

## **Schedule 1: Designer Information**

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

A.	Project Information					
Build	ng number, street name	33-1 Rye	edale		Lot:	
		33-1	I		Lot/con.	
Muni	cipality <b>Newcastle</b>	(Bowmanville)	Postal code	Plan number/ othe description	er	
	Individual who reviews and takes	responsibility for design	gn activities			
Nam	9	David DaCosta		Firm	gtaDesigns Inc.	
Stree	t address	2985 Drew Roa	d, Suite 202		Unit no.	Lot/con.
Muni	cipality		Postal code	Province	E-mail	
		sissauga	L4T 0A4	Ontario	dave@gtades	signs.ca
l elep	hone number (905) 671-9800		Fax number	) 494-9643	Cell number (416) 268-6	5820
C.	Design activities undertaken by i	ndividual identified in S		,		,,020
	☐ House	⊠ HVAC – H	ouse		■ Building Structural	
	☐ Small Buildings	☐ Building Se	ervices		☐ Plumbing – House	
	☐ Large Buildings	Detection,	Lighting and Po	wer	☐ Plumbing – All Building	ıs
	☐ Complex Buildings	☐ Fire Protect	etion		On-site Sewage System	ms
Des	cription of designer's work	Mod	del Certification	1	Layout #	15-34
	ng and Cooling Load Calculations			Builder	Delpark Highcast	le
	ystem Design	. C		Project	Northglen 22.4 Byzadala	
	dential mechanical ventilation Desigr dential System Design per CAN/CSA-	•		Model	33-1 Ryedale 33-1	
	dential New Construction - Forced Ai			SB-12	Package D	
D.	Declaration of Designer					
	☐ I reviev 3.2.4 D	(print name) v and take responsibility for	the design work		opropriate): In registered under subsection registered, in the appropriate	
		Individual BCIN				
		Firm BCIN:				
		w and take responsibility for designer" under subsection	•	•	e appropriate category as an g Code.	
		Individual BCIN	3296	64		
		Basis for exemp	tion from registi	ation:	Division C 3.2.4.1. (4)	
	☐ The de	sign work is exempt from th	e registration ar	d qualification req	uirements of the Building Code.	
		Basis for exemp	tion from registi	ation and qualifica	ation:	
I cert 1. 2.	ify that: The information contained in this scl I have submitted this application with		, 0			
	April 7, 201	5		Mane 1	blest	.
	Date			Signature o	of Designer	

NOTE:

Page 1

- 1. 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.
- 2. Schedule 1 does not require to be completed a holder of a license, temporay license, or a certificate of authorization, issed 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.



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

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		Heat	nes :	and gain	ca	lcul	ation	SI	ım	mary she	et	_			0-M12
Those doc	ımonte is	sued for the use		and gam	Ca							S	tandard		
				ithout outhorizati	ion I		elpark F			/or construction a	ro ciano	d in rod		out N <b>5-34</b>	
and may no	n be use	u by any other p	ersons w				Locati			/or construction a	ie signed	ı III IEU.	•	J-34	
Address (M	lodel): 3	3_1			Juli	unig	Site:	UII		rthglen					
Model:		3-1 Ryedale					Lot:		NOI	uigieii					
		lewcastle (Bo	wmany	illo)			Postal co	do.							
City and Ti	OVIIICE. IN	iewcastie (BO	willaliv		cul	ation	s base		n n						
Dimensiona	al informa	ation based on:		Oai	Cui	atioi	is base	<i>,</i> u (		/A					
Attachment		etached					Front fac	ina:		East/West			Assum	ed?	Yes
No. of Leve		3	Ventilat	ed? <b>Include</b> d	1		Air tightn			1961- Present	(ACH=	3 57)	Assum		
		lewcastle (Bo					Wind exp			Shelterd	(/1011-	0.01 /	7.000		103
HRV?		(20								Light-transluc	ent O	ccupants	s: <b>4</b>		
Sensible Ef	f. at -250	0	Apparei	nt Effect. at -0C		0	Units:			Imperial		rea Sq. f		125	59
	F	leating design	1							Cooling desi	gn cor	ndition	ns		
Outdoor ter			_	Mean soil tem		50	Outdoor t	temp	8			Latitu		44	1
		Above gr	ade wa	alls						Below g	rade w	alls			
Style A:	As per	Selected OBC	SB12	Package D	R	24	Style A:	Α	s pe	r Selected OB	C SB12	Pac	kage D	R	20
Style B:	Exis	ting Walls (W	hen Ap	plicable)	R	12	Style B:						_		
Style C:							Style C:								
Style D:							Style D:								
		Floors	on soi	l						Cei	lings				
Style A:	As per	Selected OBC	SB12	Package D			Style A:	Α	s pe	r Selected OB	C SB12	Pac	kage D	R	50
Style B:							Style B:	Α	s pe	r Selected OB	C SB12	Pac	kage D	R	31
		Expose	d floor	s			Style C:								
Style A:	As per	Selected OBC	SB12	Package D	R	31				Do	ors				
Style B:							Style A:	Α	s pe	r Selected OB	C SB12	Pac	kage D	R	3.01
		Wind	dows				Style B:								
Style A:	As per	Selected OBC	SB12	Package D	R	3.15	Style C:								
Style B:	Existi	ng Windows (	When A	Applicable)	R	1.99				Sky	lights				
Style C:							Style A:	Α	s pe	r Selected OB	C SB12	Pac	kage D	R	2.03
Style D:							Style B:								
Attached do	ocuments	S: As per S	Shedule	1											
Notes:				Resider	ntial	New	Constru	ctio	n - F	Forced Air					
				Calc	ula	tions	perforn	ned	by						
Name:	D	avid DaCosta	1				Postal co	de:		L4T 0A4					
Company:	g	taDesigns Ind	).				Telephon	ne:		(905) 671-9800	)				
Address:	2	985 Drew Roa	ad, Suit	e 202			Fax:			(416) 268-6820	)				
City:	N	lississauga					E-mail			dave@gtades	igns.ca				



Builder: Delpark Highcastle

### Air System Design

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

SB-12 Package D

2015 April 7, 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.

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Dullder. Delpark	iligiicas	LIC		2013_			•	2013			Г							ory as an "	other des	signer" uı	nder Divi	sion C su	ıbsection	3.2.5.	Dra	: #		age 3
Project: Nor	thglen		ı	Model:			33-1 Ry 33-					Sy	stem '	1		of the Buil ndividual	-	32964	Man	u 1h	St		David Da	Costa		ject # /out #		15-34
DESIGN LOAD SPECIFICATION	ıs		,	AIR DISTI	RIBUTION	N & PRES	SURE				-	FURNACE	AIR HAI	NDLER DA	ATA:			BOILER/W	/ATER HE	EATER D	ATA:			A	/C UNIT I	DATA:		
		•	_								_												•	_				•
Level 1 Net Load	11,201				nt Externa				0.5 "			Make		Ama				Make			1	уре		4	mana		1.5 1	on
Level 2 Net Load	10,861				al Equipm		ure Drop		0.225 "		- 1	Model	(	GMEC9604				Model							ond		1.5	
Level 3 Net Load	8,722				Design P				0.275 "			nput Btu/		4000				Input Btu/						c	oil		1.5	
Level 4 Net Load		btu/h			ranch Lor	-	ctive Len	igth	300 f			Output Bt	u/h	3840				Output Bt										
Total Heat Loss	30,784				ım Pressı				0.138 "			E.s.p.		0.50		' W.C.		Min.Outpu	ıt Btu/h			WH						
Total Heat Gain	14,073				ım Pressı				0.14 "			Water Ter	np			deg. F.					1840		wer DATA					
Total Heat Loss + 10%	33,863				Air Flow P				0.0251 c			AFUE		96%	6			Blower Sp	eed Sele	cted:	W2			Е	lower Ty	•	ECM	
Building Volume Vb	15069		•	Cooling A	Air Flow P	•	•		0.0549			Aux. Heat	_		_						_			_	•		BC 12.3.1	. ,,
Ventilation Load	5,638						R/A Temp			leg. F.	•	SB-12 Pac	kage	Packag	ge D			Heating C	neck _	773 c	tm				ooling C	neck _	773 c	tm
Ventilation PVC	60	cfm		Different		0.01 "	S/A Temp		116 d	leg. F.	-	Famm Dia		46 4	la F			Calaata d a	· • · · · ·	773 c	<b></b>		,	`!! A	. Class D		772 -	<b></b>
Supply Branch and Grill Sizing				Diffuser le	USS =	0.01	w.c.				1	Temp. Ris	=	<u> 40</u> 0	leg. F.			Selected of		173	1111		,	Cooling A	I FIOW N	=	773 c	
							Level 1 C	Outlets													Level 2 C	Outlets						
S/A Outlet No.	12	13	14												7	8	9	10	11	15								
Room Use	BASE	BASE	BASE												KIT	KIT	GREAT	FOY	PWD	PLEN								
Btu/Outlet	3734	3734	3734												1803	1803	2712	2401	1313	828								
Heating Airflow Rate CFM	94	94	94												45	45	68	60	33	21								
Cooling Airflow Rate CFM	11	11	11												74	74	119	95	11	58								
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	0.13
Actual Duct Length	12	25	25												33	35	29	9	7	22								
Equivalent Length	120	90	135	90	90	90	90	90	90	90	90	90	90	90	145	145	95	90	130	140	90	90	90	90	90	90	90	90
Total Effective Length	132	115	160	90	90	90	90	90	90	90	90	90	90	90	178	180	124	99	137	162	90	90	90	90	90	90	90	90
Adjusted Pressure	0.10	0.11	0.08	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.07	0.07	0.10	0.13	0.09	80.0	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14
Duct Size Round	6	6	6												5	5	6	6	4	5								
Outlet Size	4x10	4x10		4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	3x10	3x10	4x10	4x10	3x10	3x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10
Trunk	A	A	В												В	В	В	С	Α	Α	Level 4 C							
S/A Outlet No.	1	2	3	4	5	6	Level 3 C	Jutiets													Level 4 C	Jutiets						
Room Use	MAST	BED 2		HALL	BATH	ENS																						
Btu/Outlet	2057	1921	1614	1274	518	1338																						
Heating Airflow Rate CFM	52	48	41	32	13	34																						
Cooling Airflow Rate CFM	95	72	82	17	11	32																						
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	0.13
Actual Duct Length	41	22	27	29	34	45																						
Equivalent Length	140	130	120	130	130	125	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90
Total Effective Length	181	152	147	159	164	170	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90
Adjusted Pressure	0.07	0.09	0.09	0.08	0.08	80.0	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14
Duct Size Round	6	6	6	4	3	4																						
Outlet Size	4x10	4x10	4x10	3x10	3x10	3x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10
Trunk	В	В	В	С	Α	Α																						
Deturn Branch And Crill Sining			Cuill Dunn		_	0.00 "							atuum Tu	umle Dunat	Ci=in =							unde Desat	Cimin m					
Return Branch And Grill Sizing R/A Inlet No.	1R	2R	Grill Pres	sure Loss 4R	s 5R	0.02 " 6R	w.c 7R	8R	9R	10R	11R	_	runk	unk Duct		Press. R	Round	Rect. S	Size		upply Tr			ress. F	ound	Rect.	Size	
Inlet Air Volume CFM	125	125	254	100	17	OI.	710	OI.	JI	1010			Tunk	·		1000.	tounu	ricoi.	JIEC .		Turk	`	J <b>.</b> .	1000.	ound	rtcot.	OILC	
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		Orop		773	0.05	14.5	24x10		Α			681	0.07	13.0	18x8	14x10	
Actual Duct Length	12	30	12	15	23							2	-		621	0.05	13.5	20x8	16x10	В			393	0.07	10.5	12x8	10x10	
Equivalent Length	225	160	185	150	150	70	70	70	70	70	70	,	,		225	0.06	9.0	8x8	10x7	-	;		92	0.08	6.0	8x8	8x7	
Total Effective Length	237	190	197	165	173	70	70	70	70	70	70	)	(								)							
Adjusted Pressure	0.05	0.06	0.06	0.07	0.07	0.17	0.17	0.17	0.17	0.17	0.17	١								- E								
Duct Size Round	8.0	8.0	2x8	6.0	5.0							`								F								
Inlet Size	8	8	8									ι	J							G	3							
" "	x	x	x	x	x	x	x	x	x	x	x	1								н	ł							
Inlet Size	14	14		FLC	FLC							5	6							1								
												F	₹							J								



Total Heat Loss

Total Heat Gain

30,784 btu/h

14,073 btu/h

#### Heatloss/Gain Calculations CSA-F280-12

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

		Builder:	Delpark H	ghcastle	9	1	Date:			April 7, 20	15				Weather Data	Newcastle (Bown	nanville) 44	-4.0 8	6 20	50			P
012 OBC										33-1 Ryed	ale			System 1	1	76 deg. F					1259	Project Layout	t# t# 1
012 OBC		Project:	Nort	glen		. М	odel:			33-1			-	<b>-</b>	Heat Loss ^	76 deg. F	Ht gain ^T	11 d	leg. F	GIA:	1259	Layout	1# 1
	Level 1				BASE																		
Run	ft. exposed wall A			111	Α		4	A		Α		Α		Α	Α	Α	Α		Α		Α		Α
Run	ft. exposed wall B				В		Е	3		В		В		В	В	В	В		В		В		В
	Ceiling height			2.0	AG		A	AG		AG		AG		AG	AG	AG	AG		AG		AG		AG
	Floor area				Area			Area		Area		Area		Area	Area	Area	Area		Area		Area		Area
E	Exposed Ceilings A				Α		4	A		Α		Α		Α	Α	Α	Α		Α		Α		Α
	Exposed Ceilings B				В		В	3		В		В		В	В	В	В		В		В		В
	Exposed Floors				Fir		F	-Ir		Flr		Flr		Fir	Flr	Fir	Fir		Fir		Flr		Fir
	Gross Exp Wall A			222																			
	Gross Exp Wall B																						
	Components					Gain	L	oss G	ain	Loss	Gain	Loss	Gain	Loss Gain	Loss Gain	Loss Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss G
	North Shaded	3.15	24.13 11																				
	East/West	3.15	24.13 27	75 3	72	83																	
	South		24.13 21	8 3	72	64																	
	<b>Existing Windows</b>		38.19 22																				
	Skylight		37.44 88																				
	Doors	3.01		5 21																			
	et exposed walls A			192		153																	
	et exposed walls B		8.94 1	29																			
	Exposed Ceilings A		1.52 0																				
E	Exposed Ceilings B		3.32 1																				
	Exposed Floors		3.45 0	23																			
ndation Cond	ductive Heatloss	Slab On G	rade (x)		5100																		
Conductive	Heat Loss				5847																		
	Heat Gain					411															4		
Leakage	Heat Loss/Gain		0.4945 0.03		2891	13																	
	Case 1	х	0.42 0		2462	48															4		
tilation	Case 2		82.08 11																				
	Case 3		0.25 0	2																			
	Heat Gain People		1	19																			
	Appliances Loads	1 =.25 p	ercent 27	0																			
	Appliances Loads Duct and Pipe loss	1 =.25 p	ercent 27	%																			
el 1 HL Total	Appliances Loads	1 =.25 p	ercent 27	% m	11201	614																	
el 1 HL Total el 1 HG Total	Appliances Loads Duct and Pipe loss 11,201 614  Level 2	1 =.25 p To Total	ercent 27	% m .3	PWD		26.4	FOY		GREA		KIT		PLEN									
I 1 HL Total I 1 HG Total Run	Appliances Loads Duct and Pipe loss 11,201 614  Level 2 nft. exposed wall A	1 =.25 p  To	ercent 27	% m .3	PWD A		26 A	A		32 A		41 A		19 A	Å	A	A		A		A		A
1 HL Total 1 HG Total Run	Appliances Loads Duct and Pipe loss 11,201 614  Level 2 Ift. exposed wall A Ift. exposed wall B	1 =.25 p	ercent 27	% m .3	PWD A B		Е	A		82 A B		41 A B		19 A B	A B	A B	A B		A B		A B		A B
1 HL Total 1 HG Total Run	Appliances Loads Duct and Pipe loss 11,201 614 Level 2 1ft. exposed wall A Ceiling height	1 =.25 p	ercent 27	11 9.0	PWD A B		9.0	A 3	9	32 A B .0		41 A B 9.0		19 A B 2.0	В	В	В		В		В		В
1 HL Total 1 HG Total Run Run	Appliances Loads Duct and Pipe loss 11,201 614  Level 2  ft. exposed wall A ft. exposed wall B Ceiling height Floor area	1 =.25 p To Total	ercent 27	11 9.0	PWD A B		9.0 90 A	A 3 Area	9	32 A B .0 69 Area	1	41 A B 9.0 183 Area		19 A B 2.0 00 Area	B Area	B Area	B Area		B Area		B Area		B Area
I 1 HL Total 1 1 HG Total Run Run	Appliances Loads Duct and Pipe loss 11,201 614  Level 2  Ift. exposed wall A  ft. exposed wall B  Ceiling height Floor area  Exposed Ceilings A	1 =.25 p  To  Total	ercent 27	11 9.0	PWD A B Area A		9.0 90 A	A B Area A	9	32 A B .0 69 Area A	1	41 A B 9.0 183 Area 20 A		19 A B 2.0 00 Area A	B Area A	B Area A	B Area A		B Area A		B Area A		B Area A
I 1 HL Total 1 1 HG Total Run Run	Appliances Loads Duct and Pipe loss 11,201 614  Level 2 off. exposed wall A off. exposed wall B Ceiling height Floor area Exposed Ceilings A Exposed Ceilings B	1 =.25 p	ercent 27	11 9.0	PWD A B Area A		9.0 90 A A	A B Area A B	9	32 A B .0 69 Area A B	1	41 A B 9.0 183 Area 20 A B		19 A B 2.0 00 Area A B	B Area A B	B Area A B	B Area A B		B Area A B		B Area A B		B Area A B
1 HL Total 1 HG Total Run Run E	Appliances Loads Duct and Pipe loss 11,201 614 Level 2 Ift. exposed wall A Ift. exposed wall B Ceiling height Floor area Exposed Ceilings B Exposed Floors	1 = 25 p To Total	ercent 27	90 % m .3 11 9.0 70	PWD A B Area A B		9.0 90 A A E	A B Area A	9 10	32 A B .0 59 Area A B Fir	1	41 A B 9.0 183 Area 20 A B Fir		19 A B 2.0 00 Area A B 00 Fir	B Area A	B Area A	B Area A		B Area A		B Area A		B Area A
1 HL Total 1 HG Total Run Run E	Appliances Loads Duct and Pipe loss 11,201 614  Level 2 Ift. exposed wall A Ceiling height Floor area Exposed Ceilings B Exposed Floors Gross Exp Wall A	1 = .25 p  Total	ercent 27	11 9.0	PWD A B Area A B		9.0 90 A A	A B Area A B	9	32 A B .0 59 Area A B Fir	1	41 A B 9.0 183 Area 20 A B		19 A B 2.0 00 Area A B	B Area A B	B Area A B	B Area A B		B Area A B		B Area A B		B Area A B
1 HL Total 1 HG Total Run Run E	Appliances Loads Duct and Pipe loss 11,201 614  Level 2 off. exposed wall A off. exposed wall B Ceiling height Floor area Exposed Ceilings A Exposed Floors Gross Exp Wall A Gross Exp Wall B	1 = .25 p To Total	ercent 2: 1 1 tal HL for per ro HG per room x	90 % m .3 11 9.0 70	PWD A B Area A B Fir		9.0 90 A E F 234	A Area A B B	9 10 20	32 A B .0 69 Area A B Fir	1	41 A B 9.0 183 Area 20 A B Fir		19 A B 2.0 00 Area A B 00 Fir	B Area A B Fir	B Area A B Fir	B Area A B Fir	Gain	B Area A B Fir	Gain	B Area A B Fir	Gain	B Area A B Fir
1 HL Total 1 HG Total Run Run	Appliances Loads Duct and Pipe loss 11,201 614 Level 2 Ift. exposed wall A Ift. exposed wall B Celling height Floor area Exposed Ceilings B Exposed Floors Gross Exp Wall A Gross Exp Wall B Components	1 = .25 p To Total	ercent 27 1 tal HL for per ro HG per room x	99	PWD A B Area A B Fir		9.0 90 A E F 234	A Area A B B	9 10	32 A B .0 59 Area A B Fir	1	41 A B 9.0 183 Area 20 A B Fir		19 A B 2.0 00 Area A B 00 Fir	B Area A B	B Area A B	B Area A B Fir	Gain	B Area A B	Gain	B Area A B	Gain	B Area A B Fir
1 HL Total 1 HG Total Run Run E E	Appliances Loads Duct and Pipe loss 11,201 614  Level 2 If. exposed wall A Ceiling height Floor area Exposed Ceilings B Exposed Floors Gross Exp Wall A Gross Exp Wall B Components North Shaded	1 =,25 p To Total	ercent 27 ercent 27 tal HL for per room x  NG per room x	90 % m .3 11 9.0 70	PWD A B Area A B Fir		9.0 90 A A E F 234	A Area A 3 Fir	9 10 24 sain	32 A B .0 39 Area A B Fir 38	Gain	41 A B 9.0 183 Area 20 A B FIr 369	Gain	19 A B 2.0 00 Area A B 00 Fir	B Area A B Fir	B Area A B Fir	B Area A B Fir	Gain	B Area A B Fir	Gain	B Area A B Fir	Gain	B Area A B Fir
I HL Total I HG Total Run Run E E	Appliances Loads Duct and Pipe loss 11,201 614  Level 2 1ft. exposed wall A 1ft. exposed wall B Ceiling height Floor area Exposed Ceilings A Exposed Floors Gross Exp Wall B Components North Shaded East/West	1 = .25 p  To  Total	ercent 2: 1 1atal HL for per room x  HG per room x  .oss Gain 24.13 11 24.13 27	11 9.0 70	PWD A B Area A B Fir		9.0 90 A E F 234	A Area A B B	9 10 24 sain	32 A B .0 69 Area A B Fir	Gain	41 A B 9.0 183 Area 20 A B Fir	Gain	19 A B 2.0 00 Area A B 00 Fir	B Area A B Fir	B Area A B Fir	B Area A B Fir	Gain	B Area A B Fir	Gain	B Area A B Fir	Gain	B Area A B Fir
i HL Total I HG Total Run Run E E	Appliances Loads Duct and Pipe loss 11,201 614 Level 2 Ift. exposed wall A Ift. exposed wall B Celling height Floor area Exposed Ceilings B Exposed Floors Gross Exp Wall A Gross Exp Wall A Gross Exp Wall B Components North Shaded East/West	1 = .25 p  To  Total  R-Values   3.15 3.15 3.15	ercent 27 1	99 99	PWD A B Area A B Fir		9.0 90 A A E F 234	A Area A 3 Fir	9 10 24 sain	32 A B .0 39 Area A B Fir 38	Gain	41 A B 9.0 183 Area 20 A B FIr 369	Gain	19 A B 2.0 00 Area A B 00 Fir	B Area A B Fir	B Area A B Fir	B Area A B Fir	Gain	B Area A B Fir	Gain	B Area A B Fir	Gain	B Area A B Fir
i HL Total I HG Total Run Run E E	Appliances Loads Duct and Pipe loss 11,201 614  Level 2 Ift. exposed wall A Ift. exposed wall B Ceiling height Floor area Exposed Ceilings A Exposed Floors Gross Exp Wall A Gross Exp Wall B Components North Shaded EastWest South Existing Windows	1 = .25 p  Total  R-Values   3.15 3.15 3.15 1.99	ercent 2: 1 1atal HL for per room x  HG per room x  .oss Gain 24.13 11 24.13 27	99 99 99 99	PWD A B Area A B Fir		9.0 90 A A E F 234	A Area A 3 Fir	9 10 24 sain	32 A B .0 39 Area A B Fir 38	Gain	41 A B 9.0 183 Area 20 A B FIr 369	Gain	19 A B 2.0 00 Area A B 00 Fir	B Area A B Fir	B Area A B Fir	B Area A B Fir	Gain	B Area A B Fir	Gain	B Area A B Fir	Gain	B Area A B Fir
I HL Total HG Total Run Run E E	Appliances Loads Duct and Pipe loss 11,201 614 Level 2 Ift. exposed wall A Ift. exposed wall B Celling height Floor area Exposed Ceilings B Exposed Floors Gross Exp Wall A Gross Exp Wall A Gross Exp Wall B Components North Shaded East/West	1 = .25 p  To  Total	ercent 2: 1 1atal HL for per room x  1 24.13 11 24.13 27 24.13 21 38.19 22 37.44 88	99 99 99 99	PWD A B Area A B Fir	Gain	9.0 90 A A E F 234	A Area A 3 Fir	9 10 24 sain	32 A B .0 39 Area A B Fir 38	Gain	41 A B 9.0 183 Area 20 A B FIr 369	Gain	19 A B 2.0 00 Area A B 00 Fir	B Area A B Fir	B Area A B Fir	B Area A B Fir	Gain	B Area A B Fir	Gain	B Area A B Fir	Gain	B Area A B Fir
I HL Total HG Total Run Run	Appliances Loads Duct and Pipe loss 11,201 614  Level 2 Ift. exposed wall A Ift. exposed wall B Celling height Floor area Exposed Ceilings B Exposed Ceilings B Exposed Floors Gross Exp Wall A Gross Exp Wall A Gross Exp Wall B Components North Shaded EastWest South Existing Windows Skylight Doors	1 = .25 p  To  Total  R-Values [ 3.15 3.15 3.15 1.99 2.03 3.01	.oss   Gain   24.13   21   24.13   21   24.13   21   38.19   22   37.44   88	999  11 175 188 181 181 181 181 181 181 181 181 18	PWD A B Area A B Fir Loss	Gain 777	9.0 90 A E F 234 L	A Area A A B B B B B B B B B B B B B B B B B	9 10 22 361 :	32 A B .0 99 Area A B Fir 38 Loss	Gain 666	41 A B 9.0 183 Area 20 A B Fir 1369 Loss 820	Gain 943	19 A B 2.0 OO Area A B B 000 Fir 38 Loss Gain	B Area A B Fir	B Area A B Fir	B Area A B Fir	Gain	B Area A B Fir	Gain	B Area A B Fir	Gain	B Area A B Fir
1 HL Total 1 HG Total Run Run E	Appliances Loads Duct and Pipe loss 11,201 614  Level 2 If. exposed wall A If. exposed wall B Ceiling height Floor area Exposed Ceilings A Exposed Floors Gross Exp Wall A Gross Exp Wall B Components North Shaded EastWest South Existing Windows Skylight Doors et exposed walls A	1 = .25 p  Total  R-Values   3.15 3.15 3.15 3.15 3.15 1.99 2.03 3.01	.oss   Gain   24.13   21   24.13   21   24.13   21   38.19   22   37.44   88	99  111  9.0  70  99  115  5  13  78	PWD A B Area A B Fir Loss	Gain 777	9.0 90 A E F 234 L	A Area A A B B B B B B B B B B B B B B B B B	2i 2isain 361 :	32 A B .0 99 Area A B Fir 38 Loss	Gain 666	41 A B 9.0 183 Area 20 A B FIr 369	Gain 943	19 A B 2.0 00 Area A B 00 Fir	B Area A B Fir	B Area A B Fir	B Area A B Fir	Gain	B Area A B Fir	Gain	B Area A B Fir	Gain	B Area A B Fir
1 HL Total 1 HG Total Run Run  E  NN NN NN	Appliances Loads Duct and Pipe loss 11,201 614  Level 2 If. exposed wall A of the exposed wall B Ceiling height Floor area Exposed Ceilings B Exposed Floors Gross Exp Wall B Components North Shaded EastWest South Existing Windows Skylight Doors et exposed walls A et exposed walls A et exposed walls A et exposed walls A	1 = .25 p  To  Total  R-Values   3.15 3.15 3.15 1.99 2.03 3.01 15.13 8.50 50.00	.oss Gain 24.13 11 24.13 27 24.13 21 24.13 21 38.19 22 37.44 88 25.25 3 3	99 11 5 5 13 5 21 78	PWD A B Area A B Fir Loss	Gain 777	9.0 90 A E F 234 L	A Area A A B B B B B B B B B B B B B B B B B	9 10 22 361 :	32 A B .0 99 Area A B Fir 38 Loss	Gain 666	41 A B 9.0 183 Area 20 A B Fir 1369 Loss 820	Gain 943	19 A B 2.0 OO Area A B B 000 Fir 38 Loss Gain	B Area A B Fir	B Area A B Fir	B Area A B Fir	Gain	B Area A B Fir	Gain	B Area A B Fir	Gain	B Area A B Fir
1 HL Total I HG Total Run Run I HG NM Run Run Run I HG NM Run	Appliances Loads Duct and Pipe loss 11,201 614  Level 2 If. exposed wall A of the exposed wall B Ceiling height Floor area Exposed Ceilings B Exposed Floors Gross Exp Wall B Components North Shaded EastWest South Existing Windows Skylight Doors et exposed walls A et exposed walls A et exposed walls A et exposed walls A	1 = .25 p  To  Total  R-Values   3.15 3.15 3.15 1.99 2.03 3.01 15.13 8.50 50.00	.oss Gain 24.13 11 24.13 27 24.13 21 38.19 22 37.44 88 25.25 3 5.02 0 8.94 1	999 111 155 181 151 170 170	PWD A B Area A B Fir Loss	Gain 777	9.0 90 A E F 234 L	A Area A A B B B B B B B B B B B B B B B B B	9 10 22 361 :	32 A B .0 99 Area A B Fir 38 Loss	Gain 666	41 A B 9.0 8 9.0 183 Area 20 A B Fir Loss 24 820 3335 1683	Gain 943	19 A B 2.0 OO Area A B B 000 Fir 38 Loss Gain	B Area A B Fir	B Area A B Fir	B Area A B Fir	Gain	B Area A B Fir	Gain	B Area A B Fir	Gain	B Area A B Fir
1 HL Total 1 HG Total Run Run  E  NN NN NN	Appliances Loads Duct and Pipe loss 11,201 614  Level 2 1ft. exposed wall A 1ft. exposed wall B Ceiling height Floor area Exposed Ceilings B Exposed Floors Gross Exp Wall A Gross Exp Wall B Components North Shaded East/West South Existing Windows Skylight Doors et exposed walls A et exposed walls A	R-Values II 3.15 3.15 3.15 3.15 3.01 15.13 8.50 50.00 22.86		99 99 111 90 70 99 111 115 88 55 88 55 13 78 99 66	PWD A B Area A B Fir Loss	Gain 777	9.0 90 A E F 234 L	A Area A A B B B B B B B B B B B B B B B B B	9 10 22 361 :	32 A B .0 99 Area A B Fir 38 Loss	Gain 666	41 A B 9.0 8 9.0 183 Area 20 A B Fir Loss 24 820 3335 1683	943 244	19 A B 2.0 OO Area A B B 000 Fir 38 Loss Gain	B Area A B Fir Loss Gain	B Area A B Fir	B Area A B Fir	Gain	B Area A B Fir	Gain	B Area A B Fir	Gain	B Area A B Fir
1 HL Total I HG Total Run Run E E E	Appliances Loads Duct and Pipe loss 11,201 614  Level 2 If. exposed wall A If. exposed wall B Ceiling height Floor area Exposed Ceilings B Exposed Floors Gross Exp Wall B Components North Shaded East/West South Existing Windows Skylight Doors et exposed Ceilings A Exposed Ceilings B	R-Values II 3.15 3.15 3.15 3.15 3.01 15.13 8.50 50.00 22.86	.oss Gain 24.13 11 24.13 21 38.19 22 37.44 88 25.25 3 5.02 0 8.94 1 1.52 0 3.32 1 1.52 0 3.34 0	99 99 111 90 70 99 111 115 88 55 88 55 13 78 99 66	PWD A B Area A B Fir Loss	Gain 777	9.0 90 A E F 234 L	A Area A A B B B B B B B B B B B B B B B B B	9 10 22 361 :	32 A B .0 99 Area A B Fir 38 Loss	Gain 666	41 A B 9.0 8 9.0 183 Area 20 A B Fir Loss 24 820 3335 1683	943 244	19 A B 2.0 00 Area A B 00 Fir 38 Loss Gain	B Area A B Fir Loss Gain	B Area A B Fir	B Area A B Fir	Gain	B Area A B Fir	Gain	B Area A B Fir	Gain	B Area A B Fir
1 HL Total 1 HG Total Run Run Ni Ni E E E  adation Cond	Appliances Loads Duct and Pipe loss 11,201 614 Level 2 1ft. exposed wall A 1ft. exposed wall B Ceiling height Floor area Exposed Ceilings A Exposed Floors Gross Exp Wall A Gross Exp Wall B Components North Shaded EastWest South Existing Windows Skylight Doors et exposed walls A et exposed walls A et exposed walls A et exposed ceilings A exposed Ceilings B Exposed Floors	1 = .25 p  To  Total  R-Values   3.15 3.15 3.15 1.99 2.03 3.01 15.13 8.50 50.00 22.86 22.85 Slab On G	.oss Gain 24.13 11 24.13 21 38.19 22 37.44 88 25.25 3 5.02 0 8.94 1 1.52 0 3.32 1 1.52 0 3.34 0	99 99 111 90 70 99 111 115 88 55 88 55 13 78 99 66	PWD A B Area A B Fir Loss	Gain 77 57	9.0 90 A E F 234 L	A Area A A B B B B B B B B B B B B B B B B B	9 10 22 361 :	32 A B .0 99 Area A B Fir 38 Loss	Gain 666 192 3	41 A B 9.0 8 9.0 183 Area 20 A B Fir Loss 24 820 3335 1683	943 244 15	19 A B 2.0 00 Area A B 00 Fir 38 Loss Gain  00 345 2 536	B Area A B Fir Loss Gain	B Area A B Fir	B Area A B Fir	Gain	B Area A B Fir	Gain	B Area A B Fir	Gain	B Area A B Fir
1 HL Total 1 HG Total Run Run  Ni Ni Ni Ni Condition Cond	Appliances Loads Duct and Pipe loss 11,201 614 Level 2 1ft. exposed wall A 1ft. exposed wall B Ceiling height Floor area Exposed Ceilings B Exposed Floors Gross Exp Wall A Gross Exp Wall B Components North Shaded EastWest South Existing Windows Skylight Doors et exposed walls A et exposed walls B Exposed Ceilings A et exposed walls B Exposed Ceilings B Exposed Ceilings B Exposed Ceilings B Exposed Floors fuctive Heatloss Heat Gain	1 = .25 p  Total  R-Values   3.15 3.15 3.15 3.15 3.15 3.15 3.15 3.15	.oss Gain 24.13 11 24.13 21 38.19 22 37.44 88 5.02 0 8.94 1 1.52 0 3.32 1 3.45 0 orade (x) x	99 99 11 15 5 13 70 99 16 16 16 16 16 16 16 16	PWD A B Area A B Fir Loss	Gain 777	9.0 90 A E F 234 L	A 3 3 Area A 3 3 3 Fir 3 14 3 28 1045	24 361 : 48 151 24	22 A B B O O O O O O O O O O O O O O O O O	Gain 666 192 3	41 A B B 9.0 183 Area 20 A B Fir 3669  Loss 34 820 335 1683 20 30	943 943 244 15	19 A B 2.0 00 Area A B 00 Fir 38  Loss Gain  38 191 2 00 345 2 536	B Area A B Fir Loss Gain	B Area A B Fir	B Area A B Fir	Gain	B Area A B Fir	Gain	B Area A B Fir	Gain	B Area A B Fir
1 HL Total 1 HG Total Run Run Ni Ni Ni Ni Condition Cond	Appliances Loads Duct and Pipe loss 11,201 614  Level 2 If. exposed wall A If. exposed wall B Ceiling height Floor area Exposed Ceilings B Exposed Floors Gross Exp Wall A Gross Exp Wall B Components North Shaded East/West South Existing Windows Skylight Doors et exposed walls A et exposed walls A et exposed floors et exposed walls A et exposed floors texposed Ceilings B Exposed Floors Substitute Heat Loss Heat Loss Heat Loss Heat Loss Heat Loss Heat Loss/Gain	1 = .25 p  Total  R-Values   3.15 3.15 3.15 1.99 2.03 3.01 15.13 8.50 50.00 22.86 22.05 Slab On G	.oss Gain 24.13 11 24.13 27 24.13 27 24.13 27 24.13 27 24.13 27 38.19 22 37.44 88 25.25 3 5.02 0 8.94 1 1.52 0 3.32 1 3.45 0 0 arade (x) x	99 99 111 155 188 155 151 151 151 151 151 151	PWD A B B Area A B B Fir Loss 330 392 221 211	Gain 77 57 57 133 4	9.0 90 A E F 234 L	A 3 3 Area A 3 3 Silr Silr Silr Silr Silr Silr Silr Silr	9 11 2i iain 361 : : : : : : : : : : : : : : : : : : :	12 A B B O Area A B Fir 188 Loss 1326 14 1326 1436 1436	Gain 666 192 :	41 A B 9.0 183 Area 20 A B Fir 369 Loss 20 30 30 2533 580	943 244 15	19 A B 2.0 00 Area A B 800 Fir 38 Loss Gain	B Area A B Fir  Loss Gain	B Area A B Fir	B Area A B Fir	Gain	B Area A B Fir	Gain	B Area A B Fir	Gain	B Area A B Fir
1 HL Total 1 HG Total Run Run  Ni Ni Ni Conductive Leakage	Appliances Loads Duct and Pipe loss 11,201 614 Level 2 1ft. exposed wall A 1ft. exposed wall B Ceiling height Floor area Exposed Ceilings B Exposed Floors Gross Exp Wall A Gross Exp Wall B Components North Shaded EastWest South Existing Windows Skylight Doors et exposed walls A et exposed walls B Exposed Ceilings A et exposed walls B Exposed Ceilings B Exposed Ceilings B Exposed Ceilings B Exposed Floors fuctive Heatloss Heat Gain	1 = .25 p  Total  R-Values   3.15 3.15 3.15 1.99 2.03 3.01 15.13 8.50 50.00 22.86 22.05 Slab On G	.oss Gain 24.13 11 24.13 21 38.19 22 37.44 88 5.02 0 8.94 1 1.52 0 3.32 1 3.45 0 orade (x) x	99 99 111 155 188 155 151 151 151 151 151 151	PWD A B Area A B Fir Loss	Gain 77 57 57 133 4	9.0 90 A E F 234 L	A 3 3 Area A 3 3 3 Fir 3 14 3 28 1045	24 361 : 48 151 24	22 A B B O O O O O O O O O O O O O O O O O	Gain 666 192 :	41 A B B 9.0 183 Area 20 A B Fir 3669  Loss 34 820 335 1683 20 30	943 244 15	19 A B 2.0 00 Area A B 800 Fir 38 Loss Gain	B Area A B Fir  Loss Gain	B Area A B Fir	B Area A B Fir	Gain	B Area A B Fir	Gain	B Area A B Fir	Gain	B Area A B Fir
1 HL Total 1 HG Total Run Run E E E  Addition Conductive Leakage	Appliances Loads Duct and Pipe loss 11,201 614  Level 2 If. exposed wall A If. exposed wall B Ceiling height Floor area Exposed Ceilings B Exposed Floors Gross Exp Wall A Gross Exp Wall B Components North Shaded East/West South Existing Windows Skylight Doors et exposed walls A et exposed walls A et exposed floors et exposed walls A et exposed floors texposed Ceilings B Exposed Floors Substitute Heat Loss Heat Loss Heat Loss Heat Loss Heat Loss Heat Loss/Gain	R-Values II 3.15 3.15 3.15 3.15 3.15 3.15 3.15 3.15	.oss Gain 24.13 11 24.13 27 24.13 27 24.13 27 24.13 27 24.13 27 38.19 22 37.44 88 25.25 3 5.02 0 8.94 1 1.52 0 3.32 1 3.45 0 0 arade (x) x	99 111 15 88 15 13 15 21 70 16 16 16 16 16 16 16 16 16 16 16 16 16	PWD A B B Area A B B Fir Loss 330 392 221 211	Gain 77 57 57 133 4	9.0 90 A E F 234 L	A 3 3 Area A 3 3 Silr Silr Silr Silr Silr Silr Silr Silr	9 11 2i iain 361 : : : : : : : : : : : : : : : : : : :	12 A B B O Area A B Fir 188 Loss 1326 14 1326 1436 1436	Gain 666 192 :	41 A B 9.0 183 Area 20 A B Fir 369 Loss 20 30 30 2533 580	943 244 15	19 A B 2.0 00 Area A B 800 Fir 38 Loss Gain	B Area A B Fir  Loss Gain	B Area A B Fir	B Area A B Fir	Gain	B Area A B Fir	Gain	B Area A B Fir	Gain	B Area A B Fir
1 HL Total 1 HG Total Run Run E E  Ni Ni Ni C E E  dation Cond Conductive Leakage	Appliances Loads Duct and Pipe loss 11,201 614  Level 2 If. exposed wall A If. exposed wall B Ceiling height Floor area Exposed Ceilings A Exposed Floors Gross Exp Wall A Gross Exp Wall B Components North Shaded East/West South Existing Windows Skylight Doors et exposed walls A et exposed walls A Exposed Ceilings A Exposed Floors Stylight Doors et exposed walls A Exposed Ceilings B Exposed Ceilings B Exposed Floors stuctive Heat Coss Heat Gain Heat Loss Heat Gain Heat Loss(Gain Loss/Gain Loss/Gain Loss 2 Loss 2 Loss 2 Loss 2 Loss 2 Loss 2 Loss 3	1 = .25 p  Total  R-Values   3.15 3.15 3.15 1.99 2.03 3.01 15.13 8.50 50.00 22.86 22.05 Slab On G	.oss Gain 24.13 11 24.13 27 24.13 27 24.13 27 24.13 27 38.19 22 37.44 88 25.25 0 3.32 1 3.45 0 0.77ade (x) x 0.2288 0.03 0.19 0 82.08 11 0.25 0	99 111 9.0 70 99 111 15:5 8:8 13:3 78 15:5 21 15:5 22 18:8 18:8 18:8 19:9 10:1 10:1 10:1 10:1 10:1 10:1 10:1	PWD A B B Area A B B Fir Loss 330 392 221 211	Gain 77 57 57 133 4	9.0 90 A E F 234 L	A 3 3 Area A 3 3 Silr Silr Silr Silr Silr Silr Silr Silr	9 11 2i iain 361 : : : : : : : : : : : : : : : : : : :	12 A B B O Area A B Fir 188 Loss 1326 14 1326 1436 1436	Gain 666 192 :	41 A B 9.0 183 Area 20 A B Fir 369 Loss 20 30 30 2533 580	943 244 15	19 A B 2.0 00 Area A B 800 Fir 38 Loss Gain	B Area A B Fir  Loss Gain	B Area A B Fir	B Area A B Fir	Gain	B Area A B Fir	Gain	B Area A B Fir	Gain	B Area A B Fir
Run Run Ni	Appliances Loads Duct and Pipe loss 11,201 614  Level 2 1ft. exposed wall A 1ft. exposed wall B Ceiling height Floor area Exposed Ceilings B Exposed Floors Gross Exp Wall B Components North Shaded East/West South Existing Windows Skylight Doors et exposed walls A et exposed ceilings A et exposed ceilings A et exposed walls B Exposed Floors Under the components Exposed Ceilings A et exposed walls B Exposed Ceilings A et exposed ceilings A et exposed Floors Unctive Heat Loss Heat Gain Heat Loss/Gain Heat Loss/Gain Case 1 Case 2 Case 3 Heat Gain People	1 =.25 p To Total  R-Values [ 3.15 3.15 3.15 1.99 2.03 3.01 15.13 8.50 50.00 22.86 22.05 Slab On G	.oss Gain 24.13 11 24.13 21 38.19 22 4.13 21 38.19 22 37.44 82 5.02 0 3.32 1 1.52 0 3.34 0 0.7ade (x) x	99 111 15 18 112 111 115 115 115 115 115 115 115 115	PWD A B B Area A B B Fir Loss 330 392 221 211	Gain 77 57 57 133 4	9.0 90 A A A E F F F T 234 L L 13	A 3 3 Area A 3 3 Silr Silr Silr Silr Silr Silr Silr Silr	248 48 151 24 559 18 66	12 A B B .0 Area A B Fir 88 Loss   24 579 44 1326   436 371	Gain 666 192 3	41 A B 9.0 183 Area 20 A B Fir 3669 Loss 20 30 2533 580 494	943  244  15  1202  39  141	19 A B 2.0 OO Area A B B 000 Fir 38 Loss Gain 00 345 2 536 5 123 104	B Area A B B Fir  Loss Gain	B Area A B Fir	B Area A B Fir	Gain	B Area A B Fir	Gain	B Area A B Fir	Gain	B Area A B Fir
1 HL Total 1 HG Total 1 HG Total Run Run Ni Ni E E Indation Cond Conductive Leakage Intilation	Appliances Loads Duct and Pipe loss 11,201 614  Level 2 If. exposed wall A If. exposed wall B Ceiling height Floor area Exposed Ceilings B Exposed Floors Gross Exp Wall B Components North Shaded EastWest South Existing Windows Skylight Doors et exposed walls A et exposed walls A et exposed ceilings B Exposed Ceilings B Exposed Floors South Existing Windows Skylight Doors et exposed walls A et exposed walls A et exposed ceilings B Exposed Floors Juctive Heatloss Heat Loss Heat Loss Heat Case 1 Case 2 Case 3 Heat Gain People	1 = .25 p  To  Total  R-Values   3.15 3.15 3.15 1.99 2.03 3.01 15.13 8.50 50.00 22.86 22.05 Slab On G		99 99 11 15 5 8 8 13 7 8 90 7 8 90 11 15 15 15 15 15 15 15 15 15 15 15 15	PWD A B B Area A B B Fir Loss 330 392 221 211	Gain 77 57 57 133 4	9.0 90 A E F 234 L	A 3 3 Area A 3 3 Silr Silr Silr Silr Silr Silr Silr Silr	9 11 2i iain 361 : : : : : : : : : : : : : : : : : : :	12 A B B .0 Area A B Fir 88 Loss   24 579 44 1326   436 371	Gain  666  192 :	41 A B 9.0 183 Area 20 A B Fir 369 Loss 20 30 30 2533 580	943  244  15  1202  39  141	19 A B 2.0 00 Area A B 800 Fir 38 Loss Gain 38 191 2 2 536 5 123 104 1.0 68	B Area A B Fir  Loss Gain	B Area A B Fir	B Area A B Fir	Gain	B Area A B Fir	Gain	B Area A B Fir	Gain	B Area A B Fir
1 HL Total 1 HG Total Run Run Run N: N: N: N: Conductive Leakage Intilation	Appliances Loads Duct and Pipe loss 11,201 614 614 614 614 614 614 614 614 614 61	1 = .25 p  Total  R-Values   3.15 3.15 3.15 3.15 1.99 2.03 3.01 15.13 8.50 50.00 22.86 22.05 Slab On G		99 99 111 90 99 111 90	PWD A B B Area A B B Fir Loss 530 392 922 211 180	Gain 77 57 57 133 4	9.0 90 A A A E F F F T 234 L L 13	33 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	248 48 151 24 559 18 66	12 A B B Fir 18 Loss   Loss   1905   436   371   .00	Gain 666 192 3	41 A B 9.0 183 Area 20 A B Fir 369 Loss 20 30 2533 580 494	943  244  15  1202  39  141	19 A B 2.0 00 Area A B 00 Fir 38  Loss Gain  00 345 2 536 5 123 104  1.0 66 7	B Area A B Fir  Loss Gain	B Area A B Fir	B Area A B Fir	Gain	B Area A B Fir	Gain	B Area A B Fir	Gain	B Area A B Fir
I 1 HL Total I 1 HG Total Run Run Run I 1 HG Total Run Run Conductive Leakage	Appliances Loads Duct and Pipe loss 11,201 614  Level 2 If. exposed wall A If. exposed wall B Ceiling height Floor area Exposed Ceilings B Exposed Floors Gross Exp Wall B Components North Shaded EastWest South Existing Windows Skylight Doors et exposed walls A et exposed walls A et exposed ceilings B Exposed Ceilings B Exposed Floors South Existing Windows Skylight Doors et exposed walls A et exposed walls A et exposed ceilings B Exposed Floors Juctive Heatloss Heat Loss Heat Loss Heat Case 1 Case 2 Case 3 Heat Gain People	1 = .25 p  Total  R-Values   3.15 3.15 3.15 3.15 1.99 2.03 3.01 15.13 8.50 50.00 22.86 22.05 Slab On G		99 99 111 90 99 111 90	PWD A B Area A B B Fir Loss	Gain 77 57 57 133 4	9.0 90 A A A E F F F T 234 L L 13	A 3 3 Area A 3 3 Silr Silr Silr Silr Silr Silr Silr Silr	248 48 151 24 559 18 66	12 A B B .0 Area A B Fir 88 Loss   24 579 44 1326   436 371	Gain 666 192 3	41 A B 9.0 183 Area 20 A B Fir 3669 Loss 20 30 2533 580 494	943  244  15  1202  39  141	19 A B 2.0 00 Area A B 800 Fir 38 Loss Gain 38 191 2 2 536 5 123 104 1.0 68	B Area A B Fir Loss Gain	B Area A B Fir	B Area A B Fir	Gain	B Area A B Fir	Gain	B Area A B Fir	Gain	B Area A B Fir

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:

Mana Alexa

David DaCosta

SB-12 Package Package D



Total Heat Loss

Total Heat Gain

30,784

14,073

btu/h

#### Heatloss/Gain Calculations CSA-F280-12

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

		0									e-mail dave@	gtadesigns.ca						
		Builder:	Delpark High	castle	Da	ate:	Ap	oril 7, 2015			Weather Data	Newcastle (Bowm	anville) 44	-4.0 86 2	0 50			Page 5
2012 OBC		Project:	Northgle	n	Mod	del:	33	-1 Ryedale 33-1		System 1	Heat Loss ^T	76 dea. F	Ht gain ^T	11 deg. F	GTA:	1259	Project # Layout #	15-34
			Horangio						<u> </u>				<b>3</b>					
_	Level 3			ENS		BATH		HALL	BED 3	BED 2	MAST							
	n ft. exposed wall A n ft. exposed wall B			18 A B		5 A B	19	В	14 A B	22 A B	24 A B	A B	A B	A B		A B		A 3
	Ceiling height			8.0		8.0	8.0		8.0	8.0	8.0							
_	Floor area			84 Area		48 Area		Area	150 Area	113 Area	154 Area	Area	Area		rea	Area		Area
	Exposed Ceilings A Exposed Ceilings B			84 A B		48 A B	51	В	150 A B	113 A B	154 A B	A B	A B	A B		A B		A 3
-	Exposed Floors			Fir		Flr		Fir	Fir	Flr	Fir	Fir	Fir	F		Flr		- Fir
	Gross Exp Wall A			144		40	152		112	176	192							
	Gross Exp Wall B	R-Values Loss	Gain	Loss	Gain	Loss	Gain	Loss Gain	Loss Gain	Loss Gain	Loss Gain	Loss Gain	Loss	Gain L	oss Gain	Loss	Gain I	oss Gain
	North Shaded			2033	Cam	6 145			68	LUSS CUIII	LUSS CUIII	LO33 Cum			oss cam			LOSS Gain
	East/West	3.15 24.		8 193	222				22 531 6	10 14 338 388	18 434 499							
	South Existing Windows	3.15 24. 1.99 38.																
	Skylight	2.03 37.																
	Doors	3.01 25.	25 3.65															
	let exposed walls A		02 0.73	136 683	99	34 171	25 146	733 1	06 90 452	65 162 814 118	174 874 127							
	let exposed walls B Exposed Ceilings A		94 1.29 52 0.76	84 128	64	48 73	36 51	78	39 150 228 1	14 113 172 86	154 234 117							
	Exposed Ceilings B	22.86 3.	32 1.66		Ŭ.,	- 1	3			1.52 00								
	Exposed Floors	22.05 3.	45 0.23															
Foundation Cond	Heat Loss			1004		389		956	1211	1323	1542							
Total Conductive	Heat Gain				385		129	2	13 7	90 592	743							
Air Leakage	Heat Loss/Gain	0.18		181	12	70		172		26 238 19	278 24							
Ventilation	Case 1	x 0.	15 0.12 08 11.88	154	45	60	15	147	25 186	93 203 70	236 87							
	Case 3		25 0.12															
	Heat Gain People		239						1 2	39 1 239	2 478							
	Appliances Loads Duct and Pipe loss		2730 10%							1 156 90								
Level 3 HL Total	8,722		for per room	1338		518		1274	1614	1921	2057							
Level 3 HG Total	5,623	Total HG pe	r room x 1.3		575		193	3	18 14	92 1313	1732							
	Level 4																	
Run																		
				Δ		Δ	2015	Δ	Δ	Δ	Δ	Δ	Δ	Δ		Δ		
Run	n ft. exposed wall A			A B		A B		A B	A B	A B	A B	A B	A B	A B		A B		A 3
Run	n ft. exposed wall A n ft. exposed wall B Ceiling height			В		В		В	В	В	В	В	В	В		В	E	3
	n ft. exposed wall A n ft. exposed wall B Ceiling height Floor area			B Area		B Area		B Area	B Area	B Area	B Area	B Area	B Area	B	rea	B Area	E	3 Area
E	n ft. exposed wall A n ft. exposed wall B Ceiling height			В		В		В	В	В	В	В	В	В	rea	В	; ,	3 Area
E E	n ft. exposed wall A n ft. exposed wall B Ceiling height Floor area Exposed Ceilings A Exposed Ceilings B Exposed Floors			B Area A		B Area A		B Area A	B Area A	B Area A	B Area A	B Area A	B Area A	B A A	rea	B Area A	E ,, ,,	3 Area A
E E	n ft. exposed wall A n ft. exposed wall B Ceiling height Floor area Exposed Ceilings A Exposed Ceilings B Exposed Floors Gross Exp Wall A			B Area A B		B Area A B		B Area A B	B Area A B	B Area A B	B Area A B	B Area A B	B Area A B	B A A B	rea	B Area A B	E ,, ,,	3 Area A 3
E E	n ft. exposed wall A n ft. exposed wall B Ceiling height Floor area Exposed Ceilings A Exposed Ceilings B Exposed Floors Gross Exp Wall A Gross Exp Wall B	R-Values Loss	Gain	B Area A B	Gain	B Area A B Fir		B Area A B	B Area A B Fir	B Area A B	B Area A B	B Area A B	B Area A B	B A A B F	rea	B Area A B	: , , ;	3 Area A 3
E E	nft. exposed wall A nft. exposed wall B Ceiling height Floor area Exposed Ceilings B Exposed Floors Gross Exp Wall B Components North Shaded	3.15 24.	13 11.31	B Area A B Fir	Gain	B Area A B Fir		B Area A B Fir	B Area A B Fir	B Area A B Fir	B Area A B Fir	B Area A B Fir	B Area A B Fir	B A A B F	rea	B Area A B Fir	: , , ;	3 Area A 3 Fir
E E	nft. exposed wall A nft. exposed wall B Ceiling height Floor area Exposed Ceilings A Exposed Ceilings B Exposed Floors Gross Exp Wall A Gross Exp Wall B Components North Shaded East/West	3.15 24. 3.15 24.	13 11.31 13 27.75	B Area A B Fir	Gain	B Area A B Fir		B Area A B Fir	B Area A B Fir	B Area A B Fir	B Area A B Fir	B Area A B Fir	B Area A B Fir	B A A B F	rea	B Area A B Fir	: , , ;	3 Area A 3 Fir
E	nft. exposed wall A nft. exposed wall A Ceiling height Floor area Exposed Ceilings B Exposed Floors Gross Exp Wall A Gross Exp Wall B Components North Shaded East/West	3.15 24. 3.15 24. 3.15 24.	13 11.31 13 27.75 13 21.28	B Area A B Fir	Gain	B Area A B Fir		B Area A B Fir	B Area A B Fir	B Area A B Fir	B Area A B Fir	B Area A B Fir	B Area A B Fir	B A A B F	rea	B Area A B Fir	: , , ;	3 Area A 3 Fir
E	nft. exposed wall A nft. exposed wall A nft. exposed wall B Ceiling height Floor area Exposed Ceilings B Exposed Floors Gross Exp Wall B Components North Shaded East/West South Existing Windows Skylight	3.15 24. 3.15 24. 3.15 24. 1.99 38. 2.03 37.	13 11.31 13 27.75 13 21.28 19 22.15 44 88.23	B Area A B Fir	Gain	B Area A B Fir		B Area A B Fir	B Area A B Fir	B Area A B Fir	B Area A B Fir	B Area A B Fir	B Area A B Fir	B A A B F	rea	B Area A B Fir	: , , ;	3 Area A 3 Fir
E	nft. exposed wall A nft. exposed wall B Ceiling height Floor area Exposed Ceilings B Exposed Floors Gross Exp Wall B Components North Shaded East/West South Existing Windows Skylight Doors	3.15 24. 3.15 24. 3.15 24. 1.99 38. 2.03 37. 3.01 25.	13 11.31 13 27.75 13 21.28 19 22.15 44 88.23 25 3.65	B Area A B Fir	Gain	B Area A B Fir		B Area A B Fir	B Area A B Fir	B Area A B Fir	B Area A B Fir	B Area A B Fir	B Area A B Fir	B A A B F	rea	B Area A B Fir	: , , ;	3 Area A 3 Fir
E	nft. exposed wall A nft. exposed wall A Ceiling height Floor area Exposed Ceilings A Exposed Ceilings B Exposed Floors Gross Exp Wall A Gross Exp Wall B Components North Shaded East/West South Existing Windows Skylight Doors let exposed walls A	3.15 24 3.15 24 3.15 24 1.99 38 2.03 37 3.01 25 15.13 5.	13 11.31 13 27.75 13 21.28 19 22.15 44 88.23 25 3.65 02 0.73	B Area A B Fir	Gain	B Area A B Fir		B Area A B Fir	B Area A B Fir	B Area A B Fir	B Area A B Fir	B Area A B Fir	B Area A B Fir	B A A B F	rea	B Area A B Fir	: , , ;	3 Area A 3 Fir
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E E E	nft. exposed wall A nft. exposed wall A nft. exposed wall B Ceiling height Floor area Exposed Ceilings A Exposed Floors Gross Exp Wall B Components North Shaded East/West South Existing Windows Skylight Doors let exposed walls A let exposed walls A Exposed Ceilings A Exposed Ceilings B Exposed Ceilings B Exposed Floors	3.15 24. 3.15 24. 3.15 24. 1.99 38. 2.03 37. 3.01 25. 15.13 5. 8.50 8.50 1. 22.86 3.	13 11.31 13 27.75 13 21.28 19 22.15 44 88.23 25 3.65 02 0.73 94 1.29 52 0.76	B Area A B Fir	Gain	B Area A B Fir		B Area A B Fir	B Area A B Fir	B Area A B Fir	B Area A B Fir	B Area A B Fir	B Area A B Fir	B A A B F	rea	B Area A B Fir	: , , ;	3 Area A 3 Fir
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Ni. Ne E Foundation Cond	n ft. exposed wall A 1 ft. exposed wall A Ceiling height Floor area Exposed Ceilings A Exposed Ceilings B Exposed Floors Gross Exp Wall A Gross Exp Wall B Components North Shaded East/West South Existing Windows Skylight Doors let exposed walls A let exposed walls A Exposed Ceilings A Exposed Ceilings B Exposed Floors Let Loss/Gain Heat Loss/Gain	3.15 24. 3.15 24. 1.99 38. 2.03 37. 1.51 5. 1.51 5. 8.50 8. 2.08 3. 2.2.05 3.	13 11.31 13 27.75 13 21.28 19 22.15 44 88.23 25 3.65 02 0.73 94 1.29 52 0.76 32 1.66 45 0.23	B Area A B Fir	Gain	B Area A B Fir		B Area A B Fir	B Area A B Fir	B Area A B Fir	B Area A B Fir	B Area A B Fir	B Area A B Fir	B A A B F	rea	B Area A B Fir	: , , ;	3 Area A 3 Fir
Ni. Ne E Foundation Cond	n ft. exposed wall A n ft. exposed wall B Ceiling height Floor area Exposed Ceilings A Exposed Floors Gross Exp Wall B Components North Shaded East/West South Existing Windows Skylight Doors det exposed walls B Exposed Ceilings A Exposed Ceilings B Exposed Ceilings B Exposed Ceilings B Exposed Floors ductive Heatloss Heat Loss Heat Loss	3.15 24. 3.15 24. 1.99 38. 2.03 37. 1.51 5. 1.51 5. 8.50 8. 2.08 3. 2.2.05 3.	13 11.31 13 27.75 13 21.28 19 22.15 44 88.23 25 3.65 02 0.73 94 1.29 52 0.76 32 1.66 45 0.23	B Area A B Fir	Gain	B Area A B Fir		B Area A B Fir	B Area A B Fir	B Area A B Fir	B Area A B Fir	B Area A B Fir	B Area A B Fir	B A A B F	rea	B Area A B Fir	: , , ;	3 Area A 3 Fir
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No.	nft. exposed wall A nft. exposed wall A ceiling height Floor area Exposed Ceilings A Exposed Ceilings B Exposed Floors Gross Exp Wall A Gross Exp Wall A Gross Exp Wall B Components North Shaded East/West South Existing Windows Skylight Doors let exposed walls A let exposed walls A let exposed ceilings A Exposed Ceilings A Exposed Floors ductive Heatloss Heat Gain Heat Loss/Gain Case 1 Case 2 Case 3 Heat Gain People	3.15 24. 3.15 24. 3.15 24. 1.99 38. 2.03 37. 3.01 25. 15.13 5. 8.50 8. 50.00 1. 22.86 3. 22.05 3.	13 11.31 13 27.75 13 21.28 19 22.15 44 88.23 25 3.65 02 0.73 94 1.29 52 0.76 32 1.66 45 0.23 00 0.0325 00 0.12 08 11.88 25 0.12	B Area A B Fir	Gain	B Area A B Fir		B Area A B Fir	B Area A B Fir	B Area A B Fir	B Area A B Fir	B Area A B Fir	B Area A B Fir	B A A B F	rea	B Area A B Fir	: , , ;	3 Area A 3 Fir
No. Ne. E Foundation Cond Total Conductive Air Leakage Ventilation	nft. exposed wall A nft. exposed wall A nft. exposed wall B Ceiling height Floor area Exposed Ceilings A Exposed Floors Gross Exp Wall A Gross Exp Wall B Components North Shaded EastWest South Existing Windows Skylight Doors let exposed walls A let exposed walls A exposed Ceilings A Exposed Ceilings A Exposed Ceilings A Exposed Floors Judicial Heat Loss Heat Loss Heat Case 1 Case 2 Case 3 Heat Gain People	3.15 24. 3.15 24. 3.15 24. 1.99 38. 2.03 37. 3.01 25. 15.13 5. 8.50 8. 50.00 1. 22.86 3. 22.05 3.	13 11.31 13 27.75 13 21.28 19 22.15 44 88.23 25 3.65 02 0.73 94 1.29 52 0.76 32 1.66 45 0.23 00 0.0325 00 0.0325 00 0.12 08 11.88 25 0.12	B Area A B Fir	Gain	B Area A B Fir		B Area A B Fir	B Area A B Fir	B Area A B Fir	B Area A B Fir	B Area A B Fir	B Area A B Fir	B A A B F	rea	B Area A B Fir	: , , ;	3 Area A 3 Fir
No. Ne. E Foundation Cond Total Conductive Air Leakage Ventilation	nft. exposed wall A nft. exposed wall A nft. exposed wall B Ceiling height Floor area Exposed Ceilings A Exposed Ceilings A Exposed Floors Gross Exp Wall B Components North Shaded East/West South Existing Windows Skylight Doors let exposed walls A exposed Ceilings A Exposed Ceilings A Exposed Ceilings B Exposed Floors ductive Heatloss Heat Gain Heat Loss Gase 1 Case 2 Case 3 Heat Gain Popple Appliances Loads Duct and Pipe loss	3.15 24. 3.15 24. 1.199 38. 2.03 3.01 25. 15.13 5. 8.50 0 1. 22.86 3. 22.05 3. 0.00 x 0.00 x 0.00 1 = .25 percent Total HL	13 11.31 13 27.75 13 21.28 19 22.15 14 88.23 25 3.65 02 0.73 94 1.29 52 0.76 32 1.66 45 0.23 00 0.0325 00 0.0325 00 0.12 239 2730	B Area A B Fir	Gain	B Area A B Fir		B Area A B Fir	B Area A B Fir	B Area A B Fir	B Area A B Fir	B Area A B Fir	B Area A B Fir	B A A B F	rea	B Area A B Fir	: , , ;	3 Area A 3 Fir

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:

Name Maleta

David DaCosta

SB-12 Package Package D



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

Project # Layout # Page 6 15-34

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

Division C subsection 3.2.5. of the Building Code. Individual BCIN: 32964

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

### 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 #	Bsmt &
Township	Newcastle (Bowmanville)	Other B Bathroo
Roll #	Permit #	Other ro
Address		
N	Builder	Mantan

Total Ventilation	Cap	acit	y 9.3	2.3.3(	1)	
Bsmt & Master Bdrm Other Bedrooms Bathrooms & Kitchen Other rooms	2 2 4 2	@ @ @	20 10 10 10 10 Tota	cfm cfm cfm cfm	40 20 40	cfm cfm cfm cfm

	Builder	
Name		
	Delpark Highcastle	
Address		
City		
Tel	Fax	

Principal Vent	tilation Ca	pac	city 9	.32.3.	4(1)		
Master bedroom Other bedrooms	1 2	_		cfm cfm		cfm cfm	

	Installing Contractor	
Name		
Address		
City		
Tel	Fax	

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

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

0 cfm low
<u>0</u>
<u>0</u>

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

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

	House Type 9.32.3.1(2)					
I	I x Type a) or b) appliances only, no solid fuel					
II		Type I except with solid fuel (including fireplace)				
Ш	III Any type c) appliance					
IV						
Other	— → ´' '					

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.			
	•					

	System Design Option					
1	Х	Exhaust only / forced air system				
2		HRV WITH DUCTING / forced air system				
3	3 HRV simplified connection to forced air system					
4	· · · · · · · · · · · · · · · · · · ·					
		Part 6 design				
	,					

	Designer Certification					
, ,	I hereby certify that this ventilation system has been designed in accordance with the Ontario Building Code.					
iii accordance w	in the ontario b					
Name	David Da	aCosta				
Signature	Mare	146 <del>4</del>	7			
HRAI#	5190	BCIN#	32964			
Date	April 7,	2015				

# gtaDesigns

## **Energy Efficiency Design Summary**

(Part 9 Residential)

2985 Drew Road, Suite 202, Mississauga, Ontario L4T 0A4 Tel: 905-671-9800 Fax: 647-494-9643 e-mail dave@gtadesigns.ca					Project # Layout #	Page 7			
This form is used to summarize the energy efficiency design of					ne project Informatio	n on completing this	s form is or	•	13-34
This form is doed to	to summanze ti	ic chargy			cipal Authority	ir on completing the	0 101111 10 01	THIC TOVOISC	
Application No:					Model/Certification Num	ber			
A. Project Information	on								
Building number, street name			33-	1 Ryedale	ı	Unit number	Lot/Con		
				33-1					
Municipality Newcast	tle (Bowman	ville)	Postal code	•	Reg. Plan number / othe	r description			
B. Compliance Optic	on		I		l				
☑ SB-12 Prescriptive		1.]		Table:	Package: A B C	DEFGHI	JKLM	Package	D
☐ SB-12 Performand	ce* [SB-12 - 2.	1.2.]		* Attach	energy performance	calculations using	g an appro	ved software	
☐ Energy Star®* [SE	3-12 - 2.1.3.]			* Attach I	3OP form				
☐ EnerGuide 80® *				* House i	must be evaluated b	y NRCan advisor	and meet	a rating of 80	
C. Project Design Co	onditions								'
Climatic Zone (SB		Heat	ing Equip	ment		Space Heating F	uel Sourc	е	
☑ Zone 1 (< 5000 degree	e days)	<b>V</b>	≥ 90% AF	UE	☑ Gas	☐ Propane		Solid Fuel	
☐ Zone 2 (≥ 5000 degree	e days)		≥ 78% < 9	0% AFUE	□ Oil	☐ Electric		Earth Energy	
Windows	+Skylights+Gla	ass Doors	3			Other Building	Conditions	3	
Gross Wall Area =	192 m²	0/ 1	Windows+	70/	☐ ICF Basement	☐ Walkout E	Basement	☐ Log/Post&Be	am
Gross Window+ Area =	14 m²	%	windows+	<u>7%</u>	☐ ICF Above Grade	☐ Slab-on-g	round		
D. Building Spe	cifications [pr	ovide value	es and ratin	gs of the en	ergy efficiency compone	ents proposed, or atta	nch <i>Energy</i> S	Star BOP form]	
Building Con	nponent		RSI/R	values	Buildir	ng Component		Efficiency R	atings
Thermal Insulation					Windows & Doors	,1 			
			50		. –				
Ceiling with Attic Space				,,	Windows/Sliding G	lass Doors		1.8	
Ceiling with Attic Space Ceiling without Attic Space				31	Skylights	lass Doors		1.8 2.8	
			3		_	lass Doors			
Ceiling without Attic Space Exposed Floor Walls Above Grade			3	31	Skylights				
Ceiling without Attic Space Exposed Floor			3	31 31	Skylights Mechanicals	ıip.²		2.8	
Ceiling without Attic Space Exposed Floor Walls Above Grade	ade)		3 3 2 2	31 31 24	Skylights  Mechanicals  Space Heating Equ	ıip.²		2.8 94%	
Ceiling without Attic Space Exposed Floor Walls Above Grade Basement Walls Slab (all >600mm below gra Slab (edge only ≤600mm be	elow grade)		3 3 2 2	31 31 24 20	Skylights  Mechanicals  Space Heating Equ HRV Efficiency (%)	ıip.²	e in W/m2.K	2.8 94% 0% 0.67	
Ceiling without Attic Space Exposed Floor Walls Above Grade Basement Walls Slab (all >600mm below gra	elow grade)		2 2	31 31 24 20 x	Skylights  Mechanicals  Space Heating Equ HRV Efficiency (%) DHW Heater (EF)	uip. <sup>2</sup> 1. Provide U-Value		2.8 94% 0% 0.67 , or ER rating	
Ceiling without Attic Space Exposed Floor Walls Above Grade Basement Walls Slab (all >600mm below gra Slab (edge only ≤600mm be Slab (all ≤600mm below gra	elow grade) ide, or heated)		2 2 2 1 1	31 24 20 x	Skylights  Mechanicals  Space Heating Equ HRV Efficiency (%) DHW Heater (EF) NOTES	iip. <sup>2</sup> 1. Provide U-Value licate if condensing ty	pe combine	2.8  94%  0%  0.67  or ER rating d system used	
Ceiling without Attic Space Exposed Floor Walls Above Grade Basement Walls Slab (all >600mm below gra Slab (edge only ≤600mm be Slab (all ≤600mm below gra E. Performance SB-12 Performance:	elow grade) nde, or heated) • Design Verif	ication [c	2 2 2 1 1 2 2 2 2	31 31 24 20 x 10 10 plicable sec	Skylights  Mechanicals  Space Heating Equ HRV Efficiency (%) DHW Heater (EF) NOTES  2. Provide AFUE or inditions if SB-12 Performa	1. Provide U-Valuelicate if condensing tynce, Energy Star or	/pe combine EnerGuide8	2.8  94%  0%  0.67  or ER rating d system used	
Ceiling without Attic Space Exposed Floor Walls Above Grade Basement Walls Slab (all >600mm below gra Slab (edge only ≤600mm below gra Slab (all ≤600mm below gra E. Performance	elow grade) nde, or heated) • Design Verif	ication [c	2 2 2 1 1 2 2 2 2	31 31 24 20 x 10 10 plicable sec	Skylights  Mechanicals  Space Heating Equ HRV Efficiency (%) DHW Heater (EF) NOTES  2. Provide AFUE or inditions if SB-12 Performa	1. Provide U-Valuelicate if condensing tynce, Energy Star or	/pe combine EnerGuide8	2.8  94%  0%  0.67  or ER rating d system used	
Ceiling without Attic Space Exposed Floor Walls Above Grade Basement Walls Slab (all >600mm below gra Slab (edge only ≤600mm be Slab (all ≤600mm below gra  E. Performance: The annual energy consumptic The annual energy consumptic	elow grade) ide, or heated) ide Design Verif on using Subsection of this house	ication [d ction 2.1.1 as design	1 1 2 Paned is	31 24 20 x 10 10 plicable sec	Skylights  Mechanicals  Space Heating Equ HRV Efficiency (%) DHW Heater (EF) NOTES  2. Provide AFUE or inditions if SB-12 Performa	1. Provide U-Valuelicate if condensing tynce, Energy Star or	/pe combine EnerGuide8	2.8  94%  0%  0.67  or ER rating d system used	
Ceiling without Attic Space Exposed Floor Walls Above Grade Basement Walls Slab (all >600mm below gra Slab (edge only ≤600mm be Slab (all ≤600mm below gra  E. Performance: The annual energy consumptic The software used to simulate	elow grade)  de, or heated)  Design Verification using Subsection of this house the annual ene	ication [d ction 2.1.1 as design rgy use of	3 3 2 2 2 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1	31 24 20 x 10 10 plicable sec ackage	Skylights  Mechanicals  Space Heating Equ HRV Efficiency (%) DHW Heater (EF) NOTES  2. Provide AFUE or inditions if SB-12 Performations is	1. Provide U-Valuelicate if condensing tynce, Energy Star or	/pe combine EnerGuide8	2.8  94%  0%  0.67  or ER rating d system used	
Ceiling without Attic Space Exposed Floor Walls Above Grade Basement Walls Slab (all >600mm below gra Slab (edge only ≤600mm be Slab (all ≤600mm below gra  E. Performance SB-12 Performance: The annual energy consumptic The software used to simulate The building is being designed	elow grade) ade, or heated) be Design Verification using Subsection of this house the annual energy and air learning an air learning and air l	ication [d ction 2.1.1 as desigr rgy use of akage of _	SB-12 Paned isair	31 24 20 x 10 10 plicable sec ackageGj ng is:changes po	Skylights  Mechanicals  Space Heating Equ HRV Efficiency (%) DHW Heater (EF)  NOTES  2. Provide AFUE or inditions if SB-12 Performations is SB-12 Performations	1. Provide U-Valuelicate if condensing tynce, Energy Star or	/pe combine EnerGuide8	2.8  94%  0%  0.67  or ER rating d system used	
Ceiling without Attic Space Exposed Floor Walls Above Grade Basement Walls Slab (all >600mm below gra Slab (edge only ≤600mm be Slab (all ≤600mm below gra E. Performance: The annual energy consumptic The annual energy consumptic The software used to simulate The building is being designed Energy Star: BOP form attach	elow grade) ade, or heated) be Design Verification using Subsection of this house the annual energiating an air leaded. The house	ication [d ction 2.1.1 as desigr rgy use of akage of _	SB-12 Paned isair	31 24 20 x 10 10 plicable sec ackageGj ng is:changes po	Skylights  Mechanicals  Space Heating Equ HRV Efficiency (%) DHW Heater (EF)  NOTES  2. Provide AFUE or inditions if SB-12 Performations is SB-12 Performations	1. Provide U-Valuelicate if condensing tynce, Energy Star or	/pe combine EnerGuide8	2.8  94%  0%  0.67  or ER rating d system used	
Ceiling without Attic Space Exposed Floor Walls Above Grade Basement Walls Slab (all >600mm below gra Slab (edge only ≤600mm be Slab (all ≤600mm below gra  E. Performance SB-12 Performance: The annual energy consumptic The software used to simulate The building is being designed	elow grade) ade, or heated) be Design Verification using Subsection of this house the annual energiating an air leaded. The house	ication [d ction 2.1.1 as desigr rgy use of akage of _	SB-12 Paned isair	31 24 20 x 10 10 plicable sec ackageGj ng is:changes po	Skylights  Mechanicals  Space Heating Equ HRV Efficiency (%) DHW Heater (EF)  NOTES  2. Provide AFUE or inditions if SB-12 Performations is SB-12 Performations	1. Provide U-Value licate if condensing ty nce, Energy Star or	/pe combine EnerGuide8	2.8  94%  0%  0.67  or ER rating d system used	
Ceiling without Attic Space Exposed Floor Walls Above Grade Basement Walls Slab (all >600mm below gra Slab (edge only ≤600mm be Slab (all ≤600mm below gra  E. Performance SB-12 Performance: The annual energy consumptic The annual energy consumptic The software used to simulate The building is being designed Energy Star: BOP form attach Energy Star and EnerGuide80 Evaluator/Advisor/Rater Name:	elow grade) ade, or heated) be Design Verification using Subsection of this house the annual energy using an air leaded. The house of the control of the con	ication [continued to the continue of the cont	SB-12 Paned isair_eled on co	31 24 20 x 10 0 plicable sec ackage	Skylights  Mechanicals  Space Heating Equ HRV Efficiency (%) DHW Heater (EF)  NOTES  2. Provide AFUE or indications if SB-12 Performations is ser hour @50Pa.  y:  Evaluator/Advisor/Rater	1. Provide U-Value licate if condensing ty nce, Energy Star orGj (1 Gj =1000M)	pe combine EnerGuide8 j)	94% 0% 0.67 , or ER rating d system used 0 options used]	
Ceiling without Attic Space Exposed Floor Walls Above Grade Basement Walls Slab (all >600mm below gra Slab (edge only ≤600mm be Slab (all ≤600mm below gra  E. Performance SB-12 Performance: The annual energy consumptic The annual energy consumptic The software used to simulate The building is being designed Energy Star: BOP form attach Energy Star and EnerGuide80 Evaluator/Advisor/Rater Name:	elow grade) ade, or heated) be Design Verification using Subsection of this house the annual energy using an air leaded. The house of the control of the con	ication [continued to the continue of the cont	SB-12 Paned isair_eled on co	31 24 20 x 10 0 plicable sec ackage	Skylights  Mechanicals  Space Heating Equ HRV Efficiency (%) DHW Heater (EF) NOTES  2. Provide AFUE or indications if SB-12 Performations is	1. Provide U-Value licate if condensing tynce, Energy Star or	pe combine EnerGuide8i j)	94% 0% 0.67 , or ER rating d system used 0 options used]	

David DaCosta



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

Project #

Layout # 15-34

Page 8

Vent

Case

Package:

Project:

Case

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

Air Leakage (	Calculations	

Building Air Leakage Heat Loss					
В	LRairh	Vb	HL^T	HLleak	
0.018	0.281	15069	76	5783	

Building Air Leakage Heat Gain						
В	LRairh	Vb	HG^T	HG Leak		
0.018	0.066	15069	11	197		

	Air Leakage Heat Loss/Gain Multiplier Table (Section 11)						
Level	Level	Building	Level Conductive	Air Leakage Heat Loss			
Level	Factor (LF)	Air	Heat Loss	Multiplier			
1	0.5		5847	0.4945			
2	0.3	5783	7583	0.2288			
3	0.2	3763	6425	0.1800			
4	0		0	0.0000			

		Air Leakage Heat Gain
HG LEAK	197	0.0325
BUILDING CONDUCTIVE HEAT GAIN	6066	0.0323

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

Levels this Dwelling	
3	

### **Ventilation Calculations**

	Ventilation Heat Loss					
ent		Ventilation Heat Loss				
>		С	PVC	HL^T	(1-E) HRV	HLbvent
		1.08	60	76	1.00	4925

Case 1

Ventilation Heat Gain				
С	C PVC HG^T HGbvent			
1.1	60	11	713	

## Ventilation Heat Loss (Exhaust only Systems)

Ventilation Heat Gain (Exhaust Only Systems)

Case 1

**Ventilation Heat Gain** 

Case 1 - Exhaust Only					
Level	vel LF HLbvent LVL Cond. HL Multiplier				
1	0.5		5847	0.42	
2	0.3	4925	7583	0.19	
3	0.2	4925	6425	0.15	
4	0		0	0.00	

Case 1 - Exhaust Only		Multiplier
HGbvent	713	0.12
Building 6066		0.12

#### Case 2

Case 2

Ventilation Heat Gain (Direct Ducted Systems)

			Multiplier
С	HL^T	(1-E) HRV	82.08
1.08	76	1.00	02.00

		Multiplier
С	HG^T	11.88
1.08	11	11.00

#### Case 3

Case 3

Ventilation Heat Loss (F	Forced Air Systems)
--------------------------	---------------------

Ventilation Heat Gain (Forced Air Systems)

Ī		HLbvent	Multiplier
	Total Ventilation Load	4925	0.25

		Vent Heat Gain	Multiplier	
HGbvent	HG*1.3	713	0.12	
713	1	713 0.12		

Foundation Conductive Heatloss Level 1

1495

Btu/h

Foundation Conductive Heatloss Level 2

Watts

Watts

Btu/h

5100

## **Envelope Air Leakage Calculator**

Supplemental tool for CAN/CSA-F280

Weather Stat	ion Description	
Province:	Ontario	▼
Region:	Newcastle (Bowmanville)	▼
Weather Station Location:	Open flat terrain, grass	_
Anemometer height (m):	10	
Local S	Shielding	
Building Site:	Suburban, forest	▼
Walls:	Heavy	•
Flue:	Heavy	•
Highest Ceiling Height (m):		5.79
Building C	onfiguration	6.4
Type:	Detached	¥
Number of Stories:	Two	▼
Foundation:	Full	•
House Volume (m³):	566.3	426.75
Air Leakage	e/Ventilation	
Air Tightness Type:	Present (1961-) (ACH=3.57)	▼
Custom DDT Data.	ELA @ 10 Pa. 🔽	cm <sup>2</sup>
Custom BDT Data:	3.57 ACH @ 50 I	
Mechanical Ventilation (L/s):	Total Supply: Total Exhau	st:
	30 30	
Flu	e Size	
Flue #:	#1 #2 #3	#4
Diameter (mm):	0 0 0	0
Envelope Air	r Leakage Rate	
Heating Air Leakage Rate (ACH/H)	: 0.281	
Cooling Air Leakage Rate (ACH/H)	: 0.066	

## **Residential Foundation Thermal Load Calculator**

Supplemental tool for CAN/CSA-F280

Weat	her Sta	tion Description	
Province:	Ontario	▼	
Region:	Newcastle	(Bowmanville)	
	Site D	escription	
Soil Conductivity:	High cond	uctivity: moist soil	
Water Table:	Normal (7	7-10 m, 23-33 Ft)	
Fou	undatio	n Dimensions	
Floor Length (m):	13.19		
Floor Width (m):	3.73		
Exposed Perimeter (m):	33.83		
Wall Height (m):	2.74		
Depth Below Grade (m):	2.13	Insulation Configuration	
Window Area (m²):	0.84		
Door Area (m²):	1.95		
	Radi	ant Slab	
Heated Fraction of the Slab:	0		
Fluid Temperature (°C):	23		
	Desig	n Months	
Heating Month	1		
Foundation Loads			
Heating Load (Watts):		1495	

FLEX DUCT RIDIT ROUND DUCT SUPPLY DIFFUSER

LOW/HIGH WALL/KICK SUPPLY DIFFUSER HRV EXHAUST GRILL 0 SUPPLY AIR PIPE RISER VOLUME DAMPER

8

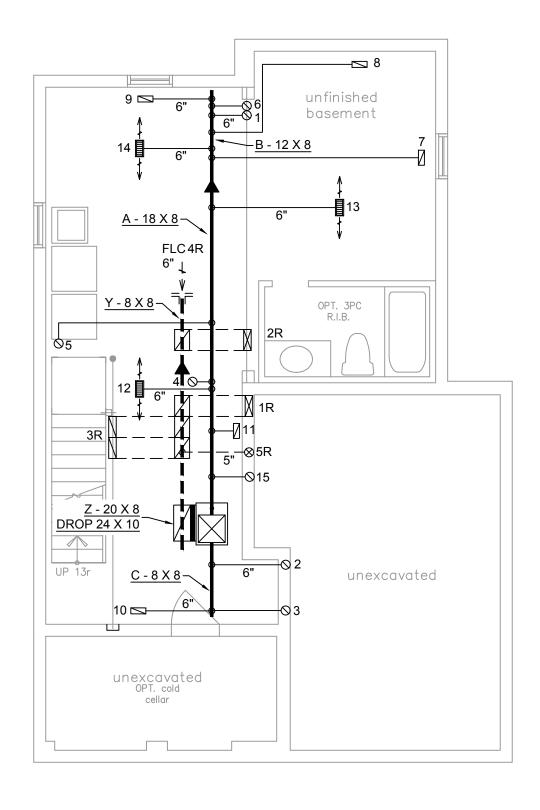
RETURN AIR PIPE RISER RETURN ROUND DUCT

**DUCT CONNECTION** 

RETURN AIR GRILLE (SIZE INDICATED ON DRAWING) RETURN AIR RISER UP TO FLOOR ABOVE RETURN AIR FROM BASEMENT SECOND FLOOR

R.A. 1

THERMOSTAT PRINCIPAL EXHAUST FAN SWITCH W/R & PRINCIPAL EXHAUST FAN



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

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

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

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



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.
	30,784	
UNIT MAKE	•	OR EQUAL.
	AMANA	
UNIT MODEL		OR EQUAL.
GMI	EC960402I	
UNIT HEATING	INPUT	BTU/HR.
	40,000	
UNIT HEATING	OUTPUT	BTU/HR.
	38,400	
A/C COOLING	CAPACITY	TONS.
	1.5	
FAN SPEED	773	CFM

# OF RUNS	S/A	R/A	FANS	
3RD FLOOR	FLOOR			
2ND FLOOR	6	2	2	
1ST FLOOR	6	2	2	
BASEMENT	3	3 1		
FLOOR PLAN: BASEMENT				
DRAWN BY: CHECKED:	SQFT 4050			

DD

RB 15-34 1259

M1

ATE:
APRIL 7, 2015
DELPARK HIGHCASTLE
33-I
ROJECT:
NORTHGLEN
CLARINGTON, ON.
3/16" = 1"-0"

FLEX DUCT RIDIT ROUND DUCT **a**|<del>< /</del> SUPPLY DIFFUSER

LOW/HIGH WALL/KICK SUPPLY DIFFUSER HRV EXHAUST GRILL SUPPLY AIR PIPE RISER VOLUME DAMPER

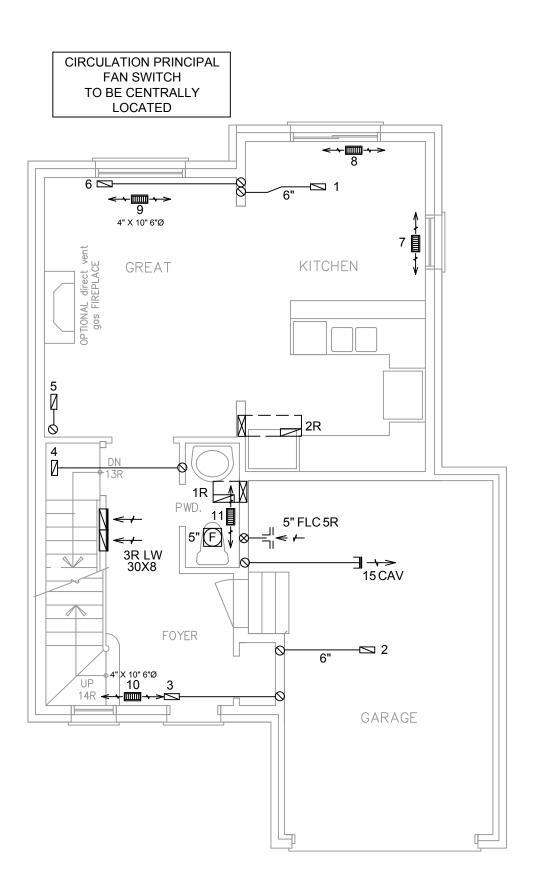
8

DUCT CONNECTION 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

R.A. 1

SUPPLY AIR RETURN AIR THERMOSTAT PRINCIPAL EXHAUST FAN SWITCH



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

B.C.I.N. 32964
Signature of Designer

**OBC 2012** 

APRIL 7, 2015

DELPARK HIGHCASTLE

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

MODEL:

**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

30,784	H
UNIT MAKE AMANA OR EQUAL.	
	П
UNIT MODEL OR EQUAL.	IL
GMEC960402BNA	
UNIT HEATING INPUT BTU/HR. 40,000	l
UNIT HEATING OUTPUT BTU/HR. 38,400	Ī
A/C COOLING CAPACITY TONS.  1.5	
FAN SPEED 773	ıſ

HEAT-LOSS

BTU/HR.	# OF RUNS	S/A	R/A	FANS
OR EQUAL.	3RD FLOOR			
OR EQUAL.	2ND FLOOR	6	2	2
A	1ST FLOOR	6	2	2
BTU/HR.	BASEMENT	3	1	
BTU/HR.				· ·

33-I PROJECT: NORTHGLEN GROUND FLOOR CLARINGTON, ON. 1259 DD 15-34 SCALE: 3/16" = 1"-0" M2

FLEX DUCT
RIDIT ROUND DUCT
SUPPLY DIFFUSER

LOW/HIGH WALL/KICK SUPPLY DIFFUSER

HRV EXHAUST GRILL
SUPPLY AIR PIPE RISER

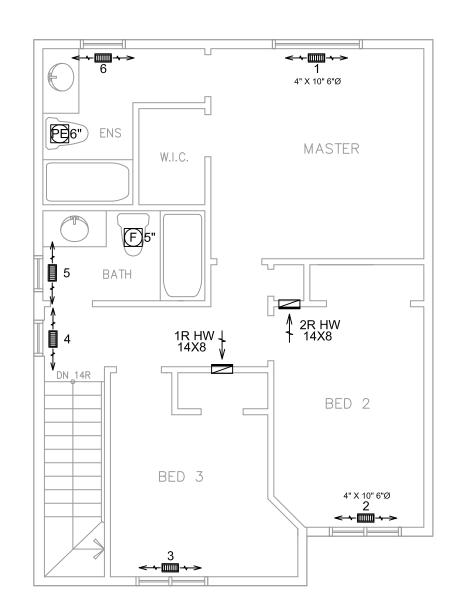
VOLUME DAMPER



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. T \$ F E

SUPPLY AIR RETURN AIR THERMOSTAT PRINCIPAL EXHAUST FAN SWITCH W/R & PRINCIPAL EXHAUST FAN



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

## QUALIFICATION INFORMATION

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

David Da Costa

Signature of Decimer

Signature of Decimer

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

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

30,784	Ш
UNIT MAKE AMANA OR EQUAL	1
UNIT MODEL OR EQUAL	71
GMEC960402BNA	IJ.
UNIT HEATING INPUT BTU/HR. 40,000	Ш
UNIT HEATING OUTPUT BTU/HR. 38,400	]i
A/C COOLING CAPACITY TONS.  1.5	][
FAN SPEED 773	11

HEAT-LOSS

BTU/HR.	# OF RUNS	S/A	R/A	FANS
OR EQUAL.	3RD FLOOR			
OR EQUAL.	2ND FLOOR	6	2	2
IA	1ST FLOOR	6	2	2
BTU/HR.	BASEMENT	3	1	
BTU/HR.				
	SECOND FLOOR			
TONS.	DRAWN BY: CHECKED: SQFT			

1259

M3

RB

15-34

DD

APRIL 7, 2015
DELPARK HIGHCASTLE
10DEL: 33-I
NORTHGLEN CLARINGTON, ON.
3/16" = 1"-0"