

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 FP Town 8 - Newcastle			Lot:	
			Lot/con.	
Municipality Clarington	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-00022
				Layout # JB-00704
Heating and Cooling Load Calculations		Builder	Delpark/Highcastle Homes	
Air System Design		Project	Northglen	
Residential mechanical ventilation Design Summary		Model	FP Town 8 - Newcastle	
Residential System Design per CAN/CSA-F280-12		SB-12	Package D	
Residential New Construction - Forced Air				
D. Declaration of Designer				
I, <u>David DaCosta</u> declare that (choose one as appropriate): (print name) ☐ I review and take responsibility for the design work on behalf of a firm registered under subsection 3.2.4 Division C of the Building Code. I am qualified, and the firm is registered, in the appropriate classes/categories. Individual BCIN: _____ Firm BCIN: _____ ☒ I review and take responsibility for the design and am qualified in the appropriate category as an "other designer" under subsection 3.2.5 of Division C, of the Building Code. Individual BCIN: <u>32964</u> Basis for exemption from registration: <u>Division C 3.2.4.1. (4)</u> ☐ The design work is exempt from the registration and qualification requirements of the Building Code. Basis for exemption from registration and qualification:				
I certify that: 1. The information contained in this schedule is true to the best of my knowledge. 2. I have submitted this application with the knowledge and consent of the firm. <u>June 17, 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 Delpark/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-00704	
Building Location					
Address (Model): FP Town 8 - Newcastle			Site: Northglen		
Model:			Lot:		
City and Province: Clarington			Postal code:		
Calculations based on					
Dimensional information based on:			Cassidy & Co. Dwgs Dated Apr/2013		
Attachment: Townhome		Front facing: East/West		Assumed? Yes	
No. of Levels: 3		Ventilated? Included		Air tightness: 1961- Present (ACH=3.57) Assumed? Yes	
Weather location: Durham		Wind exposure: Shelterd			
HRV?		Internal shading: Light-translucent Occupants: 5			
Sensible Eff. at -25C 0		Apparent Effect. at -0C 0		Units: Imperial Area Sq. ft 1960	
Heating design conditions			Cooling design conditions		
Outdoor temp -4.0 Indoor temp: 72 Mean soil temp 48			Outdoor temp 84 Indoor temp: 75 Latitude: 44		
Above grade walls			Below grade walls		
Style A: As per Selected OBC SB12 Package D R 24			Style A: As per Selected OBC SB12 Package D R 20		
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 D			Style A: As per Selected OBC SB12 Package D R 50		
Style B:			Style B: As per Selected OBC SB12 Package D R 31		
Exposed floors			Style C:		
Style A: As per Selected OBC SB12 Package D R 31			Doors		
Style B:			Style A: As per Selected OBC SB12 Package D R 3.01		
Windows			Style B:		
Style A: As per Selected OBC SB12 Package D 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 D 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: Delpark/Highcastle Homes

2015 June 17, 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: Northglen

Model: FP Town 8 - Newcastle

System 1

Individual BCIN: 32964

David DaCosta

Project # PJ-00022
Layout # JB-00704

DESIGN LOAD SPECIFICATIONS		AIR DISTRIBUTION & PRESSURE		FURNACE/AIR HANDLER DATA:		BOILER/WATER HEATER DATA:		A/C UNIT DATA:	
Level 1 Net Load	12,178 btu/h	Equipment External Static Pressure	0.5 "w.c.	Make	Amana	Make	Type	Amana	2.0 Ton
Level 2 Net Load	12,933 btu/h	Additional Equipment Pressure Drop	0.225 "w.c.	Model	GMEC960402BNA	Model		Cond.-----	2.0
Level 3 Net Load	9,529 btu/h	Available Design Pressure	0.275 "w.c.	Input Btu/h	40000	Input Btu/h		Coil -----	2.0
Level 4 Net Load	0 btu/h	Return Branch Longest Effective Length	300 ft	Output Btu/h	38400	Output Btu/h			
Total Heat Loss	34,640 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	18,460 btu/h	S/A Plenum Pressure	0.14 "w.c.	Water Temp	deg. F.	Blower DATA:			
Total Heat Loss + 10%	38,104 Btu/h	Heating Air Flow Proportioning Factor	0.0223 cfm/btuh	AFUE	96%	Blower Speed Selected:	T2	Blower Type	ECM
Building Volume Vb	23610 ft³	Cooling Air Flow Proportioning Factor	0.0419 cfm/btuh	Aux. Heat				(Brushless DC OBC 12.3.1.5.(2))	
Ventilation Load	6,901 Btu/h.	R/A Temp	70 deg. F.	SB-12 Package	Package D	Heating Check	773 cfm	Cooling Check	773 cfm
Ventilation PVC	75 cfm	S/A Temp	116 deg. F.						
Supply Branch and Grill Sizing		Diffuser loss	0.01 "w.c.	Temp. Rise>>>	46 deg. F.	Selected cfm>	773 cfm	Cooling Air Flow Rate	773 cfm

S/A Outlet No.	Level 1 Outlets														Level 2 Outlets									
	10	18	19	20	21										8	9	11	12	13	14	15	16	17	
Room Use	CAV	BASE	BASE	BASE	BASE										KIT	LAUND	PWD	LIB	LIB	FOY	DIN	GRT	GRT	
Btu/Outlet	2901	2319	2319	2319	2319										1610	1067	276	1856	1856	1213	1597	1729	1729	
Heating Airflow Rate CFM	65	52	52	52	52										36	24	6	41	41	27	36	39	39	
Cooling Airflow Rate CFM	2	6	6	6	6										104	51	1	32	32	21	79	68	68	
Duct Design Pressure	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13
Actual Duct Length	56	36	27	15	18										33	33	23	42	42	38	28	26	31	
Equivalent Length	130	130	90	110	150	90	90	90	90	90	90	90	90	90	90	120	110	90	120	90	140	100	100	90
Total Effective Length	186	166	117	125	168	90	90	90	90	90	90	90	90	90	123	153	133	132	162	128	168	126	131	90
Adjusted Pressure	0.07	0.08	0.11	0.10	0.08	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.11	0.08	0.10	0.10	0.08	0.10	0.08	0.10	0.10	0.14	0.14
Duct Size Round	6	5	5	5	5										6	5	2	4	5	4	6	5	5	
Outlet Size	4x10	3x10	3x10	3x10	3x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	3x10	3x10	3x10	3x10	4x10	4x10	3x10	3x10	4x10
Trunk	E	E	B	B	D										C	D	D	E	E	D	D	B	C	

	Level 3 Outlets														Level 4 Outlets													
S/A Outlet No.	1	2	3	4	5	6	7																					
Room Use	MAST	MAST	ENS	BATH	BED 2	BED 3	BED 4																					
Btu/Outlet	1480	1480	970	133	2471	1585	1410																					
Heating Airflow Rate CFM	33	33	22	3	55	35	31																					
Cooling Airflow Rate CFM	49	49	26	3	81	37	44																					
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	49	59	56	36	54	47	24																					
Equivalent Length	130	170	155	150	120	120	110	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90			
Total Effective Length	179	229	211	186	174	167	134	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90			
Adjusted Pressure	0.07	0.06	0.06	0.07	0.07	0.08	0.10	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	5	5	4	2	6	4	5																					
Outlet Size	3x10	3x10	3x10	3x10	4x10	3x10	3x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10			
Trunk	C	C	C	D	E	D	A																					

Return Branch And Grill Sizing		Grill Pressure Loss		0.02 "w.c.							
R/A Inlet No.	1R	2R	3R	4R	5R	6R	7R	8R	9R	10R	11R
Inlet Air Volume CFM	100	113	100	180	130	50	100				
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	47	57	47	8	29	39	7				
Equivalent Length	165	180	140	110	150	150	135	70	70	70	70
Total Effective Length	212	237	187	118	179	189	142	70	70	70	70
Adjusted Pressure	0.06	0.05	0.06	0.10	0.07	0.06	0.08	0.17	0.17	0.17	0.17
Duct Size Round	6.0	7.5	6.0	7.5	7.0	5.0	6.0				
Inlet Size	8	8	6	8	8	FLC	FLC				
" "	x	x	x	x	x	x	x	x	x	x	x
Inlet Size	14	14	14	30	14						
Trunk	Y	X	Y	Z	Y	X	Z				

Return Trunk Duct Sizing							
Trunk	CFM	Press.	Round	Rect. Size			
Drop	773	0.05	14.5	24x10			
Z	773	0.05	14.5	24x8 18x10			
Y	493	0.05	12.5	18x8 14x10			
X	163	0.05	8.5	8x8 107			
W							
V							
U							
T							
S							
R							
Q							

Supply Trunk Duct Sizing							
Trunk	CFM	Press.	Round	Rect. Size			
A	772	0.06	14.0	22x8 18x10			
B	304	0.06	10.0	12x8 10x10			
C	162	0.06	8.0	8x8 8x7			
D	437	0.07	11.0	14x8 10x10			
E	254	0.07	9.0	8x8 10x7			
F							
G							
H							
I							
J							
K							

2012 OBC

Builder: Delpark/Highcastle Homes

Date: June 17, 2015

Project: Northglen

Model: FP Town 8 - Newcastle

System 1

Weather Data Durham 44 -4.0 84 20 48.2

Heat Loss ^T 76 deg. F Ht gain ^T 9.2 deg. F GTA: 1960

Project # PJ-00022
Layout # JB-00704

Level 1				CAV		BASE																							
Run ft. exposed wall A	25	A		110	A	A	A	A	A	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	B	B	B	B	B	B	B
Ceiling height	1.0	AG		2.0	AG	AG	AG	AG	AG	AG	AG	AG	AG	AG	AG	AG	AG	AG	AG	AG	AG	AG	AG	AG	AG	AG	AG	AG	AG
Floor area	138	Area		900	Area	Area	Area	Area	Area	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	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	B	B	B	B	B	B	B
Exposed Floors	138	Flr		Flr		Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr
Gross Exp Wall A	25			220																									
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	Loss	Gain	Loss	Gain
North Shaded	3.15	24.13	10.74																										
East/West	3.15	24.13	27.18			3	72	82																					
South	3.15	24.13	20.71			9	217	186																					
Existing Windows	1.99	38.19	21.24																										
Skylight	2.03	37.44	87.34																										
Doors	3.01	25.25	3.06																										
Net exposed walls A	13.79	5.51	0.67	25		17	208	139																					
Net exposed walls B	8.50	8.94	1.08																										
Exposed Ceilings A	50.00	1.52	0.72																										
Exposed Ceilings B	22.86	3.32	1.58																										
Exposed Floors	22.05	3.45	0.15	138	476	20																							
Foundation Conductive Heatloss	Slab On Grade (x)																												
Total Conductive	Heat Loss																												
Air Leakage	Heat Loss/Gain	0.4445	0.0060																										
Ventilation	Case 1	x	0.49	0.09																									
	Case 2		82.08	9.94																									
	Case 3		0.27	0.09																									
Heat Gain People			239																										
Appliances Loads	1 = 25 percent		3335																										
Duct and Pipe loss			10%																										
Level 1 HL Total	12,178		Total HL for per room	2901			9278	577																					
Level 1 HG Total	629		Total HG per room x 1.3		52																								

Level 2			KIT		LAUND		PWD		LIB		FOY		DIN		GRT															
Run ft. exposed wall A			10	A	7	A	4	A	38	A	7	A	14	A	28	A	A	A	A	A	A	A	A	A	A	A	A	A	A	
Run ft. exposed wall B			B		B		B		B		B		B		B		B		B		B		B		B		B		B	
Ceiling height			10.0		10.0		10.0		10.0		10.0		10.0		10.0															
Floor area			182	Area	88	Area	35	Area	118	Area	75	Area	147	Area	206	Area	Area	Area	Area	Area	Area	Area	Area	Area	Area	Area	Area	Area	Area	
Exposed Ceilings A			A		A		A		118	A	A		A		A		A		A		A		A		A		A		A	
Exposed Ceilings B			B		B		B		B		B		B		B		B		B		B		B		B		B		B	
Exposed Floors			Flr		Flr		Flr		Flr		Flr		Flr		Flr		Flr		Flr		Flr		Flr		Flr		Flr		Flr	
Gross Exp Wall A			100		70		40		380		70		140		280															
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	Loss	Gain
North Shaded				3.15	24.13	10.74																								
East/West				3.15	24.13	27.18	35	844	951				16	386	435			30	724	815										
South				3.15	24.13	20.71							16	386	331	14	338	290	24	579	497	28	676	580						
Existing Windows				1.99	38.19	21.24																								
Skylight				2.03	37.44	87.34																								
Doors				3.01	25.25	3.06																								
Net exposed walls A				15.13	5.02	0.61	65	327	40	49	246	30	40	201	24	348	1748	212	43	216	26	116	583	71	222	1115	135			
Net exposed walls B				8.50	8.94	1.08																								
Exposed Ceilings A				50.00	1.52	0.72																								
Exposed Ceilings B				22.86	3.32	1.58																								
Exposed Floors				22.05	3.45	0.15																								
Foundation Conductive Heatloss				Slab On Grade (x)		x																								
Total Conductive				Heat Loss																										
				Heat Gain																										
Air Leakage				Heat Loss/Gain	0.1786	0.0060																								
				Case 1	x	0.20	0.09																							
Ventilation				Case 2		82.08	9.94																							
				Case 3		0.27	0.09																							
Heat Gain People						239																								
Appliances Loads				1 = 25 percent		3335	1.0		834	1.0		834						1.0		834	1.0		834							
Duct and Pipe loss						10%																								
Level 2 HL Total				12,933		Total HL for per room	1610			1067	276		3712		1213		1597		3457											
Level 2 HG Total				10,898		Total HG per room x 1.3		2489		1217	35		1508		505		1889		3255											

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 D

Total Heat Loss	34,640	btu/h
Total Heat Gain	18,460	btu/h

2012 OBC	Builder: Delpark/Highcastle Homes	Date: June 17, 2015	System 1	Weather Data	Durham	44	-4.0	84	20	48.2	Heat Loss ^T	76 deg. F	Ht gain ^T	9.2 deg. F	GTA: 1960	Project # PJ-00022	Layout # JB-00704
	Project: Northglen	Model: FP Town 8 - Newcastle															

Level 3		MAST		ENS		BATH		BED 2		BED 3		BED 4																	
Run ft. exposed wall A		27	A	8		A		22		20		12		A		A		A		A		A		A		A		A	
Run ft. exposed wall B		B		B		B		B		B		B		B		B		B		B		B		B		B		B	
Ceiling height		8.0		8.0		8.0		8.0		8.0		8.0																	
Floor area		290	Area	115		60		160		100		150		Area		Area		Area		Area		Area		Area		Area		Area	
Exposed Ceilings A		290	A	115		60		160		100		150		A		A		A		A		A		A		A		A	
Exposed Ceilings B		B		B		B		B		B		B		B		B		B		B		B		B		B		B	
Exposed Floors		Flr		Flr		Flr		Flr		Flr		Flr		Flr		Flr		Flr		Flr		Flr		Flr		Flr		Flr	
Gross Exp Wall A		216		64				176		160		96																	
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	Loss	Gain
North Shaded			3.15	24.13	10.74																								
East/West			3.15	24.13	27.18	24	579	652																					
South			3.15	24.13	20.71	12	290	248				30	724	815		12	290	248											
Existing Windows			1.99	38.19	21.24																								
Skylight			2.03	37.44	87.34																								
Doors			3.01	25.25	3.06																								
Net exposed walls A			15.13	5.02	0.61	180	904	109	52	261	32		146	733	89	148	743	90	78	392	47								
Net exposed walls B			8.50	8.94	1.08																								
Exposed Ceilings A			50.00	1.52	0.72	290	441	210	115	175	83	60	91	43	160	243	116	100	152	72	150	228	109						
Exposed Ceilings B			22.86	3.32	1.58																								
Exposed Floors			22.05	3.45	0.15																								
Foundation Conductive Heatloss																													
Total Conductive	Heat Loss					2214			726		91		1700		1185		1054												
	Heat Gain						1220			441		43		1020		411		529											
Air Leakage	Heat Loss/Gain			0.1607	0.0060	356	7		117	3	15	0	273	6	190	2	169	3											
Ventilation	Case 1		x	0.18	0.09	391	104		128	38	16	4	300	87	209	35	186	45											
	Case 2			82.08	9.94																								
	Case 3			0.27	0.09																								
Heat Gain People						2		478				1	239	1		239	1		239										
Appliances Loads			1 =.25 percent		3335																								
Duct and Pipe loss					10%					1	11	5	1	197	135														
Level 3 HL Total			9,529	Total HL for per room			2960			970		133		2471		1585		1410											
Level 3 HG Total			6,933	Total HG per room x 1.3				2352			626		68		1933		894		1061										

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		Loss	Gain		Loss	Gain		Loss	Gain
North Shaded		3.15	24.13	10.74																								
East/West		3.15	24.13	27.18																								
South		3.15	24.13	20.71																								
Existing Windows		1.99	38.19	21.24																								
Skylight		2.03	37.44	87.34																								
Doors		3.01	25.25	3.06																								
Net exposed walls A		15.13	5.02	0.61																								
Net exposed walls B		8.50	8.94	1.08																								
Exposed Ceilings A		50.00	1.52	0.72																								
Exposed Ceilings B		22.86	3.32	1.58																								
Exposed Floors		22.05	3.45	0.15																								
Foundation Conductive Heatloss																												
Total Conductive	Heat Loss																											
	Heat Gain																											
Air Leakage	Heat Loss/Gain		0.0000	0.0060																								
Ventilation	Case 1	x	0.00	0.09																								
	Case 2		82.08	9.94																								
	Case 3		0.27	0.09																								
Heat Gain People				239																								
Appliances Loads		1 =.25 percent		3335																								
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																										

Total Heat Loss	34,640	btu/h
Total Heat Gain	18,460	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

SB-12 Package

Package D

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 D

Project:

Clarington

Model:

FP Town 8 - Newcastle

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	Clarington
Roll #	Permit #
Address	

Builder	
Name	Delpark/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	3 @ 10 cfm	30 cfm	
Bathrooms & Kitchen	4 @ 10 cfm	40 cfm	
Other rooms	4 @ 10 cfm	40 cfm	
Total		150	

Principal Ventilation Capacity 9.32.3.4(1)			
Master bedroom	1 @ 30 cfm	30 cfm	
Other bedrooms	3 @ 15 cfm	45 cfm	
Total		75	

Principal Exhaust Fan Capacity		
Make	Model	Location
Broan	684N	Ensuite
90 cfm		2.5 Sones

Heat Recovery Ventilator	
Make	
Model	
	cfm high 0 cfm low
Sensible efficiency @ -25 deg C	0
Sensible efficiency @ 0 deg C	0

Supplemental Ventilation Capacity	
Total ventilation capacity	150.0
Less principal exhaust capacity	75.0
REQUIRED supplemental vent. Capacity	75.0 cfm

Supplemental Fans 9.32.3.5.			
Location	cfm	Model	Sones
Bath	50	770	
Pwd.	50	770	
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	June 17, 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-00022
Layout # JB-00704

This form is used to summarize the energy efficiency design of the project. Information on completing this form is on the reverse

For use by Principal Authority

Application No:	Model/Certification Number
-----------------	----------------------------

A. Project Information

Building number, street name FP Town 8 - Newcastle	Unit number	Lot/Con
Municipality Clarington	Postal code	Reg. Plan number / other description

B. Compliance Option

☒ SB-12 Prescriptive [SB-12 - 2.1.1.]	Table: Package: A B C D E F G H I J K L M	Package D
☐ SB-12 Performance* [SB-12 - 2.1.2.]	* Attach energy performance calculations using an approved software	
☐ Energy Star®* [SB-12 - 2.1.3.]	* Attach 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
Gross Wall Area = 189 m ²	☐ ICF Basement ☐ Walkout Basement ☐ Log/Post&Beam
Gross Window+ Area = 26 m ²	☐ ICF Above Grade ☐ Slab-on-ground
% Windows+ 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	24	Space Heating Equip. ²	94%
Basement Walls	20	HRV Efficiency (%)	0%
Slab (all >600mm below grade)	x	DHW Heater (EF)	0.67
Slab (edge only ≤600mm below grade)	10	NOTES	
Slab (all ≤600mm below grade, or heated)	10	1. Provide U-Value in W/m2.K, or ER rating	
		2. Provide AFUE or indicate if condensing type combined system used	

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: BOP form attached. The house will be labeled on completion by:
Energy Star and EnerGuide80:
Evaluator/Advisor/Rater Name: _____ Evaluator/Advisor/Rater Licence #: _____

F. Designers [names of designers who are responsible for the building code design and whose plans accompany the permit application]

Architectural	Mechanical David DaCosta 
---------------	--

Package: **Package D** System: **System 1**
Project: **Clarington** Model: **FP Town 8 - Newcastle**

Air Leakage Calculations

Building Air Leakage Heat Loss				
B	LRairh	Vb	HL ^Δ T	HL _{leak}
0.018	0.173	23610	76	5601

Building Air Leakage Heat Gain				
B	LRairh	Vb	HG ^Δ T	HG Leak
0.018	0.013	23610	9.2	52

Air Leakage Heat Loss/Gain Multiplier Table (Section 11)				
Level	Level Factor (LF)	Building Air	Level Conductive Heat Loss	Air Leakage Heat Loss Multiplier
1	0.5	5601	6300	0.4445
2	0.3		9406	0.1786
3	0.2		6970	0.1607
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	
	52		0.0060
BUILDING CONDUCTIVE HEAT GAIN		8733	

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	75	76	1.00	6156	1.1	75	9.2	745		
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	745	0.09			
	1	0.5	6156	6300	0.49	Building	8733				
	2	0.3		9406	0.20						
3	0.2	6970		0.18							
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	82.08		C	HG^T	9.94			
	1.08	76	1.00			1.08	9.2				
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		6156	0.27		HGbvent 745		HG*1.3 1	745	0.09	

Foundation Conductive Heatloss Level 1	1622	Watts	5535	Btu/h
---	------	-------	------	-------

Foundation Conductive Heatloss Level 2		Watts		Btu/h
---	--	-------	--	-------

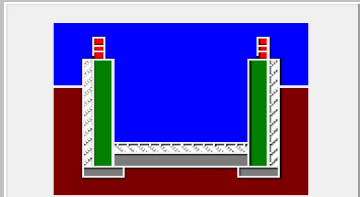
Envelope Air Leakage Calculator

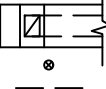
Supplemental tool for CAN/CSA-F280

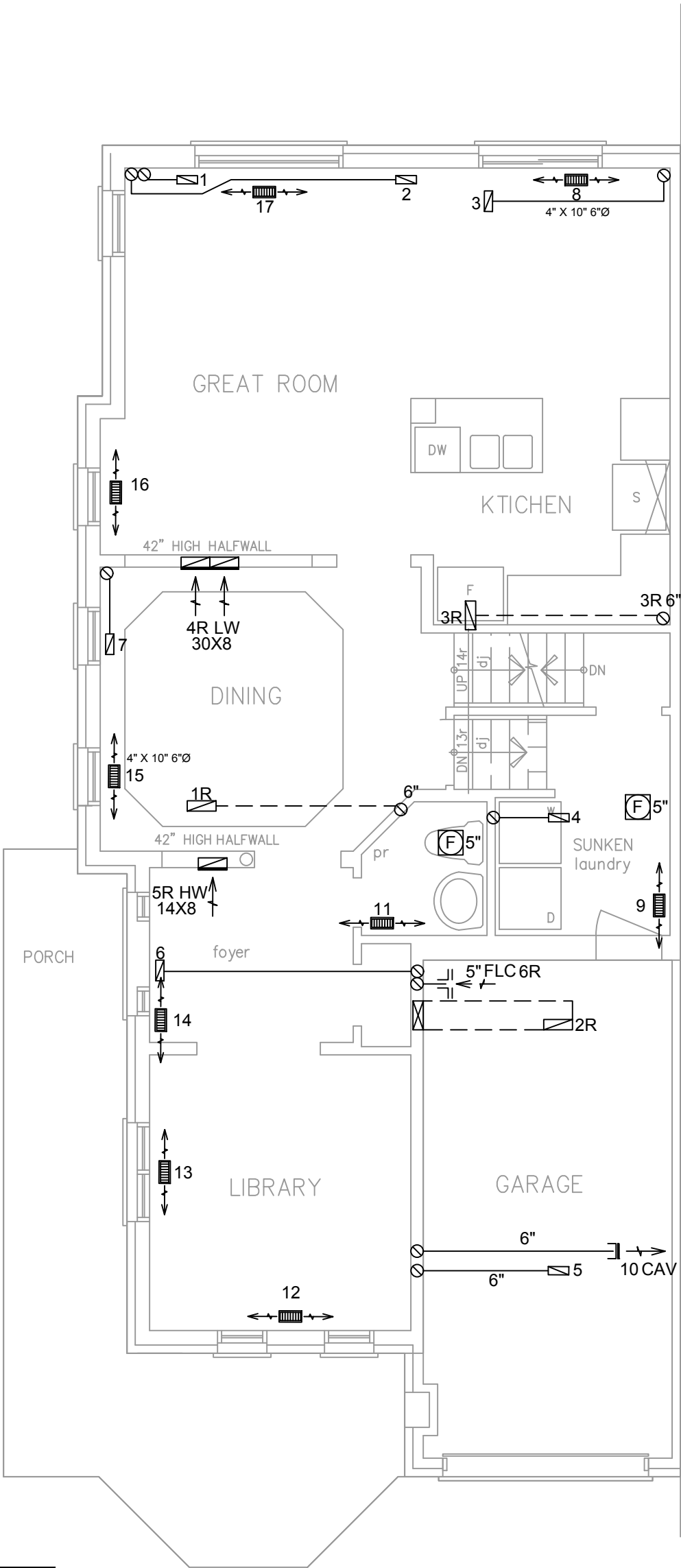
Weather Station Description				
Province:	Ontario ▼			
Region:	Durham ▼			
Weather Station Location:	Open flat terrain, grass ▼			
Anemometer height (m):	10			
Local Shielding				
Building Site:	Suburban, forest ▼			
Walls:	Heavy ▼			
Flue:	Heavy ▼			
Highest Ceiling Height (m):	5.79			
Building Configuration				6.4
Type:	Semi-Detached ▼			
Number of Stories:	Two ▼			
Foundation:	Full ▼			
House Volume (m ³):	566.3 668.64			
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:	
	0		30	
Flue Size				
Flue #:	#1	#2	#3	#4
Diameter (mm):	0	0	0	0
Envelope Air Leakage Rate				
Heating Air Leakage Rate (ACH/H):		0.173		
Cooling Air Leakage Rate (ACH/H):		0.013		

Residential Foundation Thermal Load Calculator

Supplemental tool for CAN/CSA-F280

Weather Station Description		
Province:	Ontario	▼
Region:	Durham	▼
Site Description		
Soil Conductivity:	High conductivity: moist soil	▼
Water Table:	Normal (7-10 m, 23-33 Ft)	▼
Foundation Dimensions		
Floor Length (m):	16.61	 Insulation Configuration
Floor Width (m):	5.04	
Exposed Perimeter (m):	41.15	
Wall Height (m):	2.74	
Depth Below Grade (m):	2.13	
Window Area (m ²):	1.11	
Door Area (m ²):	0.00	
Radiant Slab		
Heated Fraction of the Slab:	0	
Fluid Temperature (°C):	23	
Design Months		
Heating Month	1	
Foundation Loads		
Heating Load (Watts):		1622

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

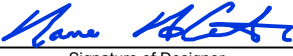


- INSULATE ALL DUCTS IN UNCONDITIONED SPACES MIN. R12
- ALL DUCTWORK MUST BE SEALED TO CLASS A LEVEL AS PER OBC PART 6-6.2.4.3. (11)
- CIRCULATION PRINCIPAL FAN SWITCH TO BE CENTRALLY LOCATED

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 "D" 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

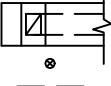
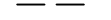
2985 DREW ROAD
SUITE 202,
MISSISSAUGA, ONT.
L4T 0A4 TEL: 416-268-6820
email: dave@gtadesigns.ca
web: www.gtadesigns.ca

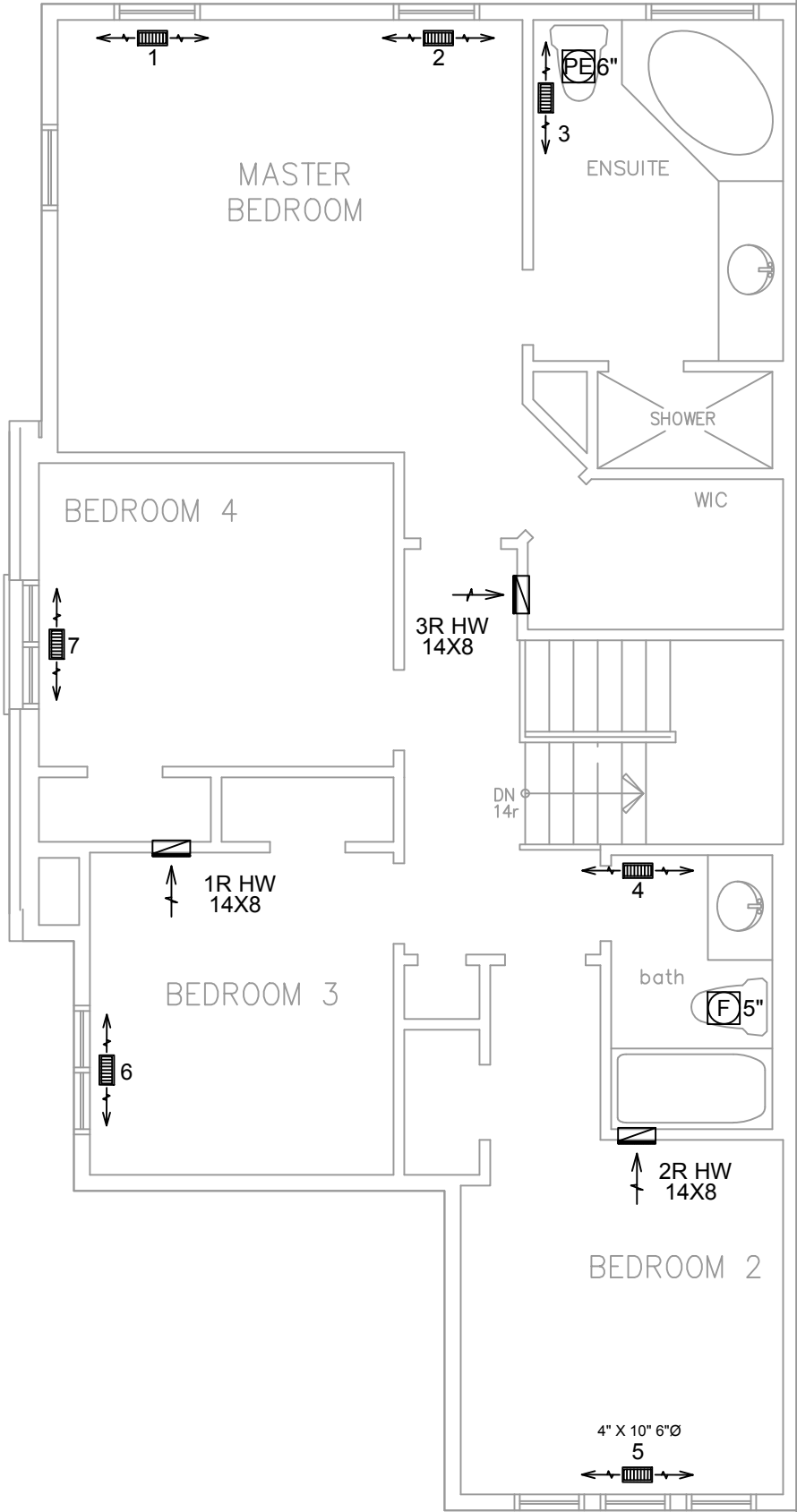
HEAT-LOSS	34,640	BTU/HR.
UNIT MAKE	AMANA	OR EQUAL.
UNIT MODEL	GMEC960402BNA	OR EQUAL.
UNIT HEATING INPUT	40,000	BTU/HR.
UNIT HEATING OUTPUT	38,400	BTU/HR.
A/C COOLING CAPACITY	2.0	TONS.
FAN SPEED	773	CFM

# OF RUNS	S/A	R/A	FANS
3RD FLOOR			
2ND FLOOR	7	2	2
1ST FLOOR	10	3	3
BASEMENT	4	1	

FLOOR PLAN:		
GROUND FLOOR		
DRAWN BY:	CHECKED:	SQFT
RB	DD	1960
LAYOUT NO.	DRAWING NO.	
JB-00704	M2	

DATE:	JUNE 17, 2015
CLIENT:	DELPARK HIGHCASTLE
MODEL:	FP TOWN 8 - NEWCASTLE
PROJECT:	NORTHGLEN BOWMANVILLE,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
- ALL DUCTWORK MUST BE SEALED TO CLASS A LEVEL AS PER OBC PART 6-6.2.4.3. (11)
- CIRCULATION PRINCIPAL FAN SWITCH TO BE CENTRALLY LOCATED

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

OBC 2012

ZONE 1 COMPLIANCE
PACKAGE "D" 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



2985 DREW ROAD
SUITE 202,
MISSISSAUGA, ONT.
L4T 0A4 TEL: 416-268-6820
email: dave@gtadesigns.ca
web: www.gtadesigns.ca

HEAT-LOSS	34,640	BTU/HR.
UNIT MAKE	AMANA	OR EQUAL.
UNIT MODEL	GMEC960402BNA	OR EQUAL.
UNIT HEATING INPUT	40,000	BTU/HR.
UNIT HEATING OUTPUT	38,400	BTU/HR.
A/C COOLING CAPACITY	2.0	TONS.
FAN SPEED	773	CFM

# OF RUNS	S/A	R/A	FANS
3RD FLOOR			
2ND FLOOR	7	2	2
1ST FLOOR	10	3	3
BASEMENT	4	1	
FLOOR PLAN: SECOND FLOOR			
DRAWN BY: RB	CHECKED: DD	SQFT 1960	
LAYOUT NO. JB-00704	DRAWING NO. M3		

DATE:	JUNE 17, 2015
CLIENT:	DELPARK HIGHCASTLE
MODEL:	FP TOWN 8 - NEWCASTLE
PROJECT:	NORTHGLEN BOWMANVILLE,ONT.
SCALE:	3/16" = 1'-0"