14x8 12x10
D		170	0.06	8.0	8x8 8x7
E		262	0.07	9.0	8x8 10x7
F					
G					
H					
I					
J					
K					

2012 OBC

Builder: Highcastle Homes

Date: August 13, 2015

Project: Riverwalk Phase 2

Model: 87-3 Alt. 2nd FLR

System 2

Weather Data Brampton 44 -2.2 86 20 48.2

Heat Loss ^T 74.2 deg. F Ht gain ^T 11 deg. F GTA: 7157

Project # PJ-00067
Layout # JB-00870

Level 1

BASE

Run ft. exposed wall A	152	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	2.0	AG	2.0	AG	2.0	AG	2.0	AG	2.0	AG	2.0	AG	2.0
Floor area	1792	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	304												
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	9	212	250											
South	3.15	23.56	21.28	3	71	64											
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	8.50	8.73	1.29	292		378											
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 Abo			10252													
Total Conductive	Heat Loss			10534													
Air Leakage	Heat Loss/Gain	1.0305	0.0683	10856		47											
Ventilation	Case 1	0.13	0.09														
	Case 2	25.64	11.88														
	Case 3	x	0.07	768		63											
Heat Gain People			239														
Appliances Loads	1 =.25 percent		6784														
Duct and Pipe loss			10%														
Level 1 HL Total	22,159		Total HL for per room	22159													
Level 1 HG Total	1,042		Total HG per room x 1.3			1042											

Level 2

KIT

MUD

LAUN

FAM

Run ft. exposed wall A	62	A	10	A	50	A	22	A	A	A	A	A	A	A	A	A	A
Run ft. exposed wall B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
Ceiling height	11.0		11.0		11.0		11.0		11.0		11.0		11.0		11.0		11.0
Floor area	704	Area	143	Area	308	Area	516	Area	Area	Area	Area	Area	Area	Area	Area	Area	Area
Exposed Ceilings A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
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	682		110		550		242										
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	13	306	147											
East/West	3.15	23.56	27.75	77	1814	2137											
South	3.15	23.56	21.28	22	518	468											
Existing Windows	1.99	37.29	22.15														
Skylight	2.03	36.55	88.23														
Doors	3.01	24.65	3.65	8	197	29											
Net exposed walls A	14.49	5.12	0.76	562	2878	427	110	563	84	487	2494	370	182	932	138		
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 Abo		x														
Total Conductive	Heat Loss			5713				563		4014			2345				
	Heat Gain				3208			84		1158			1803				
Air Leakage	Heat Loss/Gain	0.5155	0.0683	2945		219		290		2069		79	1209		123		
Ventilation	Case 1	0.06	0.09														
	Case 2	25.64	11.88														
	Case 3	x	0.07	417		291		41		293		105	171		163		
Heat Gain People			239														
Appliances Loads	1 =.25 percent		6784	1.5		2544				1.5		2544	1.0		1696		
Duct and Pipe loss			10%														
Level 2 HL Total	20,071		Total HL for per room	9075		8140		895		6376		5053	3725		4921		
Level 2 HG Total	18,240		Total HG per room x 1.3														

I review and take responsibility for the design work and am qualified in the appropriate category as an "other designer" under

Division C subsection 3.2.5. of the Building Code. Individual BCIN:

32964



David DaCosta

SB-12 Package

Package J

Total Heat Loss	61,707	btu/h
Total Heat Gain	30,594	btu/h

Package: Package J System: System 2
Project: Brampton Model: 87-3 Alt. 2nd FLR

Air Leakage Calculations

Building Air Leakage Heat Loss				
B	LRairh	Vb	HL ^{AT}	HL ^{leak}
0.018	0.316	51420	74.2	21712

Building Air Leakage Heat Gain				
B	LRairh	Vb	HG ^{AT}	HG ^{Leak}
0.018	0.092	51420	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	21712	10534	1.0305
Level 2	0.3		12636	0.5155
Level 3	0.2		13752	0.3158
Level 4	0		0	0.0000

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

HG LEAK		Air Leakage Heat Gain	
	939		0.0683
BUILDING CONDUCTIVE HEAT GAIN			13756

Levels this Dwelling	
3	

Ventilation Calculations

Ventilation Heat Loss

Ventilation Heat Loss				
C	PVC	HL ^{AT}	(1-E) HRV	HL ^{bvent}
1.08	105	74.2	0.32	2693

Ventilation Heat Gain

Ventilation Heat Gain			
C	PVC	HG ^{AT}	HG ^{bvent}
1.1	105	11	1247

Case 1

Ventilation Heat Loss (Exhaust only Systems)

Case 1 - Exhaust Only				
Level	LF	HL ^{bvent}	LVL Cond. HL	Multiplier
Level 1	0.5	2693	10534	0.13
Level 2	0.3		12636	0.06
Level 3	0.2		13752	0.04
Level 4	0		0	0.00

Case 1

Ventilation Heat Gain (Exhaust Only Systems)

Case 1 - Exhaust Only		Multiplier	
HG ^{bvent}	1247	0.09	
Building	13756		

Case 2

Ventilation Heat Loss (Direct Ducted Systems)

			Multiplier	
C	HL ^{AT}	(1-E) HRV	25.64	
1.08	74.2	0.32		

Case 2

Ventilation Heat Gain (Direct Ducted Systems)

		Multiplier	
C	HG ^{AT}	11.88	
1.08	11		

Case 3

Ventilation Heat Loss (Forced Air Systems)

		HL ^{bvent}	Multiplier
Total Ventilation Load		2693	0.07

Case 3

Ventilation Heat Gain (Forced Air Systems)

		Vent Heat Gain		Multiplier	
HG ^{bvent}	HG*1.3	1247		0.09	
1247	1				

Foundation Conductive Heatloss Level 1

3005 Watts 10252 Btu/h

Foundation Conductive Heatloss Level 2

Watts Btu/h

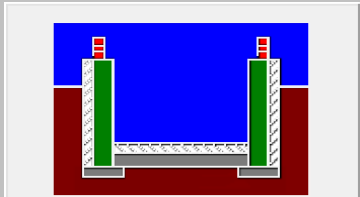
Envelope Air Leakage Calculator

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				6.4
Type:	Detached ▼			
Number of Stories:	Two ▼			
Foundation:	Full ▼			
House Volume (m ³):	566.3 1456.21			
Air Leakage/Ventilation				
Air Tightness Type:	Present (1961-) (ACH=3.57) ▼			
Custom BDT Data:	ELA @ 10 Pa. ▼ 185.83 cm ² 3.57 ACH @ 50 Pa			
Mechanical Ventilation (L/s):	Total Supply:		Total Exhaust:	
	52.5		52.5	
Flue Size				
Flue #:	#1	#2	#3	#4
Diameter (mm):	0	0	0	0
Envelope Air Leakage Rate				
Heating Air Leakage Rate (ACH/H):		0.316		
Cooling Air Leakage Rate (ACH/H):		0.092		

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):	26.08	 Insulation Configuration
Floor Width (m):	6.38	
Exposed Perimeter (m):	46.33	
Wall Height (m):	2.74	
Depth Below Grade (m):	2.13	
Window Area (m ²):	1.11	
Door Area (m ²):	0.00	
Radiant Slab		
Heated Fraction of the Slab:	0	
Fluid Temperature (°C):	29	
Design Months		
Heating Month	1	
Foundation Loads		
Heating Load (Watts):		3005

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: 87-3 Alt. 2nd FLR

RESIDENTIAL MECHANICAL VENTILATION DESIGN SUMMARY

For systems serving one dwelling unit & conforming to the Ontario Building Code, O.geg 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)	☒	Direct vent (sealed combustion) only
b)	☐	Positive venting induced draft (except fireplaces)
c)	☐	Natural draft, B-vent or induced draft fireplaces
d)	☐	Solid fuel (including fireplaces)
e)	☐	No combustion Appliances

Heating System	
☒	Forced air
☐	Non forced air
☐	Electric space heat (if over 10% of heat load)

House Type 9.32.3.1(2)		
I	☒	Type a) or b) appliances only, no solid fuel
II	☐	Type I except with solid fuel (including fireplace)
III	☐	Any type c) appliance
IV	☐	Type I or II either electric space heat
Other	☐	Type I, II or IV no forced air

System Design Option		
1	☐	Exhaust only / forced air system
2	☐	HRV WITH DUCTING / forced air system
3	☒	HRV simplified connection to forced air system
4	☐	HRV full ducting/not coupled to forced air system
	☒	Part 6 design

Total Ventilation Capacity 9.32.3.3(1)				
Bsmt & Master Bdrm	2	@	20 cfm	40 cfm
Other Bedrooms	5	@	10 cfm	50 cfm
Bathrooms & Kitchen	7	@	10 cfm	70 cfm
Other rooms	8	@	10 cfm	80 cfm
Total				<u>240</u>

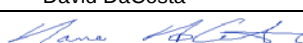
Principal Ventilation Capacity 9.32.3.4(1)				
Master bedroom	1	@	30 cfm	30 cfm
Other bedrooms	5	@	15 cfm	75 cfm
Total				<u>105</u>

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%

Supplemental Ventilation Capacity		
Total ventilation capacity		240.0
Less principal exhaust capacity		105.0
REQUIRED supplemental vent. Capacity		<u>135.0</u> cfm

Supplemental Fans 9.32.3.5.			
Location	cfm	Model	Sones
ENS 1	50	770	2.5
ENS 2	50	770	2.5
ENS 3	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			
HRAI #	5190	BCIN #	32964
Date	August 6, 2015		



2985 Drew Road, Suite 202
Mississauga, ON. L4T 0A4
Tel: (905) 671-9800
Fax: (647) 494-9643
dave@gtadesigns.ca

Residential Mechanical Ventilation Record (W2)

CSA (F326) Mechanical Ventilation

July 6, 2015

Project Information

Project #: JB-00870 Site/Location: Brampton Notes:
Model/Add.: 87-3 Alt. 2nd FLR Builder/Client: Highcastle Homes

Heating System/ Combustion Appliances	☒ Forced Air	☐ Non-Forced Air	Roll #:	Permit #:	Location					
	☐ Electric	☒ Gas	☐ Oil	☐ Other		Lot & Plan:				
	☐ No Combustion Appliances		No Depressurization Limit			Civic Address:				
	☐ Solid Fuel (Including Fireplace)		5 Pa. Depress. Limit			Name: House ID#:				
Exhaust Equipment	☒ Direct Vent (Sealed Combustion)		No Depressurization Limit		Builder					
	☐ Positive Venting Induced Draft		5 Pa. Depress. Limit			Address: City: P.C.:				
	☐ Natural Draft or B-Vent Atmospheric		5 Pa. Depress. Limit			Phone: Fax:				
	Lowest Depressurization Limit		Pa.			Email Address:				
Total Ventilation Capacity (TVC)	☒ Clothes Dryer(s)		(150 CFM Default)		Designer					
	☐ Downdraft Cook Top		(220 CFM Default)			Name: David DaCosta HRAI #: 5190				
	☐ Other (Exhaust)		(Over 150 CFM)			Address: 2985 Drew Road, Suite 202				
	Depressurization Test/Calc. Required?		☐ Yes	☒ No		City: Mississauga P.C.:				
Exhaust Capacity	Basement & Master Bedroom		2	@	20 CFM	40 CFM	Installation Checklist			
	Other Bedrooms		5	@	10 CFM	50 CFM		Name: David DaCosta HRAI #: 5190		
	Bathrooms & Kitchen		7	@	10 CFM	70 CFM		Address: 2985 Drew Road, Suite 202		
	Other Hab. Rooms		8	@	10 CFM	80 CFM		City: Mississauga P.C.:		
Total Ventilation Capacity (TVC)				240 CFM	Phone: 905-671-9800 Fax: 647-494-9643					
TVC System	Minimum Continuous Exhaust				Measured TVC System					
	Kitchen(s)		@	60 CFM =		CFM	Email Address: dave@gtadesigns.ca Other:			
	Bathrooms(s)		@	20 CFM =		CFM	I certify this ventilation system design to be in accordance with: ☒ CSA F326 M-91 ☐ R-2000 Signature: <i>David DaCosta</i> Date: July 6, 2015			
	Total			CFM						
Additional (Exhaust) Equipment	Minimum Intermittent Exhaust				Installer					
	Kitchen(s)		1	@		100 CFM =	100 CFM	☐ Control Functioning	☐ Fans Operating and Clean	
	Bathrooms(s)		6	@		50 CFM =	300 CFM	☐ Filters Clean	☐ Flow Measuring Stations	
	Total			400 CFM		☐ Dampers Accessible	☐ Insulated Ducts Sealed			
Location: Base		Manufacturer/Model: VanEE 60H HVI Listed		Design Airflow 107 CFM High 53 CFM Low		☐ Drain Loop and Connection	☐ Label Supply/Exhaust Hood			
HRV/ERV 65 % Sensible Efficiency @ 0°C		watts		HRV/ERV 55 % Sensible Efficiency @ -25°C		watts		☐ Distribution to all habitable rooms (non-forced air)		
TVC System Supply Airflow Measured		CFM High		CFM Low		TVC System Exhaust Airflow Measured		☐ Forced Air System	☐ Contin. Mode	☐ Interlocked
TVC System Exhaust Airflow Measured		CFM High		CFM Low		Name: HRAI:		☐ Kitchen Intake Grease Filter	☐ Kitchen Exh. 40" to Range	
Supply Intake 6' from Exhaust (Recommended)		Supply Intake 3' from Exhaust		City: P.C.:		Phone: Fax:		☐ Exhaust 4" Above Grade	☐ Supply 18" above Grade	
Fan Manufacturer: Broan or Equiv. HVI Listed		I Certify this Ventilation System install to be in Accordance with: CSA F326 M-91 R-2000 Signature: _____ Date: _____		Address:		Email Address:		Signature: _____ Date: _____		

Prepared By: David DaCosta	HRAI #: 5190	Model/Address: 87-3 Alt. 2nd FLR
Signature: <i>David DaCosta</i>	Date: July 6, 2015	Job #: JB-00870 Official Use:

Project Information

Project #: JB-00870 Site/Location: Brampton Notes:
Model/Add.: 87-3 Alt. 2nd FLR Builder/Client: Highcastle Homes

Floor Area		Total Floor Area: <u>7157</u> ft ²		Line #
(Total Heated Floor Area Including Basement; Count Crawl Space as 1/2 actual Area)				301
Assumed Air Changes Per Hour at 50 Pascal's				
Tight R-2000	0.5 ACH	Typical R-2000	1.0 ACH	Prairies/North (New)
Atlantic (New)	1.5 ACH	Other Provinces (New)	1.4 ACH	Older Homes
or actual test	<u> </u>			House ACH50
				<u>1.4</u>
Combustion Appliance Depressurization Limit				
If Spillage Susceptible	-5 Pa.	Flow Factor	0.022	Depressurization Limit @ TVCC
If Non-Spillage Susceptible	-10 Pa.	Flow Factor	0.037	
				Flow Factor <u>0.022</u>
Allowable Net Exhaust				
Floor Area (301)	<u>7157</u> ft ²	x	ACH50 (302)	<u>1.4</u>
		x	Flow Factor (304)	<u>0.022</u>
				= <u> </u>
				Allowable Net Exhaust @ TVCC <u>220</u> CFM
Actual Net Exhaust				
			TVCC Exhaust	<u>240</u> CFM
			minus	
			TVCC Supply	<u>107</u> CFM
			Actual Net Exhaust @ TVCC	<u>133</u> CFM
Note: If Supply is greater than Exhaust, use worksheet # W-3B				
Required Make-Up Air Flow				
			Actual Net Exhaust @ TVCC (Line 308)	<u>133</u> CFM
			minus	
			Allowable Net Exhaust @ TVCC (Line 305)	<u>220</u> CFM
			Required Make-Up Airflow @ TVCC	<u>0</u> CFM
			At Depressurization Limit (Line 303)	<u>-5</u> Pa.
Description of Make-Up Air System				
Make-Up Air is not Required				
On-Site Depressurization Test				
		☐ Required		☒ Not Required
310				

Prepared By: David DaCosta	HRAI #: 5190	Model/Address: 87-3 Alt. 2nd FLR	
Signature: 	Date: July 6, 2015	Job #: JB-00870	Official Use:

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-00870

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
87-3 Alt. 2nd FLR		
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 = 603 m ²	☐ ICF Basement ☐ Walkout Basement ☐ Log/Post&Beam
Area of W,S&G = 71 m ²	☐ ICF Above Grade ☐ 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
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.

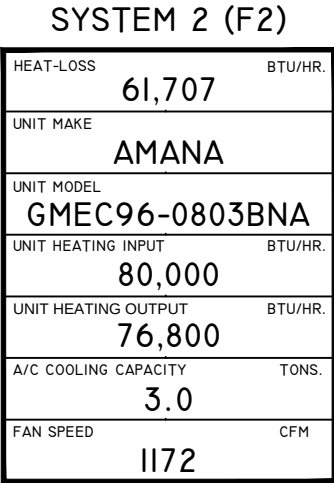
Energy Star: Submit the BOP form with Energy Advisor's certification on completion.

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	

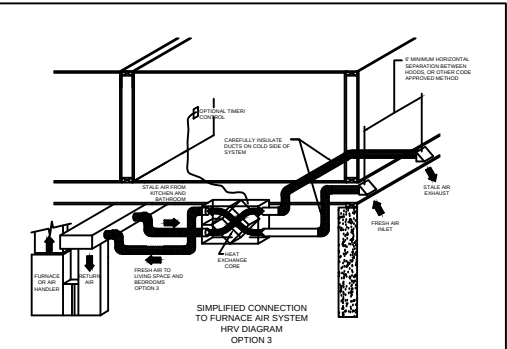


 **gtaDesigns**

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e-mail: dave@gtadesigns.ca
web: www.gtadesigns.ca

HEAT-LOSS		BTU/HR.	
UNIT MAKE			
UNIT MODEL			
UNIT HEATING INPUT		BTU/HR.	
UNIT HEATING OUTPUT		BTU/HR.	
A/C COOLING CAPACITY		TONS.	
FAN SPEED		CFM	
# OF RUNS	S/A	R/A	FANS
3RD FLOOR			
2ND FLOOR	21	7	7
1ST FLOOR	17	3	2
BASEMENT	10	2	

DATE:		
AUGUST 06, 2015		
CLIENT:		
HIGHCASTLE HOMES		
MODEL:		
87-3 ALT. 2ND FLR		
PROJECT:		
RIVERWALK PHASE 2 BRAMPTON,ONT.		
SCALE:		
1/8" = 1"-0"		
FLOOR PLAN:		
BASEMENT		
DRAWN BY:	CHECKED:	SOFT
AM	DD	7157
LAYOUT NO.		DRAWING NO.
JB-00870		M1



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

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

FOR THE PURPOSE OF
HEATLOSS/GAIN
CALCULATIONS ALL
ELEVATIONS HAVE BEEN
CONSIDERED

OBC 2012

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

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



David Da Costa  B.C.I.N. 32964
Signature of Designer

AYOUT NO. JB-00870	DRAWING NO. M2
-----------------------	-------------------

S.A.
R.A.
S.A.
R.A.

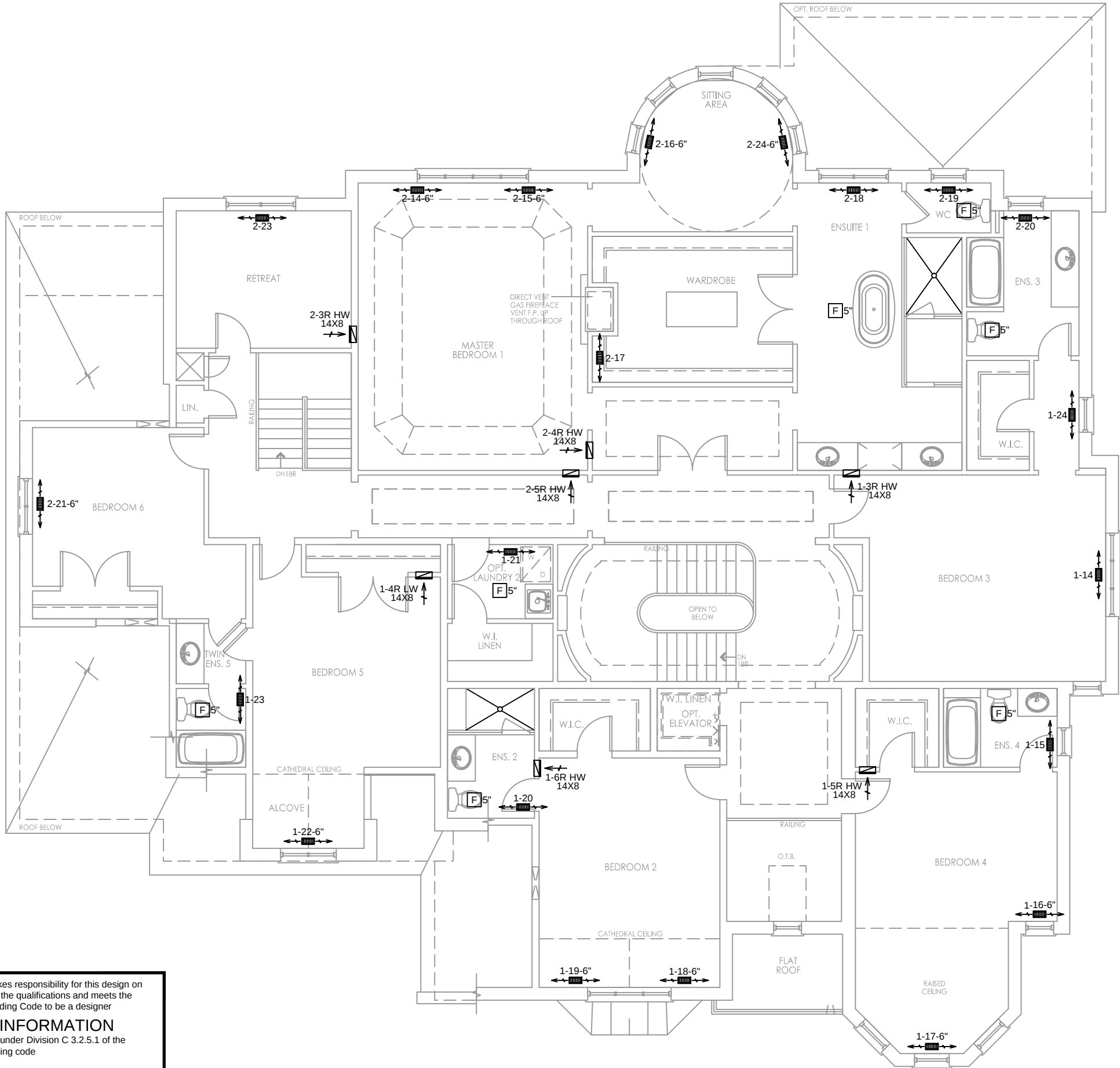
RETURN AIR GRILLE
(SIZE INDICATED ON DRAWING)
RETURN AIR RISER UP TO
FLOOR ABOVE
RETURN AIR FROM BASEMENT
SECOND FLOOR

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

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

FLEX DUCT
RIDIT ROUND DUCT
SUPPLY DIFFUSER

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



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

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

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web: www.gtadesigns.ca

HEAT-LOSS	BTU/HR.		
UNIT MAKE			
UNIT MODEL			
UNIT HEATING INPUT	BTU/HR.		
UNIT HEATING OUTPUT	BTU/HR.		
A/C COOLING CAPACITY	TONS.		
FAN SPEED	CFM		
# OF RUNS	S/A	R/A	FANS
3RD FLOOR			
2ND FLOOR	21	7	7
1ST FLOOR	17	3	2
BASEMENT	10	2	

DATE: AUGUST 06, 2015		
CLIENT: HIGHCASTLE HOMES		
MODEL: 87-3 ALT. 2ND FLR		
PROJECT: RIVERWALK PHASE 2 BRAMPTON,ONT.		
SCALE: 1/8" = 1'-0"		
FLOOR PLAN: SECOND FLOOR		
DRAWN BY: AM	CHECKED: DD	SQFT 7157
LAYOUT NO. JB-00870	DRAWING NO. M3	