



## 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:	
THWU-21C		Lot/con.	
Municipality	Bradford	Postal code	Plan number/ other description
B. Individual who reviews and takes responsibility for design activities			
Name		Firm	
David DaCosta		gtaDesigns Inc.	
Street address		Unit no.	Lot/con.
2985 Drew Road, Suite 202			
Municipality	Postal code	Province	E-mail
Mississauga	L4T 0A4	Ontario	hvac@gtadesigns.ca
Telephone number	Fax number	Cell number	
(905) 671-9800			
C. Design activities undertaken by individual identified in Section B. [Building Code Table 3.5.2.1 of Division C]			
<input type="checkbox"/> House	<input checked="" type="checkbox"/> HVAC – House	<input type="checkbox"/> Building Structural	
<input type="checkbox"/> Small Buildings	<input type="checkbox"/> Building Services	<input type="checkbox"/> Plumbing – House	
<input type="checkbox"/> Large Buildings	<input type="checkbox"/> Detection, Lighting and Power	<input type="checkbox"/> Plumbing – All Buildings	
<input type="checkbox"/> Complex Buildings	<input type="checkbox"/> Fire Protection	<input type="checkbox"/> On-site Sewage Systems	
Description of designer's work		Model Certification	Project #:
			PJ-00204
			Layout #:
			JB-09288
Heating and Cooling Load Calculations	Main	X	Builder
Air System Design	Alternate		Project
Residential mechanical ventilation Design Summary	O.D. GFA	2183	Model
Residential System Design per CAN/CSA-F280-12			THWU-21C
Residential New Construction - Forced Air			SB-12
			Package A1
D. Declaration of Designer			
I, <u>David DaCosta</u> declare that (choose one as appropriate):			
(print name)			
<input type="checkbox"/> I review and take responsibility for the design work on behalf of a firm registered under subsection 3.2.4 Division C of the Building Code. I am qualified, and the firm is registered, in the appropriate classes/categories.			
Individual BCIN: _____			
Firm BCIN: _____			
<input checked="" type="checkbox"/> I review and take responsibility for the design and am qualified in the appropriate category as an "other designer" under subsection 3.2.5 of Division C, of the Building Code.			
Individual BCIN: <u>32964</u>			
Basis for exemption from registration: <u>Division C 3.2.4.1. (4)</u>			
<input type="checkbox"/> The design work is exempt from the registration and qualification requirements of the Building Code.			
Basis for exemption from registration and qualification: _____			
I certify that:			
1. The information contained in this schedule is true to the best of my knowledge.			
2. I have submitted this application with the knowledge and consent of the firm.			
<u>December 13, 2023</u>		<u>David DaCosta</u>	
Date		Signature of Designer	

### NOTE:

- For the purposes of this form, "individual" means the "person" referred to in Clause 3.2.4.7(1) d), of Division C, Article 3.2.5.1. of Division C and all other persons who are exempt from qualifications under Subsections 3.2.4 . and 3.2.5.of Division C.
- Schedule 1 does not require to be completed a holder of a license, temporary license, or a certificate of authorization, issued by the Ontario Association of Architects. Schedule 1 is also not required to be completed by a holder of a license to practise, a limited licence to practise, or a certificate of authorization, issued by the Association of Professional Engineers of Ontario.

Heat loss and gain calculation summary sheet				CSA-F280-M12 Standard Form No. 1	
These documents issued for the use of <b>Bayview Wellington</b>				Layout No.	
and may not be used by any other persons without authorization. Documents for permit and/or construction are signed in red.				<b>JB-09288</b>	
Building Location					
Address (Model): <b>THWU-21C</b>			Site: <b>Green Valley</b>		
Model:			Lot:		
City and Province: <b>Bradford</b>			Postal code:		
Calculations based on					
Dimensional information based on:			<b>VA3 Design 23/Nov/2023</b>		
Attachment: <b>Townhome</b>			Front facing: <b>East/West</b>		Assumed? <b>Yes</b>
No. of Levels: <b>3</b> Ventilated? <b>Included</b>			Air tightness: <b>1961-Present (ACH=3.57)</b>		Assumed? <b>Yes</b>
Weather location: <b>Bradford</b>			Wind exposure: <b>Sheltered</b>		
HRV? <b>VanEE</b> <b>V150E75NS</b>			Internal shading: <b>Light-translucent</b>		Occupants: <b>5</b>
Sensible Eff. at -25C <b>60%</b>		Apparent Effect. at -0C <b>80%</b>		Units: <b>Imperial</b>	Area Sq ft: <b>2183</b>
Sensible Eff. at -0C <b>75%</b>					
Heating design conditions			Cooling design conditions		
Outdoor temp <b>-9.4</b> Indoor temp: <b>72</b> Mean soil temp: <b>48</b>			Outdoor temp <b>86</b> Indoor temp: <b>75</b> Latitude: <b>44</b>		
Above grade walls			Below grade walls		
Style A: <b>As per OBC SB12</b> <b>Package A1</b> <b>R</b> <b>22</b>			Style A: <b>As per OBC SB12</b> <b>Package A1</b> <b>R</b> <b>20ci</b>		
Style B:			Style B:		
Style C:			Style C:		
Style D:			Style D:		
Floors on soil			Ceilings		
Style A: <b>As per Selected OBC SB12</b> <b>Package A1</b>			Style A: <b>As per Selected OBC SB12</b> <b>Package A1</b> <b>R</b> <b>60</b>		
Style B:			Style B: <b>As per Selected OBC SB12</b> <b>Package A1</b> <b>R</b> <b>31</b>		
Exposed floors			Style C:		
Style A: <b>As per Selected OBC SB12</b> <b>Package A1</b> <b>R</b> <b>31</b>			Doors		
Style B:			Style A: <b>As per Selected OBC SB12</b> <b>Package A1</b> <b>R</b> <b>4.00</b>		
Windows			Style B:		
Style A: <b>As per Selected OBC SB12</b> <b>Package A1</b> <b>R</b> <b>3.55</b>			Style C:		
Style B:			Skylights		
Style C:			Style A: <b>As per Selected OBC SB12</b> <b>Package A1</b> <b>R</b> <b>2.03</b>		
Style D:			Style B:		
Attached documents: <b>As per Shedule 1</b>		Heat Loss/Gain Caculations based on CSA-F280-12 Effective R-Values			
Notes: <b>Residential New Construction - Forced Air</b>					
Calculations performed by					
Name: <b>David DaCosta</b>			Postal code: <b>L4T 0A4</b>		
Company: <b>gtaDesigns Inc.</b>			Telephone: <b>(905) 671-9800</b>		
Address: <b>2985 Drew Road, Suite 202</b>			Fax:		
City: <b>Mississauga</b>			E-mail <b>hvac@gtadesigns.ca</b>		

REVIEWED

SB-12 Package A1

Builder: Bayview Wellington

Date: December 13, 2023

Project: Green Valley

Model: THWU-21C

System 1

I review and take responsibility for the design work and am qualified in the appropriate category as an "other designer" under Division C subsection 3.2.5. of the Building Code.

Individual BCIN: 32964

David DaCosta

Project # PJ-00204  
Layout # JB-09288

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## DESIGN LOAD SPECIFICATIONS

Level 1 Net Load	13,380 btu/h
Level 2 Net Load	15,155 btu/h
Level 3 Net Load	13,054 btu/h
Level 4 Net Load	0 btu/h
Total Heat Loss	41,588 btu/h
Total Heat Gain	25,600 btu/h

Building Volume Vb	25124 ft³
Ventilation Load	1,398 Btu/h.
Ventilation PVC	79.5 cfm
Supply Branch and Grill Sizing	

## AIR DISTRIBUTION & PRESSURE

Equipment External Static Pressure	0.5 "w.c.
Additional Equipment Pressure Drop	0.225 "w.c.
Available Design Pressure	0.275 "w.c.
Return Branch Longest Effective Length	300 ft
R/A Plenum Pressure	0.138 "w.c.
S/A Plenum Pressure	0.14 "w.c.
Heating Air Flow Proportioning Factor	0.0223 cfm/btuh
Cooling Air Flow Proportioning Factor	0.0363 cfm/btuh
R/A Temp	70 deg. F.
S/A Temp	127 deg. F.
Diffuser loss	0.01 "w.c.

## FURNACE/AIR HANDLER DATA:

Make	Amana
Model	AMEC960603ANA
High Input	60000 BTU/h
High Output	57600 BTU/h
E.s.p.	0.50 " W.C.
Water Temp	deg. F.
Thermal Eff.	96%
Electric Heat	
Temp. Rise>>>	57 deg. F.

## BOILER/WATER HEATER DATA:

Make	Type	Amana	2.5 Ton
Model			
Input Btu/h			
Output Btu/h			
Min. Output Btu/h	AWH		
Blower DATA:			
Blower Speed Selected:	OFF ON	Blower Type	ECM
		(Brushless DC OBC 12.3.1.5.(2))	
Check	929 cfm	Cool. Check	929 cfm
Heat.	929 cfm	Cooling	929 cfm
		Design Airflow	929 cfm

	Level 1														Level 2													
S/A Outlet No.	1	2	3	4											5	6	7	8	9	10	11	12						
Room Use	BASE	BASE	BASE	BASE											KIT	LAUN	FOY	FOY	PWD	FAM	FAM	FAM						
Btu/Outlet	3345	3345	3345	3345											1650	675	2848	2848	405	2243	2243	2243						
Heating Airflow Rate CFM	75	75	75	75											37	15	64	64	9	50	50	50						
Cooling Airflow Rate CFM	13	13	13	13											103	25	48	48	2	88	88	88						
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			
Actual Duct Length	38	25	15	32											30	7	35	33	22	28	40	42						
Equivalent Length	120	80	80	160	70	70	70	70	70	70	70	70	70	70	120	120	150	110	90	70	120	70	70	70	70			
Total Effective Length	158	105	95	192	70	70	70	70	70	70	70	70	70	100	127	155	183	132	118	110	162	70	70	70	70			
Adjusted Pressure	0.08	0.12	0.14	0.07	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.13	0.10	0.08	0.07	0.10	0.11	0.12	0.08	0.19	0.19	0.19	0.19			
Duct Size Round	6	6	6	6											6	4	5	5	3	6	6	6						
Outlet Size	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	3x10	3x10	3x10	3x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10			
Trunk	B	A	C	D											B	A	D	D	A	A	A	B						

	Level 3								Level 4															
S/A Outlet No.	13	14	15	16	17	18	19	20																
Room Use	P.BED	P.BED	ENS	BATH	BED 2	BED 3	BED 3	BED 4																
Btu/Outlet	2091	2091	803	147	2121	2086	2086	1629																
Heating Airflow Rate CFM	47	47	18	3	47	47	47	36																
Cooling Airflow Rate CFM	67	67	25	2	64	54	54	51																
Duct Design Pressure	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13
Actual Duct Length	62	51	52	20	38	47	57	37																
Equivalent Length	140	110	110	150	90	150	170	120	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70
Total Effective Length	202	161	162	170	128	197	227	157	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70
Adjusted Pressure	0.06	0.08	0.08	0.08	0.10	0.07	0.06	0.08	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	
Duct Size Round	6	6	4	2	6	6	6	6																
Outlet Size	4x10	4x10	3x10	3x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	
Trunk	B	B	B	A	C	D	D	A																

Return Branch And Grill Sizing		Grill Pressure Loss										0.02 "w.c.	
R/A Inlet No.	1R	2R	3R	4R	5R	6R	7R	8R	9R	10R	11R		
Inlet Air Volume CFM	149	430	105	140	105								
Duct Design Pressure	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12		
Actual Duct Length	7	8	38	35	35								
Equivalent Length	155	130	140	180	140	50	50	50	50	50	50		
Total Effective Length	162	138	178	215	175	50	50	50	50	50	50		
Adjusted Pressure	0.07	0.09	0.07	0.05	0.07	0.24	0.24	0.24	0.24	0.24	0.24		
Duct Size Round	7.0	10.5	6.0	8.0	6.0								
Inlet Size	FLC	8	8	8	8								
" "	x	x	x	x	x	x	x	x	x	x	x		
Inlet Size		30	14	14	14								
Trunk	Y	Z	Z	Y	Y								

Return Trunk Duct Sizing				
Trunk	CFM	Press.	Round	Rect. Size
Drop	929	0.05	15.5	24x10
Z	929	0.05	15.5	28x8 22x10
Y	394	0.05	11.5	14x8 12x10
X				
W				
V				
U				
T				
S				
R				
Q				

Supply Trunk Duct Sizing					
Trunk	C.CFM	H.CFM	Press.	Round	Rect. Size
A	633	512	0.06	13.0	18x8 14x10
B	364	273	0.06	11.0	14x8 10x10
C	296	417	0.06	11.5	14x8 12x10
D	218	295	0.06	10.0	12x8 10x10
E					
F					
G					
H					
I					
J					
K					

REVIEWED

2012 OBC

Builder: Bayview Wellington

Date: December 13, 2023

Project: Green Valley

Model: THWU-21C

System 1

Weather Data Bradford 44 -9.4 86 22 48.2

Heat Loss ^T 81.4 deg. F Ht gain ^T 11 deg. F

Project # PJ-00204  
Layout # JB-09288

## Level 1

### BASE

Run ft. exposed wall A	122	A	A	A	A	A	A	A	A	A	A	A	A
Run ft. exposed wall B	B	B	B	B	B	B	B	B	B	B	B	B	B
Ceiling height	4.5	AG	4.5	AG	4.5	AG	4.5	AG	4.5	AG	4.5	AG	4.5
Floor area	896	Area	Area	Area	Area	Area	Area	Area	Area	Area	Area	Area	Area
Exposed Ceilings A	A	A	A	A	A	A	A	A	A	A	A	A	A
Exposed Ceilings B	B	B	B	B	B	B	B	B	B	B	B	B	B
Exposed Floors	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr
Gross Exp Wall A	549												
Gross Exp Wall B													

Components	R-Values	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain
North Shaded	3.55	22.93	11.62	23	527	680											
East/West	3.55	22.93	29.56	3	69	68											
South	3.55	22.93	22.50														
Existing Windows	3.55	22.93	27.86														
Skylight	2.03	40.10	88.23														
Doors	4.00	20.35	2.75														
Net exposed walls A	20.84	3.91	0.53	523		276											
Net exposed walls B	17.03	4.78	0.65														
Exposed Ceilings A	59.22	1.37	0.64														
Exposed Ceilings B	27.65	2.94	1.37														
Exposed Floors	29.80	2.73	0.17														
Foundation Conductive Heatloss																	
Total Conductive	Heat Loss			5993													
	Heat Gain			6589													
Air Leakage	Heat Loss/Gain	0.9783	0.0322	6446		1023											
Ventilation	Case 1		0.11														
	Case 2		17.58														
	Case 3	x	0.05	344		73											
Heat Gain People			239														
Appliances Loads	1 = .25 percent		3633														
Duct and Pipe loss			10%														
Level HL Total	13,380		Total HL for per room	13380													
Level HG Total	1,469		Total HG per room x 1.3			1469											

## Level 2

### KIT

### LAUN

### FOY

### PWD

### FAM

Run ft. exposed wall A	10	A	10	A	37	A	6	A	59	A	A	A	A	A	A	A	A
Run ft. exposed wall B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
Ceiling height	10.0		10.0		13.0		10.0		10.0		10.0		10.0		10.0		10.0
Floor area	238	Area	68	Area	123	Area	36	Area	429	Area	Area	Area	Area	Area	Area	Area	Area
Exposed Ceilings A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Exposed Ceilings B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
Exposed Floors	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr
Gross Exp Wall A	100		100		481		60		590								
Gross Exp Wall B																	

Components	R-Values	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain
North Shaded	3.55	22.93	11.62	38	871	1123				42	963	1241					
East/West	3.55	22.93	29.56							65	1490	1463					
South	3.55	22.93	22.50														
Existing Windows	1.99	40.90	23.66														
Skylight	2.03	40.10	88.23														
Doors	4.00	20.35	2.75														
Net exposed walls A	17.03	4.78	0.65	62	296	40	100	478	65	379	1812	245	60	287	39	483	2309
Net exposed walls B	8.50	9.58	1.29														
Exposed Ceilings A	59.22	1.37	0.64														
Exposed Ceilings B	27.65	2.94	1.37														
Exposed Floors	29.80	2.73	0.17														
Foundation Conductive Heatloss			x														
Total Conductive	Heat Loss			1168				478		4032			287			4762	
	Heat Gain				1163			65		1850			39			3016	
Air Leakage	Heat Loss/Gain	0.3606	0.0322	421		37		172		2		1454	60	103		1717	97
Ventilation	Case 1		0.04														
	Case 2		17.58														
	Case 3	x	0.05	61		83		25		5		211	133	15		249	216
Heat Gain People			239														
Appliances Loads	1 = .25 percent		3633														
Duct and Pipe loss			10%														
Level HL Total	15,155		Total HL for per room	1650		908	0.5		454			5696		405		6728	7280
Level HG Total	13,524		Total HG per room x 1.3			2850		675		683		2655		56			

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

Name

David DaCosta

SB-12 Package

Package A1

Total Heat Loss	41,588	btu/h
Total Heat Gain	25,600	btu/h

REVIEWED



I review and take responsibility for the design work and am qualified in the appropriate category as an "other designer" under Division C subsection 3.2.5. of the Building Code.

Individual BCIN: 32964

David DaCosta

**Package:** Package A1  
**Project:** Bradford  
**Model:** THWU-21C

## RESIDENTIAL MECHANICAL VENTILATION DESIGN SUMMARY

*For systems serving one dwelling unit & conforming to the Ontario Building Code, O.reg 332/12*

### Location of Installation

Lot #	Plan #
Township	
Bradford	
Roll #	Permit #
Address	

### Builder

Name	
Bayview Wellington	
Address	
City	
Tel	Fax

### Installing Contractor

Name	
Address	
City	
Tel	Fax

### Combustion Appliances 9.32.3.1(1)

- |    |                                     |  |
|----|-------------------------------------|--|
| a) | <input checked="" type="checkbox"/> | Direct vent (sealed combustion) only               |
| b) | <input type="checkbox"/>            | Positive venting induced draft (except fireplaces) |
| c) | <input type="checkbox"/>            | Natural draft, B-vent or induced draft fireplaces  |
| d) | <input type="checkbox"/>            | Solid fuel (including fireplaces)                  |
| e) | <input type="checkbox"/>            | No combustion Appliances                           |

### Heating System

<input checked="" type="checkbox"/>	Forced air
<input type="checkbox"/>	Non forced air
<input type="checkbox"/>	Electric space heat (if over 10% of heat load)

### House Type 9.32.3.1(2)

I	<input checked="" type="checkbox"/>	Type a) or b) appliances only, no solid fuel
II	<input type="checkbox"/>	Type I except with solid fuel (including fireplace)
III	<input type="checkbox"/>	Any type c) appliance
IV	<input type="checkbox"/>	Type I or II either electric space heat
Other	<input type="checkbox"/>	Type I, II or IV no forced air

### System Design Option

1	<input type="checkbox"/>	Exhaust only / forced air system
2	<input type="checkbox"/>	HRV WITH DUCTING / forced air system
3	<input checked="" type="checkbox"/>	HRV simplified connection to forced air system
4	<input type="checkbox"/>	HRV full ducting/not coupled to forced air system
Part 6 design		

### Total Ventilation Capacity 9.32.3.3(1)

Bsmt & Master Bdrm	2 @ 21.2 cfm	42.4 cfm
Other Bedrooms	3 @ 10.6 cfm	31.8 cfm
Bathrooms & Kitchen	4 @ 10.6 cfm	42.4 cfm
Other rooms	3 @ 10.6 cfm	31.8 cfm
Total		<u>148.4</u>

### Principal Ventilation Capacity 9.32.3.4(1)

Master bedroom	1 @ 31.8 cfm	31.8 cfm
Other bedrooms	3 @ 15.9 cfm	47.7 cfm
Total		<u>79.5</u>

### Principal Exhaust Fan Capacity

Make	Model	Location
VanEE	V150E75NS	Base
127 cfm		Sones or Equiv.

### Heat Recovery Ventilator

Make	VanEE
Model	V150E75NS
127 cfm high	80 cfm low
Sensible efficiency @ -25 deg C	60%
Sensible efficiency @ 0 deg C	75%

Note: Installer to balance HRV/ERV to within 10 percent of PVC

### Supplemental Ventilation Capacity

Total ventilation capacity	148.4
Less principal exhaust capacity	79.5
REQUIRED supplemental vent. Capacity	<u>68.9 cfm</u>

### Supplemental Fans 9.32.3.5.

Location	cfm	Model	Sones
Ens	50	XB50	0.3
Bath	50	XB50	0.3

all fans HVI listed      Make      Broan      or Equiv.

### Designer Certification

I hereby certify that this ventilation system has been designed in accordance with the Ontario Building Code.

Name      David DaCosta

Signature

HRAI #      5190      BCIN #      32964

Date      December 13, 2023

REVIEWED



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

## Energy Efficiency Design Summary: Prescriptive Method (Building Code Part 9, Residential)

Page 7  
Project # PJ-00204  
Layout # JB-09288

This form is used by a designer to demonstrate that the energy efficiency design of a house complies with the building code using the prescriptive method described in Subsection 3.1.1. of SB-12. This form is applicable where the ratio of gross area of windows/sidelights/skylights/glazing in doors and sliding glass doors to the gross area of peripheral walls is not more than 22%.

For use by Principal Authority

Application No:

Model/Certification Number

### A. Project Information

Building number, street name <b>THWU-21C</b>		Unit number	Lot/Con
Municipality <b>Bradford</b>	Postal code	Reg. Plan number / other description	

### B. Prescriptive Compliance [indicate the building code compliance package being employed in the house design]

SB-12 Prescriptive (input design package):

Package A1

Table: 3.1.1.2.A

### C. Project Design Conditions

Climatic Zone (SB-1):	Heat. Equip. Efficiency	Space Heating Fuel Source		
<input checked="" type="checkbox"/> Zone 1 (< 5000 degree days) <input type="checkbox"/> Zone 2 (≥ 5000 degree days)	<input checked="" type="checkbox"/> ≥ 92% AFUE <input type="checkbox"/> ≥ 84% < 92% AFUE	<input checked="" type="checkbox"/> Gas <input type="checkbox"/> Oil	<input type="checkbox"/> Propane <input type="checkbox"/> Electric	<input type="checkbox"/> Solid Fuel <input type="checkbox"/> Earth Energy
Ratio of Windows, Skylights & Glass (W, S & G) to Wall Area		Other Building Characteristics		
Area of Walls = <u>335.93</u> m <sup>2</sup> or <u>3615.9</u> ft <sup>2</sup>	W,S & G % = <u>11.5%</u>	<input type="checkbox"/> Log/Post&Beam <input type="checkbox"/> Slab-on-ground <input checked="" type="checkbox"/> Air Conditioning <input type="checkbox"/> Air Sourced Heat Pump (ASHP) <input type="checkbox"/> Ground Source Heat Pump (GSHP)	<input type="checkbox"/> ICF Above Grade     Walkout Basement     Combo Unit	<input type="checkbox"/> ICF Basement
Area of W, S & G = <u>38.646</u> m <sup>2</sup> or <u>416.0</u> ft <sup>2</sup>	Utilize Window Averaging <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			

### D. Building Specifications [provide values and ratings of the energy efficiency components proposed]

Energy Efficiency Substitutions			
<input type="checkbox"/> ICF (3.1.1.2.(5) & (6) / 3.1.1.3.(5)) <input type="checkbox"/> Combined space heating and domestic water heating systems (3.1.1.2(7) / 3.1.1.3.(7))			
<input type="checkbox"/> Airtightness substitution(s) Airtightness test required (Refer to Design Guide Attached)	<input type="checkbox"/> Table 3.1.1.4.B Required: <input type="checkbox"/> Table 3.1.1.4.C Required:	Permitted Substitution: Permitted Substitution: Permitted Substitution:	
Building Component	Minimum RSI/R-Values or Maximum U-Value'		Efficiency Ratings
<b>Thermal Insulation</b>	Nominal	Effective	<b>Windows &amp; Doors</b> Provide U-Value <sup>(1)</sup> or ER rating
Ceiling with Attic Space	60	59.22	Windows/Sliding Glass Doors 1.6
Ceiling without Attic Space	31	27.65	Skylights 2.8
Exposed Floor	31	29.80	<b>Mechanicals</b>
Walls Above Grade	22	17.03	Heating Equip.(AFUE) 96%
Basement Walls	20.0ci	20.84	HRV Efficiency (SRE% at 0°C) 75%
Slab (all >600mm below grade)	x	x	DHW Heater (EF) 0.80
Slab (edge only ≤600mm below grade)	10	11.13	DWHR (CSA B55.1 (min. 42% efficiency)) #Showers 2
Slab (all ≤600mm below grade, or heated)	10	11.13	Combined Heating System

(1) U value to be provided in either W/(m<sup>2</sup>·K) or Btu/(h·ft<sup>2</sup>·F) but not both.

### E. Designer(s) [name(s) & BCIN(s), if applicable, of person(s) providing information herein to substantiate that design meets building code]

Name <b>David DaCosta</b>	BCIN <b>32964</b>	Signature 
------------------------------	----------------------	---------------

Package:  
Project:

Package A1  
Bradford

System:  
Model:

System 1  
THWU-21C

## Air Leakage Calculations

Building Air Leakage Heat Loss				
B	LRairh	Vb	HL^T	HLleak
0.018	0.350	25124	81.4	12892

Building Air Leakage Heat Gain				
B	LRairh	Vb	HG^T	HG Leak
0.018	0.085	25124	11	425

Air Leakage Heat Loss/Gain Multiplier Table (Section 11)				
Level	Level Factor (LF)	Building Air	Level Conductive Heat Loss (HLclevel)	Air Leakage Heat Loss Multiplier
Level 1	0.5	12892	6589	0.9783
Level 2	0.3		10726	0.3606
Level 3	0.2		9431	0.2734
Level 4	0		0	0.0000

Levels			
1	2	3	4
(LF)	(LF)	(LF)	(LF)
1.0	0.6	0.5	0.4
	0.4	0.3	0.3
		0.2	0.2
			0.1

HG LEAK		Air Leakage Heat Gain	
	425		0.0322
BUILDING CONDUCTIVE HEAT GAIN			
	13186		

Levels this Dwelling	
	3

Highest Ceiling Height		24.0 FT	7.32 M
------------------------	--	---------	--------

## Ventilation Calculations

Vent	Ventilation Heat Loss					Ventilation Heat Gain				Vent
	Ventilation Heat Loss					Ventilation Heat Gain				
	C	PVC	HL^T	(1-E) HRV	HLbvent	C	PVC	HG^T	HGbvent	
	1.08	79.5	81.4	0.20	1398	1.1	79.5	11	944	
Case 1						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		0.07
	Level	LF	HLbvent	LVL Cond. HL	Multiplier	HGbvent	944			
	Level 1	0.5	1398	6589	0.11	Building	13186			
	Level 2	0.3		10726	0.04					
	Level 3	0.2		9431	0.03					
Level 4	0	0		0.00						
Case 2						Case 2				
Case 2	Ventilation Heat Loss (Direct Ducted Systems)					Ventilation Heat Gain (Direct Ducted Systems)				
				Multiplier				Multiplier		
	C	HL^T	(1-E) HRV	17.58	C	HG^T	11.88			
	1.08	81.4	0.20		1.08	11				
Case 3						Case 3				
Case 3	Ventilation Heat Loss (Forced Air Systems)					Ventilation Heat Gain (Forced Air Systems)				
			HLbvent	Multiplier				Vent Heat Gain	Multiplier	
	Total Ventilation Load		1398	0.05		HGbvent 944		HG*1.3 1	944	0.07

Foundation Conductive Heatloss Level 1	Level 1	1756	Watts	5993	Btu/h
Foundation Conductive Heatloss Level 2	Level 2		Watts		Btu/h
Slab on Grade Foundation Conductive Heatloss			Watts		Btu/h
Walk Out Basement Foundation Conductive Heatloss			Watts		Btu/h

REVIEWED



# Envelope Air Leakage Calculator

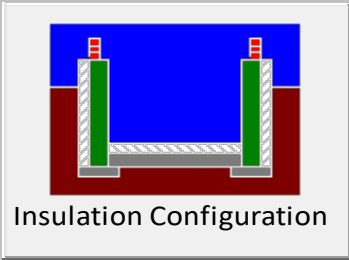
Supplemental tool for CAN/CSA-F280

Weather Station Description				
Province:	Ontario			
Region:	Bradford			
Weather Station Location:	Open flat terrain, grass			
Anemometer height (m):	10			
Local Shielding				
Building Site:	Suburban, forest			
Walls:	Heavy			
Flue:	Heavy			
Highest Ceiling Height (m):	7.32			
Building Configuration				
Type:	Semi-Detached			
Number of Stories:	Two			
Foundation:	Shallow			
House Volume (m <sup>3</sup> ):	711.51			
Air Leakage/Ventilation				
Air Tightness Type:	Present (1961-) (ACH=3.57)			
Custom BDT Data:	ELA @ 10 Pa. 322.44 cm <sup>2</sup>			
	3.57 ACH @ 50 Pa			
Mechanical Ventilation (L/s):	Total Supply:		Total Exhaust:	
	39.75		39.75	
Flue #:	#1	#2	#3	#4
Diameter (mm):	0	0	0	0
Heating Air Leakage Rate (ACH/H): 0.350				
Cooling Air Leakage Rate (ACH/H): 0.085				

REVIEWED

















# Residential Foundation Thermal Load Calculator

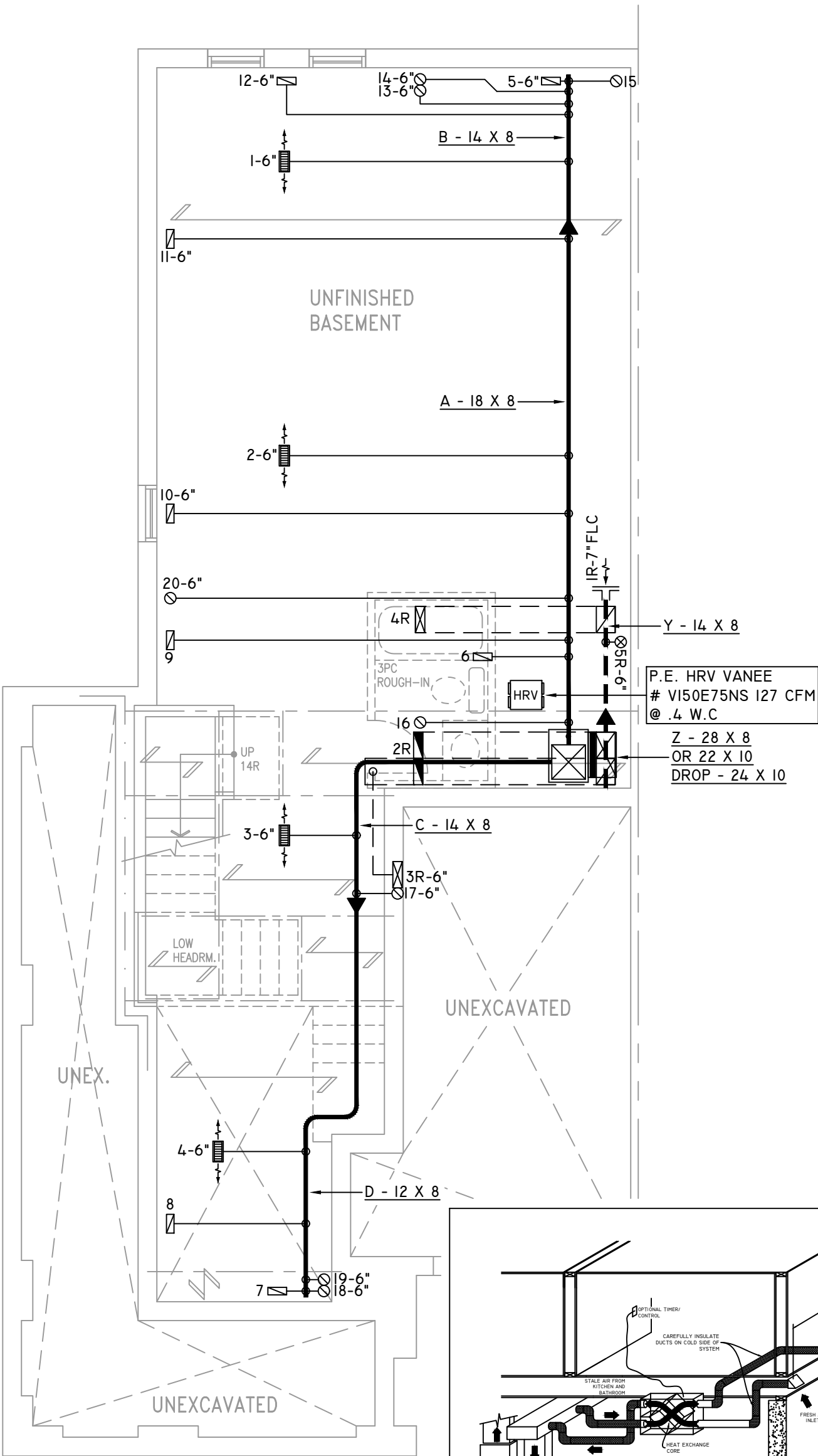
Supplemental tool for CAN/CSA-F280

Weather Station Description		
Province:	Ontario ▼	
Region:	Bradford ▼	
Site Description		
Soil Conductivity:	High conductivity: moist soil ▼	
Water Table:	Normal (7-10 m, 23-33 Ft) ▼	
Foundation Dimensions		
Floor Length (m):	18.92	 <p>Insulation Configuration</p>
Floor Width (m):	4.40	
Exposed Perimeter (m):	37.19	
Wall Height (m):	2.59	
Depth Below Grade (m):	1.22	
Window Area (m <sup>2</sup> ):	2.42	
Door Area (m <sup>2</sup> ):	0.00	
Radiant Slab		
Heated Fraction of the Slab:	0	
Fluid Temperature (°C):	33	
Design Months		
Heating Month	1	
Foundation Loads		
Heating Load (Watts):		1756

REVIEWED

REVIEWED

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



- FOR THE PURPOSE OF HEATLOSS/GAIN CALCULATIONS ALL ELEVATIONS HAVE BEEN CONSIDERED
- FURNACE EQUIPPED WITH BRUSHLESS DC MOTOR AS PER OBC 12.3.1.5 (2)
- INSULATE ALL DUCTS IN UNCONDITIONED SPACES MIN. R12
- ALL DUCTWORK LOCATED IN UNCONDITIONED AREAS MUST BE SEALED TO CLASS A LEVEL AS PER OBC PART 6-6.2.4.3.(II)
- ALL DUCTWORK LOCATED IN CONDITIONED AREAS MUST BE SEALED TO CLASS C LEVEL AS PER OBC PART 6-6.2.4.3.(I2)

THE UNDERSIGNED HAS REVIEWED AND TAKES RESPONSIBILITY FOR THIS DESIGN ON BEHALF OF GTA DESIGNS INC. AND HAS THE QUALIFICATIONS AND MEETS THE REQUIREMENTS SET OUT IN THE BUILDING CODE TO BE A DESIGNER

QUALIFICATION INFORMATION

REQUIRED UNLESS DESIGN IS EXEMPT UNDER DIVISION C 3.2.5.1 OF THE ONTARIO BUILDING CODE

DAVID DA COSTA  B.C.I.N. 32964

SIGNATURE OF DESIGNER

BASEMENT PLAN 'A'

OBC 2012

ZONE I COMPLIANCE  
PACKAGE "A1" REF. TABLE 3.1.1.2.A

NOTES

INSTALLATION TO COMPLY WITH THE LATEST ONTARIO BUILDING CODE.

ALL SUPPLY OUTLETS TO BE 5" DIA. UNLESS OTHERWISE SPECIFIED.

PROVIDE BALANCING DAMPERS ON ALL BRANCHES.

ALL R/A PARTITIONS 6" (FIRST FLOOR ONLY)

INSULATE DUCTS IN UNCONDITIONED SPACES R12 UNDERCUT ALL DOORS 1" MIN.

CONTRACTOR MUST WORK FROM APPROVED PLANS.

ANY ALTERATIONS TO THIS ORIGINAL PLAN ARE NOT THE RESPONSIBILITY OF GTA DESIGNS.

GTA DESIGNS MUST BE CONSULTED IF KITCHEN EXHAUST FAN EXCEEDS 700 CFM DEPRESSURIZATION MAY OCCUR WITH IN THE DWELLING.



2985 DREW ROAD  
SUITE 202,  
MISSISSAUGA, ONT.  
L4T 0A4 TEL: 905-671-9800  
EMAIL: DAVE@GTADESIGNS.CA  
WEB: WWW.GTADESIGNS.CA

















HEAT-LOSS	41,588	BTU/HR.
UNIT MAKE	AMANA	OR EQUAL.
UNIT MODEL	AMEC960603ANA	OR EQUAL.
UNIT HEATING INPUT	60,000	BTU/HR.
UNIT HEATING OUTPUT	57,600	BTU/HR.
A/C COOLING CAPACITY	2.5	TONS.
FAN SPEED	929	CFM

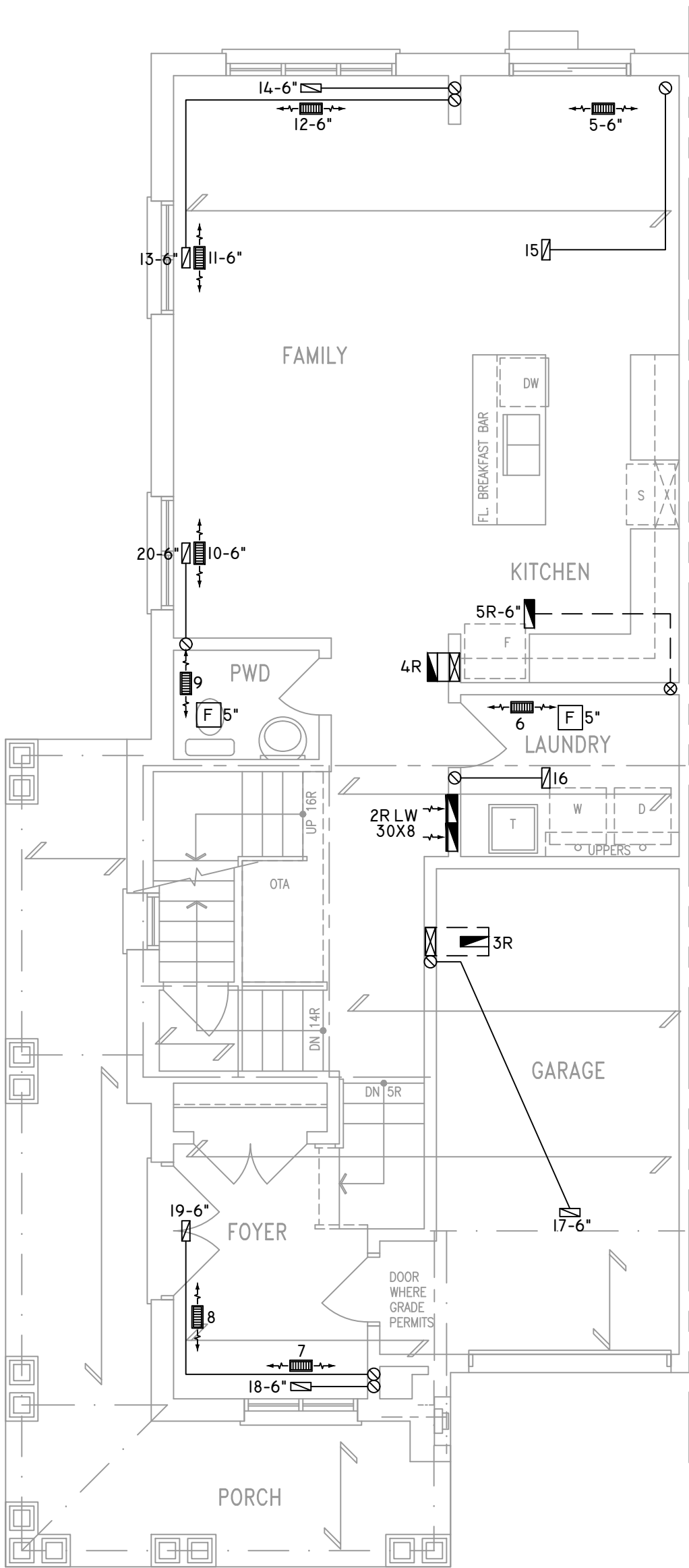
# OF RUNS	S/A	R/A	FANS
3RD FLOOR			
2ND FLOOR	8	3	2
1ST FLOOR	8	1	3
BASEMENT	4	1	

FLOOR PLAN:	BASEMENT
DRAWN BY:	JL
CHECKED:	DD
LAYOUT NO:	JB-09288
SQFT	2183
DRAWING NO.	MI

DATE:	DECEMBER 13, 2023
CLIENT:	BAYVIEW WELLINGTON
MODEL:	THWU-2IC
PROJECT:	GREEN VALLEY BRADFORD,ONT.
SCALE:	3/16" = 1'-0"

REVIEWED

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



KITCHEN EXHAUST  
100 CFM MIN. 6"  
ALL OTHER FANS SHALL BE  
A MIN. OF 50 CFM OR  
OTHERWISE NOTED  
AS PER 9.32.3.5

- FOR THE PURPOSE OF  
HEATLOSS/GAIN  
CALCULATIONS ALL  
ELEVATIONS HAVE BEEN  
CONSIDERED
- CIRCULATION PRINCIPAL  
FAN SWITCH  
TO BE CENTRALLY  
LOCATED
- INSULATE ALL DUCTS IN  
UNCONDITIONED  
SPACES MIN. R12
- ALL DUCTWORK LOCATED IN  
UNCONDITIONED AREAS  
MUST BE SEALED TO CLASS  
A LEVEL AS PER OBC PART  
6-6.2.4.3.(II)
- ALL DUCTWORK LOCATED IN  
CONDITIONED AREAS  
MUST BE SEALED TO CLASS  
C LEVEL AS PER OBC PART  
6-6.2.4.3.(I2)

THE UNDERSIGNED HAS REVIEWED AND TAKES RESPONSIBILITY FOR THIS DESIGN ON BEHALF OF GTA DESIGNS INC. AND HAS THE QUALIFICATIONS AND MEETS THE REQUIREMENTS SET OUT IN THE BUILDING CODE TO BE A DESIGNER

QUALIFICATION INFORMATION

REQUIRED UNLESS DESIGN IS EXEMPT UNDER DIVISION C 3.2.5.1 OF THE ONTARIO BUILDING CODE

DAVID DA COSTA  B.C.I.N. 32964

SIGNATURE OF DESIGNER

GROUND FLOOR PLAN 'A'

OBC 2012

ZONE I COMPLIANCE  
PACKAGE "A1" REF. TABLE 3.1.1.2.A

NOTES

INSTALLATION TO COMPLY WITH THE LATEST ONTARIO BUILDING CODE.

ALL SUPPLY OUTLETS TO BE 5" DIA. UNLESS OTHERWISE SPECIFIED.

PROVIDE BALANCING DAMPERS ON ALL BRANCHES.

ALL R/A PARTITIONS 6" (FIRST FLOOR ONLY)

INSULATE DUCTS IN UNCONDITIONED SPACES R12 UNDERCUT ALL DOORS 1" MIN.

CONTRACTOR MUST WORK FROM APPROVED PLANS.

ANY ALTERATIONS TO THIS ORIGINAL PLAN ARE NOT THE RESPONSIBILITY OF GTA DESIGNS.

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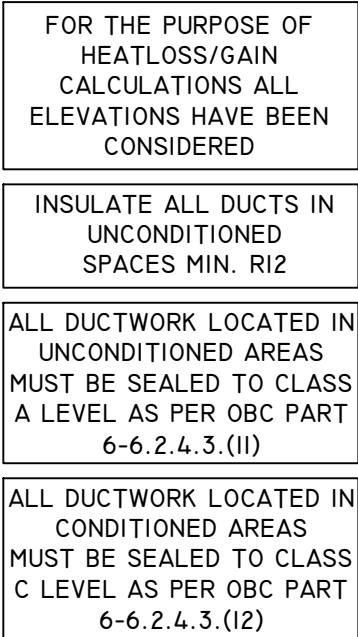
2985 DREW ROAD  
SUITE 202,  
MISSISSAUGA, ONT.  
L4T 0A4 TEL: 905-671-9800  
EMAIL: DAVE@GTADESIGNS.CA  
WEB: WWW.GTADESIGNS.CA

HEAT-LOSS	41,588	BTU/HR.
UNIT MAKE	AMANA	OR EQUAL.
UNIT MODEL	AMEC960603ANA	OR EQUAL.
UNIT HEATING INPUT	60,000	BTU/HR.
UNIT HEATING OUTPUT	57,600	BTU/HR.
A/C COOLING CAPACITY	2.5	TONS.
FAN SPEED	929	CFM

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

FLOOR PLAN: GROUND FLOOR	
DRAWN BY: JL	CHECKED: DD
LAYOUT NO. JB-09288	DRAWING NO. M2

DATE:	DECEMBER 13, 2023
CLIENT:	BAYVIEW WELLINGTON
MODEL:	THWU-2IC
PROJECT:	GREEN VALLEY BRADFORD,ONT.
SCALE:	3/16" = 1'-0"

REVIEWED

DAVID DA COSTA  B.C.I.N. 32964  
SIGNATURE OF DESIGNER

# OBC 2012

ZONE I COMPLIANCE  
PACKAGE "AI" REF. TABLE 3.1.1.2.A

 **GTADESIGNS**

2985 DREW ROAD  
SUITE 202,  
MISSISSAUGA, ONT.  
L4T 0A4 TEL: 905-671-9800  
EMAIL: DAVE@GTADESIGNS.CA  
WEB: WWW.GTADESIGNS.CA



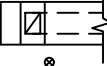









# OF RUNS	S/A	R/A	FANS
3RD FLOOR			
2ND FLOOR	8	3	2
1ST FLOOR	8	1	3
BASEMENT	4	1	

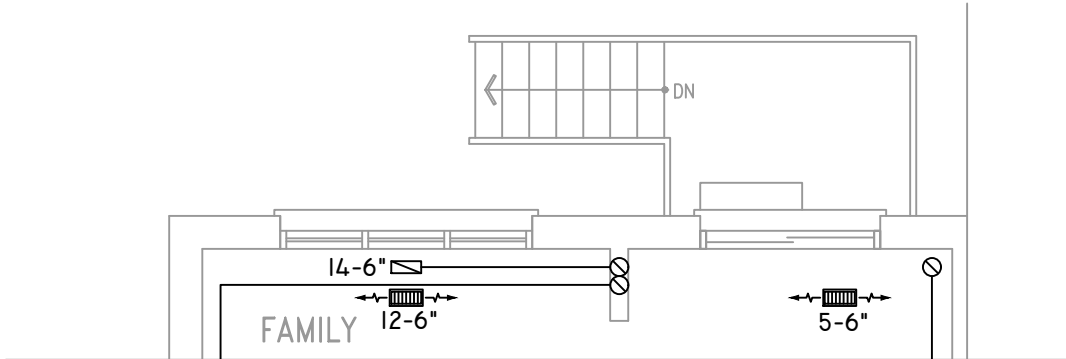
  

FLOOR PLAN:		
SECOND FLOOR		
DRAWN BY: JL	CHECKED: DD	SQFT 2183
LAYOUT NO. JB-09288		DRAWING NO. M3

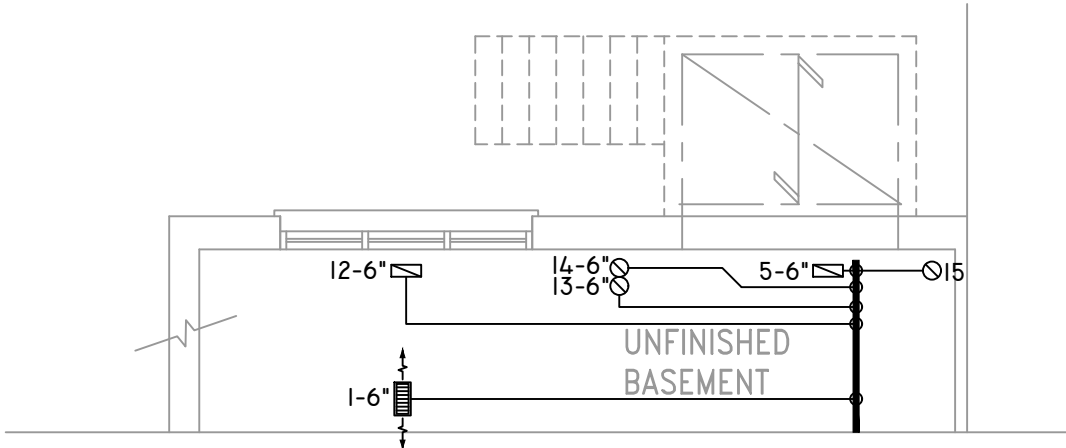
DATE:	DECEMBER 13, 2023
CLIENT:	BAYVIEW WELLINGTON
MODEL:	THWU-2IC
PROJECT:	GREEN VALLEY BRADFORD,ONT.
SCALE:	3/16" = 1'-0"

REVIEWED

	FLEX DUCT		LOW/HIGH WALL/KICK SUPPLY DIFFUSER		DUCT CONNECTION TO JOIST LINING		RETURN AIR GRILLE (SIZE INDICATED ON DRAWING)	S.A. R.A. T \$ F PE	SUPPLY AIR RETURN AIR THERMOSTAT PRINCIPAL EXHAUST FAN SWITCH W/R & PRINCIPAL EXHAUST FAN
	RIGID ROUND DUCT		HRV EXHAUST GRILLE		RETURN AIR PIPE RISER		RETURN AIR RISER UP TO FLOOR ABOVE		
	SUPPLY DIFFUSER		SUPPLY AIR PIPE RISER		RETURN ROUND DUCT		RETURN AIR FROM BASEMENT SECOND FLOOR		



PARTIAL GROUND FLOOR PLAN  
W.O.D. CONDITION (9R OR GREATER)



PARTIAL BASEMENT PLAN  
W.O.D. CONDITION (9R OR GREATER)

THE UNDERSIGNED HAS REVIEWED AND TAKES RESPONSIBILITY FOR THIS DESIGN ON BEHALF OF GTA DESIGNS INC. AND HAS THE QUALIFICATIONS AND MEETS THE REQUIREMENTS SET OUT IN THE BUILDING CODE TO BE A DESIGNER

**QUALIFICATION INFORMATION**

REQUIRED UNLESS DESIGN IS EXEMPT UNDER DIVISION C 3.2.5.1 OF THE ONTARIO BUILDING CODE

DAVID DA COSTA



B.C.I.N. 32964

SIGNATURE OF DESIGNER

OBC 2012

ZONE I COMPLIANCE  
PACKAGE "A1" REF. TABLE 3.1.1.2.A

**NOTES**  
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UNIT MODEL	AMEC960603ANA	OR EQUAL.
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UNIT HEATING OUTPUT	57,600	BTU/HR.
A/C COOLING CAPACITY	2.5	TONS.
FAN SPEED	929	CFM

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

FLOOR PLAN: PARTIAL PLAN(S)		
DRAWN BY: JL	CHECKED: DD	SQFT 2183
LAYOUT NO. JB-09288	DRAWING NO. M4	

DATE:	DECEMBER 13, 2023
CLIENT:	BAYVIEW WELLINGTON
MODEL:	THWU-2IC
PROJECT:	GREEN VALLEY BRADFORD,ONT.
SCALE:	3/16" = 1'-0"