

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:	
TH-6E				Lot/con.	
Municipality		Postal code	Plan number/ other description		
Bradford					
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	dave@gtadesigns.ca	
Telephone number		Fax number	Cell number		
(905) 671-9800		(647) 494-9643	(416) 268-6820		
C. Design activities undertaken by individual identified in Section B. [Building Code Table 3.5.2.1 of Division C]					
☐ House ☒ HVAC – House ☐ Building Structural ☐ Small Buildings ☐ Building Services ☐ Plumbing – House ☐ Large Buildings ☐ Detection, Lighting and Power ☐ Plumbing – All Buildings ☐ Complex Buildings ☐ Fire Protection ☐ On-site Sewage Systems					
Description of designer's work			Model Certification		Project #:
					PJ-00204
					Layout #:
					JB-04869
Heating and Cooling Load Calculations		Main	X	Builder	Bayview Wellington
Air System Design		Alternate		Project	Green Valley East
Residential mechanical ventilation Design Summary		Area Sq ft:	1902	Model	TH-6E
Residential System Design per CAN/CSA-F280-12				SB-12	Package A1
Residential New Construction - Forced Air					
D. Declaration of Designer					
I, <u>David DaCosta</u> declare that (choose one as appropriate): (print name)					
☐ I review and take responsibility for the design work on behalf of a firm registered under subsection 3.2.4 Division C of the Building Code. I am qualified, and the firm is registered in the appropriate classes/categories.					
Individual BCIN: _____ Firm BCIN: _____					
☒ I review and take responsibility for the design and am qualified in the appropriate category as an "other designer" under subsection 3.2.5 of Division C, of the Building Code.					
Individual BCIN: <u>32964</u> Basis for exemption from registration: <u>Division C 3.2.4.1. (4)</u>					
☐ The design work is exempt from the registration and qualification requirements of the Building Code.					
Basis for exemption from registration and qualification: _____					
I certify that: 1. The information contained in this schedule is true to the best of my knowledge. 2. I have submitted this application with the knowledge and consent of the firm.					
<u>June 20, 2018</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 Bayview Wellington				Layout No.	
and may not be used by any other persons without authorization. Documents for permit and/or construction are signed in red.				JB-04869	
Building Location					
Address (Model): TH-6E			Site: Green Valley East		
Model:			Lot:		
City and Province: Bradford			Postal code:		
Calculations based on					
Dimensional information based on: VA3 DESIGN22/May/2018					
Attachment: Townhome			Front facing: East/West		Assumed? Yes
No. of Levels: 3		Ventilated? Included	Air tightness: 1961-Present (ACH=3.57)		Assumed? Yes
Weather location: Bradford			Wind exposure: Sheltered		
HRV? LifeBreath		RNC155	Internal shading: Light-translucent		Occupants: 5
Sensible Eff. at -25C 71%		Apparent Effect. at -0C 84%	Units: Imperial		Area Sq ft: 1902
Sensible Eff. at -0C 75%					
Heating design conditions			Cooling design conditions		
Outdoor temp -9.4 Indoor temp: 72 Mean soil temp: 48			Outdoor temp 86 Indoor temp: 75 Latitude: 44		
Above grade walls			Below grade walls		
Style A: As per OBC SB12 Package A1 R 22			Style A: As per OBC SB12 Package A1 R 20ci		
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 A1			Style A: As per Selected OBC SB12 Package A1 R 60		
Style B:			Style B: As per Selected OBC SB12 Package A1 R 31		
Exposed floors			Style C:		
Style A: As per Selected OBC SB12 Package A1 R 31			Doors		
Style B:			Style A: As per Selected OBC SB12 Package A1 R 4.00		
Windows			Style B:		
Style A: As per Selected OBC SB12 Package A1 R 3.55			Style C:		
Style B: Existing Windows (When Applicable) R 1.99			Skylights		
Style C:			Style A: As per Selected OBC SB12 Package A1 R 2.03		
Style D:			Style B:		
Attached documents: As per Shedule 1		Heat Loss/Gain Caculations based on CSA-F280-12 Effective R-Values			
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		

Builder: **Bayview Wellington**

Date: **June 20, 2018**

Project: **Green Valley East**

Model: **TH-6E**

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* David DaCosta

Page 3
Project # **PJ-00204**
Layout # **JB-04869**

DESIGN LOAD SPECIFICATIONS		AIR DISTRIBUTION & PRESSURE		FURNACE/AIR HANDLER DATA:		BOILER/WATER HEATER DATA:		A/C UNIT DATA:	
Level 1 Net Load	11,064 btu/h	Equipment External Static Pressure	0.5 "w.c.	Make	Amana	Make	Type	Amana	2.0 Ton
Level 2 Net Load	11,718 btu/h	Additional Equipment Pressure Drop	0.225 "w.c.	Model	AMEC960403ANA	Model		Cond.-----	2.0
Level 3 Net Load	10,470 btu/h	Available Design Pressure	0.275 "w.c.	Input Btu/h	40000	Input Btu/h		Coil -----	2.0
Level 4 Net Load	0 btu/h	Return Branch Longest Effective Length	300 ft	Output Btu/h	38400	Output Btu/h			
Total Heat Loss	33,251 btu/h	R/A Plenum Pressure	0.138 "w.c.	E.s.p.	0.50	" W.C.			
Total Heat Gain	18,579 btu/h	S/A Plenum Pressure	0.14 "w.c.	Water Temp		deg. F.			
Combo System HL + 10%	36,577 Btu/h	Heating Air Flow Proportioning Factor	0.0232 cfm/btuh	AFUE	96%				
Building Volume Vb	21620 ft³	Cooling Air Flow Proportioning Factor	0.0416 cfm/btuh	Aux. Heat					
Ventilation Load	1,118 Btu/h	R/A Temp	70 deg. F.	SB-12 Package	Package A1				
Ventilation PVC	79.5 cfm	S/A Temp	116 deg. F.						
Supply Branch and Grill Sizing		Diffuser loss	0.01 "w.c.	Temp. Rise>>>	46 deg. F.				

	Level 1													Level 2												
S/A Outlet No.	1	2	3											4	5	6	7	8	9							
Room Use	BASE	BASE	BASE											KIT	KIT	FAM	LAUN	PWD	FOY							
Btu/Outlet	3688	3688	3688											1905	1905	3541	1216	642	2509							
Heating Airflow Rate CFM	86	86	86											44	44	82	28	15	58							
Cooling Airflow Rate CFM	15	15	15											95	95	109	49	14	36							
Duct Design Pressure	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13
Actual Duct Length	59	46	10											68	74	57	24	2	12							
Equivalent Length	140	100	120	70	70	70	70	70	70	70	70	70	70	100	120	90	120	130	100	70	70	70	70	70	70	70
Total Effective Length	199	146	130	70	70	70	70	70	70	70	70	70	70	168	194	147	144	132	112	70	70	70	70	70	70	70
Adjusted Pressure	0.07	0.09	0.10	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.08	0.07	0.09	0.09	0.10	0.12	0.19	0.19	0.19	0.19	0.19	0.19	0.19
Duct Size Round	6	6	6											6	6	6	5	3	5							
Outlet Size	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	3x10	3x10	3x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10
Trunk	B	A	A											B	B	A	A	A	A							

	Level 3													Level 4												
S/A Outlet No.	10	11	12	13	14	15																				
Room Use	MAST	ENS	BED 4	BED 3	BED 2	BATH																				
Btu/Outlet	1985	1931	1238	2618	2554	144																				
Heating Airflow Rate CFM	46	45	29	61	59	3																				
Cooling Airflow Rate CFM	89	49	42	75	71	2																				
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	65	89	76	22	36	35																				
Equivalent Length	170	150	170	100	130	110	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	
Total Effective Length	235	239	246	122	166	145	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	
Adjusted Pressure	0.06	0.05	0.05	0.11	0.08	0.09	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	0.19	0.19	0.19		
Duct Size Round	7	5	5	6	6	2																				
Outlet Size	4x10	3x10	3x10	4x10	4x10	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	A	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	130	327	105	105	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	12	22	33	63	70							
Equivalent Length	115	140	130	195	160	50	50	50	50	50	50	
Total Effective Length	127	162	163	258	230	50	50	50	50	50	50	
Adjusted Pressure	0.09	0.07	0.07	0.05	0.05	0.24	0.24	0.24	0.24	0.24	0.24	
Duct Size Round	6.0	10.0	6.0	6.0	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	Z	Y	Z	Y	Y							

Return Trunk Duct Sizing	Trunk	CFM	Press.	Round	Rect. Size	Supply Trunk Duct Sizing	Trunk	CFM	Press.	Round	Rect. Size
Drop		772	0.05	14.5	24x10	A		772	0.05	14.5	18x10 16x12
Z		772	0.05	14.5	18x10 16x12	B		294	0.05	10.5	12x8 10x10
Y		537	0.05	13.0	18x8 14x10	C					
X						D					
W						E					
V						F					
U						G					
T						H					
S						I					
R						J					
Q						K					

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2012 OBC

Builder: Bayview Wellington

Date: June 20, 2018

Project: Green Valley East

Model: TH-6E

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 GTA: 1902

Project #
Layout #

Level 1

Run ft. exposed wall A	111 A	A	A	A	A	A	A	A	A	A	A	A	A
Run ft. exposed wall B	B	B	B	B	B	B	B	B	B	B	B	B	B
Ceiling height	3.5 AG	3.5 AG	3.5 AG	3.5 AG	3.5 AG	3.5 AG	3.5 AG	3.5 AG	3.5 AG	3.5 AG	3.5 AG	3.5 AG	3.5 AG
Floor area	767 Area	Area	Area	Area	Area	Area	Area	Area	Area	Area	Area	Area	Area
Exposed Ceilings A	A	A	A	A	A	A	A	A	A	A	A	A	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	389												
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	10.91														
East/West	3.55	22.93	27.35	13	298	356											
South	3.55	22.93	20.89	6	138	125											
WOB Windows	3.15	25.84	28.32														
Skylight	2.03	40.10	88.23														
Doors	4.00	20.35	2.75	21	427	58											
Net exposed walls A	21.13	3.85	0.52	349		181											
Net exposed walls B	14.49	5.62	0.76														
Exposed Ceilings A	59.22	1.37	0.64														
Exposed Ceilings B	22.86	3.56	1.66														
Exposed Floors	29.80	2.73	0.17														
Foundation Conductive Heatloss	On Grade () or Above ()			4781													
Total Conductive	Heat Loss			5644													
	Heat Gain				720												
Air Leakage	Heat Loss/Gain	0.9086	0.0394	5128	28												
Ventilation	Case 1	0.10	0.11														
	Case 2	14.07	11.88														
	Case 3	x	0.05	291	79												
Heat Gain People			239														
Appliances Loads	1 = .25 percent		3128														
Duct and Pipe loss			10%														
Level 1 HL Total	11,064		Total HL for per room	11064													
Level 1 HG Total	1,076		Total HG per room x 1.3		1076												

Level 2

Run ft. exposed wall A	35 A	KIT	36 A	FAM	10 A	LAUN	6 A	PWD	23 A	FOY	A		A		A		A	
Run ft. exposed wall B	B		B		B		B		B		B		B		B		B	
Ceiling height	10.0		10.0		11.0		10.0		11.0		10.0		10.0		10.0		10.0	
Floor area	235 Area		375 Area		65 Area		30 Area		61 Area		Area		Area		Area		Area	
Exposed Ceilings A	A		A		A		A		A		Area		Area		Area		Area	
Exposed Ceilings B	B		B		B		B		B		B		B		B		B	
Exposed Floors	Flr		Flr		Flr		Flr		Flr		Flr		Flr		Flr		Flr	
Gross Exp Wall A	350		360		110		60		253									
Gross Exp Wall B																		

Components	R-Values	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain														
North Shaded	3.55	22.93	10.91	55	1261	1504	42	963	877	21	427	58	9	206	188	14	321	383															
East/West	3.55	22.93	27.35																														
South	3.55	22.93	20.89																														
Existing Windows	1.99	40.90	22.15																														
Skylight	2.03	40.10	88.23	295	1410	191	318	1520	205	89	425	57	51	244	33	220	387	52															
Doors	4.00	20.35	2.75																														
Net exposed walls A	17.03	4.78	0.65																														
Net exposed walls B	8.50	9.58	1.29																														
Exposed Ceilings A	59.22	1.37	0.64																														
Exposed Ceilings B	22.86	3.56	1.66																														
Exposed Floors	29.80	2.73	0.17																														
Foundation Conductive Heatloss			On Grade () or Above ()																	x													
Total Conductive	Heat Loss																			2671		1695		2483		853		450		1759		577	
	Heat Gain																																
Air Leakage	Heat Loss/Gain	0.3745	0.0394	1000	67			930	43	319	5		169	9		659	23																
Ventilation	Case 1	0.04	0.11	138	187			128	119	44	13		23	24		91	64																
	Case 2	14.07	11.88																														
	Case 3	x	0.05															0.11															
Heat Gain People			239	2.0	1564	1.0		782	1.0		782																						
Appliances Loads		1 = .25 percent	3128																														
Duct and Pipe loss			10%																														
Level 2 HL Total	11,718	Total HL for per room		3809				3541		1216			642			2509																	
Level 2 HG Total	9,582	Total HG per room x 1.3				4566		2634		1189			330			863																	

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

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

32964

Dave DaCosta

Dave DaCosta

SB-12 Package

Package A1

Total Heat Loss	33,251	btu/h
Total Heat Gain	18,579	btu/h

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

Individual BCIN: 32964



David DaCosta

Package:
Package A1
Project:
Bradford
Model:
TH-6E
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) | ☒ | Direct vent (sealed combustion) only |
| b) | ☐ | Positive venting induced draft (except fireplaces) |
| c) | ☐ | Natural draft, B-vent or induced draft fireplaces |
| d) | ☐ | Solid fuel (including fireplaces) |
| e) | ☐ | No combustion Appliances |

Heating System

- | | |
|-------------------------------------|--|
| ☒ | Forced air |
| ☐ | Non forced air |
| ☐ | Electric space heat (if over 10% of heat load) |

House Type 9.32.3.1(2)

- | | | |
|-------|-------------------------------------|---|
| I | ☒ | Type a) or b) appliances only, no solid fuel |
| II | ☐ | Type I except with solid fuel (including fireplace) |
| III | ☐ | Any type c) appliance |
| IV | ☐ | Type I or II either electric space heat |
| Other | ☐ | Type I, II or IV no forced air |

System Design Option

- | | | |
|---|-------------------------------------|---|
| 1 | ☐ | Exhaust only / forced air system |
| 2 | ☐ | HRV WITH DUCTING / forced air system |
| 3 | ☒ | HRV simplified connection to forced air system |
| 4 | ☐ | HRV full ducting/not coupled to forced air system |
| | | Part 6 design |

Total Ventilation Capacity 9.32.3.3(1)

Bsmt & Master Bdrm	2 @ 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
LifeBreath	RNC155	Base
132 cfm		Sones or Equiv.

Heat Recovery Ventilator

Make	LifeBreath
Model	RNC155
132 cfm high	80 cfm low
Sensible efficiency @ -25 deg C	71%
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</u> cfm

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 June 20, 2018

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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-04869

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 TH-6E		Unit number	Lot/Con
Municipality Bradford	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		
☒ Zone 1 (< 5000 degree days) ☐ Zone 2 (≥ 5000 degree days)	☒ ≥ 92% AFUE ☐ ≥ 84% < 92% AFUE	☒ Gas ☐ Oil	☐ Propane ☐ Electric	☐ Solid Fuel ☐ Earth Energy
Ratio of Windows, Skylights & Glass (W, S & G) to Wall Area		Other Building Characteristics		
Area of Walls = <u>290.87</u> m ² or <u>3130.9</u> ft ²	W, S & G % = <u>8%</u>	☐ Log/Post&Beam ☐ Slab-on-ground ☒ Air Conditioning ☐ Air Sourced Heat Pump (ASHP) ☐ Ground Source Heat Pump (GSHP)	☐ ICF Above Grade ☐ Walkout Basement ☐ Combo Unit	☐ ICF Basement
Area of W, S & G = <u>24.061</u> m ² or <u>259.0</u> ft ²	Utilize Window Averaging ☐ Yes ☒ No			

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

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

(1) U value to be provided in either W/(m²·K) or Btu/(h·ft²·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 David DaCosta	BCIN 32964	Signature
------------------------------	----------------------	---------------

Form authorized by OHBA, OBOA, LMCBO. Revised December 1, 2016.

SITE COPY

Package: Package A1 System: System 1
Project: Bradford Model: TH-6E

Air Leakage Calculations

Building Air Leakage Heat Loss				
B	LRairh	Vb	HL^T	HLleak
0.018	0.324	21620	81.4	10257

Building Air Leakage Heat Gain				
B	LRairh	Vb	HG^T	HG Leak
0.018	0.079	21620	11	338

Air Leakage Heat Loss/Gain Multiplier Table (Section 11)				
Level	Level Factor (LF)	Building Air	Level Conductive Heat Loss	Air Leakage Heat Loss Multiplier
Level 1	0.5	10257	5644	0.9086
Level 2	0.3		8216	0.3745
Level 3	0.2		7792	0.2633
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	
	338		0.0394
BUILDING CONDUCTIVE HEAT GAIN			8578

Levels this Dwelling	
3	

Ventilation Calculations

Ventilation Heat Loss

Ventilation Heat Loss				
C	PVC	HL^T	(1-E) HRV	HLbvent
1.08	79.5	81.4	0.16	1118

Ventilation Heat Gain

Ventilation Heat Gain			
C	PVC	HG^T	HGbvent
1.1	79.5	11	944

Case 1

Ventilation Heat Loss (Exhaust only Systems)

Case 1 - Exhaust Only				
Level	LF	HLbvent	LVL Cond. HL	Multiplier
Level 1	0.5	1118	5644	0.10
Level 2	0.3		8216	0.04
Level 3	0.2		7792	0.03
Level 4	0		0	0.00

Case 1

Ventilation Heat Gain (Exhaust Only Systems)

Case 1 - Exhaust Only		Multiplier	
HGbvent	944	0.11	
Building	8578		

Case 2

Ventilation Heat Loss (Direct Ducted Systems)

C	HL^T	(1-E) HRV	Multiplier
1.08	81.4	0.16	14.07

Case 2

Ventilation Heat Gain (Direct Ducted Systems)

C	HG^T	Multiplier
1.08	11	11.88

Case 3

Ventilation Heat Loss (Forced Air Systems)

HLbvent		Multiplier
Total Ventilation Load	1118	0.05

Case 3

Ventilation Heat Gain (Forced Air Systems)

Vent Heat Gain		Multiplier
HGbvent	HG*1.3	0.11
944	1	

Foundation Conductive Heatloss Level 1

1401 Watts 4781 Btu/h

Foundation Conductive Heatloss Level 2

Watts Btu/h

Envelope Air Leakage Calculator

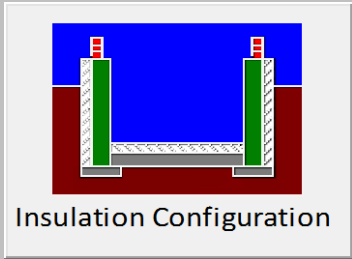
Supplemental tool for CAN/CSA-F280

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):	6.55			
Building Configuration				
Type:	Semi-Detached			
Number of Stories:	Two			
Foundation:	Shallow			
House Volume (m ³):	612.26			
Air Leakage/Ventilation				
Air Tightness Type:	Present (1961-) (ACH=3.57)			
Custom BDT Data:	ELA @ 10 Pa. 322.44 cm ²			
	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): 0.324				
Cooling Air Leakage Rate (ACH/H): 0.079				

SITE COPY

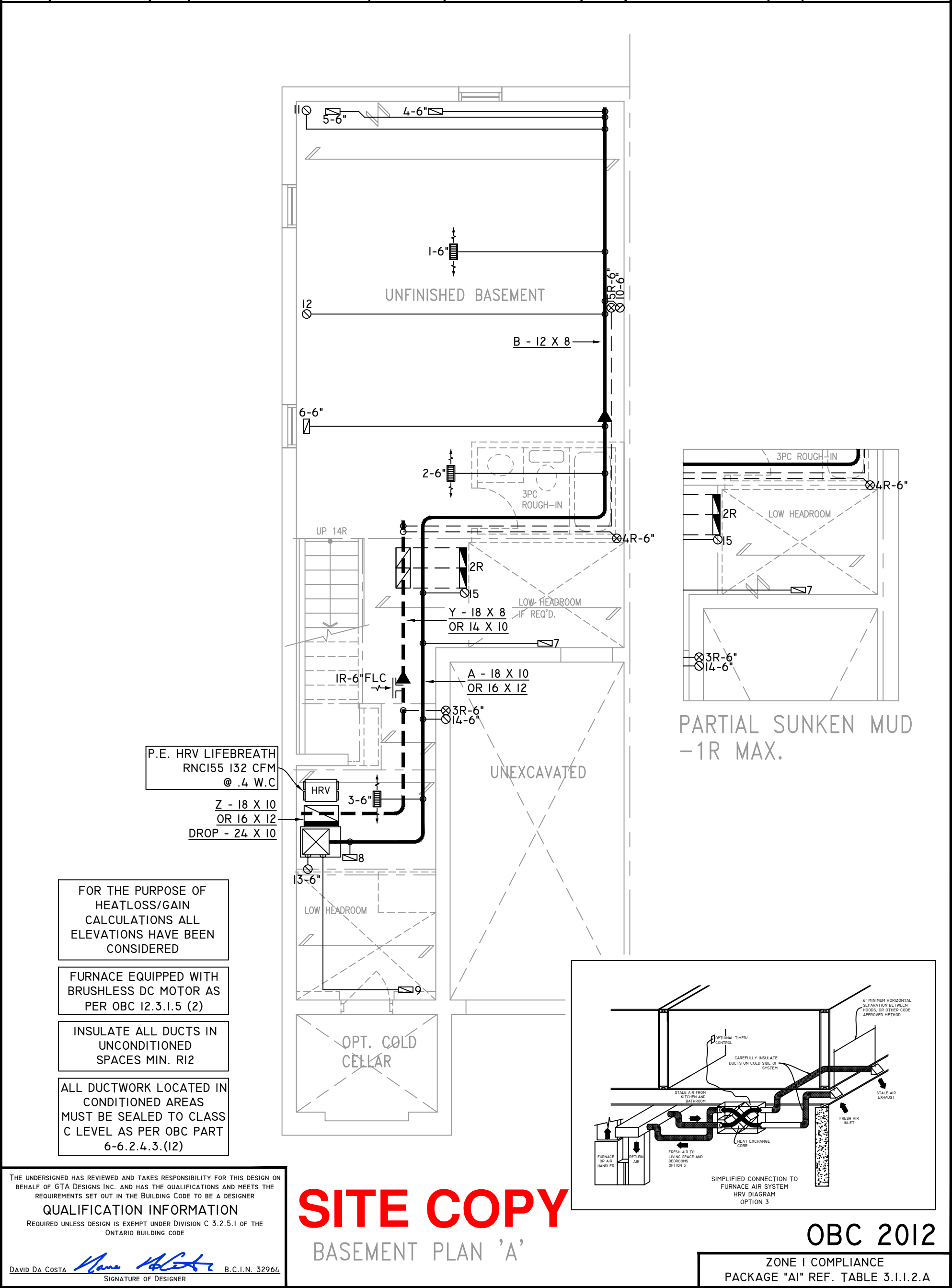
Residential Foundation Thermal Load Calculator

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):	17.59	 Insulation Configuration
Floor Width (m):	4.05	
Exposed Perimeter (m):	33.83	
Wall Height (m):	2.59	
Depth Below Grade (m):	1.52	
Window Area (m ²):	1.77	
Door Area (m ²):	1.95	
Radiant Slab		
Heated Fraction of the Slab:	0	
Fluid Temperature (°C):	33	
Design Months		
Heating Month	1	
Foundation Loads		
Heating Load (Watts):		1401

SITE COPY

	FLEX DUCT		LOW/HIGH WALL/KICK SUPPLY DIFFUSER		DUCT CONNECTION TO JOIST LINING		RETURN AIR RISER UP TO FLOOR ABOVE		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 SUPPLY AIR PIPE RISER VOLUME DAMPER		RETURN AIR PIPE RISER RETURN ROUND DUCT		RETURN AIR GRILLE (SIZE INDICATED ON DRAWING)			
	SUPPLY DIFFUSER						RETURN AIR FROM BASEMENT SECOND FLOOR			



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.

GTADESIGNS

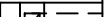
2985 DREW ROAD
SUITE 202,
MISSISSAUGA, ONT.
L4T 0A4 TEL: 905-671-9800
EMAIL: DAVE@GTADESIGNS.CA
WEB: WWW.GTADESIGNS.CA

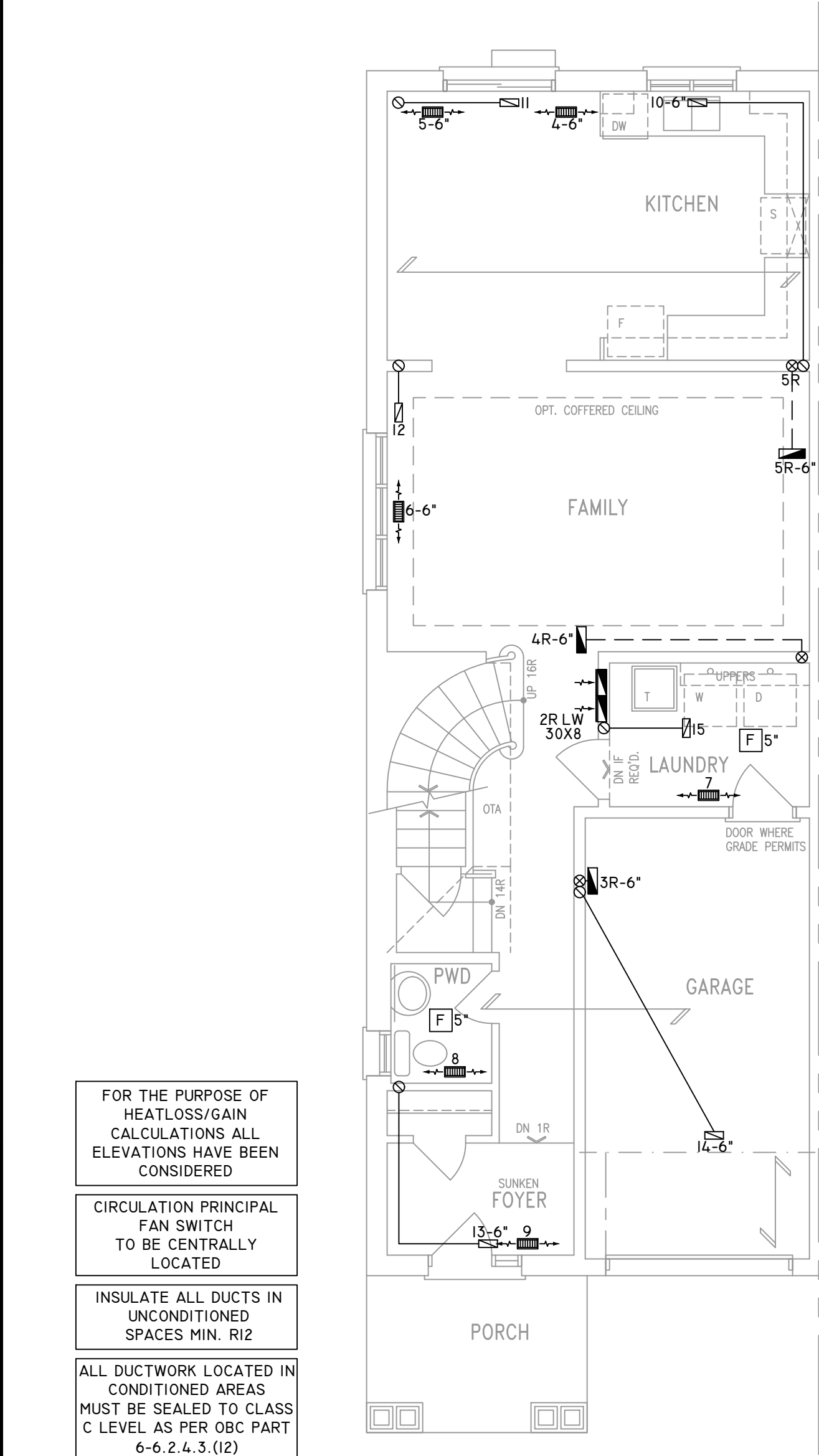
HEAT-LOSS	33,251	BTU/HR.
UNIT MAKE	AMANA	OR EQUAL.
UNIT MODEL	AMEC960403ANA	OR EQUAL.
UNIT HEATING INPUT	40,000	BTU/HR.
UNIT HEATING OUTPUT	38,400	BTU/HR.
A/C COOLING CAPACITY	2.0	TONS.
FAN SPEED	772	CFM

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

FLOOR PLAN:	BASEMENT
DRAWN BY:	JL
CHECKED:	DD
LAYOUT NO.	JB-04869
SQFT	1902
DRAWING NO.	MI

DATE:	JUNE 20, 2018
CLIENT:	BAYVIEW WELLINGTON
MODEL:	TH-6E
PROJECT:	GREEN VALLEY EAST BRADFORD, ONT.
SCALE:	3/16" = 1'-0"

	FLEX DUCT		LOW/HIGH WALL/KICK SUPPLY DIFFUSER		DUCT CONNECTION TO JOIST LINING		RETURN AIR GRILLE (SIZE INDICATED ON DRAWING)	S.A.	SUPPLY AIR
	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"

- 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
CONDITIONED AREAS
MUST BE SEALED TO CLASS
C LEVEL AS PER OBC PART
6-6.2.4.3.(12)

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

SITE COPY

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



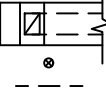
2985 DREW ROAD
SUITE 202,
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L4T 0A4 TEL: 905-671-9800
EMAIL: DAVE@GTADESIGNS.CA
WEB: WWW.GTADESIGNS.CA

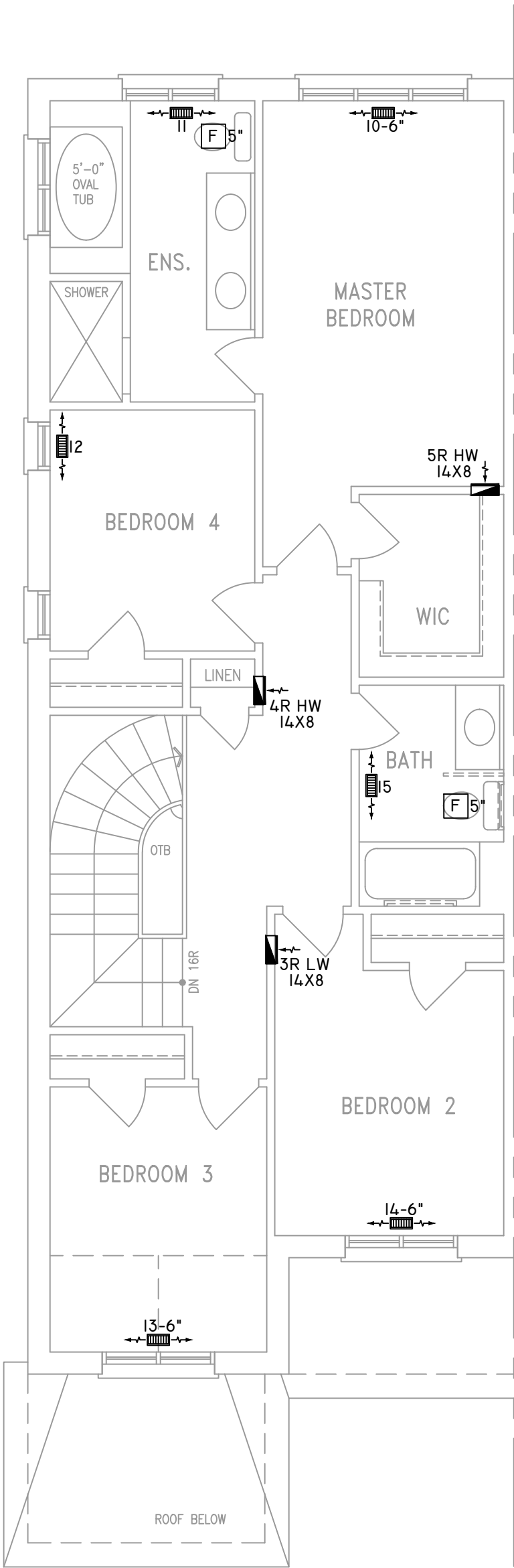
HEAT-LOSS	33,251	BTU/HR.
UNIT MAKE	AMANA	OR EQUAL.
UNIT MODEL	AMEC960403ANA	OR EQUAL.
UNIT HEATING INPUT	40,000	BTU/HR.
UNIT HEATING OUTPUT	38,400	BTU/HR.
A/C COOLING CAPACITY	2.0	TONS.
FAN SPEED	772	CFM

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

FLOOR PLAN: GROUND FLOOR		
DRAWN BY: JL	CHECKED: DD	SQFT 1902
LAYOUT NO. JB-04869	DRAWING NO. M2	

DATE:	JUNE 20, 2018
CLIENT:	BAYVIEW WELLINGTON
MODEL:	TH-6E
PROJECT:	GREEN VALLEY EAST BRADFORD,ONT.
SCALE:	3/16" = 1'-0"

	FLEX DUCT		LOW/HIGH WALL/KICK SUPPLY DIFFUSER		DUCT CONNECTION TO JOIST LINING		RETURN AIR GRILLE (SIZE INDICATED ON DRAWING)	S.A.	SUPPLY AIR
	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

INSULATE ALL DUCTS IN
UNCONDITIONED
SPACES MIN. R12

ALL DUCTWORK LOCATED IN
CONDITIONED AREAS
MUST BE SEALED TO CLASS
C LEVEL AS PER OBC PART
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DAVID DA COSTA



B.C.I.N. 32964

SIGNATURE OF DESIGNER

SITE COPY

SECOND FLOOR PLAN 'A'

OBC 2012

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

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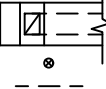
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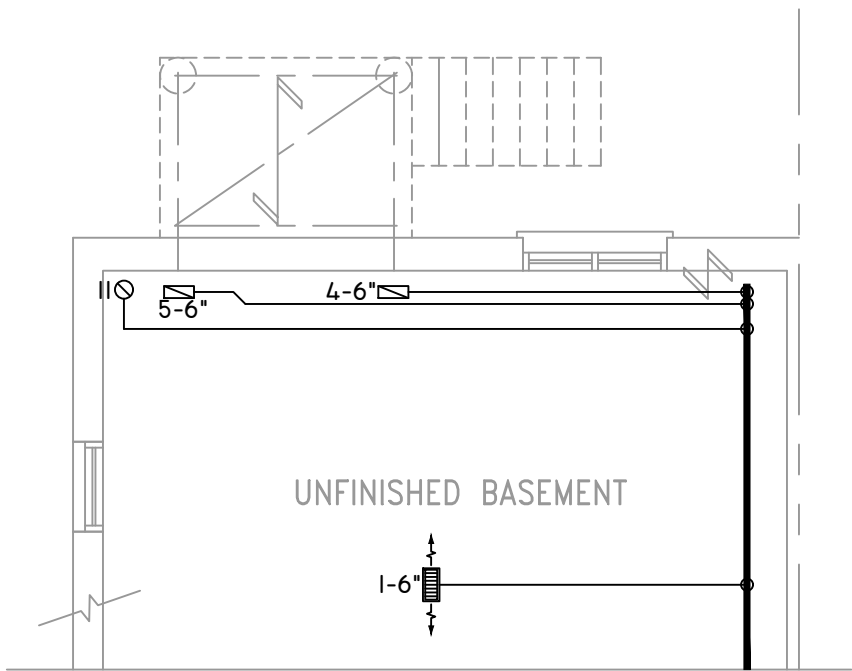
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UNIT MODEL	AMEC960403ANA	OR EQUAL.
UNIT HEATING INPUT	40,000	BTU/HR.
UNIT HEATING OUTPUT	38,400	BTU/HR.
A/C COOLING CAPACITY	2.0	TONS.
FAN SPEED	772	CFM

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

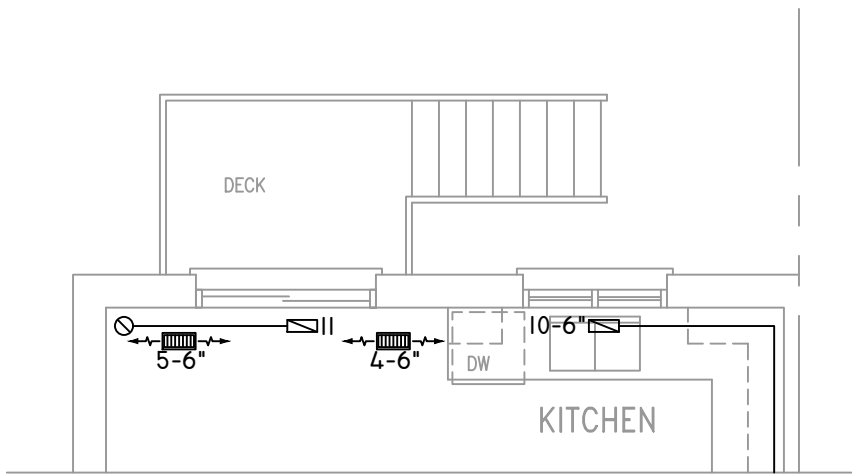
FLOOR PLAN: SECOND FLOOR		
DRAWN BY: JL	CHECKED: DD	SQFT 1902
LAYOUT NO. JB-04869	DRAWING NO. M3	

DATE:	JUNE 20, 2018
CLIENT:	BAYVIEW WELLINGTON
MODEL:	TH-6E
PROJECT:	GREEN VALLEY EAST BRADFORD,ONT.
SCALE:	3/16" = 1'-0"

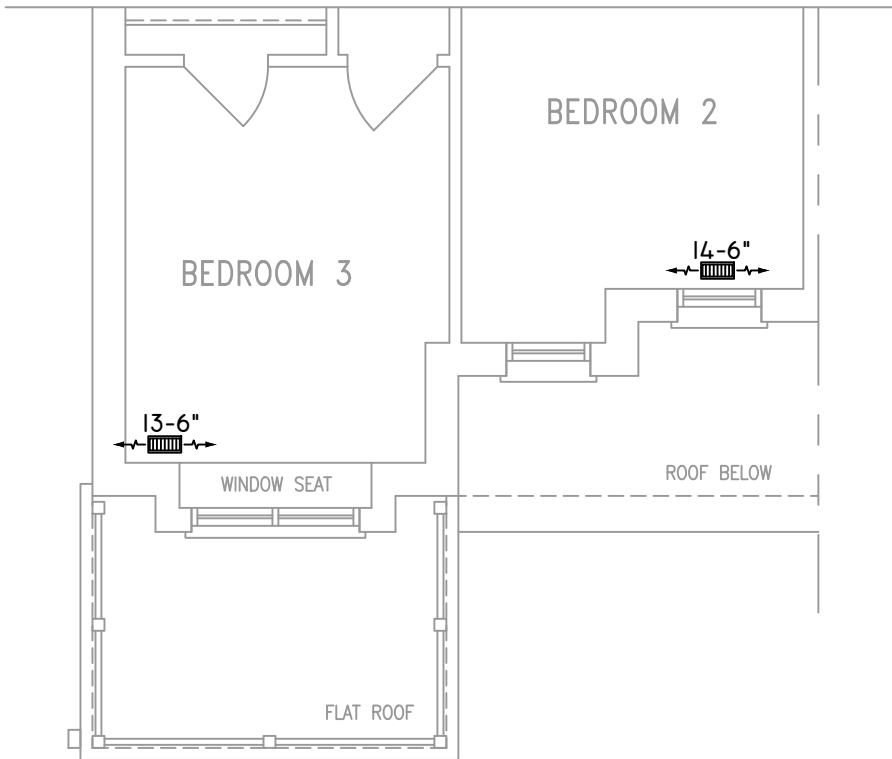
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	SUPPLY DIFFUSER		SUPPLY AIR PIPE RISER		RETURN ROUND DUCT		RETURN AIR FROM BASEMENT SECOND FLOOR		THERMOSTAT
			VOLUME DAMPER						PRINCIPAL EXHAUST FAN SWITCH W/R & PRINCIPAL EXHAUST FAN



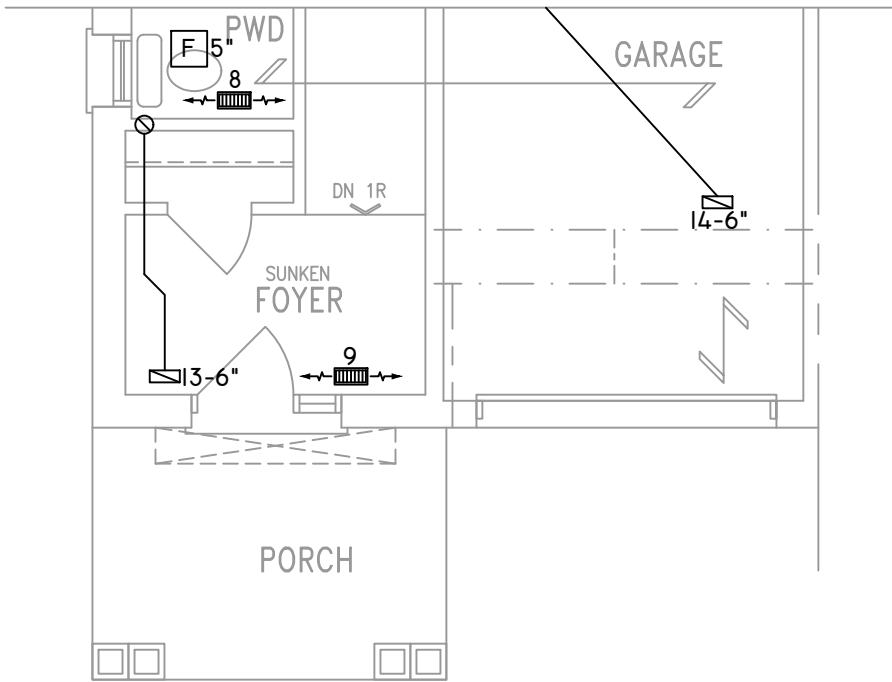
PARTIAL BASEMENT PLAN
W.O.D. CONDITION (9R OR GREATER)



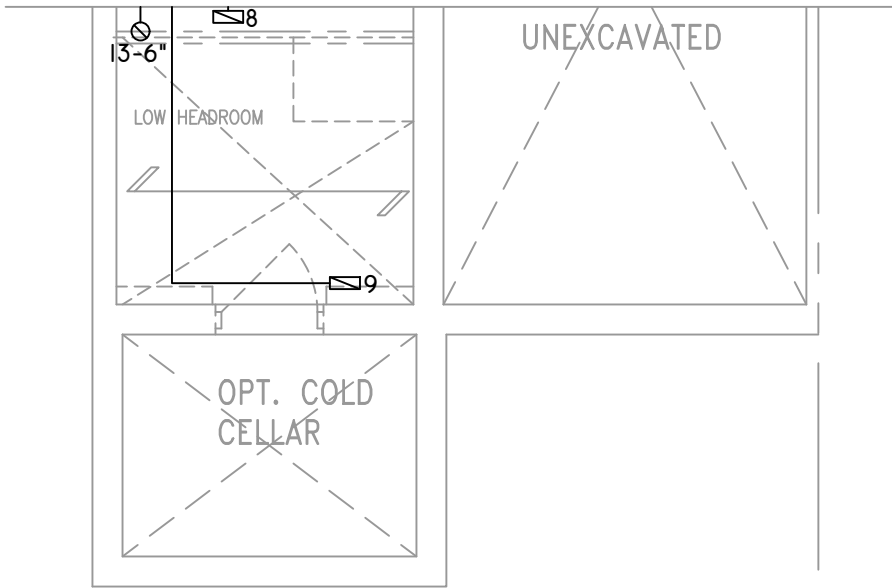
PARTIAL GROUND FLOOR PLAN
W.O.D. CONDITION (9R OR GREATER)



PARTIAL SECOND FLOOR PLAN 'B'



PARTIAL GROUND FLOOR PLAN 'B'



PARTIAL BASEMENT PLAN 'B'

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QUALIFICATION INFORMATION

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

SIGNATURE OF DESIGNER

SITE COPY

OBC 2012

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

NOTES
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FAN SPEED	772	CFM

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

FLOOR PLAN:	PARTIAL PLAN(S)
DRAWN BY:	JL
CHECKED:	DD
SOFT	1902
LAYOUT NO.	JB-04869
DRAWING NO.	M4

DATE:	JUNE 20, 2018
CLIENT:	BAYVIEW WELLINGTON
MODEL:	TH-6E
PROJECT:	GREEN VALLEY EAST BRADFORD,ONT.
SCALE:	3/16" = 1'-0"