

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 50-5			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-01183
Heating and Cooling Load Calculations		Builder	Highcastle Homes	
Air System Design		Project	Riverwalk Phase 2	
Residential mechanical ventilation Design Summary		Model	50-5	
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>October 15, 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-01183	
Building Location					
Address (Model): 50-5			Site: Riverwalk Phase 2		
Model:			Lot:		
City and Province: Brampton			Postal code:		
Calculations based on					
Dimensional information based on:			RN Design		
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: 3827
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: **October 15, 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: **50-5**

System 1

Individual BCIN: 32964

David DaCosta

Project # **PJ-00067**
Layout # **JB-01183**

DESIGN LOAD SPECIFICATIONS		AIR DISTRIBUTION & PRESSURE		FURNACE/AIR HANDLER DATA:		BOILER/WATER HEATER DATA:		A/C UNIT DATA:	
Level 1 Net Load	24,410 btu/h	Equipment External Static Pressure	0.5 "w.c.	Make	Amana	Make	Type	Amana	3.5 Ton
Level 2 Net Load	24,071 btu/h	Additional Equipment Pressure Drop	0.225 "w.c.	Model	GMEC961004CN	Model		Cond.-----	3.5
Level 3 Net Load	23,528 btu/h	Available Design Pressure	0.275 "w.c.	Input Btu/h	100000	Input Btu/h		Coil -----	3.5
Level 4 Net Load	0 btu/h	Return Branch Longest Effective Length	300 ft	Output Btu/h	96000	Output Btu/h			
Total Heat Loss	72,009 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	37,445 btu/h	S/A Plenum Pressure	0.14 "w.c.	Water Temp	deg. F.	Blower DATA:			
Combo System HL + 10%	79,210 Btu/h	Heating Air Flow Proportioning Factor	0.0178 cfm/btuh	AFUE	96%	Blower Speed Selected:	W1	Blower Type	ECM
Building Volume Vb	49814 ft³	Cooling Air Flow Proportioning Factor	0.0342 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	1280 cfm	Cooling Check	1280 cfm
Ventilation PVC	90 cfm	S/A Temp	139 deg. F.						
Supply Branch and Grill Sizing		Diffuser loss	0.01 "w.c.	Temp. Rise>>>	69 deg. F.	Selected cfm>	1280 cfm	Cooling Air Flow Rate	1280 cfm

	Level 1														Level 2													
S/A Outlet No.	1	2	3	4	5									6	7	8	9	10	11	12	13	14	15	16	17			
Room Use	BASE	BASE	BASE	BASE	BASE									KIT	KIT	DIN		FOY	LIV	LIV	PWD	LAUN	DEN	FAM	FAM			
Btu/Outlet	4882	4882	4882	4882	4882									2435	2435	2491		1705	2208	2208	1883	2635	2005	2034	2034			
Heating Airflow Rate CFM	87	87	87	87	87									43	43	44		30	39	39	33	47	36	36	36			
Cooling Airflow Rate CFM	11	11	11	11	11									71	71	94		28	69	69	25	89	25	77	77			
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			
Actual Duct Length	22	32	37	55	8									32	37	41		59	62	62	54	13	16	34	26			
Equivalent Length	120	150	140	120	100	90	90	90	90	90	90	90	90	110	160	110	90	110	90	110	120	100	90	110	90			
Total Effective Length	142	182	177	175	108	90	90	90	90	90	90	90	90	142	197	151	90	169	152	172	174	113	106	144	116			
Adjusted Pressure	0.09	0.07	0.07	0.07	0.12	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.09	0.07	0.09	0.14	0.08	0.09	0.08	0.07	0.12	0.12	0.09	0.11			
Duct Size Round	6	6	6	6	6									5	6	6		4	5	6	4	6	4	6	5			
Outlet Size	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	3x10	4x10	4x10	4x10	3x10	3x10	4x10	3x10	4x10	3x10	4x10	4x10			
Trunk	B	C	D	G	A									C	D	D		G	G	G	F	PTO	A	B	B			

	Level 3													Level 4												
S/A Outlet No.	18	19	20	21	22	23	24	25	26	27	28	29														
Room Use	MAST1	ENS1	ENS5	BED5	ENS2	BED2	BED2	BED3	BED3	TWIN	BED4	MAST1														
Btu/Outlet	2054	2783	814	2482	943	2670	2670	2293	2293	736	1738	2054														
Heating Airflow Rate CFM	37	49	14	44	17	47	47	41	41	13	31	37														
Cooling Airflow Rate CFM	48	53	21	65	18	72	72	44	44	10	36	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			
Actual Duct Length	53	50	48	67	61	70	74	68	78	23	40	42														
Equivalent Length	140	130	110	160	160	160	120	130	140	140	170	170	90	90	90	90	90	90	90	90	90	90	90			
Total Effective Length	193	180	158	227	221	230	194	198	218	163	210	212	90	90	90	90	90	90	90	90	90	90	90			
Adjusted Pressure	0.07	0.07	0.08	0.06	0.06	0.06	0.07	0.07	0.06	0.08	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			
Duct Size Round	5	5	4	6	4	6	6	5	5	3	5	5														
Outlet Size	3x10	3x10	3x10	4x10	3x10	4x10	4x10	3x10	3x10	3x10	3x10	3x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10			
Trunk	B	D	D	D	D	D	F	F	F	PTO	B	B														

Return Branch And Grill Sizing												Return Trunk Duct Sizing					Supply Trunk Duct Sizing				
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	218	347	250	150	105	105	105					Drop	1280	0.09	16.0	24x10	A	1220	0.06	17.0	26x10
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	1280	0.09	16.0	30x8	B	263	0.06	9.5	10x8
Actual Duct Length	14	19	14	31	40	66	63					Y	662	0.09	12.5	18x8	C	835	0.06	14.5	24x8
Equivalent Length	70	70	70	70	70	70	70	70	70	70	70	X					D	347	0.06	10.5	12x8
Total Effective Length	84	89	84	101	110	136	133	70	70	70	70	W					E	358	0.06	10.5	12x8
Adjusted Pressure	0.14	0.13	0.14	0.12	0.11	0.09	0.09	0.17	0.17	0.17	0.17	V					F	162	0.06	8.0	8x8
Duct Size Round	8.0	9.0	8.0	7.0	6.0	6.0	6.0					U					G	196	0.07	8.5	8x8
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	Y	Z	Z	Y	Y	Y					Q					K				

2012 OBC

Builder: Highcastle Homes

Date: October 15, 2015

Project: Riverwalk Phase 2

Model: 50-5

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: 3827

Project # PJ-00067
Layout # JB-01183

Level 1				BASE											
Run ft. exposed wall A	194	A		A		A		A		A		A		A	
Run ft. exposed wall B	B			B		B		B		B		B		B	
Ceiling height	3.0	AG		3.0	AG	3.0	AG	3.0	AG	3.0	AG	3.0	AG	3.0	AG
Floor area	1599	Area		Area		Area		Area		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	582														
Gross Exp Wall B															
Components	R-Values	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain
North Shaded	3.15	23.56	11.31	3	71	34									
East/West	3.15	23.56	27.75	3	71	83									
South	3.15	23.56	21.28	9	212	192									
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	546		707									
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 ()			12054											
Total Conductive	Heat Loss			12925											
	Heat Gain				1092										
Air Leakage	Heat Loss/Gain	0.8400	0.0499	10858		54									
Ventilation	Case 1		0.09			0.06									
	Case 2		25.64			11.88									
	Case 3	x	0.05			0.06									
Heat Gain People				627		62									
Appliances Loads	1 = 25 percent														
Duct and Pipe loss			10%												
Level 1 HL Total	24,410	Total HL for per room		24410											
Level 1 HG Total	1,571	Total HG per room x 1.3			1571										

Level 2				KIT		DIN		LIV		PWD		LAUN		DEN		FAM		FOY		A		A		A	
Run ft. exposed wall A				42		18		29		19		21		12		33		9		A		A		A	
Run ft. exposed wall 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	
Floor area				413 Area		384 Area		144 Area		86 Area		87 Area		169 Area		223 Area		88 Area		Area		Area		Area	
Exposed Ceilings A				A		A		A		A		A		A		8 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				462		198		319		209		231		132		363		99							
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						13		306		147				39		919	
East/West				3.15		23.56		27.75		18		424		499		39		919		1082		13		306	
South				3.15		23.56		21.28		30		707		638								52		1225	
Existing Windows				1.99		37.29		22.15														22		518	
Skylight				2.03		36.55		88.23																	
Doors				3.01		24.65		3.65		7		173		26								14		345	
Net exposed walls A				14.49		5.12		0.76		407		2084		309		159		814		121		241		1234	
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 ()		x																			
Total Conductive				Heat Loss						3387								1733				3071			
				Heat Gain								1472		73				1203		60		1195		2095	
Air Leakage				Heat Loss/Gain		0.3891		0.0499		1318								674				105		510	
Ventilation				Case 1		0.04		0.06																	
				Case 2		25.64		11.88																	
				Case 3		x		0.05		0.06		164		84				84		68		149		119	
Heat Gain People								239																	
Appliances Loads				1 = 25 percent		6354		1.0		1588		0.5				794		0.5		794		1.0		1588	
Duct and Pipe loss						10%																			
Level 2 HL Total				24,071		Total HL for per room		4870																	
Level 2 HG Total				20,368		Total HG per room x 1.3		4183		2763		4046		733		2635		2602		736		4067		4489	

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	72,009	btu/h
Total Heat Gain	37,445	btu/h

2012 OBC	Builder: Highcastle Homes	Date: October 15, 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: 3827	Project # PJ-00067	Layout # JB-01183
	Project: Riverwalk Phase 2	Model: 50-5							

Level 3	MAST1	ENS1	ENS5	BED5	ENS2	BED2	BED3	TWIN	BED4				
Run ft. exposed wall A	37 A	27 A	7 A	18 A	9 A	45 A	32 A	6 A	12 A	A	A		
Run ft. exposed wall B	B	B	B	B	B	B	B	B	B	B	B		
Ceiling height	10.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0		
Floor area	322 Area	204 Area	46 Area	252 Area	51 Area	259 Area	279 Area	86 Area	311 Area	Area	Area		
Exposed Ceilings A	470 A	204 A	46 A	252 A	51 A	259 A	279 A	86 A	311 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	370	243	63	162	81	405	288	54	108				
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	32	754	888	9	212	250	13	306	361	
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	338	1731	257	210	1075	159	50	256	38	123
Net exposed walls B	8.50	8.73	1.29										
Exposed Ceilings A	50.00	1.48	0.76	470	697	357	204	303	155	46	68	35	252
Exposed Ceilings B	22.86	3.25	1.66										
Exposed Floors	22.05	3.37	0.23										
Foundation Conductive Heatloss													
Total Conductive	Heat Loss			3182				2155		631		1922	
	Heat Gain				1502				1075		434		1115
Air Leakage	Heat Loss/Gain	0.2424	0.0499	771	75			523	54	153	22	466	56
Ventilation	Case 1	0.03	0.06										
	Case 2	25.64	11.88										
	Case 3	x	0.05										
Heat Gain People			239	2	154	85		105	61	31	25	93	63
Appliances Loads	1 =.25 percent		6354										
Duct and Pipe loss			10%										
Level 3 HL Total	23,528		Total HL for per room	4108				2783		814		2482	
Level 3 HG Total	15,506		Total HG per room x 1.3		2782				1546		624		1914

Level 4													
Run ft. exposed wall 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
Ceiling height													
Floor 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
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													
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										
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	0.0499										
Ventilation	Case 1	0.00	0.06										
	Case 2	25.64	11.88										
	Case 3	x	0.05										
Heat Gain People			239										
Appliances Loads	1 =.25 percent		6354										
Duct and Pipe loss			10%										
Level 4 HL Total	0		Total HL for per room										
Level 4 HG Total	0		Total HG per room x 1.3										

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	72,009	btu/h
Total Heat Gain	37,445	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

Package:
Package J
Project:
Brampton
Model:
50-5

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	5 @	10 cfm	50 cfm
Total			<u>190</u>

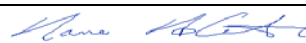
Principal Ventilation Capacity 9.32.3.4(1)			
Master bedroom	1 @	30 cfm	30 cfm
Other bedrooms	4 @	15 cfm	60 cfm
Total			<u>90</u>

Principal Exhaust Fan Capacity		
Make	Model	Location
VanEE	60H	Base
107 cfm		Sones

Heat Recovery Ventilator		
Make	VanEE	
Model	60H	
107 cfm high		53 cfm low
Sensible efficiency @ -25 deg C		55%
Sensible efficiency @ 0 deg C		65%

Supplemental Ventilation Capacity	
Total ventilation capacity	190.0
Less principal exhaust capacity	90.0
REQUIRED supplemental vent. Capacity	<u>100.0</u> cfm

Supplemental Fans 9.32.3.5.			
Location	cfm	Model	Sones
Ens.5	50	770	2.5
Twin Ens	50	770	2.5
<i>all fans HVI listed</i>			
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	October 15, 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-01183

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
50-5		
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 = 406 m ²	☐ ICF Basement ☐ Walkout Basement ☐ Log/Post&Beam
Area of W,S&G = 56 m ²	☐ ICF Above Grade ☐ Slab-on-ground
W,S & G % = 14%	

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 50-5

Air Leakage Calculations

Building Air Leakage Heat Loss				
B	LRairh	Vb	HL ^{AT}	HL ^{leak}
0.018	0.326	49814	74.2	21715

Building Air Leakage Heat Gain				
B	LRairh	Vb	HG ^{AT}	HG ^{Leak}
0.018	0.095	49814	11	940

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	21715	12925	0.8400
Level 2	0.3		16744	0.3891
Level 3	0.2		17914	0.2424
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	
	940		0.0499
BUILDING CONDUCTIVE HEAT GAIN			18841

Levels this Dwelling	
3	

Ventilation Calculations

Ventilation Heat Loss

Ventilation Heat Loss				
C	PVC	HL ^{AT}	(1-E) HRV	HL ^{bvent}
1.08	90	74.2	0.32	2308

Ventilation Heat Gain

Ventilation Heat Gain			
C	PVC	HG ^{AT}	HG ^{bvent}
1.1	90	11	1069

Case 1

Ventilation Heat Loss (Exhaust only Systems)

Case 1 - Exhaust Only				
Level	LF	HL ^{bvent}	LVL Cond. HL	Multiplier
Level 1	0.5	2308	12925	0.09
Level 2	0.3		16744	0.04
Level 3	0.2		17914	0.03
Level 4	0		0	0.00

Case 1

Ventilation Heat Gain (Exhaust Only Systems)

Case 1 - Exhaust Only		Multiplier	
HG ^{bvent}	1069	0.06	
Building	18841		

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	2308	0.05

Case 3

Ventilation Heat Gain (Forced Air Systems)

Vent Heat Gain		Multiplier	
HG ^{bvent}	HG*1.3	1069	0.06
1069	1		

Foundation Conductive Heatloss Level 1

3533 Watts 12054 Btu/h

Foundation Conductive Heatloss Level 2

Watts Btu/h

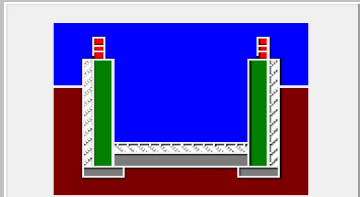
Envelope Air Leakage Calculator

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):	7.01			
Building Configuration				6.4
Type:	Detached ▼			
Number of Stories:	Two ▼			
Foundation:	Full ▼			
House Volume (m ³):	566.3 1410.73			
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):		0.326		
Cooling Air Leakage Rate (ACH/H):		0.095		

Residential Foundation Thermal Load Calculator

Supplemental tool for CAN/CSA-F280

Weather Station Description		
Province:	Ontario	▼
Region:	Brampton	▼
Site Description		
Soil Conductivity:	High conductivity: moist soil	▼
Water Table:	Normal (7-10 m, 23-33 Ft)	▼
Foundation Dimensions		
Floor Length (m):	23.15	 Insulation Configuration
Floor Width (m):	6.42	
Exposed Perimeter (m):	59.13	
Wall Height (m):	3.05	
Depth Below Grade (m):	2.13	
Window Area (m ²):	1.39	
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):		3533

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

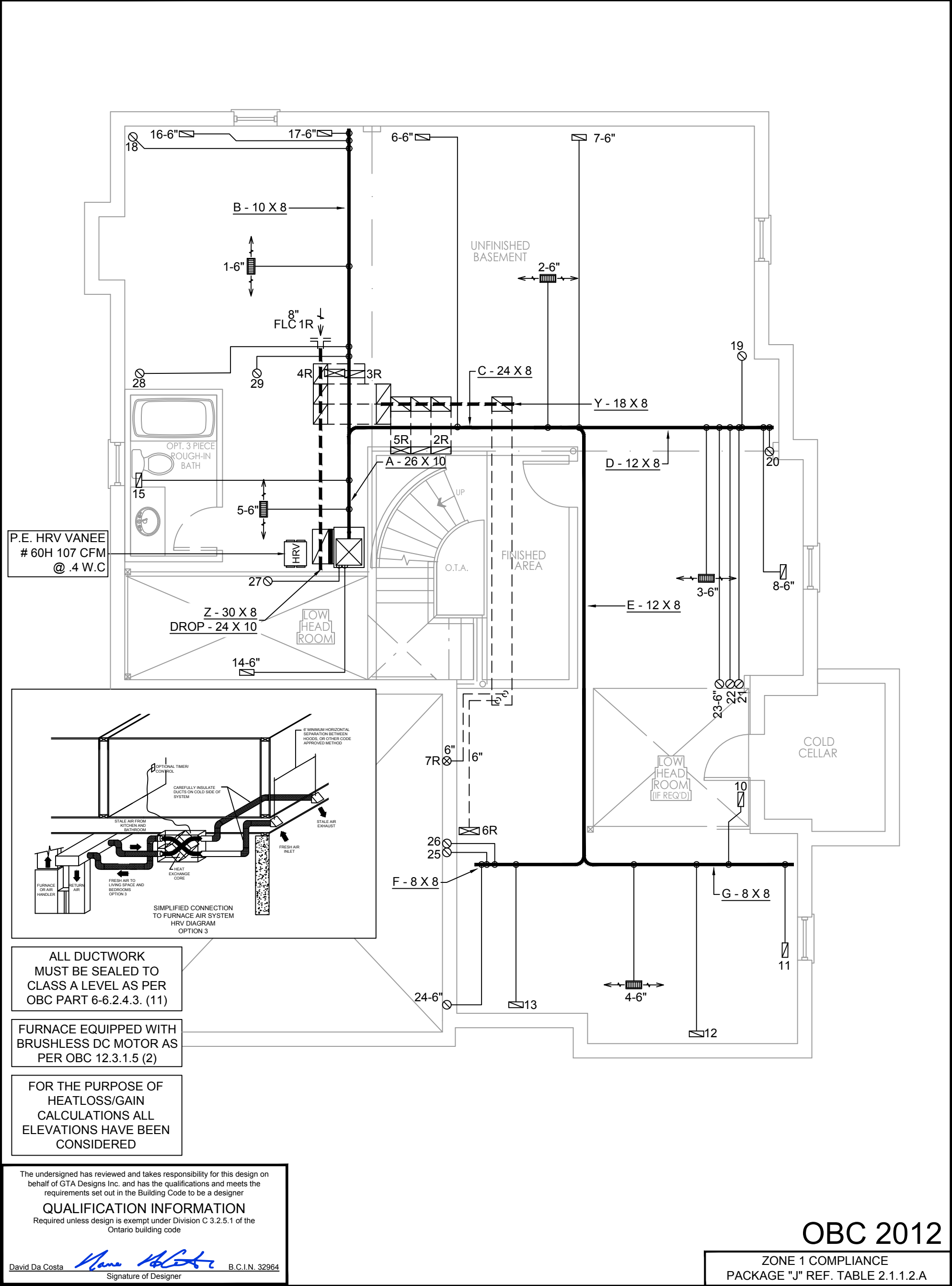
RETURN AIR FROM BASEMENT SECOND FLOOR

S.A.

R.A.

THERMOSTAT

PRINCIPAL EXHAUST FAN SWITCH W/R & PRINCIPAL EXHAUST FAN



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

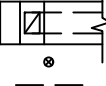
2985 DREW ROAD
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L4T 0A4 TEL: 416-268-6820
email: dave@gtadesigns.ca
web: www.gtadesigns.ca

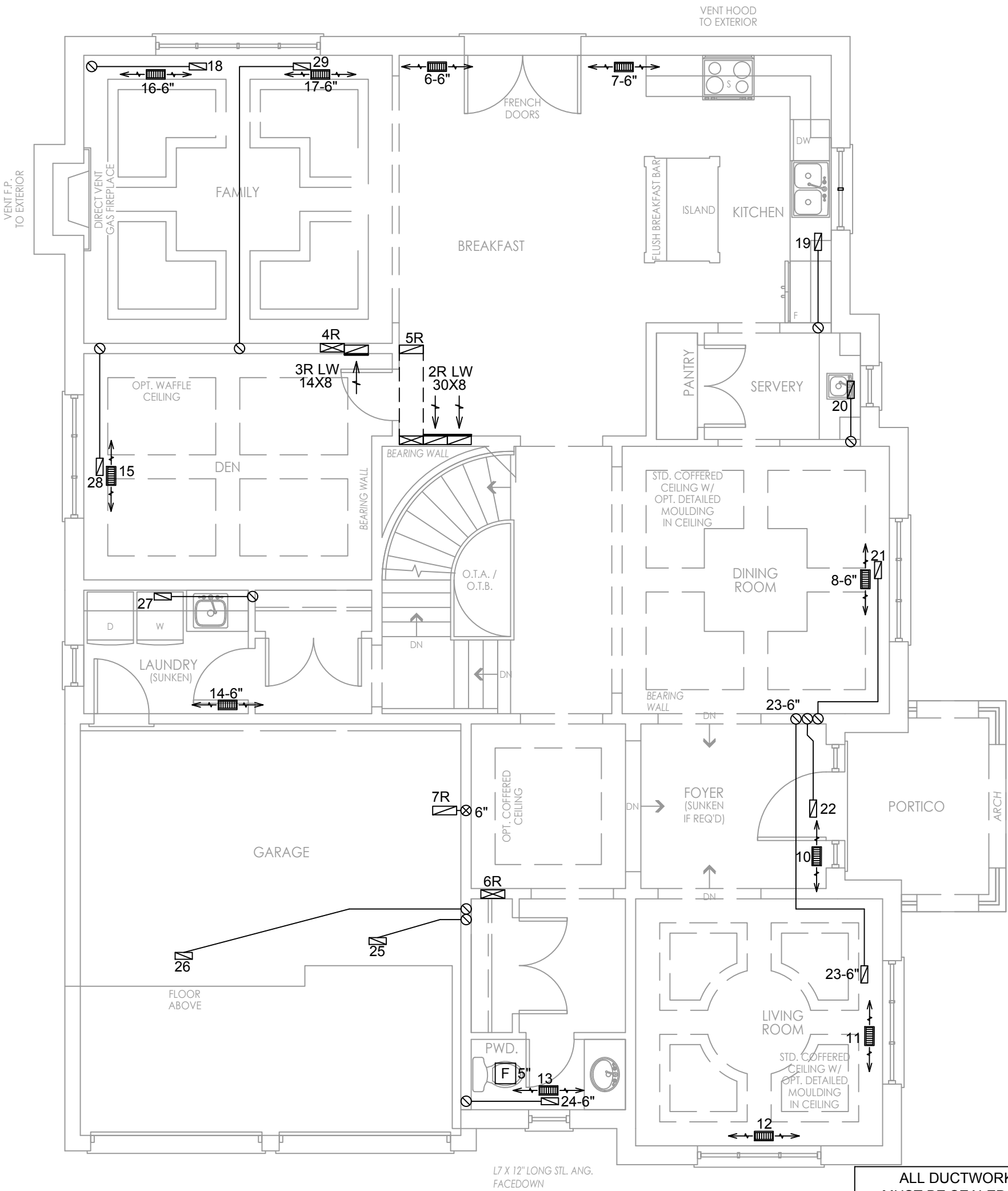
HEAT-LOSS	72,009	BTU/HR.
UNIT MAKE	AMANA	OR EQUAL.
UNIT MODEL	GMEC961004CN	OR EQUAL.
UNIT HEATING INPUT	100,000	BTU/HR.
UNIT HEATING OUTPUT	96,000	BTU/HR.
A/C COOLING CAPACITY	3.5	TONS.
FAN SPEED	1280	CFM

# OF RUNS	S/A	R/A	FANS
3RD FLOOR			
2ND FLOOR	6	3	4
1ST FLOOR	11	2	1
BASEMENT	10	1	

FLOOR PLAN: BASEMENT	
DRAWN BY: RB	CHECKED: DD
LAYOUT NO. JB-01183	DRAWING NO. M1
SQFT 3827	

DATE:	OCTOBER 15, 2015
CLIENT:	HIGHCASTLE HOMES
MODEL:	50-5
PROJECT:	RIVERWALK PHASE 2 BRAMPTON,ONT.
SCALE:	3/16" = 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

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



Signature of Designer

B.C.I.N. 32964

CIRCULATION PRINCIPAL FAN SWITCH TO BE CENTRALLY LOCATED

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

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

OBC 2012

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

NOTES

INSTALLATION TO COMPLY WITH THE LATEST ONTARIO BUILDING CODE.
ALL SUPPLY OUTLETS TO BE 5" DIA. UNLESS OTHERWISE SPECIFIED.
ALL R/A PARTITIONS 6" (FIRST FLOOR ONLY)
INSULATE DUCTS IN UNCONDITIONED SPACES R12 UNDERCUT ALL DOORS 1" MIN.
HEATING CONTRACTOR MUST WORK FROM APPROVED PLANS.
ANY ALTERATIONS TO THIS ORIGINAL PLAN ARE NOT THE RESPONSABILITY OF GTA DESIGNS.
GTA DESIGNS MUST BE CONSULTED IF KITCHEN EXHAUST FAN EXCEEDS 700 CFM DEPRESSURIZATION MAY OCCUR WITH IN THE DWELLING



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email: dave@gtadesigns.ca
web: www.gtadesigns.ca

HEAT-LOSS	72,009	BTU/HR.
UNIT MAKE	AMANA	OR EQUAL.
UNIT MODEL	GMEC961004CN	OR EQUAL.
UNIT HEATING INPUT	100,000	BTU/HR.
UNIT HEATING OUTPUT	96,000	BTU/HR.
A/C COOLING CAPACITY	3.5	TONS.
FAN SPEED	1280	CFM

# OF RUNS	S/A	R/A	FANS
3RD FLOOR			
2ND FLOOR	6	3	4
1ST FLOOR	11	2	1
BASEMENT	10	1	

FLOOR PLAN:	GROUND FLOOR
DRAWN BY:	RB
CHECKED:	DD
LAYOUT NO.	JB-01183
SQFT	3827
DRAWING NO.	M2

DATE:	OCTOBER 15, 2015
CLIENT:	HIGHCASTLE HOMES
MODEL:	50-5
PROJECT:	RIVERWALK PHASE 2 BRAMPTON, ONT.
SCALE:	3/16" = 1'-0"


FLEX DUCT


RIDIT ROUND DUCT

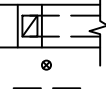

SUPPLY DIFFUSER


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

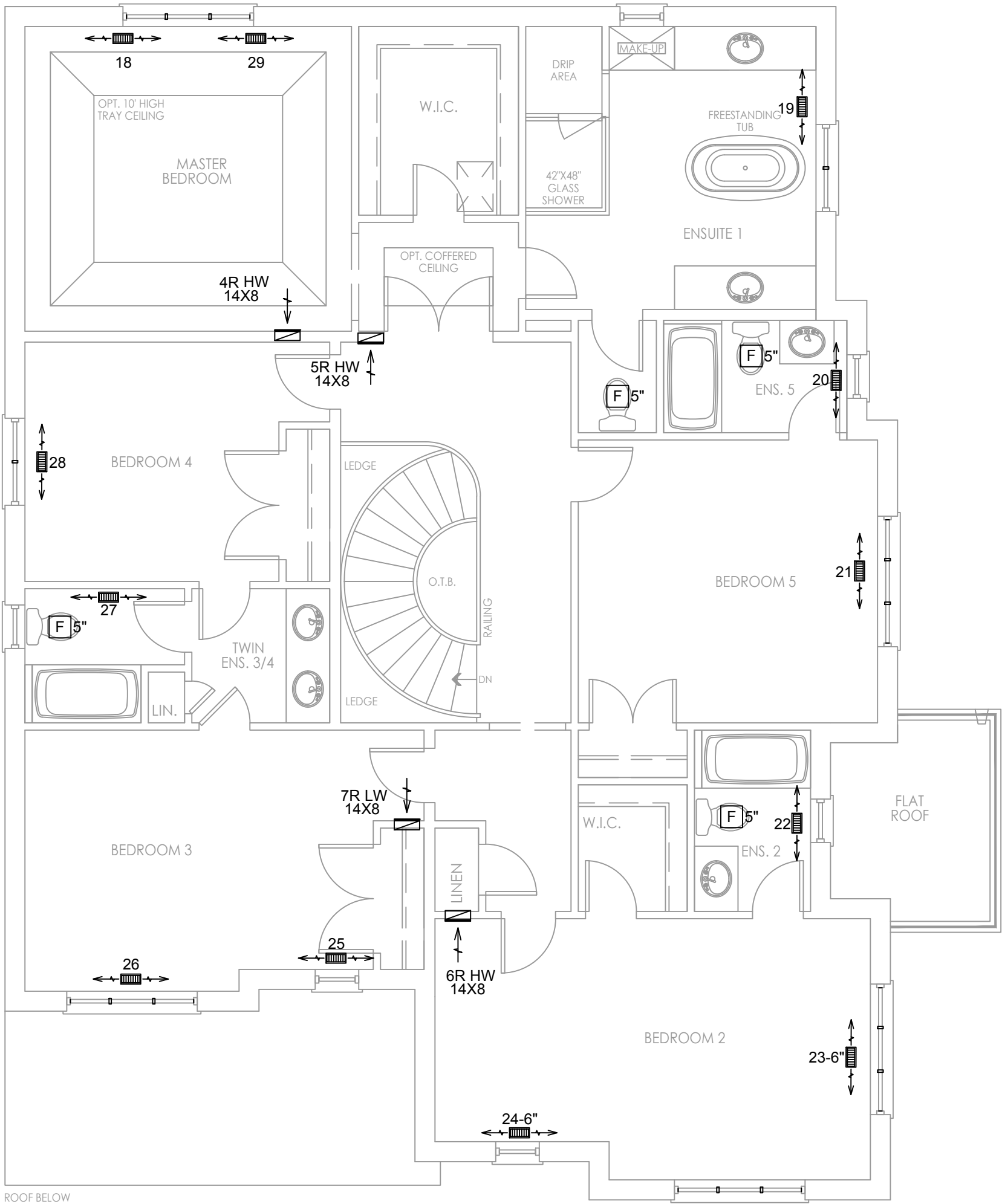
S.A.
R.A.


THERMOSTAT


PRINCIPAL EXHAUST FAN SWITCH


W/R & PRINCIPAL EXHAUST FAN

SUPPLY AIR
RETURN AIR



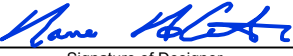
INSULATE ALL DUCTS IN UNCONDITIONED SPACES MIN. R12

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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

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

OBC 2012

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

NOTES

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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.

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HEAT-LOSS	72,009	BTU/HR.
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UNIT HEATING OUTPUT	96,000	BTU/HR.
A/C COOLING CAPACITY	3.5	TONS.
FAN SPEED	1280	CFM

# OF RUNS	S/A	R/A	FANS
3RD FLOOR			
2ND FLOOR	6	3	4
1ST FLOOR	11	2	1
BASEMENT	10	1	

FLOOR PLAN:
DRAWN BY: RB
CHECKED: DD
LAYOUT NO. JB-01183

SECOND FLOOR
SQFT 3827
DRAWING NO. M3

DATE:	OCTOBER 15, 2015
CLIENT:	HIGHCASTLE HOMES
MODEL:	50-5
PROJECT:	RIVERWALK PHASE 2 BRAMPTON, ONT.
SCALE:	3/16" = 1'-0"