

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 40-6 Dalton 40-6 Opt 2nd. Flr.			Lot:	
			Lot/con.	
Municipality Newcastle (Bowmanville)	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 dave@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		Layout #
Heating and Cooling Load Calculations Air System Design Residential mechanical ventilation Design Summary Residential System Design per CAN/CSA-F280-12		Builder	Delpark Highcastle	
		Project	Northglen	
		Model	40-6 Dalton	
		SB-12	40-6 Opt 2nd. Flr.	
				Package D
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>April 15, 2015</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 Delpark Highcastle				Layout No.	
and may not be used by any other persons without authorization. Documents for permit and/or construction are signed in red.				JB-00039	
Building Location					
Address (Model): 40-6 Opt 2nd. Flr.			Site: Northglen		
Model: 40-6 Dalton			Lot:		
City and Province: Newcastle (Bowmanville)			Postal code:		
Calculations based on					
Dimensional information based on:			N/A		
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: Newcastle (Bowmanville)		Wind exposure: Shelterd			
HRV?		Internal shading: Light-translucent Occupants: 5			
Sensible Eff. at -25C 0		Apparent Effect. at -0C 0		Units: Imperial Area Sq. ft 2517	
Heating design conditions			Cooling design conditions		
Outdoor temp: -4.0 Indoor temp: 72 Mean soil temp: 50			Outdoor temp: 86 Indoor temp: 75 Latitude: 44		
Above grade walls			Below grade walls		
Style A: As per Selected OBC SB12 Package D R 24			Style A: As per Selected OBC SB12 Package D R 20		
Style B: Existing Walls (When Applicable) R 12			Style B:		
Style C:			Style C:		
Style D:			Style D:		
Floors on soil			Ceilings		
Style A: As per Selected OBC SB12 Package D			Style A: As per Selected OBC SB12 Package D R 50		
Style B:			Style B: As per Selected OBC SB12 Package D R 31		
Exposed floors			Style C:		
Style A: As per Selected OBC SB12 Package D R 31			Doors		
Style B:			Style A: As per Selected OBC SB12 Package D R 3.01		
Windows			Style B:		
Style A: As per Selected OBC SB12 Package D R 3.15			Style C:		
Style B: Existing Windows (When Applicable) R 1.99			Skylights		
Style C:			Style A: As per Selected OBC SB12 Package D R 2.03		
Style D:			Style B:		
Attached documents: As per Shedule 1					
Notes:					
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: Delpark Highcastle

2015 April 15, 2015

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: Northglen

Model: 40-6 Dalton
40-6 Opt 2nd. Flr.

System 1

Individual BCIN: 32964

David DaCosta

Project # PJ-00022
Layout # JB-00039

DESIGN LOAD SPECIFICATIONS		AIR DISTRIBUTION & PRESSURE		FURNACE/AIR HANDLER DATA:		BOILER/WATER HEATER DATA:		A/C UNIT DATA:	
Level 1 Net Load	16,608 btu/h	Equipment External Static Pressure	0.5 "w.c.	Make	Amana	Make	Type	Amana	2.0 Ton
Level 2 Net Load	17,248 btu/h	Additional Equipment Pressure Drop	0.225 "w.c.	Model	GMEC960603BNA	Model		Cond.-----	2.0
Level 3 Net Load	14,010 btu/h	Available Design Pressure	0.275 "w.c.	Input Btu/h	60000	Input Btu/h		Coil -----	2.0
Level 4 Net Load	0 btu/h	Return Branch Longest Effective Length	300 ft	Output Btu/h	57600	Output Btu/h			
Total Heat Loss	47,866 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	22,568 btu/h	S/A Plenum Pressure	0.14 "w.c.	Water Temp	deg. F.	Blower DATA:			
Total Heat Loss + 10%	52,653 Btu/h	Heating Air Flow Proportioning Factor	0.0244 cfm/btu/h	AFUE	96%	Blower Speed Selected:	W2	Blower Type	ECM
Building Volume Vb	28390 ft³	Cooling Air Flow Proportioning Factor	0.0518 cfm/btu/h	Aux. Heat				(Brushless DC OBC 12.3.1.5.(2))	
Ventilation Load	7,047 Btu/h.	R/A Temp	70 deg. F.	SB-12 Package	Package D	Heating Check	1170 cfm	Cooling Check	1170 cfm
Ventilation PVC	75 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>	1170 cfm	Cooling Air Flow Rate	1170 cfm

	Level 1 Outlets														Level 2 Outlets												
S/A Outlet No.	19	20	21	22											11	12	13	14	15	16	17	18	23				
Room Use	BASE	BASE	BASE	BASE											KIT	KIT	GREAT	GREAT	LAUND	FOY	WIC 3	LIV/DIN	PLEN				
Btu/Outlet	4152	4152	4152	4152											1960	1960	1820	1820	2909	1966	927	2331	1555				
Heating Airflow Rate CFM	101	101	101	101											48	48	44	44	71	48	23	57	38				
Cooling Airflow Rate CFM	9	9	9	9											95	95	66	66	96	94	25	141	7				
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				
Actual Duct Length	41	31	20	21											42	38	47	43	30	24	30	25	44				
Equivalent Length	130	130	100	90	90	90	90	90	90	90	90	90	90	100	120	150	110	110	120	100	170	90	90				
Total Effective Length	171	161	120	111	90	90	90	90	90	90	90	90	90	142	158	197	153	140	134	150	125	214	90	90			
Adjusted Pressure	0.08	0.08	0.11	0.12	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.09	0.08	0.07	0.08	0.09	0.10	0.09	0.10	0.06	0.14	0.14			
Duct Size Round																							6				
Outlet Size	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10			
Trunk	D	C	B	E											C	C	D	D	E	F	F	E	F				
	Level 3 Outlets														Level 4 Outlets												
S/A Outlet No.	1	2	3	4	5	6	7	8	9	10																	
Room Use	MASTER	MASTER	WIC	ENS 2	BED 2	WIC 2	BED 3	ENS 3/4	BED 4	INSUITE																	
Btu/Outlet	1445	1445	638	1100	2639	1072	1933	655	1329	1753																	
Heating Airflow Rate CFM	35	35	16	27	65	26	47	16	32	43																	
Cooling Airflow Rate CFM	61	61	8	19	84	26	72	17	52	47																	
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				
Actual Duct Length	52	67	58	70	46	42	45	50	42	68																	
Equivalent Length	180	120	160	145	160	150	120	190	120	150	90	90	90	90	90	90	90	90	90	90	90	90	90				
Total Effective Length	232	187	218	215	206	192	165	240	162	218	90	90	90	90	90	90	90	90	90	90	90	90	90				
Adjusted Pressure	0.06	0.07	0.06	0.06	0.06	0.07	0.08	0.05	0.08	0.06	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14				
Duct Size Round																											
Outlet Size	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10				
Trunk	D	D	D	D	F	F	F	F	B	C																	

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	160	110	170	380	160	160	30				
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	9	28	23	31	8	21	40				
Equivalent Length	190	215	125	230	145	210	195	70	70	70	70
Total Effective Length	199	243	148	261	153	231	235	70	70	70	70
Adjusted Pressure	0.06	0.05	0.08	0.05	0.08	0.05	0.05	0.17	0.17	0.17	0.17
Duct Size Round	7.0	7.0	7.0	2x8	8.0	7.0	5.0				
Inlet Size	8	8	8	8	8						
" "	x	x	x	x	x	x	x	x	x	x	x
Inlet Size	14	14	14	30	14	FLC	FLC				
Trunk	Z	Z	Z	Y	Z	Z	Y				

Return Trunk Duct Sizing				
Trunk	CFM	Press.	Round	Rect. Size
Drop	1170	0.05	17.0	24x12
Z	1170	0.05	17.0	26x10 22x12
Y	410	0.05	11.5	14x8 12x10
X				
W				
V				
U				
T				
S				
R				
Q				

Supply Trunk Duct Sizing				
Trunk	CFM	Press.	Round	Rect. Size
A	#####			
B	#####			
C	#####			
D	#####			
E	#####			
F	#####			
G	#####			
H	#####			
I	#####			
J	#####			
K	#####			

2012 OBC	Builder: Delpark Highcastle	Date: April 15, 2015	Weather Data Newcastle (Bowmanville) 44 -4.0 86 20 50	Project # PJ-00022
	Project: Northglen	Model: 40-6 Dalton 40-6 Opt 2nd. Flr.	Heat Loss ^T 76 deg. F Ht gain ^T 11 deg. F GTA: 2517	Layout # JB-00039

Level 1				BASE		A		A		A		A		A		A		A		A		A	
Run ft. exposed wall A	140	A																					
Run ft. exposed wall B	B																						
Ceiling height	2.0	AG																					
Floor area	1070	Area																					
Exposed Ceilings A	A																						
Exposed Ceilings B	B																						
Exposed Floors	Flr																						
Gross Exp Wall A	280																						
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	Loss	Gain
North Shaded	3.15	24.13	11.31																				
East/West	3.15	24.13	27.75	3	72	83																	
South	3.15	24.13	21.28	6	145	128																	
Existing Windows	1.99	38.19	22.15																				
Skylight	2.03	37.44	88.23																				
Doors	3.01	25.25	3.65	21	530	77																	
Net exposed walls A	13.79	5.51	0.80	250		199																	
Net exposed walls B	8.50	8.94	1.29																				
Exposed Ceilings A	50.00	1.52	0.76																				
Exposed Ceilings B	22.86	3.32	1.66																				
Exposed Floors	22.05	3.45	0.23																				
Foundation Conductive Heatloss	Slab On Grade (x)			7131																			
Total Conductive	Heat Loss			7878																			
	Heat Gain				487																		
Air Leakage	Heat Loss/Gain		0.7175	5652	18																		
Ventilation	Case 1	x	0.39	3078	41																		
	Case 2		82.08																				
	Case 3		0.21																				
	Heat Gain People																						
Appliances Loads	1 = .25 percent			4150																			
Duct and Pipe loss				10%																			
Level 1 HL Total	16,608			16608																			
Level 1 HG Total	710				710																		

Level 2				KIT		GREAT		LAUND		FOY		WIC 3		LIV/DIN		PLEN		A		A		A	
Run ft. exposed wall A	34	A																					
Run ft. exposed wall B	B																						
Ceiling height	10.0																						
Floor area	277	Area																					
Exposed Ceilings A	A																						
Exposed Ceilings B	B																						
Exposed Floors	Flr																						
Gross Exp Wall A	340																						
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	Loss	Gain
North Shaded	3.15	24.13	11.31																				
East/West	3.15	24.13	27.75	38	917	1054																	
South	3.15	24.13	21.28	15	362	319																	
Existing Windows	1.99	38.19	22.15																				
Skylight	2.03	37.44	88.23																				
Doors	3.01	25.25	3.65																				
Net exposed walls A	15.13	5.02	0.73	287	1442	209																	
Net exposed walls B	8.50	8.94	1.29																				
Exposed Ceilings A	50.00	1.52	0.76																				
Exposed Ceilings B	22.86	3.32	1.66																				
Exposed Floors	22.05	3.45	0.23																				
Foundation Conductive Heatloss	Slab On Grade (x)																						
Total Conductive	Heat Loss			2720																			
	Heat Gain				1582																		
Air Leakage	Heat Loss/Gain		0.2854	776	58																		
Ventilation	Case 1	x	0.16	423	135																		
	Case 2		82.08																				
	Case 3		0.21																				
	Heat Gain People																						
Appliances Loads	1 = .25 percent			1038																			
Duct and Pipe loss				10%																			
Level 2 HL Total	17,248			3920																			
Level 2 HG Total	13,237				3657																		

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 D

Total Heat Loss	47,866	btu/h
Total Heat Gain	22,568	btu/h

2012 OBC	Builder: Delpark Highcastle	Date: April 15, 2015	Weather Data Newcastle (Bowmanville) 44 -4.0 86 20 50	Project # PJ-00022
	Project: Northglen	Model: 40-6 Dalton 40-6 Opt 2nd. Flr.	Heat Loss ^T 76 deg. F Ht gain ^T 11 deg. F GTA: 2517	Layout # JB-00039

Level 3																																
Run ft. exposed wall A	30 A	9 A	11 A	27 A	11 A	20 A	6 A	13 A	20 A	A	A																					
Run ft. exposed wall B	B	B	B	B	B	B	B	B	B	B	B																					
Ceiling height	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0																							
Floor area	212 Area	73 Area	100 Area	163 Area	42 Area	133 Area	85 Area	115 Area	99 Area	Area	Area																					
Exposed Ceilings A	212 A	73 A	100 A	163 A	42 A	133 A	85 A	115 A	99 A	A	A																					
Exposed Ceilings B	B	B	B	B	B	B	B	B	B	B	B																					
Exposed Floors	Flr	Flr	Flr	Flr	20 Flr	Flr	Flr	Flr	Flr	Flr	Flr																					
Gross Exp Wall A	240	72	88	216	88	160	48	104	160																							
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	3.15	24.13	11.31			8	193	90		8	193	222	16	386	444			9	217	250												
East/West	3.15	24.13	27.75	32	772	888																										
South	3.15	24.13	21.28																													
Existing Windows	1.99	38.19	22.15											6	145	128	15	362	319	9	217	192										
Skylight	2.03	37.44	88.23																													
Doors	3.01	25.25	3.65																													
Net exposed walls A	15.13	5.02	0.73	208	1045	151	72	362	52	80	402	58	192	964	140	80	402	58	144	723	105	42	211	31	89	447	65	142	713	103		
Net exposed walls B	8.50	8.94	1.29																													
Exposed Ceilings A	50.00	1.52	0.76	212	322	161	73	111	55	100	152	76	163	248	124	42	64	32	133	202	101	85	129	65	115	175	87	99	150	75		
Exposed Ceilings B	22.86	3.32	1.66																													
Exposed Floors	22.05	3.45	0.23													20	69	5														
Foundation Conductive Heatloss																																
Total Conductive	Heat Loss			2139			473			747			1791			728			1312			485			984			1298				
	Heat Gain				1200		108		225		798		798		317		650		223		471		223		471		620					
Air Leakage	Heat Loss/Gain	0.2271	0.0368	486	44		107	4	170	8	407	29	165	12		298	24	110	8	223	17	295	23									
Ventilation	Case 1	x	0.12	265	102		58	9	92	19	222	68	90	27		162	55	60	19	122	40	161	53									
	Case 2		82.08																													
	Case 3		0.21																													
Heat Gain People			239	2		478					1		239			1		239			1		239									
Appliances Loads	1 = .25 percent		4150																													
Duct and Pipe loss			10%							1	92	24	1	220	110	1	89	34	1	161	94											
Level 3 HL Total	14,010		Total HL per room	2889			638			1100			2639			1072			1933			655			1329			1753				
Level 3 HG Total	8,621		Total HG per room x 1.3		2372			157			359			1618			506			1381			325			998			904			

	Level 4																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
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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



David DaCosta

SB-12 Package

Package D

Total Heat Loss	47,866	btu/h
Total Heat Gain	22,568	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 D** **System:** **System 1**
Project: **Newcastle (Bowmanville)** **Model:** **40-6 Opt 2nd. Flr.**

RESIDENTIAL MECHANICAL VENTILATION DESIGN SUMMARY

For systems serving one dwelling unit & conforming to the Ontario Building Code, O.geg 159/93

Location of Installation	
Lot #	Plan #
Township	Newcastle (Bowmanville)
Roll #	Permit #
Address	

Builder	
Name	Delpark Highcastle
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	@	20	cfm 40 cfm
Other Bedrooms	3	@	10	cfm 30 cfm
Bathrooms & Kitchen	5	@	10	cfm 50 cfm
Other rooms	4	@	10	cfm 40 cfm
Total				<u>160</u>

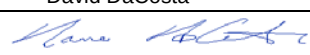
Principal Ventilation Capacity 9.32.3.4(1)				
Master bedroom	1	@	30	cfm 30 cfm
Other bedrooms	3	@	15	cfm 45 cfm
Total				<u>75</u>

Principal Exhaust Fan Capacity		
Make	Model	Location
Broan	684N	Ensuite
90 cfm		2.5 Sones

Heat Recovery Ventilator		
Make		
Model		
	cfm high	0 cfm low
Sensible efficiency @ -25 deg C		0
Sensible efficiency @ 0 deg C		0

Supplemental Ventilation Capacity	
Total ventilation capacity	160.0
Less principal exhaust capacity	75.0
REQUIRED supplemental vent. Capacity	<u>85.0</u> cfm

Supplemental Fans 9.32.3.5.			
Location	cfm	Model	Sones
Ens	50	770	2.5
Pwd	50	770	2.5
<i>all fans HVI listed</i>			
	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	April 15, 2015		

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

Page 7
Project # PJ-00022
Layout # JB-00039

This form is used to summarize the energy efficiency design of the project. Information on completing this form is on the reverse

For use by Principal Authority

Application No:	Model/Certification Number
-----------------	----------------------------

A. Project Information

Building number, street name	40-6 Dalton 40-6 Opt 2nd. Flr.	Unit number	Lot/Con
Municipality	Newcastle (Bowmanville)	Postal code	Reg. Plan number / other description

B. Compliance Option

☒ SB-12 Prescriptive [SB-12 - 2.1.1.]	Table: Package: A B C D E F G H I J K L M	Package D
☐ SB-12 Performance* [SB-12 - 2.1.2.]	* Attach energy performance calculations using an approved software	
☐ Energy Star®* [SB-12 - 2.1.3.]	* Attach BOP form	
☐ EnerGuide 80®*	* House must be evaluated by NRCAN advisor and meet a rating of 80	

C. Project Design Conditions

Climatic Zone (SB-1):	Heating Equipment	Space Heating Fuel Source		
☒ Zone 1 (< 5000 degree days)	☒ ≥ 90% AFUE	☒ Gas	☐ Propane	☐ Solid Fuel
☐ Zone 2 (≥ 5000 degree days)	☐ ≥ 78% < 90% AFUE	☐ Oil	☐ Electric	☐ Earth Energy

Windows+Skylights+Glass Doors		Other Building Conditions		
Gross Wall Area =	254 m²	☐ ICF Basement	☐ Walkout Basement	☐ Log/Post&Beam
Gross Window+ Area =	30 m²	☐ ICF Above Grade	☐ Slab-on-ground	

D. Building Specifications [provide values and ratings of the energy efficiency components proposed, or attach *Energy Star* BOP form]

Building Component	RSI / R values	Building Component	Efficiency Ratings
Thermal Insulation		Windows & Doors¹	
Ceiling with Attic Space	50	Windows/Sliding Glass Doors	1.8
Ceiling without Attic Space	31	Skylights	2.8
Exposed Floor	31	Mechanicals	
Walls Above Grade	24	Space Heating Equip. ²	94%
Basement Walls	20	HRV Efficiency (%)	0%
Slab (all >600mm below grade)	x	DHW Heater (EF)	0.67
Slab (edge only ≤600mm below grade)	10	NOTES	
Slab (all ≤600mm below grade, or heated)	10	1. Provide U-Value in W/m2.K, or ER rating	
		2. Provide AFUE or indicate if condensing type combined system used	

E. Performance Design Verification [complete applicable sections if SB-12 Performance, Energy Star or EnerGuide80 options used]

SB-12 Performance:
The annual energy consumption using Subsection 2.1.1. SB-12 Package _____ is _____ Gj (1 Gj =1000MJ)
The annual energy consumption of this house as designed is _____ Gj
The software used to simulate the annual energy use of the building is: _____
The building is being designed using an air leakage of _____ air changes per hour @50Pa.

Energy Star: BOP form attached. The house will be labeled on completion by:
Energy Star and EnerGuide80:
Evaluator/Advisor/Rater Name: _____ Evaluator/Advisor/Rater Licence #: _____

F. Designers [names of designers who are responsible for the building code design and whose plans accompany the permit application]

Architectural	Mechanical David DaCosta
---------------	-----------------------------

Package: **Package D** System: **System 1**
Project: **Newcastle (Bowmanville)** Model: **40-6 Opt 2nd. Flr.**

Air Leakage Calculations

Building Air Leakage Heat Loss				
B	LRairh	Vb	HL ^Δ T	HLleak
0.018	0.291	28390	76	11305

Building Air Leakage Heat Gain				
B	LRairh	Vb	HG ^Δ T	HG Leak
0.018	0.069	28390	11	385

Air Leakage Heat Loss/Gain Multiplier Table (Section 11)				
Level	Level Factor (LF)	Building Air	Level Conductive Heat Loss	Air Leakage Heat Loss Multiplier
1	0.5	11305	7878	0.7175
2	0.3		11882	0.2854
3	0.2		9956	0.2271
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	
	385		0.0368
BUILDING CONDUCTIVE HEAT GAIN			10466

Levels this Dwelling	
3	

Ventilation Calculations

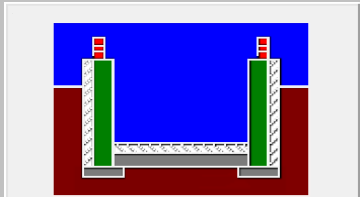
Vent	Ventilation Heat Loss					Ventilation Heat Gain				Vent	
	Ventilation Heat Loss					Ventilation Heat Gain					
	C	PVC	HL^T	(1-E) HRV	HLbvent	C	PVC	HG^T	HGbvent		
	1.08	75	76	1.00	6156	1.1	75	11	891		
Case 1						Case 1					
Case 1	Ventilation Heat Loss (Exhaust only Systems)					Ventilation Heat Gain (Exhaust Only Systems)					Case 1
	Case 1 - Exhaust Only					Case 1 - Exhaust Only		Multiplier			
	Level	LF	HLbvent	LVL Cond. HL	Multiplier	HGbvent	891	0.09			
	1	0.5	6156	7878	0.39	Building	10466				
	2	0.3		11882	0.16						
	3	0.2		9956	0.12						
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	82.08		C	HG^T	11.88			
	1.08	76	1.00			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		6156	0.21		HGbvent		HG*1.3	891	0.09	
						891		1			

Foundation Conductive Heatloss Level 1	2090	Watts	7131	Btu/h
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Foundation Conductive Heatloss Level 2		Watts		Btu/h
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Residential Foundation Thermal Load Calculator

Supplemental tool for CAN/CSA-F280

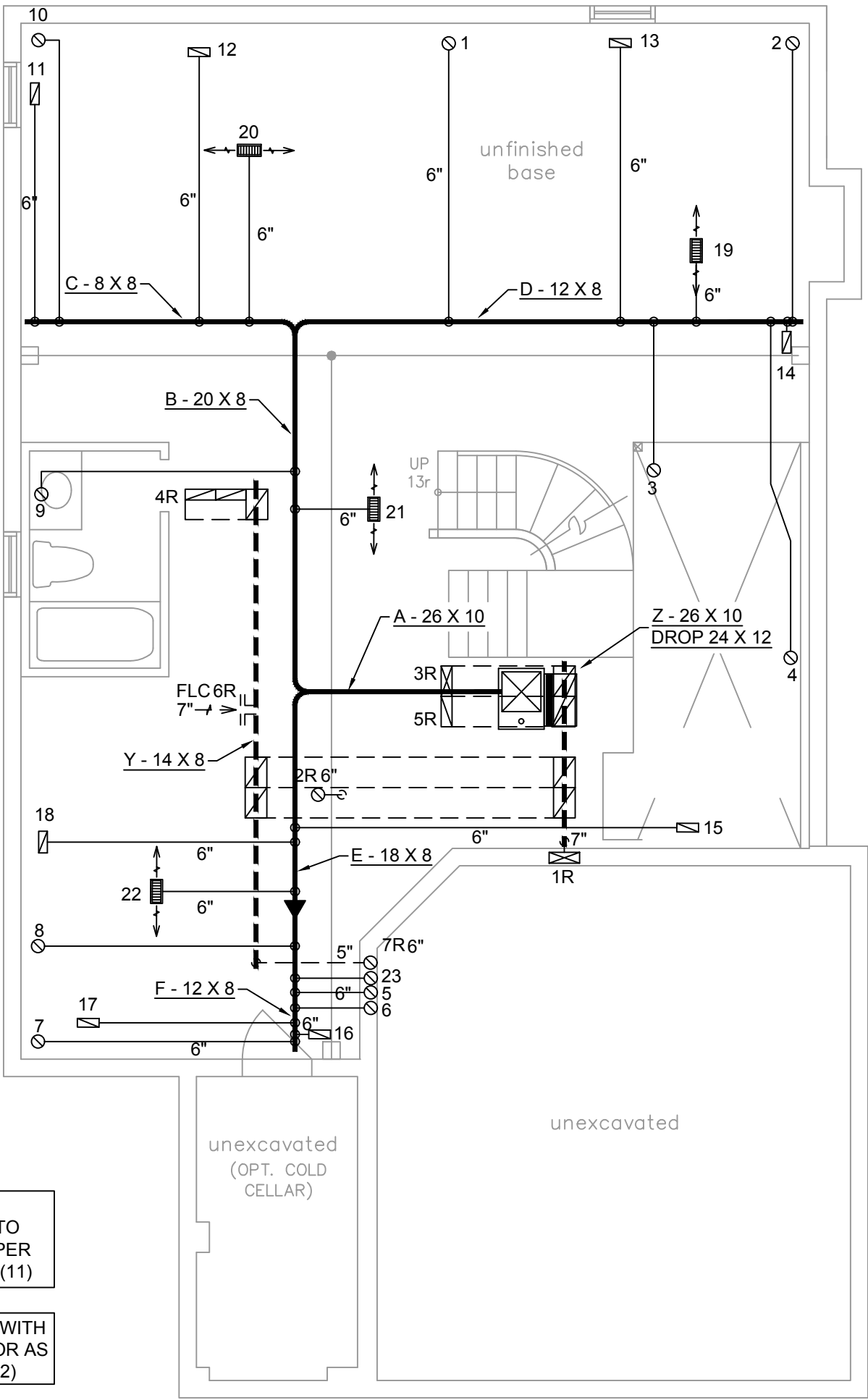
Weather Station Description		
Province:	Ontario	▼
Region:	Newcastle (Bowmanville)	▼
Site Description		
Soil Conductivity:	High conductivity: moist soil	▼
Water Table:	Normal (7-10 m, 23-33 Ft)	▼
Foundation Dimensions		
Floor Length (m):	14.46	 Insulation Configuration
Floor Width (m):	6.87	
Exposed Perimeter (m):	42.67	
Wall Height (m):	2.74	
Depth Below Grade (m):	2.13	
Window Area (m ²):	0.84	
Door Area (m ²):	1.95	
Radiant Slab		
Heated Fraction of the Slab:	0	
Fluid Temperature (°C):	23	
Design Months		
Heating Month	1	
Foundation Loads		
Heating Load (Watts):		2090

Envelope Air Leakage Calculator

Supplemental tool for CAN/CSA-F280

Weather Station Description				
Province:	Ontario ▼			
Region:	Newcastle (Bowmanville) ▼			
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):	6.10			
Building Configuration				6.4
Type:	Detached ▼			
Number of Stories:	Two ▼			
Foundation:	Full ▼			
House Volume (m ³):	566.3 804.00			
Air Leakage/Ventilation				
Air Tightness Type:	Present (1961-) (ACH=3.57) ▼			
Custom BDT Data:	ELA @ 10 Pa. ▼ 185.83 cm ² 3.57 ACH @ 50 Pa			
Mechanical Ventilation (L/s):	Total Supply:		Total Exhaust:	
	30		30	
Flue Size				
Flue #:	#1	#2	#3	#4
Diameter (mm):	0	0	0	0
Envelope Air Leakage Rate				
Heating Air Leakage Rate (ACH/H):		0.291		
Cooling Air Leakage Rate (ACH/H):		0.069		

	FLEX DUCT RIDIT ROUND DUCT SUPPLY DIFFUSER		LOW/HIGH WALL/KICK SUPPLY DIFFUSER HRV EXHAUST GRILL 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 SECOND FLOOR	S.A. R.A. ① \$ [E] [B]	SUPPLY AIR RETURN AIR THERMOSTAT PRINCIPAL EXHAUST FAN SWITCH W/R & PRINCIPAL EXHAUST FAN
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ALL DUCTWORK
MUST BE SEALED TO
CLASS A LEVEL AS PER
OBC PART 6-6.2.4.3. (11)

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

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

NOTES

INSTALLATION TO COMPLY WITH THE LATEST ONTARIO BUILDING CODE.

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

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

INSULATE DUCTS IN UNCONDITIONED SPACES R12

UNDERCUT ALL DOORS 1" MIN.

HEATING CONTRACTOR MUST WORK FROM APPROVED PLANS.

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

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

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

HEAT-LOSS	47,866	BTU/HR.
UNIT MAKE	AMANA	OR EQUAL.
UNIT MODEL	GMEC960603BNA	OR EQUAL.
UNIT HEATING INPUT	60,000	BTU/HR.
UNIT HEATING OUTPUT	57,600	BTU/HR.
A/C COOLING CAPACITY	2.0	TONS.
FAN SPEED	1170	CFM

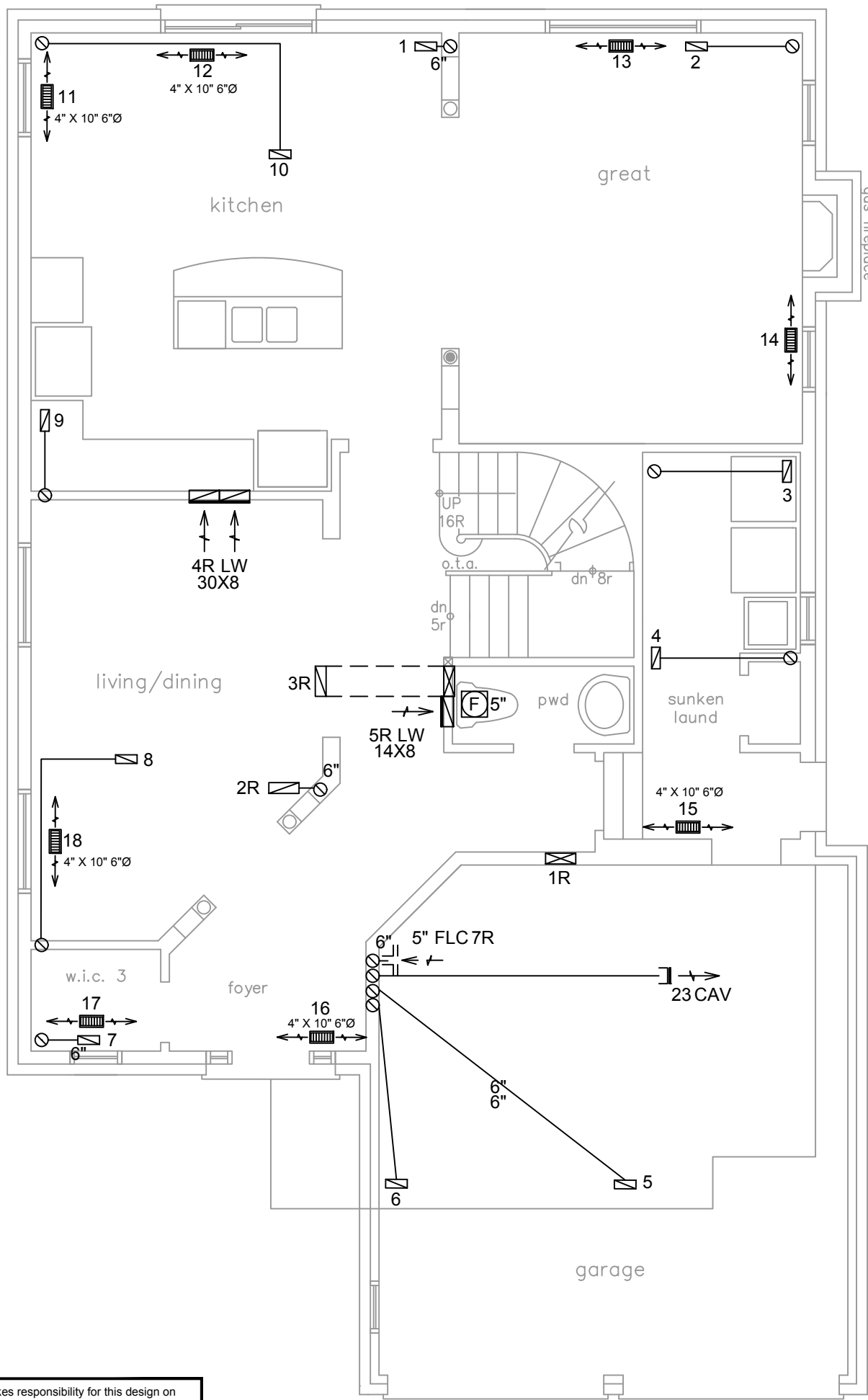
# OF RUNS	S/A	R/A	FANS
3RD FLOOR			
2ND FLOOR	10	3	3
1ST FLOOR	9	3	2
BASEMENT	4	1	

FLOOR PLAN: BASEMENT	
DRAWN BY: RB	CHECKED: DD
LAYOUT NO. JB-00039	DRAWING NO. M1

DATE:	APRIL 13, 2015
CLIENT:	DELPARK HIGHCASTLE
MODEL:	40-6 OPT. 2ND FLR.
PROJECT:	NORTHGLEN CLARINGTON, ON.
SCALE:	3/16" = 1'-0"

	FLEX DUCT RIDIT ROUND DUCT SUPPLY DIFFUSER		LOW/HIGH WALL/KICK SUPPLY DIFFUSER HRV EXHAUST GRILL 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 SECOND FLOOR	S.A. R.A. ① \$ [E] [P]	SUPPLY AIR RETURN AIR THERMOSTAT PRINCIPAL EXHAUST FAN SWITCH W/R & PRINCIPAL EXHAUST FAN
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CIRCULATION PRINCIPAL
FAN SWITCH
TO BE CENTRALLY
LOCATED



INSULATE ALL DUCTS IN UNCONDITIONED SPACES MIN. R12

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

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

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

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

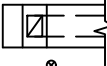
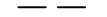
HEATING CONTRACTOR MUST WORK FROM APPROVED PLANS.

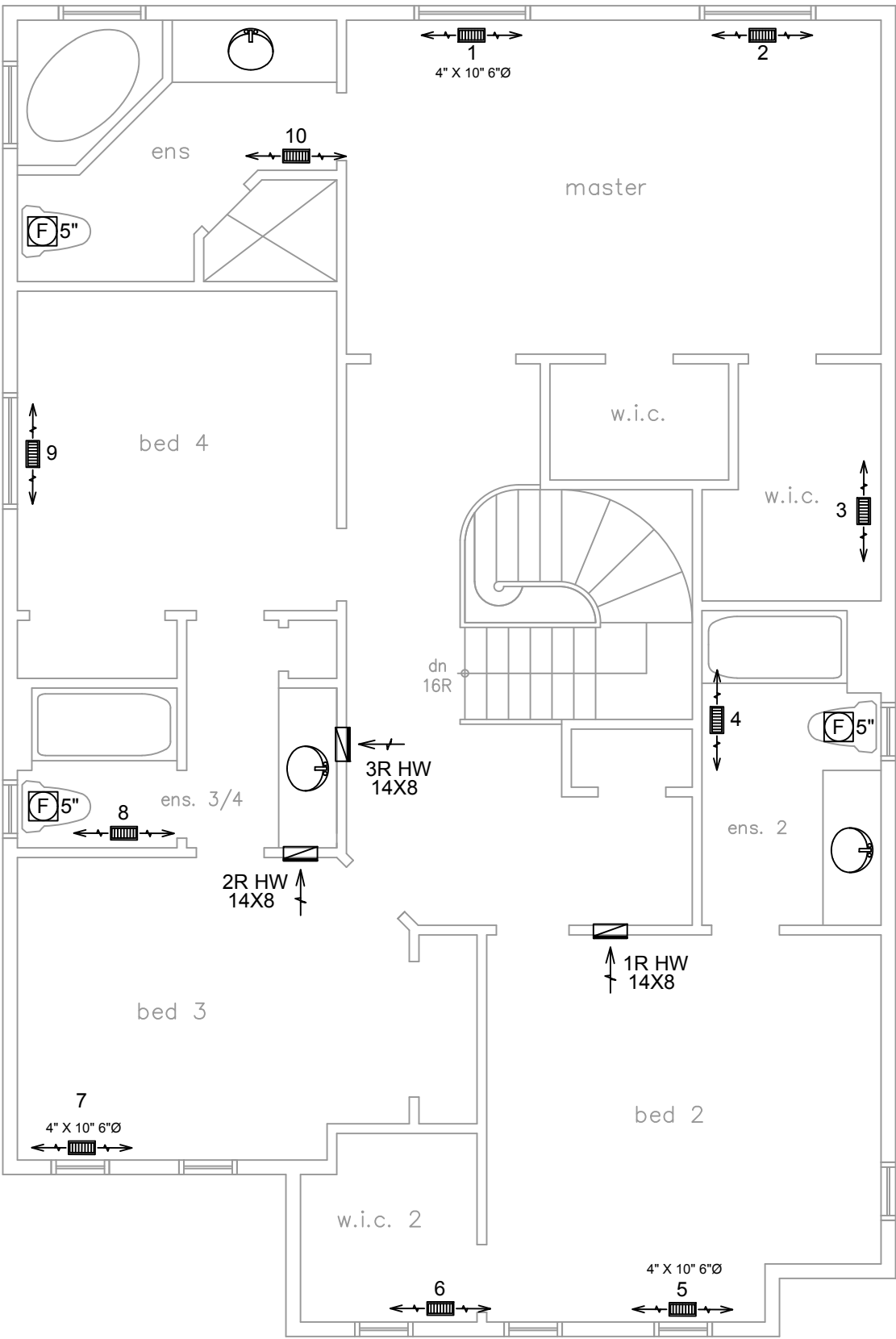
ANY ALTERATIONS TO THIS ORIGINAL PLAN ARE NOT THE RESPONSABILITY OF GTA DESIGNS.

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

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

HEAT-LOSS	47,866	BTU/HR.	# OF RUNS	S/A	R/A	FANS	DATE:	APRIL 13, 2015
UNIT MAKE	AMANA	OR EQUAL.	3RD FLOOR				CLIENT:	DELPARK HIGHCASTLE
UNIT MODEL	GMEC960603BNA	OR EQUAL.	2ND FLOOR	10	3	3	MODEL:	40-6 OPT. 2ND FLR.
UNIT HEATING INPUT	60,000	BTU/HR.	1ST FLOOR	9	3	2	PROJECT:	NORTHGLEN CLARINGTON, ON.
UNIT HEATING OUTPUT	57,600	BTU/HR.	BASEMENT	4	1		SCALE:	3/16" = 1'-0"
A/C COOLING CAPACITY	2.0	TONS.	FLOOR PLAN:	GROUND FLOOR				
FAN SPEED	1170	CFM	DRAWN BY:	RB	CHECKED:	DD	SQFT	2517
			LAYOUT NO.	JB-00039		DRAWING NO.	M2	

	FLEX DUCT		LOW/HIGH WALL/KICK SUPPLY DIFFUSER		DUCT CONNECTION TO JOIST LINING		RETURN AIR GRILLE (SIZE INDICATED ON DRAWING)	S.A.	SUPPLY AIR
	RIDIT ROUND DUCT		HRV EXHAUST GRILL		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  B.C.I.N. 32964
Signature of Designer

OBC 2012

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

NOTES

INSTALLATION TO COMPLY WITH THE LATEST ONTARIO BUILDING CODE.
ALL SUPPLY OUTLETS TO BE 5" DIA. UNLESS OTHERWISE SPECIFIED.
ALL R/A PARTITIONS 6" (FIRST FLOOR ONLY)
INSULATE DUCTS IN UNCONDITIONED SPACES R12
UNDERCUT ALL DOORS 1" MIN.
HEATING CONTRACTOR MUST WORK FROM APPROVED PLANS.
ANY ALTERATIONS TO THIS ORIGINAL PLAN ARE NOT THE RESPONSABILITY OF GTA DESIGNS.
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# OF RUNS	S/A	R/A	FANS
3RD FLOOR			
2ND FLOOR	10	3	3
1ST FLOOR	9	3	2
BASEMENT	4	1	
FLOOR PLAN: SECOND FLOOR			
DRAWN BY: RB	CHECKED: DD	SQFT 2517	
LAYOUT NO. JB-00039	DRAWING NO. M3		

DATE:	APRIL 13, 2015
CLIENT:	DELPARK HIGHCASTLE
MODEL:	40-6 OPT. 2ND FLR.
PROJECT:	NORTHGLEN CLARINGTON, ON.
SCALE:	3/16" = 1"-0"