

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 T4 Link - Everton			Lot:	
			Lot/con.	
Municipality Clarington	Postal code	Plan number/ other description		
B. Individual who reviews and takes responsibility for design activities				
Name David DaCosta		Firm gtaDesigns Inc.		
Street address 2985 Drew Road, Suite 202		Unit no.	Lot/con.	
Municipality Mississauga	Postal code L4T 0A4	Province Ontario	E-mail dave@gtadesigns.ca	
Telephone number (905) 671-9800		Fax number (647) 494-9643	Cell number (416) 268-6820	
C. Design activities undertaken by individual identified in Section B. [Building Code Table 3.5.2.1 of Division C]				
☐ House ☒ HVAC – House ☐ Building Structural ☐ Small Buildings ☐ Building Services ☐ Plumbing – House ☐ Large Buildings ☐ Detection, Lighting and Power ☐ Plumbing – All Buildings ☐ Complex Buildings ☐ Fire Protection ☐ On-site Sewage Systems				
Description of designer's work		Model Certification		Project # PJ-00022
				Layout # JB-00693
Heating and Cooling Load Calculations		Builder	Delpark/Highcastle Homes	
Air System Design		Project	Northglen	
Residential mechanical ventilation Design Summary		Model	T4 Link - Everton	
Residential System Design per CAN/CSA-F280-12		SB-12	Package D	
Residential New Construction - Forced Air				
D. Declaration of Designer				
I, <u>David DaCosta</u> declare that (choose one as appropriate): (print name) ☐ I review and take responsibility for the design work on behalf of a firm registered under subsection 3.2.4 Division C of the Building Code. I am qualified, and the firm is registered, in the appropriate classes/categories. Individual BCIN: _____ Firm BCIN: _____ ☒ I review and take responsibility for the design and am qualified in the appropriate category as an "other designer" under subsection 3.2.5 of Division C, of the Building Code. Individual BCIN: <u>32964</u> Basis for exemption from registration: <u>Division C 3.2.4.1. (4)</u> ☐ The design work is exempt from the registration and qualification requirements of the Building Code. Basis for exemption from registration and qualification:				
I certify that: - The information contained in this schedule is true to the best of my knowledge. - I have submitted this application with the knowledge and consent of the firm.				
<u>June 17, 2015</u> Date		 Signature of Designer		

NOTE:

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

Heat loss and gain calculation summary sheet				CSA-F280-M12 Standard Form No. 1	
These documents issued for the use of Delpark/Highcastle Homes				Layout No.	
and may not be used by any other persons without authorization. Documents for permit and/or construction are signed in red.				JB-00693	
Building Location					
Address (Model): T4 Link - Everton			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 1438	
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: T4 Link - Everton

System 1

Individual BCIN: 32964

David DaCosta

Project # PJ-00022
Layout # JB-00693

DESIGN LOAD SPECIFICATIONS				AIR DISTRIBUTION & PRESSURE				FURNACE/AIR HANDLER DATA:				BOILER/WATER HEATER DATA:				A/C UNIT DATA:			
Level 1 Net Load	9,639	btu/h		Equipment External Static Pressure	0.5	"w.c.		Make	Amana			Make	Type	Amana	1.5	Ton			
Level 2 Net Load	8,315	btu/h		Additional Equipment Pressure Drop	0.225	"w.c.		Model	GMEC960302BNA			Model		Cond.-----	1.5				
Level 3 Net Load	7,492	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	25,446	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	13,149	btu/h		S/A Plenum Pressure	0.14	"w.c.		Water Temp		deg. F.		Blower DATA:							
Total Heat Loss + 10%	27,991	Btu/h		Heating Air Flow Proportioning Factor	0.0244	cfm/btuh		AFUE	96%			Blower Speed Selected:	T2	Blower Type	ECM				
Building Volume Vb	16356	ft³		Cooling Air Flow Proportioning Factor	0.0472	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.	11	12	13	14											6	7	8	9	10										
Room Use	PLEN	BASE	BASE	BASE											KIT	GREAT	LAUND	FOY	PWD										
Btu/Outlet	3086	2184	2184	2184											1556	2435	1494	1902	928										
Heating Airflow Rate CFM	75	53	53	53											38	59	36	46	23										
Cooling Airflow Rate CFM	5	7	7	7											107	96	51	73	15										
Duct Design Pressure	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13			
Actual Duct Length	28	9	31	39											42	44	25	14	8										
Equivalent Length	140	120	100	120	90	90	90	90	90	90	90	90	90	90	110	90	120	110	90	90	90	90	90	90	90	90			
Total Effective Length	168	129	131	159	90	90	90	90	90	90	90	90	90	90	152	134	145	124	98	90	90	90	90	90	90	90			
Adjusted Pressure	0.08	0.10	0.10	0.08	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.09	0.10	0.09	0.10	0.13	0.14	0.14	0.14	0.14	0.14	0.14	0.14			
Duct Size Round	6	5	5	5											6	6	5	5	3										
Outlet Size	4x10	3x10	3x10	3x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	3x10	3x10	3x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10			
Trunk	C	C	A	B											B	B	A	C	C										

	Level 3 Outlets													Level 4 Outlets													
S/A Outlet No.	1	2	3	4	5																						
Room Use	MAST	ENS	BATH	BED 2	BED 3																						
Btu/Outlet	1508	1345	404	2522	1714																						
Heating Airflow Rate CFM	37	33	10	62	42																						
Cooling Airflow Rate CFM	79	28	4	69	72																						
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	60	49	41	25	22																						
Equivalent Length	120	110	130	150	120	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	
Total Effective Length	180	159	171	175	142	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	
Adjusted Pressure	0.07	0.08	0.08	0.07	0.09	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	4	3	6	5																						
Outlet Size	4x10	3x10	3x10	4x10	3x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	
Trunk	B	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	32	35	5	19	28																												
Equivalent Length	175	220	145	135	190	70	70	70	70	70	70																						
Total Effective Length	207	255	150	154	218	70	70	70	70	70	70																						
Adjusted Pressure	0.06	0.05	0.08	0.08	0.05	0.17	0.17	0.17	0.17	0.17	0.17																						
Duct Size Round	8.0	8.0	7.0	6.0	5.0																												
Inlet Size	8	8	6	FLC	FLC																												
" "	x	x	x	x	x	x	x	x	x	x	x																						
Inlet Size	14	14	30																														
Trunk	Y	Z	Z	Y	Z																												

Return Trunk Duct Sizing					Supply Trunk Duct Sizing				
Trunk	CFM	Press.	Round	Rect. Size	Trunk	CFM	Press.	Round	Rect. Size
Drop	621	0.05	13.5	24x10	A	#####			
Z	621	0.05	13.5	20x8 16x10	B	188			
Y	265	0.06	9.5	10x8 12x7	C	301			
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: T4 Link - Everton

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: 1438

Project # PJ-00022
Layout # JB-00693

Level 1

Run ft. exposed wall A	33 A	PLEN	84 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
Ceiling height	2.0 AG		2.0 AG	AG	AG	AG	AG	AG	AG	AG	AG	AG	AG	AG	AG	AG
Floor area	163 Area		596 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
Exposed Ceilings B	B		B	B	B	B	B	B	B	B	B	B	B	B	B	B
Exposed Floors	163 Flr		Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr
Gross Exp Wall A	66		168													
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	13.79	5.51	0.67														
Net exposed walls B	8.50	8.94	1.08														
Exposed Ceilings A	50.00	1.52	0.72														
Exposed Ceilings B	22.86	3.32	1.58														
Exposed Floors	22.05	3.45	0.15														
Foundation Conductive Heatloss	Slab On Grade (x)																
Total Conductive	Heat Loss																
	Heat Gain																
Air Leakage	Heat Loss/Gain	0.2833	0.0046														
Ventilation	Case 1	x	0.44	0.11													
	Case 2		82.08	9.94													
	Case 3		0.29	0.11													
Heat Gain People			239														
Appliances Loads	1 =.25 percent		2730														
Duct and Pipe loss			10%														
Level 1 HL Total	9,639		Total HL for per room	3086		6553											
Level 1 HG Total	562		Total HG per room x 1.3		98		464										

Level 2

Run ft. exposed wall A	10 A	KIT	28 A	GREAT	14 A	LAUND	18 A	FOY	12 A	PWD	A	A	A	A	A	A
Run ft. exposed wall B	B		B		B		B		B		B	B	B	B	B	B
Ceiling height	9.0		9.0		9.0		9.0		9.0							
Floor area	188 Area		146 Area		62 Area		99 Area		89 Area		Area	Area	Area	Area	Area	Area
Exposed Ceilings A	A		A		A		A		A		Area	Area	Area	Area	Area	Area
Exposed Ceilings 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
Gross Exp Wall A	90		252		126		162		108							
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	Slab On Grade (x)																
Total Conductive	Heat Loss																
	Heat Gain																
Air Leakage	Heat Loss/Gain	0.1615	0.0046														
Ventilation	Case 1	x	0.25	0.11													
	Case 2		82.08	9.94													
	Case 3		0.29	0.11													
Heat Gain People			239														
Appliances Loads	1 =.25 percent		2730														
Duct and Pipe loss			10%														
Level 2 HL Total	8,315		Total HL for per room	1556		2435		1494		1902		928					
Level 2 HG Total	7,241		Total HG per room x 1.3		2271		2030		1072		1543		325				

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	25,446	btu/h
Total Heat Gain	13,149	btu/h

2012 OBC

Builder: Delpark/Highcastle Homes

Date: June 17, 2015

Project: Northglen

Model: T4 Link - Everton

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: 1438

Project # PJ-00022
Layout # JB-00693

Level 3

Run ft. exposed wall A	12 A	18 A	6 A	29 A	13 A	A	A	A	A	A	A
Run ft. exposed wall B	B	B	B	B	B	B	B	B	B	B	B
Ceiling height	8.0	8.0	8.0	8.0	8.0						
Floor area	199 Area	83 Area	47 Area	180 Area	208 Area	Area	Area	Area	Area	Area	Area
Exposed Ceilings A	199 A	83 A	47 A	180 A	208 A	A	A	A	A	A	A
Exposed Ceilings B	B	B	B	B	B	B	B	B	B	B	B
Exposed Floors	Flr	Flr	Flr	15 Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr
Gross Exp Wall A	96	144	48	232	104						
Gross Exp Wall B											

Components	R-Values	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain
North Shaded	3.15	24.13	10.74																
East/West	3.15	24.13	27.18	20	483	544	10	241	272			16	386	435	20	483	544		
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	76	382	46	134	673	81	48	241	29	216	1085	131	84	422	51	
Net exposed walls B	8.50	8.94	1.08																
Exposed Ceilings A	50.00	1.52	0.72	199	302	144	83	126	60	47	71	34	180	274	130	208	316	151	
Exposed Ceilings B	22.86	3.32	1.58																
Exposed Floors	22.05	3.45	0.15										15	52	2				
Foundation Conductive Heatloss																			
Total Conductive																			
Heat Loss				1167				1041		313			1796		1221				
Heat Gain					734			413			63		699		745				
Air Leakage	Heat Loss/Gain	0.1144	0.0046	134	3			119	2	36	0		206	3	140	3			
Case 1	x	0.18	0.11	208	78			185	44	56	7		320	74	217	79			
Case 2		82.08	9.94																
Case 3		0.29	0.11																
Heat Gain People			239	2		478						1		239	1		239		
Appliances Loads	1 =.25 percent		2730																
Duct and Pipe loss			10%									1	200	101	1	136	106		
Level 3 HL Total	7,492		Total HL for per room	1508			1345		404			2522		1714					
Level 3 HG Total	5,346		Total HG per room x 1.3		1681			597		91			1451		1525				

Level 4

Run ft. exposed wall A	A	A	2015	A	A	A	A	A	A	A	A
Run ft. exposed wall 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
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											
Gross Exp Wall B											

Components	R-Values	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain
North Shaded	3.15	24.13	10.74																
East/West	3.15	24.13	27.18																
South	3.15	24.13	20.71																
Existing Windows	1.99	38.19	21.24																
Skylight	2.03	37.44	87.34																
Doors	3.01	25.25	3.06																
Net exposed walls A	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	0.0046																
Case 1	x	0.00	0.11																
Case 2		82.08	9.94																
Case 3		0.29	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																

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

Total Heat Loss	25,446	btu/h
Total Heat Gain	13,149	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:

T4 Link - Everton

RESIDENTIAL MECHANICAL VENTILATION DESIGN SUMMARY

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

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

Builder	
Name	Delpark/Highcastle Homes
Address	
City	
Tel	Fax

Installing Contractor	
Name	
Address	
City	
Tel	Fax

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

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

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

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

Total Ventilation Capacity 9.32.3.3(1)			
Bsmt & Master Bdrm	2 @ 20 cfm	40 cfm	
Other Bedrooms	2 @ 10 cfm	20 cfm	
Bathrooms & Kitchen	4 @ 10 cfm	40 cfm	
Other rooms	3 @ 10 cfm	30 cfm	
Total		<u>130</u>	

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

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

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

Supplemental Ventilation Capacity	
Total ventilation capacity	130.0
Less principal exhaust capacity	60.0
REQUIRED supplemental vent. Capacity	<u>70.0</u> 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-00693

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 T4 Link - Everton		Unit number	Lot/Con
Municipality Clarington	Postal code	Reg. Plan number / other description	

B. Compliance Option

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

C. Project Design Conditions

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

Windows+Skylights+Glass Doors		Other Building Conditions			
Gross Wall Area =	148 m²	% Windows+ 9%	☐ ICF Basement	☐ Walkout Basement	☐ Log/Post&Beam
Gross Window+ Area =	14 m²		☐ ICF Above Grade	☐ 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 1. Provide U-Value in W/m2.K, or ER rating 2. Provide AFUE or indicate if condensing type combined system used	
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: BOP form attached. The house will be labeled on completion by:
Energy Star and EnerGuide80:
 Evaluator/Advisor/Rater Name: _____ Evaluator/Advisor/Rater Licence #: _____

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

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

Package: Package D System: System 1
Project: Clarington Model: T4 Link - Everton

Air Leakage Calculations

Building Air Leakage Heat Loss				
B	LRairh	Vb	HL ^Δ T	HL _{leak}
0.018	0.142	16356	76	3168

Building Air Leakage Heat Gain				
B	LRairh	Vb	HG ^Δ T	HG _{Leak}
0.018	0.009	16356	9.2	26

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	3168	5593	0.2833
2	0.3		5887	0.1615
3	0.2		5537	0.1144
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	
	26		
BUILDING CONDUCTIVE HEAT GAIN	5599		0.0046

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	5593	0.44	Building	5599				
	2	0.3		5887	0.25						
	3	0.2		5537	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	0.29		HGbvent		HG*1.3	596	0.11	
						596		1			

Foundation Conductive Heatloss Level 1 1277 Watts 4356 Btu/h

Foundation Conductive Heatloss Level 2 Watts Btu/h

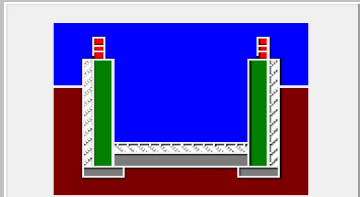
Envelope Air Leakage Calculator

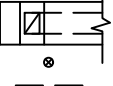
Supplemental tool for CAN/CSA-F280

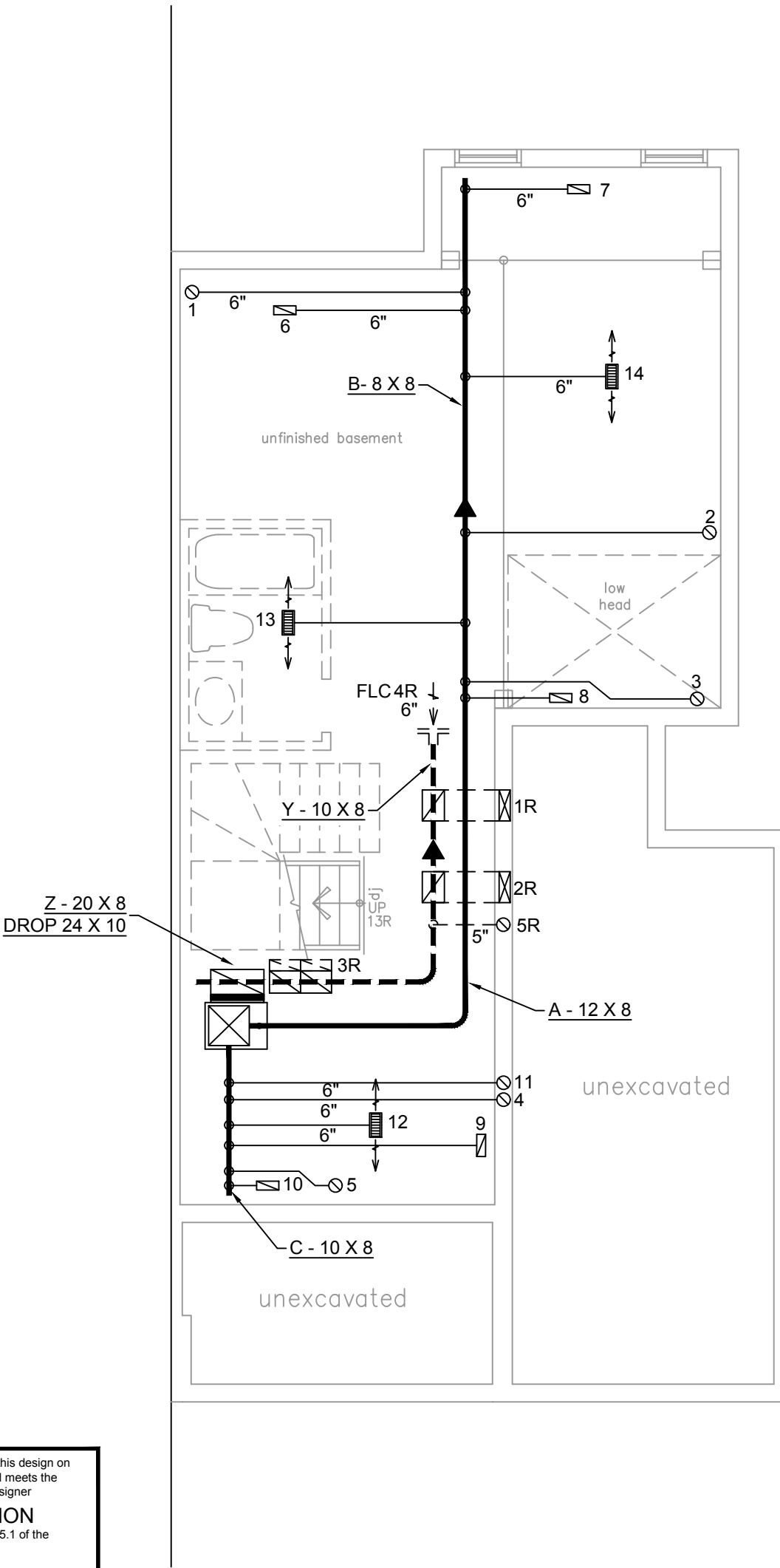
Weather Station Description				
Province:	Ontario ▼			
Region:	Durham ▼			
Weather Station Location:	Open flat terrain, grass ▼			
Anemometer height (m):	10			
Local Shielding				
Building Site:	Suburban, forest ▼			
Walls:	Heavy ▼			
Flue:	Heavy ▼			
Highest Ceiling Height (m):	5.79			
Building Configuration				6.4
Type:	Semi-Detached ▼			
Number of Stories:	Two ▼			
Foundation:	Full ▼			
House Volume (m ³):	566.3 463.20			
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):		0.142		
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):	14.46	 Insulation Configuration
Floor Width (m):	3.83	
Exposed Perimeter (m):	35.66	
Wall Height (m):	2.74	
Depth Below Grade (m):	2.13	
Window Area (m ²):	0.56	
Door Area (m ²):	1.95	
Radiant Slab		
Heated Fraction of the Slab:	0	
Fluid Temperature (°C):	23	
Design Months		
Heating Month	1	
Foundation Loads		
Heating Load (Watts):		1277

	FLEX DUCT		LOW/HIGH WALL/KICK		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

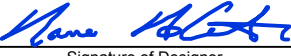
FURNACE EQUIPPED WITH BRUSHLESS DC MOTOR AS PER OBC 12.3.1.5 (2)

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



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



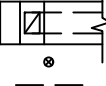
2985 DREW ROAD
SUITE 202,
MISSISSAUGA, ONT.
L4T 0A4 TEL: 416-268-6820
email: dave@gtadesigns.ca
web: www.gtadesigns.ca

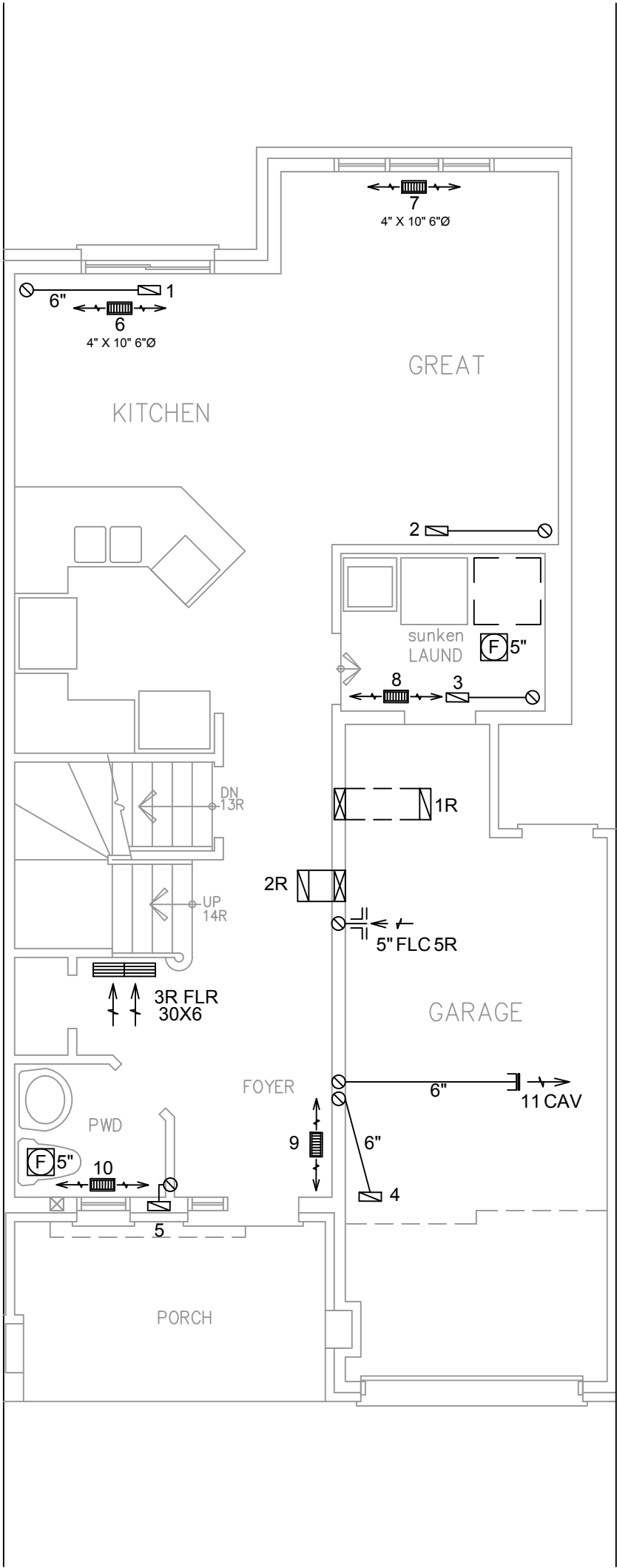
HEAT-LOSS	25,446	BTU/HR.
UNIT MAKE	AMANA	OR EQUAL.
UNIT MODEL	GMEC960302BNA	OR EQUAL.
UNIT HEATING INPUT	30,000	BTU/HR.
UNIT HEATING OUTPUT	28,800	BTU/HR.
A/C COOLING CAPACITY	1.5	TONS.
FAN SPEED	621	CFM

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

FLOOR PLAN: BASEMENT	
DRAWN BY: RB	CHECKED: DD
LAYOUT NO. JB-00693	DRAWING NO. M1

DATE:	JUNE 17, 2015
CLIENT:	DELPARK HIGHCASTLE
MODEL:	T4 LINK - EVERTON
PROJECT:	NORTHGLEN BOWMANVILLE,ONT.
SCALE:	3/16" = 1'-0"

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



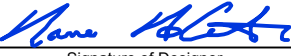
- INSULATE ALL DUCTS IN UNCONDITIONED SPACES MIN. R12
- ALL DUCTWORK MUST BE SEALED TO CLASS A LEVEL AS PER OBC PART 6-6.2.4.3. (11)
- CIRCULATION PRINCIPAL FAN SWITCH TO BE CENTRALLY LOCATED

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QUALIFICATION INFORMATION

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David Da Costa



B.C.I.N. 32964

Signature of Designer

OBC 2012

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

NOTES

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ALL R/A PARTITIONS 6" (FIRST FLOOR ONLY)
INSULATE DUCTS IN UNCONDITIONED SPACES R12 UNDERCUT ALL DOORS 1" MIN.
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gtaDesigns

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

HEAT-LOSS

25,446

BTU/HR.

UNIT MAKE

AMANA

OR EQUAL.

UNIT MODEL

GMEC960302BNA

OR EQUAL.

UNIT HEATING INPUT

30,000

BTU/HR.

UNIT HEATING OUTPUT

28,800

BTU/HR.

A/C COOLING CAPACITY

1.5

TONS.

FAN SPEED

621

CFM

OF RUNS

S/A

R/A

FANS

3RD FLOOR

2ND FLOOR

5

2

2

1ST FLOOR

6

2

3

BASEMENT

3

1

FLOOR PLAN:

GROUND FLOOR

DRAWN BY:

CHECKED:

SQFT

RB

DD

1438

LAYOUT NO.

DRAWING NO.

JB-00693

M2

DATE:

JUNE 17, 2015

CLIENT:

DELPARK HIGHCASTLE

MODEL:

T4 LINK - EVERTON

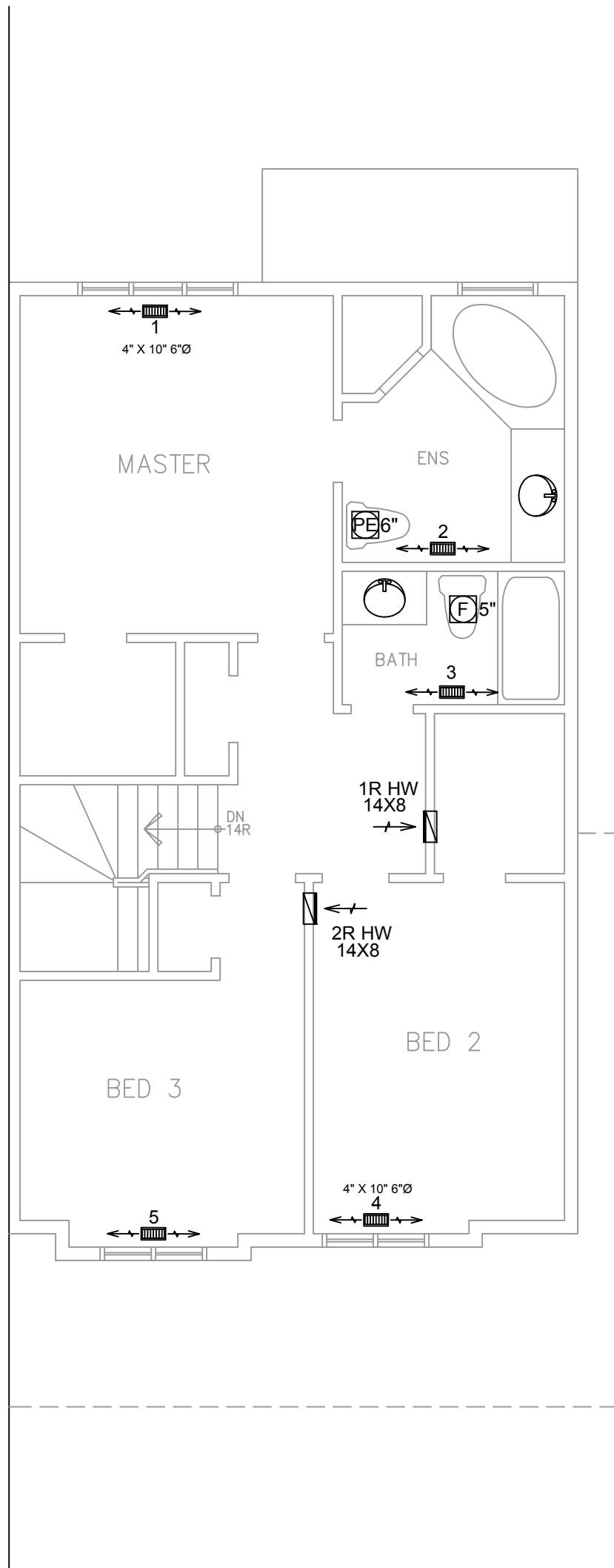
PROJECT:

NORTHGLEN
BOWMANVILLE,ONT.

SCALE:

3/16" = 1'-0"

  	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.   	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

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David Da Costa

Signature of Designer

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

INSULATE DUCTS IN UNCONDITIONED SPACES R12

UNDERCUT ALL DOORS 1" MIN.

HEATING CONTRACTOR MUST WORK FROM APPROVED PLANS.

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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	25,446	BTU/HR.
UNIT MAKE	AMANA	OR EQUAL.
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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	5	2	2
1ST FLOOR	6	2	3
BASEMENT	3	1	

FLOOR PLAN:		SECOND FLOOR	
DRAWN BY:	CHECKED:	SQFT	1438
RB	DD		
LAYOUT NO.	DRAWING NO.		
JB-00693			M3

DATE:	JUNE 17, 2015
CLIENT:	DELPARK HIGHCASTLE
MODEL:	T4 LINK - EVERTON
PROJECT:	NORTHGLEN BOWMANVILLE, ONT.
SCALE:	3/16" = 1"-0"

OBC 2012

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