

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			Lot:	
65-5			Lot/con.	
Municipality	Brampton	Postal code	Plan number/ other description	
B. Individual who reviews and takes responsibility for design activities				
Name		Firm		
David DaCosta		gtaDesigns Inc.		
Street address		Unit no.	Lot/con.	
2985 Drew Road, Suite 202				
Municipality	Postal code	Province	E-mail	
Mississauga	L4T 0A4	Ontario	dave@gtadesigns.ca	
Telephone number	Fax number	Cell number		
(905) 671-9800	(647) 494-9643	(416) 268-6820		
C. Design activities undertaken by individual identified in Section B. [Building Code Table 3.5.2.1 of Division C]				
☐ House	☒ HVAC – House	☐ Building Structural		
☐ Small Buildings	☐ Building Services	☐ Plumbing – House		
☐ Large Buildings	☐ Detection, Lighting and Power	☐ Plumbing – All Buildings		
☐ Complex Buildings	☐ Fire Protection	☐ On-site Sewage Systems		
Description of designer's work		Model Certification		Project #:
				PJ-00067
				Layout #:
				JB-00853
Heating and Cooling Load Calculations		Builder	Highcastle Homes	
Air System Design		Project	Riverwalk Phase 2	
Residential mechanical ventilation Design Summary		Model	65-5	
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-00853	
Building Location					
Address (Model): 65-5			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: 6
Sensible Eff. at -25C 55%		Apparent Effect. at -0C 68%	Units: Imperial		Area Sq ft: 5337
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 12, 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.

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Project: **Riverwalk Phase 2**

Model: **65-5**

System 1

Individual BCIN: 32964

David DaCosta

Project # **PJ-00067**
Layout # **JB-00853**

DESIGN LOAD SPECIFICATIONS		AIR DISTRIBUTION & PRESSURE		FURNACE/AIR HANDLER DATA:		BOILER/WATER HEATER DATA:		A/C UNIT DATA:	
Level 1 Net Load	28,735 btu/h	Equipment External Static Pressure	0.5 "w.c.	Make	Amana	Make	Type	Amana	4.0 Ton
Level 2 Net Load	31,509 btu/h	Additional Equipment Pressure Drop	0.225 "w.c.	Model	GMEC96-1004CNA	Model		Cond.-----	4.0
Level 3 Net Load	28,179 btu/h	Available Design Pressure	0.275 "w.c.	Input Btu/h	100000	Input Btu/h		Coil -----	4.0
Level 4 Net Load	0 btu/h	Return Branch Longest Effective Length	300 ft	Output Btu/h	96000	Output Btu/h			
Total Heat Loss	88,424 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	44,813 btu/h	S/A Plenum Pressure	0.14 "w.c.	Water Temp	deg. F.	Blower DATA:			
Combo System HL + 10%	97,266 Btu/h	Heating Air Flow Proportioning Factor	0.0174 cfm/btuh	AFUE	96%	Blower Speed Selected:	Y	Blower Type	ECM
Building Volume Vb	70383 ft³	Cooling Air Flow Proportioning Factor	0.0344 cfm/btuh	Aux. Heat				(Brushless DC OBC 12.3.1.5.(2))	
Ventilation Load	3,377 Btu/h.	R/A Temp	70 deg. F.	SB-12 Package	Package J	Heating Check	1540 cfm	Cooling Check	1540 cfm
Ventilation PVC	90 cfm	S/A Temp	128 deg. F.						
Supply Branch and Grill Sizing		Diffuser loss	0.01 "w.c.	Temp. Rise>>>	58 deg. F.	Selected cfm>	1540 cfm	Cooling Air Flow Rate	1540 cfm

	Level 1														Level 2													
S/A Outlet No.	1	2	3	4	5	6	35								7	8	9	10	11	12	13	14	15	16	17	18	19	20
Room Use	BASE	BASE	BASE	BASE	BASE	BASE	LAND								KIT	KIT	DIN/LIV	DIN/LIV	DIN/LIV	PWD	DEN	DEN	FOY	FOY	LAUN	LAUN	FAM	FAM
Btu/Outlet	4545	4545	4545	4545	4545	4545	1464								3007	3007	2324	2324	2324	755	2151	2151	2826	2826	1555	1555	2352	2352
Heating Airflow Rate CFM	79	79	79	79	79	79	25								52	52	40	40	40	13	37	37	49	49	27	27	41	41
Cooling Airflow Rate CFM	9	9	9	9	9	9	1								81	81	86	86	86	10	49	49	45	45	59	59	86	86
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
Actual Duct Length	59	57	36	17	19	30	32								65	56	20	8	6	15	35	41	42	49	58	62	59	73
Equivalent Length	100	140	90	120	130	120	100	90	90	90	90	90	90	130	170	140	160	140	140	95	125	100	140	130	130	120	140	
Total Effective Length	159	197	126	137	149	150	132	90	90	90	90	90	90	195	226	160	168	146	155	130	166	142	189	188	192	179	213	
Adjusted Pressure	0.08	0.07	0.10	0.09	0.09	0.09	0.10	0.14	0.14	0.14	0.14	0.14	0.14	0.07	0.06	0.08	0.08	0.09	0.08	0.10	0.08	0.09	0.07	0.07	0.07	0.07	0.06	
Duct Size Round	6	6	6	6	6	6	4							6	6	6	6	6	6	3	5	5	5	5	5	5	6	6
Outlet Size	4x10	4x10	4x10	4x10	4x10	4x10	3x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	3x10	3x10	3x10	3x10	3x10	3x10	4x10	4x10	
Trunk	B	B	A	D	A	E	A								B	B	A	A	D	D	D	E	E	F	B	C	C	C

	Level 3														Level 4													
S/A Outlet No.	21	22	23	24	25	26	27	28	29	30	31	32	33	34														
Room Use	MAST	MAST	WIC	ENS 1	ENS 3	BED 3	BED 4	ENS 4	BED 5	BED 5	ENS 2	BED 2	BED 2	RET														
Btu/Outlet	2095	2095	997	1933	674	2799	2046	761	2015	2015	1495	3750	3750	1754														
Heating Airflow Rate CFM	36	36	17	34	12	49	36	13	35	35	26	65	65	31														
Cooling Airflow Rate CFM	49	49	8	45	14	62	48	13	50	50	24	71	71	25														
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	86	77	59	56	41	48	24	26	44	51	59	67	71	75														
Equivalent Length	170	120	160	170	140	130	190	130	120	130	160	150	140	130	90	90	90	90	90	90	90	90	90	90	90	90	90	
Total Effective Length	256	197	219	226	181	178	214	156	164	181	219	217	211	205	90	90	90	90	90	90	90	90	90	90	90	90	90	
Adjusted Pressure	0.05	0.07	0.06	0.06	0.07	0.07	0.06	0.08	0.08	0.07	0.06	0.06	0.06	0.06	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	
Duct Size Round	5	5	4	5	3	5	5	3	5	5	4	6	6	4														
Outlet Size	3x10	3x10	3x10	3x10	3x10	3x10	3x10	3x10	3x10	3x10	3x10	4x10	4x10	3x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	
Trunk	C	B	B	B	A	A	A	D	D	E	F	F	F	F														

Return Branch And Grill Sizing												Return Trunk Duct Sizing					Supply Trunk Duct Sizing				
Grill Pressure Loss												0.02 "w.c									
R/A Inlet No.	1R	2R	3R	4R	5R	6R	7R	8R	9R	10R	11R	Trunk	CFM	Press.	Round	Rect. Size	Trunk	CFM	Press.	Round	Rect. Size
Inlet Air Volume CFM	255	465	248	156	156	104	156					Drop	1540	0.04	20.0	24x14	A	884	0.05	15.5	28x8 22x10
Duct Design Pressure	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	Z	1540	0.04	20.0	38x10 30x12	B	523	0.05	12.5	18x8 14x10
Actual Duct Length	23	17	29	60	48	75	47					Y	416	0.04	12.0	16x8 12x10	C	145	0.05	8.0	8x8 8x7
Equivalent Length	95	215	170	205	160	200	240	70	70	70	70	X					D	656	0.06	13.5	20x8 16x10
Total Effective Length	118	232	199	265	208	275	287	70	70	70	70	W					E	437	0.06	11.5	14x8 12x10
Adjusted Pressure	0.10	0.05	0.06	0.04	0.06	0.04	0.04	0.17	0.17	0.17	0.17	V					F	236	0.06	9.0	8x8 10x7
Duct Size Round	8.0	12.0	9.5	8.5	8.0	6.0	8.5					U					G				
Inlet Size	FLC	8	8	8	8	8	8					T					H				
" "	x	x	x	x	x	x	x	x	x	x	x	S					I				
Inlet Size		30	14	14	14	14	14					R					J				
Trunk	Z	Z	Z	Y	Y	Y	Z					Q					K				

2012 OBC

Builder: Highcastle Homes

Date: August 12, 2015

Project: Riverwalk Phase 2

Model: 65-5

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: 5337

Project # PJ-00067
Layout # JB-00853

Level 1				BASE		LAND		A		A		A		A		A		A		A		A	
Run ft. exposed wall A	220	A		13	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	1.5	AG		1.5	AG			1.5	AG	1.5	AG	1.5	AG	1.5	AG	1.5	AG	1.5	AG	1.5	AG	1.5	AG
Floor area	2057	Area		194	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	330			20																			
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	4	94	45																	
East/West	3.15	23.56	27.75	12	283	333																	
South	3.15	23.56	21.28	12	283	255																	
Existing Windows	1.99	37.29	22.15																				
Skylight	2.03	36.55	88.23																				
Doors	3.01	24.65	3.65	21	518	77																	
Net exposed walls A	8.50	8.73	1.29	281		364	20																
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																						
Total Conductive	Heat Loss																						
Air Leakage	Heat Loss/Gain	1.0778	0.0591																				
Ventilation	Case 1	0.09	0.05																				
	Case 2	25.64	11.88																				
	Case 3	x	0.04	0.05																			
Heat Gain People			239																				
Appliances Loads	1 =.25 percent		8981																				
Duct and Pipe loss			10%																				
Level 1 HL Total	28,735	Total HL for per room																					
Level 1 HG Total	1,585	Total HG per room x 1.3																					

Level 2				KIT		DIN/LIV		PWD		DEN		FOY		LAUN		FAM		A		A		A		A	
Run ft. exposed wall A	44	A		57	A			7	A			32	A			18	A			30	A			38	A
Run ft. exposed wall B		B			B				B				B				B				B				B
Ceiling height	11.0			11.0				11.0				26.0				11.0				11.0			11.0		
Floor area	608	Area		682	Area			104	Area			266	Area			75	Area			200	Area			307	Area
Exposed Ceilings A	65	A			A				A				A				A				A			9	A
Exposed Ceilings B		B			B				B				B				B				B				B
Exposed Floors	Flr			Flr				Flr				Flr				Flr				Flr			Flr		
Gross Exp Wall A	484			627				77				352				468				330			418		
Gross Exp Wall B																									
Components	R-Values	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain
North Shaded	3.15	23.56	11.31	13	306	147																			
East/West	3.15	23.56	27.75	51	1201	1415																			
South	3.15	23.56	21.28	14	330	298																			
Existing Windows	1.99	37.29	22.15																						
Skylight	2.03	36.55	88.23																						
Doors	3.01	24.65	3.65	8	197	29																			
Net exposed walls A	14.49	5.12	0.76	398	2038	302																			
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																								
Total Conductive	Heat Loss																								
Air Leakage	Heat Loss/Gain	0.4015	0.0591																						
Ventilation	Case 1	0.03	0.05																						
	Case 2	25.64	11.88																						
	Case 3	x	0.04	0.05																					
Heat Gain People			239																						
Appliances Loads	1 =.25 percent		8981																						
Duct and Pipe loss			10%																						
Level 2 HL Total	31,509	Total HL for per room																							
Level 2 HG Total	26,392	Total HG per room x 1.3																							

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

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

32964

David DaCosta

SB-12 Package

Package J

Total Heat Loss	88,424	btu/h
Total Heat Gain	44,813	btu/h

2012 OBC	Builder: Highcastle Homes	Date: August 12, 2015	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: 5337	Project # PJ-00067	Layout # JB-00853
	Project: Riverwalk Phase 2	Model: 65-5							

Level 3	MAST	WIC	ENS 1	ENS 3	BED 3	BED 4	ENS 4	BED 5	ENS 2	BED 2	RET
Run ft. exposed wall A	35 A	13 A	15 A	6 A	28 A	14 A	7 A	33 A	11 A	39 A	11 A
Run ft. exposed wall B	B	B	B	B	B	B	B	B	B	B	B
Ceiling height	10.0	9.0	9.0	9.0	9.0	10.0	9.0	10.0	9.0	10.0	10.0
Floor area	515 Area	104 Area	195 Area	70 Area	257 Area	310 Area	83 Area	304 Area	66 Area	410 Area	265 Area
Exposed Ceilings A	515 A	104 A	195 A	70 A	257 A	310 A	83 A	304 A	66 A	410 A	265 A
Exposed Ceilings B	B	B	B	B	B	B	B	B	B	B	B
Exposed Floors	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr
Gross Exp Wall A	350	117	135	54	252	140	63	330	99	390	110
Gross Exp Wall B											
Components	R-Values	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	33	777	916					
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	317	1623	241	117	599	89	109	558
Net exposed walls B	8.50	8.73	1.29								
Exposed Ceilings A	50.00	1.48	0.76	515	764	391	104	154	79	195	289
Exposed Ceilings B	22.86	3.25	1.66								
Exposed Floors	22.05	3.37	0.23								
Foundation Conductive Heatloss											
Total Conductive	Heat Loss			3165				753			
	Heat Gain				1548			168			
Air Leakage	Heat Loss/Gain	0.2826	0.0591	894	91			213	10		
Ventilation	Case 1	0.02	0.05					413	53		
	Case 2	25.64	11.88								
	Case 3	x	0.04					60	45		
Heat Gain People			239	2	130	77		31	8		
Appliances Loads	1 =.25 percent		8981		478						
Duct and Pipe loss			10%								
Level 3 HL Total	28,179			4190				1933			
Level 3 HG Total	16,836				2853				1298		

Level 4	MAST	WIC	ENS 1	ENS 3	BED 3	BED 4	ENS 4	BED 5	ENS 2	BED 2	RET
Run ft. exposed wall A	A	A	A	A	A	A	A	A	A	A	A
Run ft. exposed wall B	B	B	B	B	B	B	B	B	B	B	B
Ceiling height											
Floor area	Area	Area	Area	Area	Area	Area	Area	Area	Area	Area	Area
Exposed Ceilings A	A	A	A	A	A	A	A	A	A	A	A
Exposed Ceilings B	B	B	B	B	B	B	B	B	B	B	B
Exposed Floors	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr
Gross Exp Wall A											
Gross Exp Wall B											
Components	R-Values	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain
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	0.0591								
Ventilation	Case 1	0.00	0.05								
	Case 2	25.64	11.88								
	Case 3	x	0.04								
Heat Gain People			239								
Appliances Loads	1 =.25 percent		8981								
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	88,424	btu/h
Total Heat Gain	44,813	btu/h

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

Individual BCIN: 32964

David DaCosta

David DaCosta

Package:

Package J

Project:

Brampton

Model:

65-5

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	4 @ 10 cfm	40 cfm	
Bathrooms & Kitchen	6 @ 10 cfm	60 cfm	
Other rooms	7 @ 10 cfm	70 cfm	
Total		210	

Principal Ventilation Capacity 9.32.3.4(1)			
Master bedroom	1 @ 30 cfm	30 cfm	
Other bedrooms	4 @ 15 cfm	60 cfm	
Total		90	

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	210.0
Less principal exhaust capacity	90.0
REQUIRED supplemental vent. Capacity	120.0 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, Ontario L4T 0A4 Tel: 905-671-9800 Fax: 647-494-9643
e-mail dave@gtadesigns.ca

Page 7
Project # PJ-00067
Layout # JB-00853

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
65-5		
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 = 478 m ²	☐ ICF Basement ☐ Walkout Basement ☐ Log/Post&Beam
Area of W,S&G = 58 m ²	☐ ICF Above Grade ☐ Slab-on-ground
W,S & G % = 12%	

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 
-----------------------	---------------	--

Package: Project: Package J Brampton System: Model: System 1 65-5

Air Leakage Calculations

Building Air Leakage Heat Loss				
B	LRairh	Vb	HL ^{AT}	HL ^{leak}
0.018	0.311	70383	74.2	29233

Building Air Leakage Heat Gain				
B	LRairh	Vb	HG ^{AT}	HG ^{Leak}
0.018	0.091	70383	11	1264

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	29233	13561	1.0778
Level 2	0.3		21841	0.4015
Level 3	0.2		20687	0.2826
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	
	1264		0.0591
BUILDING CONDUCTIVE HEAT GAIN			21412

Levels this Dwelling	
3	

Ventilation Calculations

Vent	Ventilation Heat Loss					Ventilation Heat Gain				Vent
	Ventilation Heat Loss					Ventilation Heat Gain				
	C	PVC	HL^T	(1-E) HRV	HLbvent	C	PVC	HG^T	HGbvent	
	1.08	90	74.2	0.32	2308	1.1	90	11	1069	

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	1069	0.05		
	Level 1	0.5	2308	13561	0.09	Building	21412			
	Level 2	0.3		21841	0.03					
	Level 3	0.2		20687	0.02					
	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	2308	0.04	HGbvent	HG*1.3	Vent Heat Gain	
				1069	1	1069	0.05

Foundation Conductive Heatloss Level 1		3629	Watts	12384	Btu/h
Foundation Conductive Heatloss Level 2			Watts		Btu/h

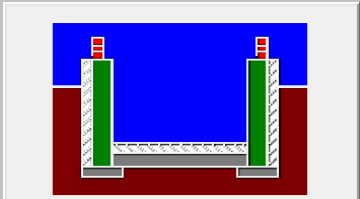
Envelope Air Leakage Calculator

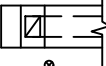
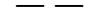
Supplemental tool for CAN/CSA-F280

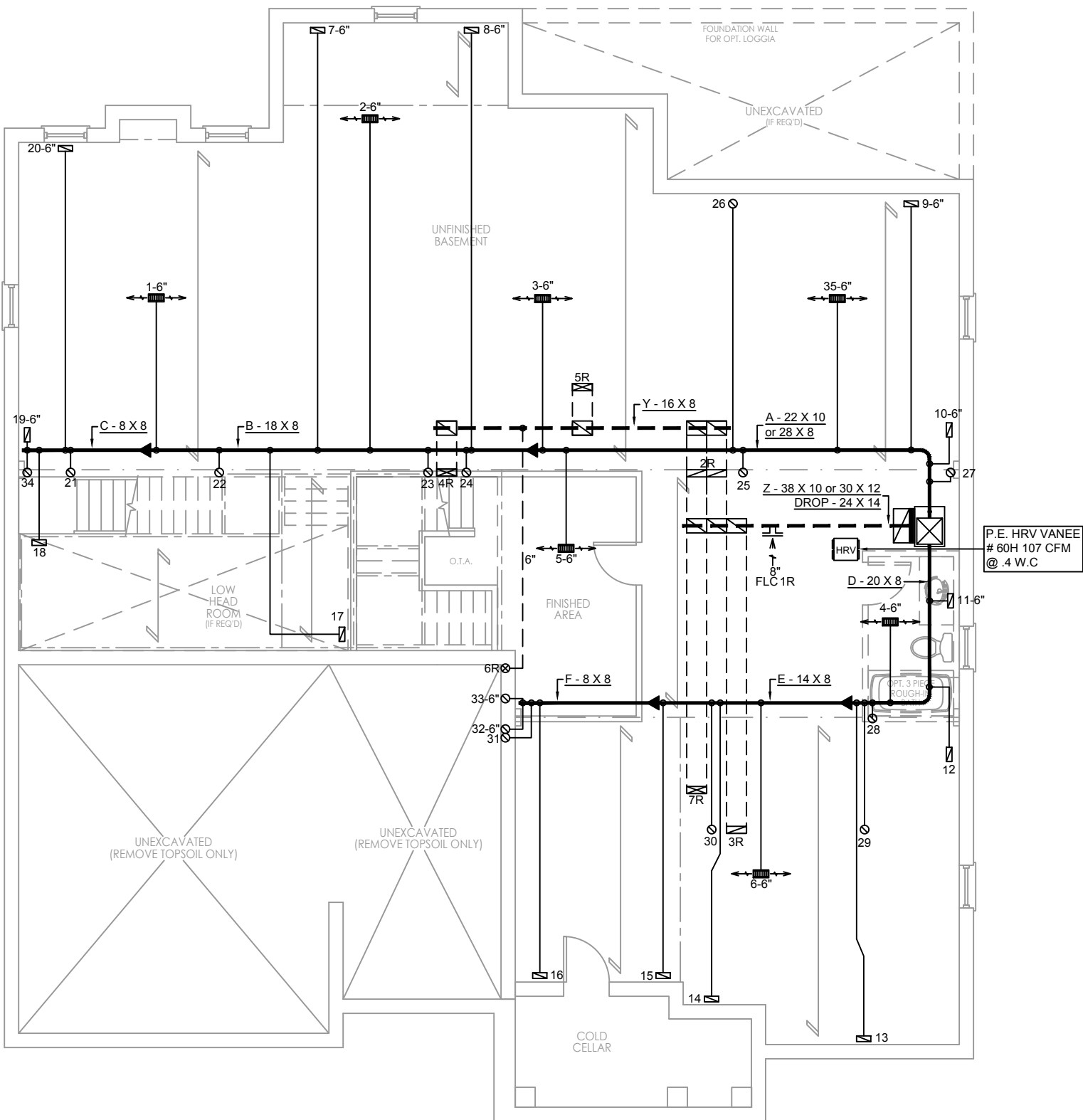
Weather Station Description				
Province:	Ontario ▼			
Region:	Brampton ▼			
Weather Station Location:	Open flat terrain, grass ▼			
Anemometer height (m):	10			
Local Shielding				
Building Site:	Suburban, forest ▼			
Walls:	Heavy ▼			
Flue:	Heavy ▼			
Highest Ceiling Height (m):	6.55			
Building Configuration				6.4
Type:	Detached ▼			
Number of Stories:	Two ▼			
Foundation:	Full ▼			
House Volume (m ³):	566.3 1993.25			
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:	
	45		45	
Flue Size				
Flue #:	#1	#2	#3	#4
Diameter (mm):	0	0	0	0
Envelope Air Leakage Rate				
Heating Air Leakage Rate (ACH/H):		0.311		
Cooling Air Leakage Rate (ACH/H):		0.091		

Residential Foundation Thermal Load Calculator

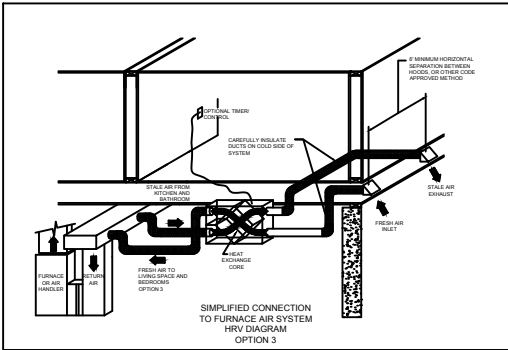
Supplemental tool for CAN/CSA-F280

Weather Station Description		
Province:	Ontario	▼
Region:	Brampton	▼
Site Description		
Soil Conductivity:	High conductivity: moist soil	▼
Water Table:	Normal (7-10 m, 23-33 Ft)	▼
Foundation Dimensions		
Floor Length (m):	28.06	 Insulation Configuration
Floor Width (m):	7.45	
Exposed Perimeter (m):	71.02	
Wall Height (m):	3.05	
Depth Below Grade (m):	2.59	
Window Area (m ²):	2.60	
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):		3629

	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



BASEMENT FLOOR ELEV. B



- 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

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 EXHUAST FAN EXCEEDS 700 CFM DEPRESSURIZATION MAY OCCUR WITH IN THE DWELLING

 **gtaDesigns**

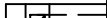
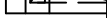
2985 DREW ROAD
SUITE 202,
MISSISSAUGA, ONT.
L4T 0A4 TEL: 905-671-9800
email: dave@gtadesigns.ca
web: www.gtadesigns.ca

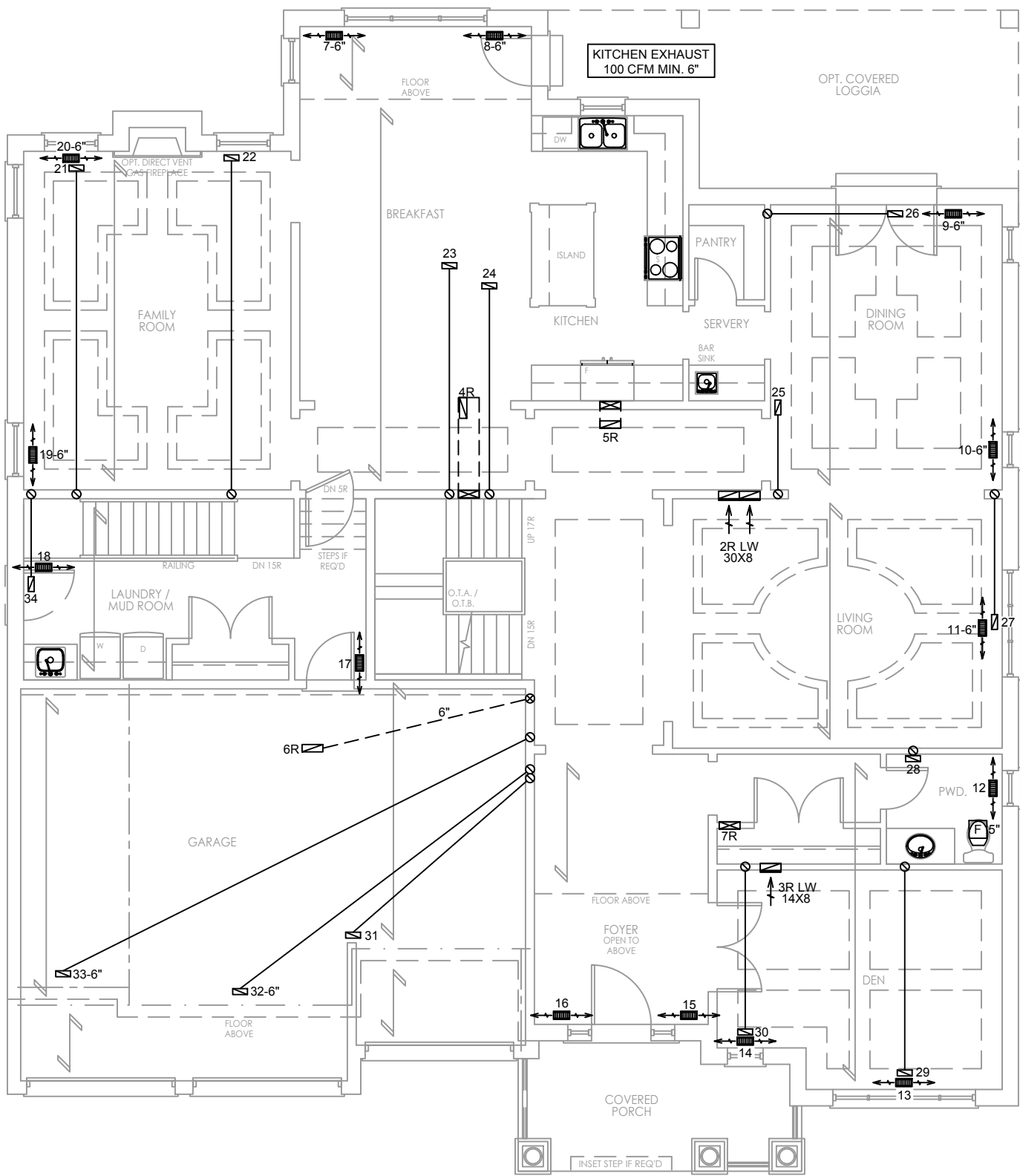
HEAT-LOSS	88,424	BTU/HR.
UNIT MAKE	AMANA	
UNIT MODEL	GMEC96-1004CNA	
UNIT HEATING INPUT	100,000	BTU/HR.
UNIT HEATING OUTPUT	96,000	BTU/HR.
A/C COOLING CAPACITY	4.0	TONS.
FAN SPEED	1540	CFM

# OF RUNS	S/A	R/A	FANS
3RD FLOOR			
2ND FLOOR	14	4	5
1ST FLOOR	14	2	2
BASEMENT	7	1	

FLOOR PLAN: BASEMENT		
DRAWN BY: AM	CHECKED: DD	SOFT 5343
LAYOUT NO. JB-00853	DRAWING NO. M1	

DATE:	AUGUST 07, 2015
CLIENT:	HIGHCASTLE HOMES
MODEL:	65-5
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



GROUND FLOOR ELEV. B

- 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

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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



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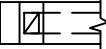
2985 DREW ROAD
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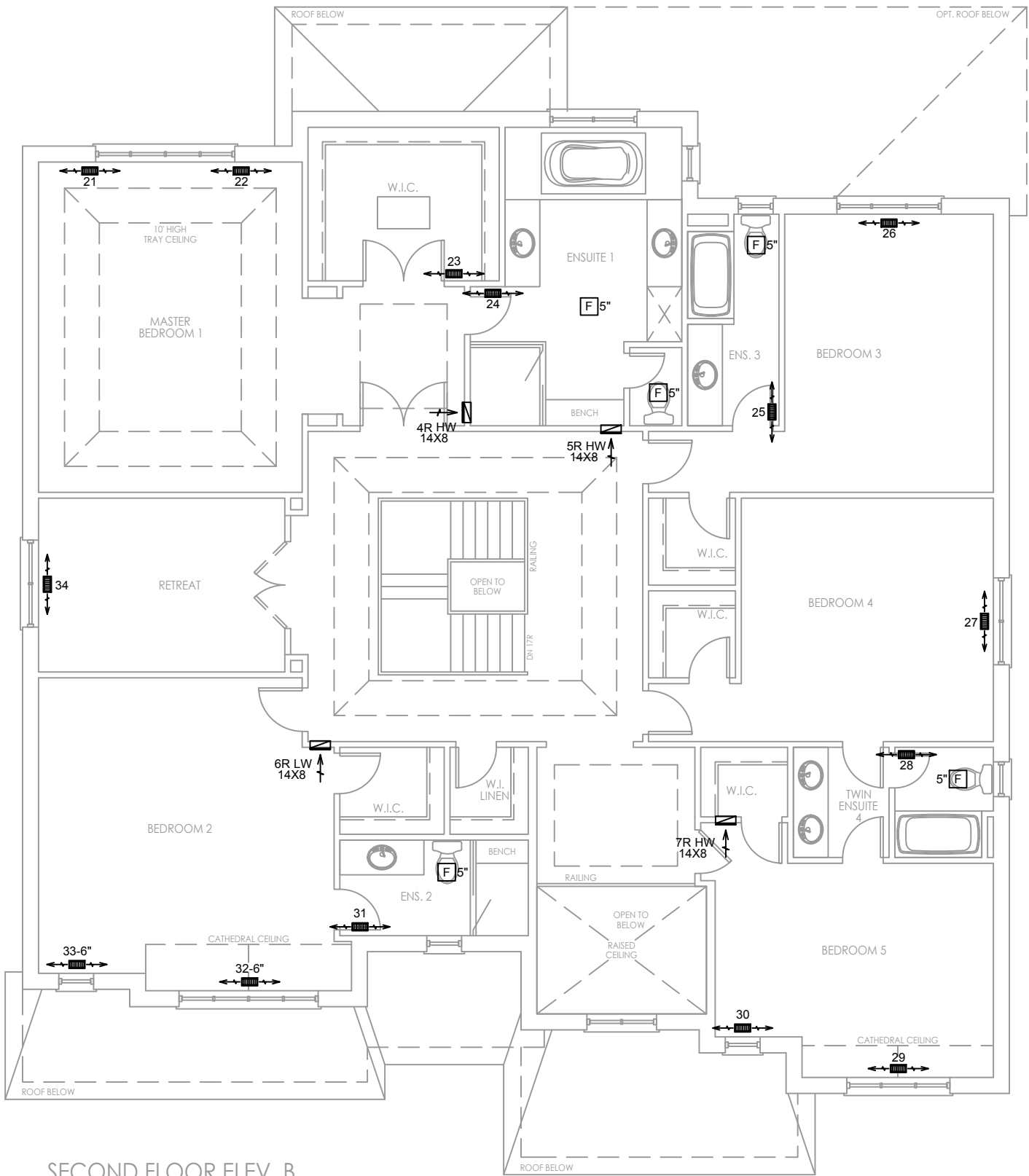
HEAT-LOSS	88,424	BTU/HR.
UNIT MAKE	AMANA	
UNIT MODEL	GMEC96-1004CNA	
UNIT HEATING INPUT	100,000	BTU/HR.
UNIT HEATING OUTPUT	96,000	BTU/HR.
A/C COOLING CAPACITY	4.0	TONS.
FAN SPEED	1540	CFM

# OF RUNS	S/A	R/A	FANS
3RD FLOOR			
2ND FLOOR	14	4	5
1ST FLOOR	14	2	2
BASEMENT	7	1	

FLOOR PLAN: GROUND FLOOR	
DRAWN BY: AM	CHECKED: DD
LAYOUT NO. JB-00853	DRAWING NO. M2

DATE:	AUGUST 07, 2015
CLIENT:	HIGHCASTLE HOMES
MODEL:	65-5
PROJECT:	RIVERWALK PHASE 2 BRAMPTON, ONT
SCALE:	1/8" = 1'-0"

 FLEX DUCT	 RIDIT ROUND DUCT	 SUPPLY DIFFUSER	 LOW/HIGH WALL/KICK SUPPLY DIFFUSER	 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.  \$  	SUPPLY AIR RETURN AIR THERMOSTAT 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

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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



gtaDesigns

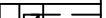
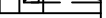
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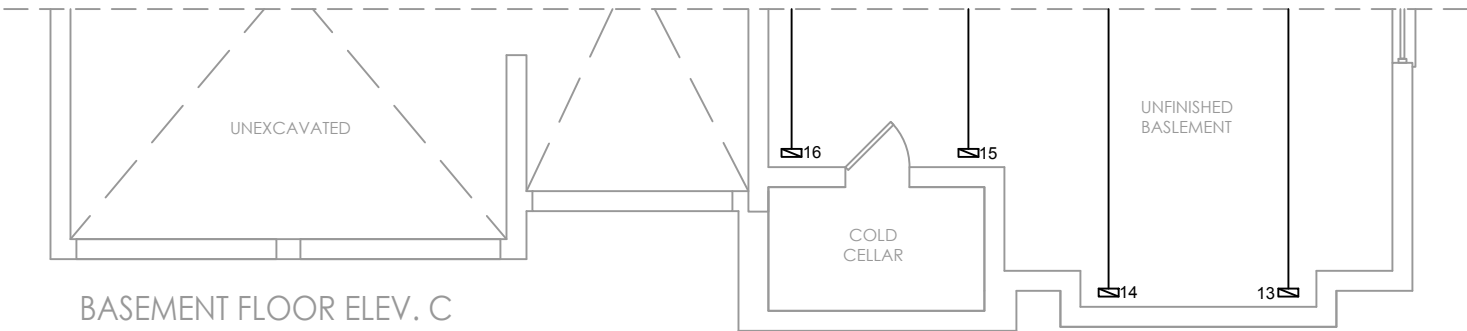
HEAT-LOSS	88,424	BTU/HR.
UNIT MAKE	AMANA	
UNIT MODEL	GMEC96-1004CNA	
UNIT HEATING INPUT	100,000	BTU/HR.
UNIT HEATING OUTPUT	96,000	BTU/HR.
A/C COOLING CAPACITY	4.0	TONS.
FAN SPEED	1540	CFM

# OF RUNS	S/A	R/A	FANS
3RD FLOOR			
2ND FLOOR	14	4	5
1ST FLOOR	14	2	2
BASEMENT	7	1	

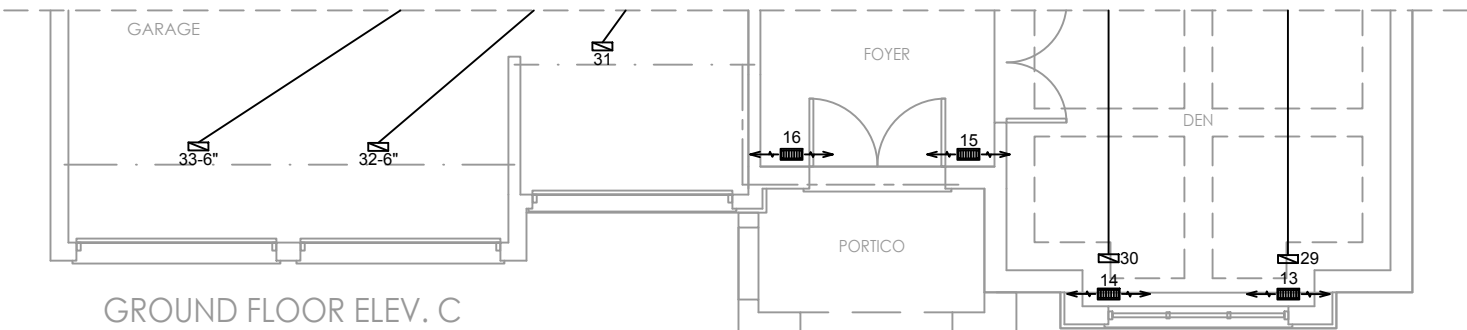
FLOOR PLAN: SECOND FLOOR		
DRAWN BY: AM	CHECKED: DD	SQFT 5343
LAYOUT NO. JB-00853	DRAWING NO. M3	

DATE:	AUGUST 07, 2015
CLIENT:	HIGHCASTLE HOMES
MODEL:	65-5
PROJECT:	RIVERWALK PHASE 2 BRAMPTON, ONT
SCALE:	1/8" = 1'-0"

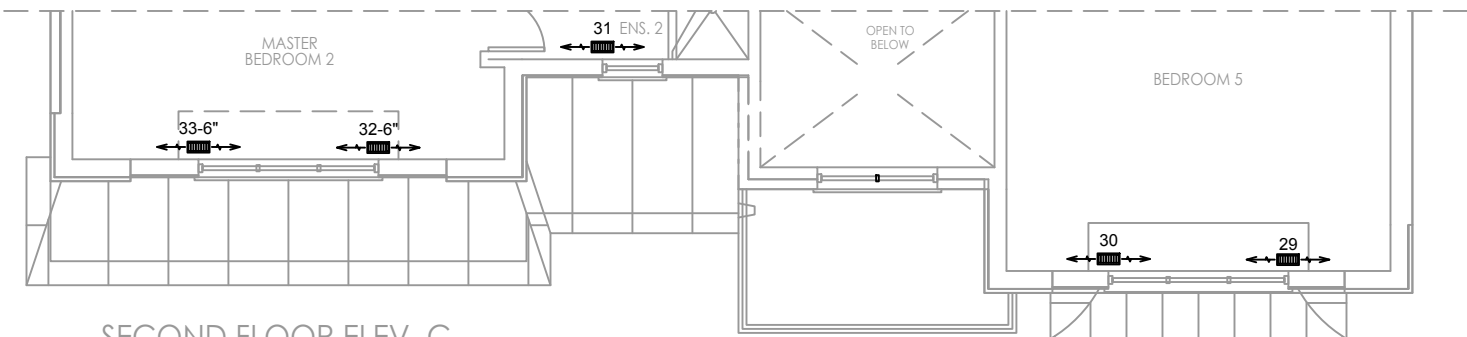
	FLEX DUCT		LOW/HIGH WALL/KICK SUPPLY DIFFUSER		DUCT CONNECTION TO JOIST LINING		RETURN AIR GRILLE (SIZE INDICATED ON DRAWING)	S.A.	SUPPLY AIR
	RIDIT ROUND DUCT		HRV EXHAUST GRILL		RETURN AIR PIPE RISER		RETURN AIR RISER UP TO FLOOR ABOVE	R.A.	RETURN AIR
	SUPPLY DIFFUSER		SUPPLY AIR PIPE RISER		RETURN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



BASEMENT FLOOR ELEV. C



GROUND FLOOR ELEV. C



SECOND FLOOR ELEV. C

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 EXHUAST FAN EXCEEDS 700 CFM DEPRESSURIZATION MAY OCCUR WITH IN THE DWELLING



gtaDesigns

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HEAT-LOSS	88,424	BTU/HR.
UNIT MAKE	AMANA	
UNIT MODEL	GMEC96-1004CNA	
UNIT HEATING INPUT	100,000	BTU/HR.
UNIT HEATING OUTPUT	96,000	BTU/HR.
A/C COOLING CAPACITY	4.0	TONS.
FAN SPEED	1540	CFM

# OF RUNS	S/A	R/A	FANS
3RD FLOOR			
2ND FLOOR	14	4	5
1ST FLOOR	14	2	2
BASEMENT	7	1	

FLOOR PLAN:	PARTIALS PLAN
DRAWN BY: AM	CHECKED: DD
LAYOUT NO. JB-00853	SQFT 5343
	DRAWING NO. M4

DATE:	AUGUST 07, 2015
CLIENT:	HIGHCASTLE HOMES
MODEL:	65-5
PROJECT:	RIVERWALK PHASE 2 BRAMPTON, ONT
SCALE:	1/8" = 1"-0"