

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		40-7 OPT. ENS.	Lot: _____
			Lot/con. _____
Municipality	Clarington	Postal code	Plan number/ other description
B. Individual who reviews and takes responsibility for design activities			
Name		Firm	
David DaCosta		gtaDesigns Inc.	
Street address		Unit no.	Lot/con.
2985 Drew Road, Suite 202			
Municipality	Postal code	Province	E-mail
Mississauga	L4T 0A4	Ontario	dave@gtadesigns.ca
Telephone number	Fax number	Cell number	
(905) 671-9800	(647) 494-9643	(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-02247
Heating and Cooling Load Calculations		Builder	Delpark Homes
Air System Design		Project	Northglen
Residential mechanical ventilation Design Summary		Model	40-7
Residential System Design per CAN/CSA-F280-12			OPT. ENS.
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: - 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 15, 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 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-02247	
Building Location					
Address (Model): OPT. ENS.			Site: Northglen		
Model: 40-7			Lot:		
City and Province: Clarington			Postal code:		
Calculations based on					
Dimensional information based on:					
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: Sheltered		
HRV?			Internal shading: Light-translucent		Occupants: 5
Sensible Eff. at -25C 0		Apparent Effect. at -0C 0	Units: Imperial		Area Sq ft: 2532
Sensible Eff. at -0C 0					
Heating design conditions			Cooling design conditions		
Outdoor temp -4.0 Indoor temp: 72 Mean soil temp 50			Outdoor temp 86 Indoor temp: 75 Latitude: 44		
Above grade walls			Below grade walls		
Style A: As per Selected OBC SB12 Package D R 24			Style A: As per Selected OBC SB12 Package D R 20		
Style B: Existing Walls (When Applicable) R 12			Style B:		
Style C:			Style C:		
Style D:			Style D:		
Floors on soil			Ceilings		
Style A: As per Selected OBC SB12 Package D			Style A: As per Selected OBC SB12 Package D R 50		
Style B:			Style B: As per Selected OBC SB12 Package D R 31		
Exposed floors			Style C:		
Style A: As per Selected OBC SB12 Package D R 31			Doors		
Style B:			Style A: As per Selected OBC SB12 Package D R 3.01		
Windows			Style B:		
Style A: As per Selected OBC SB12 Package D R 3.15			Style C:		
Style B: Existing Windows (When Applicable) R 1.99			Skylights		
Style C:			Style A: As per Selected OBC SB12 Package D R 2.03		
Style D:			Style B:		
Attached documents: As per Shedule 1					
Notes: Residential New Construction - Forced Air					
Calculations performed by					
Name: David DaCosta			Postal code: L4T 0A4		
Company: gtaDesigns Inc.			Telephone: (905) 671-9800		
Address: 2985 Drew Road, Suite 202			Fax: (416) 268-6820		
City: Mississauga			E-mail dave@gtadesigns.ca		



Page 3

Model: _____ OPT. ENS.

System 1

David DaCosta

Project # PJ-00022
Layout # JB-02247

Supply Trunk Duct Sizing					
Trunk	CFM	Press.	Round	Rect. Size	
A	778	0.07	14.0	22x8	18x10
B	498	0.07	11.5	14x8	12x10
C	392	0.06	11.0	14x8	10x10
D					
E					
F					
G					
H					
I					
J					
K					

2012 OBC	Builder: Delpark Homes	Date: June 15, 2016	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: 2532	Project # PJ-00022
	Project: Northglen	Model: 40-7 OPT. ENS.						Layout # JB-02247

Level 1				BASE															
Run ft. exposed wall A	138	A		A		A		A		A		A		A		A		A	
Run ft. exposed wall B	B			B		B		B		B		B		B		B		B	
Ceiling height	3.5	AG		3.5	AG	3.5	AG	3.5	AG	3.5	AG	3.5	AG	3.5	AG	3.5	AG	3.5	AG
Floor area	1012	Area		Area		Area		Area		Area		Area		Area		Area		Area	
Exposed Ceilings A	A			A		A		A		A		A		A		A		A	
Exposed Ceilings B	B			B		B		B		B		B		B		B		B	
Exposed Floors	Flr			Flr		Flr		Flr		Flr		Flr		Flr		Flr		Flr	
Gross Exp Wall A	483																		
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	11.31																
East/West	3.15	24.13	27.75	5	121	139													
South	3.15	24.13	21.28	15	362	319													
WOB Windows	3.15	24.13	28.32																
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	442		353													
Net exposed walls B	14.49	5.24	0.76																
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	On Grade () or Above ()			6182															
Total Conductive	Heat Loss			7195															
	Heat Gain				887														
Air Leakage	Heat Loss/Gain	0.5771	0.0090	4153	8														
Ventilation	Case 1	x	0.45	3263	74														
	Case 2		82.08																
	Case 3		0.22																
	Heat Gain People		239																
Appliances Loads	1 = .25 percent		4553	2.0		2276													
Duct and Pipe loss	10%																		
Level 1 HL Total	14,610	Total HL for per room		14610															
Level 1 HG Total	4,220	Total HG per room x 1.3			4220														

Level 2				LIV/DIN KITCHEN LAUNDRY FOYER WIC PWD STUDY PLEN															
Run ft. exposed wall A	31	A		34	A	24	A	20	A	8	A	5	A	9	A	50	A	A	A
Run ft. exposed wall 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		2.0		10.0	10.0
Floor area	272	Area		322	Area	104	Area	97	Area	16	Area	27	Area	132	Area	345	Area	Area	Area
Exposed Ceilings A	A			A		A		A		A		A		A		A		A	A
Exposed Ceilings B	B			B		B		B		B		B		B		B		B	B
Exposed Floors	Flr			Flr		Flr		Flr		Flr		Flr		Flr		Flr		Flr	Flr
Gross Exp Wall A	310			340		240		200		80		50		90		100			
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	11.31																
East/West	3.15	24.13	27.75	30	724	832		37	893	1027		21	507	583		8	193	222	
South	3.15	24.13	21.28	13	314	277		13	314	277						6	145	128	
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	267	1341	194		290	1457	211		234	1175	170		164	824	119	
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	On Grade () or Above ()			x															
Total Conductive	Heat Loss			2379															
	Heat Gain				1303														
Air Leakage	Heat Loss/Gain	0.2412	0.0090	574	12			642	14			412	7			134	2		
Ventilation	Case 1	x	0.19	451	109			505	127			250	20			324	63		
	Case 2		82.08																
	Case 3		0.22																
	Heat Gain People		239																
Appliances Loads	1 = .25 percent		4553																
Duct and Pipe loss	10%																		
Level 2 HL Total	14,777	Total HL for per room		3403				3810				1889				2445			
Level 2 HG Total	9,770	Total HG per room x 1.3			1851				2151				1818				1075		

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

Dave DaCosta

Dave DaCosta

SB-12 Package

Package D

Total Heat Loss	44,050	btu/h
Total Heat Gain	23,519	btu/h

2012 OBC

Builder: Delpark Homes

Date: June 15, 2016

Project: Northglen

Model: 40-7 OPT. ENS.

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: 2532

Level 3				MASTER		ENSUITE		BED 2		BATH		GREAT		BED 3		BED 4		ENS 3/4								
Run ft. exposed wall A	32	A		19	A	13	A	11	A	44	A	20	A	10	A	6	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		
Ceiling height	8.0			8.0		8.0		8.0		10.0		8.0		8.0		8.0		8.0		8.0		8.0		8.0		
Floor area	230	Area		85	Area	156	Area	90	Area	322	Area	175	Area	130	Area	70	Area	Area	Area	Area	Area	Area	Area	Area		
Exposed Ceilings A	230	A		85	A	156	A	90	A	322	A	175	A	130	A	70	A	A	A	A	A	A	A	A		
Exposed Ceilings B	B			B		B		B		B		B		B		B		B		B		B		B		
Exposed Floors	Flr			Flr		Flr		Flr		Flr		Flr		Flr		Flr		Flr		Flr		Flr		Flr		
Gross Exp Wall A	256			152		104		88		440		160		80		48										
Gross Exp Wall B																										
Components	R-Values	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	
North Shaded	3.15	24.13	11.31	24	579	666		10	241	113		16	386	181		7	169	79		60	1448	1665		10	241	277
East/West	3.15	24.13	27.75																							
South	3.15	24.13	21.28																							
Existing Windows	1.99	38.19	22.15																							
Skylight	2.03	37.44	88.23																							
Doors	3.01	25.25	3.65																							
Net exposed walls A	15.13	5.02	0.73	232	1165	169		132	663	96		88	442	64		81	407	59		380	1909	276		140	703	102
Net exposed walls B	8.50	8.94	1.29																							
Exposed Ceilings A	50.00	1.52	0.76	230	350	175		85	129	65		156	237	119		90	137	68		322	489	245		175	266	133
Exposed Ceilings B	22.86	3.32	1.66																							
Exposed Floors	22.05	3.45	0.23																							
Foundation Conductive Heatloss																										
Total Conductive	Heat Loss			2094				1275		1065		713		3846		1452		905		348						
	Heat Gain				1009				551		363		206		2186		725		486		88					
Air Leakage	Heat Loss/Gain		0.1420	0.0090	297	9		181	5	151	3	101	2	546	20	206	7	129	4	49	1					
Ventilation	Case 1	x	0.11	0.08	234	84		142	46	119	30	80	17	429	183	162	61	101	41	39	7					
	Case 2		82.08	11.88																						
	Case 3		0.22	0.08																						
Heat Gain People				239				1		239				1		239		1		239						
Appliances Loads	1 = .25 percent			4553																						
Duct and Pipe loss				10%																						
Level 3 HL Total	14,663			Total HL for per room	2625			1598		1335		893		4821		1820		1135		436						
Level 3 HG Total	9,529			Total HG per room x 1.3		2055			783		827		293		3105			1341		1001		125				

Level 4				A		A		A		A		A		A		A		A		A		A		A	
Run ft. exposed wall A	A			A		A		A		A		A		A		A		A		A		A		A	
Run ft. exposed wall B	B			B		B		B		B		B		B		B		B		B		B		B	
Ceiling height																									
Floor area	Area			Area		Area		Area		Area		Area		Area		Area		Area		Area		Area		Area	
Exposed Ceilings A	A			A		A		A		A		A		A		A		A		A		A		A	
Exposed Ceilings B	B			B		B		B		B		B		B		B		B		B		B		B	
Exposed Floors	Flr			Flr		Flr		Flr		Flr		Flr		Flr		Flr		Flr		Flr		Flr		Flr	
Gross Exp Wall A																									
Gross Exp Wall B																									
Components	R-Values	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain
North Shaded	3.15	24.13	11.31																						
East/West	3.15	24.13	27.75																						
South	3.15	24.13	21.28																						
Existing Windows	1.99	38.19	22.15																						
Skylight	2.03	37.44	88.23																						
Doors	3.01	25.25	3.65																						
Net exposed walls A	15.13	5.02	0.73																						
Net exposed walls B	8.50	8.94	1.29																						
Exposed Ceilings A	50.00	1.52	0.76																						
Exposed Ceilings B	22.86	3.32	1.66																						
Exposed Floors	22.05	3.45	0.23																						
Foundation Conductive Heatloss																									
Total Conductive	Heat Loss																								
	Heat Gain																								
Air Leakage	Heat Loss/Gain		0.0000	0.0090																					
Ventilation	Case 1	x	0.00	0.08																					
	Case 2		82.08	11.88																					
	Case 3		0.22	0.08																					
Heat Gain People				239																					
Appliances Loads	1 = .25 percent			4553																					
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	44,050	btu/h
Total Heat Gain	23,519	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

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: OPT. ENS.

RESIDENTIAL MECHANICAL VENTILATION DESIGN SUMMARY

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

Location of Installation

Lot #	Plan #
Township	
Clarington	
Roll #	Permit #
Address	

Total Ventilation Capacity 9.32.3.3(1)

Bsmt & Master Bdrm	2 @ 21.2 cfm	42.4 cfm
Other Bedrooms	3 @ 10.6 cfm	31.8 cfm
Bathrooms & Kitchen	5 @ 10.6 cfm	53 cfm
Other rooms	5 @ 10.6 cfm	53 cfm
Total		<u>180.2</u>

Builder

Name	
Delpark Homes	
Address	
City	
Tel	Fax

Principal Ventilation Capacity 9.32.3.4(1)

Master bedroom	1 @ 31.8 cfm	31.8 cfm
Other bedrooms	3 @ 15.9 cfm	47.7 cfm
Total		<u>79.5</u>

Principal Exhaust Fan Capacity

Make	Model	Location
Broan	AER110C	Ensuite
110 cfm		1.0 Sones

Heat Recovery Ventilator

Make	
Model	
	cfm high
Sensible efficiency @ -25 deg C	0 cfm low
Sensible efficiency @ 0 deg C	0

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 |

Supplemental Ventilation Capacity

Total ventilation capacity	180.2
Less principal exhaust capacity	79.5
REQUIRED supplemental vent. Capacity	<u>100.7</u> cfm

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 |

Supplemental Fans 9.32.3.5.

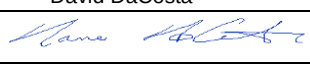
Location	cfm	Model	Sones
Bath	50	AER50C	0.5
Ens. 3/4	50	AER50C	0.5
Pwd.	50	AER50C	0.5

all fans HVI listed Make Broan or Equiv.

Designer Certification

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

Name David DaCosta

Signature 

HRAI # 5190 BCIN # 32964

Date June 15, 2016

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 |

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-02247

This form is used by a designer to demonstrate that the energy efficiency design of a house complies with the building code

For use by Principal Authority

Application No:	Model/Certification Number
-----------------	----------------------------

A. Project Information

Building number, street name	40-7 OPT. ENS.	Unit number	Lot/Con
Municipality Clarington	Postal code	Reg. Plan number / other description	

B. Compliance Option

☒ SB-12 Prescriptive [SB-12 - 2.1.1.]	A B C D E F G H I J K L M or 2.1.1.10 (Additions)	Package D
prescriptive trade-offs used (Specify 2.1.1.2. or 2.1.1.3. sentences being employed):		
☐ SB-12 Performance* [SB-12 - 2.1.2.]	* Attach energy performance calculations using an approved software	
☐ Energy Star®* [SB-12 - 2.1.3.]	* Attach Builder Option Package [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
Area of Walls = 299 m ²	☐ ICF Basement ☐ Walkout Basement ☐ Log/Post&Beam
Area of W,S&G = 31 m ²	☐ ICF Above Grade ☐ Slab-on-ground
W,S & G % = 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	Heating Equip.(AFUE or condensing type)	94%
Basement Walls	20	HRV Efficiency (SRE% at 0° C)	0%
Slab (all >600mm below grade)	x	DHW Heater (EF)	0.67
Slab (edge only ≤600mm below grade)	10	DWHR (CSA B55.1 Efficiency)	
Slab (all ≤600mm below grade, or heated)	10		

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: Submit the BOP form with Energy Advisor's certification on completion.

Energy Star and EnerGuide80:

Evaluator/Advisor/Rater Name: _____ Evaluator/Advisor/Rater Licence #: _____

F. House Designer [name & BCIN, if applicable, of person providing information herein to substantiate that design meets building code]

Name David DaCosta	BCIN 32964	Signature 
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Package: Project: Package D Clarington System: Model: System 1 OPT. ENS.

Air Leakage Calculations

Building Air Leakage Heat Loss				
B	LRairh	Vb	HL^T	HLleak
0.018	0.188	32322	76	8305

Building Air Leakage Heat Gain				
B	LRairh	Vb	HG^T	HG Leak
0.018	0.016	32322	11	102

Air Leakage Heat Loss/Gain Multiplier Table (Section 11)				
Level	Level Factor (LF)	Building Air	Level Conductive Heat Loss	Air Leakage Heat Loss Multiplier
Level 1	0.5	8305	7195	0.5771
Level 2	0.3		10328	0.2412
Level 3	0.2		11697	0.1420
Level 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	
	102		0.0090
BUILDING CONDUCTIVE HEAT GAIN			11298

Levels this Dwelling	
3	

Ventilation Calculations

Ventilation Heat Loss

Ventilation Heat Loss				
C	PVC	HL^T	(1-E) HRV	HLbvent
1.08	79.5	76	1.00	6525

Ventilation Heat Gain

Ventilation Heat Gain			
C	PVC	HG^T	HGbvent
1.1	79.5	11	944

Case 1

Ventilation Heat Loss (Exhaust only Systems)

Case 1 - Exhaust Only				
Level	LF	HLbvent	LVL Cond. HL	Multiplier
Level 1	0.5	6525	7195	0.45
Level 2	0.3		10328	0.19
Level 3	0.2		11697	0.11
Level 4	0		0	0.00

Case 1

Ventilation Heat Gain (Exhaust Only Systems)

Case 1 - Exhaust Only		Multiplier	
HGbvent	944	0.08	
Building	11298		

Case 2

Ventilation Heat Loss (Direct Ducted Systems)

C	HL^T	(1-E) HRV	Multiplier
1.08	76	1.00	82.08

Case 2

Ventilation Heat Gain (Direct Ducted Systems)

C	HG^T	Multiplier
1.08	11	11.88

Case 3

Ventilation Heat Loss (Forced Air Systems)

HLbvent		Multiplier
Total Ventilation Load	6525	0.22

Case 3

Ventilation Heat Gain (Forced Air Systems)

Vent Heat Gain		Multiplier
HGbvent	HG*1.3	0.08
944	1	

Foundation Conductive Heatloss Level 1

1812 Watts 6182 Btu/h

Foundation Conductive Heatloss Level 2

Watts Btu/h

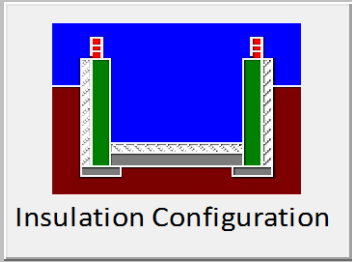
Envelope Air Leakage Calculator

Supplemental tool for CAN/CSA-F280

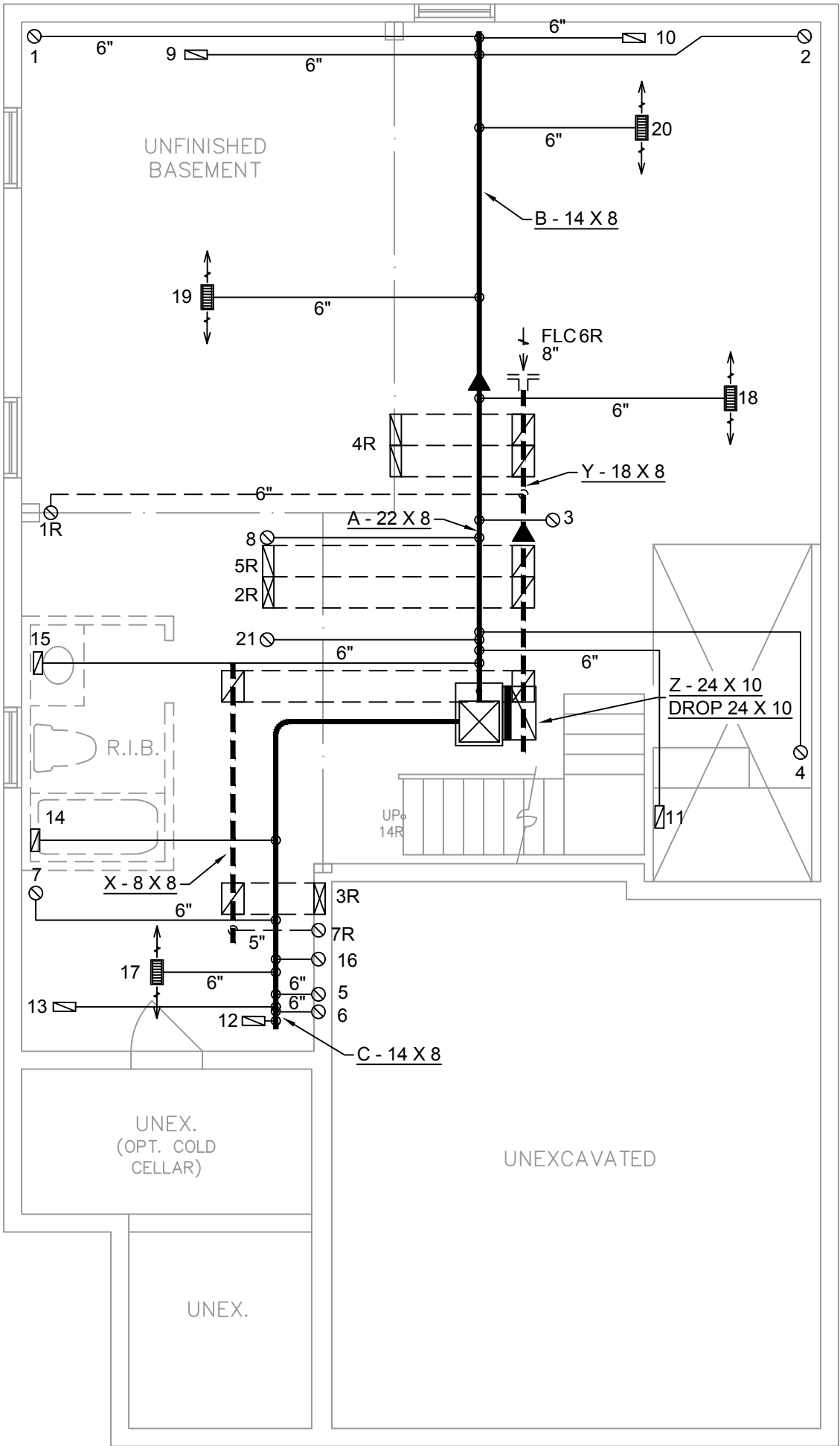
Weather Station Description				
Province:	Ontario			
Region:	Newcastle (Bowmanville)			
Weather Station Location:	Open flat terrain, grass			
Anemometer height (m):	10			
Local Shielding				
Building Site:	Suburban, forest			
Walls:	Heavy			
Flue:	Heavy			
Highest Ceiling Height (m):	6.55			
Building Configuration				
Type:	Detached			
Number of Stories:	Two			
Foundation:	Full			
House Volume (m ³):	915.36			
Air Leakage/Ventilation				
Air Tightness Type:	Present (1961-) (ACH=3.57)			
Custom BDT Data:	ELA @ 10 Pa. 322.44 cm ²			
	3.57 ACH @ 50 Pa			
Mechanical Ventilation (L/s):	Total Supply:		Total Exhaust:	
	0		39.75	
Flue #:	#1	#2	#3	#4
Diameter (mm):	0	0	0	0
Heating Air Leakage Rate (ACH/H):		0.188		
Cooling Air Leakage Rate (ACH/H):		0.016		

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):	14.58	 Insulation Configuration
Floor Width (m):	6.45	
Exposed Perimeter (m):	42.06	
Wall Height (m):	2.74	
Depth Below Grade (m):	1.68	
Window Area (m ²):	1.86	
Door Area (m ²):	1.95	
Radiant Slab		
Heated Fraction of the Slab:	0	
Fluid Temperature (°C):	33	
Design Months		
Heating Month	1	
Foundation Loads		
Heating Load (Watts):		1812

	FLEX DUCT RIGID 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
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- FURNACE EQUIPPED WITH BRUSHLESS DC MOTOR AS PER OBC 12.3.1.5 (2)
- 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)
- FOR THE PURPOSE OF HEATLOSS/GAIN CALCULATIONS ALL ELEVATIONS HAVE BEEN CONSIDERED

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.

PROVIDE BALANCING DAMPERS ON ALL BRANCHES.

ALL R/A PARTITIONS 6" (FIRST FLOOR ONLY)

INSULATE DUCTS IN UNCONDITIONED SPACES R12

UNDERCUT ALL DOORS 1" MIN.

CONTRACTOR MUST WORK FROM APPROVED PLANS.

ANY ALTERATIONS TO THIS ORIGINAL PLAN ARE NOT THE RESPONSIBILITY OF GTA DESIGNS.

GTA DESIGNS MUST BE CONSULTED IF KITCHEN EXHAUST FAN EXCEEDS 700 CFM DEPRESSURIZATION MAY OCCUR WITH IN THE DWELLING.

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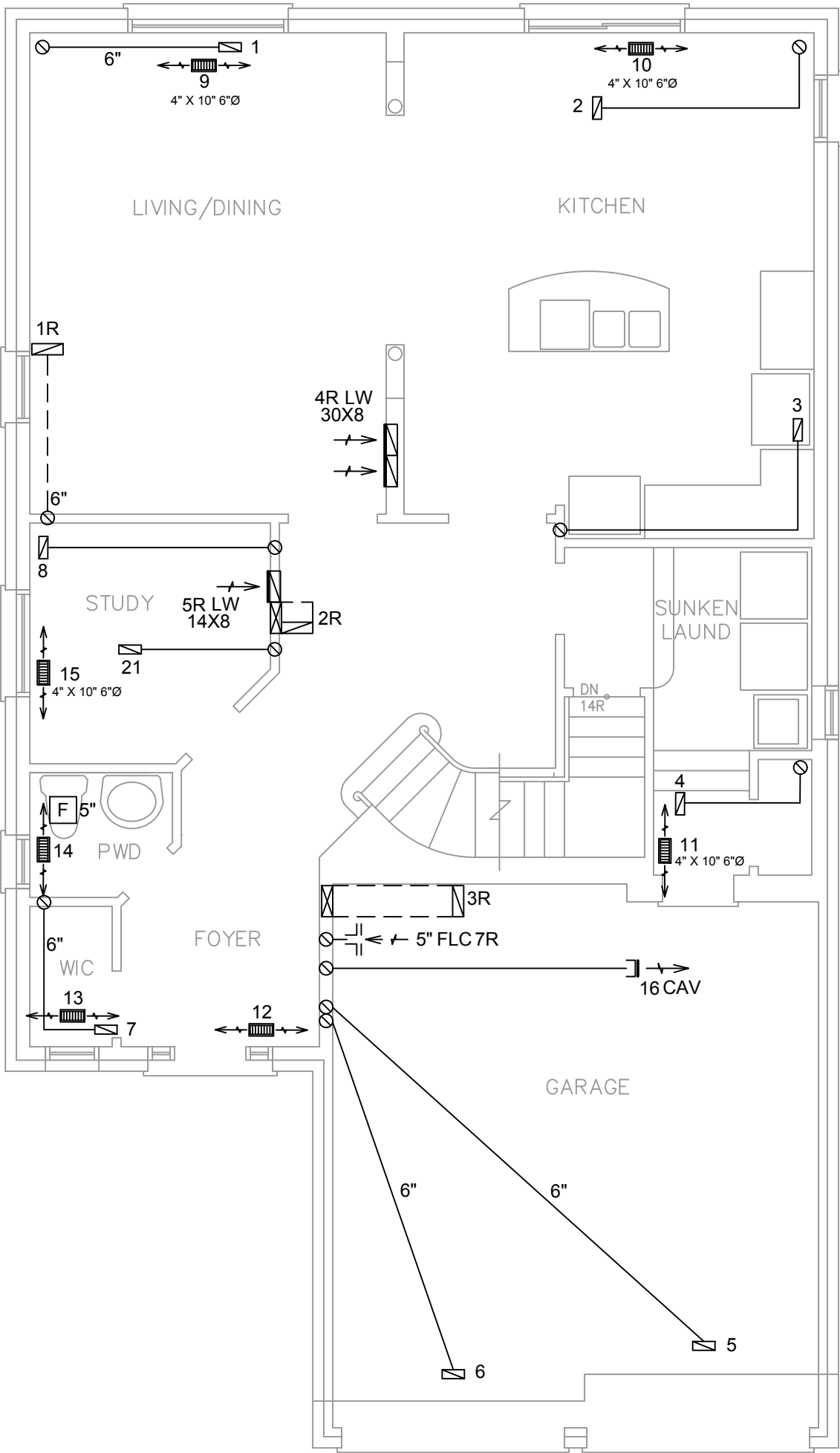
HEAT-LOSS	44,050	BTU/HR.
UNIT MAKE	AMANA	OR EQUAL.
UNIT MODEL	GMEC96-0603BNA	OR EQUAL.
UNIT HEATING INPUT	60,000	BTU/HR.
UNIT HEATING OUTPUT	57,600	BTU/HR.
A/C COOLING CAPACITY	2.0	TONS.
FAN SPEED	1170	CFM

# OF RUNS	S/A	R/A	FANS
3RD FLOOR			
2ND FLOOR	9	3	3
1ST FLOOR	8	3	2
BASEMENT	4	1	

FLOOR PLAN: BASEMENT		
DRAWN BY: RB	CHECKED: DD	SQFT 2532
LAYOUT NO. JB-02247	DRAWING NO. M1	

DATE:	JUNE 15, 2016
CLIENT:	DELPARK HOMES
MODEL:	40-7 OPT. ENS.
PROJECT:	NORTHGLEN CLARINGTON, ONT.
SCALE:	3/16" = 1'-0"

	FLEX DUCT RIGID 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] [PE]	SUPPLY AIR RETURN AIR THERMOSTAT PRINCIPAL EXHAUST FAN SWITCH W/R & PRINCIPAL EXHAUST FAN
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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)

FOR THE PURPOSE OF HEATLOSS/GAIN CALCULATIONS ALL ELEVATIONS HAVE BEEN CONSIDERED

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QUALIFICATION INFORMATION

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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

INSTALLATION TO COMPLY WITH THE LATEST ONTARIO BUILDING CODE.
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INSULATE DUCTS IN UNCONDITIONED SPACES R12
UNDERCUT ALL DOORS 1" MIN.
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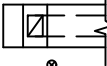
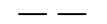
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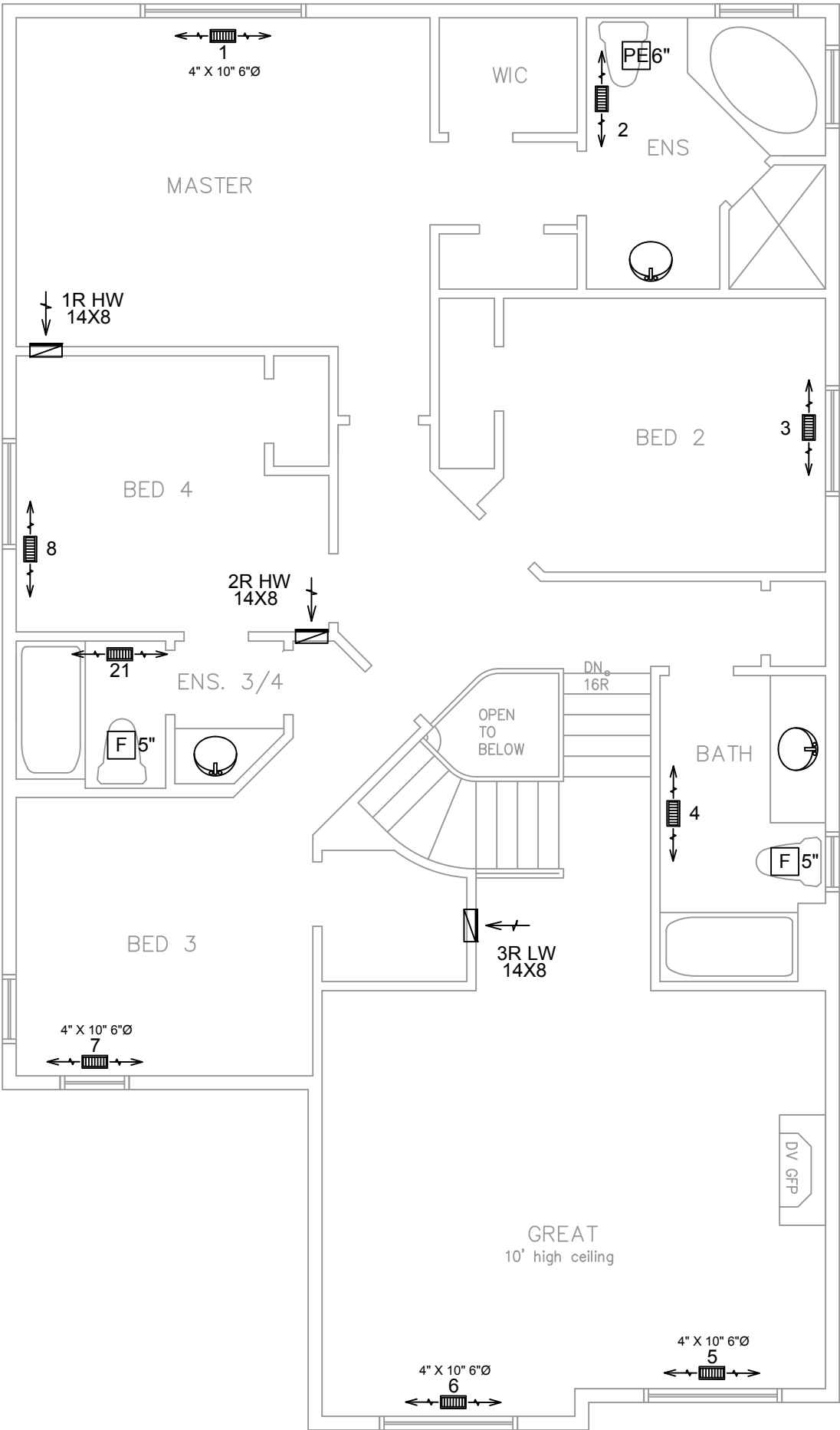
HEAT-LOSS	44,050	BTU/HR.
UNIT MAKE	AMANA	OR EQUAL.
UNIT MODEL	GMEC96-0603BNA	OR EQUAL.
UNIT HEATING INPUT	60,000	BTU/HR.
UNIT HEATING OUTPUT	57,600	BTU/HR.
A/C COOLING CAPACITY	2.0	TONS.
FAN SPEED	1170	CFM

# OF RUNS	S/A	R/A	FANS
3RD FLOOR			
2ND FLOOR	9	3	3
1ST FLOOR	8	3	2
BASEMENT	4	1	

FLOOR PLAN:		GROUND FLOOR
DRAWN BY:	CHECKED:	SQFT
RB	DD	2532
LAYOUT NO.	DRAWING NO.	
JB-02247	M2	

DATE:	JUNE 15, 2016
CLIENT:	DELPARK HOMES
MODEL:	40-7 OPT. ENS.
PROJECT:	NORTHGLEN CLARINGTON,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
	RIGID 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)

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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

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UNIT MAKE	AMANA	OR EQUAL.
UNIT MODEL	GMEC96-0603BNA	OR EQUAL.
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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	9	3	3
1ST FLOOR	8	3	2
BASEMENT	4	1	

FLOOR PLAN:	SECOND FLOOR
DRAWN BY:	RB
CHECKED:	DD
LAYOUT NO.	JB-02247
SQFT	2532
DRAWING NO.	M3

DATE:	JUNE 15, 2016
CLIENT:	DELPARK HOMES
MODEL:	40-7 OPT. ENS.
PROJECT:	NORTHGLEN CLARINGTON, ONT.
SCALE:	3/16" = 1'-0"