

DEC 14 2018

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 Castello 1		Lot:	184
S50-1 Lot 184		Lot/con.	
Municipality Bradford	Postal code	Plan number/ other description	
B. Individual who reviews and takes responsibility for design activities			
Name David DaCosta		Firm gtaDesigns Inc.	
Street address 2985 Drew Road, Suite 202		Unit no.	Lot/con.
Municipality Mississauga	Postal code L4T 0A4	Province Ontario	E-mail ddacosta@gtadesigns.ca
Telephone number (905) 671-9800	Fax number (647) 494-9643	Cell number (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-00041
			Layout #: JB-05329
Heating and Cooling Load Calculations		Main X	Builder Bayview Wellington
Air System Design		Alternate	Project Green Valley Estates
Residential mechanical ventilation Design Summary		Area Sq ft: 3753	Model Castello 1
Residential System Design per CAN/CSA-F280-12			S50-1 Lot 184
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)			
☐ 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>November 15, 2018</u>		<u>[Signature]</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.

SITE COPY

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-05329	
Building Location					
Address (Model): S50-1 Lot 184			Site: Green Valley Estates		
Model: Castello 1			Lot: 184		
City and Province: Bradford			Postal code:		
Calculations based on					
Dimensional information based on: VA 3 Design2/Nov/2018					
Attachment: Detached		Front facing: East/West		Assumed? Yes	
No. of Levels: 4 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: 6	
Sensible Eff. at -25C 71%		Apparent Effect. at -0C 84%		Units: Imperial Area Sq ft: 3753	
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: ddacosta@gtadesigns.ca			

SITE COPY

Builder: Bayview Wellington

Date: November 15, 2018

Project: Green Valley Estates

Model: S50-1 Lot 184

System 1

SB-12 Package A1

Page 3

Project # PJ-00041

JB-05329

Layout #

DESIGN LOAD SPECIFICATIONS									
Level 1 Net Load	19,137 btuh								
Level 2 Net Load	24,812 btuh								
Level 3 Net Load	11,287 btuh								
Level 4 Net Load	8,875 btuh								
Total Heat Loss	64,111 btuh								
Total Heat Gain	37,397 btuh								
Combo System HL + 10%	70,522 Btuh.								
Building Volume Vb	44570 ft³								
Ventilation Load	1,610 Btuh.								
Ventilation PVC	95.4 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	0.0258 cfm/btuh								
Cooling Air Flow Proportioning Factor	0.0442 cfm/btuh								
R/A Temp	70 deg. F.								
S/A Temp	124 deg. F.								
Diffuser loss	0.01 "w.c.								

FURNACE/AIR HANDLER DATA:									
Make	Amana								
Model	GMEC96-1004CNA								
Input Btu/h	100000								
Output Btu/h	96000								
E.s.p.	0.50								
Water Temp	" W.C.								
AFUE	96%								
Aux. Heat	Package A1								
SB-12 Package	Package A1								
Temp. Rise>>>	54 deg. F.								
Blower Data:									
Blower Speed Selected:	W2								
Heating Check	1653 cfm								
Cooling Check	1653 cfm								
Selected cfm>	1653 cfm								
Cooling Air Flow Rate	1653 cfm								

Level 1									
S/A Outlet No.	1	2	3	4	5	6			
Room Use	BASE	BASE	BASE	BASE	BASE	BASE			
Btu/Outlet	3190	3190	3190	3190	3190	3190			
Heating Airflow Rate CFM	82	82	82	82	82	82			
Cooling Airflow Rate CFM	15	15	15	15	15	15			
Duct Design Pressure	0.13	0.13	0.13	0.13	0.13	0.13			
Actual Duct Length	24	44	36	47	62	46			
Equivalent Length	110	110	100	70	110	110			
Total Effective Length	134	154	136	117	172	156			
Adjusted Pressure	0.10	0.08	0.10	0.11	0.08	0.08			
Duct Size Round	6	6	6	6	6	6			
Outlet Size	4x10	4x10	4x10	4x10	4x10	4x10			
Trunk	F	E	E	B	B	B			

Level 2									
S/A Outlet No.	19	20	21	22	23	24	25	26	27
Room Use	MAST	MAST	WIC	MEDIA	BED 5	BED 5	ENS 4	BED 4	BED 4
Btu/Outlet	1684	1684	665	1910	1217	1217	591	1159	1159
Heating Airflow Rate CFM	43	43	17	49	31	31	15	30	30
Cooling Airflow Rate CFM	63	63	7	49	39	39	5	35	35
Duct Design Pressure	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13
Actual Duct Length	55	66	57	81	78	83	80	78	80
Equivalent Length	150	120	100	160	190	180	160	100	110
Total Effective Length	205	186	157	241	268	263	240	178	190
Adjusted Pressure	0.06	0.07	0.08	0.05	0.05	0.05	0.05	0.07	0.07
Duct Size Round	6	6	3	6	5	5	3	4	4
Outlet Size	4x10	4x10	3x10	4x10	3x10	3x10	3x10	4x10	4x10
Trunk	E	E	E	C	C	C	C	C	C

Level 3									
S/A Outlet No.	28	29	30	31	32	33			
Room Use	ENS 3	BED 3	BED 2	ENS 2	ENS	WC			
Btu/Outlet	2669	1421	1450	89	2246	1001			
Heating Airflow Rate CFM	69	37	37	2	58	26			
Cooling Airflow Rate CFM	86	35	36	2	78	37			
Duct Design Pressure	0.13	0.13	0.13	0.13	0.13	0.13			
Actual Duct Length	86	78	76	70	44	55			
Equivalent Length	130	130	100	110	150	100			
Total Effective Length	216	178	186	220	144	185			
Adjusted Pressure	0.06	0.07	0.07	0.06	0.09	0.07			
Duct Size Round	6	4	5	2	6	5			
Outlet Size	4x10	3x10	3x10	3x10	4x10	3x10			
Trunk	C	PTO	F	F	F	F			

Level 3									
S/A Outlet No.	34	35	36	37	38	39	40	41	42
Room Use	ENS 3	BED 3	BED 2	ENS 2	ENS	WC			
Btu/Outlet	2669	1421	1450	89	2246	1001			
Heating Airflow Rate CFM	69	37	37	2	58	26			
Cooling Airflow Rate CFM	86	35	36	2	78	37			
Duct Design Pressure	0.13	0.13	0.13	0.13	0.13	0.13			
Actual Duct Length	86	78	76	70	44	55			
Equivalent Length	130	130	100	110	150	100			
Total Effective Length	216	178	186	220	144	185			
Adjusted Pressure	0.06	0.07	0.07	0.06	0.09	0.07			
Duct Size Round	6	4	5	2	6	5			
Outlet Size	4x10	3x10	3x10	3x10	4x10	3x10			
Trunk	C	PTO	F	F	F	F			

Level 3									
S/A Outlet No.	43	44	45	46	47	48	49	50	51
Room Use	ENS 3	BED 3	BED 2	ENS 2	ENS	WC			
Btu/Outlet	2669	1421	1450	89	2246	1001			
Heating Airflow Rate CFM	69	37	37	2	58	26			
Cooling Airflow Rate CFM	86	35	36	2	78	37			
Duct Design Pressure	0.13	0.13	0.13	0.13	0.13	0.13			
Actual Duct Length	86	78	76	70	44	55			
Equivalent Length	130	130	100	110	150	100			
Total Effective Length	216	178	186	220	144	185			
Adjusted Pressure	0.06	0.07	0.07	0.06	0.09	0.07			
Duct Size Round	6	4	5	2	6	5			
Outlet Size	4x10	3x10	3x10	3x10	4x10	3x10			
Trunk	C	PTO	F	F	F	F			

Level 3									
S/A Outlet No.	52	53	54	55	56	57	58	59	60
Room Use	ENS 3	BED 3	BED 2	ENS 2	ENS	WC			
Btu/Outlet	2669	1421	1450	89	2246	1001			
Heating Airflow Rate CFM	69	37	37	2	58	26			
Cooling Airflow Rate CFM	86	35	36	2	78	37			
Duct Design Pressure	0.13	0.13	0.13	0.13	0.13	0.13			
Actual Duct Length	86	78	76	70	44	55			
Equivalent Length	130	130	100	110	150	100			
Total Effective Length	216	178	186	220	144	185			
Adjusted Pressure	0.06	0.07	0.07	0.06	0.09	0.07			
Duct Size Round	6	4	5	2	6	5			
Outlet Size	4x10	3x10	3x10	3x10	4x10	3x10			
Trunk	C	PTO	F	F	F	F			

Level 3									
S/A Outlet No.	61	62	63	64	65	66	67	68	69
Room Use	ENS 3	BED 3	BED 2	ENS 2	ENS	WC			
Btu/Outlet	2669	1421	1450	89	2246	1001			
Heating Airflow Rate CFM	69	37	37	2	58	26			
Cooling Airflow Rate CFM	86	35	36	2	78	37			
Duct Design Pressure	0.13	0.13	0.13	0.13	0.13	0.13			
Actual Duct Length	86	78	76	70	44	55			
Equivalent Length	130	130	100	110	150	100			
Total Effective Length	216	178	186	220	144	185			
Adjusted Pressure	0.06	0.07	0.07	0.06	0.09	0.07			
Duct Size Round	6	4	5	2	6	5			
Outlet Size	4x10	3x10	3x10	3x10	4x10	3x10			
Trunk	C	PTO	F	F	F	F			

Level 3									
S/A Outlet No.	70	71	72	73	74	75	76	77	78
Room Use	ENS 3	BED 3	BED 2	ENS 2	ENS	WC			
Btu/Outlet	2669	1421	1450	89	2246	1001			
Heating Airflow Rate CFM	69	37	37	2	58	26			
Cooling Airflow Rate CFM	86	35	36	2	78	37			
Duct Design Pressure	0.13	0.13	0.13	0.13	0.13	0.13			
Actual Duct Length	86	78	76	70	44	55			
Equivalent Length	130	130	100	110	150	100			
Total Effective Length	216	178	186	220	144	185			
Adjusted Pressure	0.06	0.07	0.07	0.06	0.09	0.07			
Duct Size Round	6	4	5	2	6	5			
Outlet Size	4x10	3x10	3x10	3x10	4x10	3x10			
Trunk	C	PTO	F	F	F	F			

Level 3		MAST		WIC		MEDIA		BED 5		ENS 4		BED 4		System 1	
Run ft. exposed wall A	32 A	10 A	11 A	28 A	10 A	12 A	10 A	10 A	10 A	10 A	10 A	12 A	12 A	10 A	10 A
Run ft. exposed wall B	9.0 B	8.0 B	10.0 B	9.0 B	8.0 B	8.0 B	8.0 B	8.0 B	8.0 B	8.0 B	8.0 B	8.0 B	8.0 B	8.0 B	8.0 B
Ceiling height	282 Area	90 Area	384 Area	164 Area	49 Area	49 Area	49 Area	193 Area	193 Area	193 Area	193 Area	193 Area	193 Area	193 Area	193 Area
Floor area	282 A	90 A	384 A	164 A	49 A	49 A	49 A	193 A	193 A	193 A	193 A	193 A	193 A	193 A	193 A
Exposed Ceilings A	282 B	90 B	384 B	164 B	49 B	49 B	49 B	193 B	193 B	193 B	193 B	193 B	193 B	193 B	193 B
Exposed Ceilings B	288	90	110	234	80	80	80	177 Flr	177 Flr	177 Flr	177 Flr	177 Flr	177 Flr	177 Flr	177 Flr
Exposed Floors															
Gross Exp Wall A															
Gross Exp Wall B															

Components	R-Value	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												
South	3.55	22.93	20.89												
Existing Windows	1.99	40.90	22.15												
Skylight	2.03	40.10	88.23												
Doors	4.00	20.35	2.75												
Net exposed walls A	17.03	4.78	0.65	244	1166	158	80	382	52	85	421	57	206	985	133
Net exposed walls B	8.50	9.58	1.29												
Exposed Ceilings A	59.22	1.37	0.44	282	388	181	90	124	58	384	528	246	164	225	105
Exposed Ceilings B	22.86	3.56	1.06												
Exposed Floors	20.80	2.73	0.17												
Foundation Conductive Heatloss															
Heat Loss				2583											
Heat Gain				1542											
Air Leakage				706											
Case 1		0.2755	0.0371												
Case 2		0.02	0.07												
Case 3		14.07	11.88												
Case 3 x		0.04	0.07												
Heat Gain People			239												
Appliances Loads			6431												
1 = 25 percent			10%												
Duct and Pipe loss															
Total HL for per room															
Level 3 HL Total		11.287													
Level 3 HG Total		7.590													

Level 3		ENS 3		BED 3		BED 2		ENS 2		ENS		WC		System 1	
Run ft. exposed wall A	23 A	11 A	15 A	11 A	15 A	11 A	15 A	11 A	15 A	11 A	15 A	11 A	15 A	11 A	15 A
Run ft. exposed wall B	9.0 B	8.0 B	8.0 B	8.0 B	8.0 B	8.0 B	8.0 B	8.0 B	8.0 B	8.0 B	8.0 B	8.0 B	8.0 B	8.0 B	8.0 B
Ceiling height	86 Area	158 Area	174 Area	174 Area	174 Area	174 Area	174 Area	174 Area	174 Area	174 Area	174 Area	174 Area	174 Area	174 Area	174 Area
Floor area	86 A	158 A	174 A	174 A	174 A	174 A	174 A	174 A	174 A	174 A	174 A	174 A	174 A	174 A	174 A
Exposed Ceilings A	86 B	158 B	174 B	174 B	174 B	174 B	174 B	174 B	174 B	174 B	174 B	174 B	174 B	174 B	174 B
Exposed Ceilings B	86 Flr	158 Flr	174 Flr	174 Flr	174 Flr	174 Flr	174 Flr	174 Flr	174 Flr	174 Flr	174 Flr	174 Flr	174 Flr	174 Flr	174 Flr
Exposed Floors	207	88	120	120	120	120	120	120	120	120	120	120	120	120	120
Gross Exp Wall A															
Gross Exp Wall B															

Components	R-Value	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												
South	3.55	22.93	20.89												
Existing Windows	1.99	40.90	22.15												
Skylight	2.03	40.10	88.23												
Doors	4.00	20.35	2.75												
Net exposed walls A	17.03	4.78	0.65	179	856	116	72	344	47	104	497	67			
Net exposed walls B	8.50	9.58	1.29												
Exposed Ceilings A	59.22	1.37	0.44	86	118	55	158	217	101	174	239	112	49	67	31
Exposed Ceilings B	22.86	3.56	1.06												
Exposed Floors	20.80	2.73	0.17	88	235	14	56	153	9						
Foundation Conductive Heatloss															
Heat Loss				1851											
Heat Gain				951											
Air Leakage				510											
Case 1		0.2755	0.0371												
Case 2		0.02	0.07												
Case 3		14.07	11.88												
Case 3 x		0.04	0.07												
Heat Gain People			239												
Appliances Loads			6431												
1 = 25 percent			10%												
Duct and Pipe loss															
Total HL for per room															
Level 4 HL Total		8.875													
Level 4 HG Total		5.748													

Total Heat Loss	64,111	btu/h
Total Heat Gain	37,397	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

SB-12 Package
Package A1

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: S50-1 Lot 184

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	4	@	10.6 cfm	42.4 cfm
Bathrooms & Kitchen	6	@	10.6 cfm	63.6 cfm
Other rooms	7	@	10.6 cfm	74.2 cfm
Total				222.6

Principal Ventilation Capacity 9.32.3.4(1)				
Master bedroom	1	@	31.8 cfm	31.8 cfm
Other bedrooms	4	@	15.9 cfm	63.6 cfm
Total				95.4

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	222.6	
Less principal exhaust capacity	95.4	
REQUIRED supplemental vent. Capacity	127.2 cfm	

Supplemental Fans 9.32.3.5.			
Location	cfm	Model	Sones
Ens	50	XB50	0.3
Ens 2	50	XB50	0.3
Ens 3	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	November 15, 2018		

SITE COPY



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-00041
Layout # JB-05329

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	Castello 1 S50-1 Lot 184	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): ☒ Zone 1 (< 5000 degree days) ☐ Zone 2 (≥ 5000 degree days)	Heat. Equip. Efficiency ☒ ≥ 92% AFUE ☐ ≥ 84% < 92% AFUE	Space Heating Fuel Source ☒ Gas ☐ Propane ☐ Solid Fuel ☐ Oil ☐ Electric ☐ Earth Energy
Ratio of Windows, Skylights & Glass (W, S & G) to Wall Area		Other Building Characteristics
Area of Walls = 385.81 m² or 4152.9 ft²	W,S & G % = 15%	☐ Log/Post&Beam ☐ ICF Above Grade ☐ ICF Basement ☐ Slab-on-ground ☐ Walkout Basement ☒ Air Conditioning ☐ Combo Unit
Area of W, S & G = 59.084 m² or 636.0 ft²	Utilize Window Averaging ☐ Yes ☒ No	☐ Air Sourced Heat Pump (ASHP) ☐ Ground Source Heat Pump (GSHP)

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-Value¹	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	BCIN	Signature
David DaCosta	32964	

SITE COPY

Package: Package A1 System: System 1
Project: Bradford Model: S50-1 Lot 184

Air Leakage Calculations

Building Air Leakage Heat Loss				
B	LRairh	Vb	HL^T	HLleak
0.018	0.317	44570	81.4	20670

Building Air Leakage Heat Gain				
B	LRairh	Vb	HG^T	HG Leak
0.018	0.078	44570	11	692

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	20670	8472	1.2199
Level 2	0.3		17914	0.3462
Level 3	0.2		15003	0.2755
Level 3	0.2		15003	0.2755

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		692	Air Leakage Heat Gain	
BUILDING CONDUCTIVE HEAT GAIN		18650	0.0371	

Levels this Dwelling	
4	

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	114.48	81.4	0.16	1610	1.1	114.48	11	1360		
Case 1					Case 1						
Case 1	Ventilation Heat Loss (Exhaust only Systems)					Ventilation Heat Gain (Exhaust Only Systems)					Case 1
	Case 1 - Exhaust Only					Case 1 - Exhaust Only		Multiplier			
	Level	LF	HLbvent	LVL Cond. HL	Multiplier	HGbvent	1360	0.07			
	Level 1	0.5	1610	8472	0.10	Building	18650				
	Level 2	0.3		17914	0.03						
	Level 3	0.2		15003	0.02						
	Level 3	0.2		15003	0.02						
Case 2					Case 2						
Case 2	Ventilation Heat Loss (Direct Ducted Systems)					Ventilation Heat Gain (Direct Ducted Systems)					Case 2
				Multiplier				Multiplier			
	C	HL^T	(1-E) HRV	14.07		C	HG^T	11.88			
	1.08	81.4	0.16			1.08	11				
Case 3					Case 3						
Case 3	Ventilation Heat Loss (Forced Air Systems)					Ventilation Heat Gain (Forced Air Systems)					Case 3
			HLbvent	Multiplier				Vent Heat Gain	Multiplier		
	Total Ventilation Load		1610	0.04		HGbvent		1360	0.07		
						HG*1.3					
						1					

Foundation Conductive Heatloss Level 1 2237 Watts 7632 Btu/h

Foundation Conductive Heatloss Level 2 Watts Btu/h

Envelope Air Leakage Calculator

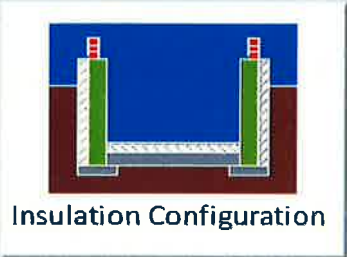
Supplemental tool for CAN/CSA-F280

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:	Detached			
Number of Stories:	Two			
Foundation:	Full			
House Volume (m ³):	1262.22			
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:	
	47.7		47.7	
Flue #:	#1	#2	#3	#4
Diameter (mm):	0	0	0	0
Heating Air Leakage Rate (ACH/H): 0.317				
Cooling Air Leakage Rate (ACH/H): 0.078				

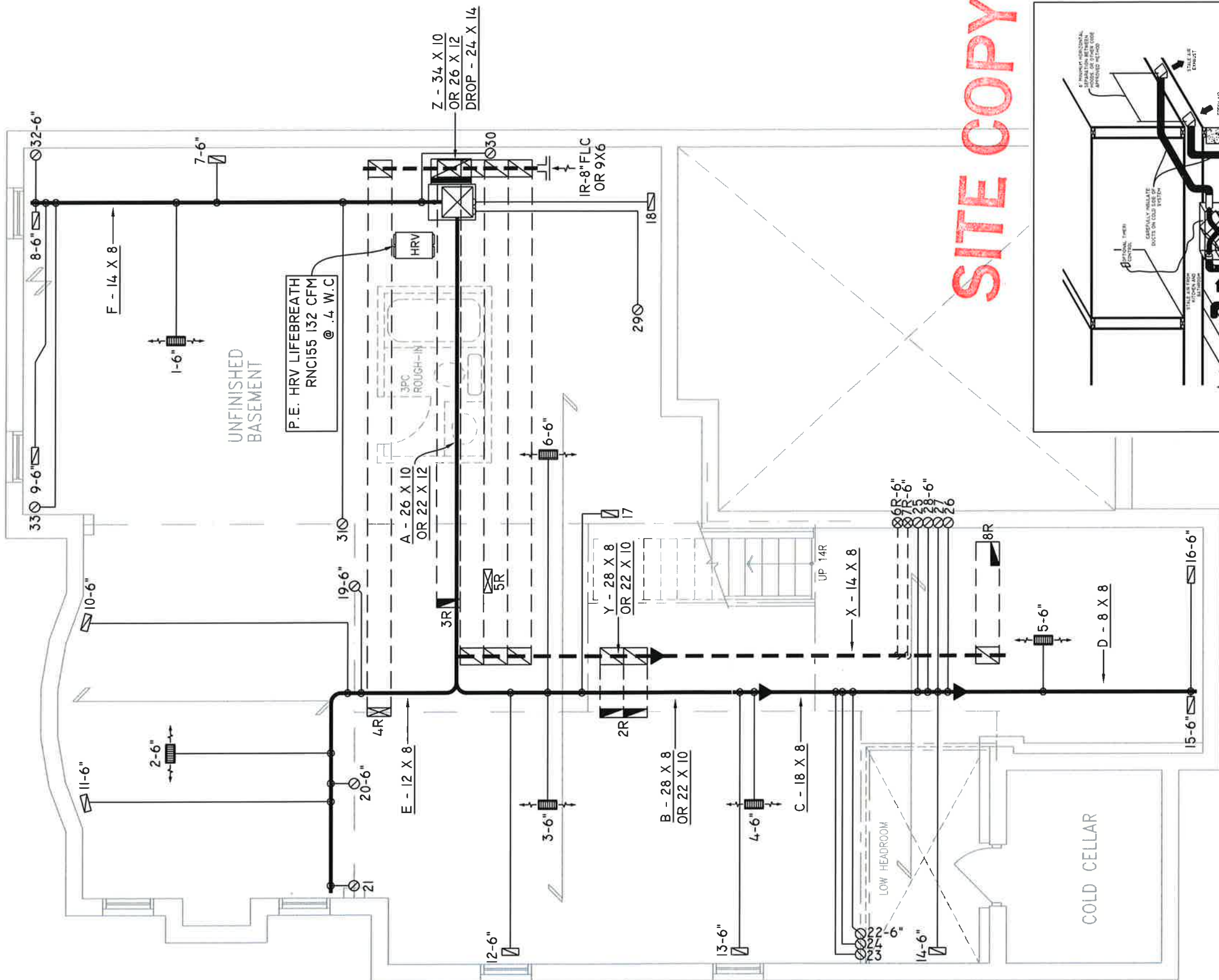
SITE COPY

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):	24.22	 Insulation Configuration
Floor Width (m):	6.26	
Exposed Perimeter (m):	60.96	
Wall Height (m):	2.59	
Depth Below Grade (m):	1.83	
Window Area (m ²):	1.67	
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):		2237

SITE COPY



OPTION 3

SIMPLIFIED CONNECTION TO FURNACE AIR SYSTEM HRV DIAGRAM

Labels in diagram:

- FRESH AIR INLET
- EXHAUST
- OPTIONAL THERMIST
- CASEPALLY HEAT EXCHANGE CORES ON FURNACE SYSTEM
- HEAT EXCHANGE CORE
- FRESH AIR TO BEDROOMS AND BATHROOMS
- OPTION 3
- FURNACE
- EXHAUST
- HRV UNIT

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

DAVID DA COSTA 

SIGNATURE OF DESIGNER

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

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

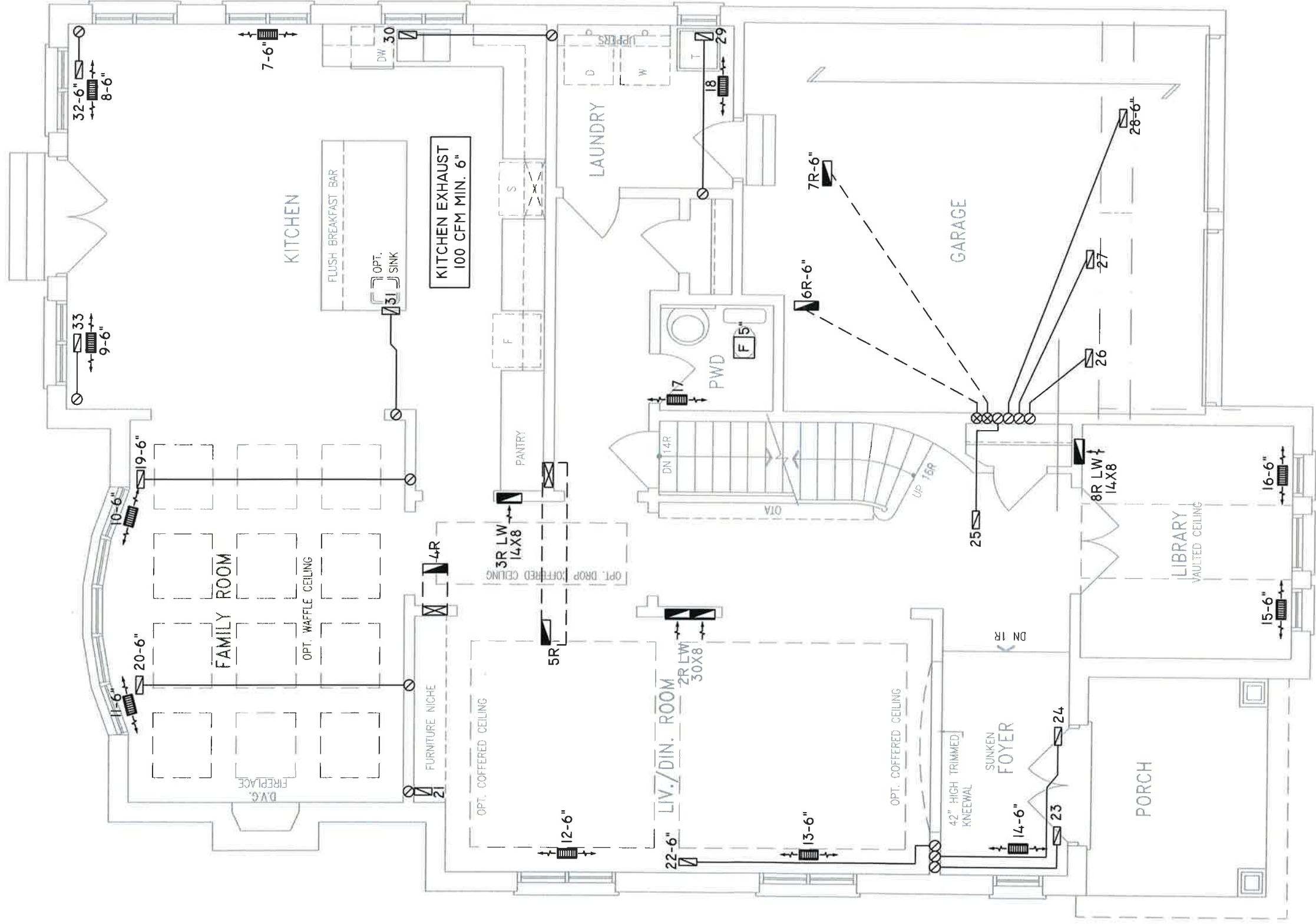
DATE:	NOVEMBER 15, 2018		
CLIENT:	BAYVIEW WELLINGTON		
MODEL:	S50-1 LOT 184 CASTELLO I		
PROJECT:	GREEN VALLEY ESTATES BRADFORD, ONT.		
SCALE:	3/16" = 1'-0"		

# OF RUNS	S/A	R/A	FANS
3RD FLOOR			
2ND FLOOR	15	4	5
1ST FLOOR	12	3	2
BASEMENT	6	1	

FLOOR PLAN: BASEMENT	
DRAWN BY: J.L.	CHECKED: SGT
LAYOUT NO. JB-05329	DRAWING NO. M1

HEAT LOSS	BTU/Hr.
UNIT MAKE	OR EQUAL
UNIT MODEL	OR EQUAL
UNIT HEATING INPUT	BTU/Hr.
UNIT HEATING OUTPUT	BTU/Hr.
A/C COOLING CAPACITY	TONS.
FAN SPEED	CFM

64,111	AMANA	GMEC96-1004CNA	100,000	96,000	3.5	1653
--------	-------	----------------	---------	--------	-----	------



DATE:	NOVEMBER 15, 2018
CLIENT:	BAYVIEW WELLINGTON
MODEL:	S50-1 LOT 184 CASTELLO I
PROJECT:	GREEN VALLEY ESTATES BRADFORD, ONT.
SCALE:	3/16" = 1'-0"

SITE COPY
OBC 2012

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

FLEX DUCT

RIGID ROUND DUCT

SUPPLY DIFFUSER

LOW/HIGH WALL/KICK SUPPLY DIFFUSER

HRV EXHAUST GRILLE

SUPPLY AIR PIPE RISER

VOLUME DAMPER

DUCT CONNECTION TO JOIST LINING

RETURN AIR PIPE RISER

RETURN ROUND DUCT

RETURN AIR GRILLE
(SIZE INDICATED ON DRAWING)

RETURN AIR RISER UP TO FLOOR ABOVE

RETURN AIR FROM BASEMENT

S.A.

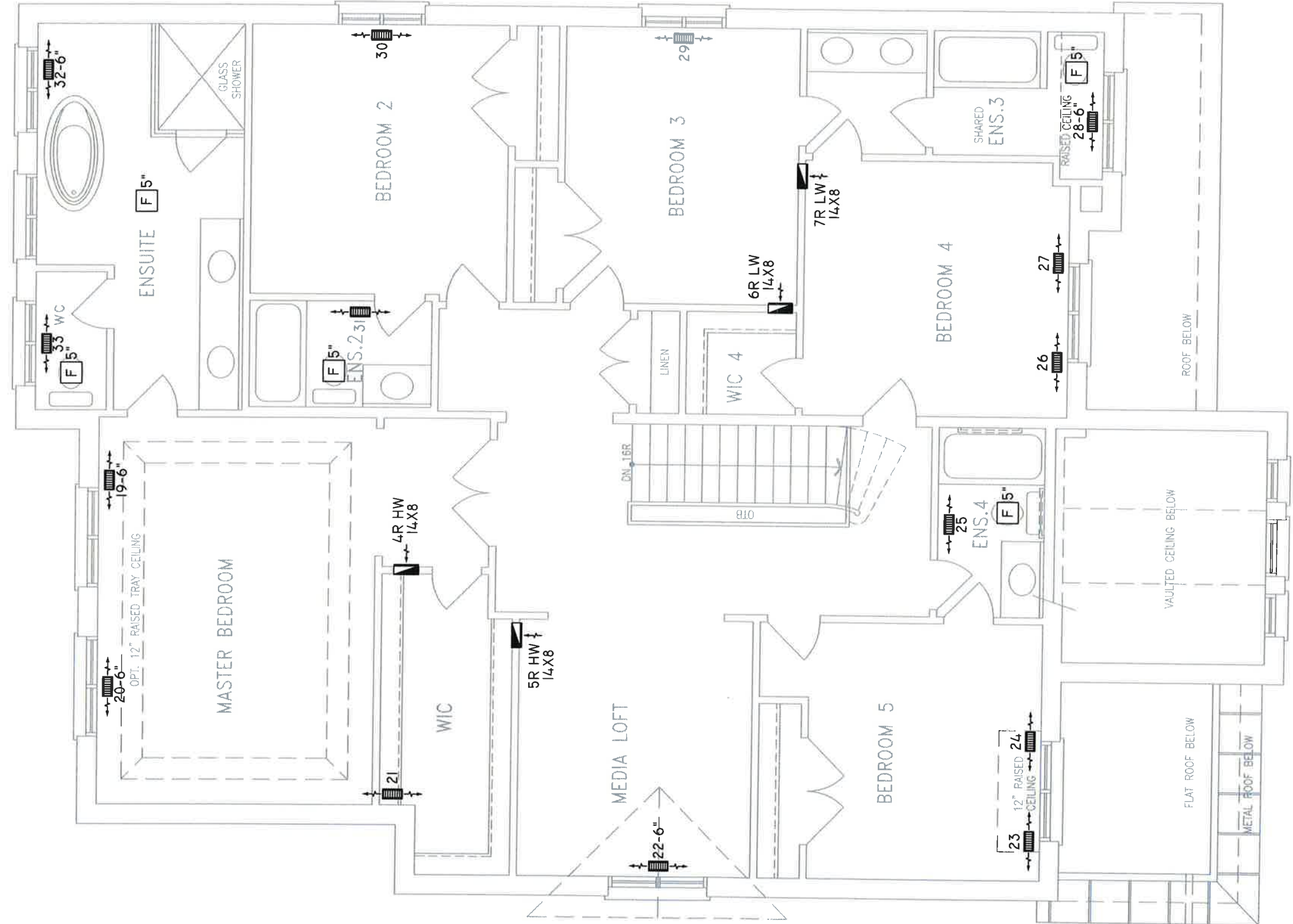
RETURN AIR

R.A.

THERMOSTAT

PRINCIPAL EXHAUST FAN SWITCH

W/R & PRINCIPAL EXHAUST FAN



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

SIGNATURE OF DESIGNER

B.C.I.N. 32964

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.

GTA DESIGNS

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

SITE COPY

OBC 2012

ZONE 1 COMPLIANCE PACKAGE "A1" REF. TABLE 3.1.1.2.A			
DATE:	NOVEMBER 15, 2018	# OF RUNS	3RD FLOOR
CLIENT:	BAYVIEW WELLINGTON	2ND FLOOR	15
MODEL:	S50-1 LOT 184	1ST FLOOR	12
PROJECT:	GREEN VALLEY ESTATES BRADFORD, ONT.	BASEMENT	6
FLOOR PLAN: SECOND FLOOR		CHECKED: DD	
DRAWN BY: JL		SQFT	
LAYOUT NO. JB-05329		3753	
		DRAWING NO. M3	

HEAT-LOSS	64,111	BTU/HR.	
UNIT MAKE	AMANA	OR EQUAL	
UNIT MODEL	GMEC96-1004CNA	OR EQUAL	
UNIT HEATING INPUT	100,000	BTU/HR.	
UNIT HEATING OUTPUT	96,000	BTU/HR.	
A/C COOLING CAPACITY	3.5	TONS.	
FAN SPEED	1653	CFM	