

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:	48
S42-19C - Lot 48				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		hvac@gtadesigns.ca			
Telephone number		(905) 671-9800		Fax number	Cell number
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-08353
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:	3748	Model	S42-19C - Lot 48	
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>July 21, 2022</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.

2985 Drew Road, Suite 202, Mississauga, Ontario L4T 0A4 Tel: 905-671-9800
e-mail hvac@gtadesigns.ca

Page 2

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-08353	
Building Location					
Address (Model): S42-19C - Lot 48			Site: Green Valley East		
Model:			Lot: 48		
City and Province: Bradford			Postal code:		
Calculations based on					
Dimensional information based on:			VA3 Design Oct/2021		
Attachment: Detached		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? VanEE		V150H75NS		Internal shading: Light-translucent	
				Occupants: 6	
Sensible Eff. at -25C 60%		Apparent Effect. at -0C 80%		Units: Imperial	
				Area Sq ft: 3748	
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:			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:			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:		
City: Mississauga			E-mail hvac@gtadesigns.ca		

Air System Design

2985 Drew Road, Suite 202, Mississauga, Ontario L4T 0A4 Tel: 905-671-9800
e-mail hvac@gtadesigns.ca

Builder: **Bayview Wellington**

Date: **July 21, 2022**

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.

Page 3

Project: **Green Valley East**

Model: **S42-19C - Lot 48**

System 1

Individual BCIN: 32964

David DaCosta

Project # **PJ-00041**
Layout # **JB-08353**

DESIGN LOAD SPECIFICATIONS		AIR DISTRIBUTION & PRESSURE		FURNACE/AIR HANDLER DATA:		BOILER/WATER HEATER DATA:		A/C UNIT DATA:	
Level 1 Net Load	23,720 btu/h	Equipment External Static Pressure	0.5 "w.c.	Make	Amana	Make	Type	Amana	3.5 Ton
Level 2 Net Load	26,509 btu/h	Additional Equipment Pressure Drop	0.225 "w.c.	Model	AMEC960804CNA	Model		Cond.-----	3.5
Level 3 Net Load	22,070 btu/h	Available Design Pressure	0.275 "w.c.	Input Btu/h	80000	Input Btu/h		Coil -----	3.5
Level 4 Net Load	0 btu/h	Return Branch Longest Effective Length	300 ft	Output Btu/h	76800	Output Btu/h			
Total Heat Loss	72,300 btu/h	R/A Plenum Pressure	0.138 "w.c.	E.s.p.	0.50 " W.C.	Min.Output Btu/h	AWH		
Total Heat Gain	39,965 btu/h	S/A Plenum Pressure	0.14 "w.c.	Water Temp	deg. F.	Blower DATA:			
		Heating Air Flow Proportioning Factor	0.0214 cfm/btuh	AFUE	96%	Blower Speed Selected:	W2	Blower Type	ECM
Building Volume Vb	47869 ft ³	Cooling Air Flow Proportioning Factor	0.0387 cfm/btuh	Aux. Heat				(Brushless DC OBC 12.3.1.5.(2))	
Ventilation Load	1,677 Btu/h.	R/A Temp	70 deg. F.	SB-12 Package	Package A1	Heating Check	1545 cfm	Cooling Check	1545 cfm
Ventilation PVC	95.4 cfm	S/A Temp	116 deg. F.						
Supply Branch and Grill Sizing		Diffuser loss	0.01 "w.c.	Temp. Rise>>>	46 deg. F.	Selected cfm>	1545 cfm	Cooling Air Flow Rate	1545 cfm

	Level 1												Level 2											
	1	2	3	4	5	6							7	8	9	10	11	12	13	14	15	16	17	18
S/A Outlet No.	BASE	BASE	BASE	BASE	BASE	BASE							KIT	KIT	STUDY	PWD	LAUND	FOY	LIV	LIV	DIN	DIN	FAM	FAM
Room Use	3953	3953	3953	3953	3953	3953							2236	2236	2427	706	2596	3760	2189	2189	1613	1613	2471	2471
Btu/Outlet	84	84	84	84	84	84							48	48	52	15	55	80	47	47	34	34	53	53
Heating Airflow Rate CFM	10	10	10	10	10	10							96	96	92	8	57	76	56	56	82	82	107	107
Cooling Airflow Rate CFM	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
Duct Design Pressure	26	14	26	29	23	18							24	20	27	22	30	34	33	26	28	35	26	32
Actual Duct Length	130	100	110	110	100	90	70	70	70	70	70	70	100	130	70	80	100	150	100	90	100	80	120	90
Equivalent Length	156	114	136	139	123	108	70	70	70	70	70	70	124	150	97	102	130	184	133	116	128	115	146	122
Total Effective Length	0.08	0.11	0.10	0.09	0.11	0.12	0.19	0.19	0.19	0.19	0.19	0.19	0.10	0.09	0.13	0.13	0.10	0.07	0.10	0.11	0.10	0.11	0.09	0.11
Adjusted Pressure	6	6	6	6	6	6							6	6	6	3	5	6	5	5	6	6	6	6
Duct Size Round	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	3x10	3x10	4x10	3x10	3x10	4x10	4x10	4x10	4x10
Outlet Size	H	E	F	C	B	G							E	G	G	H	H	D	B	B	C	C	F	F
Trunk	Level 3												Level 4											
S/A Outlet No.	19	20	21	22	23	24	25	26	27	28	29	30	31											
Room Use	MAST	MAST	HERS	ENS	BED 2	ENS 2	ENS 3	BED 3	BED 3	ENS 4	BED 4	ENS 5	BED 5											
Btu/Outlet	2152	2152	1174	1691	2161	871	1054	2030	2030	1600	2290	214	2652											
Heating Airflow Rate CFM	46	46	25	36	46	19	23	43	43	34	49	5	57											
Cooling Airflow Rate CFM	66	66	36	41	57	10	11	50	50	38	62	3	80											
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
Duct Design Pressure	36	45	30	31	36	39	47	52	46	45	43	27	58											
Actual Duct Length	100	130	110	120	100	90	120	130	140	150	90	130	110	70	70	70	70	70	70	70	70	70	70	70
Equivalent Length	136	175	140	151	136	129	167	182	186	195	133	157	168	70	70	70	70	70	70	70	70	70	70	70
Total Effective Length	0.10	0.07	0.09	0.09	0.10	0.10	0.08	0.07	0.07	0.10	0.08	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
Adjusted Pressure	6	6	4	5	6	3	4	5	5	5	6	2	6											
Duct Size Round	4x10	4x10	3x10	3x10	4x10	3x10	3x10	3x10	3x10	3x10	4x10	3x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10
Outlet Size	E	F	E	G	G	H	D	D	D	D	B	B	C											
Trunk																								

Return Branch And Grill Sizing	Grill Pressure Loss										
R/A Inlet No.	1R	2R	3R	4R	5R	6R	7R	8R	9R	10R	11R
Inlet Air Volume CFM	253	492	245	105	150	150	150				
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	13	6	13	56	37	35	35				
Equivalent Length	155	165	135	150	140	180	185	50	50	50	50
Total Effective Length	168	171	148	206	177	215	220	50	50	50	50
Adjusted Pressure	0.07	0.07	0.08	0.06	0.07	0.05	0.05	0.24	0.24	0.24	0.24
Duct Size Round	8.0	11.5	9.0	6.0	7.5	8.0	8.0				
Inlet Size	FLC	8	8	8	8	8	8				
" "	OR	x	x	x	x	x	x	x	x	x	x
Inlet Size	9x6	30	14	14	14	14	14				
Trunk	Z	Z	Z	Z	Z						

Return Trunk Duct Sizing	CFM	Press.	Round	Rect. Size
Trunk				
Drop	1545	0.05	19.0	24x14
Z	1245	0.06	17.0	26x10 22x12
Y				
X				
W				
V				
U				
T				
S				
R				
Q				

Supply Trunk Duct Sizing	CFM	Press.	Round	Rect. Size
Trunk				
A	666	0.07	13.0	18x8 14x10
B	442	0.08	11.0	14x8 10x10
C	210	0.08	8.5	8x8 107
D	224	0.07	8.5	8x8 107
E	439	0.07	11.0	14x8 10x10
F	236	0.07	9.0	8x8 10x7
G	440	0.08	11.0	14x8 10x10
H	174	0.08	8.0	8x8 8x7
I				
J				
K				

2012 OBC	Builder: Bayview Wellington	Date: July 21, 2022	System 1	Weather Data		Bradford	44	-9.4	86	22	48.2	Page 4	
	Project: Green Valley East	Model: S42-19C - Lot 48		Heat Loss ^T	81.4 deg. F	Ht gain ^T	11 deg. F	GTA:	3748	Project #	PJ-00041		
												Layout #	JB-08353

Level 1				BASE															
Run ft. exposed wall A	196	A		A		A		A		A		A		A		A		A	
Run ft. exposed wall B	B			B		B		B		B		B		B		B		B	
Ceiling height	5.0	AG		5.0	AG	5.0	AG	5.0	AG	5.0	AG	5.0	AG	5.0	AG	5.0	AG	5.0	AG
Floor area	1579	Area		Area		Area		Area		Area		Area		Area		Area		Area	
Exposed Ceilings A	A			A		A		A		A		A		A		A		A	
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	980																		
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	11.62																
East/West	3.55	22.93	29.56	8	183	236													
South	3.55	22.93	22.50	13	298	293													
WOB Windows	3.55	22.93	27.86																
Skylight	2.03	40.10	88.23																
Doors	4.00	20.35	2.75	21	427	58													
Net exposed walls A	21.12	3.85	0.52	938		489													
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																		
	Heat Gain																		
Air Leakage	Heat Loss/Gain	1.2723	0.0418																
Ventilation	Case 1	0.08	0.05																
	Case 2	17.58	11.88																
	Case 3	x	0.04	0.05															
Heat Gain People			239																
Appliances Loads	1 = .25 percent		6349																
Duct and Pipe loss			10%																
Level HL Total	23,720	Total HL for per room		23720															
Level HG Total	1,533	Total HG per room x 1.3			1533														

Level 2		KIT		STUDY		PWD		LAUND		FOY		LIV		DIN		FAM		A		A		A										
Run ft. exposed wall A		27 A		22 A		6 A		19 A		23 A		42 A		23 A		35 A		A B		A B		A B										
Run ft. exposed wall B		B		B		B		B		B		B		B		B		B		B		B										
Ceiling height		11.0		11.0		11.0		14.0		12.0		11.0		11.0		11.0		11.0		11.0		11.0										
Floor area		526 Area		137 Area		39 Area		87 Area		63 Area		276 Area		219 Area		226 Area		Area		Area		Area										
Exposed Ceilings A		A		A		A		A		A		A		A		5 A		A		A		A										
Exposed Ceilings 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										
Gross Exp Wall A		297		242		66		266		276		462		253		385																
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	Loss	Gain										
North Shaded		3.55	22.93	11.62					9	206	105		9	206	105		29	665	857	14	321	414										
East/West		3.55	22.93	29.56	89	2041	2631		27	619	798		29	665	857	14	321	414	27	619	798	55	1261	1626								
South		3.55	22.93	22.50									14	321	315	28	642	630	27	619	608	28	642	630								
Existing Windows		1.99	40.90	23.66																												
Skylight		2.03	40.10	88.23																												
Doors		4.00	20.35	2.75									21	427	58		29	590	80													
Net exposed walls A		17.03	4.78	0.65	208	994	134		215	1028	139		57	272	37	236	1128	152	204	975	132	420	2008	271	199	951	129	302	1443	195		
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				3035																											
	Heat Gain					2765																										
Air Leakage	Heat Loss/Gain			0.4357	0.0418				1322	116			718	39		209	6		768	13			1112	58		1294	55		954	64	1461	103
Ventilation	Case 1			0.03	0.05																											
	Case 2			17.58	11.88																											
	Case 3	x		0.04	0.05																											
Heat Gain People					239																											
Appliances Loads		1 =.25 percent			6349				0.5		794		0.5		794		0.5		794		1.0		1587		1.0		1587					
Duct and Pipe loss					10%																											
Level HL Total	26,509	Total HL for per room			4473																											
Level HG Total	23,712	Total HG per room x 1.3				4973																										

Total Heat Loss	72,300	btu/h
Total Heat Gain	39,965	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

Builder: Bayview Wellington	Date: July 21, 2022	Weather Data	Bradford	44	-9.4	86	22	48.2		
2012 OBC	Project: Green Valley East	Model: S42-19C - Lot 48	System 1	Heat Loss ^T	81.4 deg. F	Ht gain ^T	11 deg. F	GTA: 3748	Project #	PJ-00041
									Layout #	JB-08353

Level 3	MAST	HERS	ENS	BED 2	ENS 2	ENS 3	BED 3	ENS 4	BED 4	ENS 5	BED 5
Run ft. exposed wall A	32 A	11 A	18 A	25 A	10 A	7 A	27 A	19 A	23 A	2 A	25 A
Run ft. exposed wall B	B	B	B	B	B	B	B	B	B	B	B
Ceiling height	10.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Floor area	448 Area	67 Area	147 Area	202 Area	54 Area	66 Area	327 Area	71 Area	195 Area	58 Area	212 Area
Exposed Ceilings A	448 A	67 A	147 A	202 A	54 A	66 A	327 A	71 A	195 A	58 A	212 A
Exposed Ceilings B	B	B	B	B	B	B	B	B	B	B	B
Exposed Floors	Flr	Flr	Flr	Flr	6 Flr	66 Flr	201 Flr	Flr	13 Flr	Flr	Flr
Gross Exp Wall A	320	88	144	200	80	56	216	152	184	16	200
Gross Exp Wall B											
Components	R-Values	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain
North Shaded	3.55	22.93	11.62								
East/West	3.55	22.93	29.56	37	848	1094					
South	3.55	22.93	22.50	18	413	405					
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	265	1267	171	69	330	45	125	597
Net exposed walls B	8.50	9.58	1.29								
Exposed Ceilings A	59.22	1.37	0.64	448	616	287	67	92	43	147	202
Exposed Ceilings B	27.65	2.94	1.37								
Exposed Floors	29.80	2.73	0.17								
Foundation Conductive Heatloss											
Total Conductive	Heat Loss			3144				858		1235	
	Heat Gain				1957				649	737	
Air Leakage	Heat Loss/Gain	0.3309	0.0418	1040	82			284	27	409	31
Ventilation	Case 1		0.02								
	Case 2		17.58								
	Case 3	x	0.04								
Heat Gain People			239	2	120	107		33	35	47	40
Appliances Loads	1 =.25 percent		6349								
Duct and Pipe loss			10%								
Level HL Total	22,070		Total HL for per room	4303				1174		1691	
Level HG Total	14,721		Total HG per room x 1.3		3411				925		1050
											1463
											265
											293
											2601
											988
											1593
											68
											2064

Level 4	MAST	HERS	ENS	BED 2	ENS 2	ENS 3	BED 3	ENS 4	BED 4	ENS 5	BED 5
Run ft. exposed wall 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
Ceiling height											
Floor 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
Exposed Ceilings 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
Gross Exp Wall A											
Gross Exp Wall B											
Components	R-Values	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain
North Shaded	3.55	22.93	11.62								
East/West	3.55	22.93	29.56								
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								
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											
Total Conductive	Heat Loss										
	Heat Gain										
Air Leakage	Heat Loss/Gain	0.0000	0.0418								
Ventilation	Case 1		0.00								
	Case 2		17.58								
	Case 3	x	0.04								
Heat Gain People			239								
Appliances Loads	1 =.25 percent		6349								
Duct and Pipe loss			10%								
Level HL Total	0		Total HL for per room								
Level HG Total	0		Total HG per room x 1.3								

Total Heat Loss	72,300	btu/h
Total Heat Gain	39,965	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

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: **S42-19C - Lot 48**

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	7 @	10.6 cfm	74.2	cfm
Other rooms	6 @	10.6 cfm	63.6	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	

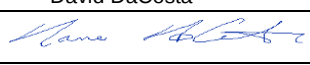
Principal Exhaust Fan Capacity				
Make	Model	Location		
VanEE	V150H75NS	Base		
127 cfm		Sones	or Equiv.	

Heat Recovery Ventilator				
Make	VanEE			
Model	V150H75NS			
	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			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	July 21, 2022		



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-08353

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 S42-19C - Lot 48		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)	☒ ≥ 92% AFUE	☒ Gas	☐ Propane	☐ Solid Fuel
☐ Zone 2 (≥ 5000 degree days)	☐ ≥ 84% < 92% AFUE	☐ Oil	☐ Electric	☐ Earth Energy
Ratio of Windows, Skylights & Glass (W, S & G) to Wall Area		Other Building Characteristics		
Area of Walls = <u>453.63</u> m ² or <u>4882.9</u> ft ²	W,S & G % = <u>12.9%</u>	☐ Log/Post&Beam	☐ ICF Above Grade	☐ ICF Basement
Area of W, S & G = <u>58.341</u> m ² or <u>628.0</u> ft ²	Utilize Window Averaging ☐ Yes ☒ No	☐ Slab-on-ground	☐ Walkout Basement	☐ Air Conditioning
		☒ Air Sourced Heat Pump (ASHP)	☐ Combo Unit	☐ 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-Value ¹		Building Component	Efficiency Ratings
Thermal Insulation	Nominal	Effective	Windows & Doors Provide U-Value ⁽¹⁾ 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	Mechanicals	
Walls Above Grade	22	17.03	Heating Equip.(AFUE)	96%
Basement Walls	20.0ci	21.12	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/(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
------------------------------	----------------------	---------------

Package: **Package A1** System: **System 1**
Project: **Bradford** Model: **S42-19C - Lot 48**

Air Leakage Calculations

Building Air Leakage Heat Loss				
B	LRairh	Vb	HL^T	HLleak
0.018	0.372	47869	81.4	26125

Building Air Leakage Heat Gain				
B	LRairh	Vb	HG^T	HG Leak
0.018	0.092	47869	11	869

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	26125	10267	1.2723
Level 2	0.3		17987	0.4357
Level 3	0.2		15791	0.3309
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	
		869		0.0418
BUILDING CONDUCTIVE HEAT GAIN			20770	

Levels this Dwelling	
3	

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	95.4	81.4	0.20	1677	1.1	95.4	11	1133		
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	1133	0.05			
	Level 1	0.5	1677	10267	0.08	Building	20770				
	Level 2	0.3		17987	0.03						
	Level 3	0.2		15791	0.02						
Level 4	0	0		0.00							
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	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)					Case 3
			HLbvent	Multiplier				Vent Heat Gain	Multiplier		
	Total Ventilation Load		1677	0.04		HGbvent	HG*1.3	1133	0.05		
					1133	1					

Foundation Conductive Heatloss Level 1	Level 1	2743	Watts	9358	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

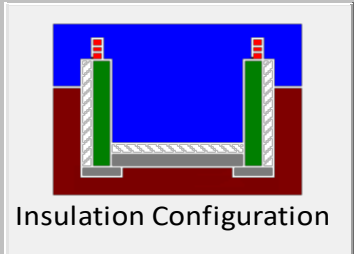
Envelope Air Leakage Calculator

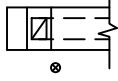
Supplemental tool for CAN/CSA-F280

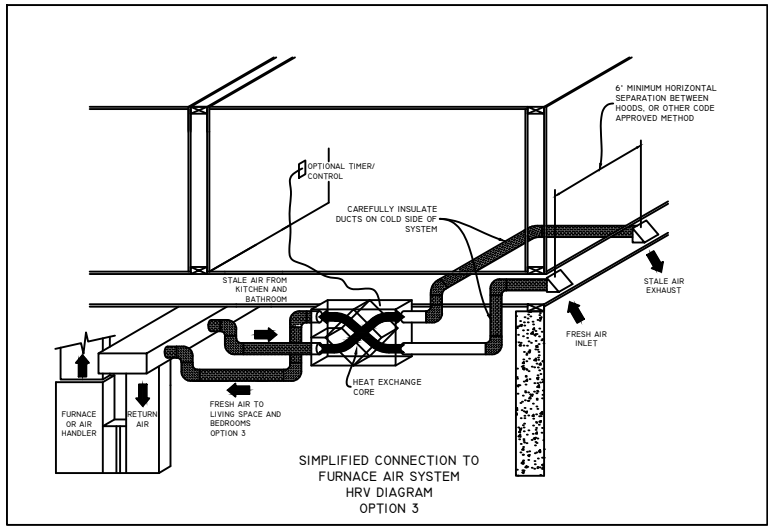
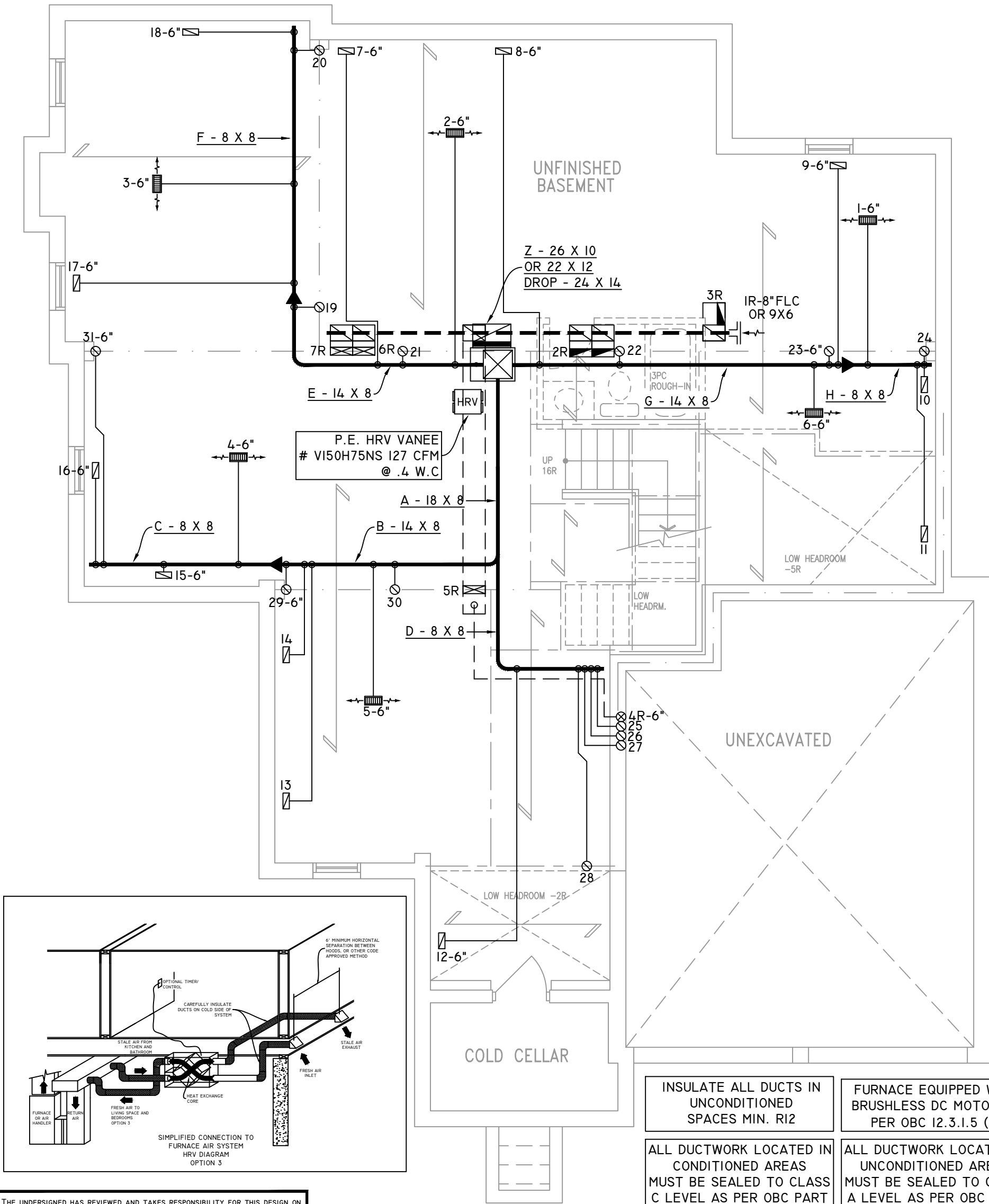
Weather Station Description				
Province:	Ontario ▼			
Region:	Bradford ▼			
Weather Station Location:	Open flat terrain, grass ▼			
Anemometer height (m):	10			
Local Shielding				
Building Site:	Suburban, forest ▼			
Walls:	Heavy ▼			
Flue:	Heavy ▼			
Highest Ceiling Height (m):	7.92			
Building Configuration				
Type:	Detached			
Number of Stories:	Two			
Foundation:	Shallow			
House Volume (m ³):	1355.65			
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): 0.372				
Cooling Air Leakage Rate (ACH/H): 0.092				

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):	23.67	 Insulation Configuration
Floor Width (m):	6.20	
Exposed Perimeter (m):	59.74	
Wall Height (m):	3.05	
Depth Below Grade (m):	1.52	
Window Area (m ²):	1.95	
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):		2743

	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



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 *David Da Costa* B.C.I.N. 32964

SIGNATURE OF DESIGNER

- INSULATE ALL DUCTS IN UNCONDITIONED SPACES MIN. R12
- FURNACE EQUIPPED WITH BRUSHLESS DC MOTOR AS PER OBC 12.3.1.5 (2)
- ALL DUCTWORK LOCATED IN CONDITIONED AREAS MUST BE SEALED TO CLASS C LEVEL AS PER OBC PART 6-6.2.4.3.(12)
- ALL DUCTWORK LOCATED IN UNCONDITIONED AREAS MUST BE SEALED TO CLASS A LEVEL AS PER OBC PART 6-6.2.4.3.(11)

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.

GTADESIGNS

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

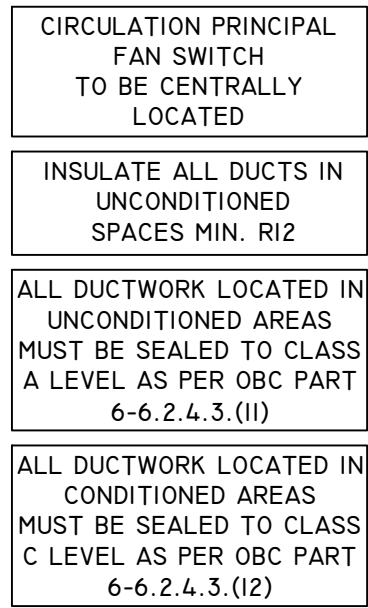
HEAT-LOSS	72,300	BTU/HR.
UNIT MAKE	AMANA	OR EQUAL.
UNIT MODEL	AMEC960804CNA	OR EQUAL.
UNIT HEATING INPUT	80,000	BTU/HR.
UNIT HEATING OUTPUT	76,800	BTU/HR.
A/C COOLING CAPACITY	3.5	TONS.
FAN SPEED	1545	CFM

# OF RUNS	S/A	R/A	FANS
3RD FLOOR			
2ND FLOOR	13	4	6
1ST FLOOR	12	2	2
BASEMENT	6	1	

FLOOR PLAN:	BASEMENT
DRAWN BY:	JL
CHECKED:	DD
LAYOUT NO.	JB-08353
SQFT	3748
DRAWING NO.	MI

DATE:	JULY 21, 2022
CLIENT:	BAYVIEW WELLINGTON
MODEL:	S42-19C - LOT 48
PROJECT:	GREEN VALLEY EAST BRADFORD,ONT.
SCALE:	3/16" = 1'-0"

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



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

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

 **GTADESIGNS**

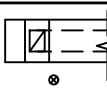
2985 DREW ROAD
SUITE 202,
MISSISSAUGA, ONT.

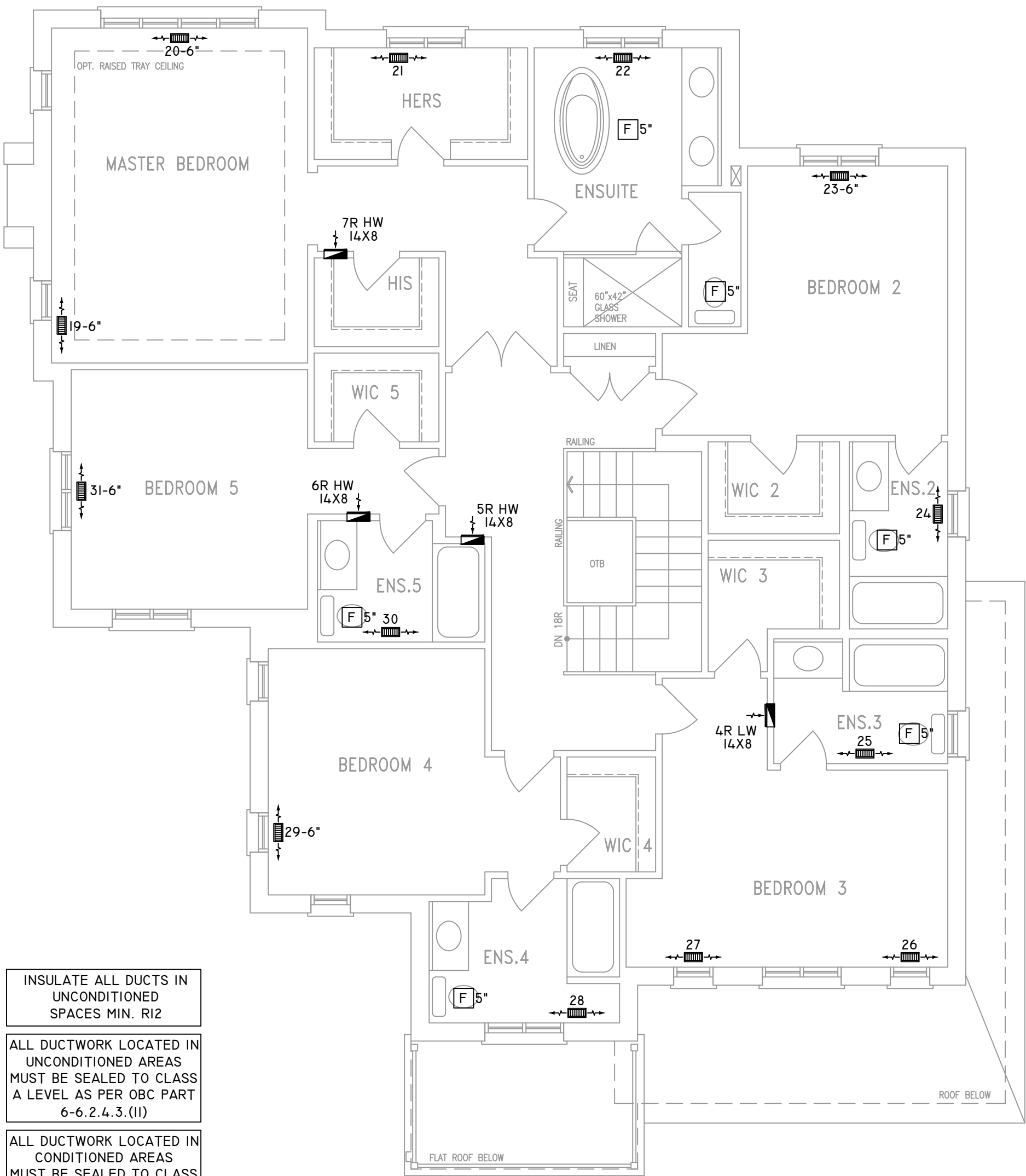
L4T 0A4 TEL: 905-671-9800
EMAIL: DAVE@GTADESIGNS.CA
WEB: WWW.GTADESIGNS.CA

# OF RUNS	S/A	R/A	FANS
3RD FLOOR			
2ND FLOOR	13	4	6
1ST FLOOR	12	2	2
BASEMENT	6	1	

FLOOR PLAN:		
GROUND FLOOR		
DRAWN BY: JL	CHECKED: DD	SQFT 3748
LAYOUT NO. JB-08353		DRAWING NO. M2

DATE:	JULY 21, 2022
CLIENT:	BAYVIEW WELLINGTON
MODEL:	S42-I9C - LOT 48
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 PIPE RISER		RETURN ROUND DUCT		RETURN AIR GRILLE (SIZE INDICATED ON DRAWING)	S.A.	SUPPLY AIR
	RIGID ROUND DUCT		HRV EXHAUST GRILLE									R.A.	RETURN AIR
	SUPPLY DIFFUSER		SUPPLY AIR PIPE RISER									T	THERMOSTAT
			VOLUME DAMPER									\$	PRINCIPAL EXHAUST FAN SWITCH
												F	W/R & PRINCIPAL EXHAUST FAN
												PE	



- 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

OBC 2012

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

NOTES

INSTALLATION TO COMPLY WITH THE LATEST ONTARIO BUILDING CODE.

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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.



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L4T 0A4 TEL: 905-671-9800
EMAIL: DAVE@GTADESIGNS.CA
WEB: WWW.GTADESIGNS.CA

HEAT-LOSS	72,300	BTU/HR.
UNIT MAKE	AMANA	OR EQUAL.
UNIT MODEL	AMEC960804CNA	OR EQUAL.
UNIT HEATING INPUT	80,000	BTU/HR.
UNIT HEATING OUTPUT	76,800	BTU/HR.
A/C COOLING CAPACITY	3.5	TONS.
FAN SPEED	1545	CFM

# OF RUNS	S/A	R/A	FANS
3RD FLOOR			
2ND FLOOR	13	4	6
1ST FLOOR	12	2	2
BASEMENT	6	1	

FLOOR PLAN: SECOND FLOOR	
DRAWN BY: JL	CHECKED: DD
LAYOUT NO. JB-08353	SQFT 3748
	DRAWING NO. M3

DATE:	JULY 21, 2022
CLIENT:	BAYVIEW WELLINGTON
MODEL:	S42-I9C - LOT 48
PROJECT:	GREEN VALLEY EAST BRADFORD,ONT.
SCALE:	3/16" = 1'-0"