

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		33-7 Fonthill		Lot:
		33-7		Lot/con.
Municipality	Newcastle (Bowmanville)	Postal code	Plan number/ other description	
B. Individual who reviews and takes responsibility for design activities				
Name		David DaCosta		
Street address		2985 Drew Road, Suite 202		
Municipality	Mississauga	Postal code	Province	E-mail
		L4T 0A4	Ontario	dave@gtadesigns.ca
Telephone number	(905) 671-9800	Fax 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	Delpark Highcastle	
Air System Design		Project	Northglen	
Residential mechanical ventilation Design Summary		Model	33-7 Fonthill	
Residential System Design per CAN/CSA-F280-12		SB-12	33-7	
			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 13, 2015</u> Date		 Signature of Designer		

NOTE:

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

Heat loss and gain calculation summary sheet				CSA-F280-M12 Standard Form No. 1	
These documents issued for the use of Delpark Highcastle				Layout No.	
and may not be used by any other persons without authorization. Documents for permit and/or construction are signed in red.				JB-00026	
Building Location					
Address (Model): 33-7			Site: Northglen		
Model: 33-7 Fonthill			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 1935	
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:					
Calculations performed by					
Name: David DaCosta			Postal code: L4T 0A4		
Company: gtaDesigns Inc.			Telephone: (905) 671-9800		
Address: 2985 Drew Road, Suite 202			Fax: (416) 268-6820		
City: Mississauga			E-mail dave@gtadesigns.ca		

Builder: Delpark Highcastle

2015

April 13, 2015

Project: Northglen

Model: 33-7 Fonthill
33-7

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

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Project # PJ-00022
Layout # JB-00026

DESIGN LOAD SPECIFICATIONS		AIR DISTRIBUTION & PRESSURE		FURNACE/AIR HANDLER DATA:		BOILER/WATER HEATER DATA:		A/C UNIT DATA:	
Level 1 Net Load	15,079 btu/h	Equipment External Static Pressure	0.5 "w.c.	Make	Amana	Make	Type	Amana	2.0 Ton
Level 2 Net Load	14,795 btu/h	Additional Equipment Pressure Drop	0.225 "w.c.	Model	GMEC960603BNA	Model		Cond.-----	2.0
Level 3 Net Load	10,774 btu/h	Available Design Pressure	0.275 "w.c.	Input Btu/h	60000	Input Btu/h		Coil -----	2.0
Level 4 Net Load	0 btu/h	Return Branch Longest Effective Length	300 ft	Output Btu/h	57600	Output Btu/h			
Total Heat Loss	40,648 btu/h	R/A Plenum Pressure	0.138 "w.c.	E.s.p.	0.50 " W.C.	Min.Output Btu/h	AWH		
Total Heat Gain	18,636 btu/h	S/A Plenum Pressure	0.14 "w.c.	Water Temp	deg. F.	Blower DATA:			
Total Heat Loss + 10%	44,712 Btu/h	Heating Air Flow Proportioning Factor	0.0288 cfm/btuh	AFUE	96%	Blower Speed Selected:	W2	Blower Type	ECM
Building Volume Vb	23733 ft³	Cooling Air Flow Proportioning Factor	0.0628 cfm/btuh	Aux. Heat				(Brushless DC OBC 12.3.1.5.(2))	
Ventilation Load	5,638 Btu/h.	R/A Temp	70 deg. F.	SB-12 Package	Package D	Heating Check	1170 cfm	Cooling Check	1170 cfm
Ventilation PVC	60 cfm	S/A Temp	116 deg. F.						
Supply Branch and Grill Sizing		Diffuser loss	0.01 "w.c.	Temp. Rise>>>	46 deg. F.	Selected cfm>	1170 cfm	Cooling Air Flow Rate	1170 cfm

S/A Outlet No.	Level 1 Outlets													Level 2 Outlets									
	15	16	17	18										7	8	9	10	11	12	13	14		
Room Use	BASE	BASE	BASE	BASE										KIT	KIT	GREAT	PWD	LIV/DIN	LIV/DIN	FOYER	PLEN		
Btu/Outlet	3770	3770	3770	3770										2892	2892	2417	541	1896	1896	963	1299		
Heating Airflow Rate CFM	109	109	109	109										83	83	70	16	55	55	28	37		
Cooling Airflow Rate CFM	13	13	13	13										106	106	147	50	81	81	62	8		
Duct Design Pressure	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13
Actual Duct Length	31	16	14	17										26	21	23	13	29	36	39	31		
Equivalent Length	140	130	140	110	90	90	90	90	90	90	90	90	90	90	100	120	140	100	100	110	90	90	90
Total Effective Length	171	146	154	127	90	90	90	90	90	90	90	90	90	116	121	143	153	129	136	149	121	90	90
Adjusted Pressure	0.08	0.09	0.08	0.10	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.11	0.11	0.09	0.08	0.10	0.10	0.09	0.11	0.14	0.14
Duct Size Round	6	6	6	6										6	6	6	5	6	6	5	4		
Outlet Size	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	3x10	4x10	4x10	3x10	3x10	4x10	4x10
Trunk	B	A	C	C										C	C	C	A	A	B	B	P		

S/A Outlet No.	Level 3 Outlets													Level 4 Outlets									
	1	2	3	4	5	6																	
Room Use	MAST	ENS	BATH	BED 3	BED 2	LAUND																	
Btu/Outlet	2599	2094	697	1993	2540	850																	
Heating Airflow Rate CFM	75	60	20	57	73	24																	
Cooling Airflow Rate CFM	121	61	22	77	106	91																	
Duct Design Pressure	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13
Actual Duct Length	31	24	38	53	51	36																	
Equivalent Length	150	190	145	160	150	140	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90
Total Effective Length	181	214	183	213	201	176	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90
Adjusted Pressure	0.07	0.06	0.07	0.06	0.06	0.07	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	4	6	6	6																	
Outlet Size	4x10	4x10	3x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10
Trunk	C	C	A	B	B	A																	

Return Branch And Grill Sizing	Grill Pressure Loss					0.02 "w.c.					
R/A Inlet No.	1R	2R	3R	4R	5R	6R	7R	8R	9R	10R	11R
Inlet Air Volume CFM	110	180	180	420	250	30					
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	41	33	21	17	22	23					
Equivalent Length	175	265	145	185	150	230	70	70	70	70	70
Total Effective Length	216	298	166	202	172	253	70	70	70	70	70
Adjusted Pressure	0.05	0.04	0.07	0.06	0.07	0.05	0.17	0.17	0.17	0.17	0.17
Duct Size Round	6.0	8.0	8.0	2x8	7.0	5.0					
Inlet Size	8	8	8	8							
" "	x	x	x	x	x	x	x	x	x	x	x
Inlet Size	14	14	14	30	FLC	FLC					
Trunk	Y	Z	Z	Z	Y	Z					

Return Trunk Duct Sizing	Trunk	CFM	Press.	Round	Rect. Size
Drop		1170	0.04	18.0	24x12
Z		1170	0.04	18.0	30x10 24x12
Y		360	0.05	11.5	14x8 12x10
X					
W					
V					
U					
T					
S					
R					
Q					

Supply Trunk Duct Sizing	Trunk	CFM	Press.	Round	Rect. Size
A		544	0.06	12.5	18x8 14x10
B		321	0.06	10.5	12x8 10x10
C		588	0.06	13.0	18x8 14x10
D					
E					
F					
G					
H					
I					
J					
K					

2012 OBC

Builder: Delpark Highcastle

Date: April 13, 2015

Project: Northglen

Model: 33-7 Fonthill 33-7

System 1

Weather Data Newcastle (Bowmanville) 44 -4.0 86 20 50

Heat Loss ^T 76 deg. F Ht gain ^T 11 deg. F GTA: 1935

Project # PJ-00022
Layout # JB-00026

Level 1

Run ft. exposed wall A	150	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
Ceiling height	2.0	AG	AG	AG	AG	AG	AG	AG	AG	AG	AG	AG	AG	AG	AG	AG
Floor area	887	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
Exposed Ceilings B	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	Flr
Gross Exp Wall A	300															
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	3	72	83											
South	3.15	24.13	21.28	9	217	192											
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	267		213											
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																
	Heat Gain																
Air Leakage	Heat Loss/Gain	0.5648	0.0358	4554	20												
Ventilation	Case 1	x	0.31	2462	46												
	Case 2		82.08														
	Case 3		0.19														
Heat Gain People			239														
Appliances Loads	1 =.25 percent		3468														
Duct and Pipe loss			10%														
Level 1 HL Total	15,079		Total HL for per room	15079													
Level 1 HG Total	820		Total HG per room x 1.3		820												

Level 2

Run ft. exposed wall A	60	A	28	A	6	A	31	A	6	A	28	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
Ceiling height	9.0		9.0		9.0		9.0		9.0		2.0					
Floor area	335	Area	185	Area	75	Area	184	Area	54	Area	165	Area	Area	Area	Area	Area
Exposed Ceilings 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
Exposed Floors	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	165	Flr	Flr	Flr	Flr	Flr
Gross Exp Wall A	540		252		54		279		54		56					
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	14	338	158											
East/West	3.15	24.13	27.75	24	579	666	24	579	666								
South	3.15	24.13	21.28	36	869	766											
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	466	2341	339	228	1145	166	48	241	35	212	1065	154	33	166
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																
	Heat Gain																
Air Leakage	Heat Loss/Gain	0.2608	0.0358	1076	69			450	30	101	6	705	50	179	11	222	3
Ventilation	Case 1	x	0.14	582	159			243	68	54	13	381	114	97	24	120	6
	Case 2		82.08														
	Case 3		0.19														
Heat Gain People			239														
Appliances Loads	1 =.25 percent		3468														
Duct and Pipe loss			10%														
Level 2 HL Total	14,795		Total HL for per room	5784				2417		541		3792		963		1	107
Level 2 HG Total	10,203		Total HG per room x 1.3		3368				2336		800				2585		990

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	40,648	btu/h
Total Heat Gain	18,636	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

David DaCosta

Package:

Package D

System:

System 1

Project:

Newcastle (Bowmanville)

Model:

33-7

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)	☒ 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	4 @ 10 cfm	40 cfm	
Total		140	

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	140.0
Less principal exhaust capacity	60.0
REQUIRED supplemental vent. Capacity	80.0 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	<i>David DaCosta</i>		
HRAI #	5190	BCIN #	32964
Date	April 13, 2015		

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

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Project # PJ-00022
Layout # JB-00026

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
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A. Project Information

Building number, street name	33-7 Fonthill	Unit number	Lot/Con
	33-7		
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 =	232 m²	☐ ICF Basement	☐ Walkout Basement	☐ Log/Post&Beam
Gross Window+ Area =	23 m²	☐ ICF Above Grade	☐ Slab-on-ground	
% Windows+ 10%				

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
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Package: **Package D** System: **System 1**
Project: **Newcastle (Bowmanville)** Model: **33-7**

Air Leakage Calculations

Building Air Leakage Heat Loss				
B	LRairh	Vb	HL ^Δ T	HL _{leak}
0.018	0.281	23733	76	9107

Building Air Leakage Heat Gain				
B	LRairh	Vb	HG ^Δ T	HG _{Leak}
0.018	0.066	23733	11	310

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	9107	8062	0.5648
2	0.3		10478	0.2608
3	0.2		7686	0.2370
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		310	Air Leakage Heat Gain	
BUILDING CONDUCTIVE HEAT GAIN		8663	0.0358	

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	0.08			
	1	0.5	4925	8062	0.31	Building	8663				
	2	0.3		10478	0.14						
	3	0.2		7686	0.13						
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	0.19		HGbvent 713		HG*1.3 1	713	0.08	

Foundation Conductive Heatloss Level 1

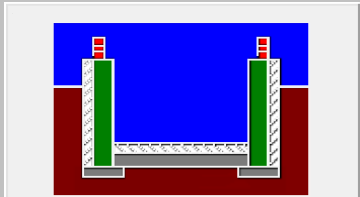
2123 Watts 7243 Btu/h

Foundation Conductive Heatloss Level 2

Watts Btu/h

Residential Foundation Thermal Load Calculator

Supplemental tool for CAN/CSA-F280

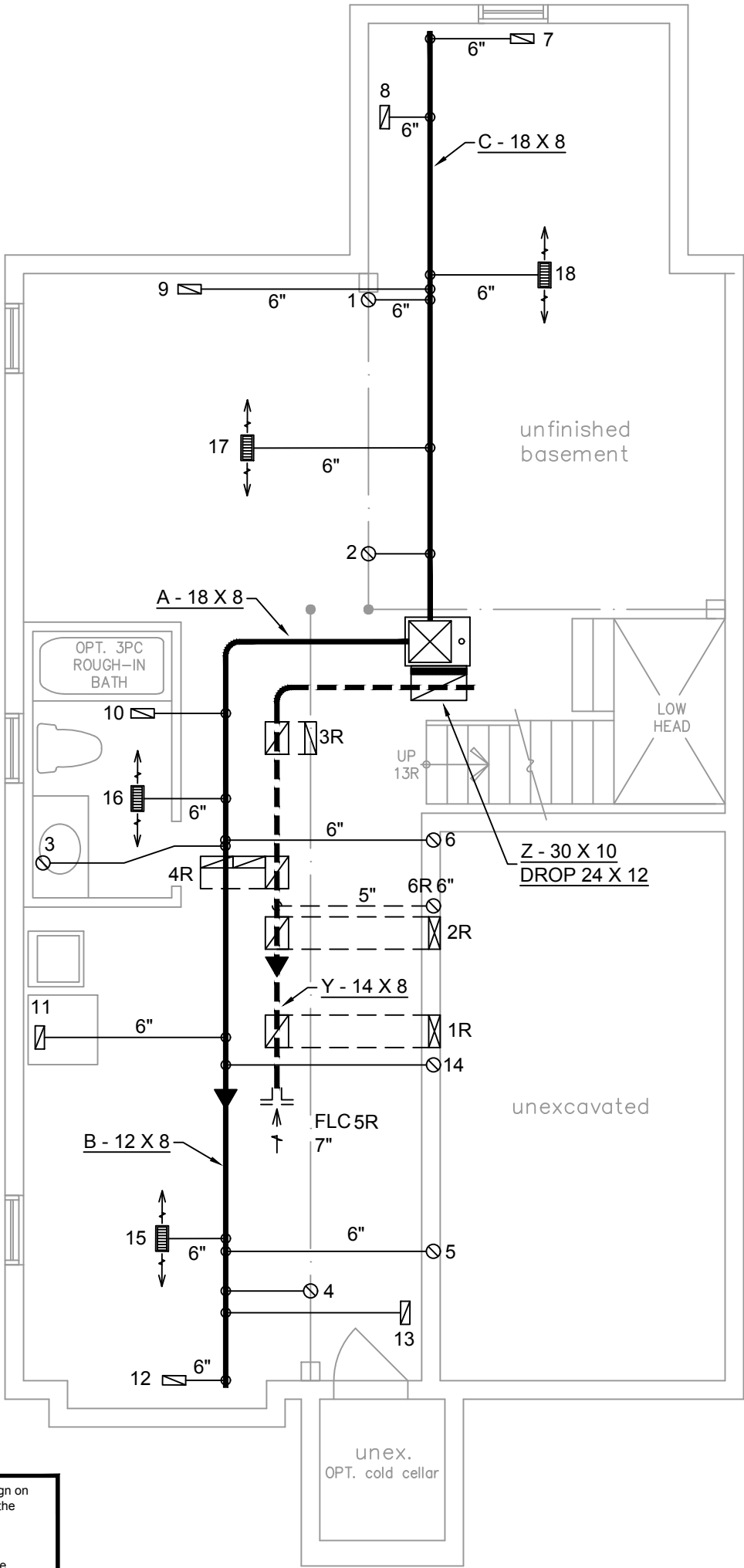
Weather Station Description		
Province:	Ontario	▼
Region:	Newcastle (Bowmanville)	▼
Site Description		
Soil Conductivity:	High conductivity: moist soil	▼
Water Table:	Normal (7-10 m, 23-33 Ft)	▼
Foundation Dimensions		
Floor Length (m):	18.38	 Insulation Configuration
Floor Width (m):	4.48	
Exposed Perimeter (m):	45.72	
Wall Height (m):	2.74	
Depth Below Grade (m):	2.13	
Window Area (m ²):	1.11	
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):		2123

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):	566.3 672.12			
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 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. ① \$ [E] [B]	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 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
SUITE 202,
MISSISSAUGA, ONT.
L4T 0A4 TEL: 416-268-6820
email: dave@gtadesigns.ca
web: www.gtadesigns.ca

HEAT-LOSS	40,648	BTU/HR.
UNIT MAKE	AMANA	OR EQUAL.
UNIT MODEL	GMEC960603BNA	OR EQUAL.
UNIT HEATING INPUT	60,000	BTU/HR.
UNIT HEATING OUTPUT	57,600	BTU/HR.
A/C COOLING CAPACITY	2.0	TONS.
FAN SPEED	1170	CFM

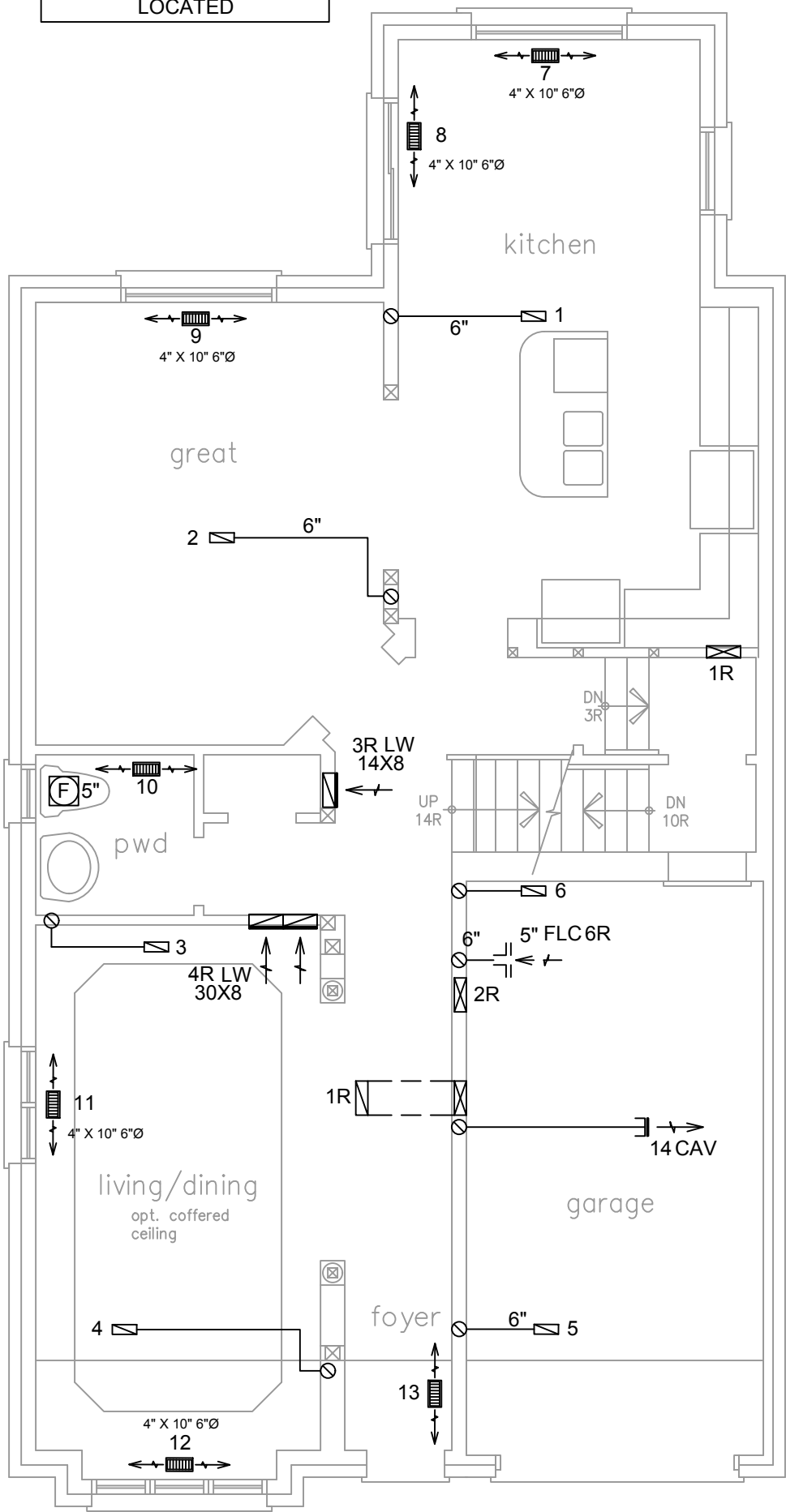
# OF RUNS	S/A	R/A	FANS
3RD FLOOR			
2ND FLOOR	6	2	2
1ST FLOOR	8	3	2
BASEMENT	4	1	

FLOOR PLAN: BASEMENT	
DRAWN BY: RB	CHECKED: DD
LAYOUT NO. JB-00026	DRAWING NO. M1
SQFT 1935	

DATE:	APRIL 13, 2015
CLIENT:	DELPARK HIGHCASTLE
MODEL:	33-7
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. ① \$ [E] [R]	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)

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QUALIFICATION INFORMATION

Required unless design is exempt under Division C 3.2.5.1 of the Ontario building code

David Da Costa

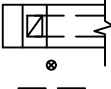
B.C.I.N. 32964

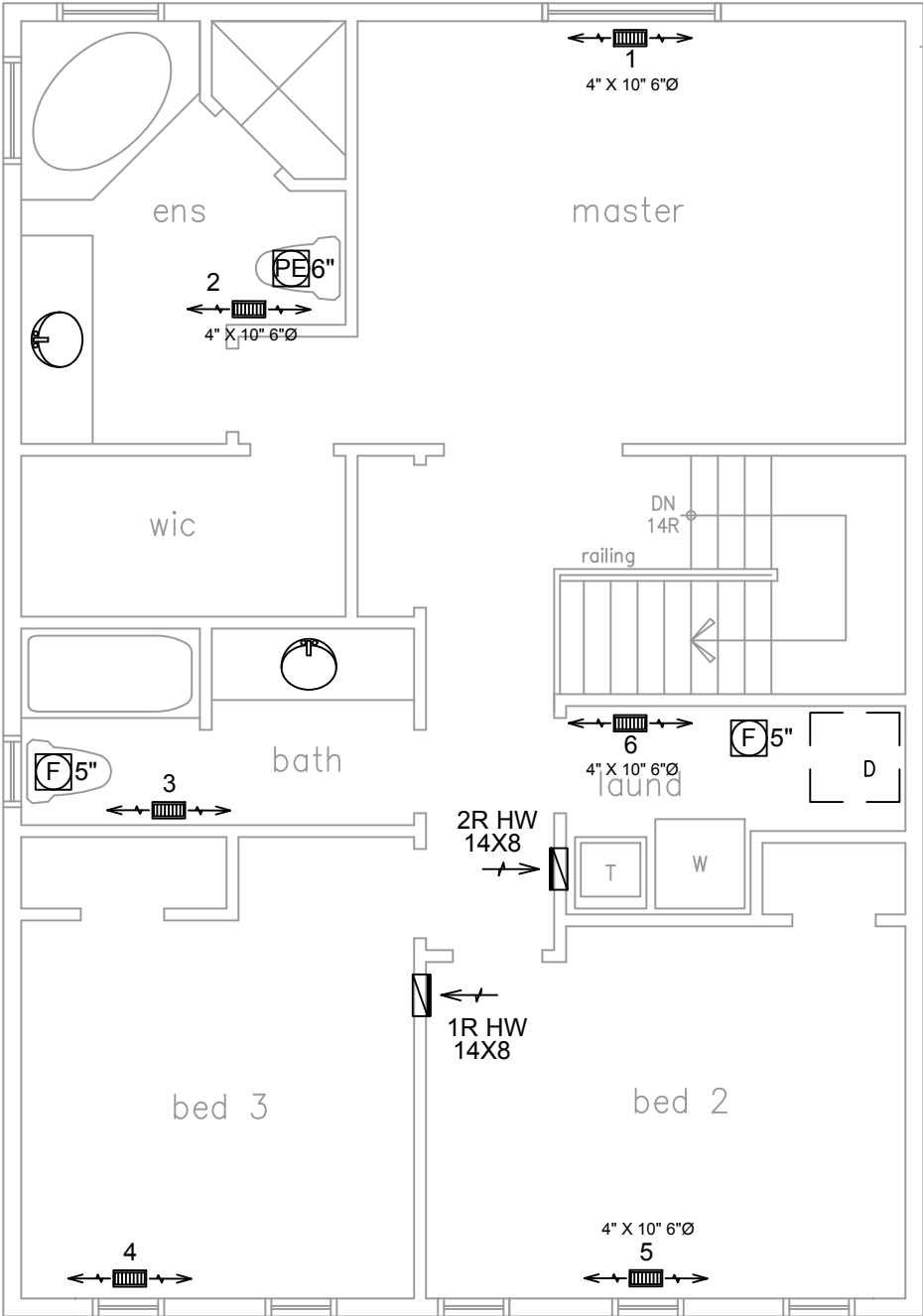
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OBC 2012

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 EXHUAUST 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 40,648 BTU/HR.	# OF RUNS S/A R/A FANS	DATE: APRIL 13, 2015	
		UNIT MAKE AMANA OR EQUAL.	3RD FLOOR	CLIENT: DELPARK HIGHCASTLE	
		UNIT MODEL GMEC960603BNA OR EQUAL.	2ND FLOOR 6 2 2	MODEL: 33-7	
		UNIT HEATING INPUT 60,000 BTU/HR.	1ST FLOOR 8 3 2	PROJECT: NORTHGLEN CLARINGTON, ON.	
		UNIT HEATING OUTPUT 57,600 BTU/HR.	BASEMENT 4 1		
		FLOOR PLAN: GROUND FLOOR			
		A/C COOLING CAPACITY 2.0 TONS.	DRAWN BY: RB CHECKED: DD SQFT 1935		
		FAN SPEED 1170 CFM	LAYOUT NO. JB-00026	DRAWING NO. M2	SCALE: 3/16" = 1"-0"

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



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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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HEAT-LOSS	40,648	BTU/HR.
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FAN SPEED	1170	CFM

# OF RUNS	S/A	R/A	FANS
3RD FLOOR			
2ND FLOOR	6	2	2
1ST FLOOR	8	3	2
BASEMENT	4	1	

FLOOR PLAN:	
SECOND FLOOR	
DRAWN BY:	CHECKED:
RB	DD
LAYOUT NO.	DRAWING NO.
JB-00026	M3

DATE:	APRIL 13, 2015
CLIENT:	DELPARK HIGHCASTLE
MODEL:	33-7
PROJECT:	NORTHGLEN CLARINGTON, ON.
SCALE:	3/16" = 1'-0"