


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 <div style="text-align: center;">40-7</div>			Lot:	
			Lot/con.	
Municipality <div style="text-align: center;">Newcastle (Bowmanville)</div>	Postal code	Plan number/ other description		
B. Individual who reviews and takes responsibility for design activities				
Name <div style="text-align: center;">David DaCosta</div>		Firm <div style="text-align: center;">gtaDesigns Inc.</div>		
Street address <div style="text-align: center;">2985 Drew Road, Suite 202</div>			Unit no.	Lot/con.
Municipality <div style="text-align: center;">Mississauga</div>	Postal code <div style="text-align: center;">L4T 0A4</div>	Province <div style="text-align: center;">Ontario</div>	E-mail <div style="text-align: center;">dave@gtadesigns.ca</div>	
Telephone number <div style="text-align: center;">(905) 671-9800</div>		Fax number <div style="text-align: center;">(647) 494-9643</div>	Cell number <div style="text-align: center;">(416) 268-6820</div>	
C. Design activities undertaken by individual identified in Section B. [Building Code Table 3.5.2.1 of Division C]				
<div style="display: flex; flex-wrap: wrap;"> <div style="width: 33%;"> <input type="checkbox"/> House <input type="checkbox"/> Small Buildings <input type="checkbox"/> Large Buildings <input type="checkbox"/> Complex Buildings </div> <div style="width: 33%;"> <input checked="" type="checkbox"/> HVAC – House <input type="checkbox"/> Building Services <input type="checkbox"/> Detection, Lighting and Power <input type="checkbox"/> Fire Protection </div> <div style="width: 33%;"> <input type="checkbox"/> Building Structural <input type="checkbox"/> Plumbing – House <input type="checkbox"/> Plumbing – All Buildings <input type="checkbox"/> On-site Sewage Systems </div> </div>				
Description of designer's work		Model Certification	Project #:	15-34B
Heating and Cooling Load Calculations		Builder		
Air System Design		Project	Northglen	
Residential mechanical ventilation Design Summary		Model	40-7	
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> <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>				
<u>March 18, 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 _____ and may not be used by any other persons without authorization. Documents for permit and/or construction are signed in red.					Project No. 15-34B
Building Location					
Address (Model): 40-7			Site: Northglen		
Model:			Lot:		
City and Province: Newcastle (Bowmanville)			Postal code:		
Calculations based on					
Dimensional information based on:			n/a		
Attachment: Detached		Front facing: East/West		Assumed? Yes	
No. of Levels: 3 Ventilated? Included		Air tightness: 1961- Present (ACH=3.57)		Assumed? Yes	
Weather location: Newcastle (Bowmanville)		Wind exposure: Shelterd			
HRV?		Internal shading: Light-translucent Occupants: 6			
Sensible Eff. at -25C 0		Apparent Effect. at -0C 0		Units: Imperial	
Heating design conditions			Cooling design conditions		
Outdoor temp -4.0 Indoor temp: 72 Mean soil temp 50			Outdoor temp 86 Indoor temp: 75 Latitude: 44		
Above grade walls			Below grade walls		
Style A: As per Selected OBC SB12 Package D R 24			Style A: As per Selected OBC SB12 Package D R 20		
Style B: Existing Walls (When Applicable) R 12			Style B:		
Style C:			Style C:		
Style D:			Style D:		
Floors on soil			Ceilings		
Style A: As per Selected OBC SB12 Package D			Style A: As per Selected OBC SB12 Package D R 50		
Style B:			Style B: As per Selected OBC SB12 Package D R 31		
Exposed floors			Style C:		
Style A: As per Selected OBC SB12 Package D R 31			Doors		
Style B:			Style A: As per Selected OBC SB12 Package D R 3.01		
Windows			Style B:		
Style A: As per Selected OBC SB12 Package D R 3.15			Style C:		
Style B: Existing Windows (When Applicable) R 1.99			Skylights		
Style C:			Style A: As per Selected OBC SB12 Package D R 2.03		
Style D:			Style B:		
Attached documents: As per Shedule 1					
Notes: Residential New Construction - Forced Air					
Calculations performed by					
Name: David DaCosta			Postal code: L4T 0A4		
Company: gtaDesigns Inc.			Telephone: (905) 671-9800		
Address: 2985 Drew Road, Suite 202			Fax: (416) 268-6820		
City: Mississauga			E-mail: dave@gtadesigns.ca		

Package D

Builder: _____

Date: March 18, 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.

Project # 15-34B

Project: Northglen

Model: 40-7

System 1

Individual BCIN: 32964

David DaCosta

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DESIGN LOAD SPECIFICATIONS		AIR DISTRIBUTION & PRESSURE		FURNACE/AIR HANDLER DATA:		BOILER/WATER HEATER DATA:		A/C UNIT DATA:	
Level 1 Net Load	16,717 btu/h	Equipment External Static Pressure	0.5 "w.c.	Make	Amana	Make	Type	Amana	2.0 Ton
Level 2 Net Load	16,079 btu/h	Additional Equipment Pressure Drop	0.225 "w.c.	Model	GMEC960603BNA	Model		Cond.-----	2.0
Level 3 Net Load	14,819 btu/h	Available Design Pressure	0.275 "w.c.	Input Btu/h	60000	Input Btu/h		Coil -----	2.0
Level 4 Net Load	0 btu/h	Return Branch Longest Effective Length	300 ft	Output Btu/h	57000	Output Btu/h			
Total Heat Loss	47,614 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	23,924 btu/h	S/A Plenum Pressure	0.14 "w.c.	Water Temp	deg. F.	Blower DATA:			
Total Heat Loss + 10%	52,376 Btu/h	Heating Air Flow Proportioning Factor	0.0246 cfm/btuh	AFUE	95%	Blower Speed Selected:	T4	Blower Type	ECM
Building Volume Vb	32232 ft³	Cooling Air Flow Proportioning Factor	0.0403 cfm/btuh	Aux. Heat				(Brushless DC OBC 12.3.1.5.(2))	
Ventilation Load	7,047 Btu/h.	R/A Temp	70 deg. F.	SB-12 Package	Package D	Heating Check	1170 cfm	Cooling Check	963 cfm
Ventilation PVC	75 cfm	S/A Temp	115 deg. F.						
Supply Branch and Grill Sizing		Diffuser loss	0.01 "w.c.	Temp. Rise>>>	45 deg. F.	Selected cfm>	1170 cfm	Cooling Air Flow Rate	963 cfm

	Level 1 Outlets														Level 2 Outlets													
S/A Outlet No.	17	18	19	20											9	10	11	12	13	14	15	16						
Room Use	BASE	BASE	BASE	BASE											LIV/DIN	KITCHEN	LAUND	FOYER	WIC	PWD	STUDY	PLEN						
Btu/Outlet	4179	4179	4179	4179											3289	3213	1825	2641	906	506	1153	2545						
Heating Airflow Rate CFM	103	103	103	103											81	79	45	65	22	12	28	63						
Cooling Airflow Rate CFM	16	16	16	16											104	110	73	104	16	9	86	9						
Duct Design Pressure	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13				
Actual Duct Length	22	20	25	27											35	31	15	20	25	19	18	39						
Equivalent Length	140	90	140	140	90	90	90	90	90	90	90	90	90	110	110	150	100	120	170	140	170	90	90	90	90			
Total Effective Length	162	110	165	167	90	90	90	90	90	90	90	90	90	145	141	165	120	145	189	158	209	90	90	90	90			
Adjusted Pressure	0.08	0.12	0.08	0.08	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.09	0.09	0.08	0.11	0.09	0.07	0.08	0.06	0.14	0.14	0.14	0.14			
Duct Size Round	6	6	6	6											6	6	5	6	4	3	6	6						
Outlet Size	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	3x10	4x10	3x10	3x10	4x10	4x10	4x10	4x10	4x10	4x10			
Trunk	C	A	B	B											B	B	A	C	C	C	A	C						

	Level 3 Outlets								Level 4 Outlets															
S/A Outlet No.	1	2	3	4	5	6	7	8																
Room Use	MASTER	INSUITE	BED 2	BATH	GREAT	GREAT	BED 3	BED 4																
Btu/Outlet	2839	1594	1332	891	2404	2404	2146	1210																
Heating Airflow Rate CFM	70	39	33	22	59	59	53	30																
Cooling Airflow Rate CFM	85	31	33	12	62	62	60	41																
Duct Design Pressure	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13
Actual Duct Length	56	54	32	41	49	45	37	31																
Equivalent Length	120	170	140	140	150	170	200	140	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90
Total Effective Length	176	224	172	181	199	215	237	171	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90
Adjusted Pressure	0.07	0.06	0.08	0.07	0.07	0.06	0.05	0.08	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	5	4	4	6	6	6	5																
Outlet Size	4x10	3x10	3x10	3x10	4x10	4x10	4x10	3x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10
Trunk	B	B	A	A	C	C	C	A																

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	90	150	150	390	150	160	13												
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	40	26	42	15	15	14	40												
Equivalent Length	170	175	175	185	185	175	145	70	70	70	70								
Total Effective Length	210	201	217	200	200	189	185	70	70	70	70								
Adjusted Pressure	0.06	0.06	0.05	0.06	0.06	0.06	0.06	0.17	0.17	0.17	0.17								
Duct Size Round	6	8	8	11	8	7	4												
Inlet Size	8	8	8	8	8	FLC	CAV												
" "	x	x	x	x	x	x	x	x	x	x	x								
Inlet Size	14	14	14	30	14														

Return Trunk Duct Sizing					Supply Trunk Duct Sizing				
Trunk	CFM	Press.	Round	Rect. Size	Trunk	CFM	Press.	Round	Rect. Size
Drop	1170	0.05	17.0	24x12	A	734	0.06	14.0	22x8 18x10
Z	1103	0.05	17.0	26x10 22x12	B	474	0.06	12.0	16x8 12x10
Y	640	0.06	13.0	18x8 14x10	C	436	0.05	12.0	16x8 12x10
X	163	0.05	8.5	8x8 107	D				
W					E				
V					F				
U					G				
T					H				
S					I				
R					J				
Q					K				

Builder: _____ Date: March 18, 2015

Weather Data Newcastle (Bowmanville) 44 -4.0 86 52 50 Project # 15-34B

2012 OBC Project: Northglen Model: 40-7 System 1 Heat Loss ^T 76 deg. F Ht gain ^T 11 deg. F GTA: 2532 Page 4

Level 1				BASE															
Run ft. exposed wall A	138	A		A		A		A		A		A		A		A		A	
Run ft. exposed wall B	B			B		B		B		B		B		B		B		B	
Ceiling height	3.5	AG		AG		AG		AG		AG		AG		AG		AG		AG	
Floor area	1012	Area		Area		Area		Area		Area		Area		Area		Area		Area	
Exposed Ceilings A	A			A		A		A		A		A		A		A		A	
Exposed Ceilings B	B			B		B		B		B		B		B		B		B	
Exposed Floors	Flr			Flr		Flr		Flr		Flr		Flr		Flr		Flr		Flr	
Gross Exp Wall A	483																		
Gross Exp Wall B																			
Components	R-Values	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain
North Shaded	3.15	24.13	11.31																
East/West	3.15	24.13	27.75	5	121	139													
South	3.15	24.13	21.28	15	362	319													
Existing Windows	1.99	38.19	22.15																
Skylight	2.03	37.44	88.23																
Doors	3.01	25.25	3.65	21	530	77													
Net exposed walls A	13.79	5.51	0.80	442		353													
Net exposed walls B	8.50	8.94	1.29																
Exposed Ceilings A	50.00	1.52	0.76																
Exposed Ceilings B	22.86	3.32	1.66																
Exposed Floors	22.05	3.45	0.23																
Foundation Conductive Heatloss	Slab On Grade (x)																		
Total Conductive	Heat Loss																		
	Heat Gain																		
Air Leakage	Heat Loss/Gain	0.4518	0.0094	4244		887													
	Case 1	X	0.33	3078		70													
	Case 2		82.08																
	Case 3		0.19																
Heat Gain People			239	1		239													
Appliances Loads	1 =.25 percent		4538																
Duct and Pipe loss			10%																
Level 1 HL Total	16,717		Total HL for per room	16717															
Level 1 HG Total	1,566		Total HG per room x 1.3			1566													

Level 2				LIV/DIN		KITCHEN		LAUND		FOYER		WIC		PWD		STUDY		PLEN		A	A	A						
Run ft. exposed wall A				31	A	28	A	24	A	24	A	10	A	5	A	9	A	50	A	A	A	A						
Run ft. exposed wall B				B		B		B		B		B		B		B		B		B	B	B						
Ceiling height				10		10		10		10		10		10		10		2										
Floor area				272	Area	322	Area	104	Area	97	Area	16	Area	27	Area	132	Area	345	Area	Area	Area	Area						
Exposed Ceilings 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						
Exposed Floors				Flr		Flr		Flr		Flr		Flr		Flr		Flr		345	Flr	Flr	Flr	Flr						
Gross Exp Wall A				310		280		240		240		100		50		90		100										
Gross Exp Wall B																												
Components	R-Values	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain					
North Shaded	3.15	24.13	11.31					6	145	68																		
East/West	3.15	24.13	27.75	30	724	832		35	844	971		21	507	583		8	193	222										
South	3.15	24.13	21.28	13	314	277		13	314	277						6	145	128	20	483	426							
Existing Windows	1.99	38.19	22.15																									
Skylight	2.03	37.44	88.23																									
Doors	3.01	25.25	3.65								15	379	55															
Net exposed walls A	15.13	5.02	0.73	267	1341	194		232	1165	169	234	1175	170	204	1025	148	92	462	67	44	221	32	70	352	51	100	502	73
Net exposed walls B	8.50	8.94	1.29																									
Exposed Ceilings A	50.00	1.52	0.76																									
Exposed Ceilings B	22.86	3.32	1.66																									
Exposed Floors	22.05	3.45	0.23																							345	1189	78
Foundation Conductive Heatloss	Slab On Grade (x)		x																									
Total Conductive	Heat Loss				2379				2323			1320			1910			655			366			834			1691	
	Heat Gain					1303			1416				238		786				289			160		476			151	
Air Leakage	Heat Loss/Gain		0.2219	0.0094	528	12		515	13		293	2		424	7		145	3		81	2		185	4		375	1	
Ventilation	Case 1	X	0.16	0.08	383	103		374	112		212	19		307	62		105	23		59	13		134	38		272	12	
	Case 2		82.08	11.88																								
	Case 3		0.19	0.08																								
Heat Gain People				239																								
Appliances Loads			1 =.25 percent	4538	1		567	1		567	1		1134	1		1134			1				1134		1	207	16	
Duct and Pipe loss				10%																								
Level 2 HL Total	16,079		Total HL for per room		3289			3213			1825		1811		2641		906		409		506		1153		2149	2545	235	
Level 2 HG Total	12,738		Total HG per room x 1.3				2581			2741			2586															

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

Total Heat Loss	47,614	btu/h
Total Heat Gain	23,924	btu/h

Package D

Builder: _____ Date: March 18, 2015

Weather Data Newcastle (Bowmanville) 44 -4.0 86 52 50 Project # 15-34B

2012 OBC Project: Northglen Model: 40-7 System 1 Heat Loss ^T 76 deg. F Ht gain ^T 11 deg. F GTA: 2532 Page 5

Level 3				MASTER		ENSUITE		BED 2		BATH		GREAT		BED 3		BED 4														
Run ft. exposed wall A				35	A	19	A	13	A	11	A	44	A	23	A	11	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				8		8		8		8		10		8		8														
Floor area				267	Area	85	Area	156	Area	90	Area	322	Area	175	Area	145	Area	Area	Area	Area	Area	Area	Area	Area	Area	Area	Area			
Exposed Ceilings A				267	A	85	A	156	A	90	A	322	A	175	A	145	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				280		152		104		88		440		184		88														
Gross Exp Wall B																														
Components				R-Values	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain		
North Shaded				3.15	24.13	11.31																								
East/West				3.15	24.13	27.75	24	579	666		10	241	113		16	386	181		7	169	79		60	1448	1665		10	241	277	
South				3.15	24.13	21.28																								
Existing Windows				1.99	38.19	22.15																								
Skylight				2.03	37.44	88.23																								
Doors				3.01	25.25	3.65																								
Net exposed walls A				15.13	5.02	0.73	256	1286	186		132	663	96	88	442	64	81	407	59		380	1909	276	164	824	119	72	362	52	
Net exposed walls B				8.50	8.94	1.29																								
Exposed Ceilings A				50.00	1.52	0.76	267	406	203		85	129	65	156	237	119	90	137	68	322	489	245	175	266	133	145	220	110		
Exposed Ceilings B				22.86	3.32	1.66																								
Exposed Floors				22.05	3.45	0.23																								
Foundation Conductive Heatloss																														
Total Conductive	Heat Loss						2271				1275			1065		713		3846		1572		968								
	Heat Gain							1055			551			363		206		2186		742			503							
Air Leakage	Heat Loss/Gain				0.1450	0.0094	329	10			185	5		154	3	103	2	558	21	228	7	140	5							
Ventilation	Case 1			X	0.11	0.08	239	83			134	43		112	29	75	16	404	172	165	58	102	40							
	Case 2				82.08	11.88																								
	Case 3				0.19	0.08																								
Heat Gain People							2		478			1		239				1		239	1		239							
Appliances Loads				1	=.25 percent	4538																								
Duct and Pipe loss						10%																								
Level 3 HL Total	14,819			Total HL for per room			2839			1594		1332		891		4808		2146		1210		1022								
Level 3 HG Total	9,621			Total HG per room x 1.3				2114		780		825		292		3092		1496												

Level 4				A		A		A		A		A		A		A		A		A		A		A		A	
Run ft. exposed wall A				A		A		A		A		A		A		A		A		A		A		A		A	
Run ft. exposed wall B				B		B		B		B		B		B		B		B		B		B		B		B	
Ceiling height																											
Floor area				Area		Area		Area		Area		Area		Area		Area		Area		Area		Area		Area		Area	
Exposed Ceilings A				A		A		A		A		A		A		A		A		A		A		A		A	
Exposed Ceilings B				B		B		B		B		B		B		B		B		B		B		B		B	
Exposed Floors				Flr		Flr		Flr		Flr		Flr		Flr		Flr		Flr		Flr		Flr		Flr		Flr	
Gross Exp Wall A																											
Gross Exp Wall B																											
Components	R-Values	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain
North Shaded	3.15	24.13	11.31																								
East/West	3.15	24.13	27.75																								
South	3.15	24.13	21.28																								
Existing Windows	1.99	38.19	22.15																								
Skylight	2.03	37.44	88.23																								
Doors	3.01	25.25	3.65																								
Net exposed walls A	15.13	5.02	0.73																								
Net exposed walls B	8.50	8.94	1.29																								
Exposed Ceilings A	50.00	1.52	0.76																								
Exposed Ceilings B	22.86	3.32	1.66																								
Exposed Floors	22.05	3.45	0.23																								
Foundation Conductive Heatloss																											
Total Conductive	Heat Loss																										
	Heat Gain																										
Air Leakage	Heat Loss/Gain	0.0000	0.0094																								
Ventilation	Case 1	X	0.00																								
	Case 2		82.08																								
	Case 3		0.19																								
Heat Gain People																											
Appliances Loads																											
Duct and Pipe loss																											
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	47,614	btu/h
Total Heat Gain	23,924	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

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

Project: Newcastle (Bowmanville)

Model: 40-7

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	Newcastle (Bowmanville)
Roll #	Permit #
Address	

Builder	
Name	
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
	<input type="checkbox"/> Part 6 design

Total Ventilation Capacity 9.32.3.3(1)				
Bsmt & Master Bdrm	2	@	20	cfm
Other Bedrooms	3	@	10	cfm
Bathrooms & Kitchen	4	@	10	cfm
Other rooms	5	@	10	cfm
Total				160

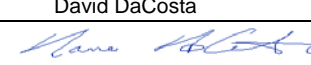
Principal Ventilation Capacity 9.32.3.4(1)				
Master bedroom	1	@	30	cfm
Other bedrooms	3	@	15	cfm
Total				75

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		160.0
Less principal exhaust capacity		75.0
REQUIRED supplemental vent. Capacity		85.0 cfm

Supplemental Fans 9.32.3.5.			
Location	cfm	Model	Sones
Bath	90	684N	2.5
PWD	90	684N	2.5
all fans HVI listed			
Make	Broan		or Equiv.

Designer Certification			
I hereby certify that this ventilation system has been designed in accordance with the Ontario Building Code.			
Name	David DaCosta		
Signature			
HRAI #	5190	BCIN #	32964
Date	March 18, 2015		

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

Project # 15-34B
Page 7

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	Unit number	Lot/Con
40-7		
Municipality	Postal code	Reg. Plan number / other description
Newcastle (Bowmanville)		

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 = 300 m ²	<input type="checkbox"/> ICF Basement <input type="checkbox"/> Walkout Basement <input type="checkbox"/> Log/Post&Beam
Gross Window+ Area = 31 m ²	<input type="checkbox"/> ICF Above Grade <input type="checkbox"/> Slab-on-ground
% Windows+ 10%	

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

Building Component	RSI / R values	Building Component	Efficiency
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/m ² .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

Project: **Newcastle (Bowmanville)**

Model:

System 1
40-7

Air Leakage Calculations

Air Leakage Calculations

Air Leakage Calculations

Building Air Leakage Heat Loss				
B	LRairh	Vb	HL [^] T	HLleak
0.018	0.193	32232	76	8489

Building Air Leakage Heat Gain				
B	LRairh	Vb	HG [^] T	HG Leak
0.018	0.017	32232	11	106

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	8489	9394	0.4518
2	0.3		11479	0.2219
3	0.2		11710	0.1450
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	
	106		
BUILDING CONDUCTIVE HEAT GAIN	11314		0.0094

Levels this Dwelling	
	3

Ventilation Calculations

Vent

Vent

Ventilation Heat Loss				
C	PVC	HL [^] T	(1-E) HRV	HLbvent
1.08	75	76	1.00	6156

Ventilation Heat Gain			
C	PVC	HG [^] T	HGbvent
1.1	75	11	891

Case 1

Case 1

Case 1

Case 1

Ventilation Heat Loss (Exhaust only Systems)

Ventilation Heat Gain (Exhaust Only Systems)

Case 1 - Exhaust Only				
Level	LF	HLbvent	LVL Cond. HL	Multiplier
1	0.5	6156	9394	0.33
2	0.3		11479	0.16
3	0.2		11710	0.11
4	0		0	0.00

Case 1 - Exhaust Only		Multiplier	
HGbvent	891	0.08	
Building	11314		

Case 2

Case 2

Case 2

Case 2

Ventilation Heat Loss (Direct Ducted Systems)

Ventilation Heat Gain (Direct Ducted Systems)

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

		Multiplier
C	HG [^] T	11.88
1.08	11	

Case 3

Case 3

Case 3

Case 3

Ventilation Heat Loss (Forced Air Systems)

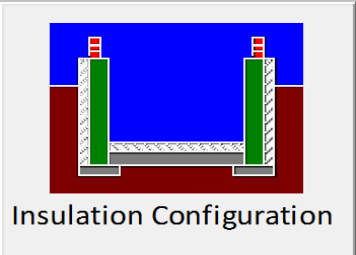
Ventilation Heat Gain (Forced Air Systems)

		HLbvent	Multiplier
Total Ventilation Load		6156	0.19

		Vent Heat Gain		Multiplier
HGbvent	HG [^] 1.3	891	1	0.08
891	1			

Residential Foundation Thermal Load Calculator

Supplemental tool for CAN/CSA-F280


Weather Station Description		
Province:	Ontario	▼
Region:	Newcastle (Bowmanville)	▼
Site Description		
Soil Conductivity:	High conductivity: moist soil	▼
Water Table:	Normal (7-10 m, 23-33 Ft)	▼
Foundation Dimensions		
Floor Length (m):	14.52	 <p>Insulation Configuration</p>
Floor Width (m):	6.52	
Exposed Perimeter (m):	42.06	
Wall Height (m):	2.74	
Depth Below Grade (m):	1.68	
Window Area (m ²):	1.86	
Door Area (m ²):	1.95	
Radiant Slab		
Heated Fraction of the Slab:	0	
Fluid Temperature (°C):	23	
Design Months		
Heating Month	1	
Foundation Loads		
Heating Load (Watts):		2457

Envelope Air Leakage Calculator


Supplemental tool for CAN/CSA-F280

Weather Station Description				
Province:	Ontario ▼			
Region:	Newcastle (Bowmanville) ▼			
Weather Station Location:	Open flat terrain, grass ▼			
Anemometer height (m):	10			
Local Shielding				
Building Site:	Suburban, forest ▼			
Walls:	Heavy ▼			
Flue:	Heavy ▼			
Highest Ceiling Height (m):	6.55			
Building Configuration				
Type:	Detached ▼			
Number of Stories:	Two ▼			
Foundation:	Full ▼			
House Volume (m ³):	912.81			
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		37.5	
Flue Size				
Flue #:	#1	#2	#3	#4
Diameter (mm):	0	0	0	0
Envelope Air Leakage Rate				
Heating Air Leakage Rate (ACH/H):		0.193		
Cooling Air Leakage Rate (ACH/H):		0.017		


H.V.A.C. SYMBOLS




FLEX DUCT




RIDIT ROUND DUCT




SUPPLY MAIN DUCT




SUPPLY DIFFUSER




LOW/HIGH WALL SUPPLY DIFFUSER



HRV EXHAUST GRILL



SUPPLY AIR PIPE RISER





VOLUME DAMPER

ABBREVIATIONS

S.A.

R.A.






SUPPLY AIR


RETURN AIR

THERMOSTAT

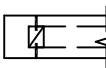
PRINCIPAL EXHAUST FAN SWITCH




RETURN AIR GRILLE
(SIZE INDICATED ON DRAWING)




RETURN AIR PIPE RISER




DUCT CONNECTION
TO JOIST LINING




RETURN MAIN DUCT




RETURN ROUND DUCT




RETURN AIR RISER UP TO
FLOOR ABOVE



RETURN AIR FROM BASEMENT
SECOND FLOOR



W/R EXHAUST FAN



W/R PRINCIPAL EXHAUST FAN


ZONE 1 COMPLIANCE PACKAGE "D" REF. TABLE 2.1.1.2.A	
SPACE HEATING EFFICEINCY(%)	94%
HRV EFFICEINCY(%)	N/A
DHW EFFICIENCY(EF)	.67
CEILING WITH ATTIC SPACE	R-50
WALLS ABOVE GRADE	R-24
EXPOSED FLOORS	R-31
BASEMENT WALLS	R-20
WINDOWS AND SLIDING GLASS DOORS U-VALUE	1.8

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

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 EXHUAST FAN EXCEEDS 700 CFM DEPRESSURIZATION MAY OCCUR WITH IN THE DWELLING



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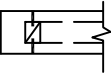



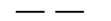









2985 DREW ROAD
SUITE 202,
MISSISSAUGA, ONT.
L4T 0A4 TEL: 416-268-6820
email: dave@gtadesigns.ca
web: www.gtadesigns.ca

HEAT-LOSS	47,434	BTU/HR.
UNIT MAKE	AMANA	
UNIT MODEL	GMEC960603BNA	
UNIT HEATING INPUT	60,000	BTU/HR.
UNIT HEATING OUTPUT	57,000	BTU/HR.
A/C COOLING CAPACITY	2.0	TONS.
FAN SPEED	1170	CFM

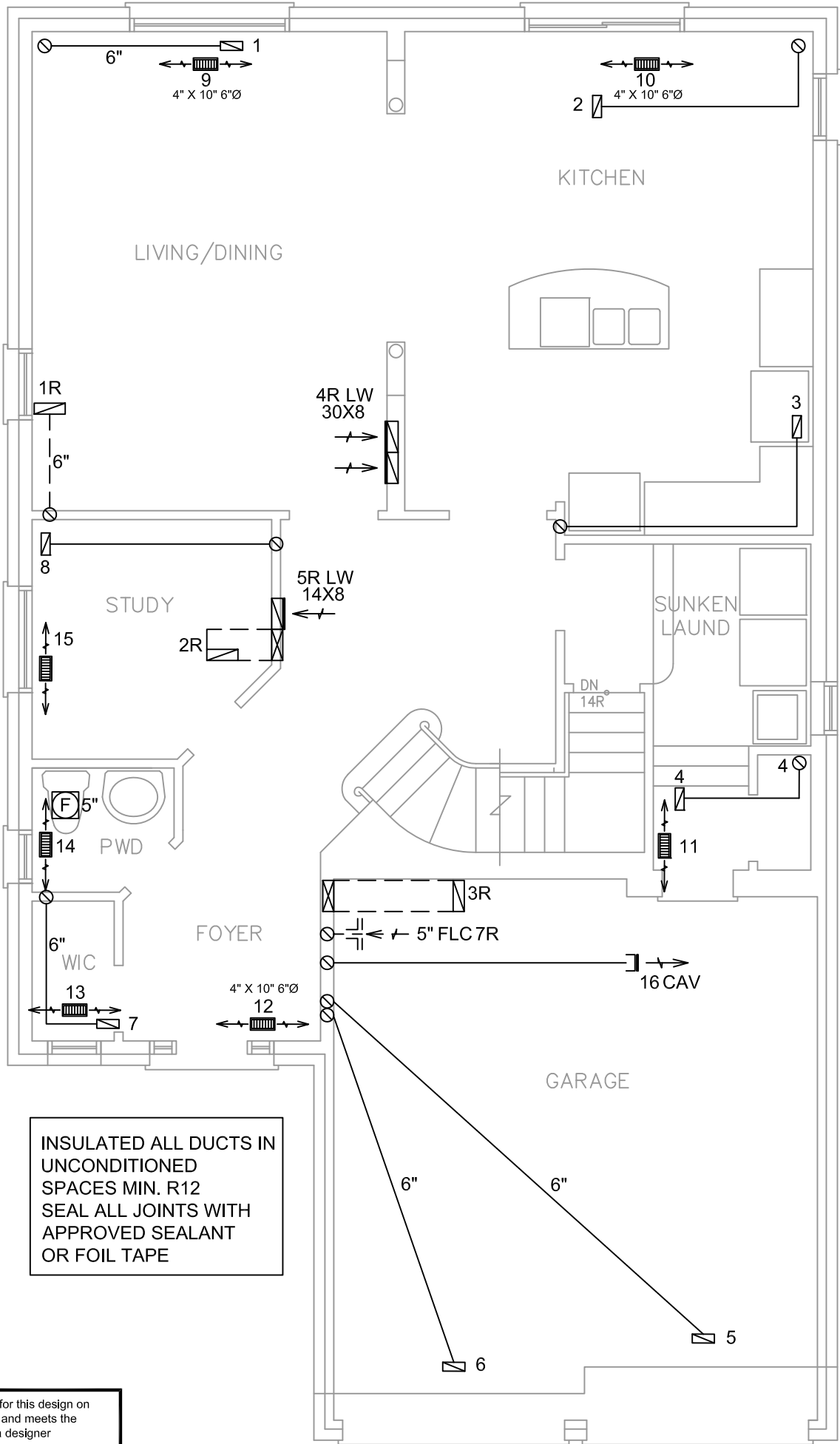
# OF RUNS	S/A	R/A	FANS
3RD FLOOR			
2ND FLOOR	8	3	2
1ST FLOOR	8	3	2
BASEMENT	4	1	

FLOOR PLAN: BASEMENT	
DRAWN BY D. DACOSTA	SQFT 2532
LAYOUT NO. 15-34B	DRAWING NO. 1/3

DATE:	MARCH 18, 2015
CLIENT:	HIGHCASTLE/DELPARK
PROJECT:	40-7 NORTHGLEN CLARINGTON, ON.
SCALE:	3/16" = 1"-0"

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

CIRCULATION FAN SWITCH
TO BE CENTRALLY LOCATED



INSULATED ALL DUCTS IN
UNCONDITIONED
SPACES MIN. R12
SEAL ALL JOINTS WITH
APPROVED SEALANT
OR FOIL TAPE

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

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 EXHUAST FAN EXCEEDS 700 CFM DEPRESSURIZATION MAY OCCUR WITH IN THE DWELLING








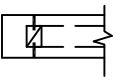













gtaDesigns

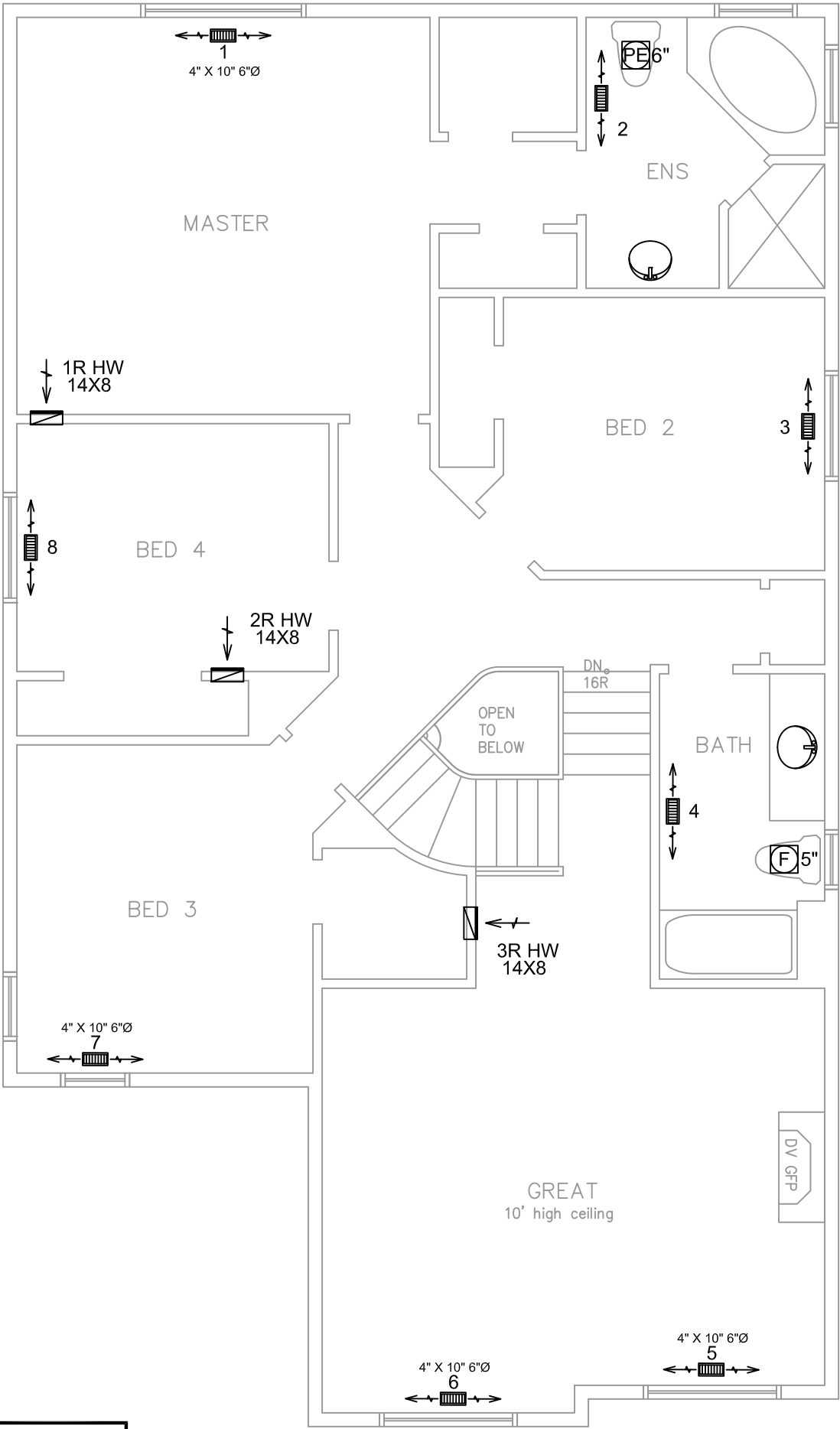
2985 DREW ROAD
SUITE 202,
MISSISSAUGA, ONT.
L4T 0A4 TEL: 416-268-6820
email: dave@gtadesigns.ca
web: www.gtadesigns.ca

HEAT-LOSS	BTU/HR.
UNIT MAKE	
UNIT MODEL	
UNIT HEATING INPUT	BTU/HR.
UNIT HEATING OUTPUT	BTU/HR.
A/C COOLING CAPACITY	TONS.
FAN SPEED	CFM

# OF RUNS	S/A	R/A	FANS
3RD FLOOR			
2ND FLOOR			
1ST FLOOR			
BASEMENT			
FLOOR PLAN: GROUND FLOOR			
DRAWN BY D. DACOSTA	SQFT 2532		
LAYOUT NO. 12-119	DRAWING NO. 2/3		

DATE:	MARCH 18, 2015
CLIENT:	HIGHCASTLE/DELPARK
PROJECT:	40-7 NORTHGLEN CLARINGTON, ON.
SCALE:	3/16" = 1'-0"

H.V.A.C. SYMBOLS			
	FLEX DUCT		RETURN AIR GRILLE (SIZE INDICATED ON DRAWING)
	RIDIT ROUND DUCT		RETURN AIR PIPE RISER
	SUPPLY MAIN DUCT		DUCT CONNECTION TO JOIST LINING
	SUPPLY DIFFUSER		RETURN MAIN DUCT
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	HRV EXHAUST GRILL		RETURN AIR RISER UP TO FLOOR ABOVE
	SUPPLY AIR PIPE RISER		RETURN AIR FROM BASEMENT SECOND FLOOR
	VOLUME DAMPER		W/R EXHAUST FAN
ABBREVIATIONS			W/R PRINCIPAL EXHAUST FAN
S.A.	SUPPLY AIR		
R.A.	RETURN AIR		
	THERMOSTAT		
	PRINCIPAL EXHAUST FAN SWITCH		



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

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David Da Costa



B.C.I.N. 32964

Signature of Designer

OBC 2012

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 EXHUAUST FAN EXCEEDS 700 CFM DEPRESSURIZATION MAY OCCUR WITH IN THE DWELLING



gtaDesigns

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HEAT-LOSS BTU/HR.

UNIT MAKE

UNIT MODEL

UNIT HEATING INPUT BTU/HR.

UNIT HEATING OUTPUT BTU/HR.

A/C COOLING CAPACITY TONS.

FAN SPEED CFM

OF RUNS

3RD FLOOR

2ND FLOOR

1ST FLOOR

BASEMENT

S/A

R/A

FANS

FLOOR PLAN:
SECOND FLOOR

DRAWN BY
D. DACOSTA

LAYOUT NO.
12-119

SQFT

2532

DRAWING NO.

3/3

DATE:

MARCH 18, 2015

CLIENT:

HIGHCASTLE/DELPARK

PROJECT:

**40-7
NORTHGLEN
CLARINGTON, ON.**

SCALE:

3/16" = 1"-0"