gtaDesigns

Schedule 1: Designer Information

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 4 End - Aberdeen**		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-00700**
Heating and Cooling Load Calculations	Builder	**Delpark/Highcastle Homes**	
Air System Design	Project	**Northglen**	
Residential mechanical ventilation Design Summary	Model		
Residential System Design per CAN/CSA-F280-12		**FP Town 4 End - Aberdeen**	
Residential New Construction - Forced Air	SB-12	**Package D**	

D. Declaration of Designer

I David DaCosta 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: **32964**

Basis for exemption from registration: **Division C 3.2.4.1. (4)**

❑ 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.

June 17, 2015

Date

Signature of Designer

NOTE:

1. 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.
2. Schedule 1 does not require to be completed a holder of a license, temporay license, or a certificate of authorization, issed by the Ontario Associstion 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.

gtaDesigns

2985 Drew Road, Suite 202, Mississauga, Ontario L4T 0A4 Tel: 905-671-9800 Fax: 647-494-9643
e-mail dave@gtadesigns.ca

Heat loss and gain calculation summary sheet

CSA-F280-M12 Standard Form No. 1

These documents issued for the use of **Delpark/Highcastle Homes**

and may not be used by any other persons without authorization. Documents for permit and/or construction are signed in red.

Layout No. **JB-00700**

Building Location

Address (Model):	**FP Town 4 End - Aberdeen**	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: **4**
Sensible Eff. at -25C	**0**	Apparent Effect. at -0C **0**	Units:	**Imperial**	Area Sq. ft **1445**

Heating design conditions				Cooling design conditions			
Outdoor temp	**-4.0**	Indoor temp: **72**	Mean soil tem **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**

Air System Design

gtaDesigns
2985 Drew Road, Suite 202, Mississauga, Ontario L4T 0A4 Tel: 905-671-9800 Fax: 647-494-9643
e-mail dave@gtadesigns.ca

SB-12 Package D

Builder: Delpark/Highcastle Homes 2015 June 17, 2015

Project: Northglen Model: FP Town 4 End - Aberdeen

System 1

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

Project # PJ-00022
Layout # JB-00700

DESIGN LOAD SPECIFICATIONS

Level 1 Net Load	9,379	btu/h
Level 2 Net Load	8,753	btu/h
Level 3 Net Load	7,069	btu/h
Level 4 Net Load	0	btu/h
Total Heat Loss	25,201	btu/h
Total Heat Gain	12,998	btu/h
Total Heat Loss + 10%	27,721	Btuh.
Building Volume Vb	16607	ft³
Ventilation Load	5,521	Btuh.
Ventilation PVC	60	cfm
Supply Branch and Grill Sizing		

AIR DISTRIBUTION & PRESSURE

Equipment External Static Pressure	0.5	"w.c.
Additional Equipment Pressure Drop	0.225	"w.c.
Available Design Pressure	0.275	"w.c.
Return Branch Longest Effective Length	300	ft
R/A Plenum Pressure	0.138	"w.c.
S/A Plenum Pressure	0.14	"w.c.
Heating Air Flow Proportioning Factor	0.0246	cfm/btuh
Cooling Air Flow Proportioning Facter	0.0478	cfm/btuh
R/A Temp	70	deg. F.
S/A Temp	113	deg. F.
Diffuser loss	0.01	"w.c.

FURNACE/AIR HANDLER DATA:

Make	Amana	
Model	GMEC960302BNA	
Input Btu/h	30000	
Output Btu/h	28800	
E.s.p.	0.50	" W.C.
Water Temp		deg. F.
AFUE	96%	
Aux. Heat		
SB-12 Package	Package D	
Temp. Rise>>>	43	deg. F.

BOILER/WATER HEATER DATA:

Make	Type	
Model		
Input Btu/h		
Output Btu/h		
Min.Output Btu/h	AWH	

Blower DATA:

Blower Speed Selected:	T2	
Heating Check	621	cfm
Selected cfm>	621	cfm

A/C UNIT DATA:

Amana	1.5	Ton
Cond.----------	1.5	
Coil ----------	1.5	

Blower Type ECM
(Brushless DC OBC 12.3.1.5.(2))
Cooling Check 621 cfm
Cooling Air Flow Rate 621 cfm

Level 1 Outlets

S/A Outlet No.	8	13	14	15											7	9	10	11	12								
Room Use	CAV	BASE	BASE	BASE											KIT	PWD	FOY	LIV/DIN	MUD								
Btu/Outlet	4022	1786	1786	1786											1596	857	1637	3165	1497								
Heating Airflow Rate CFM	99	44	44	44											39	21	40	78	37								
Cooling Airflow Rate CFM	4	6	6	6											91	58	25	98	51								
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	39	26	21	18											35	19	22	26	18								
Equivalent Length	140	100	90	140	90	90	90	90	90	90	90	90	90	90	120	130	110	100	130	90	90	90	90	90	90	90	90
Total Effective Length	179	126	111	158	90	90	90	90	90	90	90	90	90	90	155	149	132	126	148	90	90	90	90	90	90	90	90
Adjusted Pressure	0.07	0.10	0.12	0.08	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.08	0.09	0.10	0.10	0.09	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14
Duct Size Round	6	5	4	5											6	5	4	6	5								
Outlet Size	4x10	3x10	3x10	3x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	3x10	3x10	4x10	3x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10
Trunk	D	B	B	D											C	D	D	C	B								

Level 2 Outlets

Level 3 Outlets

S/A Outlet No.	1	2	3	4	5	6																					
Room Use	MAST	MAST	BED 2	BED 3	BATH	ENS																					
Btu/Outlet	1104	1104	1505	1386	877	1091																					
Heating Airflow Rate CFM	27	27	37	34	22	27																					
Cooling Airflow Rate CFM	55	55	66	60	17	22																					
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	39	41	35	42	26	46																					
Equivalent Length	140	150	120	110	130	110	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90
Total Effective Length	179	191	155	152	156	156	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90
Adjusted Pressure	0.07	0.07	0.08	0.09	0.08	0.08	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14
Duct Size Round	6	6	5	5	4	4																					
Outlet Size	4x10	4x10	3x10	3x10	3x10	3x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10
Trunk	C	C	D	D	B	C																					

Level 4 Outlets

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	140	100	180	80	121						
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	17	29	7	27	8						
Equivalent Length	185	175	145	170	175	70	70	70	70	70	70
Total Effective Length	202	204	152	197	183	70	70	70	70	70	70
Adjusted Pressure	0.06	0.06	0.08	0.06	0.06	0.17	0.17	0.17	0.17	0.17	0.17
Duct Size Round	7.5	6.0	8.0	6.0	6.0						
Inlet Size	8	8	6	FLC	FLC						
" "	x	x	x	x	x	x	x	x	x	x	x
Inlet Size	14	14	30								
Trunk	Z	Z	Z	Z	Z						

Return Trunk Duct Sizing

Trunk	CFM	Press.	Round	Rect. Size	
Drop	621	0.06	13.0	24x10	
Z	621	0.06	13.0	18x8	14x10
Y					
X					
W					
V					
U					
T					
S					
R					
Q					

Supply Trunk Duct Sizing

Trunk	CFM	Press.	Round	Rect. Size	
A	622	0.07	12.5	18x8	14x10
B	346	0.07	10.0	12x8	10x10
C	199	0.07	8.5	8x8	107
D	276	0.07	9.5	10x8	127
E					
F					
G					
H					
I					
J					
K					

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Heatloss/Gain Calculations CSA-F280-12

Builder: Delpark/Highcastle Homes Date: June 17, 2015

2012 OBC Project: Northglen Model: FP Town 4 End - Aberdeen **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: 1445

Project # PJ-00022

Layout # JB-00700

Level 1

		CAV		BASE																	
Run ft. exposed wall A		55	A	96	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
Ceiling height		1.0	AG	2.0	AG	AG	AG	AG	AG	AG	AG	AG	AG	AG	AG	AG	AG	AG	AG	AG	AG
Floor area		180	Area	619	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
Exposed Ceilings B			B		B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
Exposed Floors		180	Flr		Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr
Gross Exp Wall A		55		192																	
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				3	72	82																		
South		3.15	24.13	20.71				3	72	62																		
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	55		37	186		124																		
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	180	620	26																					
Foundation Conductive Heatloss		Slab On Grade (x)				1649			2878																			
Total Conductive	Heat Loss					2270			3023																			
	Heat Gain						63			268																		
Air Leakage	Heat Loss/Gain		0.3068	0.0047		696	0		927	1																		
Ventilation	Case 1	x	0.47	0.11		1056	7		1407	29																		
	Case 2		82.08	9.94																								
	Case 3		0.29	0.11																								
Heat Gain People				239																								
Appliances Loads		1 =.25 percent		2730																								
Duct and Pipe loss				10%																								
Level 1 HL Total	9,379	Total HL for per room				4022			5357																			
Level 1 HG Total	478	Total HG per room x 1.3					91			387																		

Level 2

		KIT		PWD		FOY		LIV/DIN		MUD											
Run ft. exposed wall A		13	A	10	A	14	A	37	A	13	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
Ceiling height		10.0		10.0		10.0		10.0		10.0											
Floor area		210	Area	25	Area	85	Area	247	Area	31	Area	Area	Area	Area	Area	Area	Area	Area	Area	Area	Area
Exposed Ceilings A		50	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
Exposed Floors			Flr		Flr		Flr		Flr		Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr
Gross Exp Wall A		130		100		140		370		130											
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	22	531	598	6	145	163	9	217	245	22	531	598												
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							15	379	46				21	530	64									
Net exposed walls A		15.13	5.02	0.61	108	542	66	94	472	57	116	583	71	348	1748	212	109	548	66									
Net exposed walls B		8.50	8.94	1.08																								
Exposed Ceilings A		50.00	1.52	0.72	50	76	36																					
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					1149			617			1179			2279			1078										
	Heat Gain						700			220			361			809			130									
Air Leakage	Heat Loss/Gain		0.1546	0.0047		178	3		95	1		182	2		352	4		167	1									
Ventilation	Case 1	x	0.23	0.11		269	75		145	23		276	38		534	86		253	14									
	Case 2		82.08	9.94																								
	Case 3		0.29	0.11																								
Heat Gain People				239																								
Appliances Loads		1 =.25 percent		2730	1.0		683	1.0		683				1.0		683	1.0		683									
Duct and Pipe loss				10%																								
Level 2 HL Total	8,753	Total HL for per room				1596			857			1637			3165			1497										
Level 2 HG Total	6,757	Total HG per room x 1.3					1898			1205			521			2057			1076									

Total Heat Loss	25,201	btu/h
Total Heat Gain	12,998	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

gtaDesigns

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e-mail dave@gtadesigns.ca

Heatloss/Gain Calculations CSA-F280-12

Builder: Delpark/Highcastle Homes Date: June 17, 2015 Weather Data: Durham 44 -4.0 84 20 48.2

2012 OBC Project: Northglen Model: FP Town 4 End - Aberdeen **System 1** Heat Loss ^T 76 deg. F Ht gain ^T 9.2 deg. F GTA: 1445 Project # PJ-00022 Layout # JB-00700

Level 3

			MAST		BED 2		BED 3		BATH		ENS											
Run ft. exposed wall A			17	A	12	A	12	A	11	A	15	A		A		A		A		A		A
Run ft. exposed wall B				B		B		B		B		B		B		B		B		B		B
Ceiling height			8.0		8.0		8.0		8.0		8.0											
Floor area			222	Area	154	Area	154	Area	50	Area	52	Area		Area		Area		Area		Area		Area
Exposed Ceilings A			222	A	154	A	154	A	50	A	52	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			136		96		96		88		120											
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
North Shaded		3.15	24.13	10.74																										
East/West		3.15	24.13	27.18	35	844	951	18	434	489	18	434	489				8	193	217												
South		3.15	24.13	20.71										8	193	166														
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	101	507	61	78	392	47	78	392	47	80	402	49	112	563	68											
Net exposed walls B		8.50	8.94	1.08																										
Exposed Ceilings A		50.00	1.52	0.72	222	337	161	154	234	111	154	234	111	50	76	36	52	79	38											
Exposed Ceilings B		22.86	3.32	1.58																										
Exposed Floors		22.05	3.45	0.15																										
Foundation Conductive Heatloss																														
Total Conductive	Heat Loss					1689			1060			1060			671			835												
	Heat Gain						1173			648			648			251			323												
Air Leakage	Heat Loss/Gain			0.1222	0.0047	206	6		130	3		130	3		82	1		102	2												
Ventilation	Case 1	x	0.19	0.11		313	125		196	69		196	69		124	27		155	34												
	Case 2		82.08	9.94																										
	Case 3		0.29	0.11																										
Heat Gain People				239	2		478	1		239	1		239																	
Appliances Loads		1 =.25 percent		2730																										
Duct and Pipe loss				10%				1	119	96																				
Level 3 HL Total	7,069	Total HL for per room				2209			1505			1386			877			1091												
Level 3 HG Total	5,763	Total HG per room x 1.3					2316			1371			1247			362			467												

Level 4

Run ft. exposed wall A		A		A	2015	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	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	0.0047																					
Ventilation	Case 1	x	0.00	0.11																						
	Case 2		82.08	9.94																						
	Case 3		0.29	0.11																						
Heat Gain People				239																						
Appliances Loads		1 =.25 percent		2730																						
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	25,201	btu/h
Total Heat Gain	12,998	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

gtaDesigns
2985 Drew Road, Suite 202, Mississauga, Ontario L4T 0A4 Tel: 905-671-9800 Fax: 647-494-9643
e-mail dave@gtadesigns.ca

Project # PJ-00022
Layout # JB-00700

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 D
Project: Clarington **Model:** FP Town 4 End - Aberdeen

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)	x	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

x	Forced air
	Non forced air
	Electric space heat (if over 10% of heat load)

House Type 9.32.3.1(2)

I	x	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	x	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	2	@	10	cfm	20	cfm
Bathrooms & Kitchen	4	@	10	cfm	40	cfm
Other rooms	2	@	10	cfm	20	cfm
			Total		120	

Principal Ventilation Capacity 9.32.3.4(1)

Master bedroom	1	@	30	cfm	30	cfm
Other bedrooms	2	@	15	cfm	30	cfm
			Total		60	

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	120.0	
Less principal exhaust capacity	60.0	
REQUIRED supplemental vent. Capacity	60.0	cfm

Supplemental Fans 9.32.3.5.

Location	cfm	Model	Sones
Pwd.	50	770	
Bath	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	
HRAI #	5190
BCIN #	32964
Date	June 17, 2015

Energy Efficiency Design Summary
(Part 9 Residential)

gtaDesigns
2985 Drew Road, Suite 202, Mississauga, Ontario L4T 0A4 Tel: 905-671-9800 Fax: 647-494-9643
e-mail dave@gtadesigns.ca

Project # PJ-00022
Layout # JB-00700

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		Unit number	Lot/Con
FP Town 4 End - Aberdeen			
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 =	154 m²	% Windows+ 9%	☐ ICF Basement	☐ Walkout Basement	☐ Log/Post&Beam
Gross Window+ Area =	14 m²		☐ ICF Above Grade	☐ Slab-on-ground	

D. Building Specifications [provide values and ratings of the energy efficiency components proposed, or attach *Energy Star* BOP form]

Building Component	RSI / R values	Building Component	Efficiency Ratings
Thermal Insulation		**Windows & Doors**[1]	
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 1. Provide U-Value in W/m2.K, or ER rating	
Slab (all ≤600mm below grade, or heated)	10	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

gtaDesigns

2985 Drew Road, Suite 202, Mississauga, Ontario L4T 0A4 Tel: 905-671-9800 Fax: 647-494-9643
e-mail dave@gtadesigns.ca

Project # PJ-00022
Layout # JB-00700

Package: Package D **System:** System 1
Project: Clarington **Model:** FP Town 4 End - Aberdeen

Air Leakage Calculations

Building Air Leakage Heat Loss				
B	LRairh	Vb	HL^T	HLleak
0.018	0.143	16607	76	3247

Building Air Leakage Heat Gain				
B	LRairh	Vb	HG^T	HG Leak
0.018	0.010	16607	9.2	26

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	3247	5293	0.3068
2	0.3		6301	0.1546
3	0.2		5315	0.1222
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

		Air Leakage Heat Gain
HG LEAK	26	0.0047
BUILDING CONDUCTIVE HEAT GAIN	5595	

Levels this Dwelling
3

Ventilation Calculations

Vent

Ventilation Heat Loss

Ventilation Heat Loss				
C	PVC	HL^T	(1-E) HRV	HLbvent
1.08	60	76	1.00	4925

Ventilation Heat Gain

Ventilation Heat Gain			
C	PVC	HG^T	HGbvent
1.1	60	9.2	596

Case 1

Ventilation Heat Loss (Exhaust only Systems)

Case 1 - Exhaust Only				
Level	LF	HLbvent	LVL Cond. HL	Multiplier
1	0.5	4925	5293	0.47
2	0.3		6301	0.23
3	0.2		5315	0.19
4	0		0	0.00

Ventilation Heat Gain (Exhaust Only Systems)

Case 1 - Exhaust Only		Multiplier
HGbvent	596	0.11
Building	5595	

Case 2

Ventilation Heat Loss (Direct Ducted Systems)

			Multiplier
C	HL^T	(1-E) HRV	82.08
1.08	76	1.00	

Ventilation Heat Gain (Direct Ducted Systems)

		Multiplier
C	HG^T	9.94
1.08	9.2	

Case 3

Ventilation Heat Loss (Forced Air Systems)

	HLbvent	Multiplier
Total Ventilation Load	4925	0.29

Ventilation Heat Gain (Forced Air Systems)

		Vent Heat Gain	Multiplier
HGbvent	HG*1.3	596	0.11
596	1		

Foundation Conductive Heatloss Level 1	1327	Watts	4528	Btu/h
Foundation Conductive Heatloss Level 2		Watts		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

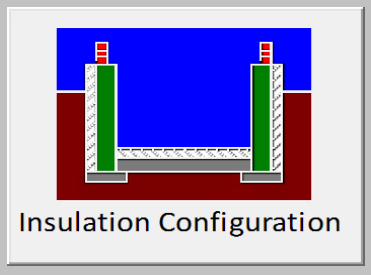
Envelope Air Leakage Calculator

Supplemental tool for CAN/CSA-F280

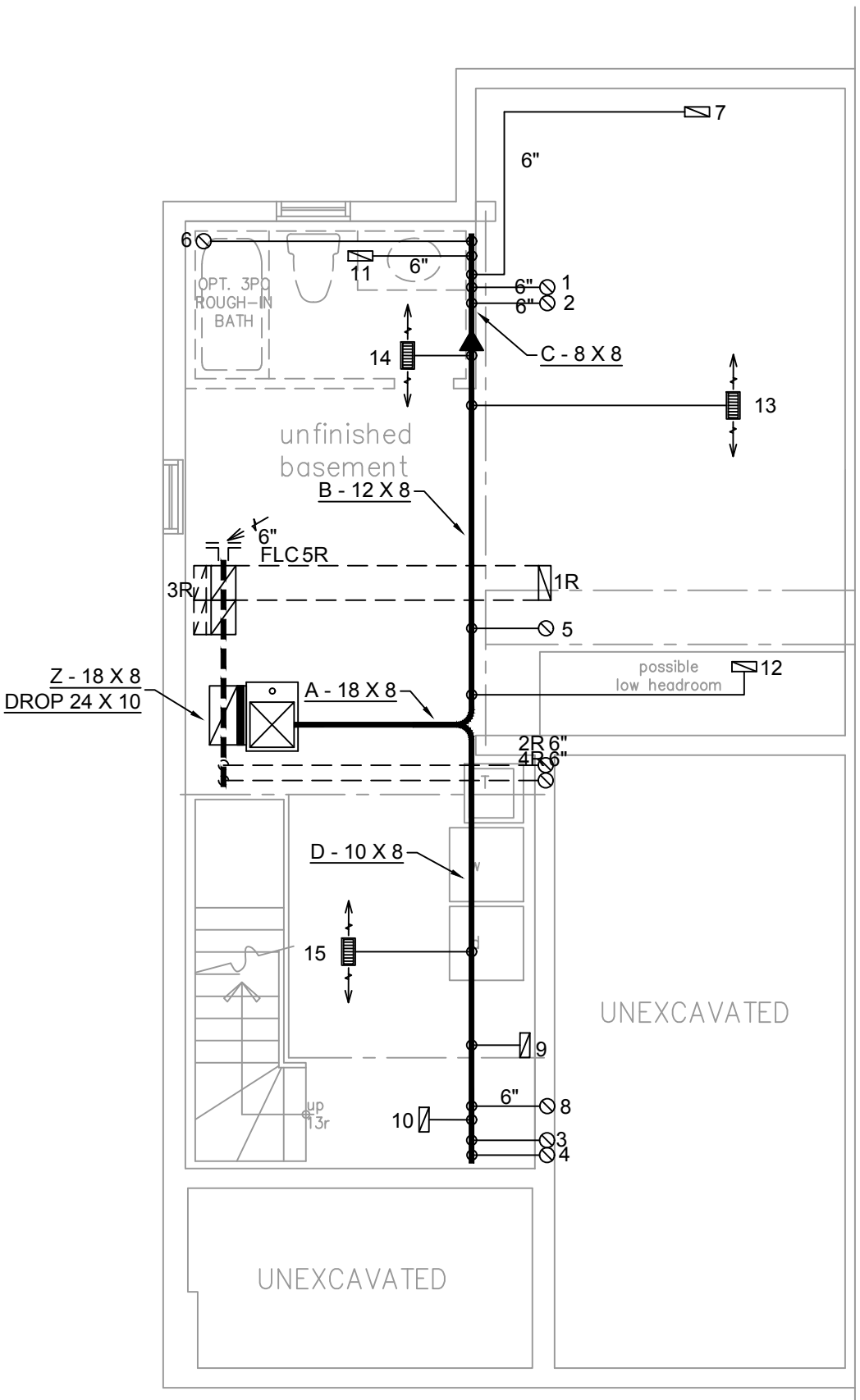
Weather Station Description				
Province:	Ontario			
Region:	Durham			
Weather Station Location:	Open flat terrain, grass			
Anemometer height (m):	10			
Local Shielding				
Building Site:	Suburban, forest			
Walls:	Heavy			
Flue:	Heavy			
Highest Ceiling Height (m):				5.79
Building Configuration				6.4
Type:	Semi-Detached			
Number of Stories:	Two			
Foundation:	Full			
House Volume (m^3):	566.3			470.31
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):	**0.143**			
Cooling Air Leakage Rate (ACH/H):	**0.010**			

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):	**13.82**	 Insulation Configuration
Floor Width (m):	**4.16**	
Exposed Perimeter (m):	**46.02**	
Wall Height (m):	**2.74**	
Depth Below Grade (m):	**2.13**	
Window Area (m^2):	**0.56**	
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):	**1327**	

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. T $ F PE	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)

CIRCULATION PRINCIPAL FAN SWITCH TO BE CENTRALLY LOCATED

FURNACE EQUIPPED WITH BRUSHLESS DC MOTOR AS PER OBC 12.3.1.5 (2)

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

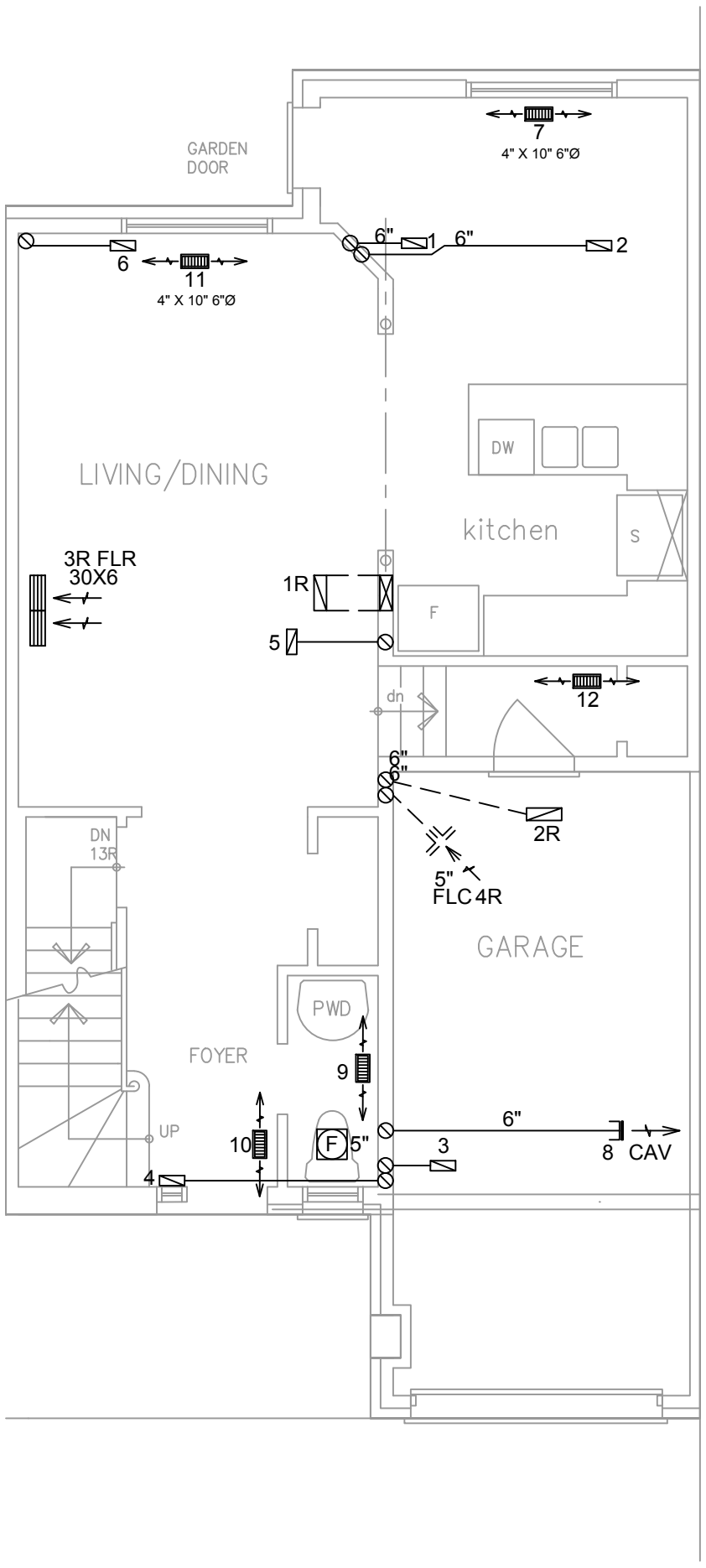
HEAT-LOSS	25,201 BTU/HR.
UNIT MAKE	AMANA OR EQUAL.
UNIT MODEL	GMEC960302BNA OR EQUAL.
UNIT HEATING INPUT	30,000 BTU/HR.
UNIT HEATING OUTPUT	28,800 BTU/HR.
A/C COOLING CAPACITY	1.5 TONS.
FAN SPEED	621 CFM

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

FLOOR PLAN: BASEMENT			
DRAWN BY: RB	CHECKED: DD	SQFT 1445	
LAYOUT NO. JB-00700		DRAWING NO. M1	

DATE: JUNE 17, 2015
CLIENT: DELPARK HIGHCASTLE
MODEL: FP TOWN 4 END - ABERDEEN
PROJECT: NORTHGLEN BOWMANVILLE,ONT.
SCALE: 3/16" = 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. T $ F PE	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)

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

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INSULATE DUCTS IN UNCONDITIONED SPACES R12
UNDERCUT ALL DOORS 1" MIN.
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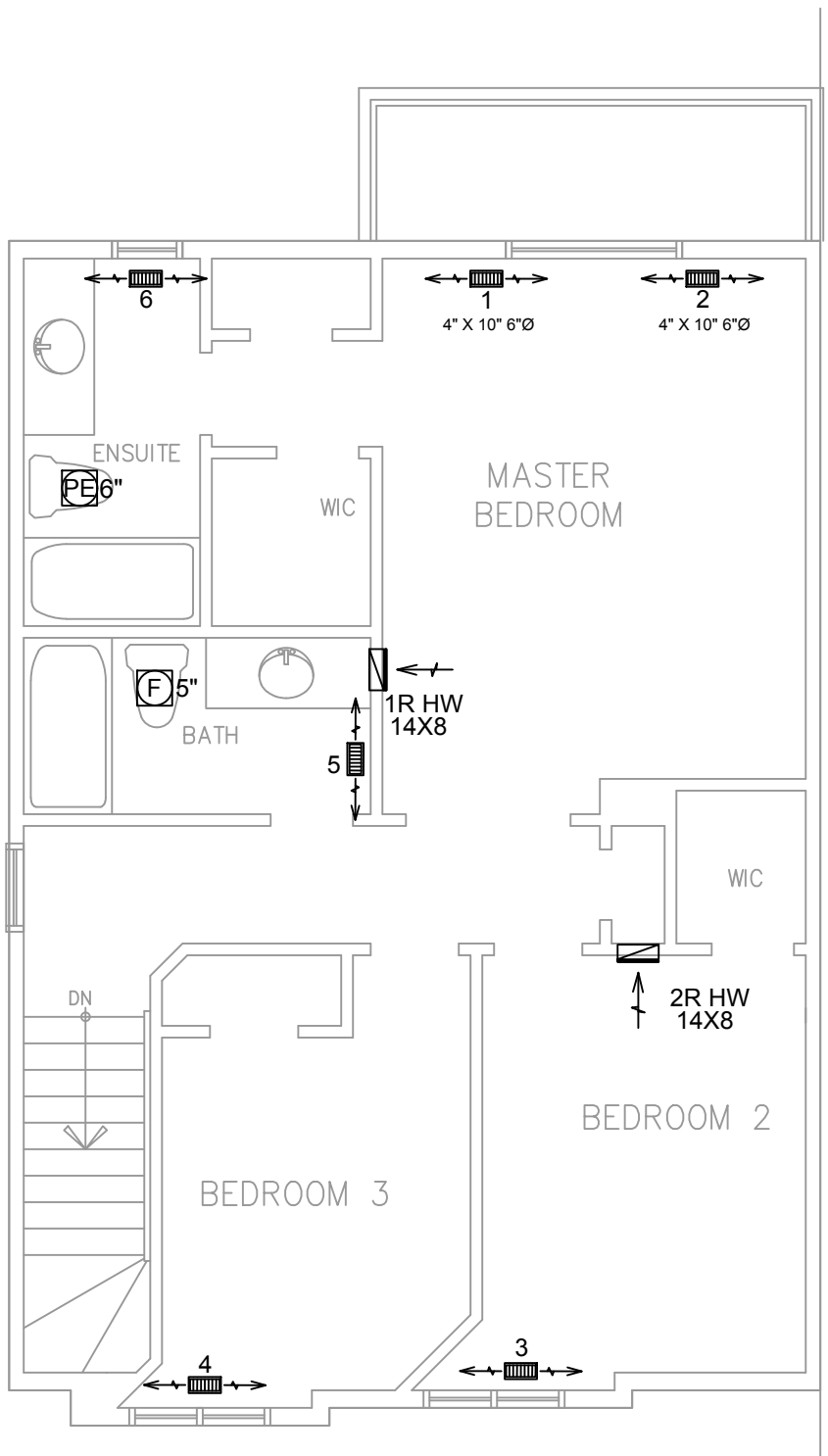
HEAT-LOSS	25,201 BTU/HR.
UNIT MAKE	AMANA OR EQUAL.
UNIT MODEL	GMEC960302BNA OR EQUAL.
UNIT HEATING INPUT	30,000 BTU/HR.
UNIT HEATING OUTPUT	28,800 BTU/HR.
A/C COOLING CAPACITY	1.5 TONS.
FAN SPEED	621 CFM

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

FLOOR PLAN: GROUND FLOOR
DRAWN BY: RB | CHECKED: DD | SQFT 1445
LAYOUT NO. JB-00700 | DRAWING NO. M2

DATE: JUNE 17, 2015
CLIENT: DELPARK HIGHCASTLE
MODEL: FP TOWN 4 END - ABERDEEN
PROJECT: NORTHGLEN BOWMANVILLE,ONT.
SCALE: 3/16" = 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. T $ F PE	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)

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

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INSULATE DUCTS IN UNCONDITIONED SPACES R12
UNDERCUT ALL DOORS 1" MIN.
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HEAT-LOSS	25,201 BTU/HR.
UNIT MAKE	AMANA OR EQUAL.
UNIT MODEL	GMEC960302BNA OR EQUAL.
UNIT HEATING INPUT	30,000 BTU/HR.
UNIT HEATING OUTPUT	28,800 BTU/HR.
A/C COOLING CAPACITY	1.5 TONS.
FAN SPEED	621 CFM

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

FLOOR PLAN: SECOND FLOOR			
DRAWN BY: RB	CHECKED: DD	SQFT 1445	
LAYOUT NO. JB-00700		DRAWING NO. M3	

DATE:	JUNE 17, 2015
CLIENT:	DELPARK HIGHCASTLE
MODEL:	FP TOWN 4 END - ABERDEEN
PROJECT:	NORTHGLEN BOWMANVILLE,ONT.
SCALE:	3/16" = 1"-0"