

Schedule 1: Designer Information

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

A . I	Project Information					
Buildir	ig number, street name				Lot:	
		FP Town 5 End	l - Windham		Lot/con.	
Munici	pality	Clarington	Postal code	Plan number/ other description		
	ndividual who reviews an	d takes responsibility for desig	gn activities			
Name		David DaCosta		Firm	gtaDesigns Inc.	
	address	2985 Drew Roa	d, Suite 202		Unit no.	Lot/con.
Munici	pality		Postal code	Province	E-mail	
Tolonk	none number	Mississauga	L4T 0A4 Fax number	Ontario	dave@gtades Cell number	signs.ca
relepi		71-9800		7) 494-9643	(416) 268-6	5820
C. C		en by individual identified in S				
Г	☐ House	⊠ HVAC – H	louse		☐ Building Structural	
	☐ Small Buildings	☐ Building Se			☐ Plumbing – House	
Į (☐ Large Buildings	Detection,	Lighting and Po	wer	☐ Plumbing – All Building	s
C	☐ Complex Buildings	☐ Fire Protect	ction		☐ On-site Sewage System	ns
Desc	ription of designer's worl	k Mod	del Certification	1	Project #	PJ-00022
					Layout #	
	ng and Cooling Load Calcula	ations		Builder	Delpark/Highcastle H	omes
_	stem Design ential mechanical ventilatio:	n Design Summary		Project	Northglen	
	ential System Design per CA	•		Model	FP Town 5 End - Win	dham
Resid	ential New Construction - Fo			SB-12	Package D	
D. D	Declaration of Designer					
	I	David DaCosta	declare that (d	choose one as appro	opriate):	
		(print name)				
		I review and take responsibility for	•	•		
		3.2.4 Division C of the Building Cocclasses/categories.	de. i am quaimed	a, and the firm is regist	lered, in the appropriate	
		Individual BCIN:			_	
		Firm BCIN:				
					-	
		I review and take responsibility for "other designer" under subsection	•	•		
		Individual BCIN:	3296	64		
		Basis for exemp	tion from registr	ation:	Division C 3.2.4.1. (4)	
	٥	The design work is exempt from the	e registration and	d qualification requirer	ments of the Building Code.	
		Basis for exemp	tion from registr	ation and qualification	:	
I certif	y that:					
1.		n this schedule is true to the best of n				
2.	I have submitted this applica	ation with the knowledge and consent	t of the firm.			
	June	e 17, 2015		Mane 14	of the contract of the contrac	.
		Date		Signature of De	esigner	

NOTE:

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.

Schedule 1 does not require to be completed a holder of a license, temporay license, or a certificate of authorization, issed by the
Ontario Associstion 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

Page 2

Heat loss and gain calcu	lation summary sheet CSA-F280-M12 Standard
These documents issued for the use of Delp	ark/Highcastle Homes Layout No.
and may not be used by any other persons without authorization. Docur	nents for permit and/or construction are signed in red. JB-00702
Building	Location
Address (Model): FP Town 5 End - Windham	Site: Northglen
Model:	Lot:
City and Province: Clarington	Postal code:
Calculatio	ns based on
Dimensional information based on:	assidy & Co. Dwgs Dated Apr/2013
Attachment: Townhome	Front facing: East/West Assumed? Yes
No. of Levels: 3 Ventilated? Included	Air tightness: 1961- Present (ACH=3.57) Assumed? Yes
Weather location: Durham	Wind exposure: Shelterd
HRV?	Internal shading: Light-translucent Occupants: 4
Sensible Eff. at -25C 0 Apparent Effect. at -0C 0	Units: Imperial Area Sq. ft 1528
Heating design conditions	Cooling design conditions
Outdoor temp -4.0 Indoor temp: 72 Mean soil tem 48	Outdoor temp 84 Indoor temp: 75 Latitude: 44
Above grade walls	Below grade walls
Style A: As per Selected OBC SB12 Package D R 24	Style A: As per Selected OBC SB12 Package D R 20
Style B: Existing Walls (When Applicable) R 12	Style B:
Style C:	Style C:
Style D:	Style D:
Floors on soil	Ceilings
Style A: As per Selected OBC SB12 Package D	Style A: As per Selected OBC SB12 Package D R 50
Style B:	Style B: As per Selected OBC SB12 Package D R 31
Exposed floors	Style C:
Style A: As per Selected OBC SB12 Package D R 3	Doors
Style B:	Style A: As per Selected OBC SB12 Package D R 3.01
Windows	Style B:
Style A: As per Selected OBC SB12 Package D R 3.15	Style C:
Style B: Existing Windows (When Applicable) R 1.99	Skylights
Style C:	Style A: As per Selected OBC SB12 Package D R 2.03
Style D:	Style B:
Attached documents: As per Shedule 1	
Notes: Residential New	Construction - Forced Air
Calculations	performed by
Name: David DaCosta	Postal code: L4T 0A4
Company: gtaDesigns Inc.	Telephone: (905) 671-9800
Address: 2985 Drew Road, Suite 202	•
ridardos. 2000 Diotri Rodd, Gaito 202	Fax: (416) 268-6820



Builder: Delpark/Highcastle Homes

Air System Design

SB-12 Package D June 17, 2015

2015

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

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.

Project #

Page 3

Project: Nor	thglen			Model:		FP Tov	wn 5 En	d - Wind	lham			S	ystem '	1		appropria of the Bui Individual	ilding Co		Man	u A			David DaC			ject #		00022
DESIGN LOAD SPECIFICATION				AIR DISTI	PIRITION							ELIDNACI	E/AIR HAI	NDI ER D				BOILER/V							VC UNIT			
DESIGN LOAD SPECIFICATION	13		L	AIR DIGIT	NIBO I IOI	1 & FRES	JUNE				Ľ	TURNACI	E/AIN HAI	NDLEK D	AIA.			BOILER/V	VAIEN III	EATER D	AIA.			Ľ	VC UNIT	DATA.		
Level 1 Net Load	8,736	btu/h		Equipmer	nt Externa	al Static F	ressure		0.5 "	w.c.	ı	Make		Ama	ına			Make			Т	уре		,	Amana		1.5 1	Γon
Level 2 Net Load	9,619	btu/h		Additiona	I Equipm	ent Press	sure Drop		0.225 "	w.c.		Model	(GMEC960	302BNA			Model						c	ond		1.5	
Level 3 Net Load	9,304			Available	-				0.275 "			nput Btu		300				Input Btu						C	Coil		1.5	
Level 4 Net Load		btu/h		Return Br		-	ective Len	gth	300 f			Output B	tu/h	288	••			Output Bt										
Total Heat Loss	27,658			R/A Plenu					0.138 "			E.s.p.		0.5		" W.C.		Min.Outp	ut Btu/h			WH						
Total Heat Gain	15,868			S/A Plenu					0.14 "			Water Te	mp			deg. F.					T2		wer DATA			_		
Total Heat Loss + 10%	30,424			Heating A		-	-			fm/btuh		AFUE		969	%			Blower Sp	peed Sele	cted:	12			Е	Blower Ty		CM	= (a))
Building Volume Vb Ventilation Load	17750 1 5,521			Cooling A	ir Flow F		ning Facte R/A Temp			fm/btuh deg. F.		Aux. Heat SB-12 Pa		Packa	ao D			Heating C	hook	621 c	fm.			,	Brushle) Cooling C	ess DC O	621 c	
Ventilation PVC		cfm					S/A Temp			leg. F. deg. F.	•	3D-12 Fa	ckage	Гаска	ge D			neating C	_	021	1111			•	Journa C		021	,1111
Supply Branch and Grill Sizing	00	Cilli		Diffuser le	nss	0.01 '			113 0	ieg. r.	-	Temp. Ris	SP>>>	43 (deg. F.			Selected of	cfm>	621 c	fm			Cooling A	ir Flow R	ate	621 0	:fm
Supply Branch and Crim Sizing				Diriuseri	-	0.01	W.O.					remp. res	_	 -	acg. i .			OCICOTOU V	=	<u> </u>	••••		`	Jooning A		=	021	
							Level 1 0	Outlets													Level 2 C	Outlets						
S/A Outlet No.		13	14	15											7	9	10	11	12	8								
Room Use		BASE	BASE	BASE											KIT	FOY	PWD	GRT	GRT	MUD								
Btu/Outlet		2912	2912	2912											2302	1523	944	1822	1822	1206								
Heating Airflow Rate CFM		65	65	65											52	34	21	41	41	27								
Cooling Airflow Rate CFM		6	6	6											93	21	14	81	81	41								
Duct Design Pressure	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13		0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13
Actual Duct Length		21	16	16											34	26	16		21	41								
Equivalent Length	90	120	90	140	90	90	90	90	90	90	90	90	90	90	120	100	130		100	140	90	90	90	90	90	90	90	90
Total Effective Length	90	141	106	156	90	90	90	90	90	90	90	90	90	90	154	126	146		121	181	90	90	90	90	90	90	90	90
Adjusted Pressure	0.14	0.09	0.12	0.08	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.08	0.10	0.09	0.08	0.11	0.07	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14
Duct Size Round		5	5	5											6	4	4	6	6	5								
Outlet Size	4x10	3x10	3x10	3x10 C	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10 B	3x10 C	3x10 C	4x10 C	4x10	3x10 B	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10
Trunk		А	Α	<u> </u>			Level 3 C	Jutloto							В	<u> </u>		U	А	В	Level 4 C	Dutloto						
S/A Outlet No.	2	3	4	5	6	1	Level 3	Juliets													Level 4 C	Julieta						
Room Use	MAST	ENS	BATH	BED 2	BED 3	MAST																						
Btu/Outlet	1902	767	241	1970	2523	1902																						
Heating Airflow Rate CFM	43	17	5	44	57	43																						
Cooling Airflow Rate CFM	64	24	3	51	67	64																						
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	45	53	41	37	44	27																						
Equivalent Length	110	130	160	130	110	140	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	155	183	201	167	154	167	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90
Adjusted Pressure	0.08	0.07	0.06	0.08	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	0.14	0.14	0.14	0.14	0.14
Duct Size Round	5	4	2	5	5	5																						
Outlet Size	3x10	3x10	3x10	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	С	С	С	Α																						
Return Branch And Grill Sizing			Grill Pres	sure Loss		0.02 '	'w c						Return Tr	unk Duct	Sizina					,	Supply Tr	unk Duct	Sizina					
R/A Inlet No.	1R	2R	3R	4R	5R	6R	7R	8R	9R	10R	11R	_	Trunk			Press. F	Round	Rect.	Size	_	runk			ress. F	Round	Rect.	Size	
Inlet Air Volume CFM	110	110	110	191	100	• • • • • • • • • • • • • • • • • • • •		•	•						· · · · ·				0.20						·ounu		0.20	
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	1	Drop		621	0.05	13.5	24x10		4	١		353	0.07	10.5	12x8	10x10	
Actual Duct Length	20	48	40	10	5								Z		621	0.05	13.5	20x8	16x10	E			139	0.07	7.5	8x8	87	
Equivalent Length	215	175	180	185	175	70	70	70	70	70	70		Y		220	0.05	9.5		127	-			268	0.06	9.5	10x8	127	
Total Effective Length	235	223	220	195	180	70	70	70	70	70	70	:	х)							
Adjusted Pressure	0.05	0.05	0.05	0.06	0.07	0.17	0.17	0.17	0.17	0.17	0.17		w							E								
Duct Size Round	7.0	7.0	7.0	8.5	6.0								V							F								
Inlet Size	8	8	8	6	FLC								U							G	3							
" "	x	x	x	x	x	x	x	x	x	x	x		T							H	ı							
Inlet Size	14	14	14	30									s							1								
												1	R							J	ı							
Trunk	z	Υ	Υ	z	z								Q							H	(



Total Heat Loss

Total Heat Gain

27,658 btu/h

15,868 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

None Alete

David DaCosta

Package D

	Builder:	Delpark/Highcas	tle Homes	_	Date:		June 1	7, 2015						Weat	her Data	Durham	44	-4.0 84	20	48.2				Page 4
2012 OBC	Project:	Northgle	en	N	odel:	FP	Town 5 Er	nd - Windha	am			System	1 1	Hea	t Loss ^T	76 deg. F	Ht gain ^T	9.2 de	g. F	GTA:	1528		roject # ayout #	PJ-00022 JB-00702
Level 1 Run ft. exposed wall A Run ft. exposed wall B Ceiling height Floor area Exposed Ceilings A Exposed Ceilings B Exposed Floors			99 A B 2.0 AG 616 Area A B Fir	SE	A B AG Area A B Fir		A B AG Area A B Fir	a	A B AG Are: A B Fir	ea		A B AG Area A B		A B AG Area A B		A B AG Area A B Fir	A B AG Area A B Flr		A B AG Area A B		A B AG Are A B Fir	ea	A A B	3 AG Area A
Gross Exp Wall A Gross Exp Wall B			198																					
Components North Shaded EastWest South South Existing Windows Skylight Doors Net exposed walls A Net exposed Walls A Net exposed Cellings A Exposed Floors Total Conductive Heat Loss Total Conductive Heat Loss Total Conductive Heat Loss Case 1 Ventilation Case 2 Case 3 Heat Gain People Appliances Loads Duct and Pipe loss Post Pipe Pipe Pipe Pipe Pipe Pipe Pipe Pipe	3.15 3.15 3.15 1.99 2.03 3.01 13.79 8.50 50.00 22.86 22.05 Slab On C	24.13 10.74 24.13 27.18 24.13 27.18 24.13 20.71 38.19 21.24 37.44 87.34 25.25 3.06 5.51 0.67 8.94 1.08 1.52 0.72 3.32 1.58 3.45 0.15 Grade (x) 0.4397 0.0042 0.57 0.08 82.08 9.94 0.26 0.08 239 ercent 2730		15 163 12 62 126 126 111 188 351 16 1	Loss	Gain	Los	SS Gain	Los	Gain		Loss	Gain	Loss	Gain	Loss Gair	Loss	Gain	Loss	Gain	Los	Gain Gain Gain Gain Gain Gain Gain Gain		ooss Gain
Level 1 HL Total 8,736 Level 1 HG Total 493	To	otal HL for per room I HG per room x 1.3	873	493																	1 1			
Level 2 Run ft. exposed wall A Run ft. exposed wall B Ceiling height Floor area Exposed Ceilings A Exposed Ceilings B Exposed Floors Gross Exp Wall A			20 A B 10.0 195 Area A B Fir	г	9 A B 10.0 94 Area A B Fir	D	13 A B 10.0 60 Area A B Fir	FOY	P 11 A B 10.0 50 Are: A B	PWD	10.0	GRT 8 A B 0 0 Area A B		A B Area A B		A B Area A B	A B Area A B Fir		A B Area A B		A B Are A B		A B	3 Area A
Gross Exp Wall B					30		130		110		28			Fir		Flr	FIF		Flr		Flr			
	R-Values		Loss	Gain	Loss	Gain	130 Los	ss Gain		ss Gain		0	Gain	Fir	Gain	Fir Loss Gair		Gain	Loss	Gain		ss Gain		oss Gain
North Shaded East/West South Existing Windows Skylight Doors Net exposed walls A Net exposed Ceilings A Exposed Ceilings A	3.15 3.15 3.15 1.99 2.03 3.01 15.13 8.50 50.00 22.86	Loss Gain 24.13 10.74 24.13 27.18 24.13 20.71 38.19 21.24 37.44 87.34 25.25 3.06 5.02 0.61 8.94 1.08 1.52 0.72 3.35 1.58 3.45 0.15	35 84	951	Loss 21 5	Gain 30 64 47 42	10 13	328 44 537 69	110 Los	169 1		Loss 1 748 4 820	Gain 842 704		Gain			Gain		Gain				oss Gain
North Shaded EastWest South	3.15 3.15 3.15 1.99 2.03 3.01 15.13 8.50 50.00 22.86 22.05 Slab On O	24.13 10.74 24.13 27.18 24.13 20.71 38.19 21.24 37.44 87.34 25.25 3.06 5.02 0.61 8.94 1.08 1.52 0.72 3.32 1.58 3.45 0.15 Grade (x) x 0.1644 0.0042 0.21 0.08 82.08 9.94	35 84	951 29 100 3 1051 75 4	21 5 69 3 8 8 1 1	30 64 47 42	10 13 107 1	241 273	110 Los 2 7 0 0 5 103	169 1 517 686 2	190 3	Loss 1 748 4 820	842 704		Gain			Gain		Gain				oss Gain
North Shaded EastWest South Existing Windows Skylight Doors Net exposed walls A Net exposed Cellings A Exposed Cellings A Exposed Cellings A Exposed Cellings A Exposed Floors Foundation Conductive Heatloss Total Conductive Air Leakage Heat Loss/Gain Case 1 Case 1	3.15 3.15 3.15 1.99 2.03 3.01 15.13 8.50 50.00 22.86 22.05 Slab On C	24.13 10.74 24.13 27.18 24.13 20.71 38.19 21.24 37.44 87.34 25.25 3.06 5.02 0.61 8.94 1.08 1.52 0.72 3.32 1.58 3.45 0.15 Srade (x) x 0.1644 0.0042 0.21 0.08 82.08 9.94 0.26 0.08 239	35 84 165 82 166 27 34	14 951 29 100 73 1051 75 4 80 683	21 5 69 3 8 8 1 1	330 64 447 42 777 106 444 0 85 8	10 10 13 107 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	241 277 328 44 537 69	110 Los Los 2 7 7 100 5 103 103 103 103 103 103 103 103 103 103	169 1 517 686 113 145	63 21	Loss 1 748 4 820 5 1080 2648 435 560	842 704 131		Gain			Gain		Gain				oss Gain

 $\label{eq:Division C} \textbf{Division C subsection 3.2.5. of the Building Code. Individual BCIN:}$



Total Heat Loss

Total Heat Gain

27,658

15,868

btu/h

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

			Dolpork/Higher	stle Homes		Date:		June 17, 20	015				Weather Data					48.2			
		Builder:	Delpark/Highca	one memor	-	_		04.10 17, 20					Weather Data	Durham	44	-4.0 84	4 20	40.2		Project #	PJ-
012 OBC		Project: _	Northg	en		lodel:	FP	Town 5 End -	Windham	-	System	1	Heat Loss ^T	76 deg. F	Ht gain ^T	9.2 de	eg. F	GTA:	1528	Layout #	JB-
	Level 3			MAS	г	E	IS	BATH		2	BED 3										
	ft. exposed wall A			35 A		6 A		Α	11 A		29 A		Α	Α	Α		Α		Α		Α
Run	ft. exposed wall B			В		В		В	В		В		В	В	В		В		В		В
	Ceiling height			8.0		8.0		8.0	8.0		8.0										
	Floor area			293 Area		86 Area		60 Area	140 Area		198 Area		Area	Area	Area		Area		Area		Area
	Exposed Ceilings A			293 A		86 A		60 A	140 A		198 A		Α	Α	Α		Α		Α		Α
E	xposed Ceilings B			В		В		В	В		В		В	В	В		В		В		В
	Exposed Floors			Flr		Flr		30 Flr	140 Flr		Flr		Flr	Flr	Flr		Flr		Flr		Flr
	Gross Exp Wall A			280		48			88		232										
	Gross Exp Wall B			-																	
	Components			Loss	Gain	Loss	Gain	Loss	Gain Loss	Gain	Loss	Gain	Loss Gain	Loss Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss
	North Shaded	3.15	24.13 10.7				44 050		4- 440			400									
	East/West South	3.15 3.15	24.13 27.1 24.13 20.7			13 3	14 353		17 410	462	17 410 13 314	462 269									
	Existing Windows	1.99	38.19 21.2		003						13 314	209									
	Skylight	2.03	37.44 87.3																		
	Doors	3.01	25.25 3.0																		
No	et exposed walls A	15.13	5.02 0.6		131	35 1	76 21		71 357	43	202 1015	123									
	et exposed walls B	8.50	8.94 1.0		131	35 1	76 21		71 357	43	202 1015	123									
	Exposed Ceilings A	50.00	1.52 0.7		212	86 1	31 62	60 91	43 140 213	101	198 301	143									
	Exposed Ceilings B	22.86	3.32 1.5		212	00 1	31 02	00 51	45 140 213	, 101	190 301	143									
	Exposed Floors	22.05	3.45 0.1					30 103	4 140 483	20											
ndation Condu	ductive Heatloss	22.03	3.43 0.1					30 103	4 140 403	20											
	Heat Loss			3074			20	195	1462	,	2039										
Conductive	Heat Gain			307-	1876		437	133	48	627	2003	997									
Leakage	Heat Loss/Gain		0.1037 0.004	319			64 2	20			211	4									
Lounago	Case 1	x	0.13 0.0				83 33	26			272	76									
ntilation	Case 2		82.08 9.9				00														
	Case 3		0.26 0.0																		
	Heat Gain People				478				1			239									
			23	2						239	1										
		1 =.25 pc	23: ercent 273		4/8					239	1	239									
	Appliances Loads	1 =.25 pe	ercent 273		4/8				1 161		1	239									
D el 3 HL Total	Appliances Loads Duct and Pipe loss 9,304	То	ercent 273 10% tal HL for per room	3803		7	67	241	1 161	91	2523										
D	Appliances Loads Duct and Pipe loss	То	ercent 273	3803		7	67 614	241	1 161	91	2523	1712									
D el 3 HL Total	Appliances Loads Duct and Pipe loss 9,304	То	ercent 273 10% tal HL for per room	3803		7		241	1 161	91	2523										
D el 3 HL Total	Appliances Loads Duct and Pipe loss 9,304 6,959	То	ercent 273 10% tal HL for per room	3803		7		241	1 161	91	2523										
D B I 3 HL Total I 3 HG Total	Appliances Loads Duct and Pipe loss 9,304 6,959 Level 4	То	ercent 273 10% tal HL for per room	3803			614		1 161 1970	91			A	Δ.	Δ				Δ.		Δ
I 3 HL Total I 3 HG Total Run	Appliances Loads Duct and Pipe loss 9,304 6,959 Level 4 off. exposed wall A	То	ercent 273 10% tal HL for per room	3803		A		A	67 1 161	91	A		A	A	A		A		A		A
El 3 HL Total Il 3 HG Total Il 3 HG Total	Appliances Loads Duct and Pipe loss 9,304 6,959 Level 4 Ift. exposed wall A Ift. exposed wall B	То	ercent 273 10% tal HL for per room	3803			614		1 161 1970	91			A B	A B	A B		A B		A B		A B
I 3 HL Total I 3 HG Total Run	Appliances Loads Duct and Pipe loss 9,304 6,959 Level 4 1f. exposed wall A 1c. exposed wall B Ceiling height	То	ercent 273 10% tal HL for per room	3803 A B		A B	614	A B	67 1 1661 1970 A B	91	A B		В	В	В		В		В		В
E B 3 HL Total I 3 HG Total Run Run	Appliances Loads Duct and Pipe loss 9,304 6,959 Level 4 If. exposed wall A 1ft. exposed wall B Ceiling height Floor area	То	ercent 273 10% tal HL for per room	A B Area		A B Area	614	A B Area	1 161 1970 A B Area	91	A B Area		B Area	B Area	B Area		B Area		B Area		B Area
Example 1	Appliances Loads Duct and Pipe loss 9,304 6,959 Level 4 ft. exposed wall A ft. exposed wall B Ceiling height Floor area Exposed Ceilings A	То	ercent 273 10% tal HL for per room	A B Area A		A B Area A	614	A B Area A	1 161 1970 67 A B Area A	91	A B Area A		B Area A	B Area A	B Area A		B Area A		B Area A		B Area A
Example 1	Appliances Loads Duct and Pipe loss 9,304 6,959 Level 4 nt. exposed wall A nt. exposed wall B Celling height Floor area Exposed Ceilings B	То	ercent 273 10% tal HL for per room	A B Area A B		A B Area A B	614	A B Area A B	1 161 1970 A B Area A B B	91	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 I 3 HL Total I 3 HG Total Run Run E E	Appliances Loads Duct and Pipe loss 9,304 6,959 Level 4 If. exposed wall A If. exposed wall B Ceiling height Floor area Exposed Ceilings B Exposed Floors	То	ercent 273 10% tal HL for per room	A B Area A		A B Area A	614	A B Area A	1 161 1970 67 A B Area A	91	A B Area A		B Area A	B Area A	B Area A		B Area A		B Area A		B Area A
D I 3 HL Total 3 HG Total Run Run Es	Appliances Loads Duct and Pipe loss 9,304 6,959 Level 4 If. exposed wall A off. exposed wall B Ceiling height Floor area Exposed Ceilings A Exposed Ceilings A Exposed Floors Gross Exp Wall A	То	ercent 273 10% tal HL for per room	A B Area A B		A B Area A B	614	A B Area A B	1 161 1970 A B Area A B B	91	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
D I 3 HL Total 3 HG Total Run Run Es	Appliances Loads Duct and Pipe loss 9,304 6,959 Level 4 If. exposed wall A If. exposed wall B Ceiling height Floor area Exposed Ceilings A Exposed Floors Gross Exp Wall B	Total	rcent 273 100 tal HL for per room HG per room x 1.	A B Area A B Fir	3256	A B Area A B Fir	2015	A B Area A B Fir	1 167 1970 A B Area A B B Fir	91 1310	A B Area A B Fir	1712	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		B Area A B Fir
3 HL Total 3 HG Total Run Run:	Appliances Loads Duct and Pipe loss 9,304 6,959 Level 4 If. exposed wall A of the exposed wall B Ceiling height Floor area Exposed Ceilings B Exposed Floors Gross Exp Wall A Gross Exp Wall B Components	Total Total	orcent 273 102 103 104 104 105 105 105 105 105 105 105 105 105 105	A B Area A B Fir		A B Area A B	2015	A B Area A B Fir	1 161 1970 A B Area A B B	91	A B Area A B Fir		B Area A B	B Area A B	B Area A B	Gain	B Area A B Fir	Gain	B Area A B Fir		B Area A B Fir
B HL Total 3 HG Total Run Run E	Appliances Loads Duct and Pipe loss 9,304 6,959 Level 4 If. exposed wall A If. exposed wall B Ceiling height Floor area Exposed Ceilings A Exposed Ceilings A Exposed Floors Gross Exp Wall B Components North Shaded	Total Total	273 100	A B Area A B Fir	3256	A B Area A B Fir	2015	A B Area A B Fir	1 167 1970 A B Area A B B Fir	91 1310	A B Area A B Fir	1712	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		B Area A B Fir
3 HL Total 3 HG Total Run Run:	Appliances Loads Duct and Pipe loss 9,304 6,959 Level 4 If. exposed wall A If. exposed wall B Ceiling height Floor area Exposed Ceilings A Exposed Floors Gross Exp Wall B Components North Shaded East/West	Total Total R-Values I 3.15 3.15	273 100	A B Area A B Fir	3256	A B Area A B Fir	2015	A B Area A B Fir	1 167 1970 A B Area A B B Fir	91 1310	A B Area A B Fir	1712	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		B Area A B Fir
3 HL Total 3 HG Total Run Run E:	Appliances Loads Duct and Pipe loss 9,304 6,959 Level 4 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	To Total R-Values 1 3.15 3.15 3.15	oss Gain 24.13 22.13 2	A B Area A B Fir	3256	A B Area A B Fir	2015	A B Area A B Fir	1 167 1970 A B Area A B B Fir	91 1310	A B Area A B Fir	1712	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		B Area A B Fir
3 HL Total 3 HG Total Run Run E:	Appliances Loads Duct and Pipe loss 9,304 6,959 Level 4 If. exposed wall A off. exposed wall B Ceiling height Floor area Exposed Ceilings B Exposed Floors Gross Exp Wall B Components North Shaded East/West South Existing Windows	R-Values I 3.15 3.15 3.15 1.99	oss Gain 24.13 20.7 24.13 20.7 38.19 21.2	A B Area A B Fir	3256	A B Area A B Fir	2015	A B Area A B Fir	1 167 1970 A B Area A B B Fir	91 1310	A B Area A B Fir	1712	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		B Area A B Fir
3 HL Total 3 HG Total Run Run E:	Appliances Loads Duct and Pipe loss 9,304 6,959 Level 4 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	R-Values II 3.15 3.15 3.15 1.99 2.03	oss Gain 24.13 10.7 24.13 27.1 24.13 20.7 38.19 21.2 37.44 87.3	A B Area A B Fir	3256	A B Area A B Fir	2015	A B Area A B Fir	1 167 1970 A B Area A B B Fir	91 1310	A B Area A B Fir	1712	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		B Area A B Fir
3 HL Total 3 HG Total Run Run E:	Appliances Loads Duct and Pipe loss 9,304 6,959 Level 4 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	R-Values I 3.15 3.15 3.15 1.99 2.03	oss Gain 24.13 20.7 24.13 20.7 38.19 21.2	A B Area A B Fir	3256	A B Area A B Fir	2015	A B Area A B Fir	1 167 1970 A B Area A B B Fir	91 1310	A B Area A B Fir	1712	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		B Area A B Fir
Run Run E:	Appliances Loads Duct and Pipe loss 9,304 6,959 Level 4 If t. exposed wall B fit. exposed wall B Ceiling height Floor area Exposed Ceilings B Exposed Floors Gross Exp Wall B Gomponents North Shaded East/West South Existing Windows Skylight Doors et exposed walls A	R-Values I 3.15 3.15 3.15 1.99 2.03 3.01 15.13	oss Gain 24.13 20.7 24.13 20.7 24.13 20.7 24.13 20.7 24.13 20.7 37.44 87.3 25.25 3.0 0.6	A B Area A B Fir	3256	A B Area A B Fir	2015	A B Area A B Fir	1 167 1970 A B Area A B B Fir	91 1310	A B Area A B Fir	1712	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		B Area A B Fir
Run Run E:	Appliances Loads Duct and Pipe loss 9,304 6,959 Level 4 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 B	R-Values I 3.15 3.15 3.15 1.99 2.03	oss Gain 24.13 10.7 24.13 12.7 24.13 22.1 33.19 21.2 37.44 87.3 25.25 3.0	A B Area A B Fir	3256	A B Area A B Fir	2015	A B Area A B Fir	1 167 1970 A B Area A B B Fir	91 1310	A B Area A B Fir	1712	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		B Area A B Fir
Run	Appliances Loads Duct and Pipe loss 9,304 6,959 Level 4 If. exposed wall A If. exposed wall B Ceiling height Floor area Exposed Ceilings B 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 B et exposed walls A	R-Values 1 3.15 3.15 3.15 3.15 1.99 2.03 3.01 15.13	oss Gain 24.13 10.7 24.13 10.7 24.13 22.1 33.19 21.2 37.44 87.3 5.02 0.6 8.94 1.0.0	A B Area A B Fir	3256	A B Area A B Fir	2015	A B Area A B Fir	1 167 1970 A B Area A B B Fir	91 1310	A B Area A B Fir	1712	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		B Area A B Fir
Run	Appliances Loads Duct and Pipe loss 9,304 6,959 Level 4 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 B	R-Values I 3.15 3.15 3.15 1.99 2.03 3.01 15.13 8.50 50.00	oss Gain 24.13 10.7 24.13 10.7 24.13 10.7 24.13 20.7 38.19 21.2 37.44 87.2 37.44 87.2 5.02 0.8	A B Area A B Fir	3256	A B Area A B Fir	2015	A B Area A B Fir	1 167 1970 A B Area A B B Fir	91 1310	A B Area A B Fir	1712	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		B Area A B Fir
Run Run E: Nee Nee Nee E:	Appliances Loads Duct and Pipe loss 9,304 6,959 Level 4 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 walls A et exposed walls B et exposed walls A et exposed walls A et exposed walls B et exposed ceilings B	R-Values I I 3.15 3.15 3.15 3.15 3.15 3.9 2.03 3.01 15.13 8.50 50.00 22.86	oss Gain 24.13 10.7 24.13 10.7 24.13 27.1 24.13 27.1 24.13 27.1 24.13 20.7 38.19 21.2 37.44 87.3 5.02 0.6 8.94 1.0 1.52 0.7 3.32 1.5	A B Area A B Fir	3256	A B Area A B Fir	2015	A B Area A B Fir	1 167 1970 A B Area A B B Fir	91 1310	A B Area A B Fir	1712	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		B Area A B Fir
Run Run E: Nee Nee E: andation Conduit	Appliances Loads Duct and Pipe loss 9,304 6,959 Level 4 If. exposed wall A ff. 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 walls A et exposed Ceilings B	R-Values I I 3.15 3.15 3.15 3.15 3.15 3.9 2.03 3.01 15.13 8.50 50.00 22.86	oss Gain 24.13 10.7 24.13 10.7 24.13 27.1 24.13 27.1 24.13 27.1 24.13 20.7 38.19 21.2 37.44 87.3 5.02 0.6 8.94 1.0 1.52 0.7 3.32 1.5	A B Area A B Fir	3256	A B Area A B Fir	2015	A B Area A B Fir	1 167 1970 A B Area A B B Fir	91 1310	A B Area A B Fir	1712	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		B Area A B Fir
Run Run E: Nee Nee E: ndation Conduit	Appliances Loads Duct and Pipe loss 9,304 6,959 Level 4 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 Walls A et exposed Walls A Exposed Ceilings B Exposed Floors	R-Values I I 3.15 3.15 3.15 3.15 3.15 3.9 2.03 3.01 15.13 8.50 50.00 22.86	oss Gain 24.13 10.7 24.13 10.7 24.13 27.1 24.13 27.1 24.13 27.1 24.13 20.7 38.19 21.2 37.44 87.3 5.02 0.6 8.94 1.0 1.52 0.7 3.32 1.5	A B Area A B Fir	3256	A B Area A B Fir	2015	A B Area A B Fir	1 167 1970 A B Area A B B Fir	91 1310	A B Area A B Fir	1712	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		B Area A B Fir
Run Run E: Nee Nee Nee Nee Conductive Conductive	Appliances Loads Duct and Pipe loss 9,304 6,959 Level 4 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 walls B Exposed Ceilings B Exposed Floors Gross Exp Wall B Components South Existing Windows Skylight Doors et exposed walls B Exposed Ceilings B Exposed Floors ductive Heatloss Heat Loss	R-Values I I 3.15 3.15 3.15 3.15 3.15 3.9 2.03 3.01 15.13 8.50 50.00 22.86	oss Gain 24.13 10.7 24.13 10.7 24.13 27.1 24.13 27.1 24.13 27.1 24.13 20.7 38.19 21.2 37.44 87.3 5.02 0.6 8.94 1.0 1.52 0.7 3.32 1.5	A B Area A B Fir Loss	3256	A B Area A B Fir	2015	A B Area A B Fir	1 167 1970 A B Area A B B Fir	91 1310	A B Area A B Fir	1712	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		B Area A B Fir
Run Run E: Nee Nee Nee Nee Nee Conductive	Appliances Loads Duct and Pipe loss 9,304 6,959 Level 4 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 B Exposed Ceilings B Exposed Walls A et exposed Walls B Exposed Walls B Exposed Valls B Exposed Walls B Exposed Walls B Exposed Floors detections A Exposed Floors detections B Exposed Floors detection	R-Values I I 3.15 3.15 3.15 3.15 3.15 3.9 2.03 3.01 15.13 8.50 50.00 22.86	oss Gain 24.13 10.7 24.13 10.7 24.13 10.7 24.13 27.1 24.13 20.7 38.19 21.2 37.44 87.2 5.02 0.6 8.94 1.0 1.52 0.7 3.32 1.5 3.35 0.1	A B Area A B Fir	3256	A B Area A B Fir	2015	A B Area A B Fir	1 167 1970 A B Area A B B Fir	91 1310	A B Area A B Fir	1712	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		B Area A B Fir
Run Run E: Ne Ne Ne Conductive Leakage	Appliances Loads Duct and Pipe loss 9,304 6,959 Level 4 If t. exposed wall A If t. 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 walls A et exposed walls A et exposed walls A et exposed ceilings B Exposed Floors with the control of	R-Values L 3.15 3.15 3.15 1.99 2.03 3.01 15.13 8.50 50.00 22.86 22.05	oss Gain 24.13 10.7 24.13 10.7 24.13 10.7 24.13 10.7 24.13 20.7 33.19 21.7 37.44 87.3 25.25 3.0 6.8.94 1.0 7 3.32 1.5 3.45 0.1	A B Area A B Fir	3256	A B Area A B Fir	2015	A B Area A B Fir	1 167 1970 A B Area A B B Fir	91 1310	A B Area A B Fir	1712	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		B Area A B Fir
Run Run E: Ne Ne Ne Conductive Leakage	Appliances Loads Duct and Pipe loss 9,304 6,959 If Level 4 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 walls B Exposed Ceilings B Exposed Floors It is the state of the state	R-Values L 3.15 3.15 3.15 1.99 2.03 3.01 15.13 8.50 50.00 22.86 22.05	oss Gain 24.13 10.7 24.13 10.7 24.13 10.7 24.13 10.7 24.13 20.7 34.14 27.1 24.13 20.7 37.44 87.3 25.25 3.0 5.02 0.6 8.94 1.0 1.52 0.7 3.32 1.5 3.32 1.5 3.345 0.1	A B Area A B Fir Loss	3256	A B Area A B Fir	2015	A B Area A B Fir	1 167 1970 A B Area A B B Fir	91 1310	A B Area A B Fir	1712	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		B Area A B Fir
Run Run Run Run Run Run Run Run Run Nee E:	Appliances Loads Duct and Pipe loss 9,304 6,959 Level 4 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 B Exposed Ceilings B Exposed Ceilings B Exposed Ceilings B Exposed Ceilings B Exposed Floors det exposed walls A Exposed Ceilings B Exposed Floors stuctive Heatloss Heat Loss/Gain Heat Loss/Gain Heat Loss/Gain Loss 2	R-Values L 3.15 3.15 3.15 1.99 2.03 3.01 15.13 8.50 50.00 22.86 22.05	oss Gain 24.13 10.7 24.13 10.7 24.13 10.7 24.13 20.7 38.19 21.2 37.44 87.3 25.25 3.0 1.52 0.7 3.32 1.5 3.35 0.1	A B Area A B Fir	3256	A B Area A B Fir	2015	A B Area A B Fir	1 167 1970 A B Area A B B Fir	91 1310	A B Area A B Fir	1712	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		B Area A B Fir
Run Run E: Ne Ne Ne	Appliances Loads Duct and Pipe loss 9,304 6,959 Level 4 If t. exposed wall A If t. exposed wall B Ceiling height Floor area Exposed Ceilings B Exposed Floors Gross Exp Wall B Components North Shaded East/West South Doors et exposed walls A et exposed walls A et exposed Ceilings A Exposed Ceilings B Lington Components South Existing Windows Skylight Doors et exposed walls B Exposed Floors et exposed floors et exposed floors uctive Heatloss Heat Loss Heat Gain Lass Gain Lass Gain Lass 2 Lass 3	R-Values L 3.15 3.15 3.15 1.99 2.03 3.01 15.13 8.50 50.00 22.86 22.05	oss Gain 24.13 10.7 24.13 10.7 24.13 10.7 24.13 20.7 37.14 24.13 20.7 37.14 37.15 37.14 37.15 37.14 37.15 37.16 37.16 37.16 37.16 37.16 38.17 38.18 38	A B Area A B Fir	3256	A B Area A B Fir	2015	A B Area A B Fir	1 167 1970 A B Area A B B Fir	91 1310	A B Area A B Fir	1712	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		B Area A B Fir
Ne Ne Estandation Conductive Leakage entilation	Appliances Loads Duct and Pipe loss 9,304 6,959 Inf. exposed wall A off. 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 B Exposed Floors et exposed walls B Exposed Floors texposed Ceilings B Exposed Floors Heat Loss Heat Gain Heat Loss/Gain Heat Loss/Gain Case 1 Case 2 Case 2 Case 3 Heat Gain People	R-Values 1 3.15 3.15 3.15 3.15 1.99 2.03 3.01 15.13 8.50 50.00 22.86 22.05	oss Gain 24.13 10.7 24.13 10.7 24.13 10.7 24.13 20.7 38.14 27.1 24.13 20.7 38.14 27.1 25.25 3.0 5.02 0.6 8.94 1.0 1.52 0.7 3.32 1.5.5 3.45 0.1 0.000 0.004 0.000 0.004 82.08 9.9 0.26 0.06	A B Area A B Fir	3256	A B Area A B Fir	2015	A B Area A B Fir	1 161 1970 A B Area A B B Fir	91 1310	A B Area A B Fir	1712	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		B Area A B Fir
Run Run Ne Ne EE ondation Conductive Leakage mitilation	Appliances Loads Duct and Pipe loss 9,304 6,959 Level 4 If. exposed wall A off. 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 walls A et exposed walls A et exposed walls A et exposed lings A Exposed Ceilings A Exposed Ceilings A Exposed Ceilings A Exposed Floors Unclude the Authority Lexical South Le	R-Values I I 3.15 3.15 3.15 3.15 3.15 3.15 2.03 2.03 2.05 50.00 22.86 22.05	oss Gain 24.13 10.7 24.13 10.7 24.13 10.7 24.13 20.7 24.13 20.7 37.44 87.3 25.25 3.0.0 5.02 0.6 8.94 1.0 1.52 0.7 3.32 1.5 3.45 0.1 0.0000 0.004 0.00 0.000 0.000 0.004 0.00 0.000 0.000 0.004 0.00 0.004	A B Area A B Fir	3256	A B Area A B Fir	2015	A B Area A B Fir	1 161 1970 A B Area A B B Fir	91 1310	A B Area A B Fir	1712	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		B Area A B Fir

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

Mana Matte

David DaCosta

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 #

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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

Dookogo	Paskaga D		
Package: Project:	Package D Clarington	Model:	FP Town 5 End - Windham
	RESIDENTIAL MECHANICAL V		
	For systems serving one dwelling unit & confo		
	Tor systems serving one awening and a como	inning to the Ontario Building	g Code, C.geg 139/93
	Location of Installation	Total V	entilation Capacity 9.32.3.3(1)
Lot #	Plan #	Bsmt & Master Bdrm	n 2 @ 20 cfm 40 cfm
Township	Clarington	Other Bedrooms Bathrooms & Kitcher	2 @ 10 cfm 20 cfm
Roll #	Permit #	Other rooms	2 @ 10 cfm20 cfm
Address			Total <u>120</u>
		Principal	Ventilation Capacity 9.32.3.4(1)
	Builder		(1)
Name	Delpark/Highcastle Homes	Master bedroom Other bedrooms	1 @ 30 cfm 30 cfm 2 @ 15 cfm 30 cfm
Address	, , , , , , , , , , , , , , , , , , ,		Total 60
City			
Tel	Fax	Prin Make	cipal Exhaust Fan Capacity Model Location
rei	гах	iviake	
	locatelling Control to	Broan	684N Ensuite
Name	Installing Contractor	90 cfm	2.5 Sones
Address			leat Recovery Ventilator
Address		Make	leat Necovery Veritilator
City		Model	
- .	_	O 111 (6)	cfm high 0 cfm low
Tel	Fax	Sensible efficiency @ Sensible efficiency @	
	Combustion Appliances 9.32.3.1(1)	Sunni	lemental Ventilation Capacity
a)	Direct vent (sealed combustion) only	Зиррі	ешента уентнатон сарасту
b) x	Positive venting induced draft (except fireplaces)	Total ventilation capa	acity 120.0
c)	Natural draft, B-vent or induced draft fireplaces	Less principal exhau	
d)	Solid fuel (including fireplaces)	REQUIRED supplem	nental vent. Capacity60.0 cfm
e)	No combustion Appliances		
		Su	pplemental Fans 9.32.3.5.
	Heating System	Location	cfm Model Sones
х	Forced air	Pwd.	50 770
	Non forced air	Bath	50 770
	Electric space heat (if over 10% of heat load)		
	Haves Time 0.20.2 4(2)		
l x	House Type 9.32.3.1(2) Type a) or b) appliances only, no solid fuel	all fans HVI listed	Make Broan or Equiv.
💳	Type I except with solid fuel (including fireplace)	Pierre Pi	·

III IV Other		Any type c) appliance Type I or II either electric space heat Type I, II or IV no forced air
		System Design Option
1	Y	Exhaust only / forced air system

System Design Option									
1	Х	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							

	Designer C	ertification							
I hereby certify that this ventilation system has been designed									
in accordance w	ith the Ontario B	uilding Code.							
Name	David Da	aCosta							
	Hans	166	7						
Signature	- 2								
HRAI#	5190	BCIN#	32964						
Date	June 17	, 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

Page 7
Project # PJ-00022

e-mail dave@gtadesigns.								Layout #	JB-00702
This form is u	used to summarize th	ne energy			he project. Information	on on completing thi	s form is or	the reverse	
Application No:				400 by 1 111	Model/Certification Num	nber			
A. Project Inforr	nation								
Building number, street name						Unit number	Lot/Con		
		F	P Town 5	End - Wi	ndham				
Municipality Clar	rington		Postal code	Э	Reg. Plan number / other	er description			
B. Compliance	Option		ı		I.				
	 ☑ SB-12 Prescriptive [SB-12 - 2.1.1.] ☐ SB-12 Performance* [SB-12 - 2.1.2.] 				Package: A B C	CDEFGHI	JKLM	Packag	e D
	1.2.]		* Attach	energy performance	e calculations usin	g an appro	ved software		
☐ Energy Star®			* Attach I	30P form					
☐ EnerGuide 80)® *			* House i	must be evaluated b	by NRCan advisor	and meet	a rating of 80	
C. Project Desig									
Climatic Zone	, ,		ing Equip			Space Heating			
☑ Zone 1 (< 5000		✓	≥ 90% AF	UE	☑ Gas	☐ Propane		Solid Fuel	
☐ Zone 2 (≥ 5000	degree days)		≥ 78% < 9	00% AFUE	☐ Oil	☐ Electric		Earth Energy	
Wind	dows+Skylights+Gl	ass Doors	3			Other Building	Conditions	S	
Gross Wall Area =	154 m²	0/.	Windows+	15%	☐ ICF Basement	☐ Walkout E	Basement	☐ Log/Post&B	eam
Gross Window+ Area =	23 m²	/0	vviiluows+	1370	☐ ICF Above Grade	☐ Slab-on-g	round		
D. Building	Specifications [pr	ovide value			ergy efficiency compon		ach <i>Energy</i> S	Star BOP form]	
	Component		RSI / R	values	Buildi	ng Component		Efficiency F	≀atings
Thermal Insulation			T		Windows & Doors			1	
Ceiling with Attic Space				50	Windows/Sliding G	Blass Doors		1.8	
Ceiling without Attic Sp	ace			31	Skylights			2.8	
Exposed Floor				31	Mechanicals	2		0.40/	
Walls Above Grade Basement Walls				24	Space Heating Equ			94%	
Slab (all >600mm below	w arada)			20	HRV Efficiency (%) DHW Heater (EF))		0%	
`	<u>, , , , , , , , , , , , , , , , , , , </u>			X	NOTES			0.67	
Slab (edge only ≤600m			1	10	1. Provide U-Value in \	W/m2.K, or ER rating			
Slab (all ≤600mm below				10	2. Provide AFUE or inc				
	ance Design Verif	cation [c	omplete ap	plicable sec	tions if SB-12 Performa	ance, Energy Star or	EnerGuide80	0 options used]	
SB-12 Performance:						.			
The annual energy consu	· -			-	is	Gj (1 Gj =1000M	j)		
The annual energy consu	•	•		-					
The software used to sim The building is being des				-	er hour @50Pa		_		
Energy Star: BOP form a Energy Star and EnerGu		will be lab	eled on co	mpietion b	у.				
Evaluator/Advisor/Rater Nam					Evaluator/Advisor/Rater	r Licence #:			
F. Desian	ers [names of designe	ers who are	responsible	e for the bui	Iding code design and v	whose plans accompa	any the perm	it application1	
Architectural					Mechanical				
					David DaCos	sta 🥢	ane 1	46 4	



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

Page 8 Project #

PJ-00022 Layout # JB-00702

Pac	Package D ject: Clarington		/stem: Vlodel:		FP To	Syste own 5 En		ham	
		Air Leakage (Calculat	ions					
	Building Air Leakage He B	eat Loss HL^T HLleak 76 3832		Building B 0.018	Air Leakaç LRairh 0.011	ge Heat Ga Vb 17750	in HG^T 9.2	HG Leak	
				Ī			/els		
	Air Leakage Heat Loss/Gain N				1	2	3	4	
	Level Factor (LF) Air Heat Los 1 0.5 4358 2 0.3 6992		er '		(LF) 1.0	0.6 0.4	0.5 0.3	0.4 0.3	
	3 0.2 3832 7391 4 0 0	0.1037 0.0000]			0.2	0.2 0.1	
	HG LEAK	Air Leakage H 32 0.0042					s Dwelling		
	BUILDING CONDUCTIVE HEAT GAIN	7800		<u> </u>					
		Ventilation C	alculati	ons					
	Ventilation Heat Loss				Ventila	ition Heat G	ain		-1.1
Vent	Ventilation Heat Loss C PVC HL^T (1-E) HRV 1.08 60 76 1.00	HLbvent 4925	C 1.1	PVC 60	entilation H HG^T 9.2	HGb	vent 96		Vent
	Case 1					Case 1			_
	Ventilation Heat Loss (Exhaust on	y Systems)		Ventila	ation Heat G	ain (Exhaust	Only Syster	ms)	
Case 1	Case 1 - Exhaust Only Level LF HLbvent LVL Cond 1 0.5 4358 2 0.3 4925 3 0.2 7391 4 0 0		Н	se 1 - Exh Sbvent uilding	596 7800		iplier 08		Case 1
	Case 2					Case 2			
2	Ventilation Heat Loss (Direct Ducto	ed Systems)		Ventila	tion Heat G	ain (Direct D	ucted Syste	ms)	2
Case	C HL^T (1-E) HRV 1.08 76 1.00 82.08	er		C 1.08	HG^T 9.2		iplier 94		Case
	Case 3					Case 3			
3	Ventilation Heat Loss (Forced Air	Systems)		Vent	ilation Heat	Gain (Forced	l Air System	s)	3
Case 3	Total Ventilation Load 4925	Multiplier 0.26	Н	Sbvent 596	HG*1.3		eat Gain 96	Multiplier 0.08	(t)
	Foundation Conductive Heatlo	ss Level 1	121	4	Watts	41	41	Btu/h	

Envelope Air Leakage Calculator

Supplemental tool for CAN/CSA-F280

Weather Station	Description		
Province:	Ontario	V	
Region:	Durham	~	
Weather Station Location:	Open flat terrain, grass	7	
Anemometer height (m):	10		
Local Shiel	ding		
Building Site:	Suburban, forest	•	
Walls:	Heavy	•	
Flue:	Heavy	•	
Highest Ceiling Height (m):			6.10
Building Config	guration	6.4	
Type:	Semi-Detached	T	
Number of Stories:	Two	■	
Foundation:	Full	T	
House Volume (m³):	566.3	50	2.68
Air Leakage/Ve	ntilation		
Air Tightness Type:	Present (1961-) (ACH=3.57)	V	
	ELA @ 10 Pa. 185,83	m ²	
Custom BDT Data:	3.57 ACH @ 50 Pa		
Mechanical Ventilation (L/s):	Total Supply: Total Exhaust:		
	0 30		
Flue Siz	e		
Flue #:	#1 #2 #3	#	4
Diameter (mm):	0 0 0		0
Envelope Air Lea	kage Rate		
Heating Air Leakage Rate (ACH/H):	0.158		
Cooling Air Leakage Rate (ACH/H):	0.011		

Residential Foundation Thermal Load Calculator

Supplemental tool for CAN/CSA-F280

Weather Station Description			
Province:	Ontario	▼	
Region:	Durham		
	Site D	escription	
Soil Conductivity:	High conductivity: moist soil ▼		
Water Table:	Normal (7	7-10 m, 23-33 Ft) ▼	
Fou	undatio	n Dimensions	
Floor Length (m):	13.63		
Floor Width (m):	4.20		
Exposed Perimeter (m):	30.18		
Wall Height (m):	2.74		
Depth Below Grade (m):	2.13	Insulation Configuration	
Window Area (m²):	0.84		
Door Area (m²):	0.00		
	Radi	ant Slab	
Heated Fraction of the Slab:	0		
Fluid Temperature (°C):	23		
Design Months			
Heating Month	1		
Foundation Loads			
Heating Load (Watts): 1214			

RETURN AIR GRILLE (SIZE INDICATED ON DRAWING) RETURN AIR RISER UP TO FLOOR ABOVE SUPPLY AIR DUCT CONNECTION LOW/HIGH WALL/KICK SUPPLY DIFFUSER FLEX DUCT TO JOIST LINING R.A. HRV EXHAUST GRILL RIDIT ROUND DUCT 1 THERMOSTAT 0 SUPPLY AIR PIPE RISER 8 RETURN AIR PIPE RISER RETURN AIR FROM BASEMENT SECOND FLOOR PRINCIPAL EXHAUST FAN SWITCH SUPPLY DIFFUSER VOLUME DAMPER RETURN ROUND DUCT W/R & PRINCIPAL EXHAUST FAN -□12 Φ2 B-8X8unfinished basement 13 [] 6' ↓ 6" _V FLC5R OPT. 3PC A - 14 X 8 ROUGH-IN BATH <u>Z - 20 X 8</u> DROP - 24 X 10 10 4R 8 [-<u>Y - 10 X 8</u> <u>C - 8 X 8</u> INSULATE ALL DUCTS IN UNCONDITIONED SPACES MIN. R12 UP 13R ALL DUCTWORK UNEXCAVATED MUST BE SEALED TO CLASS A LEVEL AS PER OBC PART 6-6.2.4.3. (11) **⊘**|5 -⊘6 CIRCULATION PRINCIPAL **FAN SWITCH** TO BE CENTRALLY LOCATED UNEX. 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 **OBC 2012** Mane 1866 B.C.I.N. 32964 **ZONE 1 COMPLIANCE** PACKAGE "D" REF. TABLE 2.1.1.2.A DATE HEAT-LOSS BTU/HR.

NOTES

INSTALLATION TO COMPLY WITH THE LATEST ONTARIO BUILDING CODE.

ALL SUPPLY OUTLETS TO BE 5" DIA. UNLESS OTHERWISE 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

gtaDesigns

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

27,658	
UNIT MAKE	OR EQUAL.
AMANA	
UNIT MODEL	OR EQUAL.
GMEC960302BNA	١
UNIT HEATING INPUT	BTU/HR.
30,000	
UNIT HEATING OUTPUT	BTU/HR.
28,800	
A/C COOLING CAPACITY	TONS.
1.5	
FAN SPEED	CFM
621	

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

DD

JB-00702

RB

1528

M1

JUNE 17, 2015
DELPARK HIGHCASTLE
FP TOWN 5 END - WINDHAM
NORTHGLEN BOWMANVILLE,ONT.
SCALE: 3/16" = 1"-0"

RETURN AIR GRILLE (SIZE INDICATED ON DRAWING) RETURN AIR RISER UP TO FLOOR ABOVE SUPPLY AIR DUCT CONNECTION LOW/HIGH WALL/KICK SUPPLY DIFFUSER FLEX DUCT R.A. RETURN AIR HRV EXHAUST GRILL RIDIT ROUND DUCT @ ⊘ ① THERMOSTAT RETURN AIR PIPE RISER SUPPLY AIR PIPE RISER 8 PRINCIPAL EXHAUST FAN SWITCH RETURN AIR FROM BASEMENT SECOND FLOOR SUPPLY DIFFUSER VOLUME DAMPER RETURN ROUND DUCT 2 🖎 < → **□□□** → > 12 4" X 10" 6"Ø 4" X 10" 6"Ø GREAT ROOM 11 4" X 10" 6"Ø KITCHEN F)5' 4R FLR 30X6

8

UP 14R

9 🗐

ţ 0

FOYER

5

2R

PORCH

INSULATE ALL DUCTS IN UNCONDITIONED SPACES MIN. R12

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

CIRCULATION PRINCIPAL **FAN SWITCH** TO BE CENTRALLY LOCATED

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

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

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

HEAT-LOSS	BTU/HR.
27,658	
UNIT MAKE	OR EQUAL.
AMANA	
UNIT MODEL	OR EQUAL.
GMEC960302E	
UNIT HEATING INPUT	BTU/HR.
30,000	
UNIT HEATING OUTPUT	BTU/HR.
28,800	
A/C COOLING CAPACITY	TONS.
1.5	
FAN SPEED	CFM
621	

HEAT-LOSS

# OF RUNS	S/A	R/A	FANS
3RD FLOOR			
2ND FLOOR	5	2	2
1ST FLOOR	6	2	2
BASEMENT	3	1	
FLOOR PLAN: GROUND	FLO	OR	

DD

JB-00702

RB

1528

M2

GARAGE

DELP.	ARK HIGHCASTLE
FP FP	TOWN 5 END -
	WINDHAM
PROJECT:	NORTHGLEN
BOV	VMANVILLE,ONT.
SCALE:	3/16" = 1"-0"

JUNE 17, 2015

FLEX DUCT RIDIT ROUND DUCT SUPPLY DIFFUSER

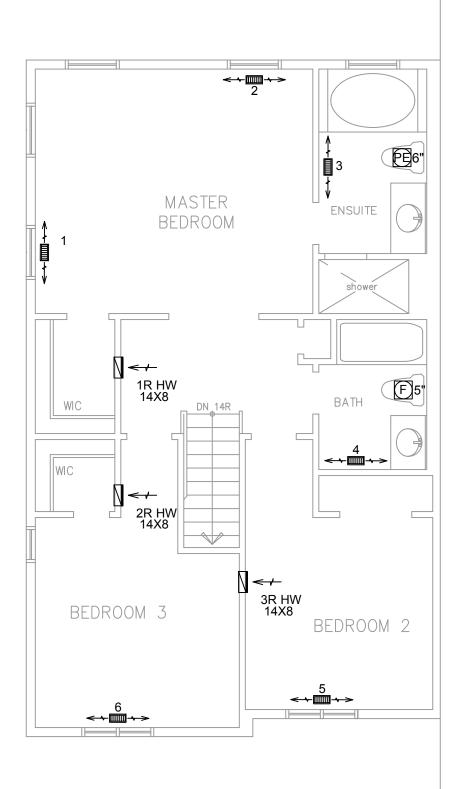
LOW/HIGH WALL/KICK SUPPLY DIFFUSER HRV EXHAUST GRILL **a**l< + 0 SUPPLY AIR PIPE RISER VOLUME DAMPER



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 R.A. ①

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



INSULATE ALL DUCTS IN UNCONDITIONED SPACES MIN. R12

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

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

OBC 2012

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

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INSULATE DUCTS IN UNCONDITIONED SPACES R12

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UNIT MAKE	OR EQUAL.
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UNIT HEATING INPUT	BTU/HR.
30,000	
UNIT HEATING OUTPUT	BTU/HR.
28,800	
A/C COOLING CAPACITY	TONS.
1.5	
FAN SPEED	CFM
621	

BTU/HR.

RΒ

DD

JB-00702

HEAT-LOSS

# OF RUNS	S/A	R/A	FANS	П
3RD FLOOR				H
2ND FLOOR	5	2	2	H
1ST FLOOR	6	2	2	H
BASEMENT	3	1		
				: 1
FLOOR PLAN: SECOND	FLO	OR		I

1528

M3

SCALE:

JUNE 17, 2015
DELPARK HIGHCASTLE
FP TOWN 5 END - WINDHAM
NORTHGLEN BOWMANVILLE,ONT.

3/16" = 1"-0"