

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 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-00952
Heating and Cooling Load Calculations		Builder	Highcastle Homes	
Air System Design		Project	Riverwalk Phase 2	
Residential mechanical ventilation Design Summary		Model	87-2 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 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-00952	
Building Location					
Address (Model): 87-2 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: 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		



Page 3

Date: August 13, 2015

Model: 87-2 Alt. 2nd FLR

System 1

Individual BCIN: 32964

David DaCosta

Project # PJ-00067
Layout # JB-00952

Supply Trunk Duct Sizing					
Trunk	CFM	Press.	Round	Rect. Size	
A	737	0.05	14.5	24x8	18x10
B	494	0.05	12.5	18x8	14x10
C	244	0.05	9.5	10x8	
D	329	0.07	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 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: 6402

Project # PJ-00067
Layout # JB-00952

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	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	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 Abo			7484															
Total Conductive	Heat Loss			8073															
Air Leakage	Heat Loss/Gain	1.0315	0.0502	8327	397	20													
Ventilation	Case 1		0.17																
	Case 2		25.64																
	Case 3	x	0.08	634	34														
Heat Gain People			239																
Appliances Loads	1 =.25 percent		5203																
Duct and Pipe loss			10%																
Level 1 HL Total	17,034	Total HL for per room		17034															
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	49	A		6	A	10	A	38	A	19	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	11.0			11.0		11.0		11.0		11.0		11.0	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	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	539			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																
South	3.15	23.56	21.28	57	1343	1582		15	353	416		73	1720	2026					
Existing Windows	1.99	37.29	22.15	10	236	213		7	165	149									
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	472	2417	358		59	302	45		64	328	49	345	1767	262	209	1070
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			3995															
Air Leakage	Heat Loss/Gain	0.4775	0.0502	1908	2153	108			467	194			1445	578		3486	2287	1070	159
Ventilation	Case 1		0.08																
	Case 2		25.64																
	Case 3	x	0.08	314	187				223	10			690	29		1665	115	511	8
Heat Gain People			239																
Appliances Loads	1 =.25 percent		5203																
Duct and Pipe loss			10%																
Level 2 HL Total	16,282	Total HL for per room		6217															
Level 2 HG Total	14,703	Total HG per room x 1.3			4873														

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	54,188	btu/h
Total Heat Gain	29,145	btu/h

2012 OBC

Builder: Highcastle Homes

Date: August 13, 2015

Project: Riverwalk Phase 2

Model: 87-2 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: 6402

Project # PJ-00067
Layout # JB-00952

Level 3

Run ft. exposed wall A	54 A	9 A	47 A	A	33 A	7 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	316 Area	71 Area	Area	Area	Area	Area	Area	Area
Exposed Ceilings A	538 A	48 A	576 A	49 A	316 A	71 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	540	81	470		330	63						
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																																	
East/West			3.15	23.56	27.75	63	1484	1748			97	2285	2691																								
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																							
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	316	469	240	71	105	54														
Exposed Ceilings B			22.86	3.25	1.66																																
Exposed Floors			22.05	3.37	0.23																																
Foundation Conductive Heatloss																																					
Total Conductive		Heat Loss					5094			615		5418		73			3886		667																		
		Heat Gain							242		3823			37			1435			118																	
Air Leakage		Heat Loss/Gain		0.2114	0.0502	1077	147		130	12	1146	192	15	2			822	72	141	6																	
Ventilation		Case 1		0.03	0.09																																
		Case 2		25.64	11.88																																
		Case 3		x	0.08	0.09																															
Heat Gain People					239	1	400	255	48	21	1	425	332	6	3		305	125	52	10																	
Appliances Loads				1 =.25 percent	5203																																
Duct and Pipe loss				10%													1	471	167	1	81	12															
Level 3 HL Total		20,872		Total HL for per room				6571		793		6990		94			5483		941																		
Level 3 HG Total		13,855		Total HG per room x 1.3					4641		357		5962		55			2650				190															

Level 4

Run ft. exposed wall A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Run ft. exposed wall B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
Ceiling height																			
Floor area	Area	Area	Area	Area	Area	Area	Area	Area	Area	Area	Area	Area	Area	Area	Area	Area	Area	Area	Area
Exposed Ceilings A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Exposed Ceilings B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
Exposed Floors	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	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	Heat Loss																		
	Heat Gain																		
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	0.09															
Heat Gain People			239																
Appliances Loads	1 =.25 percent		5203																
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	54,188	btu/h
Total Heat Gain	29,145	btu/h

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

Air Leakage Calculations

Building Air Leakage Heat Loss				
B	LRairh	Vb	HL ^{AT}	HL ^{leak}
0.018	0.316	39441	74.2	16654

Building Air Leakage Heat Gain				
B	LRairh	Vb	HG ^{AT}	HG ^{Leak}
0.018	0.092	39441	11	721

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	16654	8073	1.0315
Level 2	0.3		10464	0.4775
Level 3	0.2		15753	0.2114
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	
	721		0.0502
BUILDING CONDUCTIVE HEAT GAIN			14352

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	0.09		
	Level 1	0.5	2693	8073	0.17	Building	14352			
	Level 2	0.3		10464	0.08					
	Level 3	0.2		15753	0.03					
	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			Vent Heat Gain		Multiplier
	Total Ventilation Load	2693	0.08	HGbvent	HG*1.3	1247		0.09
				1247	1			

Foundation Conductive Heatloss Level 1		2194	Watts	7484	Btu/h
Foundation Conductive Heatloss Level 2			Watts		Btu/h

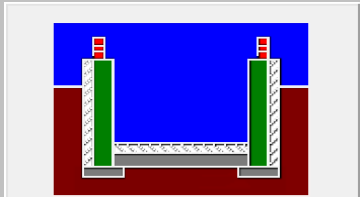
Envelope Air Leakage Calculator

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 1116.97			
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**

Project: **Riverwalk Phase 2**

Model: **87-2 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

Page 3
Project # **PJ-00067**
Layout # **JB-00952**

DESIGN LOAD SPECIFICATIONS		AIR DISTRIBUTION & PRESSURE		FURNACE/AIR HANDLER DATA:		BOILER/WATER HEATER DATA:		A/C UNIT DATA:	
Level 1 Net Load	20,066 btu/h	Equipment External Static Pressure	0.5 "w.c.	Make	Amana	Make	Type	Amana	2.5 Ton
Level 2 Net Load	18,133 btu/h	Additional Equipment Pressure Drop	0.225 "w.c.	Model	GMEC96-0603BNA	Model		Cond.-----	2.5
Level 3 Net Load	14,353 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	52,552 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	26,353 btu/h	S/A Plenum Pressure	0.14 "w.c.	Water Temp	deg. F.	Blower DATA:			
Combo System HL + 10%	57,807 Btu/h	Heating Air Flow Proportioning Factor	0.0203 cfm/btuh	AFUE	96%	Blower Speed Selected:	Y	Blower Type	ECM
Building Volume Vb	43264 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	2582									2957	2957	2173	2173	2173	2655	3045								
Heating Airflow Rate CFM	71	71	71	71	71	52									60	60	44	44	44	54	62								
Cooling Airflow Rate CFM	24	24	24	24	24	3									92	92	97	97	97	16	81								
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	140	110	140	130	130	140	90	90	90	90	90	90	90	90	90	120	90	110	100	130	100	90	90	90	90	90	90		
Total Effective Length	152	136	186	169	189	200	90	90	90	90	90	90	90	90	90	131	173	142	178	158	140	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	0.10	0.08	0.09	0.07	0.08	0.09	0.11	0.14	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	4x10	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	4x10		
Trunk	A	A	B	B	C	C									A	B	B	C	C	A	A								

	Level 3														Level 4													
S/A Outlet No.	13	14	15	16	17	18	19																					
Room Use	MAST	MAST	BED 3	ENS 3	BED 6	WC	ENS																					
Btu/Outlet	2183	2183	2670	1318	3696	715	1587																					
Heating Airflow Rate CFM	44	44	54	27	75	15	32																					
Cooling Airflow Rate CFM	68	68	75	20	80	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																					
Equivalent Length	170	150	120	140	180	160	120	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90			
Total Effective Length	232	220	192	223	207	187	162	90	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	0.06	0.07	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	0.14			
Duct Size Round	6	6	6	4	6	3	5																					
Outlet Size	4x10	4x10	4x10	3x10	4x10	3x10	3x10	4x10	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																					

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	209	383	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	27	57	61						
Equivalent Length	130	175	125	170	200	70	70	70	70	70	70
Total Effective Length	140	223	152	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		699	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		627	0.06	13.0	18x8 14x10
C		238	0.06	9.0	8x8
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-00952
	Project: Riverwalk Phase 2	Model: 87-2 Alt. 2nd FLR							

Level 1				BASE		STAIR		A		A		A		A		A		A		A		A	
Run ft. exposed wall A	130	A		20	A			A		A		A		A		A		A		A		A	
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																						
	Heat Gain																						
Air Leakage	Heat Loss/Gain	0.9075	0.0690	7959	48	1175	4																
Ventilation	Case 1	0.13	0.11																				
	Case 2	25.64	11.88																				
	Case 3	x	0.09	755	76	111	6																
Heat Gain People			239																				
Appliances Loads	1 = 25 percent		5700	1.0		1425																	
Duct and Pipe loss	10%																						
Level 1 HL Total	20,066	Total HL for per room		17485		2582																	
Level 1 HG Total	2,995	Total HG per room x 1.3				2916	79																

Level 2				KIT		FAM		MUD		LAUN		A		A		A		A		A		A	
Run ft. exposed wall A	37	A		51	A			23	A			A		A		A		A		A		A	
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		275													
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	246	1260	187								
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																						
	Heat Gain																						
Air Leakage	Heat Loss/Gain	0.4705	0.0690	1788	163			1970	157	802	17	920	48										
Ventilation	Case 1	0.07	0.11																				
	Case 2	25.64	11.88																				
	Case 3	x	0.09	327	257			361	248	147	28	168	76										
Heat Gain People			239																				
Appliances Loads	1 = 25 percent		5700	0.5		712	2.0		2850			0.5	712										
Duct and Pipe loss	10%																						
Level 2 HL Total	18,133	Total HL for per room		5915		4537		6518	7187	2655		3045	2002										
Level 2 HG Total	14,113	Total HG per room x 1.3								387													

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	52,552	btu/h
Total Heat Gain	26,353	btu/h

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

Air Leakage Calculations

Building Air Leakage Heat Loss				
B	LRairh	Vb	HL ^{AT}	HL ^{leak}
0.018	0.316	43264	74.2	18268

Building Air Leakage Heat Gain				
B	LRairh	Vb	HG ^{AT}	HG ^{Leak}
0.018	0.092	43264	11	790

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	18268	10066	0.9075
Level 2	0.3		11649	0.4705
Level 3	0.2		9558	0.3823
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	
	790		0.0690
BUILDING CONDUCTIVE HEAT GAIN			11455

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	10066	0.13
Level 2	0.3		11649	0.07
Level 3	0.2		9558	0.06
Level 4	0		0	0.00

Case 1

Ventilation Heat Gain (Exhaust Only Systems)

Case 1 - Exhaust Only		Multiplier	
HG ^{bvent}	1247	0.11	
Building	11455		

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	0.09

Case 3

Ventilation Heat Gain (Forced Air Systems)

Vent Heat Gain		Multiplier
HG ^{bvent}	HG*1.3	0.11
1247	1	

Foundation Conductive Heatloss Level 1

2846 Watts 9712 Btu/h

Foundation Conductive Heatloss Level 2

Watts Btu/h

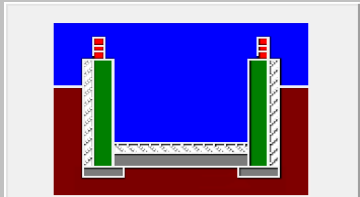
Envelope Air Leakage Calculator

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 1225.24			
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

Package: Package J
Project: Brampton **Model: 87-2 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	6 @ 10	cfm	60	cfm
Total			220	

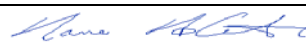
Principal Ventilation Capacity 9.32.3.4(1)				
Master bedroom	1 @ 30	cfm	30	cfm
Other bedrooms	5 @ 15	cfm	75	cfm
Total			105	

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			
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 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		
	Bathrooms & Kitchen		7	@	10 CFM	70	CFM		
	Other Hab. Rooms		6	@	10 CFM	60	CFM		
Total Ventilation Capacity (TVC)						220	CFM		
TVC System	Minimum Continuous Exhaust				Measured TVC System				
	Kitchen(s)		@	60 CFM		=	CFM		
	Bathrooms(s)		@	20 CFM		=	CFM		
	Total					=	CFM		
Additional (Exhaust) Equipment	Minimum Intermittent Exhaust				Installer				
	Kitchen(s)		1	@		100 CFM	=	100	CFM
	Bathrooms(s)		6	@		50 CFM	=	300	CFM
	Total					=	400	CFM	
Location: Base				I certify this ventilation system design to be in accordance with:					
Manufacturer/Model: VanEE 60H		HVI Listed		☒ CSA F326 M-91					
Design Airflow 107 CFM High 53 CFM Low				☐ R-2000					
HRV/ERV 65 % Sensible Efficiency @ 0°C		watts		Signature: <i>David DaCosta</i> Date: July 6, 2015					
HRV/ERV 55 % Sensible Efficiency @ -25°C		watts							
Location: Model: CFM: Sones:				Control Functioning		Fans Operating and Clean			
Ens 1 770 50 2.5				Filters Clean		Flow Measuring Stations			
Ens 2 770 50 2.5				Dampers Accessible		Insulated Ducts Sealed			
Ens 3 770 50 2.5				Drain Loop and Connection		Label Supply/Exhaust Hood			
Fan Manufacturer: Broan or Equiv.		HVI Listed		Distribution to all habitable rooms (non-forced air)					
				Forced Air System		Contin. Mode		Interlocked	
				Kitchen Intake Grease Filter		Kitchen Exh. 40" to Range			
				Exhaust 4" Above Grade		Supply 18" above Grade			
				Supply Intake 6' from Exhaust (Recommended)					
				Supply Intake 3' from Exhaust					
				TVC System Supply Airflow Measured					
				CFM High		CFM Low			
				TVC System Exhaust Airflow Measured					
				CFM High		CFM Low			
				Name:		HRAI:			
				Address:					
				City:		P.C.:			
				Phone:		Fax:			
				Email Address:					
				I Certify this Ventilation System install to be in Accordance with:					
				CSA F326 M-91					
				R-2000					
				Signature: _____		Date: _____			

Prepared By: David DaCosta	HRAI #: 5190	Model/Address: 87-2 Alt. 2nd FLR
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 Alt. 2nd FLR 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)
Atlantic (New)	1.5 ACH	Other Provinces (New)	1.4 ACH	Older Homes
or actual test				House ACH50
				1.4
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 0.022
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
Actual Net Exhaust				
				TVCC Exhaust
				<u>220</u> CFM
				minus
				TVCC Supply
				<u>107</u> CFM
				Actual Net Exhaust @ TVCC
				<u>113</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>113</u> CFM
				minus
				Allowable Net Exhaust @ TVCC (Line 305)
				<u>197</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: 87-2 Alt. 2nd FLR	
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-00952

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 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 = 525 m ²	☐ ICF Basement ☐ Walkout Basement ☐ Log/Post&Beam
Area of W,S&G = 60 m ²	☐ ICF Above Grade ☐ Slab-on-ground
W,S & G % = —	

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.

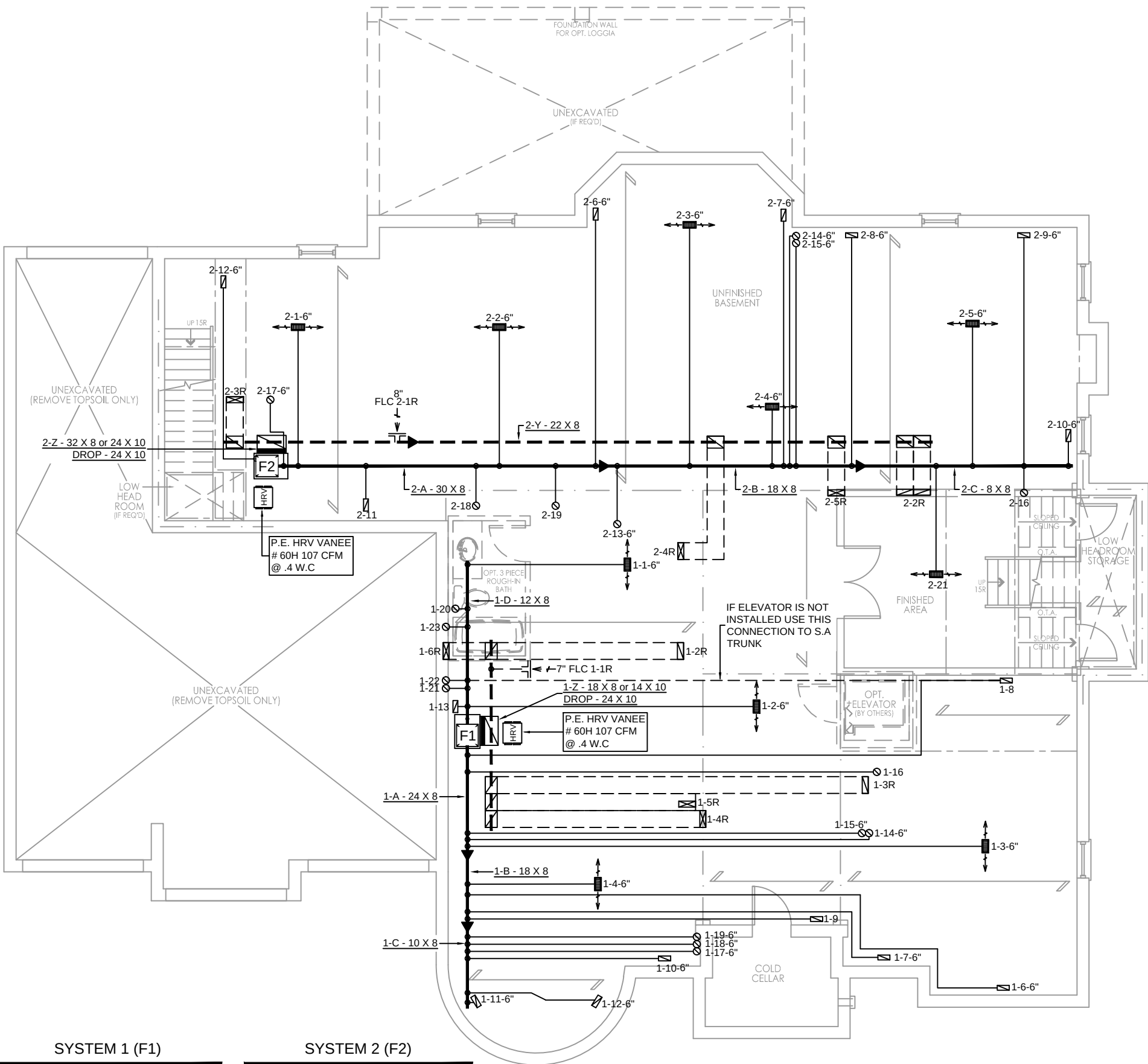
Energy Star: Submit the BOP form with Energy Advisor's certification on completion.

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]

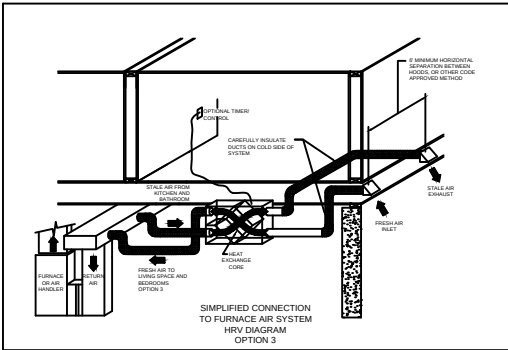
Name	BCIN	Signature
David DaCosta	32964	

	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 GRILLE		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



SYSTEM 1 (F1)	
HEAT-LOSS	54,188 BTU/HR.
UNIT MAKE	AMANA
UNIT MODEL	GMEC96-0603BNA
UNIT HEATING INPUT	60,000 BTU/HR.
UNIT HEATING OUTPUT	57,600 BTU/HR.
A/C COOLING CAPACITY	2.5 TONS.
FAN SPEED	1066 CFM

SYSTEM 2 (F2)	
HEAT-LOSS	52,552 BTU/HR.
UNIT MAKE	AMANA
UNIT MODEL	GMEC96-0603BNA
UNIT HEATING INPUT	60,000 BTU/HR.
UNIT HEATING OUTPUT	57,600 BTU/HR.
A/C COOLING CAPACITY	2.5 TONS.
FAN SPEED	1066 CFM



- 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 RESPONSABILITY OF GTA DESIGNS.

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



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: AM	CHECKED: DD	SQFT 6402
LAYOUT NO. JB-00952	DRAWING NO. M1	

OBC 2012

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

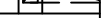
DATE: AUGUST 12, 2015

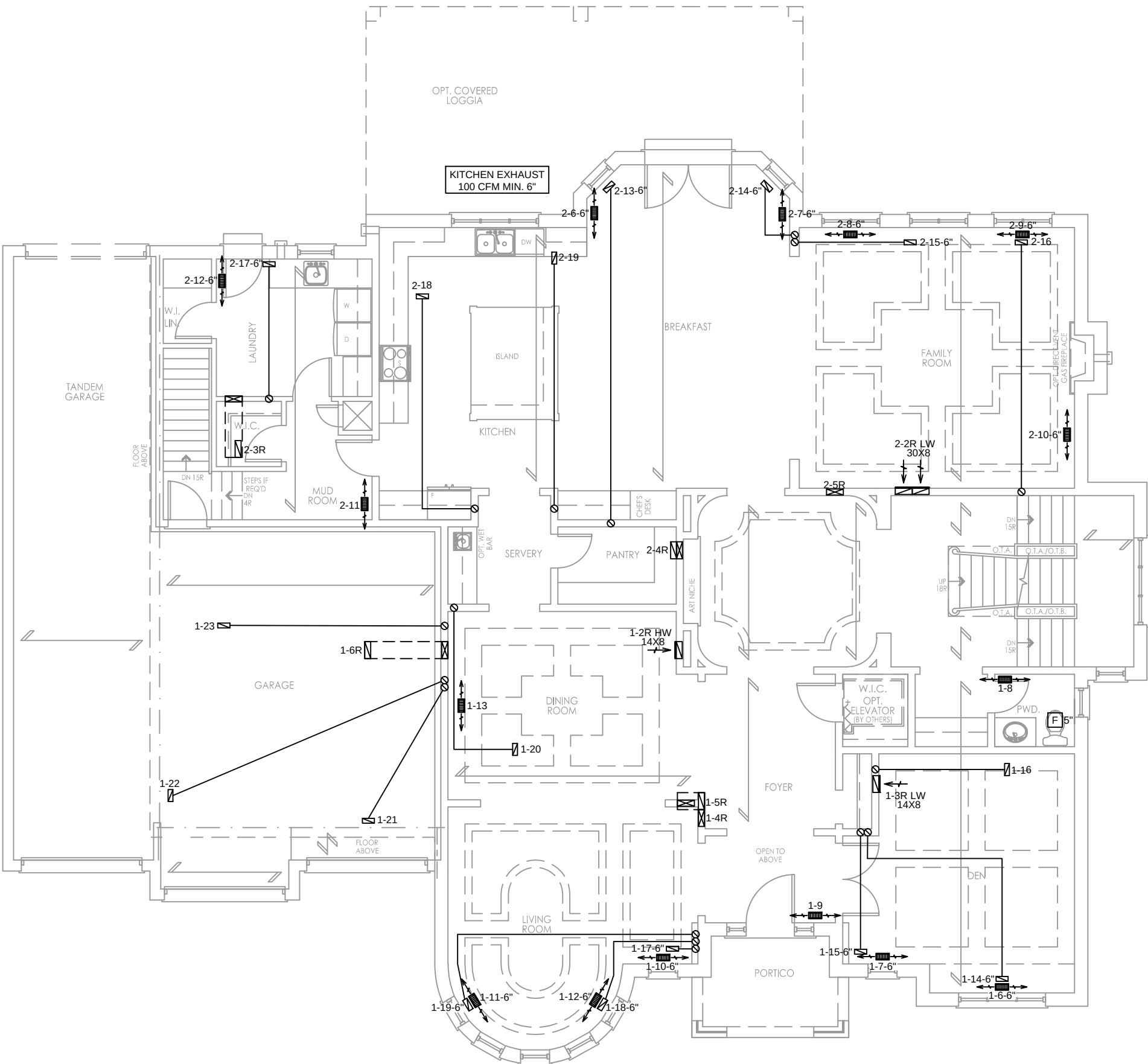
CLIENT: HIGHCASTLE HOMES

MODEL: 87-2 ALT. 2ND FLR

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



- 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.

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 **gtaDesigns**

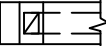
2985 DREW ROAD
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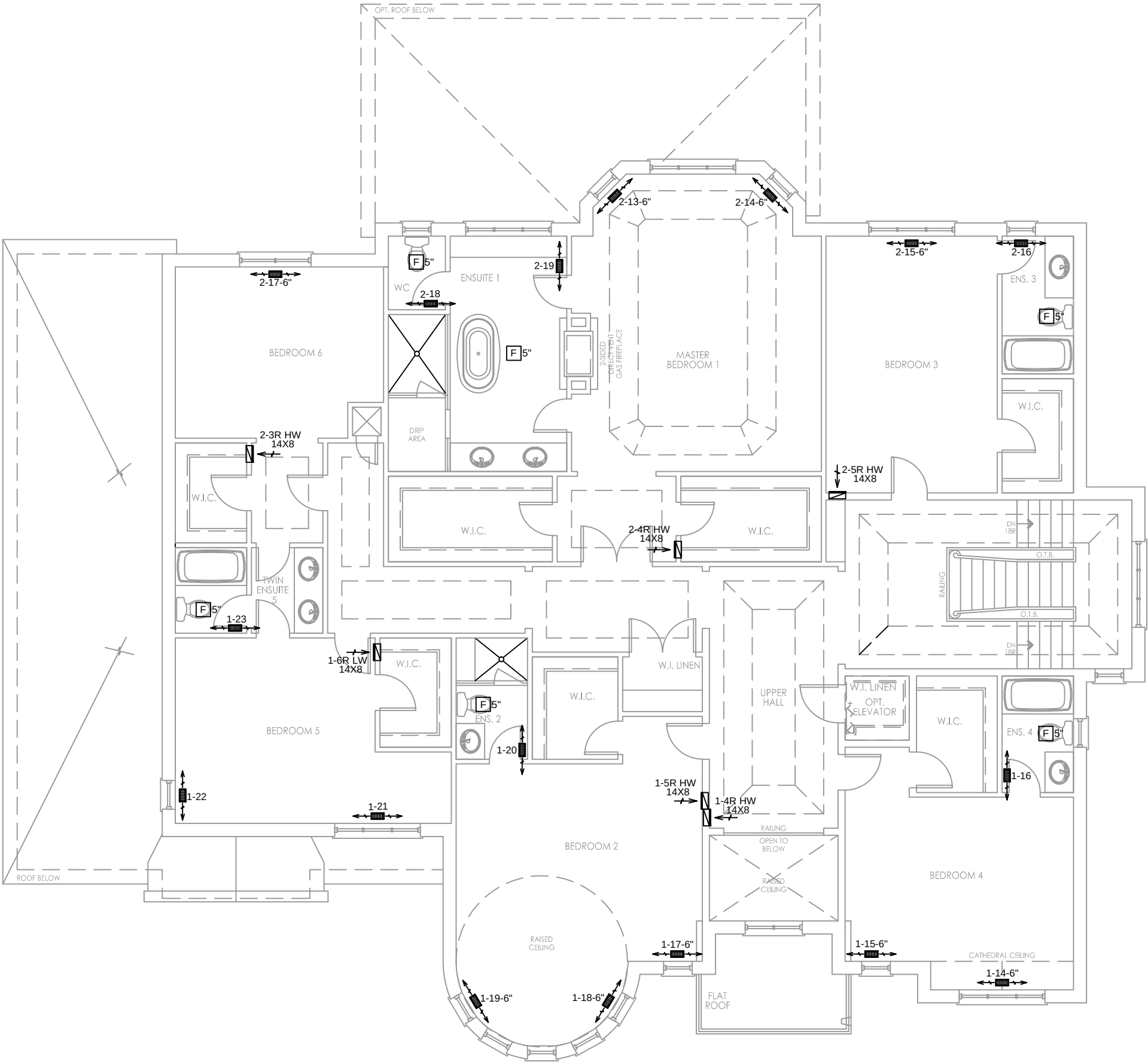
HEAT-LOSS	BTU/HR.
UNIT MAKE	
UNIT MODEL	
UNIT HEATING INPUT	BTU/HR.
UNIT HEATING OUTPUT	BTU/HR.
A/C COOLING CAPACITY	TONS.
FAN SPEED	CFM

# 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-00952	DRAWING NO. M2	

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

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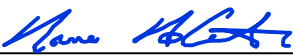


- INSULATE ALL DUCTS IN UNCONDITIONED SPACES MIN. R12
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QUALIFICATION INFORMATION

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David Da Costa

Signature of Designer

B.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

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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-00952	DRAWING NO. 6402 M3

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