

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		33-8 Winchester		Lot:
		33-8		Lot/con.
Municipality	Newcastle (Bowmanville)	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
Telephone number		Fax number		Cell number
(905) 671-9800		(647) 494-9643		(416) 268-6820
C. Design activities undertaken by individual identified in Section B. [Building Code Table 3.5.2.1 of Division C]				
☐ House ☒ HVAC – House ☐ Building Structural ☐ Small Buildings ☐ Building Services ☐ Plumbing – House ☐ Large Buildings ☐ Detection, Lighting and Power ☐ Plumbing – All Buildings ☐ Complex Buildings ☐ Fire Protection ☐ On-site Sewage Systems				
Description of designer's work		Model Certification		Layout #
Heating and Cooling Load Calculations		Builder	Delpark Highcastle	
Air System Design		Project	Northglen	
Residential mechanical ventilation Design Summary		Model	33-8 Winchester	
Residential System Design per CAN/CSA-F280-12		SB-12	33-8 Package D	
D. Declaration of Designer				
I, <u>David DaCosta</u> declare that (choose one as appropriate): (print name) ☐ I review and take responsibility for the design work on behalf of a firm registered under subsection 3.2.4 Division C of the Building Code. I am qualified, and the firm is registered, in the appropriate classes/categories. Individual BCIN: _____ Firm BCIN: _____ ☒ I review and take responsibility for the design and am qualified in the appropriate category as an "other designer" under subsection 3.2.5 of Division C, of the Building Code. Individual BCIN: <u>32964</u> Basis for exemption from registration: <u>Division C 3.2.4.1. (4)</u> ☐ The design work is exempt from the registration and qualification requirements of the Building Code. Basis for exemption from registration and qualification:				
I certify that:				
1. The information contained in this schedule is true to the best of my knowledge.				
2. I have submitted this application with the knowledge and consent of the firm.				
<u>April 15, 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				Layout No.	
and may not be used by any other persons without authorization. Documents for permit and/or construction are signed in red.				JB-00028	
Building Location					
Address (Model): 33-8			Site: Northglen		
Model: 33-8 Winchester			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: 4			
Sensible Eff. at -25C 0		Apparent Effect. at -0C 0		Units: Imperial Area Sq. ft 2049	
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:					
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

2015

April 15, 2015

33-8 Winchester

System 1

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.

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Project: Northglen

Model: 33-8

Individual BCIN: 32964

David DaCosta

Project # PJ-00022

Layout # JB-00028

DESIGN LOAD SPECIFICATIONS		AIR DISTRIBUTION & PRESSURE		FURNACE/AIR HANDLER DATA:		BOILER/WATER HEATER DATA:		A/C UNIT DATA:	
Level 1 Net Load	14,264 btu/h	Equipment External Static Pressure	0.5 "w.c.	Make	Amana	Make	Type	Amana	1.5 Ton
Level 2 Net Load	14,405 btu/h	Additional Equipment Pressure Drop	0.225 "w.c.	Model	GMEC960603BNA	Model		Cond.-----	1.5
Level 3 Net Load	11,687 btu/h	Available Design Pressure	0.275 "w.c.	Input Btu/h	60000	Input Btu/h		Coil -----	1.5
Level 4 Net Load	0 btu/h	Return Branch Longest Effective Length	300 ft	Output Btu/h	57600	Output Btu/h			
Total Heat Loss	40,355 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	17,826 btu/h	S/A Plenum Pressure	0.14 "w.c.	Water Temp	deg. F.	Blower DATA:			
Total Heat Loss + 10%	44,391 Btu/h	Heating Air Flow Proportioning Factor	0.0290 cfm/btuh	AFUE	96%	Blower Speed Selected:	W2	Blower Type	ECM
Building Volume Vb	22398 ft³	Cooling Air Flow Proportioning Factor	0.0656 cfm/btuh	Aux. Heat				(Brushless DC OBC 12.3.1.5.(2))	
Ventilation Load	5,638 Btu/h.	R/A Temp	70 deg. F.	SB-12 Package	Package D	Heating Check	1170 cfm	Cooling Check	1170 cfm
Ventilation PVC	60 cfm	S/A Temp	116 deg. F.						
Supply Branch and Grill Sizing		Diffuser loss	0.01 "w.c.	Temp. Rise>>>	46 deg. F.	Selected cfm>	1170 cfm	Cooling Air Flow Rate	1170 cfm

S/A Outlet No.	Level 1 Outlets													Level 2 Outlets									
	15	16	17	18										7	8	9	10	11	12	13	14		
Room Use	BASE	BASE	BASE	BASE										KIT	KIT	DIN	FOY	PWD	LAUND	GREAT	PLEN		
Btu/Outlet	3566	3566	3566	3566										1691	1691	1923	3056	379	1629	2498	1538		
Heating Airflow Rate CFM	103	103	103	103										49	49	56	89	11	47	72	45		
Cooling Airflow Rate CFM	14	14	14	14										106	106	123	103	39	87	83	10		
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
Actual Duct Length	17	16	22	29										36	34	20	19	8	15	28	17		
Equivalent Length	130	130	90	140	90	90	90	90	90	90	90	90	90	150	150	150	100	150	120	120	120	90	90
Total Effective Length	147	146	112	169	90	90	90	90	90	90	90	90	90	186	184	170	119	158	135	148	137	90	90
Adjusted Pressure	0.09	0.09	0.12	0.08	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.07	0.07	0.08	0.11	0.08	0.10	0.09	0.09	0.14	0.14
Duct Size Round	6	6	6	6										6	6	6	6	4	6	6	5		
Outlet Size	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	3x10	4x10	4x10	3x10	4x10	4x10	4x10
Trunk	C	A	A	B										B	B	A	C	A	A	B	C		

S/A Outlet No.	Level 3 Outlets													Level 4 Outlets									
	1	2	3	4	5	6																	
Room Use	ENS	MAST	BATH	STUDY	BED 3	BED 2																	
Btu/Outlet	1869	2078	779	2576	2121	2264																	
Heating Airflow Rate CFM	54	60	23	75	61	66																	
Cooling Airflow Rate CFM	66	115	24	77	110	68																	
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
Actual Duct Length	50	42	40	32	35	36																	
Equivalent Length	120	130	130	110	130	130	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90
Total Effective Length	170	172	170	142	165	166	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90
Adjusted Pressure	0.08	0.08	0.08	0.09	0.08	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	0.14	0.14
Duct Size Round	5	6	4	6	6	6																	
Outlet Size	3x10	4x10	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	C	C	A																	

Return Branch And Grill Sizing												Return Trunk Duct Sizing					Supply Trunk Duct Sizing				
R/A Inlet No.	1R	2R	3R	4R	5R	6R	7R	8R	9R	10R	11R	Trunk	CFM	Press.	Round	Rect. Size	Trunk	CFM	Press.	Round	Rect. Size
Inlet Air Volume CFM	110	180	180	420	250	30						Drop	1170	0.05	17.0	24x12	A	797	0.07	14.0	22x8 18x10
Duct Design Pressure	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	Z	1170	0.05	17.0	26x10 22x12	B	388	0.07	10.5	12x8 10x10
Actual Duct Length	26	29	16	7	12	16						Y	360	0.06	10.5	12x8 10x10	C	373	0.08	10.0	12x8 10x10
Equivalent Length	175	200	160	145	150	195	70	70	70	70	70	X					D				
Total Effective Length	201	229	176	152	162	211	70	70	70	70	70	W					E				
Adjusted Pressure	0.06	0.05	0.07	0.08	0.07	0.06	0.17	0.17	0.17	0.17	0.17	V					F				
Duct Size Round	7.0	7.0	7.0	2x8	7.0	5.0						U					G				
Inlet Size	8	8	8	8								T					H				
" "	x	x	x	x	x	x	x	x	x	x	x	S					I				
Inlet Size	14	14	14	30	FLC	FLC						R					J				
Trunk	Y	Z	Z	Z	Y	Z						Q					K				

2012 OBC	Builder: Delpark Highcastle	Date: April 15, 2015	Weather Data Newcastle (Bowmanville) 44 -4.0 86 20 50	Project # PJ-00022
	Project: Northglen	Model: 33-8 Winchester 33-8	Heat Loss ^T 76 deg. F Ht gain ^T 11 deg. F GTA: 2049	Layout # JB-00028
		System 1		

Level 1				BASE															
Run ft. exposed wall A	150	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	2.0	AG		AG		AG		AG		AG		AG		AG		AG		AG	
Floor area	887	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	300																		
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	3	72	83													
South	3.15	24.13	21.28	9	217	192													
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	267		213													
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)			6684															
Total Conductive	Heat Loss			7504															
	Heat Gain				564														
Air Leakage	Heat Loss/Gain	0.5727	0.0357	4298	20														
Ventilation	Case 1	x	0.33	2462	49														
	Case 2		82.08																
	Case 3		0.19																
	Heat Gain People																		
Appliances Loads	1 = .25 percent		3285																
Duct and Pipe loss			10%																
Level 1 HL Total	14,264	Total HL per per room		14264															
Level 1 HG Total	824	Total HG per room x 1.3			824														

Level 2				KIT		DIN		FOY		PWD		LAUND		GREAT		PLEN		A		A		A		A			
Run ft. exposed wall A				32	A	22	A	30	A	6	A	16	A	29	A	32	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			
Ceiling height				9.0		9.0		9.0		9.0		9.0		9.0		2.0											
Floor area				22	Area	153	Area	147	Area	50	Area	60	Area	205	Area	200	Area	Area	Area	Area	Area	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		200	Flr	Flr		Flr		Flr		Flr			
Gross Exp Wall A				288		198		270		54		144		261		64											
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																					
East/West				3.15	24.13	27.75	36	869	999		16	386	444			25	603	694									
South				3.15	24.13	21.28	15	362	319	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				26	656	95		21	530	77											
Net exposed walls A				15.13	5.02	0.73	237	1190	172	178	894	129	228	1145	166	54	271	39	123	618	89	236	1185	172	64	321	47
Net exposed walls B				8.50	8.94	1.29																					
Exposed Ceilings A				50.00	1.52	0.76													12	18	9						
Exposed Ceilings B				22.86	3.32	1.66																					
Exposed Floors				22.05	3.45	0.23																		200	689	45	
Foundation Conductive Heatloss				Slab On Grade (x)	x																						
Total Conductive		Heat Loss				2421			1377			2188			271			1166			1789			1011			
		Heat Gain					1490			555			705			39		175				865			92		
Air Leakage		Heat Loss/Gain		0.2522	0.0357	611	53		347	20		552	25		68	1		294	6		451	31		255	3		
Ventilation		Case 1		x	0.14	350	130		199	48		316	61		39	3		169	15		259	75		146	8		
		Case 2			82.08																						
		Case 3			0.19																						
		Heat Gain People					239																				
		Appliances Loads		1 = .25 percent		3285																					
		Duct and Pipe loss					10%																				
Level 2 HL Total		14,405		Total HL for per room							1923		3056		379			1629			2498			1538			
Level 2 HG Total		10,008		Total HG per room x 1.3							1878		1563		591			1324			1263					147	

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	40,355	btu/h
Total Heat Gain	17,826	btu/h

2012 OBC
Builder: Delpark Highcastle
Date: April 15, 2015
Project: Northglen
Model: 33-8 Winchester 33-8
System 1
Weather Data
Newcastle (Bowmanville) 44 -4.0 86 20 50
Heat Loss ^T 76 deg. F
Ht gain ^T 11 deg. F
GTA: 2049
Project # PJ-00022
Layout # JB-00028

Level 3				ENS		MAST		BATH		STUDY		BED 3		BED 2													
Run ft. exposed wall A				21 A		25 A		8 A		29 A		20 A		26 A		A		A		A		A		A		A	
Run ft. exposed wall B				B		B		B		B		B		B		B		B		B		B		B		B	
Ceiling height				8.0		8.0		8.0		8.0		8.0		8.0													
Floor area				174 Area		122 Area		101 Area		182 Area		162 Area		144 Area		Area		Area		Area		Area		Area		Area	
Exposed Ceilings A				174 A		122 A		101 A		182 A		162 A		144 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				168		200		64		232		160		208													
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											16	386	444											
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	152	764	111	180	904	131	58	291	42	214	1075	156	138	693	100	192	964	140						
Net exposed walls B	8.50	8.94	1.29																								
Exposed Ceilings A	50.00	1.52	0.76	174	264	132	122	185	93	101	154	77	182	277	138	162	246	123	144	219	109						
Exposed Ceilings B	22.86	3.32	1.66																								
Exposed Floors	22.05	3.45	0.23																								
Foundation Conductive Heatloss																											
Total Conductive	Heat Loss			1414		1572		590		1786		1470		1569													
	Heat Gain				687		779		247		729		834		430												
Air Leakage	Heat Loss/Gain	0.2046	0.0357	289	25	322	28	121	9	365	26	301	30	321	15												
Ventilation	Case 1	x	0.12	166	60	184	68	69	21	209	63	172	73	184	37												
	Case 2		82.08																								
	Case 3		0.19																								
Heat Gain People						2	478					1	239	1	239												
Appliances Loads																											
Duct and Pipe loss										1	215	79	1	177	115	1	189	71									
Level 3 HL Total	11,687	Total HL for per room		1869		2078		779		2576		2121		2264													
Level 3 HG Total	6,993	Total HG per room x 1.3			1002		1758		360		1167		1677		1030												

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	0.0357																								
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																									

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	40,355	btu/h
Total Heat Gain	17,826	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

System:

System 1

Project:

Newcastle (Bowmanville)

Model:

33-8

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	Newcastle (Bowmanville)
Roll #	Permit #
Address	

Builder	
Name	Delpark Highcastle
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
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
Ens	50	770	2.5
Pwd	50	770	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	<i>David DaCosta</i>		
HRAI #	5190	BCIN #	32964
Date	April 15, 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-00028

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 33-8 Winchester	Unit number 33-8	Lot/Con
Municipality Newcastle (Bowmanville)	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 = 243 m ²	☐ ICF Basement ☐ Walkout Basement ☐ Log/Post&Beam
Gross Window+ Area = 21 m ²	☐ ICF Above Grade ☐ Slab-on-ground
% Windows+ 9%	

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

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

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

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

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

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

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

Package: **Package D** System: **System 1**
Project: **Newcastle (Bowmanville)** Model: **33-8**

Air Leakage Calculations

Building Air Leakage Heat Loss				
B	LRairh	Vb	HL ^Δ T	HL _{leak}
0.018	0.281	22398	76	8595

Building Air Leakage Heat Gain				
B	LRairh	Vb	HG ^Δ T	HG Leak
0.018	0.066	22398	11	293

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	8595	7504	0.5727
2	0.3		10222	0.2522
3	0.2		8401	0.2046
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	
	293		0.0357
BUILDING CONDUCTIVE HEAT GAIN		8191	

Levels this Dwelling	
3	

Ventilation Calculations

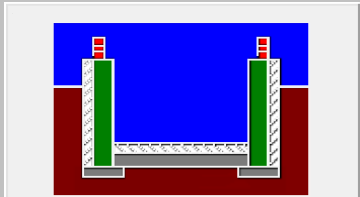
Vent	Ventilation Heat Loss					Ventilation Heat Gain				Vent	
	Ventilation Heat Loss					Ventilation Heat Gain					
	C	PVC	HL^T	(1-E) HRV	HLbvent	C	PVC	HG^T	HGbvent		
	1.08	60	76	1.00	4925	1.1	60	11	713		
Case 1						Case 1					
Case 1	Ventilation Heat Loss (Exhaust only Systems)					Ventilation Heat Gain (Exhaust Only Systems)					Case 1
	Case 1 - Exhaust Only					Case 1 - Exhaust Only		Multiplier			
	Level	LF	HLbvent	LVL Cond. HL	Multiplier	HGbvent	713	0.09			
	1	0.5	4925	7504	0.33	Building	8191				
	2	0.3		10222	0.14						
3	0.2	8401		0.12							
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	11.88			
	1.08	76	1.00			1.08	11				
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	0.19		HGbvent		HG*1.3	713	0.09	
						713		1			

Foundation Conductive Heatloss Level 1	1959	Watts	6684	Btu/h
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Foundation Conductive Heatloss Level 2		Watts		Btu/h
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Residential Foundation Thermal Load Calculator

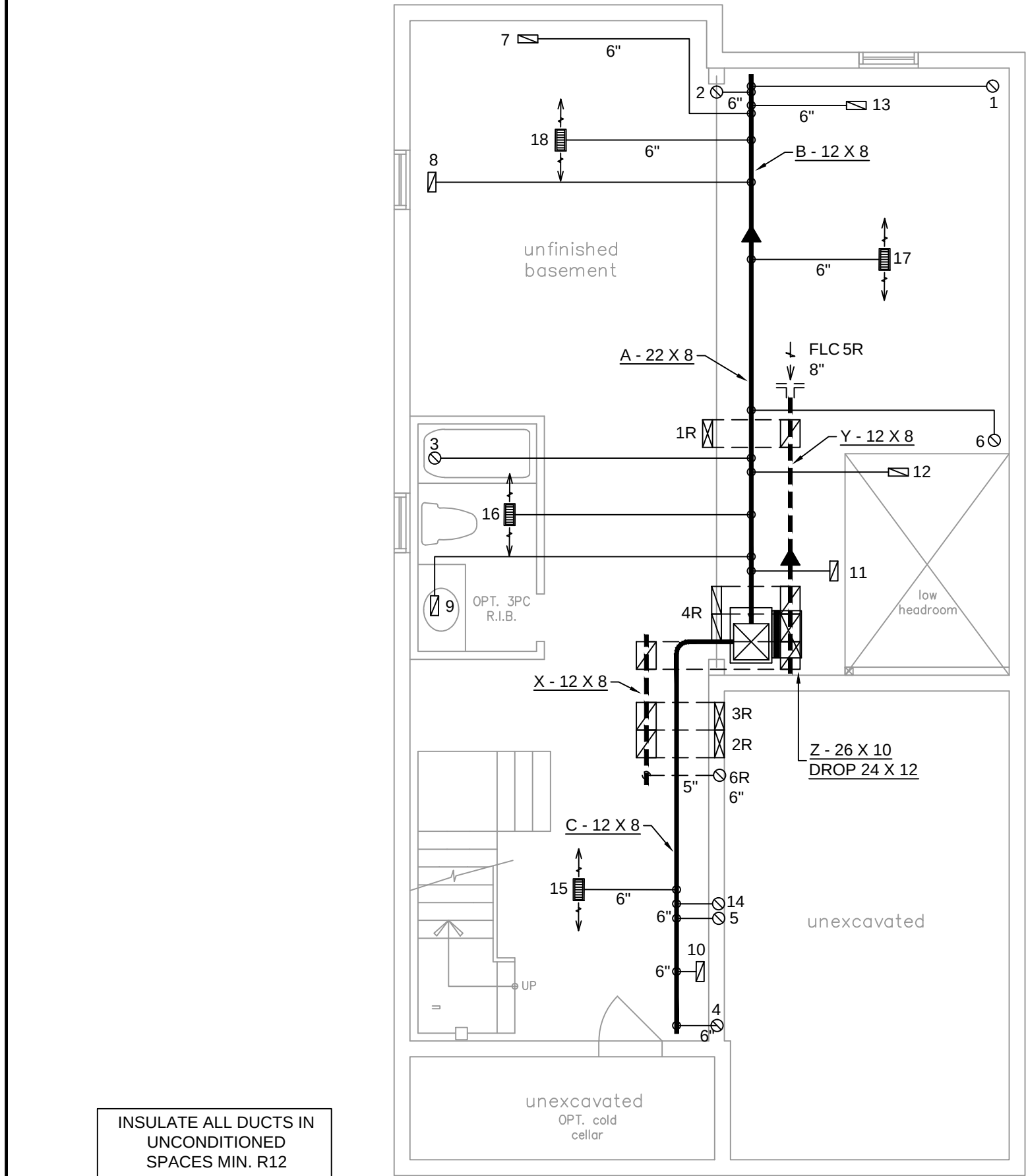
Supplemental tool for CAN/CSA-F280

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):	15.79	 Insulation Configuration
Floor Width (m):	5.09	
Exposed Perimeter (m):	45.72	
Wall Height (m):	2.74	
Depth Below Grade (m):	2.13	
Window Area (m ²):	1.11	
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):		1959

Envelope Air Leakage Calculator

Supplemental tool for CAN/CSA-F280

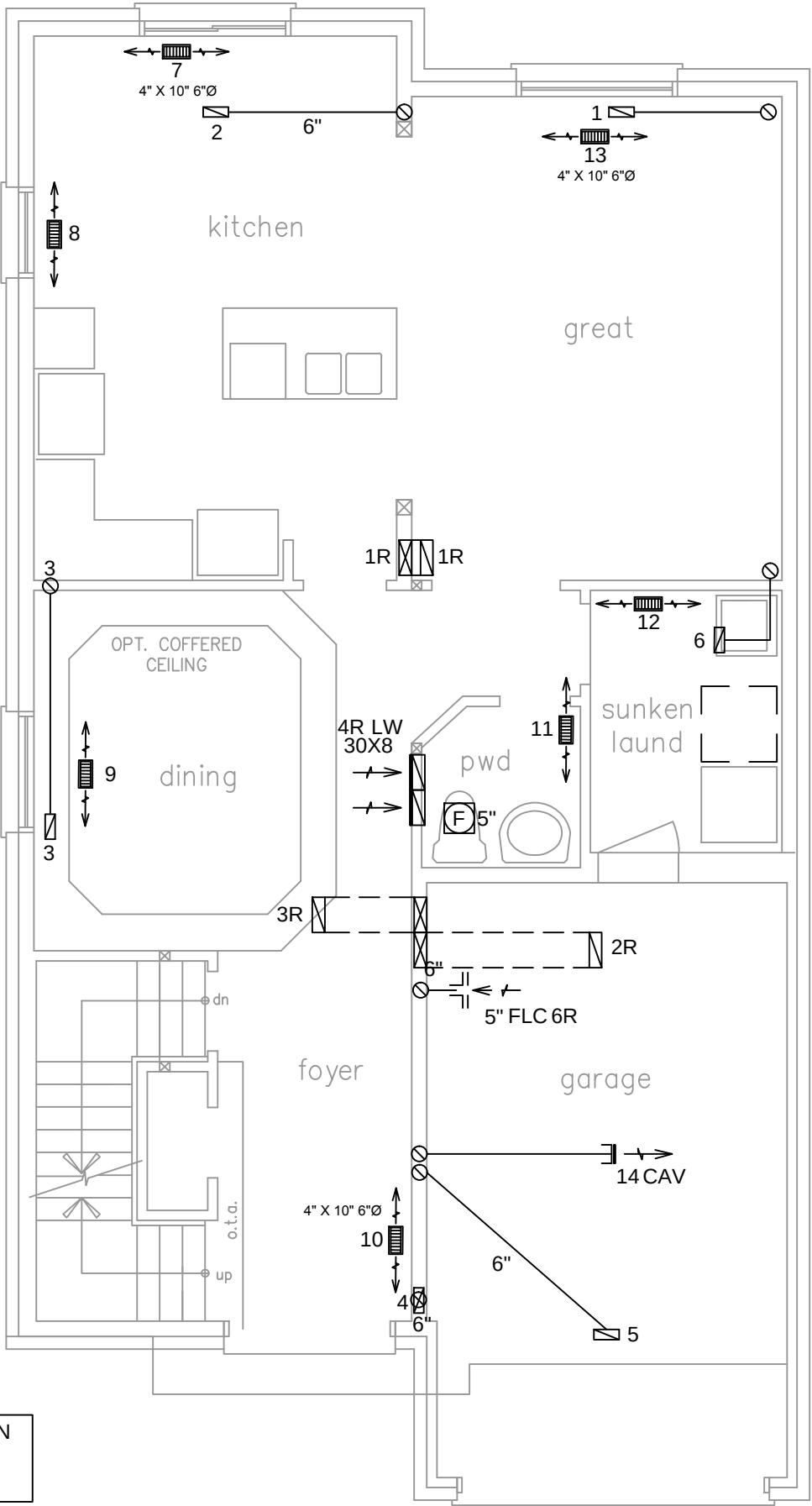
Weather Station Description				
Province:	Ontario ▼			
Region:	Newcastle (Bowmanville) ▼			
Weather Station Location:	Open flat terrain, grass ▼			
Anemometer height (m):	10			
Local Shielding				
Building Site:	Suburban, forest ▼			
Walls:	Heavy ▼			
Flue:	Heavy ▼			
Highest Ceiling Height (m):	5.79			
Building Configuration				6.4
Type:	Detached ▼			
Number of Stories:	Two ▼			
Foundation:	Full ▼			
House Volume (m ³):	566.3 634.31			
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:	
	30		30	
Flue Size				
Flue #:	#1	#2	#3	#4
Diameter (mm):	0	0	0	0
Envelope Air Leakage Rate				
Heating Air Leakage Rate (ACH/H):		0.281		
Cooling Air Leakage Rate (ACH/H):		0.066		



OBC 2012

	FLEX DUCT RIDIT ROUND DUCT SUPPLY DIFFUSER		LOW/HIGH WALL/KICK SUPPLY DIFFUSER HRV EXHAUST GRILL SUPPLY AIR PIPE RISER VOLUME DAMPER		DUCT CONNECTION TO JOIST LINING RETURN AIR PIPE RISER RETURN ROUND DUCT		RETURN AIR GRILLE (SIZE INDICATED ON DRAWING) RETURN AIR RISER UP TO FLOOR ABOVE RETURN AIR FROM BASEMENT SECOND FLOOR	S.A. R.A. ① \$ [E] [PE]	SUPPLY AIR RETURN AIR THERMOSTAT PRINCIPAL EXHAUST FAN SWITCH W/R & PRINCIPAL EXHAUST FAN
--	--	--	---	--	---	--	--	-------------------------------------	---

CIRCULATION PRINCIPAL
FAN SWITCH
TO BE CENTRALLY
LOCATED



INSULATE ALL DUCTS IN UNCONDITIONED SPACES MIN. R12

ALL DUCTWORK MUST BE SEALED TO CLASS A LEVEL AS PER OBC PART 6-6.2.4.3. (11)

The undersigned has reviewed and takes responsibility for this design on behalf of GTA Designs Inc. and has the qualifications and meets the requirements set out in the Building Code to be a designer

QUALIFICATION INFORMATION
Required unless design is exempt under Division C 3.2.5.1 of the Ontario building code

David Da Costa

B.C.I.N. 32964

Signature of Designer

OBC 2012

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

NOTES

INSTALLATION TO COMPLY WITH THE LATEST ONTARIO BUILDING CODE.
ALL SUPPLY OUTLETS TO BE 5" DIA. UNLESS OTHERWISE SPECIFIED.
ALL R/A PARTITIONS 6" (FIRST FLOOR ONLY)
INSULATE DUCTS IN UNCONDITIONED SPACES R12 UNDERCUT ALL DOORS 1" MIN.
HEATING CONTRACTOR MUST WORK FROM APPROVED PLANS.
ANY ALTERATIONS TO THIS ORIGINAL PLAN ARE NOT THE RESPONSABILITY OF GTA DESIGNS.
GTA DESIGNS MUST BE CONSULTED IF KITCHEN EXHUAST FAN EXCEEDS 700 CFM DEPRESSURIZATION MAY OCCUR WITH IN THE DWELLING

gtaDesigns

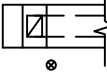
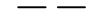
2985 DREW ROAD
SUITE 202,
MISSISSAUGA, ONT.
L4T 0A4 TEL: 416-268-6820
email: dave@gtadesigns.ca
web: www.gtadesigns.ca

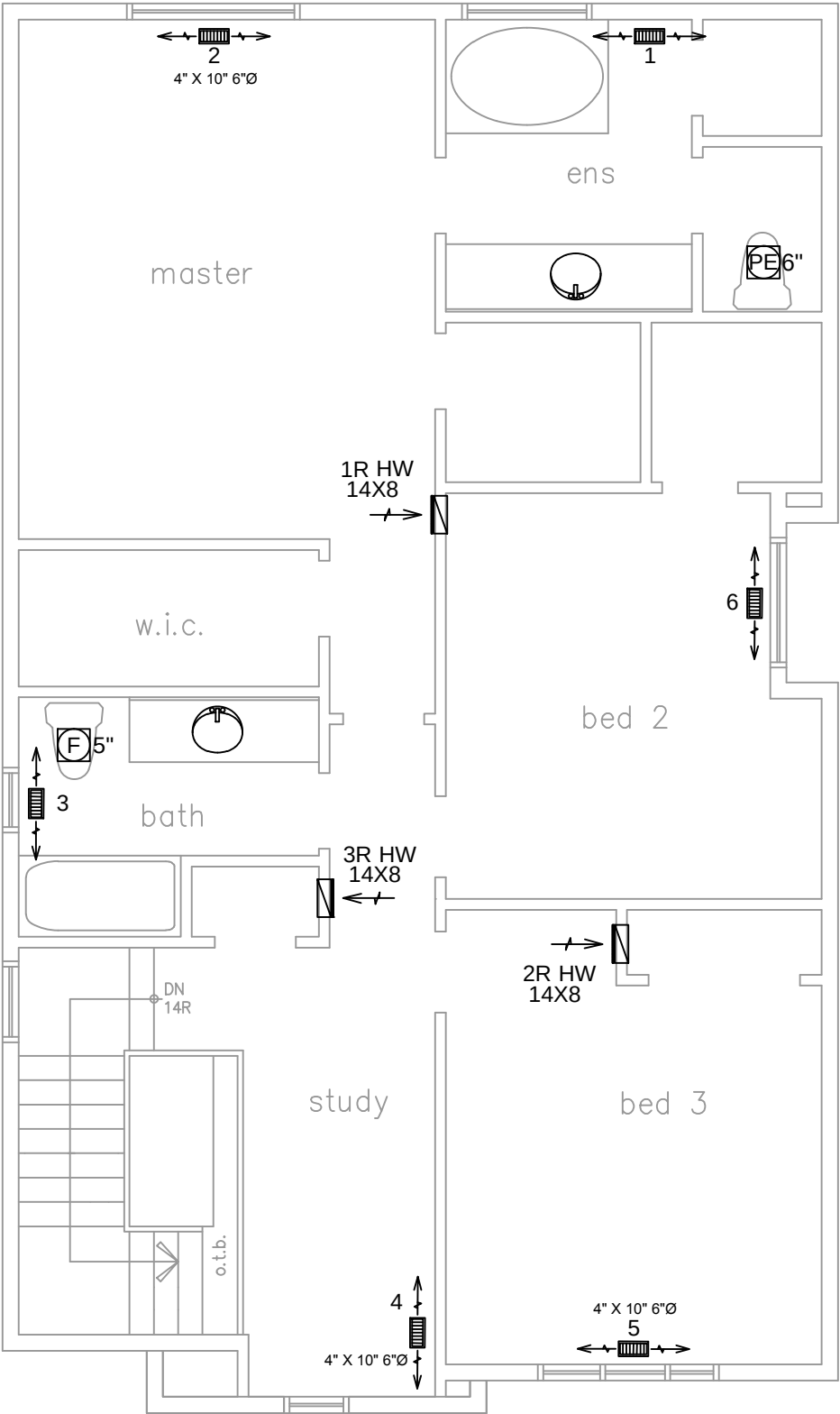
HEAT-LOSS	40,355	BTU/HR.
UNIT MAKE	AMANA	OR EQUAL.
UNIT MODEL	GMEC960603BNA	OR EQUAL.
UNIT HEATING INPUT	60,000	BTU/HR.
UNIT HEATING OUTPUT	57,600	BTU/HR.
A/C COOLING CAPACITY	1.5	TONS.
FAN SPEED	1,170	CFM

# OF RUNS	S/A	R/A	FANS
3RD FLOOR			
2ND FLOOR	6	3	2
1ST FLOOR	8	2	2
BASEMENT	4	1	

FLOOR PLAN: GROUND FLOOR		
DRAWN BY: RB	CHECKED: DD	SQFT 2,049
LAYOUT NO. JB-00028	DRAWING NO. M2	

DATE:	APRIL 13, 2015
CLIENT:	DELPARK HIGHCASTLE
MODEL:	33-8
PROJECT:	NORTHGLEN CLARINGTON, ON.
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)

The undersigned has reviewed and takes responsibility for this design on behalf of GTA Designs Inc. and has the qualifications and meets the requirements set out in the Building Code to be a designer

QUALIFICATION INFORMATION

Required unless design is exempt under Division C 3.2.5.1 of the Ontario building code

David Da Costa



B.C.I.N. 32964

Signature of Designer

OBC 2012

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

NOTES

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INSULATE DUCTS IN UNCONDITIONED SPACES R12
UNDERCUT ALL DOORS 1" MIN.
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HEAT-LOSS	40,355	BTU/HR.
UNIT MAKE	AMANA	OR EQUAL.
UNIT MODEL	GMEC960603BNA	OR EQUAL.
UNIT HEATING INPUT	60,000	BTU/HR.
UNIT HEATING OUTPUT	57,600	BTU/HR.
A/C COOLING CAPACITY	1.5	TONS.
FAN SPEED	1,170	CFM

# OF RUNS	S/A	R/A	FANS
3RD FLOOR			
2ND FLOOR	6	3	2
1ST FLOOR	8	2	2
BASEMENT	4	1	
FLOOR PLAN: SECOND FLOOR			
DRAWN BY: RB	CHECKED: DD	SQFT	2,049
LAYOUT NO. JB-00028	DRAWING NO. M3		

DATE:	APRIL 13, 2015
CLIENT:	DELPARK HIGHCASTLE
MODEL:	33-8
PROJECT:	NORTHGLEN CLARINGTON, ON.
SCALE:	3/16" = 1'-0"