

Use one form for each individual who reviews and takes responsibility for design activities with respect to the project.

A. Project Information				
Building number, street name FP Town 3 End - Newport			Lot:	
			Lot/con.	
Municipality Clarington	Postal code	Plan number/ other description		
B. Individual who reviews and takes responsibility for design activities				
Name David DaCosta		Firm gtaDesigns Inc.		
Street address 2985 Drew Road, Suite 202		Unit no.	Lot/con.	
Municipality Mississauga	Postal code L4T 0A4	Province Ontario	E-mail dave@gtadesigns.ca	
Telephone number (905) 671-9800		Fax number (647) 494-9643	Cell number (416) 268-6820	
C. Design activities undertaken by individual identified in Section B. [Building Code Table 3.5.2.1 of Division C]				
☐ House	☒ HVAC – House	☐ Building Structural		
☐ Small Buildings	☐ Building Services	☐ Plumbing – House		
☐ Large Buildings	☐ Detection, Lighting and Power	☐ Plumbing – All Buildings		
☐ Complex Buildings	☐ Fire Protection	☐ On-site Sewage Systems		
Description of designer's work		Model Certification		Project # PJ-00022
				Layout # JB-00698
Heating and Cooling Load Calculations		Builder	Delpark/Highcastle Homes	
Air System Design		Project	Northglen	
Residential mechanical ventilation Design Summary		Model	FP Town 3 End - Newport	
Residential System Design per CAN/CSA-F280-12		SB-12	Package D	
Residential New Construction - Forced Air				
D. Declaration of Designer				
I, <u>David DaCosta</u> declare that (choose one as appropriate): (print name) ☐ I review and take responsibility for the design work on behalf of a firm registered under subsection 3.2.4 Division C of the Building Code. I am qualified, and the firm is registered, in the appropriate classes/categories. Individual BCIN: _____ Firm BCIN: _____ ☒ I review and take responsibility for the design and am qualified in the appropriate category as an "other designer" under subsection 3.2.5 of Division C, of the Building Code. Individual BCIN: <u>32964</u> Basis for exemption from registration: <u>Division C 3.2.4.1. (4)</u> ☐ The design work is exempt from the registration and qualification requirements of the Building Code. Basis for exemption from registration and qualification:				
I certify that: - The information contained in this schedule is true to the best of my knowledge. - I have submitted this application with the knowledge and consent of the firm.				
<u>June 17, 2015</u> Date		 Signature of Designer		

NOTE:

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

Heat loss and gain calculation summary sheet				CSA-F280-M12 Standard Form No. 1	
These documents issued for the use of Delpark/Highcastle Homes				Layout No.	
and may not be used by any other persons without authorization. Documents for permit and/or construction are signed in red.				JB-00698	
Building Location					
Address (Model): FP Town 3 End - Newport			Site: Northglen		
Model:			Lot:		
City and Province: Clarington			Postal code:		
Calculations based on					
Dimensional information based on:			Cassidy & Co. Dwgs Dated Apr/2013		
Attachment: Townhome		Front facing: East/West		Assumed? Yes	
No. of Levels: 3		Ventilated? Included		Air tightness: 1961- Present (ACH=3.57) Assumed? Yes	
Weather location: Durham		Wind exposure: Shelterd			
HRV?		Internal shading: Light-translucent Occupants: 4			
Sensible Eff. at -25C 0		Apparent Effect. at -0C 0		Units: Imperial Area Sq. ft 1194	
Heating design conditions			Cooling design conditions		
Outdoor temp -4.0 Indoor temp: 72 Mean soil temp 48			Outdoor temp 84 Indoor temp: 75 Latitude: 44		
Above grade walls			Below grade walls		
Style A: As per Selected OBC SB12 Package D R 24			Style A: As per Selected OBC SB12 Package D R 20		
Style B: Existing Walls (When Applicable) R 12			Style B:		
Style C:			Style C:		
Style D:			Style D:		
Floors on soil			Ceilings		
Style A: As per Selected OBC SB12 Package D			Style A: As per Selected OBC SB12 Package D R 50		
Style B:			Style B: As per Selected OBC SB12 Package D R 31		
Exposed floors			Style C:		
Style A: As per Selected OBC SB12 Package D R 31			Doors		
Style B:			Style A: As per Selected OBC SB12 Package D R 3.01		
Windows			Style B:		
Style A: As per Selected OBC SB12 Package D R 3.15			Style C:		
Style B: Existing Windows (When Applicable) R 1.99			Skylights		
Style C:			Style A: As per Selected OBC SB12 Package D R 2.03		
Style D:			Style B:		
Attached documents: As per Shedule 1					
Notes: Residential New Construction - Forced Air					
Calculations performed by					
Name: David DaCosta			Postal code: L4T 0A4		
Company: gtaDesigns Inc.			Telephone: (905) 671-9800		
Address: 2985 Drew Road, Suite 202			Fax: (416) 268-6820		
City: Mississauga			E-mail dave@gtadesigns.ca		

Builder: Delpark/Highcastle Homes

2015 June 17, 2015

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

Page 3

Project: Northglen

Model: FP Town 3 End - Newport

System 1

Individual BCIN: 32964

David DaCosta

Project # PJ-00022
Layout # JB-00698

DESIGN LOAD SPECIFICATIONS		AIR DISTRIBUTION & PRESSURE		FURNACE/AIR HANDLER DATA:		BOILER/WATER HEATER DATA:		A/C UNIT DATA:	
Level 1 Net Load	9,238 btu/h	Equipment External Static Pressure	0.5 "w.c.	Make	Amana	Make	Type	Amana	1.5 Ton
Level 2 Net Load	10,220 btu/h	Additional Equipment Pressure Drop	0.225 "w.c.	Model	GMEC960302BNA	Model		Cond.-----	1.5
Level 3 Net Load	7,055 btu/h	Available Design Pressure	0.275 "w.c.	Input Btu/h	30000	Input Btu/h		Coil -----	1.5
Level 4 Net Load	0 btu/h	Return Branch Longest Effective Length	300 ft	Output Btu/h	28800	Output Btu/h			
Total Heat Loss	26,513 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	14,721 btu/h	S/A Plenum Pressure	0.14 "w.c.	Water Temp	deg. F.	Blower DATA:			
Total Heat Loss + 10%	29,165 Btu/h	Heating Air Flow Proportioning Factor	0.0234 cfm/btuh	AFUE	96%	Blower Speed Selected:	T2	Blower Type	ECM
Building Volume Vb	15240 ft³	Cooling Air Flow Proportioning Factor	0.0422 cfm/btuh	Aux. Heat				(Brushless DC OBC 12.3.1.5.(2))	
Ventilation Load	5,521 Btu/h.	R/A Temp	70 deg. F.	SB-12 Package	Package D	Heating Check	621 cfm	Cooling Check	621 cfm
Ventilation PVC	60 cfm	S/A Temp	113 deg. F.						
Supply Branch and Grill Sizing		Diffuser loss	0.01 "w.c.	Temp. Rise>>>	43 deg. F.	Selected cfm>	621 cfm	Cooling Air Flow Rate	621 cfm

Level 1 Outlets														Level 2 Outlets										
S/A Outlet No.	9	12	13	14										6	7	8	10	11						
Room Use	CAV	BASE	BASE	BASE										KIT	GRT	GRT	FOY	PWD						
Btu/Outlet	2653	2195	2195	2195										2816	2073	2073	2135	1124						
Heating Airflow Rate CFM	62	51	51	51										66	49	49	50	26						
Cooling Airflow Rate CFM	3	19	19	19										104	89	89	26	15						
Duct Design Pressure	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13
Actual Duct Length	55	22	20	31										5	25	15	33	42						
Equivalent Length	120	100	130	90	90	90	90	90	90	90	90	90	90	100	90	110	130	100	90	90	90	90	90	90
Total Effective Length	175	122	150	121	90	90	90	90	90	90	90	90	90	105	115	125	163	142	90	90	90	90	90	90
Adjusted Pressure	0.07	0.11	0.09	0.11	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.12	0.11	0.10	0.08	0.09	0.14	0.14	0.14	0.14	0.14	0.14
Duct Size Round	5	5	5	5										6	6	6	5	4						
Outlet Size	3x10	3x10	3x10	3x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	3x10	3x10	4x10	4x10	4x10	4x10	4x10	4x10
Trunk	D	B	C	C										A	B	B	D	D						

	Level 3 Outlets													Level 4 Outlets													
S/A Outlet No.	1	2	3	4	5																						
Room Use	MAST	BATH	BED 2	BED 3	ENS																						
Btu/Outlet	1989	479	1851	1917	819																						
Heating Airflow Rate CFM	47	11	43	45	19																						
Cooling Airflow Rate CFM	73	17	70	64	12																						
Duct Design Pressure	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13
Actual Duct Length	44	38	49	50	43																						
Equivalent Length	140	120	130	110	150	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	
Total Effective Length	184	158	179	160	193	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	0.08	0.07	0.08	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	0.14	0.14	0.14	0.14	
Duct Size Round	6	3	6	5	4																						
Outlet Size	4x10	3x10	4x10	3x10	3x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	
Trunk	C	C	D	D	C																						

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	145	100	225	40	111						
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	47	34	37	7						
Equivalent Length	140	210	265	245	130	70	70	70	70	70	70
Total Effective Length	181	257	299	282	137	70	70	70	70	70	70
Adjusted Pressure	0.06	0.05	0.04	0.04	0.09	0.17	0.17	0.17	0.17	0.17	0.17
Duct Size Round	8.0	7.0	10.0	5.0	6.0						
Inlet Size	8	8	6	FLC	FLC						
" "	x	x	x	x	x	x	x	x	x	x	x
Inlet Size	14	14	30								
Trunk	Y	Y	Y	Y	Z						

Return Trunk Duct Sizing	Trunk	CFM	Press.	Round	Rect. Size
Drop		621	0.04	14.0	24x10
Z		621	0.04	14.0	22x8 18x10
Y		510	0.04	13.0	18x8 14x10
X					
W					
V					
U					
T					
S					
R					
Q					

Supply Trunk Duct Sizing	Trunk	CFM	Press.	Round	Rect. Size
A		622	0.07	12.5	18x8 14x10
B		149	0.10	7.0	8x8 8x7
C		407	0.07	11.0	14x8 10x10
D		227	0.07	9.0	8x8 10x7
E					
F					
G					
H					
I					
J					
K					

2012 OBC	Builder: Delpark/Highcastle Homes	Date: June 17, 2015	System 1	Weather Data	Durham	44	-4.0	84	20	48.2	Heat Loss ^T	76 deg. F	Ht gain ^T	9.2 deg. F	GTA: 1194	Project # PJ-00022	Layout # JB-00698
	Project: Northglen	Model: FP Town 3 End - Newport															

Level 3				MAST		BATH		BED 2		BED 3		ENS													
Run ft. exposed wall A				21	A	A		15	A	20	A	12	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				8.0		8.0		8.0		8.0		8.0													
Floor area				207	Area	50	Area	158	Area	134	Area	50	Area	Area	Area	Area	Area	Area	Area	Area	Area	Area	Area		
Exposed Ceilings A				207	A	50	A	158	A	134	A	50	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			
Gross Exp Wall A				168				120		160		96													
Gross Exp Wall B																									
Components				R-Values	Loss	Gain		Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain		
North Shaded				3.15	24.13	10.74																			
East/West				3.15	24.13	27.18	20	483	544			25	603	679	25	603	679	4	97	109					
South				3.15	24.13	20.71				11	265	228													
Existing Windows				1.99	38.19	21.24																			
Skylight				2.03	37.44	87.34																			
Doors				3.01	25.25	3.06																			
Net exposed walls A				15.13	5.02	0.61	148	743	90			95	477	58	135	678	82	92	462	56					
Net exposed walls B				8.50	8.94	1.08																			
Exposed Ceilings A				50.00	1.52	0.72	207	315	150	50	76	36	158	240	114	134	204	97	50	76	36				
Exposed Ceilings B				22.86	3.32	1.58																			
Exposed Floors				22.05	3.45	0.15																			
Foundation Conductive Heatloss																									
Total Conductive	Heat Loss						1541			341		1321		1485		635									
	Heat Gain							783		264		852		858		201									
Air Leakage	Heat Loss/Gain			0.1061	0.0032		163	3		36	1	140	3	158	3	67	1								
Ventilation	Case 1			x	0.19	0.09	285	68		63	23	244	74	275	74	117	17								
	Case 2				82.08	9.94																			
	Case 3				0.27	0.09																			
Heat Gain People						239	2		478		1		239	1	239										
Appliances Loads				1 =.25 percent		2730																			
Duct and Pipe loss						10%				1	38	29	1	146	116										
Level 3 HL Total		7.055		Total HL for per room			1989			479		411		1851		1917		819							
Level 3 HG Total		5,623		Total HG per room x 1.3				1731			411		1669		1527			285							

Level 4																					
Run ft. exposed wall A	A	A	2015	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Run ft. exposed wall B	B	B		B	B		B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
Ceiling height																					
Floor area	Area	Area		Area	Area		Area	Area	Area	Area	Area	Area	Area	Area	Area	Area	Area	Area	Area	Area	Area
Exposed Ceilings A	A	A		A	A		A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Exposed Ceilings B	B	B		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	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
North Shaded	3.15	24.13	10.74																		
East/West	3.15	24.13	27.18																		
South	3.15	24.13	20.71																		
Existing Windows	1.99	38.19	21.24																		
Skylight	2.03	37.44	87.34																		
Doors	3.01	25.25	3.06																		
Net exposed walls A	15.13	5.02	0.61																		
Net exposed walls B	8.50	8.94	1.08																		
Exposed Ceilings A	50.00	1.52	0.72																		
Exposed Ceilings B	22.86	3.32	1.58																		
Exposed Floors	22.05	3.45	0.15																		
Foundation Conductive Heatloss																					
Total Conductive	Heat Loss																				
	Heat Gain																				
Air Leakage	Heat Loss/Gain	0.0000	0.0032																		
Ventilation	Case 1	x	0.00	0.09																	
	Case 2		82.08	9.94																	
	Case 3		0.27	0.09																	
Heat Gain People			239																		
Appliances Loads		1 =.25 percent	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	26,513	btu/h
Total Heat Gain	14,721	btu/h

I review and take responsibility for the design work and am qualified in the appropriate category as an "other designer" under

Division C subsection 3.2.5. of the Building Code. Individual BCIN:

32964



David DaCosta

SB-12 Package

Package D

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

Individual BCIN: 32964

David DaCosta

David DaCosta

Package:

Package D

Project:

Clarington

Model:

FP Town 3 End - Newport

RESIDENTIAL MECHANICAL VENTILATION DESIGN SUMMARY

For systems serving one dwelling unit & conforming to the Ontario Building Code, O.geg 159/93

Location of Installation	
Lot #	Plan #
Township	Clarington
Roll #	Permit #
Address	

Builder	
Name	Delpark/Highcastle Homes
Address	
City	
Tel	Fax

Installing Contractor	
Name	
Address	
City	
Tel	Fax

Combustion Appliances 9.32.3.1(1)	
a)	☐ Direct vent (sealed combustion) only
b)	☒ Positive venting induced draft (except fireplaces)
c)	☐ Natural draft, B-vent or induced draft fireplaces
d)	☐ Solid fuel (including fireplaces)
e)	☐ No combustion Appliances

Heating System	
☒	Forced air
☐	Non forced air
☐	Electric space heat (if over 10% of heat load)

House Type 9.32.3.1(2)	
I	☒ Type a) or b) appliances only, no solid fuel
II	☐ Type I except with solid fuel (including fireplace)
III	☐ Any type c) appliance
IV	☐ Type I or II either electric space heat
Other	☐ Type I, II or IV no forced air

System Design Option	
1	☒ Exhaust only / forced air system
2	☐ HRV WITH DUCTING / forced air system
3	☐ HRV simplified connection to forced air system
4	☐ HRV full ducting/not coupled to forced air system
Part 6 design	

Total Ventilation Capacity 9.32.3.3(1)			
Bsmt & Master Bdrm	2 @ 20 cfm	40 cfm	
Other Bedrooms	2 @ 10 cfm	20 cfm	
Bathrooms & Kitchen	4 @ 10 cfm	40 cfm	
Other rooms	1 @ 10 cfm	10 cfm	
Total		<u>110</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	110.0
Less principal exhaust capacity	60.0
REQUIRED supplemental vent. Capacity	<u>50.0</u> cfm

Supplemental Fans 9.32.3.5.			
Location	cfm	Model	Sones
Pwd.	50	770	
all fans HVI listed Make Broan or Equiv.			

Designer Certification			
I hereby certify that this ventilation system has been designed in accordance with the Ontario Building Code.			
Name	David DaCosta		
Signature	<i>David DaCosta</i>		
HRAI #	5190	BCIN #	32964
Date	June 17, 2015		

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

Page 7
Project # PJ-00022
Layout # JB-00698

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 FP Town 3 End - Newport	Unit number	Lot/Con
Municipality Clarington	Postal code	Reg. Plan number / other description

B. Compliance Option

☒ SB-12 Prescriptive [SB-12 - 2.1.1.]	Table: Package: A B C D E F G H I J K L M	Package D
☐ SB-12 Performance* [SB-12 - 2.1.2.]	* Attach energy performance calculations using an approved software	
☐ Energy Star®* [SB-12 - 2.1.3.]	* Attach BOP form	
☐ EnerGuide 80® *	* House must be evaluated by NRCAN advisor and meet a rating of 80	

C. Project Design Conditions

Climatic Zone (SB-1):	Heating Equipment	Space Heating Fuel Source
☒ Zone 1 (< 5000 degree days)	☒ ≥ 90% AFUE	☒ Gas ☐ Propane ☐ Solid Fuel
☐ Zone 2 (≥ 5000 degree days)	☐ ≥ 78% < 90% AFUE	☐ Oil ☐ Electric ☐ Earth Energy

Windows+Skylights+Glass Doors	Other Building Conditions
Gross Wall Area = 164 m²	☐ ICF Basement ☐ Walkout Basement ☐ Log/Post&Beam
Gross Window+ Area = 20 m²	☐ ICF Above Grade ☐ Slab-on-ground
% Windows+ 12%	

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

Building Component	RSI / R values	Building Component	Efficiency Ratings
Thermal Insulation		Windows & Doors¹	
Ceiling with Attic Space	50	Windows/Sliding Glass Doors	1.8
Ceiling without Attic Space	31	Skylights	2.8
Exposed Floor	31	Mechanicals	
Walls Above Grade	24	Space Heating Equip. ²	94%
Basement Walls	20	HRV Efficiency (%)	0%
Slab (all >600mm below grade)	x	DHW Heater (EF)	0.67
Slab (edge only ≤600mm below grade)	10	NOTES	
Slab (all ≤600mm below grade, or heated)	10	1. Provide U-Value in W/m2.K, or ER rating	
		2. Provide AFUE or indicate if condensing type combined system used	

E. Performance Design Verification [complete applicable sections if SB-12 Performance, Energy Star or EnerGuide80 options used]

SB-12 Performance:
The annual energy consumption using Subsection 2.1.1. SB-12 Package _____ is _____ Gj (1 Gj =1000MJ)
The annual energy consumption of this house as designed is _____ Gj
The software used to simulate the annual energy use of the building is: _____
The building is being designed using an air leakage of _____ air changes per hour @50Pa.

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

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

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

Package: **Package D** System: **System 1**
Project: **Clarington** Model: **FP Town 3 End - Newport**

Air Leakage Calculations

Building Air Leakage Heat Loss				
B	LRairh	Vb	HL ^{AT}	HL _{leak}
0.018	0.135	15240	76	2823

Building Air Leakage Heat Gain				
B	LRairh	Vb	HG ^{AT}	HG _{Leak}
0.018	0.009	15240	9.2	22

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	2823	5364	0.2631
2	0.3		7896	0.1072
3	0.2		5322	0.1061
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	
	22		
BUILDING CONDUCTIVE HEAT GAIN	6875		0.0032

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	9.2	596		
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	596	0.09			
	1	0.5	4925	5364	0.46	Building	6875				
	2	0.3		7896	0.19						
	3	0.2		5322	0.19						
4	0	0		0.00							
Case 2						Case 2					
Case 2	Ventilation Heat Loss (Direct Ducted Systems)					Ventilation Heat Gain (Direct Ducted Systems)					Case 2
				Multiplier				Multiplier			
	C	HL^T	(1-E) HRV	82.08		C	HG^T	9.94			
	1.08	76	1.00			1.08	9.2				
Case 3						Case 3					
Case 3	Ventilation Heat Loss (Forced Air Systems)					Ventilation Heat Gain (Forced Air Systems)					Case 3
			HLbvent	Multiplier				Vent Heat Gain	Multiplier		
	Total Ventilation Load		4925	0.27		HGbvent		HG*1.3	596	0.09	

Foundation Conductive Heatloss Level 1	1337	Watts	4561	Btu/h
---	------	-------	------	-------

Foundation Conductive Heatloss Level 2		Watts		Btu/h
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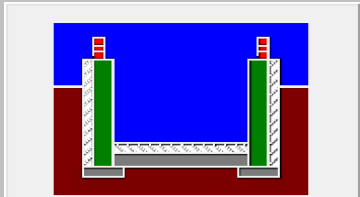
Envelope Air Leakage Calculator

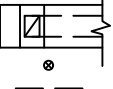
Supplemental tool for CAN/CSA-F280

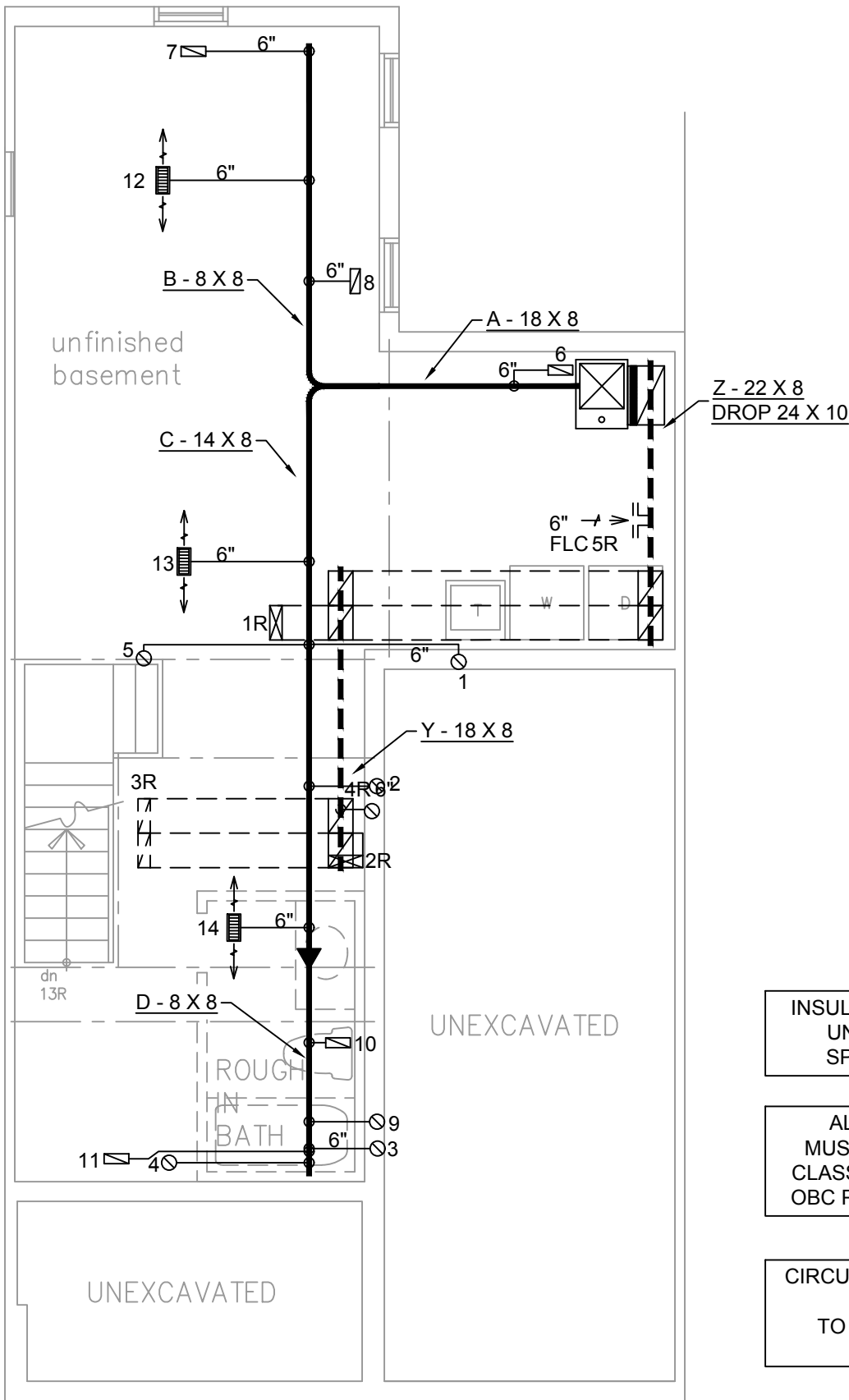
Weather Station Description				
Province:	Ontario ▼			
Region:	Durham ▼			
Weather Station Location:	Open flat terrain, grass ▼			
Anemometer height (m):	10			
Local Shielding				
Building Site:	Suburban, forest ▼			
Walls:	Heavy ▼			
Flue:	Heavy ▼			
Highest Ceiling Height (m):	5.79			
Building Configuration				6.4
Type:	Semi-Detached ▼			
Number of Stories:	Two ▼			
Foundation:	Full ▼			
House Volume (m ³):	566.3 431.60			
Air Leakage/Ventilation				
Air Tightness Type:	Present (1961-) (ACH=3.57) ▼			
Custom BDT Data:	ELA @ 10 Pa. ▼ 185.83 cm ² 3.57 ACH @ 50 Pa			
Mechanical Ventilation (L/s):	Total Supply:		Total Exhaust:	
	0		30	
Flue Size				
Flue #:	#1	#2	#3	#4
Diameter (mm):	0	0	0	0
Envelope Air Leakage Rate				
Heating Air Leakage Rate (ACH/H):		0.135		
Cooling Air Leakage Rate (ACH/H):		0.009		

Residential Foundation Thermal Load Calculator

Supplemental tool for CAN/CSA-F280

Weather Station Description		
Province:	Ontario	▼
Region:	Durham	▼
Site Description		
Soil Conductivity:	High conductivity: moist soil	▼
Water Table:	Normal (7-10 m, 23-33 Ft)	▼
Foundation Dimensions		
Floor Length (m):	15.26	 Insulation Configuration
Floor Width (m):	3.48	
Exposed Perimeter (m):	39.32	
Wall Height (m):	2.74	
Depth Below Grade (m):	2.13	
Window Area (m ²):	0.84	
Door Area (m ²):	0.00	
Radiant Slab		
Heated Fraction of the Slab:	0	
Fluid Temperature (°C):	23	
Design Months		
Heating Month	1	
Foundation Loads		
Heating Load (Watts):		1337

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



INSULATE ALL DUCTS IN UNCONDITIONED SPACES MIN. R12

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

CIRCULATION PRINCIPAL FAN SWITCH TO BE CENTRALLY LOCATED

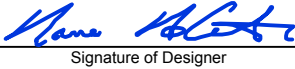
FURNACE EQUIPPED WITH BRUSHLESS DC MOTOR AS PER OBC 12.3.1.5 (2)

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



Signature of Designer

B.C.I.N. 32964

OBC 2012

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

NOTES

INSTALLATION TO COMPLY WITH THE LATEST ONTARIO BUILDING CODE.
ALL SUPPLY OUTLETS TO BE 5" DIA. UNLESS OTHERWISE SPECIFIED.
ALL R/A PARTITIONS 6" (FIRST FLOOR ONLY)
INSULATE DUCTS IN UNCONDITIONED SPACES R12
UNDERCUT ALL DOORS 1" MIN.
HEATING CONTRACTOR MUST WORK FROM APPROVED PLANS.
ANY ALTERATIONS TO THIS ORIGINAL PLAN ARE NOT THE RESPONSABILITY OF GTA DESIGNS.
GTA DESIGNS MUST BE CONSULTED IF KITCHEN EXHAUST FAN EXCEEDS 700 CFM DEPRESSURIZATION MAY OCCUR WITH IN THE DWELLING

 **gtaDesigns**

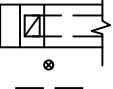
2985 DREW ROAD
SUITE 202,
MISSISSAUGA, ONT.
L4T 0A4 TEL: 416-268-6820
email: dave@gta designs.ca
web: www.gta designs.ca

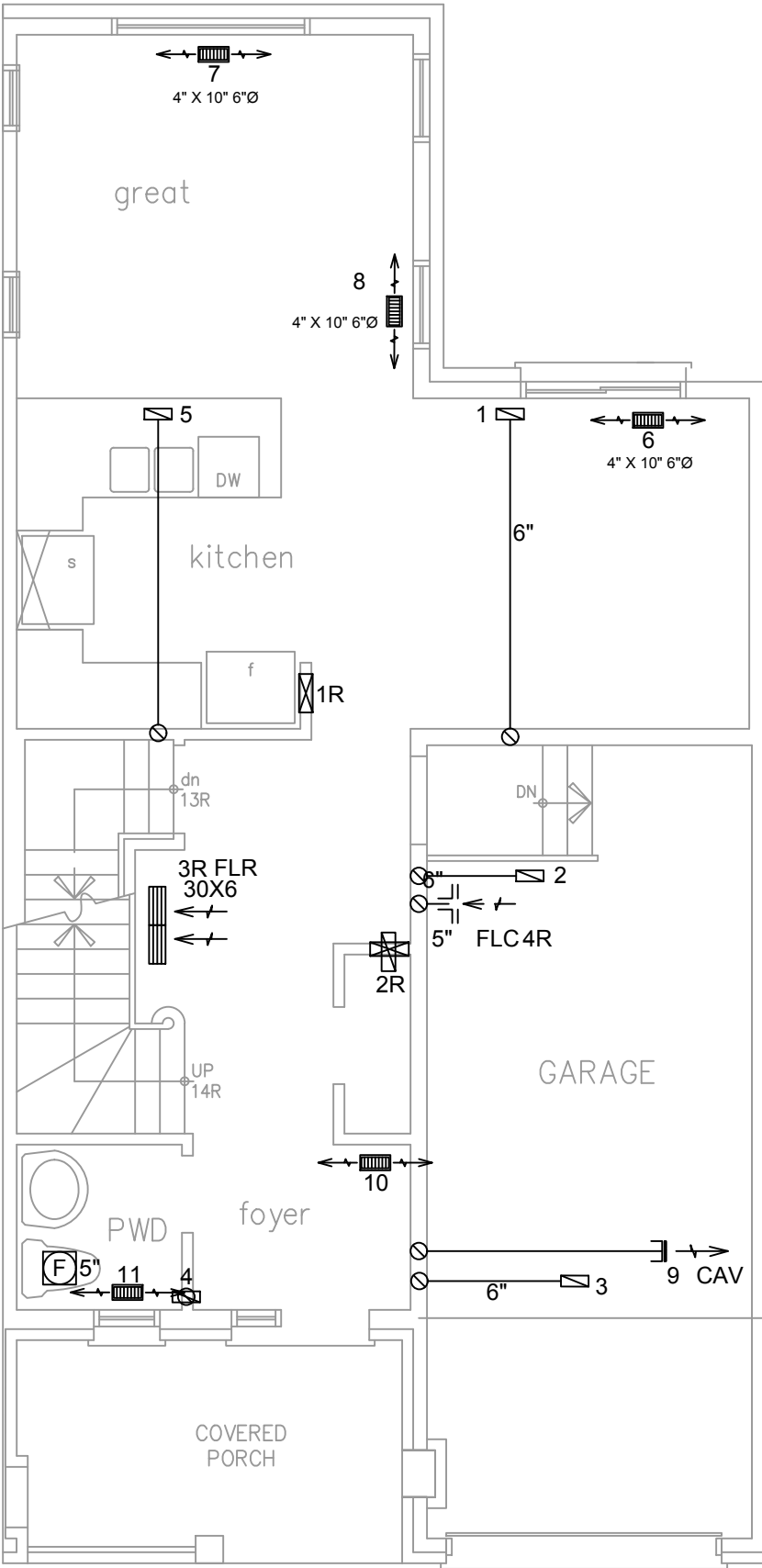
HEAT-LOSS	26,513	BTU/HR.
UNIT MAKE	AMANA	OR EQUAL.
UNIT MODEL	GMEC960302BNA	OR EQUAL.
UNIT HEATING INPUT	30,000	BTU/HR.
UNIT HEATING OUTPUT	28,800	BTU/HR.
A/C COOLING CAPACITY	1.5	TONS.
FAN SPEED	621	CFM

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

FLOOR PLAN: BASEMENT	
DRAWN BY: RB	CHECKED: DD
LAYOUT NO. JB-00698	DRAWING NO. M1

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

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

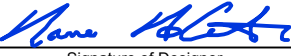


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QUALIFICATION INFORMATION

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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 UNDERCUT ALL DOORS 1" MIN.
HEATING CONTRACTOR MUST WORK FROM APPROVED PLANS.
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gtaDesigns

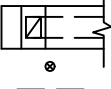
2985 DREW ROAD
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MISSISSAUGA, ONT.
L4T 0A4 TEL: 416-268-6820
email: dave@gtadesigns.ca
web: www.gtadesigns.ca

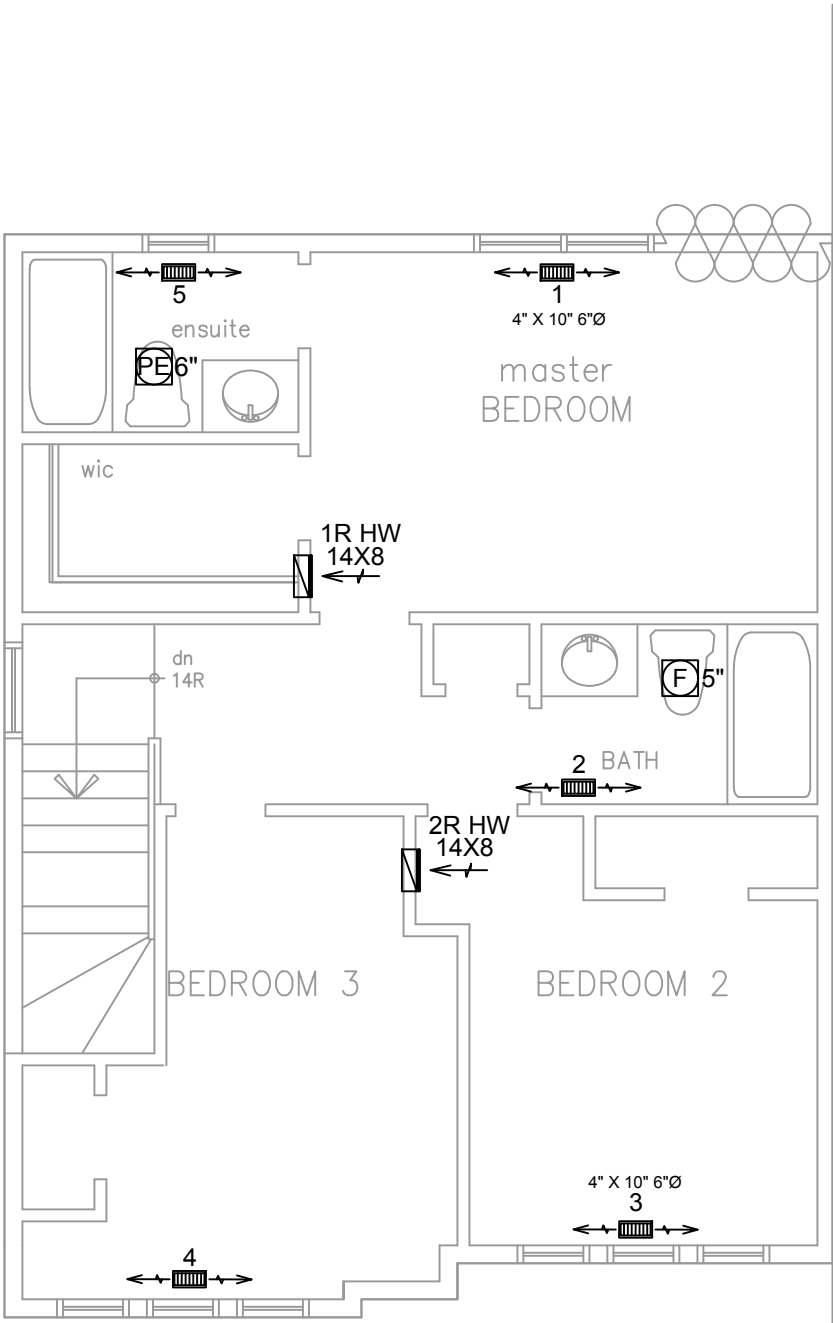
HEAT-LOSS	26,513	BTU/HR.
UNIT MAKE	AMANA	OR EQUAL.
UNIT MODEL	GMEC960302BNA	OR EQUAL.
UNIT HEATING INPUT	30,000	BTU/HR.
UNIT HEATING OUTPUT	28,800	BTU/HR.
A/C COOLING CAPACITY	1.5	TONS.
FAN SPEED	621	CFM

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

FLOOR PLAN: GROUND FLOOR		
DRAWN BY: RB	CHECKED: DD	SQFT 1194
LAYOUT NO. JB-00698	DRAWING NO. M2	

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

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



INSULATE ALL DUCTS IN UNCONDITIONED SPACES MIN. R12

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CIRCULATION PRINCIPAL FAN SWITCH TO BE CENTRALLY LOCATED

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David Da Costa



Signature of Designer

B.C.I.N. 32964

OBC 2012

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

NOTES

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UNIT HEATING OUTPUT	28,800	BTU/HR.
A/C COOLING CAPACITY	1.5	TONS.
FAN SPEED	621	CFM

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

FLOOR PLAN: SECOND FLOOR	
DRAWN BY: RB	CHECKED: DD
LAYOUT NO: JB-00698	DRAWING NO: M3

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