

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 87-2			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 ☐ Small Buildings ☐ Large Buildings ☐ Complex Buildings ☒ HVAC – House ☐ Building Services ☐ Detection, Lighting and Power ☐ Fire Protection ☐ Building Structural ☐ Plumbing – House ☐ Plumbing – All Buildings ☐ On-site Sewage Systems				
Description of designer's work		Model Certification		Project #:
				Layout #:
Heating and Cooling Load Calculations		Builder	Highcastle Homes	
Air System Design		Project	Riverwalk Phase 2	
Residential mechanical ventilation Design Summary		Model	87-2	
Residential System Design per CAN/CSA-F280-12		SB-12	Package J	
Residential New Construction - Forced Air				
D. Declaration of Designer				
I, <u>David DaCosta</u> declare that (choose one as appropriate): (print name) ☐ I review and take responsibility for the design work on behalf of a firm registered under subsection 3.2.4 Division C of the Building Code. I am qualified, and the firm is registered, in the appropriate classes/categories. Individual BCIN: _____ Firm BCIN: _____ ☒ I review and take responsibility for the design and am qualified in the appropriate category as an "other designer" under subsection 3.2.5 of Division C, of the Building Code. Individual BCIN: <u>32964</u> Basis for exemption from registration: <u>Division C 3.2.4.1. (4)</u> ☐ The design work is exempt from the registration and qualification requirements of the Building Code. Basis for exemption from registration and qualification:				
I certify that:				
1. The information contained in this schedule is true to the best of my knowledge.				
2. I have submitted this application with the knowledge and consent of the firm.				
<u>August 12, 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-00854	
Building Location					
Address (Model): 87-2			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: 6402
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**

I review and take responsibility for the design work and am qualified in the appropriate category as an "other designer" under Division C subsection 3.2.5. of the Building Code.

Page 3

Project: **Riverwalk Phase 2**

Model: **87-2**

System 1

Individual BCIN: 32964

David DaCosta

Project # **PJ-00067**
Layout # **JB-00854**

DESIGN LOAD SPECIFICATIONS		AIR DISTRIBUTION & PRESSURE		FURNACE/AIR HANDLER DATA:		BOILER/WATER HEATER DATA:		A/C UNIT DATA:	
Level 1 Net Load	17,023 btu/h	Equipment External Static Pressure	0.5 "w.c.	Make	Amana	Make	Type	Amana	2.5 Ton
Level 2 Net Load	16,156 btu/h	Additional Equipment Pressure Drop	0.225 "w.c.	Model	GMEC96-0603BNA	Model		Cond.-----	2.5
Level 3 Net Load	20,813 btu/h	Available Design Pressure	0.275 "w.c.	Input Btu/h	60000	Input Btu/h		Coil -----	2.5
Level 4 Net Load	0 btu/h	Return Branch Longest Effective Length	300 ft	Output Btu/h	57600	Output Btu/h			
Total Heat Loss	53,993 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	29,097 btu/h	S/A Plenum Pressure	0.14 "w.c.	Water Temp	deg. F.	Blower DATA:			
Combo System HL + 10%	59,392 Btu/h	Heating Air Flow Proportioning Factor	0.0197 cfm/btuh	AFUE	96%	Blower Speed Selected:	Y	Blower Type	ECM
Building Volume Vb	39378 ft³	Cooling Air Flow Proportioning Factor	0.0366 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	1066 cfm	Cooling Check	1066 cfm
Ventilation PVC	105 cfm	S/A Temp	120 deg. F.						
Supply Branch and Grill Sizing		Diffuser loss	0.01 "w.c.	Temp. Rise>>>	50 deg. F.	Selected cfm>	1066 cfm	Cooling Air Flow Rate	1066 cfm

	Level 1														Level 2																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
S/A Outlet No.	1	2	3	4											6	7	8	9	10	11	12	13																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
Room Use	BASE	BASE	BASE	BASE											DEN	DEN	PWD	FOY	LIV	LIV	LIV	DIN																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
Btu/Outlet	4256	4256	4256	4256											3030	3030	729	2256	1814	1814	1814	1670																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
Heating Airflow Rate CFM	84	84	84	84											60	60	14	45	36	36	36	33																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
Cooling Airflow Rate CFM	5	5	5	5											89	89	10	31	93	93	93	40																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
Duct Design Pressure	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0

	Level 3											Level 4												
	14	15	16	17	18	19	20	21	22															
S/A Outlet No.	BED 4	BED 4	ENS 4	BED 5	BED 5	BED 5	ENS 5	BED 2	BED 2															
Room Use	3287	3287	794	2331	2331	2331	94	3179	3179															
Btu/Outlet	65	65	16	46	46	46	2	63	63															
Heating Airflow Rate CFM	85	85	13	73	73	73	2	52	52															
Cooling Airflow Rate CFM																								
Duct Design Pressure	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13
Actual Duct Length	64	54	52	46	54	66	40	26																
Equivalent Length	150	130	140	150	175	185	130	140	110	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90
Total Effective Length	214	184	192	196	229	251	170	166	110	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90
Adjusted Pressure	0.06	0.07	0.07	0.07	0.06	0.05	0.08	0.08	0.12	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	6	6	3	6	6	6	2	5	5															
Outlet Size	4x10	4x10	3x10	4x10	4x10	4x10	3x10	3x10	3x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10
Trunk	A	A	A	C	C	C	D	D	D															

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	180	206	206	158	158	158						
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	9	20	32	40	40	25						
Equivalent Length	130	170	180	205	170	205	70	70	70	70	70	
Total Effective Length	139	190	212	245	210	230	70	70	70	70	70	
Adjusted Pressure	0.08	0.06	0.06	0.05	0.06	0.05	0.17	0.17	0.17	0.17	0.17	
Duct Size Round	7.0	8.5	8.5	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		14	14	14	14	14						
Trunk	Z	Z				Z						

Return Trunk Duct Sizing	Trunk	CFM	Press.	Round	Rect. Size
Drop		1066	0.05	16.5	24x10
Z		544	0.05	13.0	18x8 14x10
Y					
X					
W					
V					
U					
T					
S					
R					
Q					

Supply Trunk Duct Sizing	Trunk	CFM	Press.	Round	Rect. Size
A		738	0.05	14.5	24x8 18x10
B		494	0.05	12.5	18x8 14x10
C		246	0.05	9.5	10x8
D		328	0.08	10.0	12x8 10x10
E					
F					
G					
H					
I					
J					
K					

2012 OBC

Builder: Highcastle Homes

Date: August 13, 2015

Project: Riverwalk Phase 2

Model: 87-2

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: 6402

Project # PJ-00067
Layout # JB-00854

Level 1				BASE																		
Run ft. exposed wall A	111	A		A		A		A		A		A		A		A		A				
Run ft. exposed wall 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	AG		
Floor area	1215	Area		Area		Area		Area		Area		Area		Area		Area		Area				
Exposed Ceilings A	A			A		A		A		A		A		A		A		A				
Exposed Ceilings B	B			B		B		B		B		B		B		B		B				
Exposed Floors	Flr			Flr		Flr		Flr		Flr		Flr		Flr		Flr		Flr				
Gross Exp Wall A	222																					
Gross Exp Wall B																						
Components				R-Values	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	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	21	518	77													
Net exposed walls A				8.50	8.73	1.29	198		256													
Net exposed walls B				8.50	8.73	1.29																
Exposed Ceilings A				50.00	1.48	0.76																
Exposed Ceilings B				22.86	3.25	1.66																
Exposed Floors				22.05	3.37	0.23																
Foundation Conductive Heatloss				On Grade () or Above ()																		
Total Conductive				Heat Loss																		
				Heat Gain																		
Air Leakage				Heat Loss/Gain	1.0299	0.0502																
Ventilation				Case 1	0.17	0.09																
				Case 2		25.64	11.88															
				Case 3	x	0.08	0.09															
Heat Gain People						239																
Appliances Loads				1 =.25 percent		5194																
Duct and Pipe loss						10%																
Level 1 HL Total				17,023	Total HL for per room			17023														
Level 1 HG Total				587	Total HG per room x 1.3				587													

Level 2				DEN PWD FOY LIV DIN															
Run ft. exposed wall A	47	A		6	A		10	A		38	A		19	A		A		A	
Run ft. exposed wall B		B			B			B			B			B		B		B	
Ceiling height	11.0			11.0			11.0			11.0			11.0			11.0		11.0	
Floor area	371	Area		66	Area		177	Area		332	Area		338	Area		Area		Area	
Exposed Ceilings A	A			A			A			A			A			A		A	
Exposed Ceilings B	B			B			B			B			B			B		B	
Exposed Floors	Flr			Flr			Flr			Flr			Flr			Flr		Flr	
Gross Exp Wall A	517			66			110			418			209						
Gross Exp Wall B																			
Components	R-Values	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain
North Shaded	3.15	23.56	11.31																
East/West	3.15	23.56	27.75	57	1343	1582		15	353	416		73	1720	2026					
South	3.15	23.56	21.28	10	236	213		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					31	764	113									
Net exposed walls A	14.49	5.12	0.76	450	2304	342		59	302	45		64	328	49		345	1767	262	
Net exposed walls B	8.50	8.73	1.29																
Exposed Ceilings A	50.00	1.48	0.76																
Exposed Ceilings B	22.86	3.25	1.66																
Exposed Floors	22.05	3.37	0.23																
Foundation Conductive Heatloss	On Grade () or Above ()																		
Total Conductive	Heat Loss			3883								1445				3486		1070	
	Heat Gain				2136				194			578				2287		159	
Air Leakage	Heat Loss/Gain	0.4819	0.0502	1871	107			225	10			696	29			1680	115	516	8
Ventilation	Case 1		0.08																
	Case 2		25.64																
	Case 3	x	0.08	306	186			37	17			114	50			275	199	84	14
Heat Gain People			239																
Appliances Loads	1 = 25 percent		5194																
Duct and Pipe loss			10%																
Level 2 HL Total	16,156	Total HL for per room		6060								2256				5441		1670	
Level 2 HG Total	14,668	Total HG per room x 1.3			4846				286				855				7602		1079

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

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

32964



Dave DaCosta

SB-12 Package

Package J

Total Heat Loss	53,993	btu/h
Total Heat Gain	29,097	btu/h

2012 OBC

Builder: Highcastle Homes

Date: August 13, 2015

Project: Riverwalk Phase 2

Model: 87-2

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: 6402

Project # PJ-00067
Layout # JB-00854

Level 3

Run ft. exposed wall A	54 A	9 A	47 A	A	39 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
Ceiling height	10.0	9.0	10.0	9.0	10.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0
Floor area	538 Area	48 Area	576 Area	49 Area	380 Area	Area	Area	Area	Area	Area	Area	Area
Exposed Ceilings A	538 A	48 A	576 A	49 A	380 A	A	A	A	A	A	A	A
Exposed Ceilings B	B	B	B	B	B	B	B	B	B	B	B	B
Exposed Floors	Flr	Flr	Flr	Flr	380 Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr
Gross Exp Wall A	540	81	470		390							
Gross Exp Wall B												

Components	R-Values	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain
North Shaded	3.15	23.56	11.31							6	141	68							
East/West	3.15	23.56	27.75	63	1484	1748		97	2285	2691		30	707	832					
South	3.15	23.56	21.28	20	471	426	7	165	149	20	471	426							
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	457	2340	347	74	379	56	353	1808	268		354	1813	269			
Net exposed walls B	8.50	8.73	1.29																
Exposed Ceilings A	50.00	1.48	0.76	538	798	409	48	71	36	576	855	438	49	73	37	380	564	289	
Exposed Ceilings B	22.86	3.25	1.66																
Exposed Floors	22.05	3.37	0.23											380	1279	86			
Foundation Conductive Heatloss																			
Total Conductive					5094			615		5418		73		4503					
Air Leakage	Heat Loss/Gain	0.2118	0.0502		1079	147		130	12	1147	192	15	2	954	78				
Ventilation	Case 1	0.03	0.09																
	Case 2	25.64	11.88																
	Case 3	x	0.08																
Heat Gain People			239	1	402	255		49	21	1	428	333	6	3		355	134		
Appliances Loads	1 =.25 percent		5194																
Duct and Pipe loss			10%																
Level 3 HL Total	20,813				6574			794		6993		94		6358					
Level 3 HG Total	13,842					4642			357		5963		55		2825				

Level 4

Run ft. exposed wall 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
Ceiling height												
Floor 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
Exposed Ceilings 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
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
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																			
Air Leakage	Heat Loss/Gain	0.0000	0.0502																
Ventilation	Case 1	0.00	0.09																
	Case 2	25.64	11.88																
	Case 3	x	0.08																
Heat Gain People			239																
Appliances Loads	1 =.25 percent		5194																
Duct and Pipe loss			10%																
Level 4 HL Total	0																		
Level 4 HG Total	0																		

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	53,993	btu/h
Total Heat Gain	29,097	btu/h

Package: Project: Package J Brampton System: Model: System 1 87-2

Air Leakage Calculations

Building Air Leakage Heat Loss				
B	LRairh	Vb	HL ^{AT}	HL ^{leak}
0.018	0.316	39378	74.2	16628

Building Air Leakage Heat Gain				
B	LRairh	Vb	HG ^{AT}	HG ^{Leak}
0.018	0.092	39378	11	719

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	16628	8073	1.0299
Level 2	0.3		10351	0.4819
Level 3	0.2		15703	0.2118
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	
	719		0.0502
BUILDING CONDUCTIVE HEAT GAIN			14326

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	8073	0.17
Level 2	0.3		10351	0.08
Level 3	0.2		15703	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	14326		

Case 2

Ventilation Heat Loss (Direct Ducted Systems)

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

Case 2

Ventilation Heat Gain (Direct Ducted Systems)

C	HG ^{AT}	Multiplier
1.08	11	11.88

Case 3

Ventilation Heat Loss (Forced Air Systems)

HL ^{bvent}		Multiplier
Total Ventilation Load	2693	0.08

Case 3

Ventilation Heat Gain (Forced Air Systems)

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

Foundation Conductive Heatloss Level 1

2194 Watts 7484 Btu/h

Foundation Conductive Heatloss Level 2

Watts Btu/h

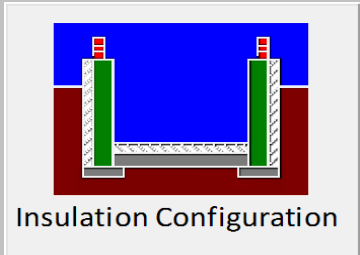
Envelope Air Leakage Calculator

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 1115.18			
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):	19.30	 Insulation Configuration
Floor Width (m):	5.85	
Exposed Perimeter (m):	33.83	
Wall Height (m):	2.74	
Depth Below Grade (m):	2.13	
Window Area (m ²):	0.28	
Door Area (m ²):	1.95	
Radiant Slab		
Heated Fraction of the Slab:	0	
Fluid Temperature (°C):	29	
Design Months		
Heating Month	1	
Foundation Loads		
Heating Load (Watts):		2194

Builder: **Highcastle Homes**

Date: **August 13, 2015**

I review and take responsibility for the design work and am qualified in the appropriate category as an "other designer" under Division C subsection 3.2.5. of the Building Code.

Page 3

Project: **Riverwalk Phase 2**

Model: **87-2**

System 2

Individual BCIN: 32964

David DaCosta

Project # **PJ-00067**
Layout # **JB-00854**

DESIGN LOAD SPECIFICATIONS		AIR DISTRIBUTION & PRESSURE		FURNACE/AIR HANDLER DATA:		BOILER/WATER HEATER DATA:		A/C UNIT DATA:	
Level 1 Net Load	20,064 btu/h	Equipment External Static Pressure	0.5 "w.c.	Make	Amana	Make	Type	Amana	2.5 Ton
Level 2 Net Load	18,366 btu/h	Additional Equipment Pressure Drop	0.225 "w.c.	Model	GMEC96-0603BNA	Model		Cond.-----	2.5
Level 3 Net Load	14,470 btu/h	Available Design Pressure	0.275 "w.c.	Input Btu/h	60000	Input Btu/h		Coil -----	2.5
Level 4 Net Load	0 btu/h	Return Branch Longest Effective Length	300 ft	Output Btu/h	57600	Output Btu/h			
Total Heat Loss	52,901 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	26,334 btu/h	S/A Plenum Pressure	0.14 "w.c.	Water Temp	deg. F.	Blower DATA:			
Combo System HL + 10%	58,191 Btu/h	Heating Air Flow Proportioning Factor	0.0202 cfm/btuh	AFUE	96%	Blower Speed Selected:	Y	Blower Type	ECM
Building Volume Vb	43336 ft³	Cooling Air Flow Proportioning Factor	0.0405 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	1066 cfm	Cooling Check	1066 cfm
Ventilation PVC	105 cfm	S/A Temp	120 deg. F.						
Supply Branch and Grill Sizing		Diffuser loss	0.01 "w.c.	Temp. Rise>>>	50 deg. F.	Selected cfm>	1066 cfm	Cooling Air Flow Rate	1066 cfm

	Level 1														Level 2														
S/A Outlet No.	1	2	3	4	5	21									6	7	8	9	10	11	12								
Room Use	BASE	BASE	BASE	BASE	BASE	STAIR									KIT	KIT	FAM	FAM	FAM	MUD	LAUN								
Btu/Outlet	3497	3497	3497	3497	3497	2581									2939	2939	2159	2159	2159	2638	3374								
Heating Airflow Rate CFM	70	70	70	70	70	52									59	59	44	44	44	53	68								
Cooling Airflow Rate CFM	24	24	24	24	24	3									92	92	97	97	97	16	83								
Duct Design Pressure	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13		
Actual Duct Length	12	26	46	39	59	60									41	53	52	68	58	10	16								
Equivalent Length	130	100	130	120	130	140	90	90	90	90	90	90	90	90	150	110	150	110	100	120	100	90	90	90	90	90			
Total Effective Length	142	126	176	159	189	200	90	90	90	90	90	90	90	90	191	163	202	178	158	130	116	90	90	90	90	90			
Adjusted Pressure	0.09	0.10	0.07	0.08	0.07	0.07	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.07	0.08	0.06	0.07	0.08	0.10	0.11	0.14	0.14	0.14	0.14	0.14			
Duct Size Round	6	6	6	6	6	5									6	6	6	6	6	5	6								
Outlet Size	3x10	4x10	4x10	4x10	4x10	3x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	3x10	4x10	4x10	4x10	4x10	4x10	4x10			
Trunk	A	A	B	B	C	C									B	B	C	C	C	A	A								

	Level 3														Level 4													
S/A Outlet No.	13	14	15	16	17	18	19	20																				
Room Use	MAST	MAST	BED 3	ENS 3	ENS 2	BED 6	WC	ENS																				
Btu/Outlet	2158	2158	2639	1303	753	3182	707	1569																				
Heating Airflow Rate CFM	43	43	53	26	15	64	14	32																				
Cooling Airflow Rate CFM	68	68	75	20	7	71	16	48																				
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	62	70	72	83	27	27	42	51																				
Equivalent Length	160	140	110	140	170	190	130	110	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90			
Total Effective Length	222	210	182	223	197	217	172	161	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90			
Adjusted Pressure	0.06	0.06	0.07	0.06	0.07	0.06	0.08	0.08	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	0.14	0.14			
Duct Size Round	6	6	6	4	3	6	3	5																				
Outlet Size	4x10	4x10	4x10	3x10	3x10	4x10	3x10	3x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10			
Trunk	B	B	B	C	A	A	A	A																				

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	210	382	158	158	158						
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	48	25	57	61						
Equivalent Length	130	175	125	170	200	70	70	70	70	70	70
Total Effective Length	140	223	150	227	261	70	70	70	70	70	70
Adjusted Pressure	0.08	0.05	0.08	0.05	0.05	0.17	0.17	0.17	0.17	0.17	0.17
Duct Size Round	8.0	11.5	7.5	8.5	8.5						
Inlet Size	FLC	8	8	8	8						
" "	x	x	x	x	x	x	x	x	x	x	x
Inlet Size		30	14	14	14						
Trunk	Z	Y	Z	Y	Y						

Return Trunk Duct Sizing	Trunk	CFM	Press.	Round	Rect. Size
Drop		1066	0.05	16.5	24x10
Z		1066	0.05	16.5	32x8 24x10
Y		698	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		1066	0.06	16.0	30x8 22x10
B		679	0.06	13.5	20x8 16x10
C		279	0.06	10.0	12x8 10x10
D					
E					
F					
G					
H					
I					
J					
K					

2012 OBC	Builder: Highcastle Homes	Date: August 13, 2015	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: 6402	Project # PJ-00067	Layout # JB-00854
	Project: Riverwalk Phase 2	Model: 87-2							

Level 1				BASE		STAIR		A		A		A		A		A		A		A		A	
Run ft. exposed wall A				130	A	20	A	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
Run ft. exposed wall 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	AG	2.0	AG	2.0	AG	2.0	AG
Floor area				1274	Area	249	Area	Area		Area		Area		Area		Area		Area		Area		Area	
Exposed Ceilings A				A		A		A		A		A		A		A		A		A		A	
Exposed Ceilings B				B		B		B		B		B		B		B		B		B		B	
Exposed Floors				Flr		Flr		Flr		Flr		Flr		Flr		Flr		Flr		Flr		Flr	
Gross Exp Wall A				260		40																	
Gross Exp Wall B																							
Components	R-Values	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain
North Shaded	3.15	23.56	11.31																				
East/West	3.15	23.56	27.75	9	212	250																	
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																				
Net exposed walls A	8.50	8.73	1.29	245		317	40																
Net exposed walls B	8.50	8.73	1.29																				
Exposed Ceilings A	50.00	1.48	0.76																				
Exposed Ceilings B	22.86	3.25	1.66																				
Exposed Floors	22.05	3.37	0.23																				
Foundation Conductive Heatloss	On Grade () or Above ()																						
Total Conductive	Heat Loss			8417		1295																	
	Heat Gain			8771		1295																	
Air Leakage	Heat Loss/Gain	0.9090	0.0685	7972	694	48	1177	4															
Ventilation	Case 1	0.13	0.11																				
	Case 2	25.64	11.88																				
	Case 3	x	0.08	740	75	109	6																
Heat Gain People			239																				
Appliances Loads	1 = .25 percent		5710	1.0		1427																	
Duct and Pipe loss	10%																						
Level 1 HL Total	20,064	Total HL for per room		17483		2581																	
Level 1 HG Total	2,997	Total HG per room x 1.3			2918	79																	

Level 2				KIT		FAM		MUD		LAUN		A		A		A		A		A		A	
Run ft. exposed wall A				37	A	51	A	23	A	29	A	A	B	A	B	A	B	A	B	A	B	A	B
Run ft. exposed wall 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		11.0	
Floor area				658	Area	509	Area	122	Area	147	Area	Area		Area		Area		Area		Area		Area	
Exposed Ceilings A				A		4	A	A		A		A		A		A		A		A		A	
Exposed Ceilings B				B		B		B		B		B		B		B		B		B		B	
Exposed Floors				Flr		Flr		Flr		Flr		Flr		Flr		Flr		Flr		Flr		Flr	
Gross Exp Wall A				407		561		253		319													
Gross Exp Wall B																							
Components	R-Values	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain
North Shaded	3.15	23.56	11.31																				
East/West	3.15	23.56	27.75	74	1743	2053	60	1413	1665	17	400	472											
South	3.15	23.56	21.28				11	259	234														
Existing Windows	1.99	37.29	22.15																				
Skylight	2.03	36.55	88.23																				
Doors	3.01	24.65	3.65	18	444	66		21	518	77	12	296	44										
Net exposed walls A	14.49	5.12	0.76	315	1613	239	490	2509	372	232	1188	176	290	1485	220								
Net exposed walls B	8.50	8.73	1.29																				
Exposed Ceilings A	50.00	1.48	0.76				4	6	3														
Exposed Ceilings B	22.86	3.25	1.66																				
Exposed Floors	22.05	3.37	0.23																				
Foundation Conductive Heatloss	On Grade () or Above ()																						
Total Conductive	Heat Loss			3800				4188		1706		2181											
	Heat Gain				2358			2274		253		736											
Air Leakage	Heat Loss/Gain	0.4623	0.0685	1757	162			1936	156	789	17	1008	50										
Ventilation	Case 1	0.07	0.11																				
	Case 2	25.64	11.88																				
	Case 3	x	0.08	321	255			353	246	144	27	184	79										
Heat Gain People			239																				
Appliances Loads	1 = .25 percent		5710	0.5		714	2.0		2855			0.5	714										
Duct and Pipe loss	10%																						
Level 2 HL Total	18,366	Total HL for per room		5877				6477		2638		3374											
Level 2 HG Total	14,164	Total HG per room x 1.3			4535				7189		387		2053										

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	52,901	btu/h
Total Heat Gain	26,334	btu/h

2012 OBC

Builder: Highcastle Homes

Date: August 13, 2015

Project: Riverwalk Phase 2

Model: 87-2

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: 6402

Project # P.J-00067
Layout # JB-00854

Level 3

	MAST	BED 3	ENS 3	ENS 2	BED 6	WC	ENS							
Run ft. exposed wall A	24 A	21 A	15 A	8 A	27 A	7 A	9 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
Ceiling height	10.0	9.0	9.0	9.0	10.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0
Floor area	679 Area	275 Area	52 Area	67 Area	252 Area	24 Area	188 Area	Area	Area	Area	Area	Area	Area	Area
Exposed Ceilings A	679 A	275 A	52 A	67 A	252 A	24 A	188 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
Exposed Floors	Flr	Flr	Flr	15 Flr	20 Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr
Gross Exp Wall A	240	189	135	72	270	63	81							
Gross Exp Wall B														

Components	R-Values	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain
North Shaded	3.15	23.56	11.31																
East/West	3.15	23.56	27.75	40	942	1110	24	565	666	7	165	194							
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	200	1024	152	165	845	125	128	655	97	72	369	55	250	1280	190	56
Net exposed walls B	8.50	8.73	1.29																
Exposed Ceilings A	50.00	1.48	0.76	679	1008	516	275	408	209	52	77	40	67	99	51	252	374	192	24
Exposed Ceilings B	22.86	3.25	1.66																
Exposed Floors	22.05	3.37	0.23																
Foundation Conductive Heatloss																			
Total Conductive																			
Air Leakage	Heat Loss/Gain	0.3671	0.0685																
Ventilation	Case 1	0.05	0.11																
	Case 2	25.64	11.88																
	Case 3	x	0.08																
Heat Gain People			239	2	251	192	1	153	108							1	185	102	
Appliances Loads	1 =.25 percent		5710																
Duct and Pipe loss			10%																
Level 3 HL Total	14,470			4317				2639						753		3182		707	
Level 3 HG Total	9,173				3340				1840						167				390

Level 4

Run ft. exposed wall 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
Ceiling height														
Floor 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
Exposed Ceilings 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
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
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																			
Air Leakage	Heat Loss/Gain	0.0000	0.0685																
Ventilation	Case 1	0.00	0.11																
	Case 2	25.64	11.88																
	Case 3	x	0.08																
Heat Gain People			239																
Appliances Loads	1 =.25 percent		5710																
Duct and Pipe loss			10%																
Level 4 HL Total	0																		
Level 4 HG Total	0																		

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

SB-12 Package

Package J

Total Heat Loss	52,901	btu/h
Total Heat Gain	26,334	btu/h

Package: Package J System: System 2
Project: Brampton Model: 87-2

Air Leakage Calculations

Building Air Leakage Heat Loss				
B	LRairh	Vb	HL ^{AT}	HL ^{leak}
0.018	0.316	43336	74.2	18299

Building Air Leakage Heat Gain				
B	LRairh	Vb	HG ^{AT}	HG ^{Leak}
0.018	0.092	43336	11	792

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	18299	10066	0.9090
Level 2	0.3		11874	0.4623
Level 3	0.2		9969	0.3671
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	
	792		0.0685
BUILDING CONDUCTIVE HEAT GAIN			11552

Levels this Dwelling	
3	

Ventilation Calculations

Vent	Ventilation Heat Loss					Ventilation Heat Gain					Vent
	Ventilation Heat Loss					Ventilation Heat Gain					
	C	PVC	HL ^{AT}	(1-E) HRV	HL ^{bvent}	C	PVC	HG ^{AT}	HG ^{bvent}		
	1.08	105	74.2	0.32	2693	1.1	105	11	1247		

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	1247	0.11		
	Level 1	0.5	2693	10066	0.13	Building	11552			
	Level 2	0.3		11874	0.07					
	Level 3	0.2		9969	0.05					
Level 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	25.64	C	HG^T	11.88		
	1.08	74.2	0.32		1.08	11			

Case 3				Case 3				
Case 3	Ventilation Heat Loss (Forced Air Systems)			Ventilation Heat Gain (Forced Air Systems)			Case 3	
		HLbvent	Multiplier					
	Total Ventilation Load	2693	0.08	HGbvent	HG*1.3	Vent Heat Gain		Multiplier
				1247	1	1247		0.11

Foundation Conductive Heatloss Level 1		2846	Watts	9712	Btu/h
Foundation Conductive Heatloss Level 2			Watts		Btu/h

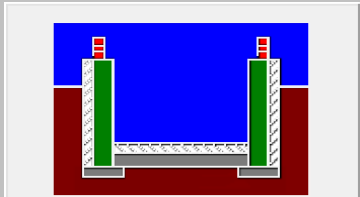
Envelope Air Leakage Calculator

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 1227.28			
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):	25.55	 Insulation Configuration
Floor Width (m):	5.54	
Exposed Perimeter (m):	45.72	
Wall Height (m):	2.74	
Depth Below Grade (m):	2.13	
Window Area (m ²):	1.39	
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):		2846

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:

87-2

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	6 @ 10 cfm	60 cfm	
Total		220	

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

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	220.0
Less principal exhaust capacity	105.0
REQUIRED supplemental vent. Capacity	115.0 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	<i>David DaCosta</i>		
HRAI #	5190	BCIN #	32964
Date	August 12, 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-00854 Site/Location: Brampton Notes:
Model/Add.: 87-2 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:	Builder	
	☐ Solid Fuel (Including Fireplace)		5 Pa. Depress. Limit		Name:		House ID#:
	☒ Direct Vent (Sealed Combustion)		No Depressurization Limit		Address:		
	☐ Positive Venting Induced Draft		5 Pa. Depress. Limit		City:		P.C.:
	☐ Natural Draft or B-Vent Atmospheric		5 Pa. Depress. Limit		Phone:		Fax:
Lowest Depressurization Limit		Pa.		Email Address:			
Exhaust Equipment	☒ Clothes Dryer(s) (150 CFM Default)		Name: David DaCosta		HRAI #: 5190	Designer	
	☐ Downdraft Cook Top (220 CFM Default)		Address: 2985 Drew Road, Suite 202				
	☐ Other (Exhaust) (Over 150 CFM)		City: Mississauga		P.C.:		
Depressurization Test/Calc. Required? ☐ Yes ☒ No		Phone: 905-671-9800		Fax: 647-494-9643			
Basement & Master Bedroom 2 @ 20 CFM 40 CFM		Email Address: dave@gtadesigns.ca		Other:			
Other Bedrooms 5 @ 10 CFM 50 CFM		I certify this ventilation system design to be in accordance with:					
Bedrooms & Kitchen 7 @ 10 CFM 70 CFM		☒ CSA F326 M-91					
Other Hab. Rooms 6 @ 10 CFM 60 CFM		☐ R-2000					
Total Ventilation Capacity (TVC) 220 CFM		Signature: <i>David DaCosta</i> Date: July 6, 2015					
Total Ventilation Capacity (TVC)	Minimum Continuous Exhaust		☐ Control Functioning		☐ Fans Operating and Clean	Installation Checklist	
	Kitchen(s) @ 60 CFM = CFM		☐ Filters Clean		☐ Flow Measuring Stations		
	Bathrooms(s) @ 20 CFM = CFM		☐ Dampers Accessible		☐ Insulated Ducts Sealed		
	Total CFM		☐ Drain Loop and Connection		☐ Label Supply/Exhaust Hood		
			☐ Distribution to all habitable rooms (non-forced air)				
Exhaust Capacity	Minimum Intermittent Exhaust		☐ Forced Air System		☐ Contin. Mode	☐ Interlocked	Measured TVC System
	Kitchen(s) 1 @ 100 CFM = 100 CFM		☐ Kitchen Intake Grease Filter		☐ Kitchen Exh. 40" to Range		
	Bathrooms(s) 6 @ 50 CFM = 300 CFM		☐ Exhaust 4" Above Grade		☐ Supply 18" above Grade		
	Total 400 CFM		☐ Supply Intake 6' from Exhaust (Recommended)				
			☐ Supply Intake 3' from Exhaust				
TVC System	Location: Base		TVC System Supply Airflow Measured				Installer
	Manufacturer/Model: VanEE 60H HVI Listed		CFM High CFM Low				
	Design Airflow 107 CFM High 53 CFM Low		TVC System Exhaust Airflow Measured				
Additional (Exhaust) Equipment	HRV/ERV 65 % Sensible Efficiency @ 0°C watts		CFM High CFM Low				
	HRV/ERV 55 % Sensible Efficiency @ -25°C watts						
	Name:		HRAI:				
	Address:						
	City:		P.C.:				
Phone:		Fax:					
Email Address:		I Certify this Ventilation System install to be in Accordance with:					
Fan Manufacturer: Broan or Equiv. HVI Listed		CSA F326 M-91					
		R-2000					
		Signature: Date:					

Prepared By: David DaCosta	HRAI #: 5190	Model/Address: 87-2
Signature: <i>David DaCosta</i>	Date: July 6, 2015	Job #: JB-00854 Official Use:

Project Information

Project #: JB-00854 Site/Location: Brampton Notes:
Model/Add.: 87-2 Builder/Client: Highcastle Homes

Floor Area	Total Floor Area: <u>6402</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) 1.0 ACH Atlantic (New) 1.5 ACH Other Provinces (New) 1.4 ACH Older Homes 2.5 ACH or actual test _____ House ACH50 <u>1.4</u>		302
Combustion Appliance Depressurization Limit		
If Spillage Susceptible -5 Pa. Flow Factor 0.022 Depressurization Limit @ TVCC -5 Pa.		303
If Non-Spillage Susceptible -10 Pa. Flow Factor 0.037	Flow Factor <u>0.022</u>	304
Allowable Net Exhaust		
Floor Area (301) <u>6402</u> ft ² x ACH50 (302) <u>1.4</u> x Flow Factor (304) <u>0.022</u> = _____	Allowable Net Exhaust @ TVCC <u>197</u> CFM	305
Actual Net Exhaust		
	TVCC Exhaust <u>220</u> CFM	306
	minus	
	TVCC Supply <u>107</u> CFM	307
	Actual Net Exhaust @ TVCC <u>113</u> CFM	308
Note: If Supply is greater than Exhaust, use worksheet # W-3B		
Required Make-Up Air Flow		
	Actual Net Exhaust @ TVCC (Line 308) <u>113</u> CFM	
	minus	
	Allowable Net Exhaust @ TVCC (Line 305) <u>197</u> CFM	
	Required Make-Up Airflow @ TVCC <u>0</u> CFM	309
	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: 87-2
Signature: 	Date: July 6, 2015	Job #: JB-00854 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-00854

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
87-2		
Municipality Brampton	Postal code	Reg. Plan number / other description

B. Compliance Option

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

C. Project Design Conditions

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

Windows+Skylights+Glass Doors	Other Building Conditions
Area of Walls = 531 m ²	☐ ICF Basement ☐ Walkout Basement ☐ Log/Post&Beam
Area of W,S&G = 60 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:

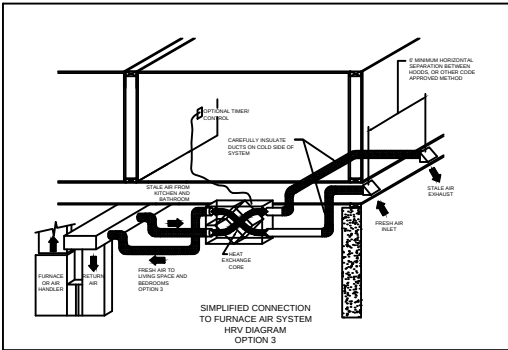
Evaluator/Advisor/Rater Name: _____ Evaluator/Advisor/Rater Licence #: _____

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

Name David DaCosta	BCIN 32964	Signature 
-----------------------	---------------	--

[illegible]

SYSTEM 2 (F2)	
HEAT-LOSS	BTU/HR.
52,901	
UNIT MAKE	
AMANA	
UNIT MODEL	
GMEC96-0603BNA	
UNIT HEATING INPUT	BTU/HR.
60,000	
UNIT HEATING OUTPUT	BTU/HR.
57,600	
A/C COOLING CAPACITY	TONS.
2.5	
FAN SPEED	CFM
1066	



- | |
|---|
| FURNACE EQUIPPED WITH BRUSHLESS DC MOTOR AS PER OBC 12.3.1.5 (2) |
| INSULATE ALL DUCTS IN UNCONDITIONED SPACES MIN. R12 |
| ALL DUCTWORK MUST BE SEALED TO CLASS A LEVEL AS PER OBC PART 6-6.2.4.3. (11) |
| FOR THE PURPOSE OF HEATLOSS/GAIN CALCULATIONS ALL ELEVATIONS HAVE BEEN CONSIDERED |

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

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 RESPONSIBILITY OF GTA DESIGNS.

GTA DESIGNS MUST BE CONSULTED IF KITCHEN EXHAUST FAN EXCEEDS 700 CFM DEPRESSURIZATION MAY OCCUR WITH IN THE DWELLING

gtaDesigns
2985 DREW ROAD
SUITE 202,
MISSISSAUGA, ONT.
L4T 0A4 TEL: 905-671-9800
email: dave@gtadesigns.ca
web: www.gtadesigns.ca

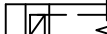
HEAT-LOSS	BTU/HR.
UNIT MAKE	
UNIT MODEL	
UNIT HEATING INPUT	BTU/HR.
UNIT HEATING OUTPUT	BTU/HR.
A/C COOLING CAPACITY	TONS.
FAN SPEED	CFM

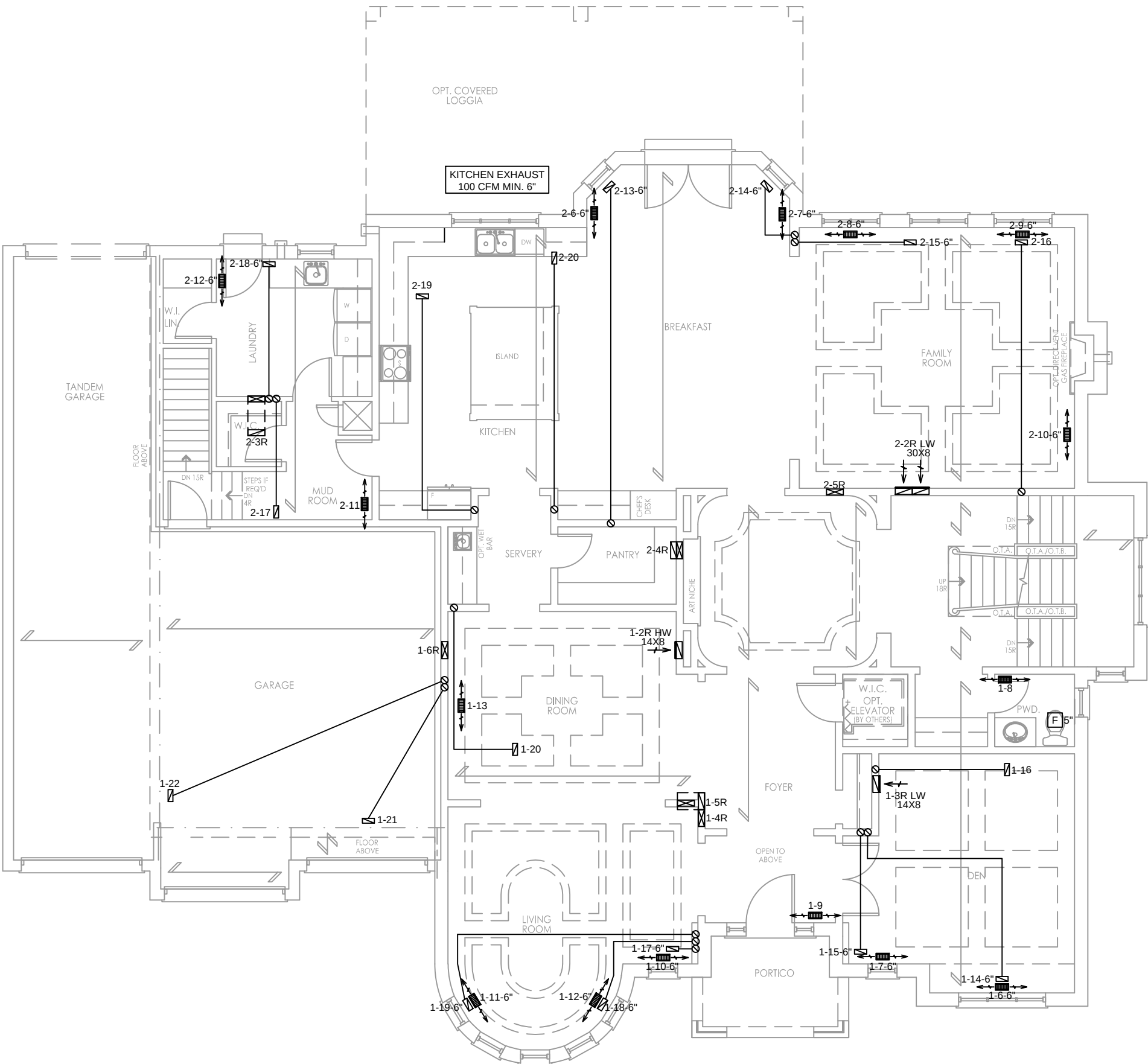
# OF RUNS	S/A	R/A	FANS
3RD FLOOR			
2ND FLOOR	17	6	6
1ST FLOOR	15	3	2
BASEMENT	10	2	

FLOOR PLAN:		
BASEMENT		
DRAWN BY:	CHECKED:	SQFT
AM	DD	6402
LAYOUT NO.		DRAWING NO.
JB-00854		M1

DATE:	AUGUST 12, 2015
CLIENT:	HIGHCASTLE HOMES
MODEL:	87-2
PROJECT:	RIVERWALK PHASE 2 BRAMPTON, ONT
SCALE:	1/8" = 1'-0"

OBC 2012

	FLEX DUCT		LOW/HIGH WALL/KICK SUPPLY DIFFUSER		DUCT CONNECTION TO JOIST LINING		RETURN AIR GRILLE (SIZE INDICATED ON DRAWING)	S.A.	SUPPLY AIR
	RIDIT ROUND DUCT		HRV EXHAUST GRILL		RETURN AIR PIPE RISER		RETURN AIR RISER UP TO FLOOR ABOVE	R.A.	RETURN AIR
	SUPPLY DIFFUSER		SUPPLY AIR PIPE RISER		RETURN ROUND DUCT		RETURN AIR FROM BASEMENT SECOND FLOOR		THERMOSTAT
			VOLUME DAMPER						PRINCIPAL EXHAUST FAN SWITCH
									W/R & PRINCIPAL EXHAUST FAN



- CIRCULATION PRINCIPAL FAN SWITCH TO BE CENTRALLY LOCATED
- INSULATE ALL DUCTS IN UNCONDITIONED SPACES MIN. R12
- ALL DUCTWORK MUST BE SEALED TO CLASS A LEVEL AS PER OBC PART 6-6.2.4.3. (11)
- FOR THE PURPOSE OF HEATLOSS/GAIN CALCULATIONS ALL ELEVATIONS HAVE BEEN CONSIDERED

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.

GTA DESIGNS MUST BE CONSULTED IF KITCHEN EXHAUST FAN EXCEEDS 700 CFM DEPRESSURIZATION MAY OCCUR WITH IN THE DWELLING

 **gtaDesigns**

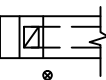
2985 DREW ROAD
SUITE 202,
MISSISSAUGA, ONT.
L4T 0A4 TEL: 905-671-9800
email: dave@gtadesigns.ca
web: www.gtadesigns.ca

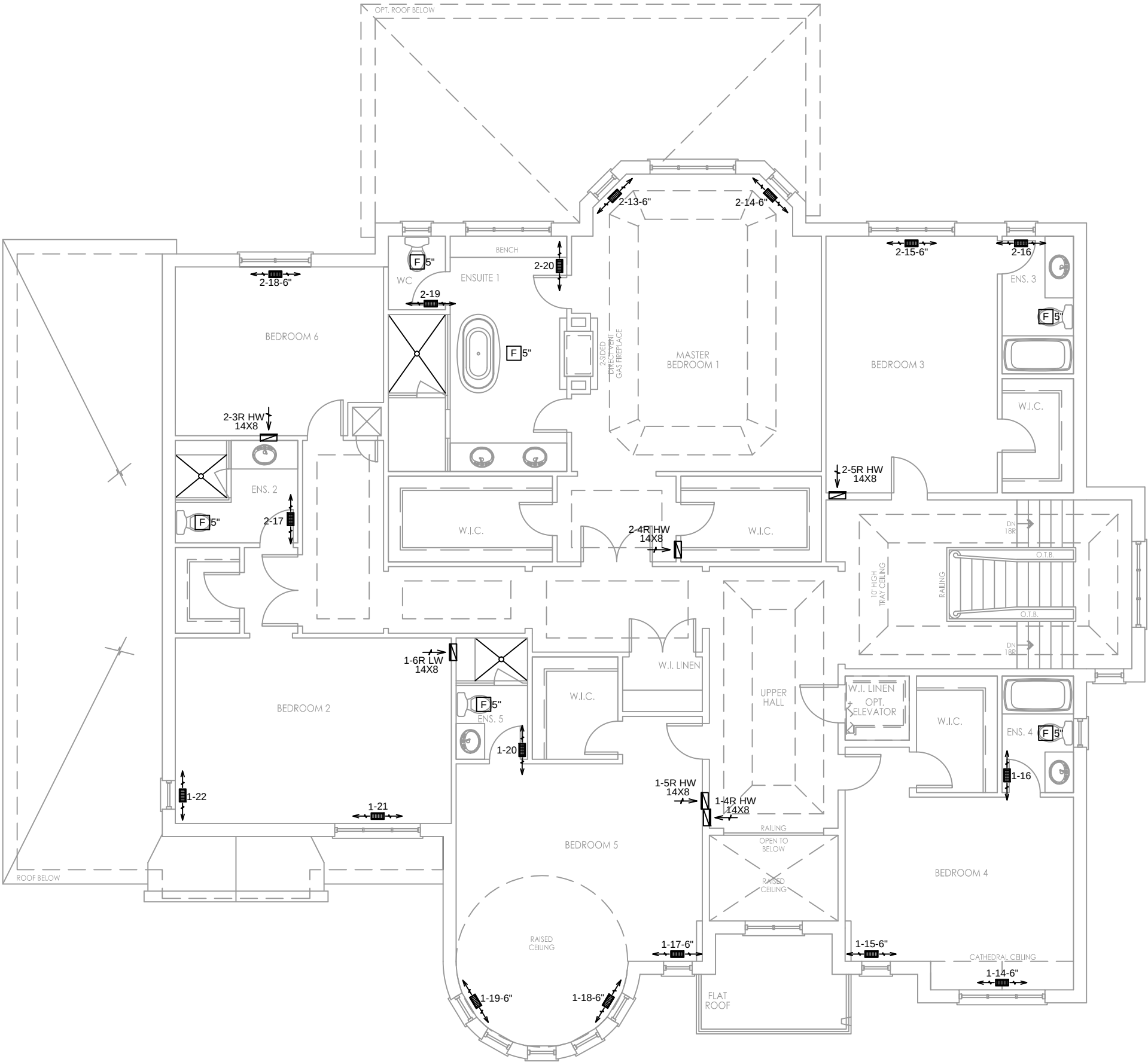
HEAT-LOSS	BTU/HR.
UNIT MAKE	
UNIT MODEL	
UNIT HEATING INPUT	BTU/HR.
UNIT HEATING OUTPUT	BTU/HR.
A/C COOLING CAPACITY	TONS.
FAN SPEED	CFM

# OF RUNS	S/A	R/A	FANS
3RD FLOOR			
2ND FLOOR	17	6	6
1ST FLOOR	15	3	2
BASEMENT	10	2	

FLOOR PLAN: GROUND FLOOR		
DRAWN BY: AM	CHECKED: DD	SQFT 6402
LAYOUT NO. JB-00854	DRAWING NO. M2	

DATE:	AUGUST 12, 2015
CLIENT:	HIGHCASTLE HOMES
MODEL:	87-2
PROJECT:	RIVERWALK PHASE 2 BRAMPTON, ONT
SCALE:	1/8" = 1'-0"

	FLEX DUCT		LOW/HIGH WALL/KICK SUPPLY DIFFUSER		DUCT CONNECTION TO JOIST LINING		RETURN AIR GRILLE (SIZE INDICATED ON DRAWING)	S.A.	SUPPLY AIR
	RIDIT ROUND DUCT		HRV EXHAUST GRILL		RETURN AIR PIPE RISER		RETURN AIR RISER UP TO FLOOR ABOVE	R.A.	RETURN AIR
	SUPPLY DIFFUSER		SUPPLY AIR PIPE RISER		RETURN ROUND DUCT		RETURN AIR FROM BASEMENT SECOND FLOOR		THERMOSTAT
			VOLUME DAMPER						PRINCIPAL EXHAUST FAN SWITCH
									W/R & 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

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 CostaSignature of DesignerB.C.I.N. 32964

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 FAN EXCEEDS 700 CFM DEPRESSURIZATION MAY OCCUR WITH IN THE DWELLING

 **gtaDesigns**

2985 DREW ROAD
SUITE 202,
MISSISSAUGA, ONT.
L4T 0A4 TEL: 905-671-9800
email: dave@gtadesigns.ca
web: www.gtadesigns.ca

HEAT-LOSS	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	17	6	6
1ST FLOOR	15	3	2
BASEMENT	10	2	

FLOOR PLAN:	
SECOND FLOOR	
DRAWN BY: AM	CHECKED: DD
LAYOUT NO. JB-00854	DRAWING NO. 6402 M3

DATE:	AUGUST 12, 2015
CLIENT:	HIGHCASTLE HOMES
MODEL:	87-2
PROJECT:	RIVERWALK PHASE 2 BRAMPTON, ONT
SCALE:	1/8" = 1'-0"