


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

<b>A. Project Information</b>				
Building number, street name <b>T3 Link - Hampton</b>			Lot:	
			Lot/con.	
Municipality <b>Clarington</b>	Postal code	Plan number/ other description		
<b>B. Individual who reviews and takes responsibility for design activities</b>				
Name <b>David DaCosta</b>		Firm <b>gtaDesigns Inc.</b>		
Street address <b>2985 Drew Road, Suite 202</b>		Unit no.	Lot/con.	
Municipality <b>Mississauga</b>	Postal code <b>L4T 0A4</b>	Province <b>Ontario</b>	E-mail <a href="mailto:dave@gtadesigns.ca">dave@gtadesigns.ca</a>	
Telephone number <b>(905) 671-9800</b>		Fax number <b>(647) 494-9643</b>	Cell number <b>(416) 268-6820</b>	
<b>C. Design activities undertaken by individual identified in Section B. [Building Code Table 3.5.2.1 of Division C]</b>				
<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				
<b>Description of designer's work</b>		<b>Model Certification</b>		<b>Project #</b> <b>PJ-00022</b>
				<b>Layout #</b> <b>JB-00692</b>
Heating and Cooling Load Calculations		Builder	Delpark/Highcastle Homes	
Air System Design		Project	Northglen	
Residential mechanical ventilation Design Summary		Model	T3 Link - Hampton	
Residential System Design per CAN/CSA-F280-12		SB-12	Package D	
Residential New Construction - Forced Air				
<b>D. Declaration of Designer</b>				
<p>I, <u>David DaCosta</u> declare that (choose one as appropriate):  (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.  Individual BCIN: _____  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.  Individual BCIN: <u>32964</u>  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.  Basis for exemption from registration and qualification:</p>				
<p>I certify that:</p> <p>1. The information contained in this schedule is true to the best of my knowledge.</p> <p>2. I have submitted this application with the knowledge and consent of the firm.</p> <p style="text-align: center;"><u>June 17, 2015</u>                        Date                      Signature of Designer</p>				

**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.

<b>Heat loss and gain calculation summary sheet</b>				CSA-F280-M12 Standard Form No. 1	
These documents issued for the use of <b>Delpark/Highcastle Homes</b>				Layout No.	
and may not be used by any other persons without authorization. Documents for permit and/or construction are signed in red.				<b>JB-00692</b>	
<b>Building Location</b>					
Address (Model): <b>T3 Link - Hampton</b>			Site: <b>Northglen</b>		
Model:			Lot:		
City and Province: <b>Clarington</b>			Postal code:		
<b>Calculations based on</b>					
Dimensional information based on:			<b>Cassidy &amp; Co. Dwgs Dated Apr/2013</b>		
Attachment: <b>Townhome</b>		Front facing: <b>East/West</b>		Assumed? <b>Yes</b>	
No. of Levels: <b>3</b> Ventilated? <b>Included</b>		Air tightness: <b>1961- Present (ACH=3.57)</b>		Assumed? <b>Yes</b>	
Weather location: <b>Durham</b>		Wind exposure: <b>Shelterd</b>			
HRV?		Internal shading: <b>Light-translucent</b> Occupants: <b>4</b>			
Sensible Eff. at -25C <b>0</b>		Apparent Effect. at -0C <b>0</b>		Units: <b>Imperial</b> Area Sq. ft <b>1343</b>	
<b>Heating design conditions</b>			<b>Cooling design conditions</b>		
Outdoor temp <b>-4.0</b> Indoor temp: <b>72</b> Mean soil temp <b>48</b>			Outdoor temp <b>84</b> Indoor temp: <b>75</b> Latitude: <b>44</b>		
<b>Above grade walls</b>			<b>Below grade walls</b>		
Style A: <b>As per Selected OBC SB12 Package D R 24</b>			Style A: <b>As per Selected OBC SB12 Package D R 20</b>		
Style B: <b>Existing Walls (When Applicable) R 12</b>			Style B:		
Style C:			Style C:		
Style D:			Style D:		
<b>Floors on soil</b>			<b>Ceilings</b>		
Style A: <b>As per Selected OBC SB12 Package D</b>			Style A: <b>As per Selected OBC SB12 Package D R 50</b>		
Style B:			Style B: <b>As per Selected OBC SB12 Package D R 31</b>		
<b>Exposed floors</b>			Style C:		
Style A: <b>As per Selected OBC SB12 Package D R 31</b>			<b>Doors</b>		
Style B:			Style A: <b>As per Selected OBC SB12 Package D R 3.01</b>		
<b>Windows</b>			Style B:		
Style A: <b>As per Selected OBC SB12 Package D R 3.15</b>			Style C:		
Style B: <b>Existing Windows (When Applicable) R 1.99</b>			<b>Skylights</b>		
Style C:			Style A: <b>As per Selected OBC SB12 Package D R 2.03</b>		
Style D:			Style B:		
Attached documents: <b>As per Shedule 1</b>					
Notes: <b>Residential New Construction - Forced Air</b>					
<b>Calculations performed by</b>					
Name: <b>David DaCosta</b>			Postal code: <b>L4T 0A4</b>		
Company: <b>gtaDesigns Inc.</b>			Telephone: <b>(905) 671-9800</b>		
Address: <b>2985 Drew Road, Suite 202</b>			Fax: <b>(416) 268-6820</b>		
City: <b>Mississauga</b>			E-mail: <b>dave@gtadesigns.ca</b>		

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: T3 Link - Hampton

System 1

Individual BCIN: 32964

David DaCosta

Project # PJ-00022  
Layout # JB-00692

DESIGN LOAD SPECIFICATIONS				AIR DISTRIBUTION & PRESSURE				FURNACE/AIR HANDLER DATA:				BOILER/WATER HEATER DATA:				A/C UNIT DATA:			
Level 1 Net Load	8,982	btu/h		Equipment External Static Pressure	0.5	"w.c.		Make	Amana			Make	Type	Amana	1.5	Ton			
Level 2 Net Load	7,472	btu/h		Additional Equipment Pressure Drop	0.225	"w.c.		Model	GMEC960302BNA			Model		Cond.	-----	1.5			
Level 3 Net Load	7,072	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	23,526	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	12,601	btu/h		S/A Plenum Pressure	0.14	"w.c.		Water Temp		deg. F.		Blower DATA:							
Total Heat Loss + 10%	25,879	Btu/h		Heating Air Flow Proportioning Factor	0.0264	cfm/btuh		AFUE	96%			Blower Speed Selected:	T2	Blower Type	ECM				
Building Volume Vb	15260	ft³		Cooling Air Flow Proportioning Factor	0.0493	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.	10	11	12	13									6	7	8	9									
Room Use	PLEN	BASE	BASE	BASE									GRT/KIT	GRT/KIT	PWD	FOY									
Btu/Outlet	3045	1979	1979	1979									2314	2314	954	1889									
Heating Airflow Rate CFM	80	52	52	52									61	61	25	50									
Cooling Airflow Rate CFM	5	20	20	20									86	86	60	76									
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	60	13	32	44									9	19	47	54									
Equivalent Length	110	120	120	90	90	90	90	90	90	90	90	90	140	110	90	100	90	90	90	90	90	90	90	90	90
Total Effective Length	170	133	152	134	90	90	90	90	90	90	90	90	149	129	137	154	90	90	90	90	90	90	90	90	90
Adjusted Pressure	0.08	0.10	0.09	0.10	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.09	0.10	0.09	0.08	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	A	B	B									A	A	B	C									

Level 3 Outlets													Level 4 Outlets												
S/A Outlet No.	1	2	3	4	5																				
Room Use	MAST	ENS	BATH	BED 3	BED 2																				
Btu/Outlet	2151	529	618	1449	2325																				
Heating Airflow Rate CFM	57	14	16	38	61																				
Cooling Airflow Rate CFM	86	16	9	66	71																				
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	29	39	46	59	64																				
Equivalent Length	150	130	130	130	120	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90
Total Effective Length	179	169	176	189	184	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90
Adjusted Pressure	0.07	0.08	0.07	0.07	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
Duct Size Round	6	3	3	6	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
Trunk	A	A	A	C	C																				

Return Branch And Grill Sizing			Grill Pressure Loss					0.02 "w.c				
R/A Inlet No.	1R	2R	3R	4R	5R	6R	7R	8R	9R	10R	11R	
Inlet Air Volume CFM	149	149	137	116	70							
Duct Design Pressure	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	
Actual Duct Length	54	53	8	23	51							
Equivalent Length	215	220	145	135	150	70	70	70	70	70	70	
Total Effective Length	269	273	153	158	201	70	70	70	70	70	70	
Adjusted Pressure	0.04	0.04	0.08	0.07	0.06	0.17	0.17	0.17	0.17	0.17	0.17	
Duct Size Round	8.5	8.5	7.0	6.0	5.0							
Inlet Size	8	8	8	FLC	FLC							
" "	x	x	x	x	x	x	x	x	x	x	x	
Inlet Size	14	14	30									
Trunk	Y	Y	Z	Z	Y							

Return Trunk Duct Sizing					Supply Trunk Duct Sizing				
Trunk	CFM	Press.	Round	Rect. Size	Trunk	CFM	Press.	Round	Rect. Size
Drop	621	0.04	14.0	24x10	A	620	0.07	12.5	18x8 14x10
Z	621	0.04	14.0	22x8 18x10	B	359	0.07	10.5	12x8 10x10
Y	368	0.04	11.5	14x8 12x10	C	149	0.07	7.5	8x8 87
X					D				
W					E				
V					F				
U					G				
T					H				
S					I				
R					J				
Q					K				

2012 OBC

Builder: Delpark/Highcastle Homes

Date: June 17, 2015

Project: Northglen

Model: T3 Link - Hampton

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: 1343

Project # PJ-00022  
Layout # JB-00692

## Level 1

Run ft. exposed wall A	75	A	32	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
Ceiling height	2.0	AG	2.0	AG	AG	AG	AG	AG	AG	AG	AG	AG	AG	AG	AG	AG	AG
Floor area	529	Area	159	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
Exposed Ceilings B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
Exposed Floors	Flr	Flr	159	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr
Gross Exp Wall A	150		64														
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	3	72	82											
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	21	530	64											
Net exposed walls A	13.79	5.51	0.67	126		84	64										
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																
	Heat Gain																
Air Leakage	Heat Loss/Gain	0.2770	0.0042	935	230	1	479	0									
Ventilation	Case 1	x	0.48	1628	26		835	7									
	Case 2		82.08														
	Case 3		0.32														
Heat Gain People			239														
Appliances Loads	1 =.25 percent		2730	1.0		683											
Duct and Pipe loss	10%																
Level 1 HL Total	8,982			5937			3045										
Level 1 HG Total	1,316				1221			96									

## Level 2

Run ft. exposed wall A	17	A	12	A	46	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
Ceiling height	9.0		9.0		9.0												
Floor area	114	Area	83	Area	350	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
Exposed Ceilings 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
Gross Exp Wall A	153		108		414												
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	12	290	326	6	145	163	58	1399	1576					
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	15	379	46											
Net exposed walls A	15.13	5.02	0.61	126	633	77	102	512	62	356	1788	216					
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																
	Heat Gain																
Air Leakage	Heat Loss/Gain	0.1649	0.0042	215	449	2	108	225	1	526	1793	8					
Ventilation	Case 1	x	0.29	374	51		189	25		915	202						
	Case 2		82.08														
	Case 3		0.32														
Heat Gain People			239														
Appliances Loads	1 =.25 percent		2730	1.0		683	1.0		683	1.0		683					
Duct and Pipe loss	10%																
Level 2 HL Total	7,472			1889			954			4628							
Level 2 HG Total	6,243				1539			1214		3490							

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	23,526	btu/h
Total Heat Gain	12,601	btu/h

**Builder:** Delpark/Highcastle Homes

**Date:** June 17, 2015

Weather Data	Durham	44	-4.0	84	20	48.2
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Heat Loss ^T	76 deg. F	Ht gain ^T	9.2 deg. F	GTA:	1343
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Project # PJ-00022  
Layout # JB-00692

2012 OBC

Project: Northglen

Model: T3 Link - Hampton

### System 1

[illegible]

Level 4				A		A		2015		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			
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	
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		0.0042																					
Ventilation				Case 1		x		0.00		0.11																			
				Case 2				82.08		9.94																			
				Case 3				0.32		0.11																			
Heat Gain People								239																					
Appliances Loads				1 ≈.25 percent				2730																					
Duct and Pipe loss								10%																					
Level 4 HL Total				0				Total HL for per room																					
Level 4 HG Total				0				Total HG per room x 1.3																					

Total Heat Loss	23,526	btu/h
Total Heat Gain	12,601	btu/h

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

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

32964

**David DaCosta**

**SB-12 Package**

### Package D

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

Individual BCIN: 32964

*David DaCosta*

David DaCosta

Package:

Package D

Project:

Clarington

Model:

T3 Link - Hampton

## 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	4	@	10	cfm
Other rooms	4	@	10	cfm
Total				140

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	Ensuite
90 cfm		2.5 Sones

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

Supplemental Ventilation Capacity	
Total ventilation capacity	140.0
Less principal exhaust capacity	60.0
REQUIRED supplemental vent. Capacity	80.0 cfm

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

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

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

Page 7  
Project # PJ-00022  
Layout # JB-00692

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 <b>T3 Link - Hampton</b>		Unit number	Lot/Con
Municipality <b>Clarington</b>	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	<b>Package D</b>
<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 =	140 m²	% Windows+ 9%	<input type="checkbox"/> ICF Basement	<input type="checkbox"/> Walkout Basement	<input type="checkbox"/> Log/Post&Beam
Gross Window+ Area =	13 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
<b>Thermal Insulation</b>		<b>Windows &amp; Doors<sup>1</sup></b>	
Ceiling with Attic Space	50	Windows/Sliding Glass Doors	1.8
Ceiling without Attic Space	31	Skylights	2.8
Exposed Floor	31	<b>Mechanicals</b>	
Walls Above Grade	24	Space Heating Equip. <sup>2</sup>	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 <b>David DaCosta</b> 
---------------	--

Package: **Package D** System: **System 1**  
Project: **Clarington** Model: **T3 Link - Hampton**

## Air Leakage Calculations

Building Air Leakage Heat Loss				
B	LRairh	Vb	HL <sup>^</sup> T	HL <sub>leak</sub>
0.018	0.135	15260	76	2829

Building Air Leakage Heat Gain				
B	LRairh	Vb	HG <sup>^</sup> T	HG Leak
0.018	0.009	15260	9.2	22

Air Leakage Heat Loss/Gain Multiplier Table (Section 11)				
Level	Level Factor (LF)	Building Air	Level Conductive Heat Loss	Air Leakage Heat Loss Multiplier
1	0.5	2829	5105	0.2770
2	0.3		5146	0.1649
3	0.2		5338	0.1060
4	0		0	0.0000

Levels			
1	2	3	4
(LF)	(LF)	(LF)	(LF)
1.0	0.6	0.5	0.4
	0.4	0.3	0.3
		0.2	0.2
			0.1

HG LEAK		Air Leakage Heat Gain	
	22		0.0042
BUILDING CONDUCTIVE HEAT GAIN		5288	

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	0.11			
	1	0.5	4925	5105	0.48	Building	5288				
	2	0.3		5146	0.29						
	3	0.2		5338	0.18						
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	0.32		HGbvent		HG*1.3	596	0.11	
						596		1			

<b>Foundation Conductive Heatloss Level 1</b>	1159	Watts	3955	Btu/h
---	------	-------	------	-------

<b>Foundation Conductive Heatloss Level 2</b>		Watts		Btu/h
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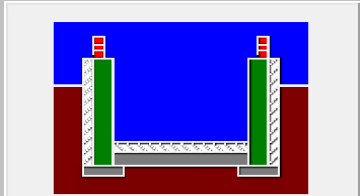
# Envelope Air Leakage Calculator



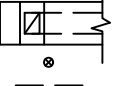













Supplemental tool for CAN/CSA-F280

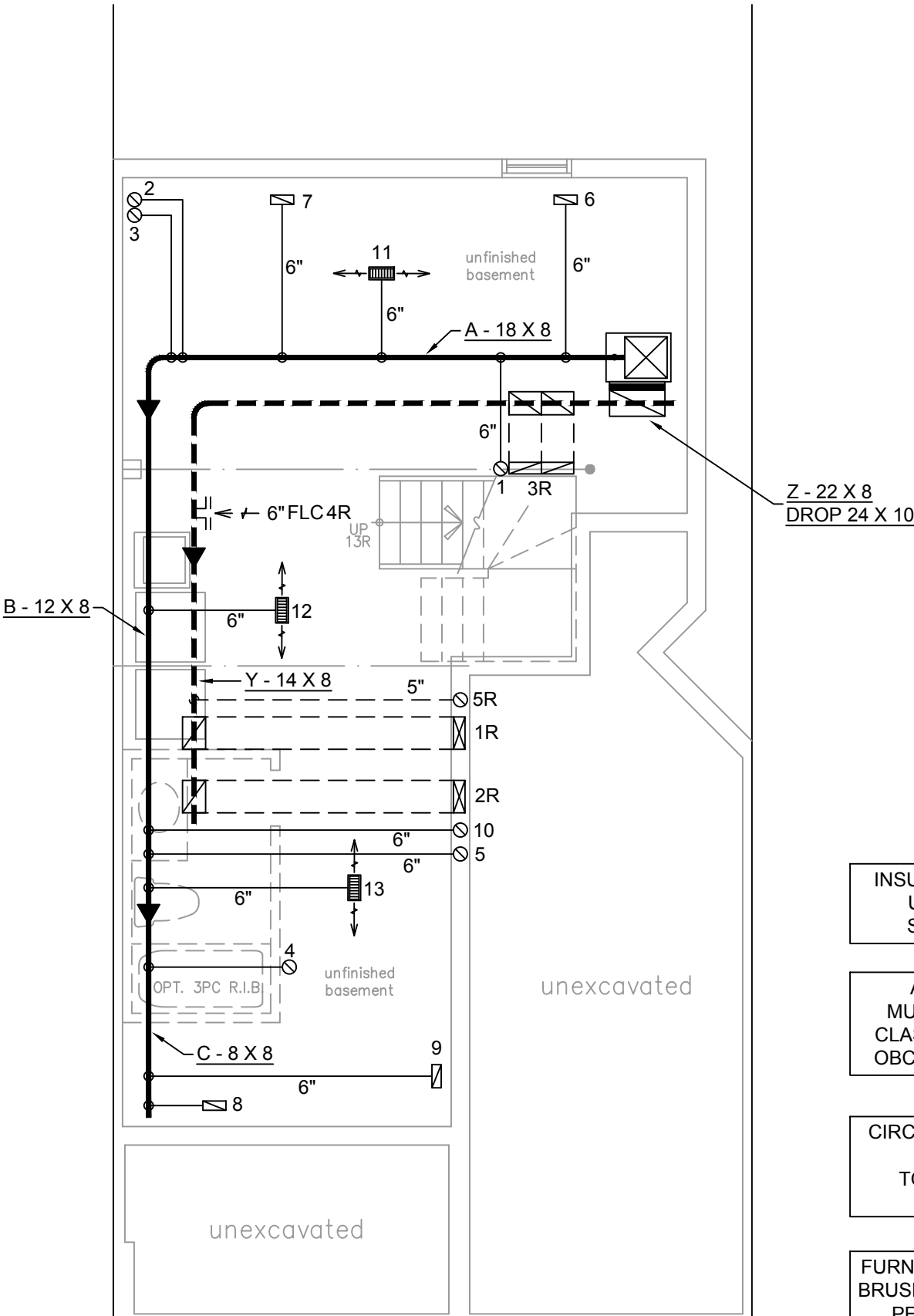
Weather Station Description				
Province:	Ontario ▼			
Region:	Durham ▼			
Weather Station Location:	Open flat terrain, grass ▼			
Anemometer height (m):	10			
Local Shielding				
Building Site:	Suburban, forest ▼			
Walls:	Heavy ▼			
Flue:	Heavy ▼			
Highest Ceiling Height (m):	5.79			
Building Configuration				6.4
Type:	Semi-Detached ▼			
Number of Stories:	Two ▼			
Foundation:	Full ▼			
House Volume (m <sup>3</sup> ):	566.3 432.16			
Air Leakage/Ventilation				
Air Tightness Type:	Present (1961-) (ACH=3.57) ▼			
Custom BDT Data:	ELA @ 10 Pa. ▼ 185.83 cm <sup>2</sup> 3.57 ACH @ 50 Pa			
Mechanical Ventilation (L/s):	Total Supply:		Total Exhaust:	
	0		30	
Flue Size				
Flue #:	#1	#2	#3	#4
Diameter (mm):	0	0	0	0
Envelope Air Leakage Rate				
Heating Air Leakage Rate (ACH/H):		0.135		
Cooling Air Leakage Rate (ACH/H):		0.009		

# Residential Foundation Thermal Load Calculator

Supplemental tool for CAN/CSA-F280

Weather Station Description		
Province:	Ontario	▼
Region:	Durham	▼
Site Description		
Soil Conductivity:	High conductivity: moist soil	▼
Water Table:	Normal (7-10 m, 23-33 Ft)	▼
Foundation Dimensions		
Floor Length (m):	12.76	 <p>Insulation Configuration</p>
Floor Width (m):	3.85	
Exposed Perimeter (m):	32.61	
Wall Height (m):	2.74	
Depth Below Grade (m):	2.13	
Window Area (m <sup>2</sup> ):	0.28	
Door Area (m <sup>2</sup> ):	1.95	
Radiant Slab		
Heated Fraction of the Slab:	0	
Fluid Temperature (°C):	23	
Design Months		
Heating Month	1	
Foundation Loads		
Heating Load (Watts):		1159

	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

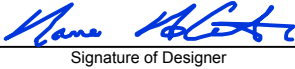
FURNACE EQUIPPED WITH BRUSHLESS DC MOTOR AS PER OBC 12.3.1.5 (2)

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**



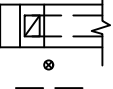













2985 DREW ROAD  
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L4T 0A4 TEL: 416-268-6820  
email: dave@gtadesigns.ca  
web: www.gtadesigns.ca

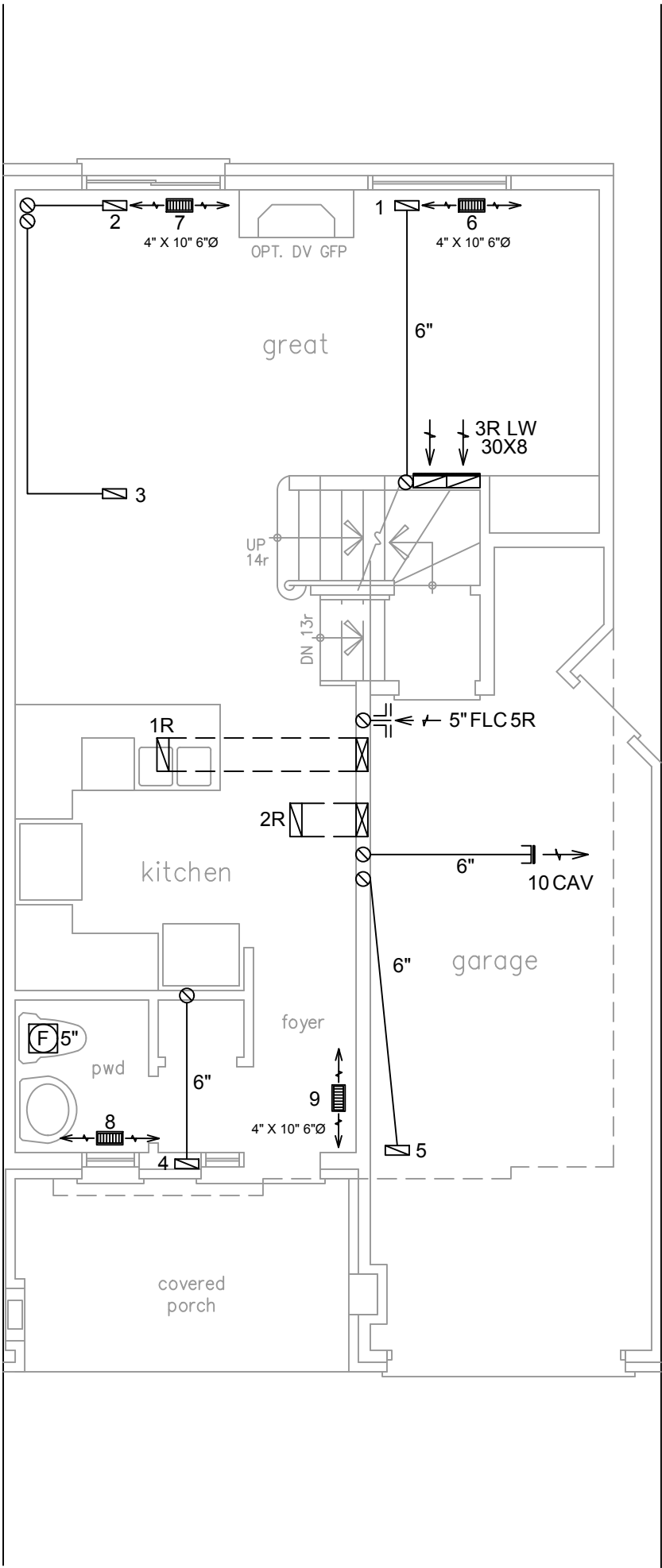
HEAT-LOSS	23,526	BTU/HR.
UNIT MAKE	AMANA	OR EQUAL.
UNIT MODEL	GMEC960302BNA	OR EQUAL.
UNIT HEATING INPUT	30,000	BTU/HR.
UNIT HEATING OUTPUT	28,800	BTU/HR.
A/C COOLING CAPACITY	1.5	TONS.
FAN SPEED	621	CFM

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

FLOOR PLAN: BASEMENT	
DRAWN BY: RB	CHECKED: DD
LAYOUT NO. JB-00692	DRAWING NO. M1

DATE:	JUNE 17, 2015
CLIENT:	DELPARK HIGHCASTLE
MODEL:	T3 LINK - HAMPTON
PROJECT:	NORTHGLEN BOWMANVILLE,ONT.
SCALE:	3/16" = 1'-0"

	FLEX DUCT		LOW/HIGH WALL/KICK SUPPLY DIFFUSER		DUCT CONNECTION TO JOIST LINING		RETURN AIR GRILLE (SIZE INDICATED ON DRAWING)	S.A.	SUPPLY AIR
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			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**

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

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














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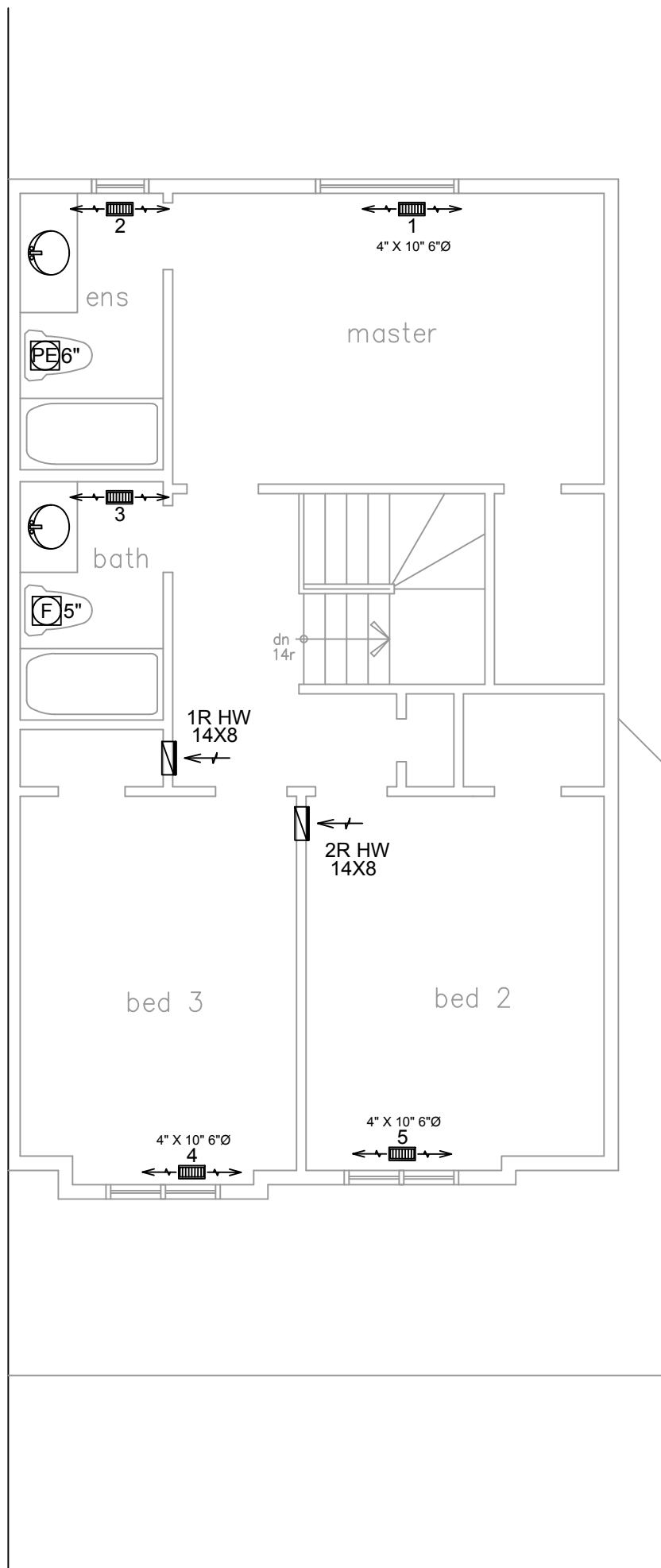
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FAN SPEED	621	CFM

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

FLOOR PLAN:		
GROUND FLOOR		
DRAWN BY:	CHECKED:	SOFT
RB	DD	1343
LAYOUT NO.	DRAWING NO.	
JB-00692	M2	

DATE:	JUNE 17, 2015
CLIENT:	DELPARK HIGHCASTLE
MODEL:	T3 LINK - HAMPTON
PROJECT:	NORTHGLEN BOWMANVILLE,ONT.
SCALE:	3/16" = 1'-0"

  	<p>FLEX DUCT</p> <p>RIDIT ROUND DUCT</p> <p>SUPPLY DIFFUSER</p>	   	<p>LOW/HIGH WALL/KICK SUPPLY DIFFUSER</p> <p>HRV EXHAUST GRILLE</p> <p>SUPPLY AIR PIPE RISER</p> <p>VOLUME DAMPER</p>	  	<p>DUCT CONNECTION TO JOIST LINING</p> <p>RETURN AIR PIPE RISER</p> <p>RETURN ROUND DUCT</p>	  	<p>RETURN AIR GRILLE (SIZE INDICATED ON DRAWING)</p> <p>RETURN AIR RISER UP TO FLOOR ABOVE</p> <p>RETURN AIR FROM BASEMENT SECOND FLOOR</p>	<p>S.A. R.A. T \$ F PE</p>	<p>SUPPLY AIR</p> <p>RETURN AIR</p> <p>THERMOSTAT</p> <p>PRINCIPAL EXHAUST FAN SWITCH W/R &amp; PRINCIPAL EXHAUST FAN</p>
--	---	--	---	--	--	---	---	--	---



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  
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## QUALIFICATION INFORMATION

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David Da Costa

David Da Costa  B.C.I.N. 32964  
Signature of Designer

OBC 2012

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

## NOTES

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INSULATE DUCTS IN UNCONDITIONED SPACES R12

UNDERCUT ALL DOORS 1" MIN.

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

FLOOR PLAN:		
SECOND FLOOR		
DRAWN BY: RB	CHECKED: DD	SCALE 1343
LAYOUT NO. JB-00692	DRAWING NO. M3	

DATE:	JUNE 17, 2015
CLIENT:	DELPARK HIGHCASTLE
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