


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 T2 Link - Oxford			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]				
<input type="checkbox"/> House	<input checked="" type="checkbox"/> HVAC – House	<input type="checkbox"/> Building Structural		
<input type="checkbox"/> Small Buildings	<input type="checkbox"/> Building Services	<input type="checkbox"/> Plumbing – House		
<input type="checkbox"/> Large Buildings	<input type="checkbox"/> Detection, Lighting and Power	<input type="checkbox"/> Plumbing – All Buildings		
<input type="checkbox"/> Complex Buildings	<input type="checkbox"/> Fire Protection	<input type="checkbox"/> On-site Sewage Systems		
Description of designer's work		Model Certification		Project # PJ-00022
				Layout # JB-00691
Heating and Cooling Load Calculations		Builder	Delpark/Highcastle Homes	
Air System Design		Project	Northglen	
Residential mechanical ventilation Design Summary		Model	T2 Link - Oxford	
Residential System Design per CAN/CSA-F280-12		SB-12	Package D	
Residential New Construction - Forced Air				
D. Declaration of Designer				
<p>I, <u>David DaCosta</u> declare that (choose one as appropriate):</p> <p style="text-align: center;">(print name)</p> <p><input type="checkbox"/> 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.</p> <p style="margin-left: 150px;">Individual BCIN: _____</p> <p style="margin-left: 150px;">Firm BCIN: _____</p> <p><input checked="" type="checkbox"/> 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.</p> <p style="margin-left: 150px;">Individual BCIN: <u>32964</u></p> <p style="margin-left: 150px;">Basis for exemption from registration: <u>Division C 3.2.4.1. (4)</u></p> <p><input type="checkbox"/> The design work is exempt from the registration and qualification requirements of the Building Code.</p> <p style="margin-left: 150px;">Basis for exemption from registration and qualification:</p>				
<p>I certify that:</p> <ol style="list-style-type: none"> 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-00691	
Building Location					
Address (Model): T2 Link - Oxford			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 1170	
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: T2 Link - Oxford

System 1

Individual BCIN: 32964

David DaCosta

Project # PJ-00022
Layout # JB-00691

DESIGN LOAD SPECIFICATIONS				AIR DISTRIBUTION & PRESSURE				FURNACE/AIR HANDLER DATA:				BOILER/WATER HEATER DATA:				A/C UNIT DATA:			
Level 1 Net Load	7,565	btu/h		Equipment External Static Pressure	0.5	"w.c.		Make	Amana			Make	Type	Amana	1.5	Ton			
Level 2 Net Load	7,427	btu/h		Additional Equipment Pressure Drop	0.225	"w.c.		Model	GMEC960302BNA			Model		Cond.	-----	1.5			
Level 3 Net Load	6,314	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	21,306	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	12,102	btu/h		S/A Plenum Pressure	0.14	"w.c.		Water Temp		deg. F.		Blower DATA:							
Total Heat Loss + 10%	23,437	Btu/h		Heating Air Flow Proportioning Factor	0.0291	cfm/btuh		AFUE	96%			Blower Speed Selected:	T2	Blower Type	ECM				
Building Volume Vb	13243	ft³		Cooling Air Flow Proportioning Factor	0.0513	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	10	11	12									5	6	7	8									
Room Use	PLEN	BASE	BASE	BASE									LIV/DIN	LIV/DIN	PWD	KIT/FOY									
Btu/Outlet	2252	1771	1771	1771									2209	2209	924	2085									
Heating Airflow Rate CFM	66	52	52	52									64	64	27	61									
Cooling Airflow Rate CFM	3	19	19	19									89	89	62	81									
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	30	17	11	20									29	19	16	23									
Equivalent Length	160	120	140	100	90	90	90	90	90	90	90	90	90	110	90	110	90	90	90	90	90	90	90	90	90
Total Effective Length	190	137	151	120	90	90	90	90	90	90	90	90	119	129	106	133	90	90	90	90	90	90	90	90	90
Adjusted Pressure	0.07	0.09	0.09	0.11	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.11	0.10	0.12	0.10	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14
Duct Size Round	6	5	5	5									6	6	5	6									
Outlet Size	4x10	3x10	3x10	3x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	3x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10
Trunk	B	B	A	A									A	A	B	B									

	Level 3 Outlets													Level 4 Outlets													
S/A Outlet No.	1	2	3	4																							
Room Use	MAST	BATH	BED 3	BED 2																							
Btu/Outlet	2384	570	1333	2027																							
Heating Airflow Rate CFM	69	17	39	59																							
Cooling Airflow Rate CFM	93	8	67	70																							
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	11	38	28	34																							
Equivalent Length	150	160	125	150	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	
Total Effective Length	161	198	153	184	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	
Adjusted Pressure	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	0.14	
Duct Size Round	6	3	5	6																							
Outlet Size	4x10	3x10	3x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	
Trunk	A	A	B	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	149	149	137	116	70							Drop	621	0.05	13.5	24x10	A	318			
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	621	0.05	13.5	20x8 16x10	B	303			
Actual Duct Length	21	31	22	7	24							Y	137	0.09	7.0	8x8 8x7	C				
Equivalent Length	165	140	110	175	190	70	70	70	70	70	70	X	149	0.07	7.5	8x8 87	D				
Total Effective Length	186	171	132	182	214	70	70	70	70	70	70	W					E				
Adjusted Pressure	0.06	0.07	0.09	0.06	0.05	0.17	0.17	0.17	0.17	0.17	0.17	V					F				
Duct Size Round	8.0	7.5	7.0	6.0	5.0							U					G				
Inlet Size	8	8	8	FLC	FLC							T					H				
" "	x	x	x	x	x	x	x	x	x	x	x	S					I				
Inlet Size	14	14	30									R					J				
Trunk	Z	X	Y	Z	Z							Q					K				

2012 OBC

Builder: Delpark/Highcastle Homes

Date: June 17, 2015

Project: Northglen

Model: T2 Link - Oxford

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: 1170

Project # PJ-00022
Layout # JB-00691

Level 3

Run ft. exposed wall A	28 A	7 A	11 A	23 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								
Floor area	212 Area	103 Area	131 Area	135 Area	Area	Area	Area	Area	Area	Area	Area	Area
Exposed Ceilings A	212 A	103 A	131 A	135 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	224	56	88	184								
Gross Exp Wall B												

Components	R-Values	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain
North Shaded	3.15	24.13	10.74														
East/West	3.15	24.13	27.18	20	483	544		20	483	544	16	386	435				
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	204	1025	124	56	281	34	68	342	41	168	844	102		
Net exposed walls B	8.50	8.94	1.08														
Exposed Ceilings A	50.00	1.52	0.72	212	322	153	103	157	75	131	199	95	135	205	98		
Exposed Ceilings B	22.86	3.32	1.58														
Exposed Floors	22.05	3.45	0.15														
Foundation Conductive Heatloss																	
Total Conductive																	
Heat Loss				1829			438			1023		1435					
Heat Gain					821		109			680		635					
Air Leakage	Heat Loss/Gain	0.0944	0.0034	173	3		41	0		97	2	135	2				
Case 1	x	0.21	0.12	381	100		91	13		213	82	299	77				
Case 2		82.08	9.94														
Case 3		0.35	0.12														
Heat Gain People			239	2		478		1		239	1		239				
Appliances Loads	1 =.25 percent		2730														
Duct and Pipe loss			10%									1	157	95			
Level 3 HL Total	6,314		Total HL for per room	2384			570			1333		2027		1362			
Level 3 HG Total	4,648		Total HG per room x 1.3		1822		159			1305							

Level 4

Run ft. exposed wall A	A	A	2015	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Run ft. exposed wall B	B	B		B	B	B	B	B	B	B	B	B	B	B	B	B	B
Ceiling height																	
Floor 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
Exposed Ceilings B	B	B		B	B	B	B	B	B	B	B	B	B	B	B	B	B
Exposed Floors	Flr	Flr		Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr
Gross Exp Wall A																	
Gross Exp Wall B																	

Components	R-Values	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain
North Shaded	3.15	24.13	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	0.0034														
Case 1	x	0.00	0.12														
Case 2		82.08	9.94														
Case 3		0.35	0.12														
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														

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

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

32964



David DaCosta

SB-12 Package

Package D

Total Heat Loss	21,306	btu/h
Total Heat Gain	12,102	btu/h

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

Individual BCIN: 32964

David DaCosta

David DaCosta

Package:

Package D

Project:

Clarington

Model:

T2 Link - Oxford

RESIDENTIAL MECHANICAL VENTILATION DESIGN SUMMARY

For systems serving one dwelling unit & conforming to the Ontario Building Code, O. Reg. 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)	<input checked="" type="checkbox"/>	Direct vent (sealed combustion) only
b)	<input type="checkbox"/>	Positive venting induced draft (except fireplaces)
c)	<input type="checkbox"/>	Natural draft, B-vent or induced draft fireplaces
d)	<input type="checkbox"/>	Solid fuel (including fireplaces)
e)	<input type="checkbox"/>	No combustion Appliances

Heating System	
<input checked="" type="checkbox"/>	Forced air
<input type="checkbox"/>	Non forced air
<input type="checkbox"/>	Electric space heat (if over 10% of heat load)

House Type 9.32.3.1(2)		
I	<input checked="" type="checkbox"/>	Type a) or b) appliances only, no solid fuel
II	<input type="checkbox"/>	Type I except with solid fuel (including fireplace)
III	<input type="checkbox"/>	Any type c) appliance
IV	<input type="checkbox"/>	Type I or II either electric space heat
Other	<input type="checkbox"/>	Type I, II or IV no forced air

System Design Option		
1	<input checked="" type="checkbox"/>	Exhaust only / forced air system
2	<input type="checkbox"/>	HRV WITH DUCTING / forced air system
3	<input type="checkbox"/>	HRV simplified connection to forced air system
4	<input type="checkbox"/>	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
Other Bedrooms	2	@	10	cfm
Bathrooms & Kitchen	3	@	10	cfm
Other rooms	3	@	10	cfm
Total				120

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

Principal Exhaust Fan Capacity		
Make	Model	Location
Broan	684N	Bath
90 cfm		2.5 Sones

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

Supplemental Ventilation Capacity	
Total ventilation capacity	120.0
Less principal exhaust capacity	60.0
REQUIRED supplemental vent. Capacity	60.0 cfm

Supplemental Fans 9.32.3.5.			
Location	cfm	Model	Sones
Pwd.	50	770	
Kit	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

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Project # PJ-00022
Layout # JB-00691

This form is used to summarize the energy efficiency design of the project. Information on completing this form is on the reverse

For use by Principal Authority

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

A. Project Information

Building number, street name T2 Link - Oxford		Unit number	Lot/Con
Municipality Clarington	Postal code	Reg. Plan number / other description	

B. Compliance Option

<input checked="" type="checkbox"/> 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
<input type="checkbox"/> SB-12 Performance* [SB-12 - 2.1.2.]	* Attach energy performance calculations using an approved software	
<input type="checkbox"/> Energy Star®* [SB-12 - 2.1.3.]	* Attach BOP form	
<input type="checkbox"/> 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		
<input checked="" type="checkbox"/> Zone 1 (< 5000 degree days)	<input checked="" type="checkbox"/> ≥ 90% AFUE	<input checked="" type="checkbox"/> Gas	<input type="checkbox"/> Propane	<input type="checkbox"/> Solid Fuel
<input type="checkbox"/> Zone 2 (≥ 5000 degree days)	<input type="checkbox"/> ≥ 78% < 90% AFUE	<input type="checkbox"/> Oil	<input type="checkbox"/> Electric	<input type="checkbox"/> Earth Energy

Windows+Skylights+Glass Doors		Other Building Conditions			
Gross Wall Area =	126 m²	% Windows+ 10%	<input type="checkbox"/> ICF Basement	<input type="checkbox"/> Walkout Basement	<input type="checkbox"/> Log/Post&Beam
Gross Window+ Area =	12 m²		<input type="checkbox"/> ICF Above Grade	<input type="checkbox"/> Slab-on-ground	

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


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

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

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

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

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

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

Package:
Project:

Package D
Clarington

System:
Model:

System 1
T2 Link - Oxford

Air Leakage Calculations

Building Air Leakage Heat Loss				
B	LRairh	Vb	HL ^{AT}	HL _{leak}
0.018	0.123	13243	76	2231

Building Air Leakage Heat Gain				
B	LRairh	Vb	HG ^{AT}	HG _{Leak}
0.018	0.008	13243	9.2	17

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	2231	3988	0.2797
2	0.3		5280	0.1267
3	0.2		4726	0.0944
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		17	Air Leakage Heat Gain	
BUILDING CONDUCTIVE HEAT GAIN		4915	0.0034	

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	0.12			
	1	0.5	4925	3988	0.62	Building	4915				
	2	0.3		5280	0.28						
	3	0.2		4726	0.21						
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	0.35		HGbvent		HG*1.3	596	0.12	
						596		1			

Foundation Conductive Heatloss Level 1

1046

Watts

3571

Btu/h

Foundation Conductive Heatloss Level 2

Watts

Btu/h

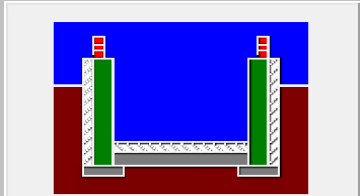
Envelope Air Leakage Calculator

Supplemental tool for CAN/CSA-F280

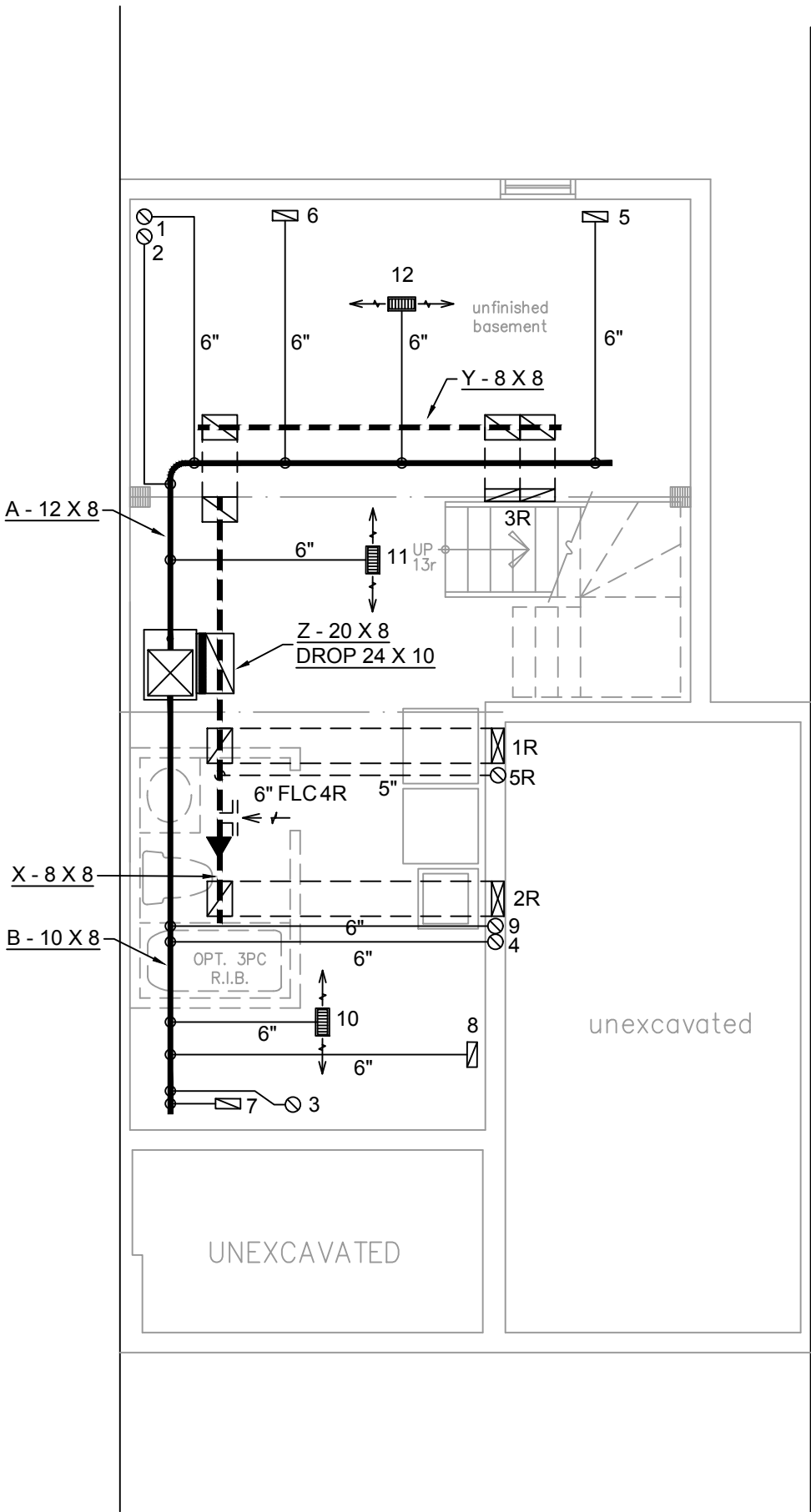
Weather Station Description				
Province:	Ontario ▼			
Region:	Durham ▼			
Weather Station Location:	Open flat terrain, grass ▼			
Anemometer height (m):	10			
Local Shielding				
Building Site:	Suburban, forest ▼			
Walls:	Heavy ▼			
Flue:	Heavy ▼			
Highest Ceiling Height (m):	5.79			
Building Configuration				6.4
Type:	Semi-Detached ▼			
Number of Stories:	Two ▼			
Foundation:	Full ▼			
House Volume (m ³):	566.3 375.04			
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):		0.123		
Cooling Air Leakage Rate (ACH/H):		0.008		

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):	11.04	 <p>Insulation Configuration</p>
Floor Width (m):	4.05	
Exposed Perimeter (m):	27.13	
Wall Height (m):	2.74	
Depth Below Grade (m):	2.13	
Window Area (m ²):	0.28	
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):		1046

	FLEX DUCT RIDIT ROUND DUCT SUPPLY DIFFUSER		LOW/HIGH WALL/KICK SUPPLY DIFFUSER HRV EXHAUST GRILL SUPPLY AIR PIPE RISER VOLUME DAMPER		DUCT CONNECTION TO JOIST LINING RETURN AIR PIPE RISER RETURN ROUND DUCT		RETURN AIR GRILLE (SIZE INDICATED ON DRAWING) RETURN AIR RISER UP TO FLOOR ABOVE RETURN AIR FROM BASEMENT SECOND FLOOR	S.A. R.A. ① \$ [E] [P]	SUPPLY AIR RETURN AIR THERMOSTAT 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 B.C.I.N. 32964

Signature of Designer

OBC 2012

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

NOTES

INSTALLATION TO COMPLY WITH THE LATEST ONTARIO BUILDING CODE.

ALL SUPPLY OUTLETS TO BE 5" DIA. UNLESS OTHERWISE SPECIFIED.

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

INSULATE DUCTS IN UNCONDITIONED SPACES R12 UNDERCUT ALL DOORS 1" MIN.

HEATING CONTRACTOR MUST WORK FROM APPROVED PLANS.

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

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

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
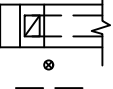













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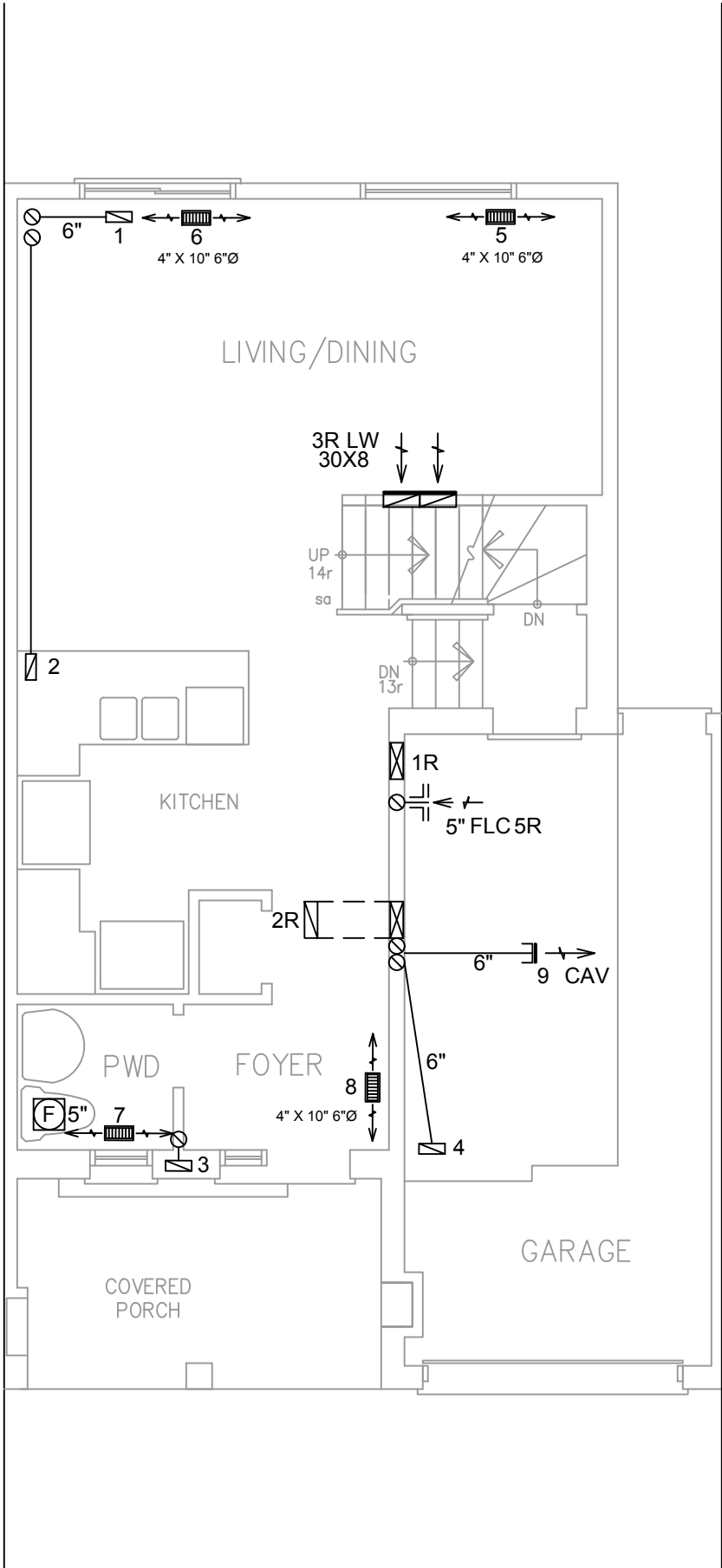
HEAT-LOSS	21,306	BTU/HR.
UNIT MAKE	AMANA	OR EQUAL.
UNIT MODEL	GMEC960302BNA	OR EQUAL.
UNIT HEATING INPUT	30,000	BTU/HR.
UNIT HEATING OUTPUT	28,800	BTU/HR.
A/C COOLING CAPACITY	1.5	TONS.
FAN SPEED	621	CFM

# OF RUNS	S/A	R/A	FANS
3RD FLOOR			
2ND FLOOR	4	2	1
1ST FLOOR	5	2	2
BASEMENT	3	1	

FLOOR PLAN: BASEMENT	
DRAWN BY: RB	CHECKED: DD
LAYOUT NO. JB-00691	DRAWING NO. M1

DATE:	JUNE 17, 2015
CLIENT:	DELPARK HIGHCASTLE
MODEL:	T2 LINK - OXFORD
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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QUALIFICATION INFORMATION

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Signature of Designer

OBC 2012

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

NOTES

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
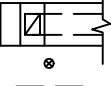













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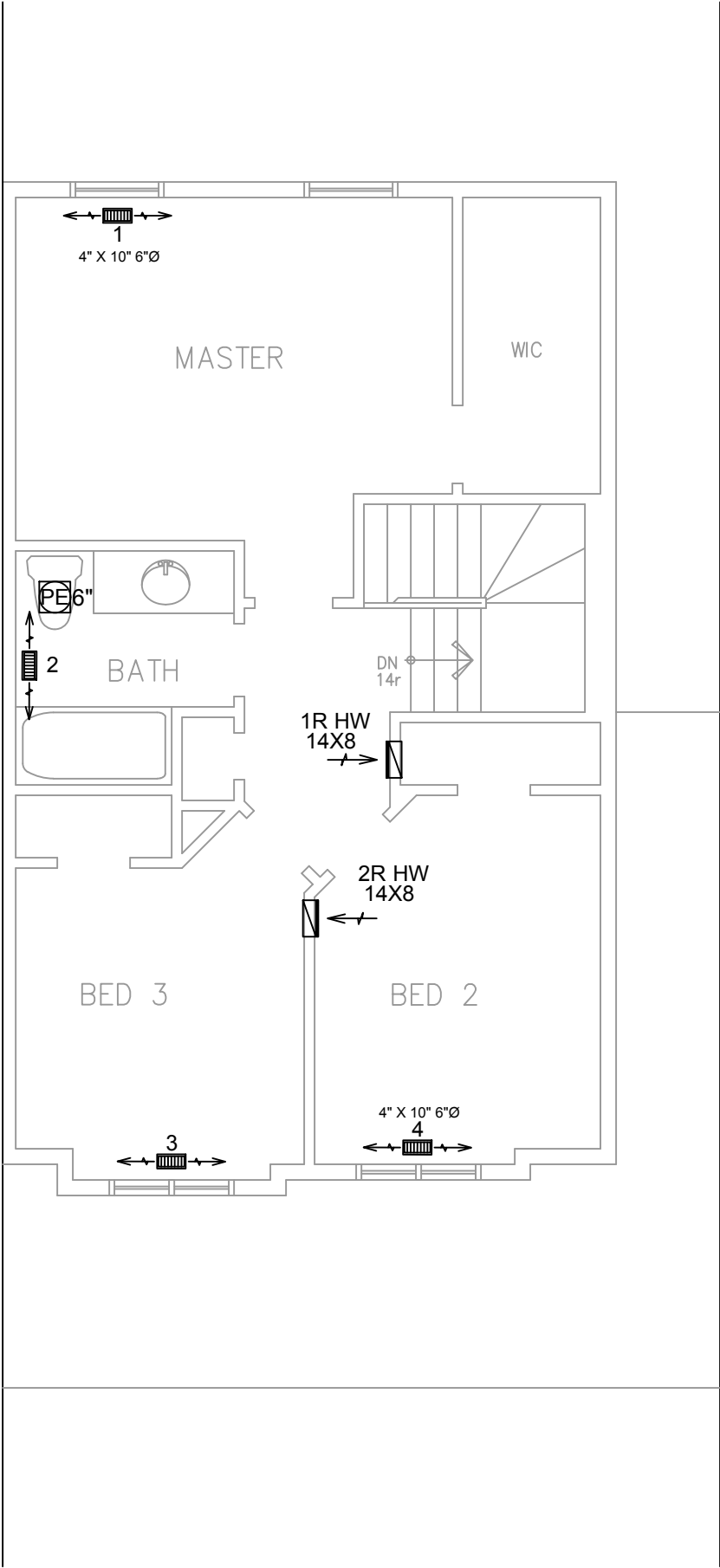
HEAT-LOSS	21,306	BTU/HR.
UNIT MAKE	AMANA	OR EQUAL.
UNIT MODEL	GMEC960302BNA	OR EQUAL.
UNIT HEATING INPUT	30,000	BTU/HR.
UNIT HEATING OUTPUT	28,800	BTU/HR.
A/C COOLING CAPACITY	1.5	TONS.
FAN SPEED	621	CFM

# OF RUNS	S/A	R/A	FANS
3RD FLOOR			
2ND FLOOR	4	2	1
1ST FLOOR	5	2	2
BASEMENT	3	1	

FLOOR PLAN:		
GROUND FLOOR		
DRAWN BY:	CHECKED:	SQFT
RB	DD	1170
LAYOUT NO.	DRAWING NO.	
JB-00691	M2	

DATE:	JUNE 17, 2015
CLIENT:	DELPARK HIGHCASTLE
MODEL:	T2 LINK - OXFORD
PROJECT:	NORTHGLEN BOWMANVILLE,ONT.
SCALE:	3/16" = 1'-0"

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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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A/C COOLING CAPACITY	1.5	TONS.
FAN SPEED	621	CFM

# OF RUNS	S/A	R/A	FANS
3RD FLOOR			
2ND FLOOR	4	2	1
1ST FLOOR	5	2	2
BASEMENT	3	1	

FLOOR PLAN: SECOND FLOOR		
DRAWN BY: RB	CHECKED: DD	SQFT 1170
LAYOUT NO. JB-00691	DRAWING NO. M3	

DATE:	JUNE 17, 2015
CLIENT:	DELPARK HIGHCASTLE
MODEL:	T2 LINK - OXFORD
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