

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				
Building number, street name			Lot:	0
40-1 Bungalov	v Northglen		Lot/con.	
Municipality Clarington, ON	Postal code	Plan number/ other description		
B. Individual who reviews and takes responsibility for design	gn activities			
Name David DaCosta		Firm	gtaDesigns Inc.	
Street address 2985 Drew Roa	d, Suite 202		Unit no.	Lot/con.
Municipality	Postal code	Province	E-mail	
Mississauga	L4T 0A4	Ontario	dave@gtadesi	gns.ca
Telephone number (905) 671-9800	Fax number (647) 494-9643	Cell number (416) 268-6	820
C. Design activities undertaken by individual identified in S				
☐ House ☑ HVAC – H	lougo		☐ Building Structural	
☐ Small Buildings ☐ Building Si			Building StructuralPlumbing – House	
	Lighting and Po	Wer	☐ Plumbing – All Buildings	
☐ Complex Buildings ☐ Fire Protect	0 0	WCI	☐ On-site Sewage System	
Description of designer's work Mod	del Certification		Project #:	15-34
Heating and Cooling Load Calculations	uoi Gortiii Gatioi	Builder	Highcastle Homes	3
Air System Design		Project	Northglen	
Residential mechanical ventilation Design Summary		Model		
Residential System Design per CAN/CSA-F280-12 Residential New Construction - Forced Air		SB-12	40-1 Bungalow North Package D	glen
D. Declaration of Designer		3D-12	rackage D	
David DaCosta (print name) I review and take responsibility for	· ·	choose one as appro	,	
☐ I review and take responsibility for 3.2.4 Division C of the Building Co classes/categories.				
Individual BCIN				
Firm BCIN:				
	•			
Individual BCIN	3296	64		
Basis for exemp	otion from registr	ration: D	ivision C 3.2.4.1. (4)	
☐ The design work is exempt from th	e registration ar	nd qualification requirer	ments of the Building Code.	
Basis for exemp	otion from registi	ation and qualification:		
I certify that: 1. The information contained in this schedule is true to the best of 2. I have submitted this application with the knowledge and conse	, ,			
April 15, 2015		Mare Ho	at	
Date		Signature of Des	signer	

NOTE:

ferred to in Clause 3.2.4.7(1) d) of Division C. Article 3.2.5.1 of Division C.

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 loss and gain calcul	ation summary sheet CSA-F280-M12 Standard Form No. 1
These documents issued for the use of	ighcastle Homes Project No.
and may not be used by any other persons without authorization. Docum	
Building	Location
Address (Model): 40-1 Bungalow Northglen	Site: Northglen
Model:	Lot:
City and Province: Clarington, ON	Postal code:
Calculation	ns based on
Dimensional information based on:	N/A
Attachment: Detached	Front facing: East/West Assumed? Yes
No. of Levels: 2 Ventilated? Included	Air tightness: 1961- Present (ACH=3.57) Assumed? Yes
Weather location: Toronto (city hall)	Wind exposure: Shelterd
HRV? Broan 684N	Internal shading: Light-translucent Occupants: 3
Recovery % at -25C 0 Recovery % at -0C 0	Units: Imperial
Heating design conditions	Cooling design conditions
Outdoor temp -0.4 Indoor temp: 72 Mean soil temp 50	Outdoor temp 88 Indoor temp: 75 Latitude: 44
Above grade walls	Below grade walls
Style A: As per Selected OBC SB12 Package D R 24	Style A: As per Selected OBC SB12 Package D R 20
Style B: Existing Walls (When Applicable) R 12	Style B:
Style C:	Style C:
Style D:	Style D:
Floors on soil	Ceilings
Style A: As per Selected OBC SB12 Package D	Style A: As per Selected OBC SB12 Package D R 50
Style B:	Style B: As per Selected OBC SB12 Package D R 31
Exposed floors	Style C:
Style A: As per Selected OBC SB12 Package D R 31	Doors
Style B:	Style A: As per Selected OBC SB12 Package D R 3.01
Windows	Style B:
Style A: As per Selected OBC SB12 Package D R 3.15	Style C:
Style B: Existing Windows (When Applicable) R 1.99	Skylights
Style C:	Style A: As per Selected OBC SB12 Package D R 2.03
Style D:	Style B:
Attached documents: As per Shedule 1	
Notes: Residential New	Construction - Forced Air
Calculations	performed by
Name: David DaCosta	Postal code: L4T 0A4
Company: gtaDesigns Inc.	Telephone: (905) 671-9800
Address: 2985 Drew Road, Suite 202	Fax: (416) 268-6820
City: Mississauga	E-mail dave@gtadesigns.ca



Highcastle Homes

Builder:

Air System Design

Package D

Date: April 15, 2015

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

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 #

15-34

of the Building Code. System 1 Man Alex Individual BCIN: David DaCosta Page 3 Project: Northglen Model: 40-1 Bungalow Northglen DESIGN LOAD SPECIFICATIONS AIR DISTRIBUTION & PRESSURE FURNACE/AIR HANDLER DATA: A/C UNIT DATA: BOILER/WATER HEATER DATA: Level 1 Net Load 12.103 btu/h **Equipment External Static Pressure** 0.5 "w.c. Make Amana Туре Amana 1.5 Ton 0.225 "w.c. Level 2 Net Load 15,149 btu/h Additional Equipment Pressure Drop Model GMEC960402BNA Model Cond.--1.5 Level 3 Net Load 0 btu/b Available Design Pressure 0.275 "w.c. Innut Rtu/h 40000 Input Btu/h Coil 1.5 Level 4 Net Load Return Branch Longest Effective Length 300 ft 38400 0 htu/h Output Btu/h Output Btu/h 27 252 htm/h 0 138 "w c 0.50 "WC ΔWH Total Heat Loss R/A Plenum Pressure E.s.p. Min.Output Btu/h Total Heat Gain Blower DATA: 14.794 btu/h S/A Plenum Pressure 0.14 "w.c. Water Temp deg. F. Total Heat Loss + 10% 29.977 Btuh. Heating Air Flow Proportioning Factor 0.0284 cfm/btuh AFUE Blower Speed Selected: W2 ECM 96% Blower Type Building Volume Vb 23580 ft³ Cooling Air Flow Proportioning Facter 0.0481 cfm/btuh (Brushless DC OBC 12.3.1.5.(2)) Aux Heat Ventilation Load 4,141 Btuh. R/A Temp 70 deg. F. SB-12 Package Package D Heating Check 773 cfm Cooling Check 711 cfm Ventilation PVC 45 cfm S/A Temp 116 deg. F. Supply Branch and Grill Sizing Diffuser loss 0.01 "w.c. Temp. Rise>>> 46 deg. F. Selected cfm> 773 cfm Cooling Air Flow Rate 711 cfm Level 1 Outlets Level 2 Outlets S/A Outlet No. 12 13 14 16 2 10 11 Room Use BASE BASE BASE BASE BASE MAST FNS LAUND FOY KIT DIN GREAT BATH Btu/Outle 2421 2421 2421 2421 2421 1659 1410 431 1879 577 2186 2086 1624 1582 1582 132 Heating Airflow Rate CFM 69 69 69 47 12 53 59 45 Cooling Airflow Rate CFM 10 10 10 10 10 95 39 47 158 83 86 86 0.13 0.13 0.13 0.13 0.13 0.13 0.13 0 13 0.13 0 13 0 13 N 13 0 13 0.13 0.13 **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 **Actual Duct Length** 33 22 27 23 38 40 29 21 12 15 37 44 22 42 41 10 120 150 155 135 120 **Equivalent Length** 130 100 145 135 125 165 100 130 140 120 110 127 Total Effective Length 153 152 168 173 90 90 90 90 90 90 90 90 90 165 194 121 142 155 157 154 172 197 176 130 90 90 90 Adjusted Pressure 0.08 0.09 0.10 0.08 0.08 0.14 0 14 0.14 0.14 0.14 0 14 0.14 0.14 0.14 0.08 0.07 0.11 0.09 0.08 0.08 0.08 0.08 0.07 0.07 0.07 0.10 0.14 0.14 **Duct Size Round** 5 3 3 6 6 Outlet Size 3x10 3x10 3x10 4x10 4x10 4x10 4x10 4x10 4x10 3x10 3x10 3x10 3x10 3x10 4x10 4x10 4x10 4x10 3x10 4x10 4x10 4x10 4x10 4x10 4x10 4x10 4x10 4x10 Trunk Level 3 Outlets Level 4 Outlets S/A Outlet No. Room Hee Btu/Outlet Heating Airflow Rate CFM Cooling Airflow Rate CFM **Duct Design Pressure** 0.13 0 13 0.13 0.13 0.13 0.13 0.13 0.13 **Actual Duct Length Equivalent Length** 90 90 90 90 90 90 Total Effective Length 90 90 90 ٩n 90 90 90 90 ٩n 90 90 90 90 90 90 ٩n 90 90 90 90 90 an ٩n 90 Adjusted Pressure 0.14 **Duct Size Round** Outlet Size 4x10 Trunk Return Branch And Grill Sizing **Grill Pressure Loss** 0.02 "w.c **Return Trunk Duct Sizing Supply Trunk Duct Sizing** R/A Inlet No. 1R 2R 3R 5R 6R 7R 8R 9R 10R 11R Trunk CFM Press Round Rect. Size CFM Press Round Rect. Size 4R Trunk Inlet Air Volume CFM 156 156 305 156 **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 Drop 773 0.05 14.5 24x10 567 0.06 12.5 18x8 14x10 773 0.05 R 0.06 **Actual Duct Length** 28 14 11 х 145 24 v 8 18 10 314 10 0 12v8 10v10 **Equivalent Length** 175 185 110 145 70 70 70 70 70 70 70 Υ 0.05 10.5 12x8 10x10 С 206 0.06 8.5 8x8 107 203 199 119 156 70 70 70 70 70 z D Total Effective Length 70 0.17 0.17 0.17 w Adjusted Pressure 0.06 0.06 0.10 0.08 0.17 0.17 0.17 0.17 Duct Size Round ν 8 Inlet Size U G т н 30 Inlet Size 14 14 s

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Heatloss/Gain Calculations CSA-F280-12

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		Builder: H	ighcastle H	omes			Date:		April 1	5, 2015					Weathe	er Data	Toronto (city hall)	44	-0.4	88 4	5 5	0		P	Project	#	15-34
2012 OBC		Project:	Northgle	n		Mo	odel:	40	-1 Bungalo	w Northgle	n		System	1	Heat L	oss ^T 7	2.4 deg. F	H	t gain ^T	12.8	deg. F	G	TA:	1474				Page 4
-												-																
D	Level 1				BASE																							
	n ft. exposed wall A n ft. exposed wall B			187 A B			A B		A B		A B		A B		A B		A B		A B		A			A B			A B	
	Ceiling height			2 AG	3		2 AG		2 AG		2 AG		2 AG		2 AG		2 AG		2 AG		2 A			2 AG			2 AG	
	Floor area			1350 Are	ea		Area		Are	1	Area		Area		Area		Area		Area		A	rea		Are	a		Area	
	Exposed Ceilings A			A			A		A		A		A		A		A		A		A			A			A	
	Exposed Ceilings B Exposed Floors			B Flr			B Flr		B Fir		B Fir		B Flr		B Flr		B Flr		B Flr		B	s Tr		B Flr			B Fir	
	Gross Exp Wall A			374			- "		- "															- "				
	Gross Exp Wall B																											
			Gain	Los		ain	Loss	Gain	Los	s Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	L	oss G	ain	Los	ss Gair	in	Loss	Gain
	North Shaded East/West	3.15 22.98 3.15 22.98	11.88 28.32	3	69 69	36 85																						
	South		21.85		207	197																						
	Existing Windows	1.99 36.38	23.05																									
	Skylight		89.12																									
N	Doors let exposed walls A		4.25 0.93	21 338	505	89 314																						
	let exposed walls B		1.51	330		314																						
E	Exposed Ceilings A	50.00 1.45	0.80																									
E	Exposed Ceilings B		1.74																									
Foundation Cond	Exposed Floors ductive Heatloss	22.05 3.28 Slab On Grade (x)	0.31		7257																							
Total Conductive	Heat Loss				8107																							
	Heat Gain					720																						
Air Leakage	Heat Loss/Gain				1885	4																						
Ventilation	Case 1		0.09 13.82		2111	67																						
	Case 3		0.09																									
	Heat Gain People		239																									
	Appliances Loads	1 =.25 percent	3327																									
Level 1 HL Total	Duct and Pipe loss 12,103	Total HL for	10% per room	13	2103																							
Level 1 HG Total	1,029	Total HG per re				1029																						
			om x 1.3		1	1023																						
	1	10.0.110 por 1.	om x 1.3			1023	l	'								·,					t							,
		16.00 PO. 11	om x 1.3			1023																			,			
	Level 2		oom x 1.3		MAST	1023	EN	s		/IC	BED	2	LAUND		FOY		КІТ		DIN			GREAT			АТН			
	Level 2		oom x1.3	15 A		1023	19 A	s	7 A	/IC	25 A	2	9 A	2	28 A		33 A		13 A		31 A	١		Α	АТН		A	
	Level 2 n ft. exposed wall A n ft. exposed wall B		oom x1.3	15 A B		1023	19 A B	s	7 A B	/IC	25 A B	2	9 A B		28 A B		33 A B		13 A B		31 A	١		A B	АТН		В	
	Level 2		50m x 1.3	15 A	MAST	1023	19 A	s	7 A		25 A	2	9 A		28 A		33 A		13 A		31 A	3		Α				
Rur	Level 2 In ft. exposed wall A In ft. exposed wall B Ceiling height Floor area Exposed Ceilings A		oom x 1.3	15 A B 9 184 Are	MAST	1023	19 A B 9 74 Area 74 A	s	7 A B 9 37 Are		25 A B 9 125 Area 125 A	2	9 A B 9 61 Area 61 A	9	28 A B 9 97 Area 97 A	2	33 A B 9 206 Area 206 A		13 A B 9 186 Area 186 A	1	31 A 9 225 A 225 A	s area		A B 9 75 Are 75 A			B 9 Area A	
Rur	Level 2 n ft. exposed wall A n ft. exposed wall B Ceiling height Floor area Exposed Ceilings A Exposed Ceilings B		oom x 1.3	15 A B 9 184 Are 184 A B	MAST ea	1025	19 A B 9 74 Area 74 A B	s	7 A B 9 37 Area 37 A B		25 A B 9 125 Area 125 A	2	9 A B 9 61 Area 61 A B	9	28 A B 9 97 Area 97 A B	2	33 A B 9 206 Area 206 A B		13 A B 9 186 Area 186 A B		31 A 9 225 A 225 A	k Area k		A B 9 75 Are 75 A B			B 9 Area A B	
Rur E	Level 2 In ft. exposed wall A In ft. exposed wall B Ceiling height Floor area Exposed Ceilings A Exposed Floors		30m x 1.3	15 A B 9 184 Are 184 A B Fir	MAST ea	1023	19 A B 9 74 Area 74 A B Fir	s	7 A B 9 37 Are: 37 A B Fir		25 A B 9 125 Area 125 A B Fir	2	9 A B 9 61 Area 61 A B Fir	9 9	28 A B 9 97 Area 97 A B Fir	2 2	33 A B 9 206 Area 206 A B Fir		13 A B 9 186 Area 186 A B Fir		31 A 9 225 A 225 A F	s area		A B 9 75 Are 75 A			B 9 Area A	
Rur E	n ft. exposed wall A n ft. exposed wall B Ceiling height Floor area Exposed Ceilings A Exposed Floors Gross Exp Wall A Gross Exp Wall A			15 A B 9 184 Are 184 A B	MAST ea	1023	19 A B 9 74 Area 74 A B		7 A B 9 37 Area 37 A B		25 A B 9 125 Area 125 A	2	9 A B 9 61 Area 61 A B	9	28 A B 9 97 Area 97 A B Fir	2 2 2	33 A B 9 206 Area 206 A B		13 A B 9 186 Area 186 A B		31 A 9 225 A 225 A	area Area Area Fir		A B 9 75 Are 75 A B			B 9 Area A B	
Rur E	Level 2 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 Components	R-Values Loss	Gain	15 A B 9 184 Are 184 A B Fir	MAST ea	eain	19 A B 9 74 Area 74 A B Fir		7 A B 9 37 Are: 37 A B Fir	1	25 A B 9 125 Area 125 A Fir 225	Gain	9 A B 9 61 Area 61 A B Fir	9 9 25 Gain	28 A B 9 97 Area 97 A B Fir 52	2 2 2 Gain	33 A B 9 206 Area 206 A B Fir		13 A B 9 186 Area 186 A B Fir	Gain	31 A 9 225 A 225 A E F 279	area Area Area Fir	Gain	A B 9 75 Are 75 A B	ea		B 9 Area A B Fir	Gain
Rur E	Level 2 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 B Components North Shaded	R-Values Loss 3.15 22.98	Gain 11.88	15 A B 9 184 Are 184 A B Fir 135	MAST ea	sain	19 A B 9 74 Area 74 A B Fir 171	Gain	7 A B 9 37 Area 37 A B Fir 63	1	25 A B 9 125 Area 125 A B FIr 225	Gain	9 A B 9 61 Area 61 A B Fir	9 9 25 Gain 1	28 A B 9 7 Area 7 A B Fir 52 Loss 16 368	2 2 2 <u>Gain</u> 190	33 A B 9 206 Area 206 A B Fir		13 A B 9 186 Area 186 A B Fir 117		31 A 9 225 A 225 A E F 279	urea U B Gir		A B 9 75 Are 75 A B Fir	ea		B 9 Area A B Fir	Gain
Rur E	Level 2 In ft. exposed wall A In ft. 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	R-Values Loss 3.15 22.98 3.15 22.98	Gain 11.88 28.32	15 A B 9 184 Are 184 A B Fir 135	MAST ea		19 A B 9 74 Area 74 A B Fir 171	Gain	7 A B 9 37 Area 37 A B Fir 63	1	25 A B 9 125 Area 125 A Fir 225	Gain	9 A B 9 61 Area 61 A B Fir	9 9 25 Gain 1	28 A B 9 97 Area 97 A B Fir 52	2 2 2 Gain	33 A B 9 206 Area 206 A B Fir		13 A B 9 186 Area 186 A B FIr 117	Gain	31 A 9 225 A 225 A 2279 L	urea B B Clir ooss G	1076	A B 9 75 Are 75 A B Fir	ea		B 9 Area A B Fir	Gain
Rur E	Level 2 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 B Components North Shaded	R-Values Loss 3.15 22.98 3.15 22.98 1.99 36.38	Gain 11.88 28.32 21.85 23.05	15 A B 9 184 Are 184 A B Fir 135	MAST ea	sain	19 A B 9 74 Area 74 A B Fir 171	Gain	7 A B 9 37 Area 37 A B Fir 63	1	25 A B 9 125 Area 125 A Fir 225	Gain	9 A B 9 61 Area 61 A B Fir	9 9 25 Gain 1	28 A B 9 7 Area 7 A B Fir 52 Loss 16 368	2 2 2 <u>Gain</u> 190	33 A B 9 206 Area 206 A B Fir		13 A B 9 186 Area 186 A B Fir 117	Gain	31 A 9 225 A 225 A E F 279	urea U B Gir		A B 9 75 Are 75 A B Fir	ea		B 9 Area A B Fir	Gain
Rur E	Level 2 In ft. exposed wall A In ft. 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 Loss 3.15 22.98 3.15 22.98 3.15 22.98 3.15 22.98 2.03 35.67	Gain 11.88 28.32 21.85 23.05 89.12	15 A B 9 184 Are 184 A B Fir 135	MAST ea	sain	19 A B 9 74 Area 74 A B Fir 171	Gain	7 A B 9 37 Area 37 A B Fir 63	1	25 A B 9 125 Area 125 A Fir 225	Gain	9 A B 9 61 Area 61 A B Fir	9 9 25 Gain 1	28 A B 9 7 Area 7 A B Fir 52 Loss 16 368	2 2 2 <u>Gain</u> 190	33 A B 9 206 Area 206 A B Fir		13 A B 9 186 Area 186 A B FIr 117	Gain	31 A 9 225 A 225 A 2279 L	urea B B Clir ooss G	1076	A B 9 75 Are 75 A B Fir	ea		B 9 Area A B Fir	Gain
Rur E	Level 2 In ft. exposed wall A In ft. exposed wall A Ceiling height Floor area Exposed Ceilings A Exposed Ceilings A Exposed Floors Gross Exp Wall A Gross Exp Wall B Components North Shaded EastWest South Existing Windows Skylight Doors	R-Values Loss 3.15 22.98 3.15 22.98 3.15 22.98 1.99 36.38 2.03 35.67 3.01 24.05	Gain 11.88 28.32 21.85 23.05 89.12 4.25	15 A B 9 184 Are 184 A B Fir 135 Los	MAST ea .	5ain 708	19 A B 9 74 Area 74 A B Fir 171 Loss	Gain 399 368	7 A B 9 37 Are: 37 A B Fir 63	s Gain	25 A B 9 9 125 Area 125 A B Fir 225 Loss 16 368	Gain 190	9 A 9 61 Area 61 A B FIr 81	9 9 25 <u>Sain</u> 1	28 A B 9 9 9 9 7 Area 9 7 A B Fir 52 Loss 16 368 9 207	2 2 2 Gain 190 255	33 A 9 9 206 Area 206 A B Fir Fir Loss	Gain	13 A B 9 186 Area 186 A B Fir 117 Loss	Gain 4 612	31 A B B 9 225 A 225 A B F 279 L L 38 14	oss 6	1076 306	A B 9 75 Are 75 A B Fir	ea		B 9 Area A B Fir	Gain
Rur	Level 2 In ft. exposed wall A In ft. 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 Loss 3.15 22.98 3.15 22.98 3.15 22.98 1.99 36.38 2.03 35.67 3.01 24.05 15.13 4.79	Gain 11.88 28.32 21.85 23.05 89.12	15 A B 9 184 Are 184 A B Fir 135 Los	MAST ea	5ain 708	19 A B 9 74 Area 74 A B Fir 171 Loss	Gain	7 A B 9 37 Are: 37 A B Fir 63	1	25 A B 9 9 125 Area 125 A B Fir 225 Loss 16 368	Gain 190	9 A B 9 61 Area 61 A B Fir	9 9 25 Gain 1	28 A B 9 9 9 9 7 Area 9 7 A B Fir 52 Loss 16 368 9 207	2 2 2 Gain 190 255	33 A B 9 206 Area 206 A B Fir		13 A B 9 186 Area 186 A B FIr 117	Gain 4 612	31 A 9 225 A 225 A 2279 L	urea B B Clir ooss G	1076	A B 9 75 Are 75 A B Fir	ea		B 9 Area A B Fir	Gain
Rur E E	Level 2 In ft. exposed wall A In 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 EastWest South Existing Windows Skylight Doors let exposed walls A Exposed Ceilings A	R-Values Loss 3.15 22.98 3.15 22.98 3.15 22.98 1.99 36.38 2.03 35.67 3.01 24.05 15.13 4.79 8.50 8.52 50.00 1.45	Gain 11.88 28.32 21.85 23.05 89.12 4.25 0.85 1.51 0.80	15 A B 9 184 Are 184 A B Fir 135 Los	MAST ea .	5ain 708	19 A B 9 74 Area 74 A B Fir 171 Loss 2 158 7	Gain 399 368	7 A B 9 37 Are: 37 A B Fir 63	s Gain	25 A B 9 9 125 Area 125 A B Fir 225 Loss 16 368	Gain 190	9 A 9 61 Area 61 A B FIr 81	9 9 9 25Gain 1	28 A B 9 9 9 9 7 Area 9 7 A B Fir 52 Loss 16 368 9 207	2 2 2 2 2 2 3 3 3 3 3 3 3 3 3 3 3 3 3 3	33 A 9 9 206 Area 206 A B Fir Fir Loss	Gain 251	13 A B 9 186 Area 186 A B Fir 117 Loss	Gain 4 612	31 A B B 9 225 A 225 A B F 279 L L 38 14	oss 6	1076 306	A B 9 75 Are 75 A B Fir	ea		B 9 Area A B Fir	Gain
Rur E E	Level 2 n ft. exposed wall A n ft. exposed wall A n ft. exposed wall B Ceiling height Floor area Exposed Ceilings A Exposed Ceilings A Gross Exp Wall B Components North Shaded EastWest South Existing Windows Skylight Doors let exposed walls A let exposed walls A Exposed Ceilings B	R-Values Loss 3.15 22.98 3.15 22.98 3.15 22.98 3.15 22.98 3.03 35.67 3.01 24.05 15.13 4.79 8.50 8.52 50.00 1.45 22.86 3.17	Gain 11.88 28.32 21.85 23.05 89.12 4.25 0.85 1.51 0.80	15 A B 9 184 Are 184 A B Fir 135 Los	MAST ea	708 93	19 A B 9 74 Area 74 A B Fir 171 Loss 2 158 7	Gain 99 368 56 134	7 A B 9 37 Are: 37 A B Fir 63 Los	s Gain	25 A B 9 9 125 Area 125 A B Fir 225 Loss 16 368	Gain 190	9 A B 9 9 61 Area 61 A B Fir 81 Loss	9 9 9 25Gain 1	28 A B 9 9 9 9 77 Area 67 7 A B Fir 52 Loss 368 9 207	2 2 2 2 2 2 3 3 3 3 3 3 3 3 3 3 3 3 3 3	33 A B 9 9 9 206 Area 206 A B Fir 297 Loss 1421	Gain 251	13 A B 9 186 Area 186 A B Fir 1117 Loss 644	Gain 4 612	31 A B 9 225 A 225 A B F 279 L 38 14	Norea	1076 306	A B 9 75 Are 75 A B Fir	es Gair	in	B 9 Area A B Fir	Gain
Rur E E	Level 2 In ft. exposed wall A In ft. exposed wall A In ft. 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 North Shaded East/West South Existing Windows Skylight Doors Ide exposed walls A Ide exposed walls A Exposed Ceilings A Exposed Ceilings A Exposed Ceilings B Exposed Floors	R-Values Loss 3.15 22.98 3.15 22.98 3.15 22.98 3.15 22.98 1.99 36.38 2.03 35.67 3.01 24.05 15.13 4.79 8.50 8.52 50.00 1.45 22.86 3.17 22.05 3.28	Gain 11.88 28.32 21.85 23.05 89.12 4.25 0.85 1.51 0.80 1.74	15 A B 9 184 Are 184 A B Fir 135 Los	MAST ea	708 93	19 A B 9 74 Area 74 A B Fir 171 Loss 2 158 7	Gain 99 368 56 134	7 A B 9 37 Are: 37 A B Fir 63 Los	s Gain	25 A B 9 9 125 Area 125 A B Fir 225 Loss 16 368	Gain 190	9 A B 9 9 61 Area 61 A B Fir 81 Loss	9 9 9 25Gain 1	28 A B 9 9 9 9 77 Area 67 7 A B Fir 52 Loss 368 9 207	2 2 2 2 2 2 3 3 3 3 3 3 3 3 3 3 3 3 3 3	33 A B 9 9 9 206 Area 206 A B Fir 297 Loss 1421	Gain 251	13 A B 9 186 Area 186 A B Fir 1117 Loss 644	Gain 4 612	31 A B 9 225 A 225 A B F 279 L 38 14	Norea	1076 306	A B 9 75 Are 75 A B Fir	es Gair	in	B 9 Area A B Fir	Gain
Rur E E N N E E Foundation Conc	Level 2 In ft. exposed wall A In ft. exposed wall A In ft. 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 North Shaded East/West South Existing Windows Skylight Doors Ide exposed walls A Ide exposed walls A Exposed Ceilings A Exposed Ceilings A Exposed Ceilings B Exposed Floors	R-Values Loss 3.15 22.98 3.15 22.98 3.15 22.98 1.99 36.38 2.03 35.67 3.01 24.05 15.13 4.79 8.50 8.50 2.286 3.17 22.05 3.28 Slab On Grade (x)	Gain 11.88 28.32 21.85 23.05 89.12 4.25 0.85 1.51 0.80	15 A B 9 184 Are 184 A B Fir 135 Los	MAST ea	708 93	19 A B 9 74 Area 74 A B Fir 171 Loss 2 158 7	Gain 368 56 134 77 59	7 A B 9 37 Are: 37 A B Fir 63 Los	s Gain	25 A B 9 9 125 Area 125 A B Fir 225 Loss 16 368	Gain 190 177 100	9 A B 9 9 61 Area 61 A B Fir 81 Loss	9 9 9 25Gain 1	28 A B 9 9 9 9 77 Area 67 7 A B Fir 52 Loss 368 9 207	2 2 2 2 2 2 3 3 3 3 3 3 3 3 3 3 3 3 3 3	33 A B 9 9 9 206 Area 206 A B Fir 297 Loss 1421	Gain 251	13 A B 9 186 Area 186 A B Fir 1117 Loss 644	Gain 4 612 5 75 9 148	31 A B 9 225 A 225 A B F 279 L 38 14	Norea	1076 306	A B 9 75 Are 75 A B Fir Los	es Gair	in	B 9 Area A B Fir	Gain
Rur E E N N N F E Foundation Conc Total Conductive	Level 2 In ft. exposed wall A In ft. exposed wall A Celling height Floor area Exposed Ceilings A Exposed Ceilings B 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 Ceilings A Exposed Floors ductive Heatloss Heat Loss Heat Gain	R-Values Loss 3.15 22.98 3.15 22.98 3.15 22.98 3.15 22.98 1.99 36.38 2.03 35.67 3.01 24.05 15.13 4.79 8.50 8.52 50.00 1.45 22.86 3.17 22.05 3.28 Slab On Grade (x)	Gain 11.88 28.32 21.85 23.05 89.12 4.25 0.85 1.51 0.80 1.74 0.31 x	15 A B 9 184 Are 184 A B Fir 135 Los	MAST ea	708 93 146	19 A B 9 74 Area 74 A B Fir 171 Loss 13 2 158 7 74 11	Gain 399 368 56 134 07 59 52 561	7 A B 9 37 Are: 37 A B Fir 63 Los	s Gain 301 53 54 29	25 A B 9 125 Area 125 A B Fir 225 Loss 16 368 209 1000 125 181	Gain 190 177 100 466	9 A B 9 9 61 Area 61 A B Fir 81 Loss 61 88 61 88 476	9 9 9 25Gain 1	28 A B 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	33 A B 9 9 206 Area 206 A B Fir 297 Loss 297 1421 206 298 1719	Gain 251 164	13 A B 9 186 Area A B Fir 1117 Loss 644 89 426 186 269	Gain 4 612 5 75 9 148	31 A B 9 225 A 225 A B F 279 L 38 14	3 3 3 3 2 2 3 3 2 6 3 2 6 0 7	1076 306 192 179	A B 9 75 Are 75 A B Fir Los	109	60 60	B 9 Area A B Fir	Gain
Rur E E N N E E Foundation Conc	Level 2 In ft. exposed wall A In ft. exposed wall A In ft. exposed wall B Ceiling height Floor area Exposed Ceilings B Exposed Floors Gross Exp Wall B Components North Shaded EastWest South Existing Windows Skylight Existing Windows Skylight Exposed Geilings B Exposed Ceilings B Exposed Floors ductive Heatloss Heat Loss Heat Loss Heat Loss Heat Loss/Gain	R-Values Loss 3.15 22.98 3.15 22.98 3.15 22.98 1.99 36.38 2.03 35.67 3.01 24.05 15.13 4.79 8.50 8.52 50.00 1.45 22.96 3.17 22.95 3.28 Slab On Grade (x)	Gain 11.88 28.32 21.85 23.05 89.12 4.25 0.85 1.51 0.80 1.74 0.31 x	15 A B 9 184 Are 184 A B B Fir 135 Los 25 110 184	MAST eea	708 93 146	19 A B 9 74 Area 74 A B Fir 171 Loss 13 2 158 7 4 11	Gain 99 368 56 134 97 59 52 561 17 3	7 A B 9 37 Are: 37 A B Fir 63 Los	s Gain 3001 53 54 29 355 83 36 1	25 A B 9 125 Area 125 A B Fir 225 Loss 16 368 309 1000 1125 181 1549	Gain 190 177 100 466 3	9 A B 9 9 61 Area 61 A B Fir 81 Loss 4476 488	25 Gain 1 69 22 49 9	28 A B B 9 9 9 9 77 Area 077 A B Fir 522 Loss 16 368 9 207 140 1801 1801 1811	2 2 2 2 2 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	33 A B 9 9 206 Area 206 A B Fir 297 Loss 297 1421 206 298 1719	251 164	13 A B 9 186 Area 186 A B Fir 117 Loss 644 89 426 186 269 1336 1336 1336	Gain 4 612 5 75 9 148 9 835 5 5	31 A B 9 225 A 225 A B F 279 L 38 14	873 322 1086 326 2607 262	1076 306 192 179	A B 9 75 Are 75 A B Fir Los	109 1109	60	B 9 Area A B Fir	Gain
Rur E E N N N F E Foundation Conc Total Conductive	Level 2 In ft. exposed wall A In ft. exposed wall A In ft. exposed wall B Ceiling height Floor area Exposed Ceilings B Exposed Ceilings B Exposed Floors Gross Exp Wall B Gross Exp Wall B Components North Shaded EastWest South Existing Windows Skylight Doors Let exposed walls A Let exposed walls B Exposed Ceilings B Exposed Ceilings B Exposed Floors ductive Heatloss Heat Loss Heat Gain Heat Loss/Gain Heat Loss/Gain	R-Values Loss 3.15 22.98 3.15 22.98 3.15 22.98 1.99 36.38 2.03 35.67 3.01 24.05 15.13 4.79 8.50 8.52 50.00 1.45 22.96 3.17 22.05 3.28 Slab On Grade (x) 0.1007 X 0.11	Gain 11.88 28.32 21.85 23.05 89.12 4.25 0.85 1.51 0.80 1.74 0.31 x	15 A B 9 184 Are 184 A B B Fir 135 Los 25 110 184	MAST ea	708 93 146	19 A B 9 74 Area 74 A B Fir 171 Loss 13 2 158 7 4 11	Gain 399 368 56 134 07 59 52 561	7 A B 9 37 Are: 37 A B Fir 63 Los	s Gain 301 53 54 29	25 A B 9 125 Area 125 A B Fir 225 Loss 16 368 209 1000 125 181	Gain 190 177 100 466 3	9 A B 9 9 61 Area 61 A B Fir 81 Loss 61 88 61 88 476	25 3ain 1 69 222 49 9	28 A B 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	33 A B 9 9 206 Area 206 A B Fir 297 Loss 297 1421 206 298 1719	Gain 251 164	13 A B 9 186 Area A B Fir 1117 Loss 644 89 426 186 269	Gain 4 612 5 75 9 148 9 835 5 5	31 A B 9 225 A 225 A B F 279 L 38 14	3 3 3 3 2 2 3 3 2 6 3 2 6 0 7	1076 306 192 179	A B 9 75 Are 75 A B Fir Los	109	60 60	B 9 Area A B Fir	Gain
Rur E E N N N E E Foundation Conc Total Conductive Air Leakage	Level 2 In ft. exposed wall A In ft. exposed wall A In ft. exposed wall B Ceiling height Floor area Exposed Ceilings A Exposed Ceilings B Exposed Floors Gross Exp Wall B Components North Shaded EastWest South Existing Windows Skylight Doors let exposed walls A let exposed walls A Exposed Ceilings B Exposed Floors ductive Heatloss Heat Coss Heat Loss Heat Loss Heat Loss/Gain Case 1 Case 2 Case 2 Case 2	R-Values Loss 3.15 22.98 3.15 22.98 3.15 22.98 1.99 36.38 2.03 35.67 3.01 24.05 15.13 4.79 8.50 8.52 50.00 1.45 22.86 3.17 22.05 3.28 Slab On Grade (x) 0.1007 X 0.11 78.19 0.17	Gain 11.88 28.32 21.85 23.05 89.12 4.25 0.85 1.51 0.80 1.74 0.31 x 0.0062 0.009	15 A B 9 184 Are 184 A B B Fir 135 Los 25 110 184	MAST eea	708 93 146	19 A B 9 74 Area 74 A B Fir 171 Loss 13 2 158 7 4 11	Gain 99 368 56 134 97 59 52 561 17 3	7 A B 9 37 Are: 37 A B Fir 63 Los	s Gain 3001 53 54 29 355 83 36 1	25 A B 9 125 Area 125 A B Fir 225 Loss 16 368 309 1000 1125 181 1549	Gain 190 177 100 466 3	9 A B 9 9 61 Area 61 A B Fir 81 Loss 4476 488	25 Gain 1 69 22 49 9	28 A B B 9 9 9 9 77 Area 077 A B Fir 522 Loss 16 368 9 207 140 1801 1801 1811	2 2 2 2 2 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	33 A B 9 9 206 Area 206 A B Fir 297 Loss 297 1421 206 298 1719	251 164	13 A B 9 186 Area 186 A B Fir 117 Loss 644 89 426 186 269 1336 1336 1336	Gain 4 612 5 75 9 148 9 835 5 5	31 A B 9 225 A 225 A B F 279 L 38 14	873 322 1086 326 2607 262	1076 306 192 179	A B 9 75 Are 75 A B Fir Los	109 1109	60 60	B 9 Area A B Fir	Gain
Rur E E N N N E E Foundation Conc Total Conductive Air Leakage	Level 2 In ft. exposed wall A In ft. exposed wall A In ft. 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 EastWest South Existing Windows Skylight Doors Let exposed walls A Let exposed walls A Let exposed Ceilings B Exposed Ceilings B Exposed Ceilings B Exposed Floors ductive Heatloss Heat Loss Heat Case 1 Case 2 Case 2 Case 2 Let of the texposed Case 3 Heat Gain Heat Cose 1	R-Values Loss 3.15 22.98 3.15 22.98 3.15 22.98 1.99 36.38 2.03 35.67 3.01 24.05 15.13 4.79 8.50 8.52 50.00 1.45 22.86 3.17 22.05 3.28 Slab On Grade (x) 0.1007 X 0.11 78.19 0.17	Gain 11.88 28.32 21.85 23.05 89.12 4.25 0.85 1.51 0.80 1.74 0.31 x 0.0062 0.09 13.82 0.09	15 A B 9 184 Are 184 A B B Fir 135 Los 25 110 184	MAST eea	708 93 146	19 A B 9 74 Area 74 A B Fir 171 Loss 13 2 158 7 4 11	Gain 99 368 56 134 97 59 52 561 17 3	7 A B 9 37 Are: 37 A B Fir 63 Los	s Gain 3001 53 54 29 355 83 36 1	25 A B 9 125 Area 125 A B Fir 225 Loss 16 368 309 1000 1125 181 1549	Gain 190 177 100 466 3	9 A B 9 9 61 Area 61 A B Fir 81 Loss 4476 488	25 Gain 1 69 22 49 9	28 A B B 9 9 9 9 77 Area 077 A B Fir 522 Loss 16 368 9 207 140 1801 1801 1811	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	33 A B 9 9 206 Area 206 A B Fir 297 Loss 297 1421 206 298 1779 173 194	251 164 415 3	13 A B 9 186 Area 186 A B Fir 1117 Loss 644 186 266 186 266 1333 135 135 151	Gain 4 612 5 75 9 148 9 835 5 5	31 A B 9 225 A 225 A B F 279 L 38 14	873 322 1086 326 2607 262	1076 306 192 179 1753 11 163	A B 9 75 Are 75 A B Fir Los	109 1109	60 60	B 9 Area A B Fir	Gain
Rur E E E N N N E E Foundation Conc Total Conductive Air Leakage Ventilation	Level 2 In ft. exposed wall A In ft. exposed wall A In ft. exposed wall A Ceiling height Floor area Exposed Ceilings A Exposed Ceilings A Exposed Ceilings A Components North Shaded EastWest South Existing Windows Skylight Doors let exposed walls A Exposed Ceilings A Exposed Floors ductive Heatloss Heat Loss/Gain Heat Loss/Gain Case 1 Case 2 Case 3 Heat Gain People	R-Values Loss 3.15 22.98 3.15 22.98 3.15 22.98 1.99 36.38 1.93 35.67 3.01 24.05 15.13 4.79 8.50 8.52 50.00 1.45 22.96 3.17 22.05 3.28 Slab On Grade (x) 0.1007 X 0.11 78.19 0.17	Gain 11.88 28.32 21.85 23.05 89.12 4.25 0.85 1.51 0.80 1.74 0.31 x 0.0062 0.09 13.82 0.09 239	15 A B 9 184 Are 184 A B Fir 135 Lot 25	MAST eea	708 93 146 947 6	19 A B 9 74 Area 74 A B Fir 171 Loss 13 2 158 7 4 11	Gain 99 368 56 134 97 59 52 561 17 3	7 A B 9 37 Are: 37 A B Fir 63 Los	s Gain 3001 53 54 29 355 83 36 1	25 A B 9 125 Area 125 A B Fir 225 Loss 16 368 309 1000 1125 181 1549	Gain 190 177 100 466 3 43	9 A B 9 9 61 Area 61 A B Fir 81 Loss 4476 488	25 Gain 1 69 22 49 9	28 A B B 9 9 9 9 77 Area 077 A B Fir 522 Loss 16 368 9 207 140 1801 1801 1811	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	33 A B 9 9 206 Area 206 A B Fir 297 Loss 297 1421 206 298 1719	251 164 415 3	13 A B 9 186 Area 186 A B Fir 117 Loss 644 89 426 186 269 1336 1336 1336	Gain 4 612 5 75 9 148 9 835 5 5	31 A B 9 225 A 225 A B F 279 L 38 14	873 322 1086 326 2607 262	1076 306 192 179	A B 9 75 Are 75 A B Fir Los	109 1109	60 60	B 9 Area A B Fir	Gain
Rur E E N N N E Foundation Conc Total Conductive Air Leakage Ventilation	Level 2 In ft. exposed wall A In ft. exposed wall A In ft. exposed wall B Ceiling height Floor area Exposed Ceilings A Exposed Ceilings B Exposed Floors Gross Exp Wall B Components North Shaded EastWest South Existing Windows Skylight Doors let exposed walls A let exposed walls A let exposed Walls A Exposed Ceilings B Exposed Floors ductive Heatloss Heat Gain Heat Loss/Gain Heat Loss/Gain Case 1 Case 2 Appliances Loads Appliances Loads Duct and Pipe loss	R-Values Loss 3.15 22.98 3.15 22.98 3.15 22.98 3.15 22.98 3.15 22.98 3.01 24.05 15.13 4.79 8.50 8.52 50.00 1.45 22.86 3.17 22.05 3.28 Slab On Grade (x) 0.1007 X 0.11 78.19 0.17	Gain 11.88 28.32 21.85 23.05 89.12 4.25 0.85 1.51 0.80 1.74 0.31 x 0.0062 0.09 13.82 0.09 239 3327 10%	15 A B 9 9 184 Are 184 A B Fir 135 Lo:	MAST ea	708 93 146 947 6	19 A B 9 74 Area 74 A B Fir 171 Loss 13 2 158 7 74 11	Gain 99 368 56 134 07 59 52 561 17 3 31 52	7 A B 9 37 Are: 37 A B Fir 63 Los 63 37	S Gain 53301 53355 8336 1 40 8	25 A B 9 125 Area 125 A B Fir 225 Loss 16 368 3 209 10000 125 181 1 1549	Gain 190 177 100 466 3 43 43	9 A B 9 9 61 Area 61 A B Fir 81 Loss 61 88 61 88 64 64 48 54	25 Gain 1 69 22 49 9	28 A B 9 9 9 177 Area 377 A B FIr 522 Loss 16 368 9 207 140 1801 1801 1811 203	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	33 A B 9 9 206 Area 206 A B Fir 297 Loss 297 1421 206 298 1779 173 194 3	251 164 415 3	13 A B 9 186 Area 186 A B Fir 1117 Loss 28 644 186 269 1339 1331 151	Gain 4 612 6 75 9 148 9 835 5 5 78	31 A B 9 225 A 225 A B F 279 L 38 14	873 322 1086 326 2607 262 294	1076 306 192 179 1753 11 163	A B 9 9 75 Area 75 A B Fir 10 10 10 10 10 10 10 10 10 10 10 10 10	109 109 111 12	60 60	B 9 Area A B Fir	Gain
Rur E E E N N N E E Foundation Conc Total Conductive Air Leakage Ventilation	Level 2 In ft. exposed wall A In ft. exposed wall A In ft. exposed wall A Ceiling height Floor area Exposed Ceilings A Exposed Ceilings A Exposed Ceilings A Components North Shaded EastWest South Existing Windows Skylight Doors let exposed walls A Exposed Ceilings A Exposed Floors ductive Heatloss Heat Loss/Gain Heat Loss/Gain Case 1 Case 2 Case 3 Heat Gain People	R-Values Loss 3.15 22.98 3.15 22.98 3.15 22.98 1.99 36.38 1.93 35.67 3.01 24.05 15.13 4.79 8.50 8.52 50.00 1.45 22.96 3.17 22.05 3.28 Slab On Grade (x) 0.1007 X 0.11 78.19 0.17	Gain 11.88 28.32 21.85 23.05 89.12 4.25 0.85 1.51 0.80 1.74 0.31 x 0.0062 0.099 13.82 0.099 3327 10% per room	15 A B 9 9 184 Are 184 A B Fir 135 Lo:	MAST eea	708 93 146 947 6	19 A B 9 74 Area 74 A B Fir 171 Loss 13 2 158 7 4 11	Gain 99 368 56 134 07 59 52 561 17 3 31 52	7 A B 9 37 Are: 37 A B Fir 63 Los 63 37	s Gain 3001 53 54 29 355 83 36 1	25 A B 9 125 Area 125 A B Fir 225 Loss 16 368 3 209 1000 1 125 181 1 1549 1 156 3 175	Gain 190 177 100 466 3 43 43	9 A B 9 9 61 Area 61 A B Fir 81 Loss 4476 488	25 Gain 1 69 22 49 9	28 A B B 9 9 9 9 77 Area 077 A B Fir 522 Loss 16 368 9 207 140 1801 1801 1811	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	33 A B 9 9 206 Area 206 A B Fir 297 Loss 297 1421 206 298 1779 173 194	251 164 415 3	13 A B 9 186 Area 186 A B Fir 1117 Loss 644 186 266 186 266 1333 135 135 151	Gain 4 612 6 75 9 148 9 835 5 5 78	31 A B 9 225 A 225 A B F 279 L 38 14	873 322 1086 326 2607 262	1076 306 192 179 1753 11 163	A B 9 9 75 Area 75 A B Fir 10 10 10 10 10 10 10 10 10 10 10 10 10	109 1109	60 60	B 9 Area A B Fir	Gain
Rur E E N N N N F E E Foundation Conc Total Conductive Air Leakage Ventilation	Level 2 In ft. exposed wall A In ft. exposed wall A In ft. 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 South Existing Windows Skylight Doors Ide exposed walls A let exposed walls A Exposed Ceilings A Exposed Ceilings A Exposed Ceilings B Exposed Floors ductive Heatloss Heat Loss Heat Case 1 Case 2 Case 3 Heat Gain Popple Appliances Loads Duct and Pipe loss 15,149	R-Values Loss 3.15 22.98 3.15 22.98 3.15 22.98 3.15 22.98 3.03 35.67 3.01 24.05 15.13 4.79 8.50 8.52 50.00 1.45 22.86 3.17 22.05 3.28 Slab On Grade (x) 0.1007 X 0.11 78.19 0.17 1 =:25 percent Total HL for	Gain 11.88 28.32 21.85 23.05 89.12 4.25 0.85 1.51 0.80 1.74 0.31 x 0.0062 0.099 13.82 0.099 3327 10% per room	15 A B 9 9 184 Are 184 A B Fir 135 Lo:	MAST ea	708 93 146 947 6 88	19 A B 9 74 Area 74 A B Fir 171 Loss 13 2 158 7 74 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Gain 99 368 56 134 97 59 52 561 17 32 10 801	7 A B 9 37 Are: 37 A B Fir 63 Los 63 37	S Gain 5301 53 54 25 83 36 1 40 6	25 A B 9 125 Area 125 A B Fir 225 Loss 16 368 3 209 1000 1 125 181 1 1549 1 175	Gain 190 177 100 466 3 43 239 977	9 A B 9 9 61 Area 61 A B Fir 81 Loss 61 88 61 88 54	9 9 25 3ain 1 1 69 22 49 9 1117 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	28 A B 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	33 A B 9 9 206 Area 206 A B Fir 297 Loss 297 1421 206 298 1719 173 194 3 2086	Gain 251 164 415 3 39 2080	13 A B 9 186 Area 186 A B Fir 1117 Loss 28 644 186 269 1339 1331 151	Gain 4 612 5 75 9 148 9 835 5 78 416	31 A B 9 225 A 225 A B F 279 L 38 14	873 322 1086 326 2607 262 294	1076 306 192 179 1753 11 163	A B 9 9 75 Area 75 A B Fir 10 10 10 10 10 10 10 10 10 10 10 10 10	109 109 111 12	60 60 6	B 9 Area A B Fir	Gain
Rur E E N N N N E E Foundation Conc Total Conductive Air Leakage Ventilation Level 2 HL Total Level 2 HG Total	Level 2 In ft. exposed wall A In ft. exposed wall A Celling height Floor area Exposed Ceilings A Exposed Ceilings B Exposed Ceilings B 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 let exposed Ceilings A Exposed Gelings A Exposed Floors ductive Heatloss Heat Loss Heat Gain Heat Loss/Gain Heat Loss/Gain Heat Loss/Gain Heat Loss-Gase 1 Case 2 Case 3 Heat Gain People Appliances Loads Duct and Pipe loss 15,149 13,764	R-Values Loss 3.15 22.98 3.15 22.98 3.15 22.98 1.99 36.38 2.03 35.67 3.01 24.05 15.13 4.79 8.50 8.52 50.00 1.45 22.86 3.17 22.05 3.28 Slab On Grade (x)	Gain 11.88 28.32 21.85 23.05 89.12 4.25 0.85 1.51 0.80 1.74 0.31 x 0.0062 0.099 13.82 0.099 3327 10% per room	15 A B 9 9 184 Are 184 A B Fir 135 Lo:	MAST ea	708 93 146 947 6 88	19 A B 9 74 Area 74 A B Fir 171 Loss 13 2 158 7 11 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Gain 99 368 56 134 77 59 52 561 17 3 11 52 10 801 ew and take	7 A B 9 37 Are 37 A B Fir 63 Los	s Gain 3001 53 54 29 355 83 36 1 40 8	25 A B 9 125 Area 125 A B Fir 225 Loss 16 368 3 209 1000 1 125 181 1 1549 1 1879 1 1879	Gain 190 177 100 466 3 43 239 977	9 A B 9 9 61 Area 61 A B Fir 81 Loss 61 88 476 48 54 54 577	9 9 25 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	28 A B 9 9 977 Area 77 A B Fir 522 Loss 16 368 9 207 140 1801 1801 1811 203 2186	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	33 A B 9 9 206 Area 206 A B Fir 297 Loss Loss 297 1421 206 298 1719 173 194 3 2086 elesigner" unit	Gain 251 164 415 3 39 2080 3297	13 A B 9 186 Area 186 A B Fir 117 Loss 28 644 186 265 133 135 151 1	Gain 4 612 5 75 9 148 9 835 5 78 416 4 1734	31 A B 9 225 A 225 A B F 279 L 38 14	873 322 1086 326 2607 262 294	1076 306 192 179 1753 11 163	A B 9 9 75 Area 75 A B Fir 10 10 10 10 10 10 10 10 10 10 10 10 10	109 109 111 12	60 60 6	B 9 Area A B Fir	Gain
Rur E Foundation Conc Total Conductive Air Leakage Ventilation	Level 2 In ft. exposed wall A In ft. exposed wall A In ft. exposed wall A Celling height Floor area Exposed Ceilings A Exposed Ceilings B Exposed Ceilings B 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 ductive Heatloss Heat Loss Heat Gain Heat Loss/Gain Heat Loss/Gain Heat Loss-Gase 1 Case 2 Case 3 Heat Gain People Appliances Loads Duct and Pipe loss 15,149 13,764	R-Values Loss 3.15 22.98 3.15 22.98 3.15 22.98 3.15 22.98 3.03 35.67 3.01 24.05 15.13 4.79 8.50 8.52 50.00 1.45 22.86 3.17 22.05 3.28 Slab On Grade (x) 0.1007 X 0.11 78.19 0.17 1 =:25 percent Total HL for	Gain 11.88 28.32 21.85 23.05 89.12 4.25 0.85 1.51 0.80 1.74 0.31 x 0.0062 0.099 13.82 0.099 3327 10% per room	15 A B 9 9 184 Are 184 A B Fir 135 Lo:	MAST ea	708 93 146 947 6 88	19 A B 9 74 Area 74 A B Fir 171 Loss 13 2 158 7 11 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Gain 99 368 56 134 77 59 52 561 17 3 11 52 10 801 ew and take	7 A B 9 37 Are 37 A B Fir 63 Los	s Gain 3001 53 54 29 355 83 36 1 40 8	25 A B 9 125 Area 125 A B Fir 225 Loss 16 368 3 209 1000 1 125 181 1 1549 1 175	Gain 190 177 100 466 3 43 239 977	9 A B 9 9 61 Area 61 A B Fir 81 Loss 61 88 476 48 54 54 577	9 9 25 3ain 1 1 69 22 49 9 1117 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	28 A B 9 9 977 Area 77 A B Fir 522 Loss 16 368 9 207 140 1801 1801 1811 203 2186	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	33 A B 9 9 206 Area 206 A B Fir 297 Loss Loss 297 1421 206 298 1719 173 194 3 2086 elesigner" unit	Gain 251 164 415 3 39 2080 3297	13 A B 9 186 Area 186 A B Fir 1117 Loss 28 644 186 269 1339 1331 151	Gain 4 612 5 75 9 148 9 835 5 78 416 4 1734	31 A B 9 225 A 225 A B F 279 L 38 14	873 322 1086 326 2607 262 294	1076 306 192 179 1753 11 163	A B 9 9 75 Area 75 A B Fir 10 10 10 10 10 10 10 10 10 10 10 10 10	109 109 111 12	60 60 0 6	B 9 Area A B Fir	



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:	Highcastle	omes	Da	ie.	Aprii	15, 2015			Weather Data	Toronto (city ha	II) 44	-0.4 88	45	50		Projec	υι π
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Appliances L Duct and Pipe 13 HL Total 0 13 HG Total 0 13 HG Total 0 Run ft. exposed w Run ft. exposed w Ceiling h Floor Exposed Ceilin Exposed Ceilin Exposed Filor Gross Exp W Compor North Sh East/Y S Existing Winn Sky D Net exposed wa Exposed Ceilin Exposed Ceilin Conductive Heatio	el 4 I area I ar	239 percent 332 109 fotal HL for per room x 1.3	A B Area A B Fir	Gain	B Area A B Fir	B AA B FI	rea	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	Gain	B Area A B Fir	Gain	B Area A B Fir	Gain	B Area A B Fir
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Appliances L	eole oads 1=.25 loss 1 Tot el 4	Loss Gain	A B Area A B Fir	Gain	B Area A B Fir	B AA B FI	rea	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	Gain	B Area A B Fir	Gain	B Area A B Fir	Gain	B Area A B Fir
Appliances L	eople 1 = .25	Loss Gain	A B Area A B Fir	Gain	B Area A B Fir	B AA B FI	rea	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	Gain	B Area A B Fir	Gain	B Area A B Fir	Gain	B Area A B Fir
Appliances L	eole	Loss Gain	A B Area A B Fir	Gain	B Area A B Fir	B AA B FI	rea	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	Gain	B Area A B Fir	Gain	B Area A B Fir	Gain	B Area A B Fir
Appliances L	eople 1 = .25	Loss Gain	A B Area A B Fir	Gain	B Area A B Fir	B AA B FI	rea	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	Gain	B Area A B Fir	Gain	B Area A B Fir	Gain	B Area A B Fir

 Total Heat Loss
 27,252
 btu/h

 Total Heat Gain
 14,794
 btu/h

I review and take responsibility for the design work and am qualified in the appropriate category as an "other designer" under

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

32964

Mana Alexa

David DaCosta

Package D



HRV full ducting/not coupled to forced air system

Part 6 design

2985 Drew Road, Suite 202, Mississauga, Ontario L4T 0A4 Tel: 905-671-9800 Fax: 647-494-9643

Project # 15-34

e-mail dave@	gtadesigns.ca				Page	6
	e responsibility for the design work and am q ection 3.2.5. of the Building Code.		ory as an "other des		vid DaCosta	
Project:	Clarington, ON	Model:	40-1 B	ungalow No	orthglen	
	RESIDENTIAL MECHAN For systems serving one dwelling					
Lot #	Location of Installation Plan #	Te	otal Ventilation Ca	pacity 9.32.3	.3(1)	
	i idii #	Bsmt & Master	Bdrm	2 @ 20 cfr	m 40 cfm	
Township	Clarington, ON	Other Bedroom		1 @ 10 cfr		
Roll #	Permit #	Bathrooms & K Other rooms		3 @ 10 cfı 3 @ 10 cfı		
				Total	110	
Address						
		Prir	ncipal Ventilation	Capacity 9.32	.3.4(1)	
	Builder		•		• • • • • • • • • • • • • • • • • • • •	_
Name	Highcastle Homes	Master bedroor Other bedroom		1 @ 30 cfı 1 @ 15 cfı		
Address	r lighteastie riotties	Other bedroom	15	Total	45	
						
City			Principal Exhaus	et Fon Concoi	41.	
Tel	Fax	Make		Model	Location	
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	Installing Contractor	Broad	in 6	884N	Ensuite	
Name	mstaning Contractor	90 cf	fm		Sones	
Address		Make	Heat Recover	ry Ventilator Broan		
City		Model		684N		
Tel	Fair		90 cfm hig Sensible efficiency		cfm lov	N
rei	Fax		Sensible Apparent e		<u>0</u> 5 c 0	
			•			
	Combustion Appliances 9.32.3.1(1) t vent (sealed combustion) only		Supplemental Ven	tilation Capa	city	
	ive venting induced draft (except fireplaces)	Total ventilation	n capacity		110.0	
· —	al draft, B-vent or induced draft fireplaces		exhaust capacity		45.0	
· ·	fuel (including fireplaces) ombustion Appliances	REQUIRED su	ipplemental vent. C	apacity	<u>65.0</u> cfm	
e)	ombustion Appliances					_
			Supplemental I			
x Force	Heating System	Location Ens	cfm 50	Model 770	Sones 2.5	
	orced air	Bath	50	770	2.5	
Electr	ric space heat (if over 10% of heat load)					
						
	House Type 9.32.3.1(2)					
	a) or b) appliances only, no solid fuel	all fans HVI list	ted Make	Broan	or Equiv.	
	I except with solid fuel (including fireplace) ype c) appliance		Designer Ce	ertification		
IV Type	I or II either electric space heat		that this ventilation	n system has b	een designed	
Other Type	I, II or IV no forced air	in accordance	with the Ontario Bu	ilding Code.		
	System Design Option	Name	David Da	Costa		
	ust only / forced air system		Mane	146	6-2	
	WITH DUCTING / forced air system simplified connection to forced air system	Signature	-			

HRAI#

Date

5190

April 15, 2015

BCIN#

32964

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 #

15-34 Page 7

This form is used to	summarize the	energy eff			project. Information	on comple	eting this fo	orm is on th	ne reverse
			For us	se by Princi	pal Authority				
Application No:					Model/Certification Nun	nber			
A. Project Information	on .								
Building number, street name	_					Unit numbe	er	Lot/Con	
		4	0-1 Bung	alow Nor	rthglen				
Municipality Claringt	on, ON		Postal code		Reg. Plan number / oth	er descriptio	n		
B. Compliance Option	on .								
☑ SB-12 Prescriptive		.]		Table:	Package: A B (CDEF	G H I .	JKLM	Package D
☐ SB-12 Performand		-		* Attach	energy performance				
☐ Energy Star®* [SI					BOP form				
☐ EnerGuide 80® *	•			* House	must be evaluated	by NRCa	n advisor	and meet	a rating of 80
C. Project Design Co	onditions								
Climatic Zone (SB		Heat	ing Equipi	ment		Space H	eating Fu	el Source	
☑ Zone 1 (< 5000 degre	e days)	V	≥ 90% AFU	JE	☑ Gas		Propane		Solid Fuel
☐ Zone 2 (≥ 5000 degre	e days)		≥ 78% < 9	0% AFUE	☐ Oil		Electric		Earth Energy
Windows	+Skylights+Gla	ss Doors				Other B	uilding Co	onditions	
Gross Wall Area =	185 m²	24.1	•	201	☐ ICF Basement		Walkout B	Basement	☐ Log/Post&Beam
Gross Window+ Area =	16 m²	% V	Vindows+	<u>9%</u>	☐ ICF Above Grade		Slab-on-gi	round	
D. Building Speci	fications [provid	de values a	and ratings	of the ener	gy efficiency compone	nts propose	d, or attach	n Energy Sta	ar BOP form]
Building Cor			RSI / R			ing Comp			Efficiency
Thermal Insulation		•			Windows & Door	s ¹			
Ceiling with Attic Space			5	0	Windows/Sliding (Glass Doc	rs		1.8
Ceiling without Attic Space			3	1	Skylights				2.8
Exposed Floor			3	1	Mechanicals				
Walls Above Grade			2	4	Space Heating Eq	uip.²			94%
Basement Walls			2	0	HRV Efficiency (%				0%
Slab (all >600mm below gra	ade)		>	<	DHW Heater (EF)				0.67
Slab (edge only ≤600mm be	elow grade)		1	0	NOTES 1. Provide U-Value in	W/m2.K, o	r ER rating		
Slab (all ≤600mm below gra	ide, or heated)		1	0	2. Provide AFUE or in		_	pe combine	ed system used
E. Performance D	esign Verifica	tion [com	plete applic	able sectio	ns if SB-12 Performan	ce, Energy	Star or En	erGuide80	options used]
SB-12 Performance:									
The annual energy consumption	on using Subsect	ion 2.1.1.	SB-12 Pa	ckage	is	Gj (1 G	j =1000Mj))	
The annual energy consumption	on of this house a	as designe	ed is	Gj					
The software used to simulate	the annual energ	gy use of	the building	g is:					
The building is being designed	using an air leal	cage of _	air c	hanges pe	er hour @50Pa.				
Energy Star: BOP form attach		ill be labe	led on con	npletion by	<i>r</i> :				
Energy Star and EnerGuide80):								
Evaluator/Advisor/Rater Name:					Evaluator/Advisor/Rate	r Licence #:			
	mes of designers	who are re	sponsible fo	or the build	ing code design and w	hose plans	accompany	the permit	application]
Architectural					Mechanical		11.	1	46 4
					David DaCo	sta		ane	DC 25 7



Project:

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

Clarington, ON

Project # 15-34 Page 8

40-1 Bungalow Northglen

Air Leakage Calculations **Building Air Leakage Heat Loss Building Air Leakage Heat Gain** HL^T LRairh ۷b В LRairh ۷b **HLleak** В HG^T HG Leak 0.018 0.102 23580 72.4 3142 0.018 0.008 23580 12.8 41 Air Leakage Calculations Air Leakage Calculations Levels Air Leakage Heat Loss/Gain Multiplier Table (Section 11) 1 2 3 4 **Level Conductive** Level Building Air Leakage Heat Loss Level (LF) (LF) (LF) (LF) **Heat Loss** Multiplier Factor (L 8107 0.2326 1 0.6 1.0 0.6 0.5 0.4 2 0.4 12485 0.1007 0.3 0.3 0.4 3142 0.0000 0 3 0 0.2 0.2 4 0 0 0.0000 0.1 Levels this Dwelling Air Leakage Heat Gain **HG LEAK** 41 0.0062 2 BUILDING CONDUCTIVE HEAT GAIN 6672 **Ventilation Calculations Ventilation Heat Loss** Ventilation Heat Gain Vent Vent **Ventilation Heat Loss Ventilation Heat Gain** С PVC HL^T (1-E) HRV HLbvent PVC HG^T **HGbvent** С 3519 622 1.08 12.8 45 72.4 1.00 1.1 45 Case 1 Case 1 Ventilation Heat Loss (Exhaust only Systems) Ventilation Heat Gain (Exhaust Only Systems) Case 1 - Exhaust Only Case 1 - Exhaust Only Multiplier Case LVL Cond. HL **HGbvent** Level LF **HLbvent** Multiplier 622 0.09 Building 8107 1 0.6 0.26 6672 12485 2 0.4 0.11 3519 3 0 0 0.00 0 4 0 0.00 Case 2 Case 2 Ventilation Heat Loss (Direct Ducted Systems) **Ventilation Heat Gain (Direct Ducted Systems)** Case Multiplier Multiplier Case HL^T (1-E) HRV С HG^T С 78.19 13.82 1.08 1.08 Case 3 Case 3 **Ventilation Heat Loss (Forced Air Systems)** Ventilation Heat Gain (Forced Air Systems) 3 Case Case **HLbvent** Multiplier Vent Heat Gain Multiplier **Total Ventilation HGbvent** HG*1.3 3519 0.17 622 0.09 Load 622

Model:

Envelope Air Leakage Calculator

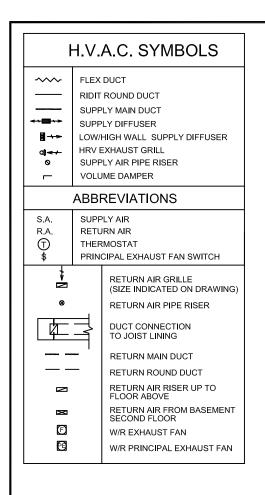
Supplemental tool for CAN/CSA-F280

Weather S	tation Description	
Province:	Ontario ▼	
Region:	Newcastle (Bowmanville) ▼	
Weather Station Location:	Open flat terrain, grass	
Anemometer height (m):	10	
Loca	al Shielding	
Building Site:	Suburban, forest ▼	
Walls:	Heavy ▼	
Flue:	Heavy	
Highest Ceiling Height (m):	3.38	5
Building	g Configuration	
Type:	Detached ▼	
Number of Stories:	Two	
Foundation:	Full	
House Volume (m³):	667.79	9
Air Leak	age/Ventilation	
Air Tightness Type:	Present (1961-) (ACH=3.57) ▼	
Custom BDT Data:	ELA @ 10 Pa. 135.33 cm ²	
Custom BDT Data.	3,57 ACH @ 50 Pa	
Mechanical Ventilation (L/s):	Total Supply: Total Exhaust:	
	0 22.5	
F	Flue Size	
Flue #:	#1 #2 #3 #4	
Diameter (mm):	0 0 0 0	
Envelope	Air Leakage Rate	
Heating Air Leakage Rate (ACH/	(H): 0.102	
Cooling Air Leakage Rate (ACH/	H): 0.008	

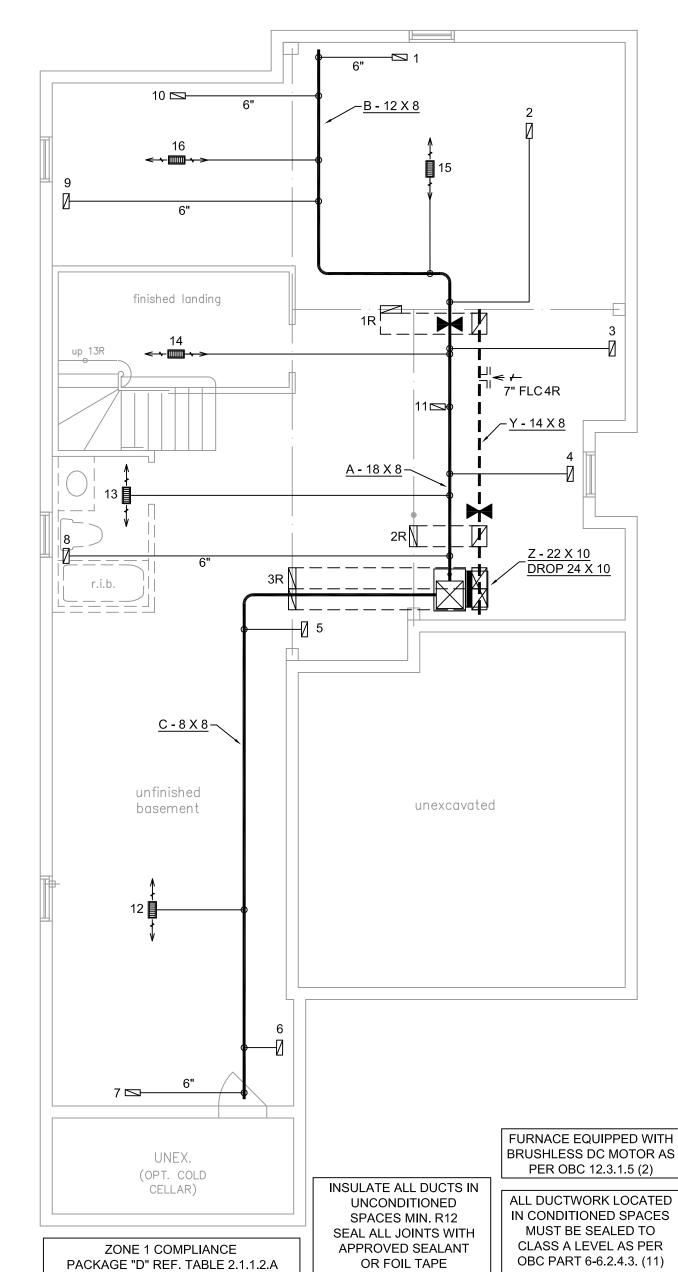
Residential Foundation Thermal Load Calculator

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 (7-10 m, 23-33 Ft)						
Fou	undatio	n Dimensions					
Floor Length (m):	23.06						
Floor Width (m):	5.44						
Exposed Perimeter (m):	57.00						
Wall Height (m):	2.74						
Depth Below Grade (m):	2.13	Insulation Configuration					
Window Area (m²):	1.39						
Door Area (m²):	1.95						
	Radi	ant Slab					
Heated Fraction of the Slab:	0						
Fluid Temperature (°C):	23						
	Desig	n Months					
Heating Month	1						
	Founda	ation Loads					
Heating Load (Watts):		2127					



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



OBC 2006 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

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



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

HEAT-LOSS	32,705	BTU/HR.	# OF RUNS
UNIT MAKE	· · · · · · · · · · · · · · · · · · ·		3RD FLOOF
UNIT MODEL	AMANA		2ND FLOOF
	<u> 2960402BI</u>		1ST FLOOF
UNIT HEATING INP	40,000	BTU/HR.	BASEMENT
UNIT HEATING OU	38,400	BTU/HR.	FLOOR PLAN:
A/C COOLING CAP	1.5	TONS.	D. DACOST
FAN SPEED	773	CFM	15-34

					=
# OF RUNS	S/A	R/A	FANS		[
3RD FLOOR					
2ND FLOOR					
1ST FLOOR	11	3	4		F
BASEMENT	5	1			
				. 1	
FLOOR PLAN: BASEM	1ENT	-			

D. DACOSTA

1474

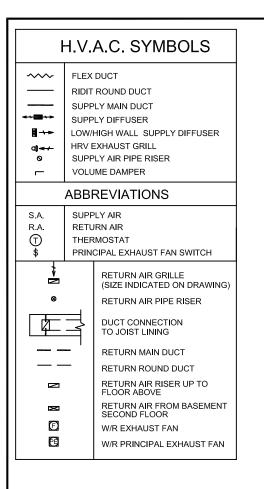
1/2

MARCH 5, 2015
CLIENT:
HIGHCASTLE HOMES
PROJECT:
40-I BUNGALOW NORTHGLEN CLARINGTON, ON.

3

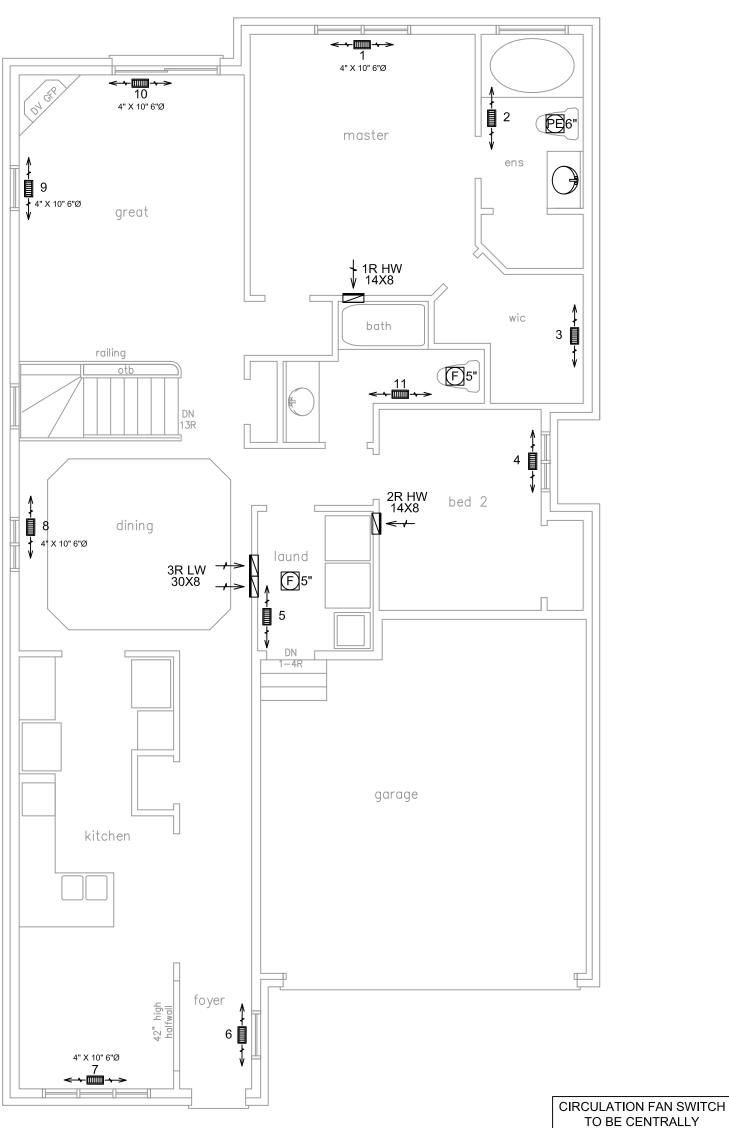
0

3/16" = 1"-0"



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

CIRCULATION FAN SWITCH TO BE CENTRALLY LOCATED



OBC 2006

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

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

HEAT-LOSS

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

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

LOCATED

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

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 PI ANS

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

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

OF RUNS S/A R/A FANS 3RD FLOOR S/A R/A FANS
51.15 · 1551 · 1
2ND FLOOR
1ST FLOOR
BASEMENT

FLOOR PLAN:		
GROUND FLOOR		
DRAWN BY	SQFT	
D. DACOSTA	1474	
LAYOUT NO.	DRAWING NO.	
15-3/	7/7	

MARCH 5, 2015 CLIENT:

HIGHCASTLE HOMES

40-I BUNGALOW NORTHGLEN CLARINGTON, ON.

SCALE: 3/16" = 1"-0"