

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 33-2 Danebury			Lot:	
33-2			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 #
Heating and Cooling Load Calculations		Builder	Highcastle Homes	
Air System Design		Project	Northglen	
Residential mechanical ventilation Design Summary		Model	33-2 Danebury	
Residential System Design per CAN/CSA-F280-12			33-2	
Residential New Construction - Forced Air		SB-12	Package D	
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>April 7, 2015</u>				
Date		Signature of Designer		

NOTE:

- For the purposes of this form, "individual" means the "person" referred to in Clause 3.2.4.7(1) d), of Division C, Article 3.2.5.1. of Division C and all other persons who are exempt from qualifications under Subsections 3.2.4 . and 3.2.5. of Division C.
- Schedule 1 does not require to be completed a holder of a license, temporary license, or a certificate of authorization, issued by the Ontario Association of Architects. Schedule 1 is also not required to be completed by a holder of a license to practise, a limited licence to practise, or a certificate of authorization, issued by the Association of Professional Engineers of Ontario.

Heat loss and gain calculation summary sheet				CSA-F280-M12 Standard Form No. 1	
These documents issued for the use of Highcastle Homes				Layout No.	
and may not be used by any other persons without authorization. Documents for permit and/or construction are signed in red.				15-34	
Building Location					
Address (Model): 33-2			Site: Northglen		
Model: 33-2 Danebury			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 1455	
Heating design conditions			Cooling design conditions		
Outdoor temp -4.0 Indoor temp: 72 Mean soil temp 50			Outdoor temp 86 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		



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

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Builder: Highcastle Homes

2015

April 7, 2015

Project: Northglen

Model:

33-2 Danebury
33-2

System 1

Individual BCIN: 32964

David DaCosta

Project #
Layout #

15-34

	Level 3 Outlets													Level 4 Outlets													
S/A Outlet No.	1	2	3		5	6	7																				
Room Use	MAST	LAUND	BED 2		BED 3	BATH	ENS																				
Btu/Outlet	2227	811	2526		1934	863	1276																				
Heating Airflow Rate CFM	50	18	57		43	19	29																				
Cooling Airflow Rate CFM	89	64	84		76	19	24																				
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	44	36	59		41	31	38																				
Equivalent Length	160	170	120	90	130	120	130	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90		
Total Effective Length	204	206	179	90	171	151	168	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90		
Adjusted Pressure	0.06	0.06	0.07	0.14	0.08	0.09	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		
Duct Size Round	6	6	6		6	3	4																				
Outlet Size	4x10	4x10	4x10	3x10	4x10	3x10	3x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10		
Trunk	D	D	D		E	E	C																				

Supply Trunk Duct Sizing				
Trunk	CFM	Press.	Round	Rect. Size
A	#####			
B	#####			
C	118	0.06		
D	362			
E	255	0.06		
F				
G				
H				
I				
J				
K				

2012 OBC	Builder: Highcastle Homes	Date: April 7, 2015	Weather Data Newcastle (Bowmanville) 44 -4.0 86 20 50	Project # Layout #	15-34
	Project: Northglen	Model: 33-2 Danebury 33-2	Heat Loss ^T 76 deg. F	Ht gain ^T 11 deg. F	GTA: 1455

System 1

Level 1

Run ft. exposed wall A	111 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
Ceiling height	2.0 AG	AG	AG	AG	AG	AG	AG	AG	AG	AG	AG	AG	AG	AG	AG
Floor area	529 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
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	222														
Gross Exp Wall B															

Components	R-Values	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)			5373													
Total Conductive	Heat Loss			6121													
	Heat Gain				411												
Air Leakage	Heat Loss/Gain	0.5559	0.0308	3402	13												
Ventilation	Case 1	x	0.40	2462	39												
	Case 2		82.08														
	Case 3		0.22														
Heat Gain People																	
Appliances Loads	1 =.25 percent		2730														
Duct and Pipe loss			10%														
Level 1 HL Total	11,986		Total HL for per room	11986													
Level 1 HG Total	601		Total HG per room x 1.3		601												

Level 2

Run ft. exposed wall A	59 A	KIT	18 A	PWD	26 A	FOY	30 A	GREAT	A	PLEN	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
Ceiling height	9.0		9.0		9.0		9.0		2.0								
Floor area	246 Area		53 Area		60 Area		173 Area		230 Area		Area	Area	Area	Area	Area	Area	Area
Exposed Ceilings A	A		A		A		A		A		Area	Area	Area	Area	Area	Area	Area
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	531		162		234		270		230		Flr	Flr	Flr	Flr	Flr	Flr	Flr
Gross Exp Wall B																	

Components	R-Values	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	67	1617	1859											
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	464	2331	337	21	530	77	13	328	48	20	483	555		
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)																
Total Conductive	Heat Loss			3947													
	Heat Gain				2196												
Air Leakage	Heat Loss/Gain	0.2193	0.0308	866	68												
Ventilation	Case 1	x	0.16	627	208												
	Case 2		82.08														
	Case 3		0.22														
Heat Gain People																	
Appliances Loads	1 =.25 percent		2730														
Duct and Pipe loss			10%														
Level 2 HL Total	12,924		Total HL for per room	5440													
Level 2 HG Total	7,920		Total HG per room x 1.3		4101												

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	34,547	btu/h
Total Heat Gain	15,810	btu/h

2012 OBC	Builder: Highcastle Homes	Date: April 7, 2015	Weather Data	Newcastle (Bowmanville)	44	-4.0	86	20	50	Heat Loss ^T	76 deg. F	Ht gain ^T	11 deg. F	GTA: 1455	Project #	Layout #	15-34
	Project: Northglen	Model: 33-2 Danebury 33-2	System 1														

Level 3				MAST		LAUND		BED 2		BED 3		BATH		ENS															
Run ft. exposed wall A				26	A	7 A		30 A		21 A		9 A		18 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				170 Area		118 Area		150 Area		106 Area		116 Area		84 Area		Area		Area		Area		Area		Area		Area			
Exposed Ceilings A				170 A		118 A		150 A		106 A		116 A		84 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				208		56		240		168		72		144															
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	11.31	20	483	555			25	603	694	24	579	666	6	145	128			6	145	166				
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	188	944	137	48	241	35	215	1080	156	144	723	105	66	332	48	138	693	100					
Net exposed walls B				8.50	8.94	1.29																							
Exposed Ceilings A				50.00	1.52	0.76	170	258	129	118	179	90	150	228	114	106	161	81	116	176	88	84	128	64					
Exposed Ceilings B				22.86	3.32	1.66																							
Exposed Floors				22.05	3.45	0.23																							
Foundation Conductive Heatloss																													
Total Conductive	Heat Loss						1685			613		1911		1463		653		966											
	Heat Gain							821		295		964		851		264		331											
Air Leakage	Heat Loss/Gain			0.1867	0.0308		315	25		115	9	357	30	273	26	122	8	180	10										
Ventilation	Case 1			x	0.14	0.09	228	78		83	28	258	91	198	81	88	25	130	31										
	Case 2				82.08	11.88																							
	Case 3				0.22	0.09																							
Heat Gain People						239	2		478			1	239	1		239													
Appliances Loads				1 =.25 percent		2730			1.0		683																		
Duct and Pipe loss						10%																							
Level 3 HL Total				9,638		Total HL for per room	2227			811		2526		1934		863		1276											
Level 3 HG Total				7,288		Total HG per room x 1.3		1822			1319		1721		1556		386		484										

Level 4				A		A		2015		A		A		A		A		A		A		A		A		A	
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	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	0.0308																								
Ventilation	Case 1	x	0.00	0.09																							
	Case 2		82.08	11.88																							
	Case 3		0.22	0.09																							
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	34,547	btu/h
Total Heat Gain	15,810	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 **System:** System 1
Project: Newcastle (Bowmanville) **Model:** 33-2

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	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	2 @ 10	cfm	20 cfm
Bathrooms & Kitchen	4 @ 10	cfm	40 cfm
Other rooms	2 @ 10	cfm	20 cfm
Total			<u>120</u>

Principal Ventilation Capacity 9.32.3.4(1)			
Master bedroom	1 @ 30	cfm	30 cfm
Other bedrooms	2 @ 15	cfm	30 cfm
Total			<u>60</u>

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	<u>60.0</u> 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	<i>David DaCosta</i>		
HRAI #	5190	BCIN #	32964
Date	April 7, 2015		

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 33-2 Danebury	Unit number	Lot/Con
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 = 214 m²	☐ ICF Basement ☐ Walkout Basement ☐ Log/Post&Beam
Gross Window+ Area = 18 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 & 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**
Project: **Newcastle (Bowmanville)**

System: **System 1**
Model: **33-2**

Air Leakage Calculations

Building Air Leakage Heat Loss				
B	LRairh	Vb	HL ^{AT}	HL _{leak}
0.018	0.281	17733	76	6805

Building Air Leakage Heat Gain				
B	LRairh	Vb	HG ^{AT}	HG _{Leak}
0.018	0.066	17733	11	232

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	6805	6121	0.5559
2	0.3		9308	0.2193
3	0.2		7292	0.1867
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	
	232		0.0308
BUILDING CONDUCTIVE HEAT GAIN			7525

Levels this Dwelling	
3	

Ventilation Calculations

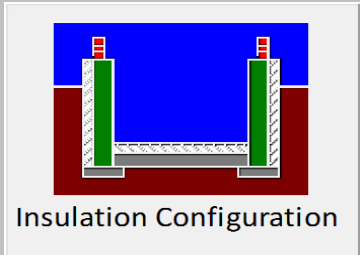
Vent	Ventilation Heat Loss					Ventilation Heat Gain				Vent	
	Ventilation Heat Loss					Ventilation Heat Gain					
	C	PVC	HL^T	(1-E) HRV	HLbvent	C	PVC	HG^T	HGbvent		
	1.08	60	76	1.00	4925	1.1	60	11	713		
Case 1						Case 1					
Case 1	Ventilation Heat Loss (Exhaust only Systems)					Ventilation Heat Gain (Exhaust Only Systems)					Case 1
	Case 1 - Exhaust Only					Case 1 - Exhaust Only		Multiplier			
	Level	LF	HLbvent	LVL Cond. HL	Multiplier	HGbvent	713	0.09			
	1	0.5	4925	6121	0.40	Building	7525				
	2	0.3		9308	0.16						
3	0.2	7292		0.14							
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	11.88			
	1.08	76	1.00			1.08	11				
Case 3						Case 3					
Case 3	Ventilation Heat Loss (Forced Air Systems)					Ventilation Heat Gain (Forced Air Systems)					Case 3
			HLbvent	Multiplier				Vent Heat Gain	Multiplier		
	Total Ventilation Load		4925	0.22		HGbvent	HG*1.3	713	0.09		
						713	1				

Foundation Conductive Heatloss Level 1 1575 Watts 5373 Btu/h

Foundation Conductive Heatloss Level 2 Watts Btu/h

Residential Foundation Thermal Load Calculator

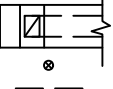
Supplemental tool for CAN/CSA-F280

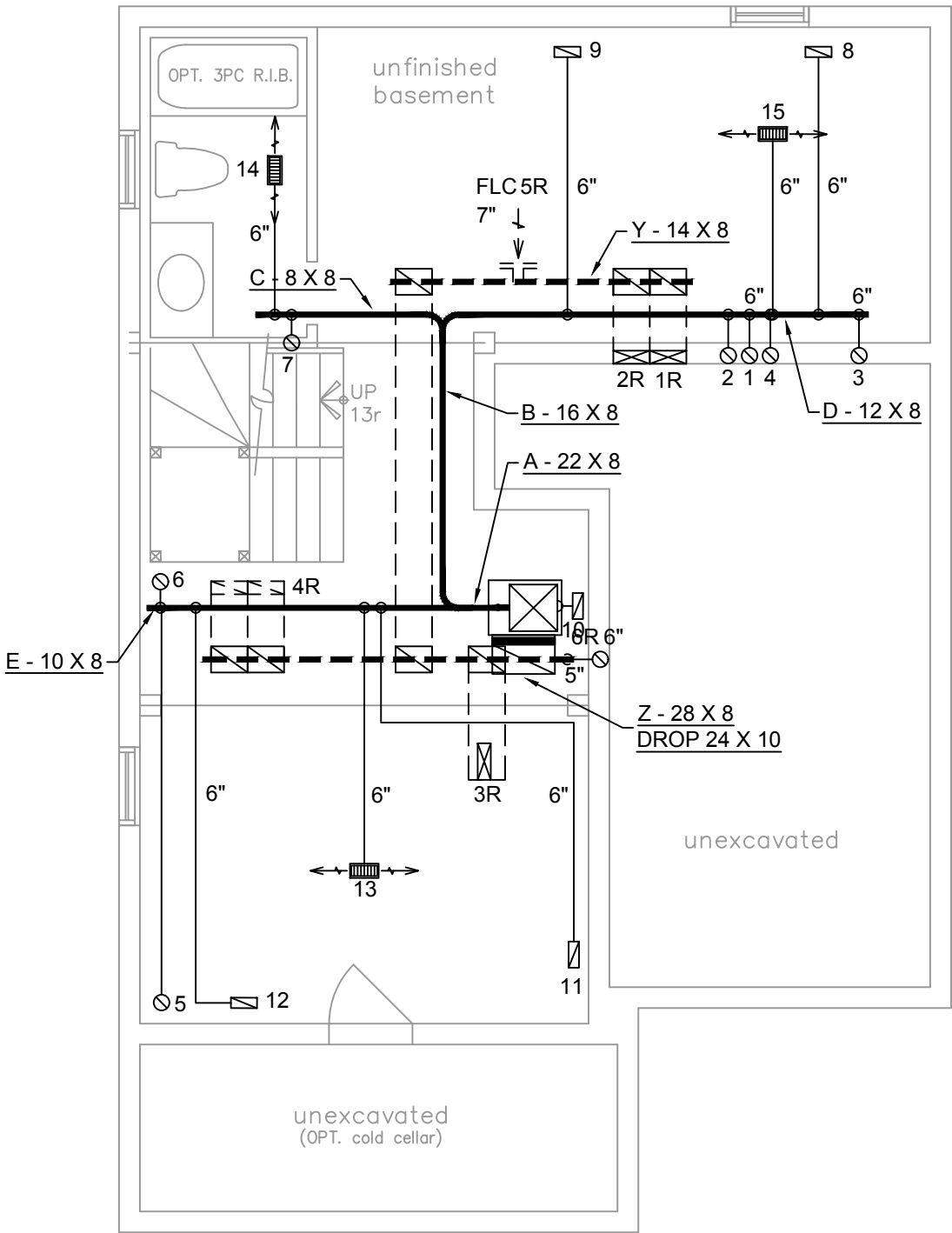
Weather Station Description		
Province:	Ontario	▼
Region:	Newcastle (Bowmanville)	▼
Site Description		
Soil Conductivity:	High conductivity: moist soil	▼
Water Table:	Normal (7-10 m, 23-33 Ft)	▼
Foundation Dimensions		
Floor Length (m):	15.26	 Insulation Configuration
Floor Width (m):	3.33	
Exposed Perimeter (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):		1575

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):	566.3 502.20			
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		

	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



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

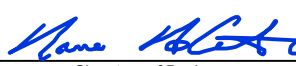
FURNACE EQUIPPED WITH
BRUSHLESS DC MOTOR AS
PER OBC 12.3.1.5 (2)

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



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

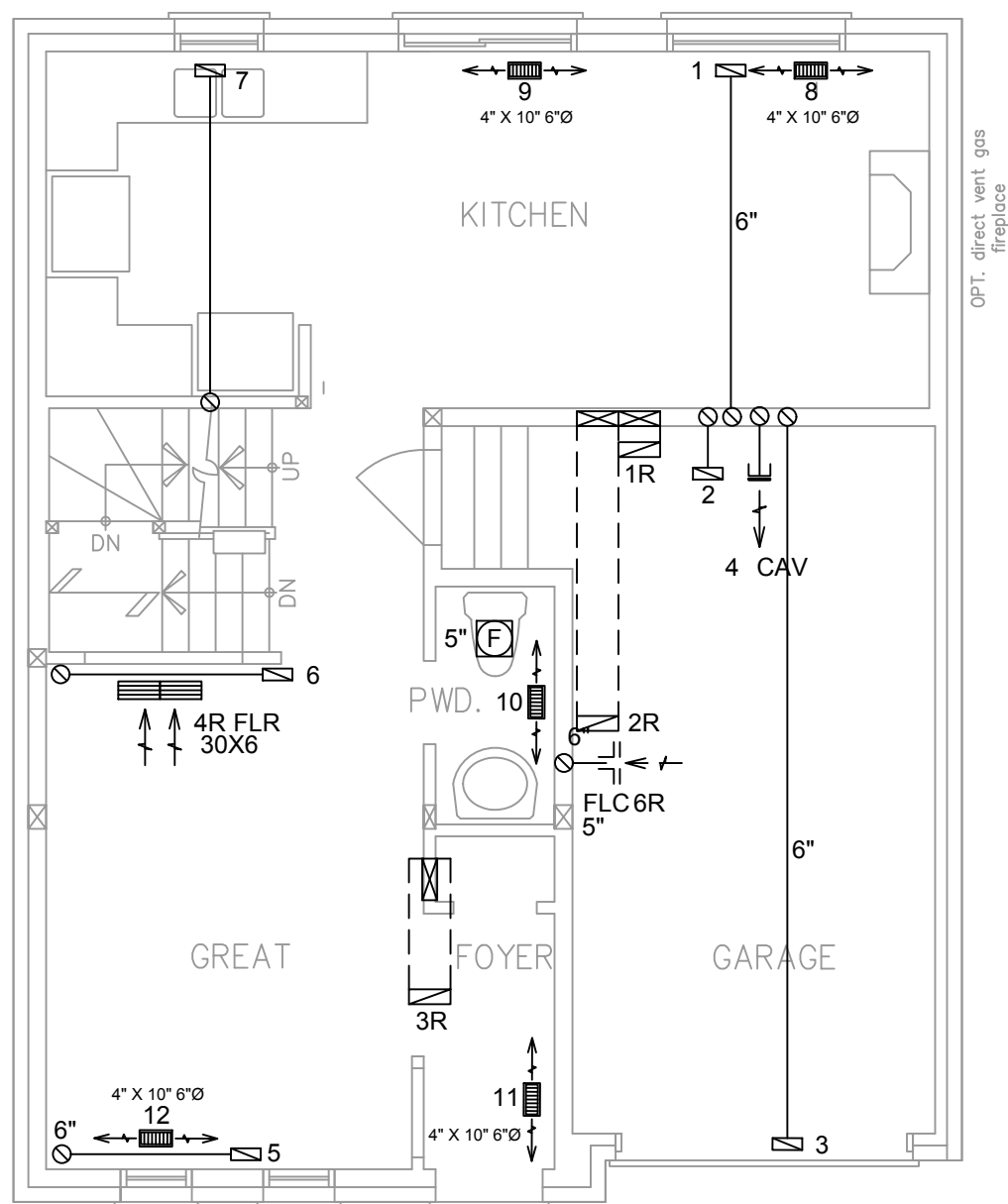
HEAT-LOSS	34,547	BTU/HR.
UNIT MAKE	AMANA	OR EQUAL
UNIT MODEL	GMEC960402BNA	OR EQUAL
UNIT HEATING INPUT	40,000	BTU/HR.
UNIT HEATING OUTPUT	38,400	BTU/HR.
A/C COOLING CAPACITY	1.5	TONS.
FAN SPEED	773	CFM

# OF RUNS	S/A	R/A	FANS
3RD FLOOR			
2ND FLOOR	6	2	2
1ST FLOOR	5	1	2
BASEMENT	3	1	

FLOOR PLAN: BASEMENT	
DRAWN BY: RB	CHECKED: DD
LAYOUT NO. 15-34	DRAWING NO. M1

DATE:	APRIL 7, 2015
CLIENT:	DELPARK HIGHCASTLE
MODEL:	33-2
PROJECT:	NORTHGLEN CLARINGTON, ON.
SCALE:	3/16" = 1"-0"

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)

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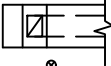
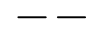
# OF RUNS	S/A	R/A	FANS
3RD FLOOR			
2ND FLOOR	6	2	2
1ST FLOOR	5	1	2
BASEMENT	3	1	

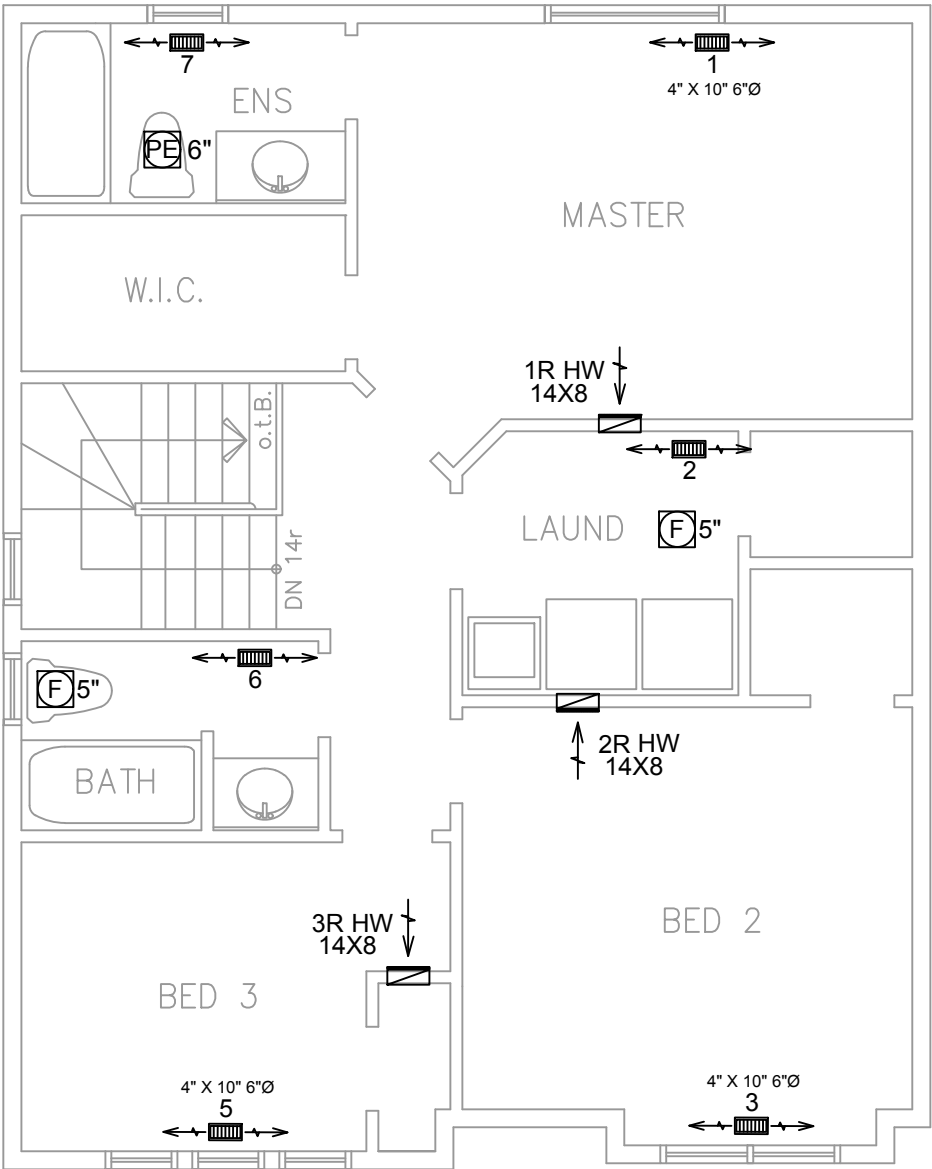
FLOOR PLAN:		
GROUND FLOOR		
DRAWN BY: RB	CHECKED BY: DD	SQFT 1455
LAYOUT NO. 15-34	DRAWING NO. M2	

DATE:	APRIL 7, 2015
CLIENT:	DELPARK HIGHCASTLE
MODEL:	33-2
PROJECT:	NORTHGLEN CLARINGTON, ON.
SCALE:	3/16" = 1"-0"

OBC 2012

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

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



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QUALIFICATION INFORMATION

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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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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	5	1	2
BASEMENT	3	1	

FLOOR PLAN: SECOND FLOOR		
DRAWN BY: RB	CHECKED: DD	SQFT 1455
LAYOUT NO. 15-34	DRAWING NO. M3	

DATE:	APRIL 7, 2015
CLIENT:	DELPARK HIGHCASTLE
MODEL:	33-2
PROJECT:	NORTHGLEN CLARINGTON, ON.
SCALE:	3/16" = 1"-0"