

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 8 - Newcastle			Lot: Elevation B	
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
Telephone number (905) 671-9800			Fax number (647) 494-9643	E-mail dave@gtadesigns.ca
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-01633
Heating and Cooling Load Calculations		Builder	Delpark/Highcastle Homes	
Air System Design		Project	Northglen	
Residential mechanical ventilation Design Summary		Model	FP Town 8 - Newcastle	
Residential System Design per CAN/CSA-F280-12			Elevation B	
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>February 12, 2016</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-01633	
Building Location					
Address (Model): Elevation B			Site: Northglen		
Model: FP Town 8 - Newcastle			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: 5			
Sensible Eff. at -25C 0		Apparent Effect. at -0C 0		Units: Imperial Area Sq. ft 1942	
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

February 12, 2016

FP Town 8 - Newcastle
Elevation B

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* David DaCosta

Project # PJ-00022
Layout # JB-01633

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Project: Northglen

Model:

DESIGN LOAD SPECIFICATIONS		AIR DISTRIBUTION & PRESSURE		FURNACE/AIR HANDLER DATA:		BOILER/WATER HEATER DATA:		A/C UNIT DATA:	
Level 1 Net Load	11,212 btu/h	Equipment External Static Pressure	0.5 "w.c.	Make	Amana	Make	Type	Amana	2.0 Ton
Level 2 Net Load	13,693 btu/h	Additional Equipment Pressure Drop	0.225 "w.c.	Model	GMEC960402BNA	Model		Cond.-----	2.0
Level 3 Net Load	9,927 btu/h	Available Design Pressure	0.275 "w.c.	Input Btu/h	40000	Input Btu/h		Coil -----	2.0
Level 4 Net Load	0 btu/h	Return Branch Longest Effective Length	300 ft	Output Btu/h	38400	Output Btu/h			
Total Heat Loss	34,831 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	19,125 btu/h	S/A Plenum Pressure	0.14 "w.c.	Water Temp	deg. F.	Blower DATA:			
Total Heat Loss + 10%	38,314 Btu/h	Heating Air Flow Proportioning Factor	0.0222 cfm/btuh	AFUE	96%	Blower Speed Selected:	T2	Blower Type	ECM
Building Volume Vb	24990 ft³	Cooling Air Flow Proportioning Factor	0.0404 cfm/btuh	Aux. Heat		(Brushless DC OBC 12.3.1.5.(2))			
Ventilation Load	6,901 Btu/h.	R/A Temp	70 deg. F.	SB-12 Package	Package D	Heating Check	755 cfm	Cooling Check	771 cfm
Ventilation PVC	75 cfm	S/A Temp	116 deg. F.	Temp. Rise>>>	46 deg. F.	Selected cfm>	773 cfm	Cooling Air Flow Rate	773 cfm
Supply Branch and Grill Sizing		Diffuser loss	0.01 "w.c.						

	Level 1 Outlets														Level 2 Outlets													
S/A Outlet No.	10	18	19	20	21										8	9	11	12	13	14	15	16	17					
Room Use	CAV	BASE	BASE	BASE	BASE										KIT	LAUND	PWD	LIB	LIB	FOY	DIN	GRT	GRT					
Btu/Outlet		2803	2803	2803	2803										1584	1050	272	1826	1826	1193	1727	1701	1701					
Heating Airflow Rate CFM		62	62	62	62										35	23	6	41	41	26	38	38	38					
Cooling Airflow Rate CFM		5	5	5	5										103	51	1	30	30	20	85	67	67					
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			
Actual Duct Length	56	36	27	15	18										33	33	23	42	42	38	28	26	31					
Equivalent Length	130	130	90	110	150	90	90	90	90	90	90	90	90	90	90	120	110	90	120	90	140	100	100	90	90			
Total Effective Length	186	166	117	125	168	90	90	90	90	90	90	90	90	90	123	153	133	132	162	128	168	126	131	90	90			
Adjusted Pressure	0.07	0.08	0.11	0.10	0.08	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.11	0.08	0.10	0.10	0.08	0.10	0.08	0.10	0.10	0.14	0.14			
Duct Size Round		6	6	6	6										6	5	2	4	5	4	6	6	6					
Outlet Size	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	3x10	3x10	3x10	3x10	3x10	4x10	4x10	4x10	4x10	4x10			
Trunk	E	E	B	B	D										C	D	D	E	E	D	B	C						

	Level 3 Outlets								Level 4 Outlets															
S/A Outlet No.	1	2	3	4	5	6	7																	
Room Use	MAST	MAST	ENS	BATH	BED 2	BED 3	BED 4																	
Btu/Outlet	1542	1542	961	131	2449	1569	1733																	
Heating Airflow Rate CFM	34	34	21	3	54	35	38																	
Cooling Airflow Rate CFM	51	51	25	3	78	36	52																	
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	49	59	56	36	54	47	24																	
Equivalent Length	130	170	155	150	120	110	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90
Total Effective Length	179	229	211	186	174	167	134	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90
Adjusted Pressure	0.07	0.06	0.06	0.07	0.07	0.08	0.10	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	5	5	4	2	6	4	5																	
Outlet Size	3x10	3x10	3x10	3x10	4x10	3x10	3x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	
Trunk	C	C	C	D	E	D	B																	

Return Branch And Grill Sizing												Return Trunk Duct Sizing					Supply Trunk Duct Sizing				
R/A Inlet No.	1R	2R	3R	4R	5R	6R	7R	8R	9R	10R	11R	Trunk	CFM	Press.	Round	Rect. Size	Trunk	CFM	Press.	Round	Rect. Size
Inlet Air Volume CFM	100	113	100	180	130	50	100					Drop	773	0.05	14.5	24x10	A	756	0.06	14.0	22x8 18x10
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	Z	773	0.05	14.5	24x8 18x10	B	364	0.06	10.5	12x8 10x10
Actual Duct Length	47	57	47	8	29	39	7					Y	493	0.05	12.5	18x8 14x10	C	163	0.06	8.0	8x8 8x7
Equivalent Length	165	180	140	110	150	150	135	70	70	70	70	X	163	0.05	8.5	8x8 107	D	392	0.07	10.5	12x8 10x10
Total Effective Length	212	237	187	118	179	189	142	70	70	70	70	W					E	198	0.07	8.5	8x8 107
Adjusted Pressure	0.06	0.05	0.06	0.10	0.07	0.06	0.08	0.17	0.17	0.17	0.17	V					F				
Duct Size Round	6.0	7.5	6.0	7.5	7.0	5.0	6.0					U					G				
Inlet Size	8	8	6	8	8	FLC	FLC					T					H				
" "	x	x	x	x	x	x	x	x	x	x	x	S					I				
Inlet Size	14	14	14	30	14							R					J				
Trunk	Y	X	Y	Z	Y	X	Z					Q					K				

2012 OBC	Builder: Delpark/Highcastle Homes	Date: February 12, 2016	Weather Data	Durham	44	-4.0	84	20	48.2	Project # PJ-00022
	Project: Northglen	Model: FP Town 8 - Newcastle Elevation B	Heat Loss ^T	76 deg. F	Ht gain ^T	9.2 deg. F	GTA:	1942	Layout # JB-01633	

Level 1				BASE															
Run ft. exposed wall A	A	110	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	AG	2.0	AG	AG	AG	AG	AG	AG	AG	AG	AG	AG	AG	AG	AG	AG	AG	AG	AG
Floor area	Area	900	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		220																	
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																
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	13.79	5.51	0.67																
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	Slab On Grade (x)																		
Total Conductive	Heat Loss																		
Air Leakage	Heat Loss/Gain	0.5464	0.0060																
Ventilation	Case 1	x	0.59	0.08															
	Case 2		82.08	9.94															
	Case 3		0.27	0.08															
Heat Gain People			239																
Appliances Loads	1 =.25 percent		3510																
Duct and Pipe loss			10%																
Level 1 HL Total	11,212		Total HL for per room																
Level 1 HG Total	490		Total HG per room x 1.3																

Level 2																					
Run ft. exposed wall A	10 A	7 A	4 A	38 A	7 A	14 A	28 A	25 A	A	A	A	A	A	A	A	A	A	A			
Run ft. exposed wall B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B			
Ceiling height	10.0	10.0	10.0	10.0	10.0	10.0	10.0	1.0													
Floor area	182 Area	88 Area	35 Area	118 Area	75 Area	147 Area	206 Area	138 Area	Area	Area	Area	Area	Area	Area	Area	Area	Area	Area			
Exposed Ceilings A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A			
Exposed Ceilings B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B			
Exposed Floors	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr			
Gross Exp Wall A	100	70	40	380	70	140	280	25													
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	35	844	951				16	386	435									
South	3.15	24.13	20.71							16	386	331	14	338	290	30	724	621			
Existing Windows	1.99	38.19	21.24													28	676	580			
Skylight	2.03	37.44	87.34																		
Doors	3.01	25.25	3.06																		
Net exposed walls A	15.13	5.02	0.61	65	327	40	21	530	64				13	328	40						
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	Slab On Grade (x)		x																		
Total Conductive	Heat Loss			1171			776		201		2699		882		1276		2515		601		
	Heat Gain				991		94			24		1063		356		688		1530	35		
Air Leakage	Heat Loss/Gain		0.1704	199	6		132	1	34	0	460	6	150	2	217	4	428	9	102		
				214	81		142	8	37	2	493	87	161	29	233	57	459	126	110		
Ventilation	Case 1	x	0.18																		
	Case 2		82.08																		
	Case 3		0.27																		
Heat Gain People			239																		
Appliances Loads	1 =.25 percent		3510	1.0		878	1.0		878						1.0		878	1.0			
Duct and Pipe loss			10%																		
Level 2 HL Total	13,693		Total HL for per room	1584			1050		272		3652		1193		1727		3402		813		
Level 2 HG Total	11,327		Total HG per room x 1.3		2542		1274		34		1504			503		2114		3305	50		

Total Heat Loss	34,831	btu/h
Total Heat Gain	19,125	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

Package:
Package D
Project:
Clarington
Model:
Elevation B

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	3 @	10 cfm	30 cfm
Bathrooms & Kitchen	4 @	10 cfm	40 cfm
Other rooms	4 @	10 cfm	40 cfm
Total			<u>150</u>

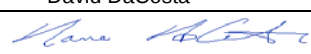
Principal Ventilation Capacity 9.32.3.4(1)			
Master bedroom	1 @	30 cfm	30 cfm
Other bedrooms	3 @	15 cfm	45 cfm
Total			<u>75</u>

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 <u>0</u>	
Sensible efficiency @ 0 deg C <u>0</u>	

Supplemental Ventilation Capacity	
Total ventilation capacity	150.0
Less principal exhaust capacity	<u>75.0</u>
REQUIRED supplemental vent. Capacity	<u>75.0</u> cfm

Supplemental Fans 9.32.3.5.			
Location	cfm	Model	Sones
Bath	50	770	
Pwd.	50	770	
<i>all fans HVI listed</i> 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	February 12, 2016		

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-01633

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 8 - Newcastle Elevation B	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 = 191 m ²	☐ ICF Basement ☐ Walkout Basement ☐ Log/Post&Beam
Gross Window+ Area = 28 m ²	☐ ICF Above Grade ☐ Slab-on-ground
% Windows+ 15%	

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:
Project:

Package D
Clarington

System:
Model:

System 1
Elevation B

Air Leakage Calculations

Building Air Leakage Heat Loss				
B	LRairh	Vb	HL ^Δ T	HL _{leak}
0.018	0.168	24990	76	5748

Building Air Leakage Heat Gain				
B	LRairh	Vb	HG ^Δ T	HG Leak
0.018	0.013	24990	9.2	54

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	5748	5260	0.5464
2	0.3		10122	0.1704
3	0.2		7339	0.1566
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	
	54		0.0060
BUILDING CONDUCTIVE HEAT GAIN		9068	

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	75	76	1.00	6156	1.1	75	9.2	745		
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	745	0.08			
	1	0.5	6156	5260	0.59	Building	9068				
	2	0.3		10122	0.18						
	3	0.2		7339	0.17						
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		6156	0.27		HGbvent		HG*1.3	745	0.08	
						745	1				

Foundation Conductive Heatloss Level 1

1478 Watts 5042 Btu/h

Foundation Conductive Heatloss Level 2

Watts Btu/h

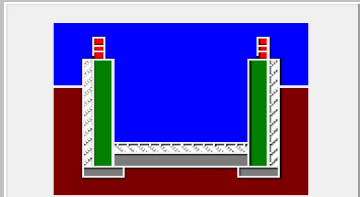
Envelope Air Leakage Calculator

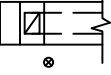
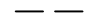
Supplemental tool for CAN/CSA-F280

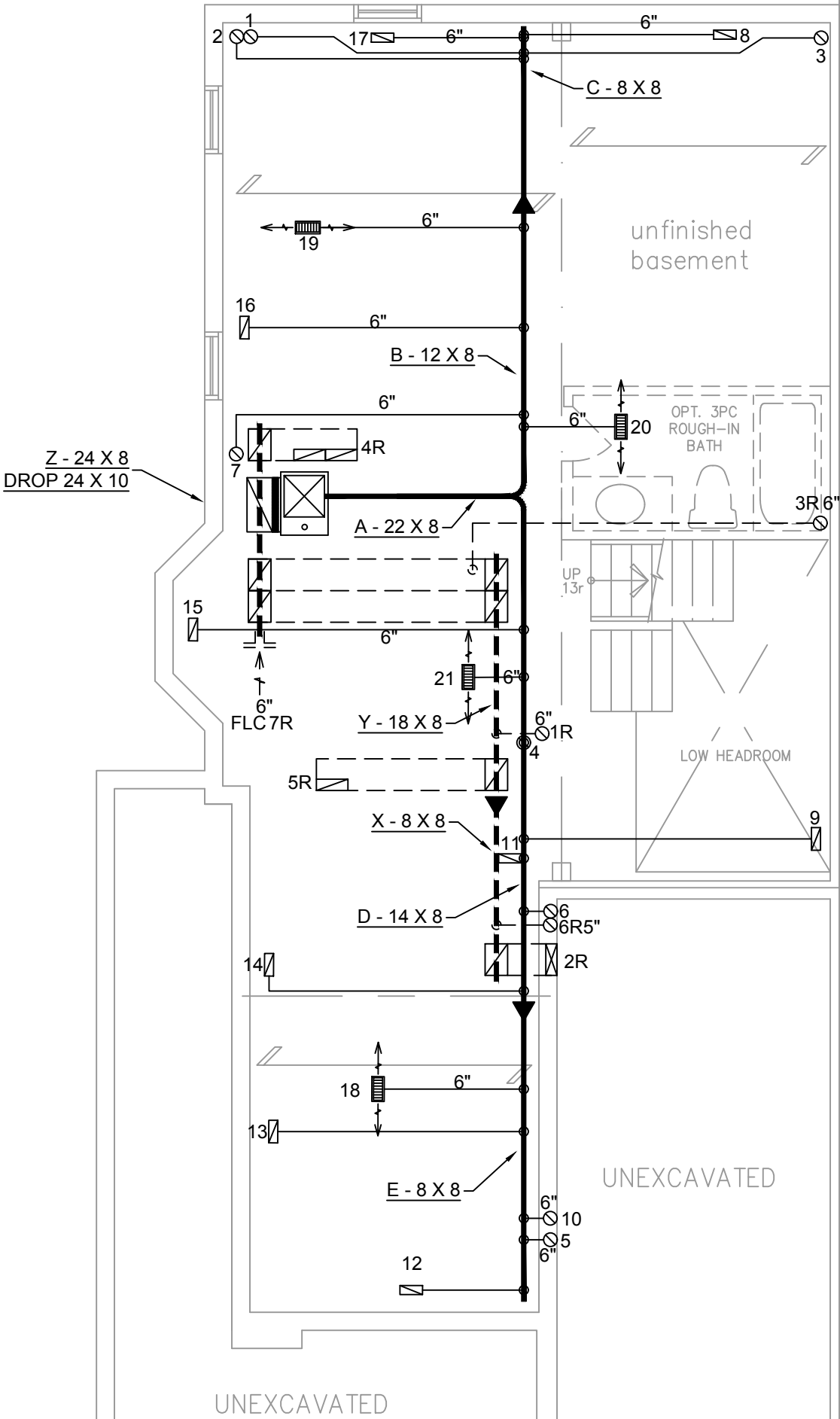
Weather Station Description				
Province:	Ontario ▼			
Region:	Durham ▼			
Weather Station Location:	Open flat terrain, grass ▼			
Anemometer height (m):	10			
Local Shielding				
Building Site:	Suburban, forest ▼			
Walls:	Heavy ▼			
Flue:	Heavy ▼			
Highest Ceiling Height (m):	5.49			
Building Configuration				6.4
Type:	Semi-Detached ▼			
Number of Stories:	Two ▼			
Foundation:	Full ▼			
House Volume (m ³):	566.3 707.72			
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):		0.168		
Cooling Air Leakage Rate (ACH/H):		0.013		

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):	16.61	 Insulation Configuration
Floor Width (m):	5.04	
Exposed Perimeter (m):	33.53	
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):		1478

	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**

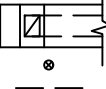
2985 DREW ROAD
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L4T 0A4 TEL: 416-268-6820
email: dave@gtadesigns.ca
web: www.gtadesigns.ca

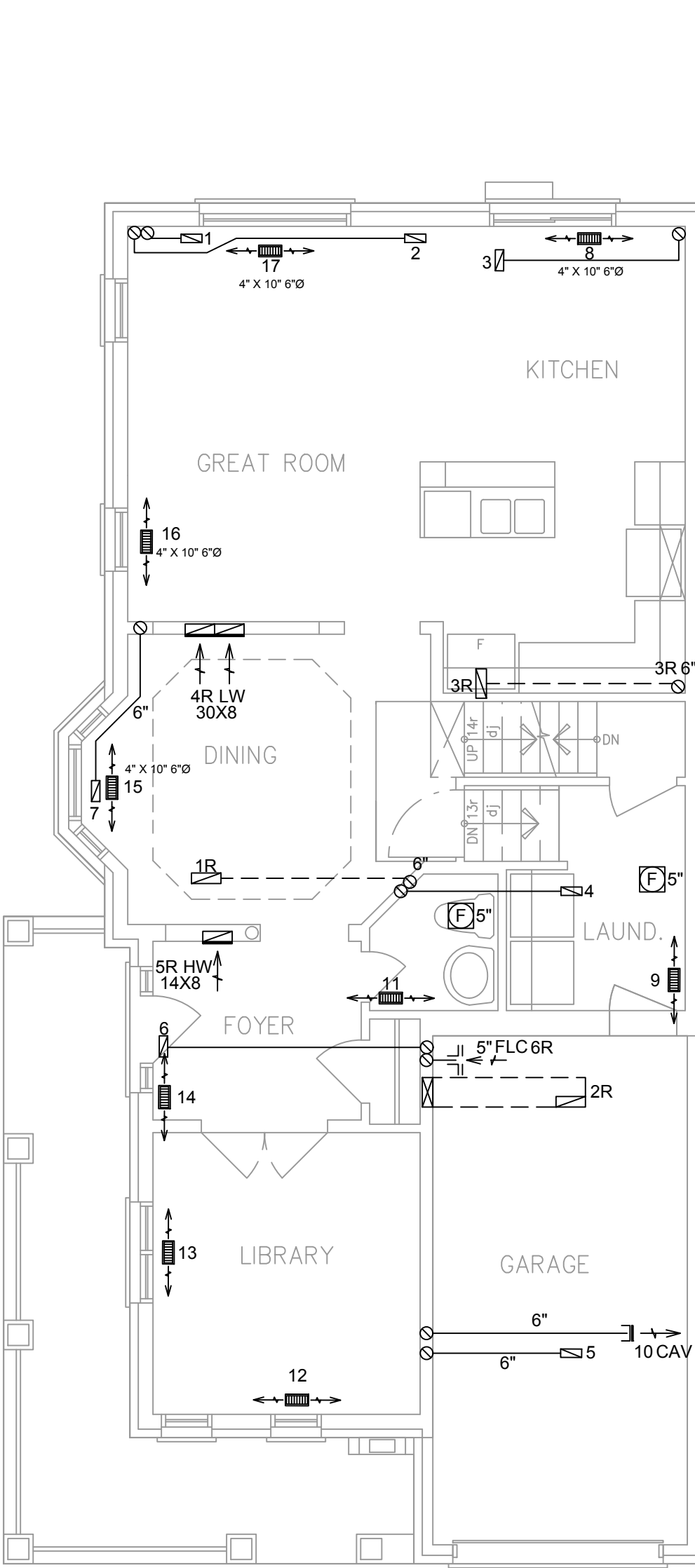
HEAT-LOSS	34,831	BTU/HR.
UNIT MAKE	AMANA	OR EQUAL.
UNIT MODEL	GMEC960402BNA	OR EQUAL.
UNIT HEATING INPUT	40,000	BTU/HR.
UNIT HEATING OUTPUT	38,400	BTU/HR.
A/C COOLING CAPACITY	2.0	TONS.
FAN SPEED	773	CFM

# OF RUNS	S/A	R/A	FANS
3RD FLOOR			
2ND FLOOR	7	2	2
1ST FLOOR	10	3	3
BASEMENT	4	1	

FLOOR PLAN: BASEMENT	
DRAWN BY: RB	CHECKED: DD
LAYOUT NO. JB-01633	DRAWING NO. M1

DATE:	FEBRUARY 12, 2016
CLIENT:	DELPARK HIGHCASTLE
MODEL:	FP TOWN 8 - NEWCASTLE ELEVATION B
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



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)

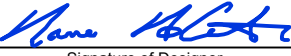
CIRCULATION PRINCIPAL FAN SWITCH TO BE CENTRALLY LOCATED

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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

INSTALLATION TO COMPLY WITH THE LATEST ONTARIO BUILDING CODE.

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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.

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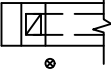
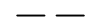
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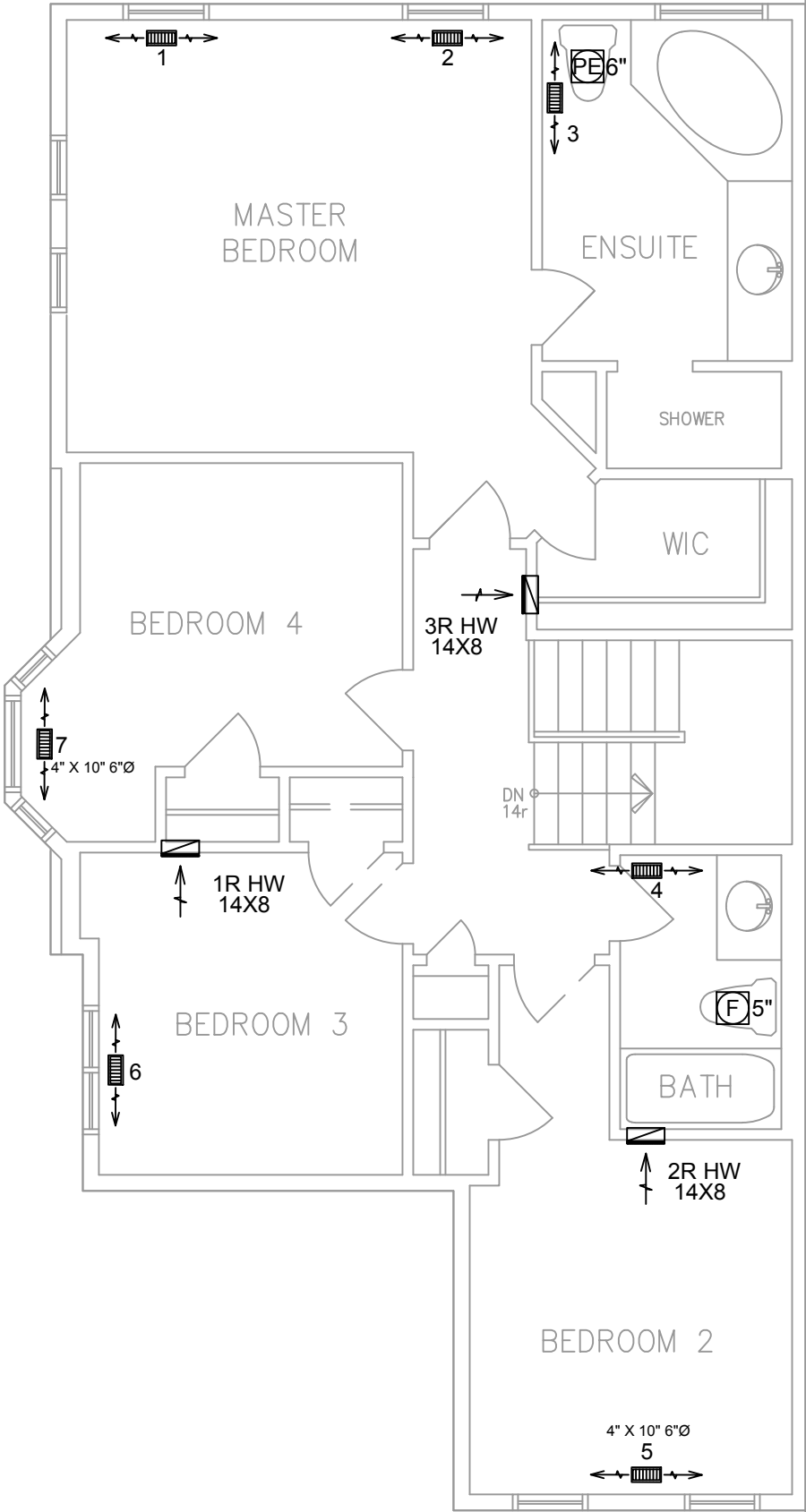
HEAT-LOSS	34,831	BTU/HR.
UNIT MAKE	AMANA	OR EQUAL.
UNIT MODEL	GMEC960402BNA	OR EQUAL.
UNIT HEATING INPUT	40,000	BTU/HR.
UNIT HEATING OUTPUT	38,400	BTU/HR.
A/C COOLING CAPACITY	2.0	TONS.
FAN SPEED	773	CFM

# OF RUNS	S/A	R/A	FANS
3RD FLOOR			
2ND FLOOR	7	2	2
1ST FLOOR	10	3	3
BASEMENT	4	1	

FLOOR PLAN:	
GROUND FLOOR	
DRAWN BY: RB	CHECKED: DD
LAYOUT NO. JB-01633	SQFT 1942
DRAWING NO. M2	

DATE:	FEBRUARY 12, 2016
CLIENT:	DELPARK HIGHCASTLE
MODEL:	FP TOWN 8 - NEWCASTLE ELEVATION B
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



INSULATE ALL DUCTS IN UNCONDITIONED SPACES MIN. R12

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CIRCULATION PRINCIPAL FAN SWITCH TO BE CENTRALLY LOCATED

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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



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 MAKE	AMANA	OR EQUAL.
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UNIT HEATING INPUT	40,000	BTU/HR.
UNIT HEATING OUTPUT	38,400	BTU/HR.
A/C COOLING CAPACITY	2.0	TONS.
FAN SPEED	773	CFM

# OF RUNS	S/A	R/A	FANS
3RD FLOOR			
2ND FLOOR	7	2	2
1ST FLOOR	10	3	3
BASEMENT	4	1	
FLOOR PLAN: SECOND FLOOR			
DRAWN BY: RB	CHECKED: DD	SQFT 1942	
LAYOUT NO. JB-01633	DRAWING NO. M3		

DATE:	FEBRUARY 12, 2016
CLIENT:	DELPARK HIGHCASTLE
MODEL:	FP TOWN 8 - NEWCASTLE ELEVATION B
PROJECT:	NORTHGLEN BOWMANVILLE,ONT.
SCALE:	3/16" = 1'-0"