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	**33-1 Ryedale**	Lot:	
	33-1	Lot/con.	
Municipality: **Newcastle (Bowmanville)**	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**		**Layout #**	**15-34**
Heating and Cooling Load Calculations		Builder	**Delpark Highcastle**	
Air System Design		Project	**Northglen**	
Residential mechanical ventilation Design Summary		Model	**33-1 Ryedale**	
Residential System Design per CAN/CSA-F280-12			**33-1**	
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.

April 7, 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**

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

Layout No. **15-34**

Building Location

Address (Model):	**33-1**	Site:	**Northglen**
Model:	**33-1 Ryedale**	Lot:	
City and Province:	**Newcastle (Bowmanville)**	Postal code:	

Calculations based on

Dimensional information based on: **N/A**

Attachment:	**Detached**			Front facing:	**East/West** Assumed? **Yes**
No. of Levels:	**3**	Ventilated?	**Included**	Air tightness:	**1961- Present (ACH=3.57)** Assumed? **Yes**
Weather location:	**Newcastle (Bowmanville)**			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 **1259**

Heating design conditions

Outdoor temp **-4.0** Indoor temp: **72** Mean soil temp **50**

Cooling design conditions

Outdoor temp **86** Indoor temp: **75** Latitude: **44**

Above grade walls

Style A:	**As per Selected OBC SB12 Package D**	**R**	**24**
Style B:	**Existing Walls (When Applicable)**	**R**	**12**
Style C:			
Style D:			

Below grade walls

Style A:	**As per Selected OBC SB12 Package D**	**R**	**20**
Style B:			
Style C:			
Style D:			

Floors on soil

Style A:	**As per Selected OBC SB12 Package D**		
Style B:			

Ceilings

Style A:	**As per Selected OBC SB12 Package D**	**R**	**50**
Style B:	**As per Selected OBC SB12 Package D**	**R**	**31**
Style C:			

Exposed floors

Style A:	**As per Selected OBC SB12 Package D**	**R**	**31**
Style B:			

Doors

Style A:	**As per Selected OBC SB12 Package D**	**R**	**3.01**
Style B:			
Style C:			

Windows

Style A:	**As per Selected OBC SB12 Package D**	**R**	**3.15**
Style B:	**Existing Windows (When Applicable)**	**R**	**1.99**
Style C:			
Style D:			

Skylights

Style A:	**As per Selected OBC SB12 Package D**	**R**	**2.03**
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 | 2015 | April 7, 2015

Project: Northglen | Model: 33-1 Ryedale 33-1

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 #
Layout # 15-34

DESIGN LOAD SPECIFICATIONS

Level 1 Net Load	11,201	btu/h
Level 2 Net Load	10,861	btu/h
Level 3 Net Load	8,722	btu/h
Level 4 Net Load	0	btu/h
Total Heat Loss	30,784	btu/h
Total Heat Gain	14,073	btu/h
Total Heat Loss + 10%	33,863	Btuh.
Building Volume Vb	15069	ft³
Ventilation Load	5,638	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	0.0251	cfm/btuh
Cooling Air Flow Proportioning Facter	0.0549	cfm/btuh
R/A Temp	70	deg. F.
S/A Temp	116	deg. F.
Diffuser loss	0.01	"w.c.

FURNACE/AIR HANDLER DATA:

Make	Amana	
Model	GMEC960402BNA	
Input Btu/h	40000	
Output Btu/h	38400	
E.s.p.	0.50	" W.C.
Water Temp		deg. F.
AFUE	96%	
Aux. Heat		
SB-12 Package	Package D	
Temp. Rise>>>	46	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: W2
Heating Check 773 cfm
Selected cfm> 773 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 773 cfm
Cooling Air Flow Rate 773 cfm

Level 1 Outlets

S/A Outlet No.	12	13	14												7	8	9	10	11	15								
Room Use	BASE	BASE	BASE												KIT	KIT	GREAT	FOY	PWD	PLEN								
Btu/Outlet	3734	3734	3734												1803	1803	2712	2401	1313	828								
Heating Airflow Rate CFM	94	94	94												45	45	68	60	33	21								
Cooling Airflow Rate CFM	11	11	11												74	74	119	95	11	58								
Duct Design Pressure	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13
Actual Duct Length	12	25	25												33	35	29	9	7	22								
Equivalent Length	120	90	135	90	90	90	90	90	90	90	90	90	90	90	145	145	95	90	130	140	90	90	90	90	90	90	90	90
Total Effective Length	132	115	160	90	90	90	90	90	90	90	90	90	90	90	178	180	124	99	137	162	90	90	90	90	90	90	90	90
Adjusted Pressure	0.10	0.11	0.08	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.07	0.07	0.10	0.13	0.09	0.08	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14
Duct Size Round	6	6	6												5	5	6	6	4	5								
Outlet Size	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	3x10	3x10	4x10	4x10	3x10	3x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10
Trunk	A	A	B												B	B	B	C	A	A								

Level 3 Outlets

S/A Outlet No.	1	2	3	4	5	6																						
Room Use	MAST	BED 2	BED 3	HALL	BATH	ENS																						
Btu/Outlet	2057	1921	1614	1274	518	1338																						
Heating Airflow Rate CFM	52	48	41	32	13	34																						
Cooling Airflow Rate CFM	95	72	82	17	11	32																						
Duct Design Pressure	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13
Actual Duct Length	41	22	27	29	34	45																						
Equivalent Length	140	130	120	130	130	125	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90
Total Effective Length	181	152	147	159	164	170	90	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	0.09	0.09	0.08	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	0.14
Duct Size Round	6	6	6	4	3	4																						
Outlet Size	4x10	4x10	4x10	3x10	3x10	3x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10
Trunk	B	B	B	C	A	A																						

Level 2 Outlets

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	125	125	254	100	17						
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	12	30	12	15	23						
Equivalent Length	225	160	185	150	150	70	70	70	70	70	70
Total Effective Length	237	190	197	165	173	70	70	70	70	70	70
Adjusted Pressure	0.05	0.06	0.06	0.07	0.07	0.17	0.17	0.17	0.17	0.17	0.17
Duct Size Round	8.0	8.0	2x8	6.0	5.0						
Inlet Size	8	8	8								
" "	x	x	x	x	x	x	x	x	x	x	x
Inlet Size	14	14	14	FLC	FLC						
Trunk	Z	Y	Z	Y	Z						

Return Trunk Duct Sizing

Trunk	CFM	Press.	Round	Rect. Size	
Drop	773	0.05	14.5	24x10	
Z	621	0.05	13.5	20x8	16x10
Y	225	0.06	9.0	8x8	10x7
X					
W					
V					
U					
T					
S					
R					
Q					

Supply Trunk Duct Sizing

Trunk	CFM	Press.	Round	Rect. Size	
A	681	0.07	13.0	18x8	14x10
B	393	0.07	10.5	12x8	10x10
C	92	0.08	6.0	8x8	8x7
D					
E					
F					
G					
H					
I					
J					
K					

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e-mail dave@gtadesigns.ca

Heatloss/Gain Calculations CSA-F280-12

Builder: Delpark Highcastle | Date: April 7, 2015 | Weather Data: Newcastle (Bowmanville) 44 -4.0 86 20 50

2012 OBC | Project: Northglen | Model: 33-1 Ryedale 33-1 | **System 1** | Heat Loss ^T 76 deg. F | Ht gain ^T 11 deg. F | GTA: 1259 | Project # Layout # 15-34

Level 1

					BASE																										
Run ft. exposed wall A				111	A			A			A			A			A			A			A			A			A		
Run ft. exposed wall B					B			B			B			B			B			B			B			B			B		
Ceiling height				2.0	AG			AG			AG			AG			AG			AG			AG			AG			AG		
Floor area				529	Area			Area			Area			Area			Area			Area			Area			Area			Area		
Exposed Ceilings A					A			A			A			A			A			A			A			A			A		
Exposed Ceilings B					B			B			B			B			B			B			B			B			B		
Exposed Floors					Flr			Flr			Flr			Flr			Flr			Flr			Flr			Flr			Flr		
Gross Exp Wall A				222																											
Gross Exp Wall B																															
Components	R-Values	Loss	Gain		Loss	Gain		Loss	Gain		Loss	Gain		Loss	Gain		Loss	Gain		Loss	Gain		Loss	Gain		Loss	Gain		Loss	Gain		Loss	Gain
North Shaded	3.15	24.13	11.31	3	72	34																									
East/West	3.15	24.13	27.75	3	72	83																									
South	3.15	24.13	21.28	3	72	64																									
Existing Windows	1.99	38.19	22.15																												
Skylight	2.03	37.44	88.23																												
Doors	3.01	25.25	3.65	21	530	77																									
Net exposed walls A	13.79	5.51	0.80	192		153																									
Net exposed walls B	8.50	8.94	1.29																												
Exposed Ceilings A	50.00	1.52	0.76																												
Exposed Ceilings B	22.86	3.32	1.66																												
Exposed Floors	22.05	3.45	0.23																												
Foundation Conductive Heatloss	Slab On Grade (x)				5100																										
Total Conductive: Heat Loss					5847																										
Total Conductive: Heat Gain						411																									
Air Leakage: Heat Loss/Gain		0.4945	0.0325		2891	13																									
Ventilation: Case 1	x	0.42	0.12		2462	48																									
Ventilation: Case 2		82.08	11.88																												
Ventilation: Case 3		0.25	0.12																												
Heat Gain People			239																												
Appliances Loads	1 =.25 percent		2730																												
Duct and Pipe loss			10%																												
Level 1 HL Total	11,201	Total HL for per room			11201																										
Level 1 HG Total	614	Total HG per room x 1.3				614																									

Level 2

					PWD			FOY			GREAT			KIT			PLEN														
Run ft. exposed wall A				11	A		26	A		32	A		41	A		19	A		A			A			A			A		
Run ft. exposed wall B					B			B			B			B			B			B			B			B			B		
Ceiling height				9.0			9.0			9.0			9.0			2.0														
Floor area				70	Area		90	Area		169	Area		183	Area		100	Area		Area			Area			Area			Area		
Exposed Ceilings A					A			A			A		20	A			A		A			A			A			A		
Exposed Ceilings B					B			B			B			B			B			B			B			B			B		
Exposed Floors					Flr			Flr			Flr			Flr		100	Flr		Flr			Flr			Flr			Flr		
Gross Exp Wall A				99			234			288			369			38														
Gross Exp Wall B																															
Components	R-Values	Loss	Gain		Loss	Gain		Loss	Gain		Loss	Gain		Loss	Gain		Loss	Gain		Loss	Gain		Loss	Gain		Loss	Gain		Loss	Gain		Loss	Gain
North Shaded	3.15	24.13	11.31																												
East/West	3.15	24.13	27.75				13	314	361	24	579	666	34	820	943																
South	3.15	24.13	21.28																												
Existing Windows	1.99	38.19	22.15																												
Skylight	2.03	37.44	88.23																												
Doors	3.01	25.25	3.65	21	530	77	13	328	48																						
Net exposed walls A	15.13	5.02	0.73	78	392	57	208	1045	151	264	1326	192	335	1683	244	38	191	28													
Net exposed walls B	8.50	8.94	1.29																												
Exposed Ceilings A	50.00	1.52	0.76										20	30	15																
Exposed Ceilings B	22.86	3.32	1.66																												
Exposed Floors	22.05	3.45	0.23													100	345	23													
Foundation Conductive Heatloss	Slab On Grade (x)		x																												
Total Conductive: Heat Loss					922			1687			1905			2533			536														
Total Conductive: Heat Gain						133			559			858			1202			50														
Air Leakage: Heat Loss/Gain		0.2288	0.0325		211	4		386	18		436	28		580	39		123	2													
Ventilation: Case 1	x	0.19	0.12		180	16		329	66		371	101		494	141		104	6													
Ventilation: Case 2		82.08	11.88																												
Ventilation: Case 3		0.25	0.12																												
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%													1	66	74													
Level 2 HL Total	10,861	Total HL for per room			1313			2401			2712			3607			828														
Level 2 HG Total	7,836	Total HG per room x 1.3				200			1724			2170			2684			1058														

Total Heat Loss	30,784	btu/h
Total Heat Gain	14,073	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

Heatloss/Gain Calculations CSA-F280-12

Builder: Delpark Highcastle | Date: April 7, 2015 | Weather Data: Newcastle (Bowmanville) 44 -4.0 86 20 50

2012 OBC | Project: Northglen | Model: 33-1 Ryedale 33-1 | **System 1** | Heat Loss ^T 76 deg. F | Ht gain ^T 11 deg. F | GTA: 1259 | Project # Layout # 15-34

Level 3

	ENS	BATH	HALL	BED 3	BED 2	MAST						
Run ft. exposed wall A	18 A	5 A	19 A	14 A	22 A	24 A	A	A	A	A	A	A
Run ft. exposed wall B	B	B	B	B	B	B	B	B	B	B	B	B
Ceiling height	8.0	8.0	8.0	8.0	8.0	8.0						
Floor area	84 Area	48 Area	51 Area	150 Area	113 Area	154 Area	Area	Area	Area	Area	Area	Area
Exposed Ceilings A	84 A	48 A	51 A	150 A	113 A	154 A	A	A	A	A	A	A
Exposed Ceilings B	B	B	B	B	B	B	B	B	B	B	B	B
Exposed Floors	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr
Gross Exp Wall A	144	40	152	112	176	192						
Gross Exp Wall B												

Components		R-Values	Loss	Gain	ENS Loss	ENS Gain	BATH Loss	BATH Gain	HALL Loss	HALL Gain	BED 3 Loss	BED 3 Gain	BED 2 Loss	BED 2 Gain	MAST Loss	MAST Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain
North Shaded		3.15	24.13	11.31			6	145	68	6	145	68														
East/West		3.15	24.13	27.75	8	193	222						22	531	610	14	338	388	18	434	499								
South		3.15	24.13	21.28																						
Existing Windows		1.99	38.19	22.15																						
Skylight		2.03	37.44	88.23																						
Doors		3.01	25.25	3.65																						
Net exposed walls A		15.13	5.02	0.73	136	683	99	34	171	25	146	733	106	90	452	65	162	814	118	174	874	127						
Net exposed walls B		8.50	8.94	1.29																						
Exposed Ceilings A		50.00	1.52	0.76	84	128	64	48	73	36	51	78	39	150	228	114	113	172	86	154	234	117						
Exposed Ceilings B		22.86	3.32	1.66																						
Exposed Floors		22.05	3.45	0.23																						
Foundation Conductive Heatloss																										
Total Conductive	Heat Loss					1004			389			956			1211			1323			1542								
	Heat Gain						385			129			213			790			592			743							
Air Leakage	Heat Loss/Gain		0.1800	0.0325		181	12		70	4		172	7		218	26		238	19		278	24							
Ventilation	Case 1	x	0.15	0.12		154	45		60	15		147	25		186	93		203	70		236	87							
	Case 2		82.08	11.88																						
	Case 3		0.25	0.12																						
Heat Gain People				239										1		239	1		239	2		478							
Appliances Loads		1 =.25 percent		2730																						
Duct and Pipe loss				10%													1	156	90							
Level 3 HL Total	8,722	Total HL for per room				1338			518			1274			1614			1921			2057							
Level 3 HG Total	5,623	Total HG per room x 1.3					575			193			318			1492			1313			1732							

Level 4

	A	A 2015	A	A	A	A	A	A	A	A	A	A
Run ft. exposed wall A												
Run ft. exposed wall 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
Exposed Ceilings 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
Exposed Floors	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	A Loss	A Gain	A 2015 Loss	A 2015 Gain	A Loss	A Gain	A Loss	A Gain	A Loss	A Gain	A Loss	A Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain
North Shaded		3.15	24.13	11.31																						
East/West		3.15	24.13	27.75																						
South		3.15	24.13	21.28																						
Existing Windows		1.99	38.19	22.15																						
Skylight		2.03	37.44	88.23																						
Doors		3.01	25.25	3.65																						
Net exposed walls A		15.13	5.02	0.73																						
Net exposed walls B		8.50	8.94	1.29																						
Exposed Ceilings A		50.00	1.52	0.76																						
Exposed Ceilings B		22.86	3.32	1.66																						
Exposed Floors		22.05	3.45	0.23																						
Foundation Conductive Heatloss																										
Total Conductive	Heat Loss																									
	Heat Gain																									
Air Leakage	Heat Loss/Gain		0.0000	0.0325																						
Ventilation	Case 1	x	0.00	0.12																						
	Case 2		82.08	11.88																						
	Case 3		0.25	0.12																						
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	30,784	btu/h
Total Heat Gain	14,073	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 #
Layout # 15-34

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**	**System:**	**System 1**
Project:	**Newcastle (Bowmanville)**	**Model:**	**33-1**

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	Newcastle (Bowmanville)
Roll #	Permit #
Address	

Builder

Name	Delpark Highcastle
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
Ens	50	770	2.5
Pwd	50	770	2.5

all fans HVI listed Make Broan or Equiv.

Designer Certification

I hereby certify that this ventilation system has been designed in accordance with the Ontario Building Code.

Name	David DaCosta
Signature	
HRAI #	5190
BCIN #	32964
Date	April 7, 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 #
Layout # **15-34**

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
33-1 Ryedale 33-1			
Municipality **Newcastle (Bowmanville)**	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 =	192 m²	% Windows+ 7%	☐ 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 #
Layout # 15-34

Package: Package D **System:** System 1
Project: Newcastle (Bowmanville) **Model:** 33-1

Air Leakage Calculations

Building Air Leakage Heat Loss				
B	LRairh	Vb	HL^T	HLleak
0.018	0.281	15069	76	5783

Building Air Leakage Heat Gain				
B	LRairh	Vb	HG^T	HG Leak
0.018	0.066	15069	11	197

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	5783	5847	0.4945
2	0.3		7583	0.2288
3	0.2		6425	0.1800
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	197	0.0325
BUILDING CONDUCTIVE HEAT GAIN	6066	

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	11	713

Case 1

Ventilation Heat Loss (Exhaust only Systems)

Case 1 - Exhaust Only				
Level	LF	HLbvent	LVL Cond. HL	Multiplier
1	0.5	4925	5847	0.42
2	0.3		7583	0.19
3	0.2		6425	0.15
4	0		0	0.00

Ventilation Heat Gain (Exhaust Only Systems)

Case 1 - Exhaust Only		Multiplier
HGbvent	713	0.12
Building	6066	

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	11.88
1.08	11	

Case 3

Ventilation Heat Loss (Forced Air Systems)

	HLbvent	Multiplier
Total Ventilation Load	4925	0.25

Ventilation Heat Gain (Forced Air Systems)

		Vent Heat Gain	Multiplier
HGbvent	HG*1.3	713	0.12
713	1		

Foundation Conductive Heatloss Level 1	1495	Watts	5100	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

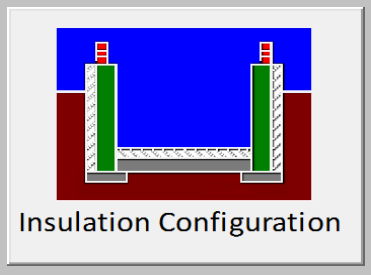
Envelope Air Leakage Calculator

Supplemental tool for CAN/CSA-F280

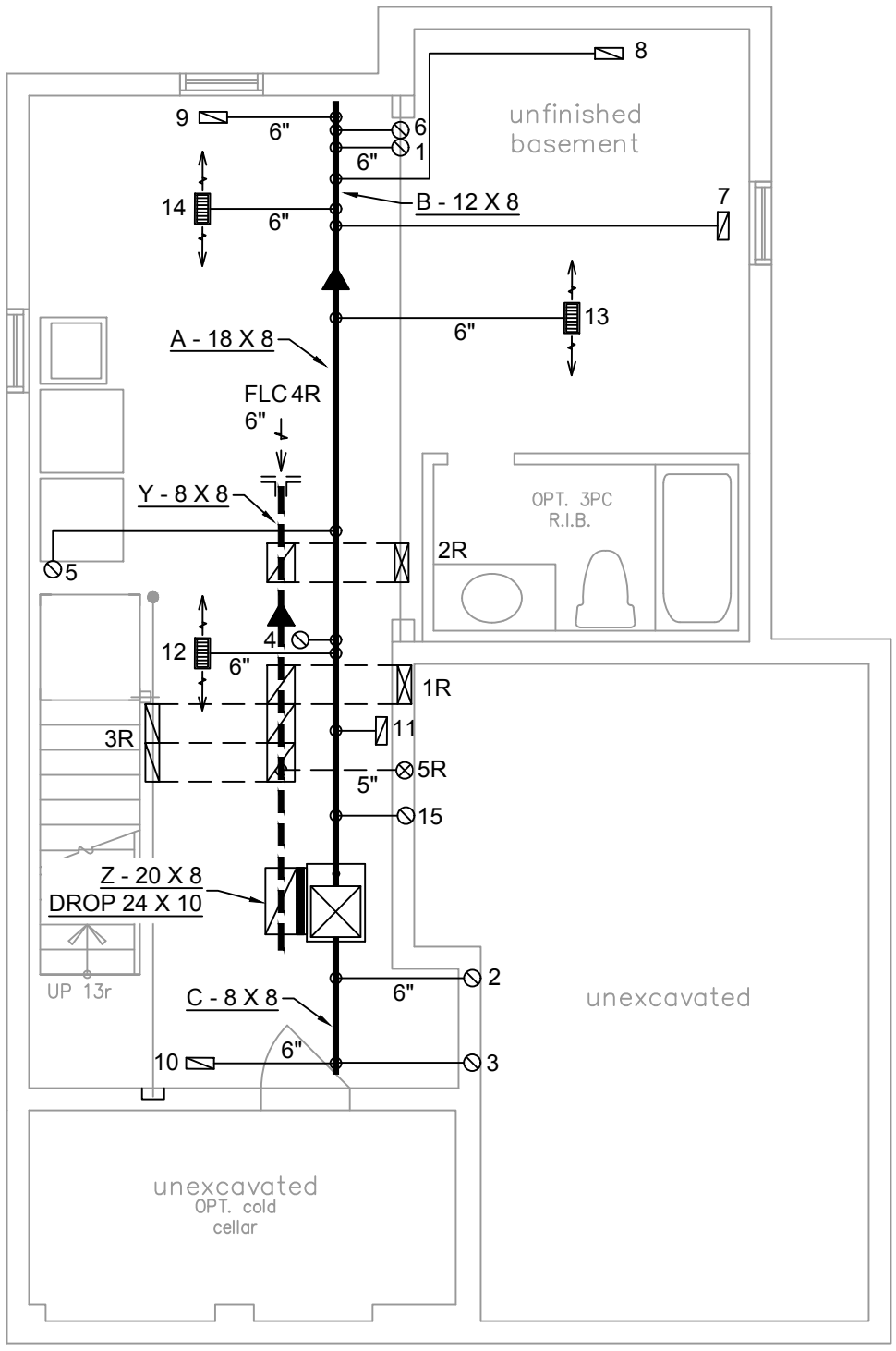
Weather Station Description				
Province:	Ontario			
Region:	Newcastle (Bowmanville)			
Weather Station Location:	Open flat terrain, grass			
Anemometer height (m):	10			
Local Shielding				
Building Site:	Suburban, forest			
Walls:	Heavy			
Flue:	Heavy			
Highest Ceiling Height (m):	5.79			
Building Configuration	6.4			
Type:	Detached			
Number of Stories:	Two			
Foundation:	Full			
House Volume (m^3):	566.3	426.75		
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:		
	30	30		
Flue Size				
Flue #:	#1	#2	#3	#4
Diameter (mm):	0	0	0	0
Envelope Air Leakage Rate				
Heating Air Leakage Rate (ACH/H):	**0.281**			
Cooling Air Leakage Rate (ACH/H):	**0.066**			

Residential Foundation Thermal Load Calculator

Supplemental tool for CAN/CSA-F280

Weather Station Description		
Province:	Ontario	
Region:	Newcastle (Bowmanville)	
Site Description		
Soil Conductivity:	High conductivity: moist soil	
Water Table:	Normal (7-10 m, 23-33 Ft)	
Foundation Dimensions		
Floor Length (m):	**13.19**	 Insulation Configuration
Floor Width (m):	**3.73**	
Exposed Perimeter (m):	**33.83**	
Wall Height (m):	**2.74**	
Depth Below Grade (m):	**2.13**	
Window Area (m^2):	**0.84**	
Door Area (m^2):	**1.95**	
Radiant Slab		
Heated Fraction of the Slab:	**0**	
Fluid Temperature (°C):	**23**	
Design Months		
Heating Month	**1**	
Foundation Loads		
Heating Load (Watts):	**1495**	

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



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

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 ot 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	30,784 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	1.5 TONS.
FAN SPEED	773 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

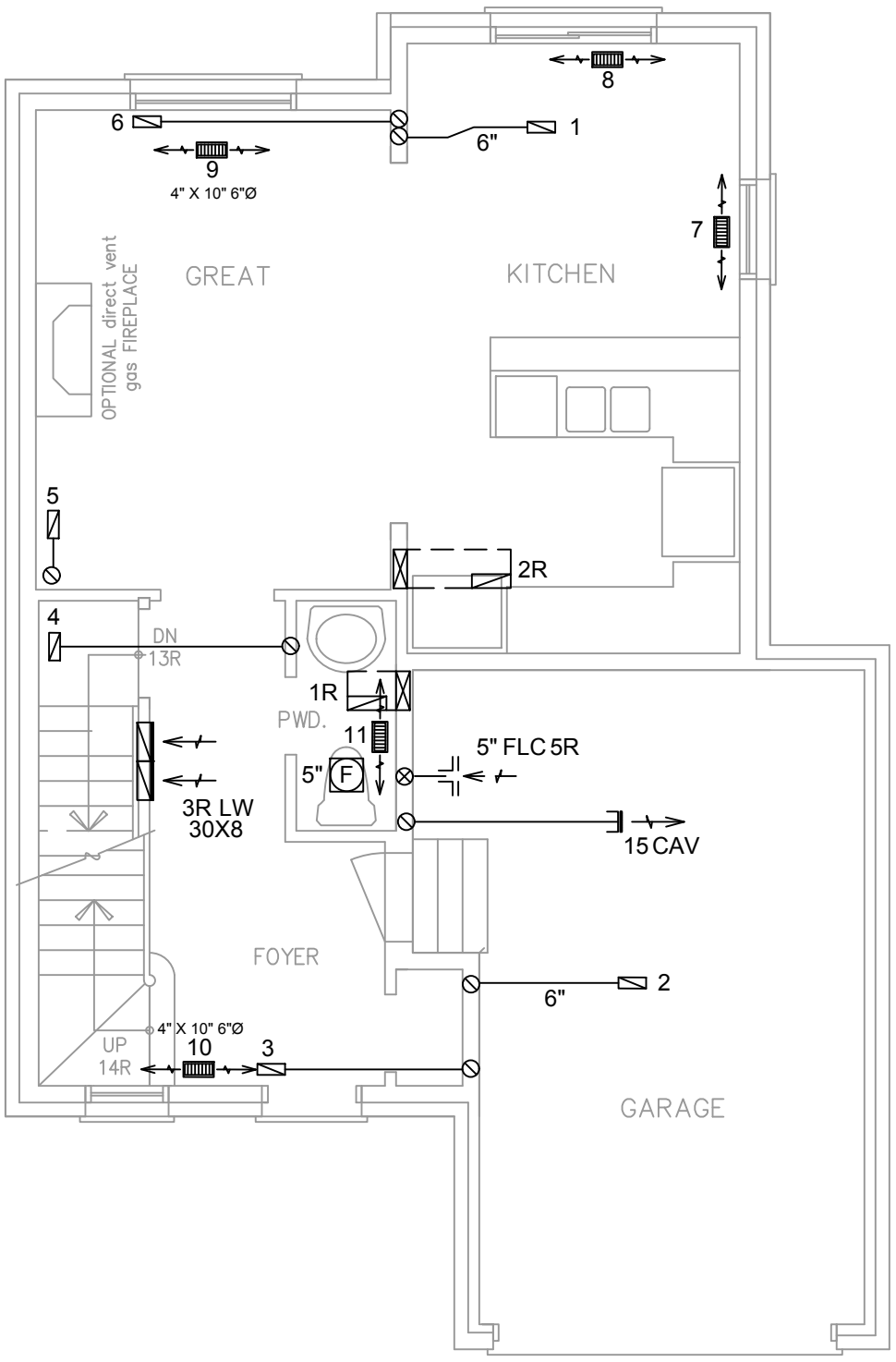
DRAWN BY:	CHECKED:	SQFT
RB	DD	1259

LAYOUT NO.: 15-34 — DRAWING NO.: M1

DATE: APRIL 7, 2015
CLIENT: DELPARK HIGHCASTLE
MODEL: 33-I
PROJECT: NORTHGLEN CLARINGTON, ON.
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

CIRCULATION PRINCIPAL FAN SWITCH TO BE CENTRALLY LOCATED



INSULATE ALL DUCTS IN UNCONDITIONED SPACES MIN. R12

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

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 ot Designer

OBC 2012

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

NOTES

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UNDERCUT ALL DOORS 1" MIN.
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GTA DESIGNS MUST BE CONSULTED IF KITCHEN EXHUAST FAN EXCEEDS 700 CFM DEPRESSURIZATION MAY OCCUR WITH IN THE DWELLING

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L4T 0A4 TEL: 416-268-6820
email: dave@gtadesigns.ca
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HEAT-LOSS	30,784 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	1.5 TONS.
FAN SPEED	773 CFM

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

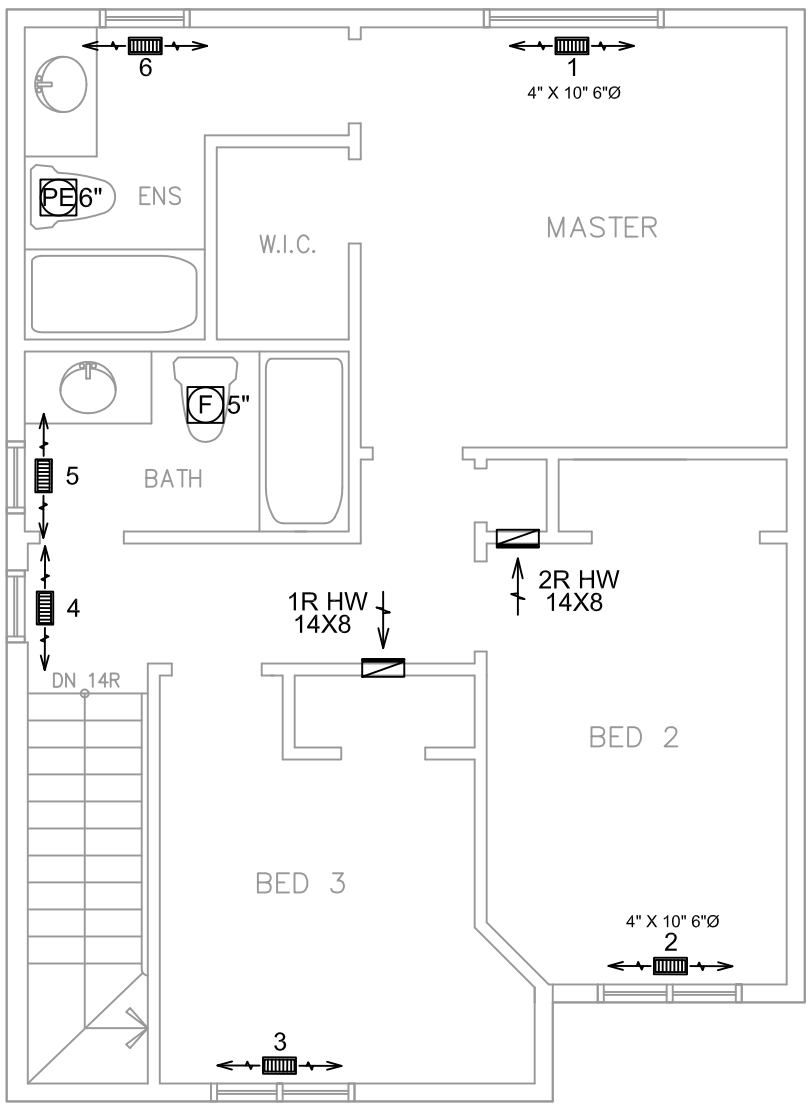
FLOOR PLAN: GROUND FLOOR

DRAWN BY:	CHECKED:	SQFT
RB	DD	1259

LAYOUT NO. 15-34 — DRAWING NO. M2

DATE: APRIL 7, 2015
CLIENT: DELPARK HIGHCASTLE
MODEL: 33-I
PROJECT: NORTHGLEN CLARINGTON, ON.
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



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
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HEAT-LOSS	30,784 BTU/HR.
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UNIT HEATING INPUT	40,000 BTU/HR.
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A/C COOLING CAPACITY	1.5 TONS.
FAN SPEED	773 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:	CHECKED:	SQFT
RB	DD	1259

LAYOUT NO. 15-34 DRAWING NO. M3

DATE: APRIL 7, 2015
CLIENT: DELPARK HIGHCASTLE
MODEL: 33-I
PROJECT: NORTHGLEN CLARINGTON, ON.
SCALE: 3/16" = 1'-0"