


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		Opt. 5 Bed 50-3		Lot: _____
				Lot/con. _____
Municipality	Brampton	Postal code	Plan number/ other description	
B. Individual who reviews and takes responsibility for design activities				
Name		Firm		
David DaCosta		gtaDesigns Inc.		
Street address		Unit no.		Lot/con.
2985 Drew Road, Suite 202				
Municipality	Postal code	Province	E-mail	
Mississauga	L4T 0A4	Ontario	dave@gtadesigns.ca	
Telephone number		Fax number	Cell number	
(905) 671-9800		(647) 494-9643	(416) 268-6820	
C. Design activities undertaken by individual identified in Section B. [Building Code Table 3.5.2.1 of Division C]				
<input type="checkbox"/> House <input checked="" type="checkbox"/> HVAC – House <input type="checkbox"/> Building Structural <input type="checkbox"/> Small Buildings <input type="checkbox"/> Building Services <input type="checkbox"/> Plumbing – House <input type="checkbox"/> Large Buildings <input type="checkbox"/> Detection, Lighting and Power <input type="checkbox"/> Plumbing – All Buildings <input type="checkbox"/> Complex Buildings <input type="checkbox"/> Fire Protection <input type="checkbox"/> On-site Sewage Systems				
Description of designer's work		Model Certification		Project #:
				Layout #:
				PJ-00067
				JB-02086
Heating and Cooling Load Calculations		Builder	Highcastle Homes	
Air System Design		Project	Riverwalk Phase 2	
Residential mechanical ventilation Design Summary		Model	Opt. 5 Bed	
Residential System Design per CAN/CSA-F280-12			50-3	
Residential New Construction - Forced Air		SB-12	Package J	
D. Declaration of Designer				
<p>I, <u>David DaCosta</u> declare that (choose one as appropriate):</p> <p style="text-align: center;">(print name)</p> <p><input type="checkbox"/> I review and take responsibility for the design work on behalf of a firm registered under subsection 3.2.4 Division C of the Building Code. I am qualified, and the firm is registered, in the appropriate classes/categories.</p> <p style="margin-left: 150px;">Individual BCIN: _____</p> <p style="margin-left: 150px;">Firm BCIN: _____</p> <p><input checked="" type="checkbox"/> I review and take responsibility for the design and am qualified in the appropriate category as an "other designer" under subsection 3.2.5 of Division C, of the Building Code.</p> <p style="margin-left: 150px;">Individual BCIN: <u>32964</u></p> <p style="margin-left: 150px;">Basis for exemption from registration: <u>Division C 3.2.4.1. (4)</u></p> <p><input type="checkbox"/> The design work is exempt from the registration and qualification requirements of the Building Code.</p> <p style="margin-left: 150px;">Basis for exemption from registration and qualification:</p>				
<p>I certify that:</p> <p>1. The information contained in this schedule is true to the best of my knowledge.</p> <p>2. I have submitted this application with the knowledge and consent of the firm.</p>				
<u>May 9, 2016</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 Highcastle Homes				Layout No.	
and may not be used by any other persons without authorization. Documents for permit and/or construction are signed in red.				JB-02086	
Building Location					
Address (Model): 50-3			Site: Riverwalk Phase 2		
Model: Opt. 5 Bed			Lot:		
City and Province: Brampton			Postal code:		
Calculations based on					
Dimensional information based on:					
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: Brampton			Wind exposure: Sheltered		
HRV? VanEE		60H	Internal shading: Light-translucent		Occupants: 6
Sensible Eff. at -25C 55%		Apparent Effect. at -0C 68%	Units: Imperial		Area Sq ft: 3454
Sensible Eff. at -0C 65%					
Heating design conditions			Cooling design conditions		
Outdoor temp -2.2 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 Selected OBC SB12 Package J R 22			Style A: As per Selected OBC SB12 Package J R 12		
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 J			Style A: As per Selected OBC SB12 Package J R 50		
Style B:			Style B: As per Selected OBC SB12 Package J R 31		
Exposed floors			Style C:		
Style A: As per Selected OBC SB12 Package J R 31			Doors		
Style B:			Style A: As per Selected OBC SB12 Package J R 3.01		
Windows			Style B:		
Style A: As per Selected OBC SB12 Package J 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 J R 2.03		
Style D:			Style B:		
Attached documents: As per Shedule 1					
Notes: Residential New Construction - Forced Air					
Calculations performed by					
Name: David DaCosta			Postal code: L4T 0A4		
Company: gtaDesigns Inc.			Telephone: (905) 671-9800		
Address: 2985 Drew Road, Suite 202			Fax: (416) 268-6820		
City: Mississauga			E-mail dave@gtadesigns.ca		

Builder: Highcastle Homes

Date: May 9, 2016

Project: Riverwalk Phase 2

Model: Opt. 5 Bed
50-3

System 1

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

Individual BCIN: 32964

David DaCosta

David DaCosta

Project # PJ-00067
Layout # JB-02086

Page 3

DESIGN LOAD SPECIFICATIONS		AIR DISTRIBUTION & PRESSURE		FURNACE/AIR HANDLER DATA:		BOILER/WATER HEATER DATA:		A/C UNIT DATA:	
Level 1 Net Load	19,712 btu/h	Equipment External Static Pressure	0.5 "w.c.	Make	Amana	Make	Type	Amana	3.0 Ton
Level 2 Net Load	21,954 btu/h	Additional Equipment Pressure Drop	0.225 "w.c.	Model	GMEC96-0803BNA	Model		Cond.-----	3.0
Level 3 Net Load	19,148 btu/h	Available Design Pressure	0.275 "w.c.	Input Btu/h	80000	Input Btu/h		Coil -----	3.0
Level 4 Net Load	0 btu/h	Return Branch Longest Effective Length	300 ft	Output Btu/h	76800	Output Btu/h			
Total Heat Loss	60,814 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	32,902 btu/h	S/A Plenum Pressure	0.14 "w.c.	Water Temp	deg. F.	Blower DATA:			
Combo System HL + 10%	66,895 Btu/h	Heating Air Flow Proportioning Factor	0.0193 cfm/btuh	AFUE	96%	Blower Speed Selected:	W2	Blower Type	ECM
Building Volume Vb	41573 ft³	Cooling Air Flow Proportioning Factor	0.0356 cfm/btuh	Aux. Heat				(Brushless DC OBC 12.3.1.5.(2))	
Ventilation Load	3,580 Btu/h.	R/A Temp	70 deg. F.	SB-12 Package	Package J	Heating Check	1172 cfm	Cooling Check	1172 cfm
Ventilation PVC	95.4 cfm	S/A Temp	131 deg. F.						
Supply Branch and Grill Sizing		Diffuser loss	0.01 "w.c.	Temp. Rise>>>	61 deg. F.	Selected cfm>	1172 cfm	Cooling Air Flow Rate	1172 cfm

	Level 1												Level 2											
	22	23	24	25	26								12	13	14	15	16	17	18	19	20	21		
S/A Outlet No.	BASE	BASE	BASE	BASE	BASE								LAUND	PWD	DEN	FAM	KIT	KIT	DIN	LIV	LIV	FOY		
Room Use	3942	3942	3942	3942	3942								2997	721	2395	2805	2046	2046	2530	1815	1815	2782		
Btu/Outlet	76	76	76	76	76								58	14	46	54	39	39	49	35	35	54		
Heating Airflow Rate CFM	9	9	9	9	9								83	8	51	66	79	79	99	73	73	61		
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	22	17	23	38	49								55	50	55	48	26	21	7	23	28	36		
Actual Duct Length	90	80	100	70	120	70	70	70	70	70	70	70	90	80	110	140	130	120	80	100	100	120	70	70
Equivalent Length	112	97	123	108	169	70	70	70	70	70	70	70	145	130	165	188	156	141	87	123	128	156	70	70
Total Effective Length	0.12	0.13	0.11	0.12	0.08	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.09	0.10	0.08	0.07	0.08	0.09	0.15	0.11	0.10	0.08	0.19	0.19
Adjusted Pressure	6	6	6	6	6								6	3	6	6	6	6	6	5	5	5		
Duct Size Round	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	3x10	4x10	4x10	4x10	4x10	4x10	3x10	3x10	3x10	4x10	4x10
Outlet Size	C	C	A	A	B								B	B	B	B	A	A	E	E	C	D		
Trunk																								

	Level 3											Level 4															
S/A Outlet No.	1	2	3	4	5	6	7	8	9	10	11																
Room Use	MAST	MAST	ENS	COMP	BED 2	ENS 2&3	BED 3	BED 4	BED 4	S.ENS	BED 5																
Btu/Outlet	1566	1566	1718	1549	1174	606	2904	1743	1743	2066	2513																
Heating Airflow Rate CFM	30	30	33	30	23	12	56	34	34	40	48																
Cooling Airflow Rate CFM	43	43	32	39	35	11	91	44	44	24	50																
Duct Design Pressure	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13
Actual Duct Length	61	49	60	48	20	27	51	44	46	52	67																
Equivalent Length	170	120	130	140	100	120	100	130	120	110	130	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	
Total Effective Length	231	169	190	188	120	147	151	174	166	162	197	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	
Adjusted Pressure	0.06	0.08	0.07	0.07	0.11	0.09	0.09	0.07	0.08	0.08	0.07	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	
Duct Size Round	6	6	4	5	4	3	6	6	6	5	6																
Outlet Size	4x10	4x10	3x10	3x10	3x10	3x10	4x10	4x10	4x10	3x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	4x10	
Trunk	B	A	A	D	E	E	C	D	D	D	B																

Return Branch And Grill Sizing	Grill Pressure Loss 0.02 "w.c.										
R/A Inlet No.	1R	2R	3R	4R	5R	6R	7R	8R	9R	10R	11R
Inlet Air Volume CFM	110	110	100	110	312	120	120	190			
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	34	37	36	40	7	17	22	17			
Equivalent Length	235	195	175	195	125	205	125	125	50	50	50
Total Effective Length	269	232	211	235	132	222	147	142	50	50	50
Adjusted Pressure	0.04	0.05	0.06	0.05	0.09	0.05	0.08	0.08	0.24	0.24	0.24
Duct Size Round	7.5	7.0	6.0	7.0	9.5	7.5	7.0	8.0			
Inlet Size	8	8	8	8	8	8	8	8			
" "	x	x	x	x	x	x	x	x	x	x	x
Inlet Size	14	14	14	14	30	14	14				
Trunk	Z	Y	X	Z	Z	Y	Y	X			

Return Trunk Duct Sizing	Trunk	CFM	Press.	Round	Rect. Size
Drop		1172	0.04	18.0	24x12
Z		1172	0.04	18.0	30x10 24x12
Y		640	0.05	13.5	20x8 16x10
X		290	0.06	10.0	12x8 10x10
W					
V					
U					
T					
S					
R					
Q					

Supply Trunk Duct Sizing	Trunk	CFM	Press.	Round	Rect. Size
A		620	0.06	13.0	18x8 14x10
B		326	0.06	10.5	12x8 10x10
C		433	0.07	11.0	14x8 10x10
D		190	0.07	8.5	8x8 107
E		118	0.09	6.5	8x8 8x7
F					
G					
H					
I					
J					
K					

2012 OBC

Builder: Highcastle Homes

Date: May 9, 2016

Project: Riverwalk Phase 2

Model: Opt. 5 Bed 50-3

System 1

Weather Data Brampton 44 -2.2 86 20 48.2

Heat Loss ^T 74.2 deg. F Ht gain ^T 11 deg. F GTA: 3454

Project # PJ-00067
Layout # JB-02086

Level 1

Run ft. exposed wall A	181	A	A	A	A	A	A	A	A	A	A	A	A
Run ft. exposed wall B	B	B	B	B	B	B	B	B	B	B	B	B	B
Ceiling height	2.0	AG	2.0	AG	2.0	AG	2.0	AG	2.0	AG	2.0	AG	2.0
Floor area	1447	Area	Area	Area	Area	Area	Area	Area	Area	Area	Area	Area	Area
Exposed Ceilings A	A	A	A	A	A	A	A	A	A	A	A	A	A
Exposed Ceilings B	B	B	B	B	B	B	B	B	B	B	B	B	B
Exposed Floors	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr
Gross Exp Wall A	362												
Gross Exp Wall B													

Components	R-Values	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain	Loss	Gain
North Shaded	3.15	23.56	11.31														
East/West	3.15	23.56	27.75	9	212	250											
South	3.15	23.56	21.28	6	141	128											
WOB Windows	3.15	23.56	28.32														
Skylight	2.03	36.55	88.23														
Doors	3.01	24.65	3.65	21	518	77											
Net exposed walls A	8.50	8.73	1.29	326		422											
Net exposed walls B	14.49	5.12	0.76														
Exposed Ceilings A	50.00	1.48	0.76														
Exposed Ceilings B	22.86	3.25	1.66														
Exposed Floors	22.05	3.37	0.23														
Foundation Conductive Heatloss	On Grade () or Above ()			9719													
Total Conductive	Heat Loss			10590													
Air Leakage	Heat Loss/Gain	0.8015	0.0456	8488		40											
Ventilation	Case 1	0.12	0.07														
	Case 2	25.64	11.88														
	Case 3	x	0.06	633		62											
Heat Gain People			239														
Appliances Loads	1 = .25 percent		5725														
Duct and Pipe loss			10%														
Level 1 HL Total	19,712		Total HL for per room	19712													
Level 1 HG Total	1,271		Total HG per room x 1.3			1271											

Level 2

Run ft. exposed wall A	24	A	6	A	21	A	23	A	34	A	26	A	31	A	15	A	A	A	A
Run ft. exposed wall B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
Ceiling height	11.0		11.0		11.0		11.0		11.0		11.0		11.0		11.0		11.0		11.0
Floor area	110	Area	61	Area	113	Area	287	Area	264	Area	273	Area	168	Area	78	Area	Area	Area	Area
Exposed Ceilings A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Exposed Ceilings B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
Exposed Floors	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr
Gross Exp Wall A	264		66		231		253		374		286		341		165				
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	Loss	Gain	Loss	Gain
North Shaded	3.15	23.56	11.31																								
East/West	3.15	23.56	27.75																								
South	3.15	23.56	21.28																								
Existing Windows	1.99	37.29	22.15																								
Skylight	2.03	36.55	88.23																								
Doors	3.01	24.65	3.65	42	1035	153																					
Net exposed walls A	14.49	5.12	0.76	222	1137	169	56	287	43	201	1029	153	213	1091	162	317	1623	241	266	1362	202	293	1500	222	103	527	78
Net exposed walls B	8.50	8.73	1.29																								
Exposed Ceilings A	50.00	1.48	0.76																								
Exposed Ceilings B	22.86	3.25	1.66																								
Exposed Floors	22.05	3.37	0.23																								
Foundation Conductive Heatloss	On Grade () or Above ()		x																								
Total Conductive	Heat Loss			2172			522		1736		2033		2966		1833		2631		2016								
Air Leakage	Heat Loss/Gain	0.3201	0.0456	695		15	167		556		45	651		58	949		80	587		628		29	842		1554		1172
Ventilation	Case 1	0.05	0.07																								
	Case 2	25.64	11.88																								
	Case 3	x	0.06	130		23	31		104		69	122		90	177		124	110		44		157		110		121	83
Heat Gain People			239																								
Appliances Loads	1 = .25 percent		5725	1.0		1431											1431	1.0		1431	1.0		1431				
Duct and Pipe loss			10%																								
Level 2 HL Total	21,954		Total HL for per room	2997			721		2395			2805			4093		4411		2530			3631			2782		1701
Level 2 HG Total	18,826		Total HG per room x 1.3			2328		226		1429		1845										4116					

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 J

Total Heat Loss	60,814	btu/h
Total Heat Gain	32,902	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

Package:

Package J

Project:

Brampton

Model:

50-3

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	Brampton
Roll #	Permit #
Address	

Builder

Name	Highcastle Homes
Address	
City	
Tel	Fax

Installing Contractor

Name	
Address	
City	
Tel	Fax

Combustion Appliances 9.32.3.1(1)

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

Heating System

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

House Type 9.32.3.1(2)

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

System Design Option

- | | | |
|---|-------------------------------------|---|
| 1 | <input type="checkbox"/> | Exhaust only / forced air system |
| 2 | <input type="checkbox"/> | HRV WITH DUCTING / forced air system |
| 3 | <input checked="" type="checkbox"/> | HRV simplified connection to forced air system |
| 4 | <input type="checkbox"/> | HRV full ducting/not coupled to forced air system |
| | <input type="checkbox"/> | 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	5 @ 10.6 cfm	53 cfm
Other rooms	6 @ 10.6 cfm	63.6 cfm
Total		<u>201.4</u>

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		<u>95.4</u>

Principal Exhaust Fan Capacity

Make	Model	Location
VanEE	60H	Base
107 cfm		Sones

Heat Recovery Ventilator

Make	VanEE
Model	60H
107 cfm high	53 cfm low
Sensible efficiency @ -25 deg C	55%
Sensible efficiency @ 0 deg C	65%

Supplemental Ventilation Capacity

Total ventilation capacity	201.4
Less principal exhaust capacity	95.4
REQUIRED supplemental vent. Capacity	<u>106.0</u> cfm

Supplemental Fans 9.32.3.5.

Location	cfm	Model	Sones
S.Ens	50	AER50C	0.5
Pwd.	50	AER50C	0.5
Ens 2	50	AER50C	0.5

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 *David DaCosta*

HRAI # 5190 BCIN # 32964

Date May 9, 2016

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

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Project # PJ-00067
Layout # JB-02086

This form is used by a designer to demonstrate that the energy efficiency design of a house complies with the building code

For use by Principal Authority

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

A. Project Information

Building number, street name	Opt. 5 Bed 50-3	Unit number	Lot/Con
Municipality Brampton	Postal code	Reg. Plan number / other description	

B. Compliance Option

<input checked="" type="checkbox"/> SB-12 Prescriptive [SB-12 - 2.1.1.]	A B C D E F G H I J K L M or 2.1.1.10 (Additions)	Package J
prescriptive trade-offs used (Specify 2.1.1.2. or 2.1.1.3.sentences being employed):		
<input type="checkbox"/> SB-12 Performance* [SB-12 - 2.1.2.]	* Attach energy performance calculations using an approved software	
<input type="checkbox"/> Energy Star®* [SB-12 - 2.1.3.]	* Attach Builder Option Package [BOP] form	
<input type="checkbox"/> 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		
<input checked="" type="checkbox"/> Zone 1 (< 5000 degree days)	<input checked="" type="checkbox"/> ≥ 90% AFUE	<input checked="" type="checkbox"/> Gas	<input type="checkbox"/> Propane	<input type="checkbox"/> Solid Fuel
<input type="checkbox"/> Zone 2 (≥ 5000 degree days)	≥ 78% < 90% AFUE	<input type="checkbox"/> Oil	<input type="checkbox"/> Electric	<input type="checkbox"/> Earth Energy

Windows+Skylights+Glass Doors	Other Building Conditions
Area of Walls = 353 m ²	<input type="checkbox"/> ICF Basement Walkout Basement Log/Post&Beam
Area of W,S&G = 41 m ²	<input type="checkbox"/> ICF Above Grade <input type="checkbox"/> Slab-on-ground
W,S & G % = 12%	

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	22	Heating Equip.(AFUE or condensing type)	94%
Basement Walls	12	HRV Efficiency (SRE% at 0° C)	60%
Slab (all >600mm below grade)	x	DHW Heater (EF)	0.67
Slab (edge only ≤600mm below grade)	10	DWHR (CSA B55.1 Efficiency)	
Slab (all ≤600mm below grade, or heated)	10		

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: Submit the BOP form with Energy Advisor's certification on completion.

Energy Star and EnerGuide80:

Evaluator/Advisor/Rater Name: _____ Evaluator/Advisor/Rater Licence #: _____

F. House Designer [name & BCIN, if applicable, of person providing information herein to substantiate that design meets building code]

Name David DaCosta	BCIN 32964	Signature 
-----------------------	---------------	--

Package: Project: Package J Brampton System: Model: System 1 50-3

Air Leakage Calculations

Building Air Leakage Heat Loss				
B	LRairh	Vb	HL^T	HLleak
0.018	0.306	41573	74.2	16977

Building Air Leakage Heat Gain				
B	LRairh	Vb	HG^T	HG Leak
0.018	0.089	41573	11	734

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	16977	10590	0.8015
Level 2	0.3		15910	0.3201
Level 3	0.2		14407	0.2357
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	
	734		0.0456
BUILDING CONDUCTIVE HEAT GAIN			16081

Levels this Dwelling	
3	

Ventilation Calculations

Ventilation Heat Loss

Ventilation Heat Loss				
C	PVC	HL^T	(1-E) HRV	HLbvent
1.08	95.4	74.2	0.32	2446

Ventilation Heat Gain

Ventilation Heat Gain			
C	PVC	HG^T	HGbvent
1.1	95.4	11	1133

Case 1

Ventilation Heat Loss (Exhaust only Systems)

Case 1 - Exhaust Only				
Level	LF	HLbvent	LVL Cond. HL	Multiplier
Level 1	0.5	2446	10590	0.12
Level 2	0.3		15910	0.05
Level 3	0.2		14407	0.03
Level 4	0		0	0.00

Case 1

Ventilation Heat Gain (Exhaust Only Systems)

Case 1 - Exhaust Only		Multiplier	
HGbvent	1133	0.07	
Building	16081		

Case 2

Ventilation Heat Loss (Direct Ducted Systems)

C	HL^T	(1-E) HRV	Multiplier
1.08	74.2	0.32	25.64

Case 2

Ventilation Heat Gain (Direct Ducted Systems)

C	HG^T	Multiplier
1.08	11	11.88

Case 3

Ventilation Heat Loss (Forced Air Systems)

HLbvent		Multiplier
Total Ventilation Load	2446	0.06

Case 3

Ventilation Heat Gain (Forced Air Systems)

Vent Heat Gain		Multiplier
HGbvent	HG*1.3	0.07
1133	1	

Foundation Conductive Heatloss Level 1

2849 Watts 9719 Btu/h

Foundation Conductive Heatloss Level 2

Watts Btu/h

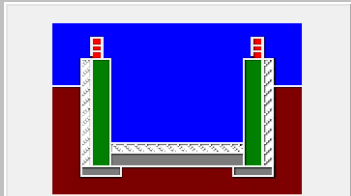
Envelope Air Leakage Calculator



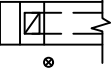



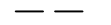









Supplemental tool for CAN/CSA-F280

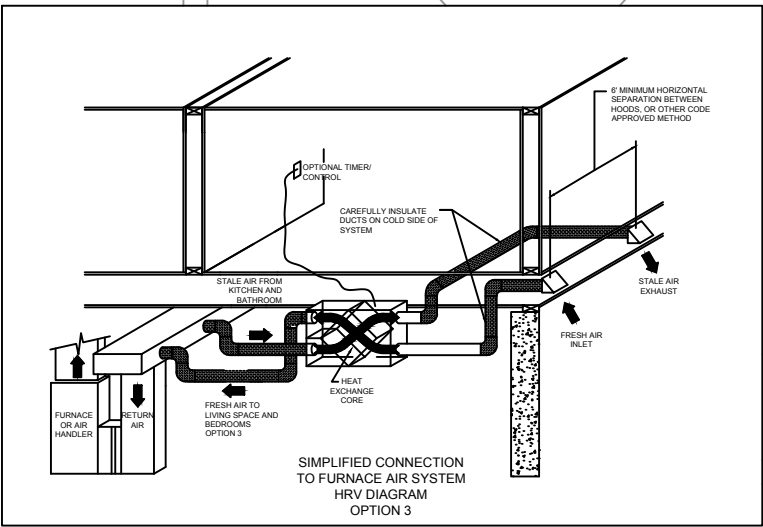
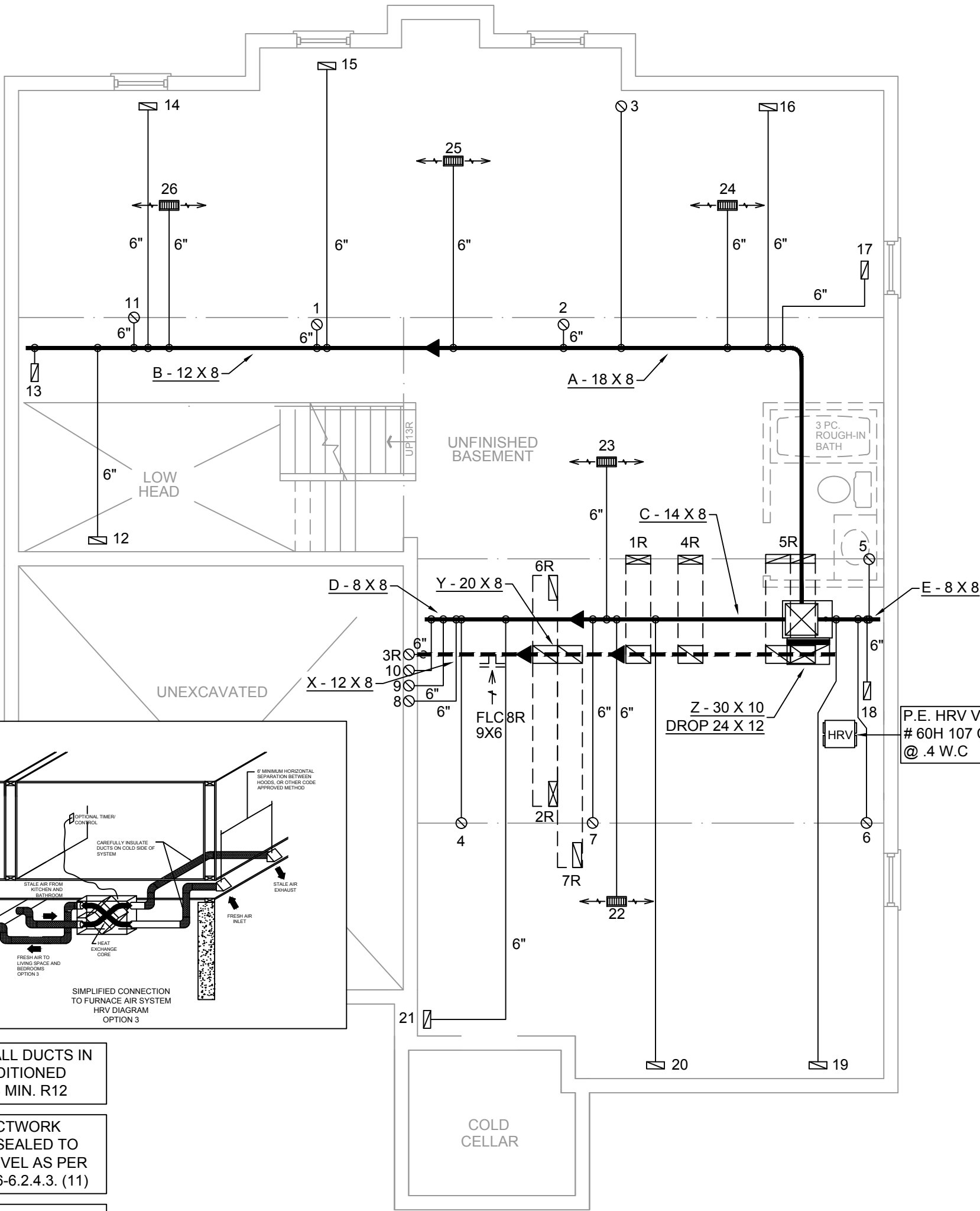
Weather Station Description				
Province:	Ontario ▼			
Region:	Brampton ▼			
Weather Station Location:	Open flat terrain, grass ▼			
Anemometer height (m):	10			
Local Shielding				
Building Site:	Suburban, forest ▼			
Walls:	Heavy ▼			
Flue:	Heavy ▼			
Highest Ceiling Height (m):	6.40			
Building Configuration				
Type:	Detached			
Number of Stories:	Two			
Foundation:	Full			
House Volume (m ³):	1177.35			
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):		0.306		
Cooling Air Leakage Rate (ACH/H):		0.089		

Residential Foundation Thermal Load Calculator

Supplemental tool for CAN/CSA-F280

Weather Station Description		
Province:	Ontario ▼	
Region:	Brampton ▼	
Site Description		
Soil Conductivity:	High conductivity: moist soil ▼	
Water Table:	Normal (7-10 m, 23-33 Ft) ▼	
Foundation Dimensions		
Floor Length (m):	21.26	 <p>Insulation Configuration</p>
Floor Width (m):	6.32	
Exposed Perimeter (m):	55.17	
Wall Height (m):	2.74	
Depth Below Grade (m):	2.13	
Window Area (m ²):	1.39	
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):		2849

	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 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



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)

FOR THE PURPOSE OF HEATLOSS/GAIN CALCULATIONS ALL ELEVATIONS HAVE BEEN CONSIDERED

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

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 "J" 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.

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.





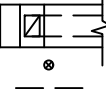













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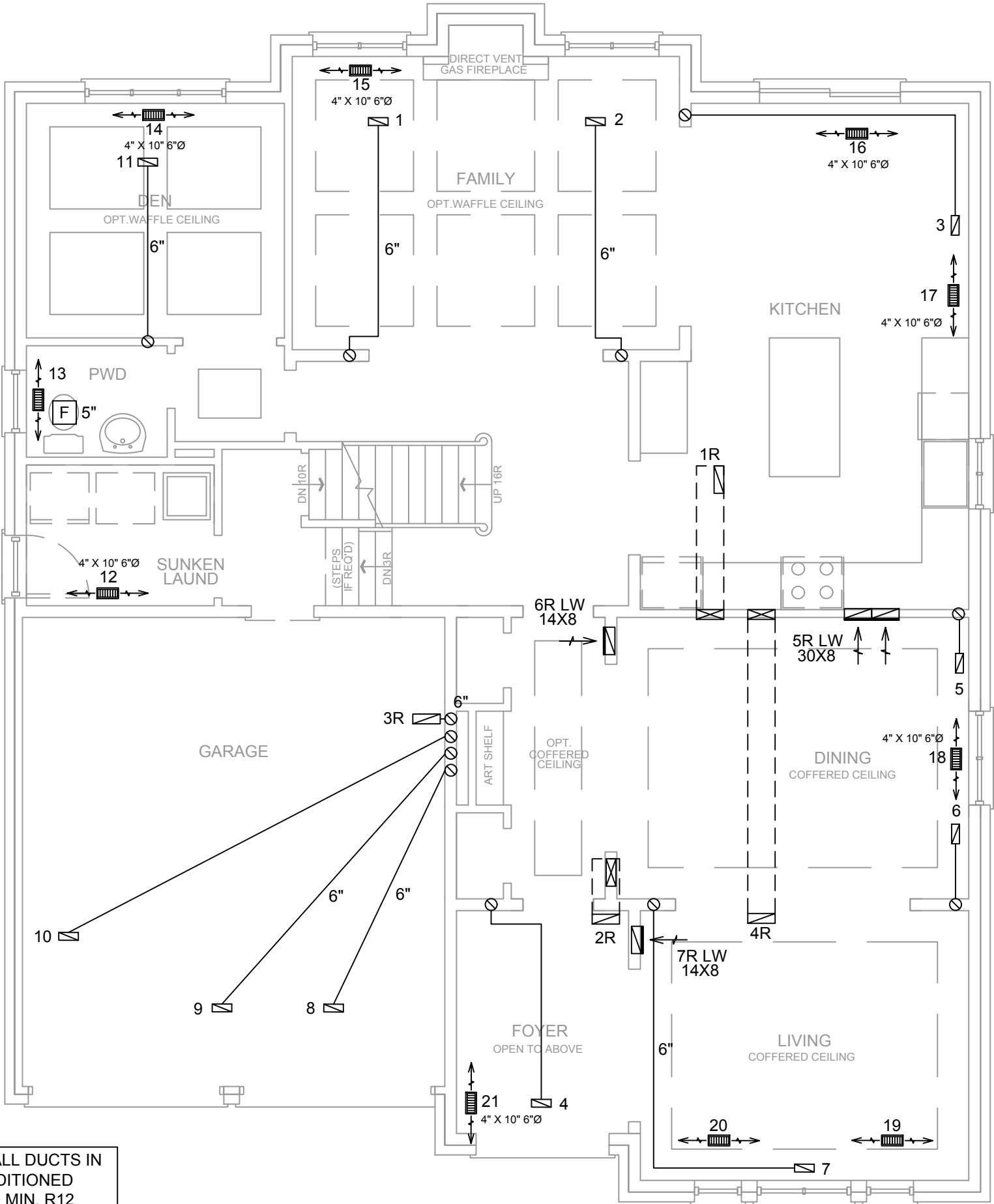
HEAT-LOSS	60,814	BTU/HR.
UNIT MAKE	AMANA	OR EQUAL.
UNIT MODEL	GMEC96-0803BNA	OR EQUAL.
UNIT HEATING INPUT	80,000	BTU/HR.
UNIT HEATING OUTPUT	76,800	BTU/HR.
A/C COOLING CAPACITY	3.0	TONS.
FAN SPEED	1172	CFM

# OF RUNS	S/A	R/A	FANS
3RD FLOOR			
2ND FLOOR	11	4	3
1ST FLOOR	10	3	3
BASEMENT	5	1	

FLOOR PLAN: BASEMENT	
DRAWN BY: RB	CHECKED: DD
LAYOUT NO. JB-02086	DRAWING NO. 3454 M1

DATE:	MAY 09, 2016
CLIENT:	HIGHCASTLE HOMES
MODEL:	50-3 5 BED OPT.
PROJECT:	RIVERWALK PHASE 2 BRAMPTON,ONT.
SCALE:	3/16" = 1'-0"

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



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)

FOR THE PURPOSE OF HEATLOSS/GAIN CALCULATIONS ALL ELEVATIONS HAVE BEEN CONSIDERED

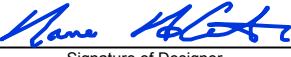
KITCHEN EXHAUST 100 CFM MIN. 6"

CIRCULATION PRINCIPAL FAN SWITCH TO BE CENTRALLY LOCATED

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 "J" REF. TABLE 2.1.1.2.A

NOTES

INSTALLATION TO COMPLY WITH THE LATEST ONTARIO BUILDING CODE.

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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.

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



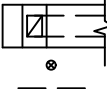





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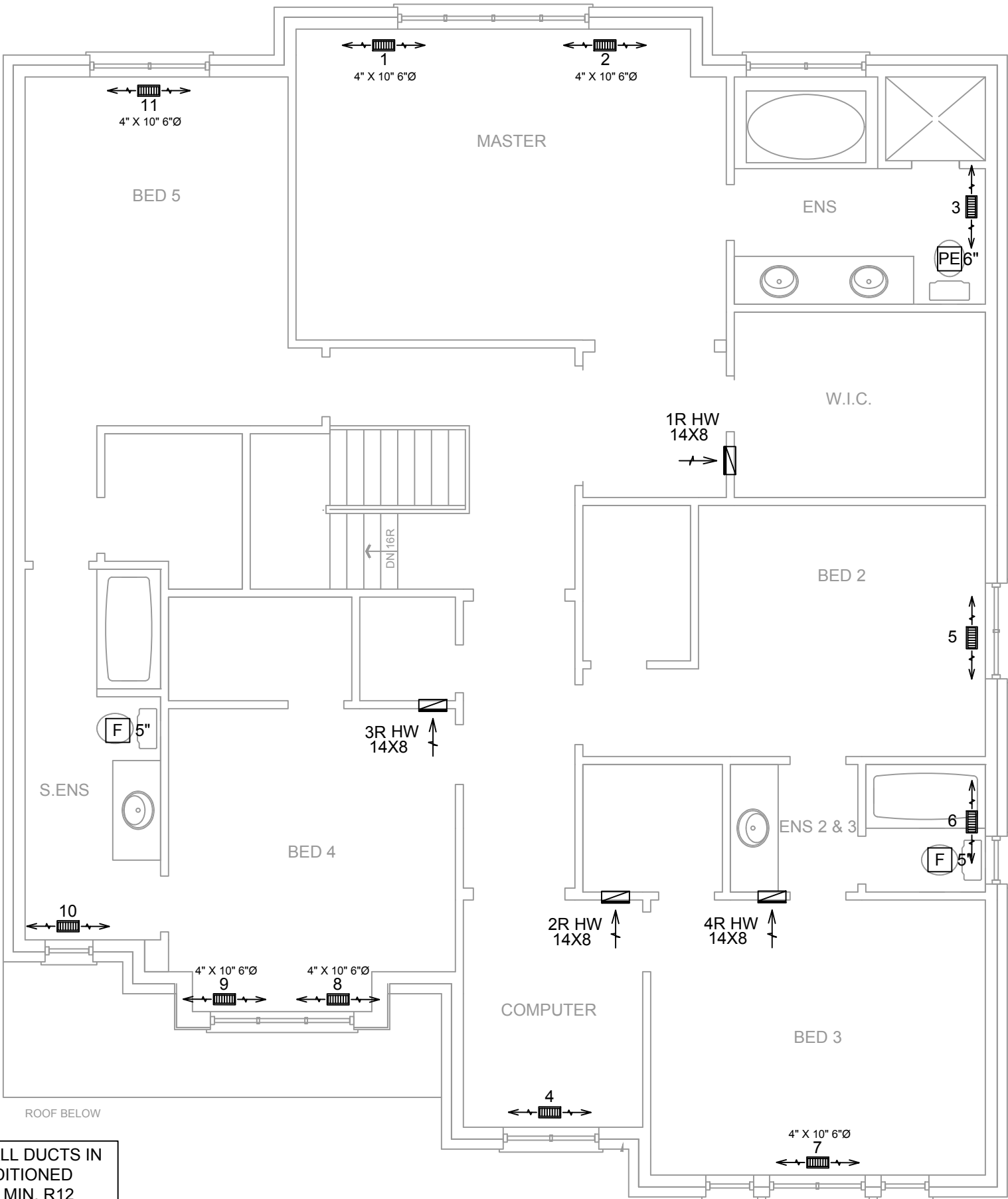
HEAT-LOSS	60,814	BTU/HR.
UNIT MAKE	AMANA	OR EQUAL.
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UNIT HEATING INPUT	80,000	BTU/HR.
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A/C COOLING CAPACITY	3.0	TONS.
FAN SPEED	1172	CFM

# OF RUNS	S/A	R/A	FANS
3RD FLOOR			
2ND FLOOR	11	4	3
1ST FLOOR	10	3	3
BASEMENT	5	1	

FLOOR PLAN:	GROUND FLOOR
DRAWN BY:	RB
CHECKED:	DD
LAYOUT NO.	JB-02086
SQFT	3454
DRAWING NO.	M2

DATE:	MAY 09, 2016
CLIENT:	HIGHCASTLE HOMES
MODEL:	50-3 5 BED OPT.
PROJECT:	RIVERWALK PHASE 2 BRAMPTON,ONT.
SCALE:	3/16" = 1'-0"

  	FLEX DUCT RIGID 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. T \$ F PE	SUPPLY AIR RETURN AIR THERMOSTAT PRINCIPAL EXHAUST FAN SWITCH W/R & PRINCIPAL EXHAUST FAN
---	--	---	---	--	---	--	--	---------------------------------	---



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)

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David Da Costa

Signature of Designer

B.C.I.N. 32964

OBC 2012

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

NOTES

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INSULATE DUCTS IN UNCONDITIONED SPACES R12
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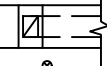







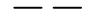






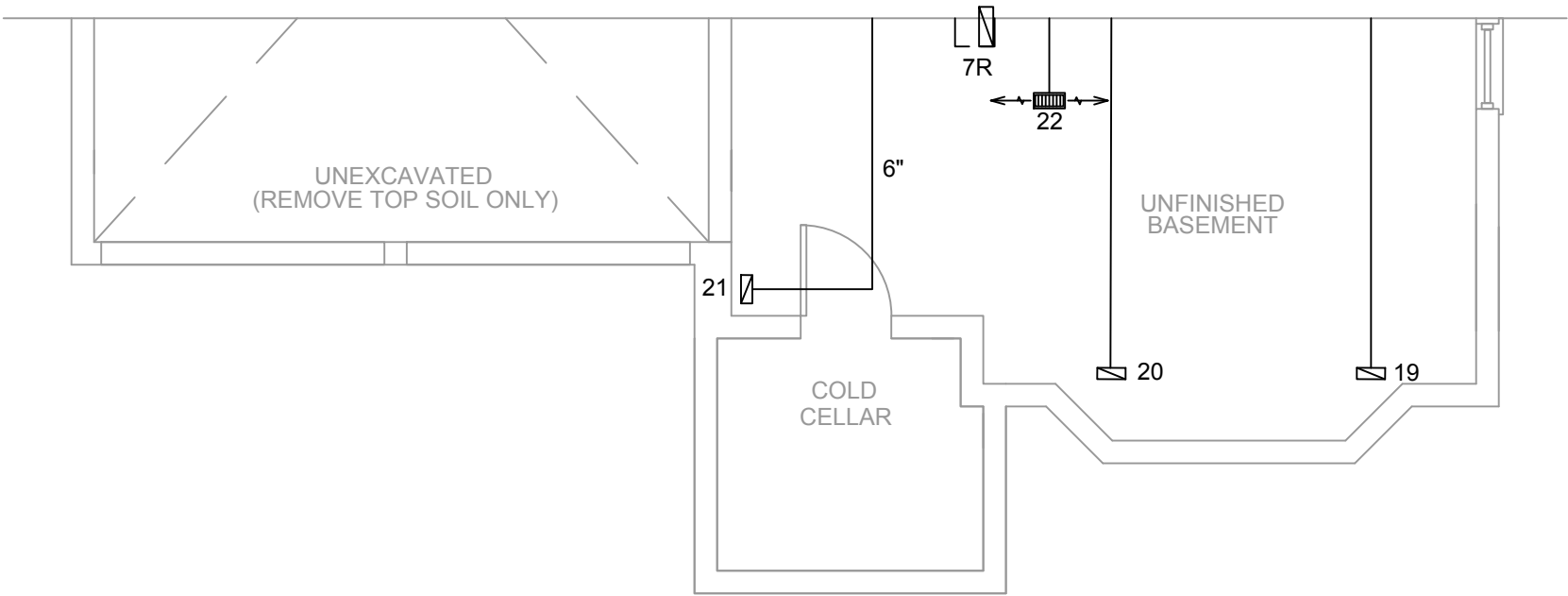
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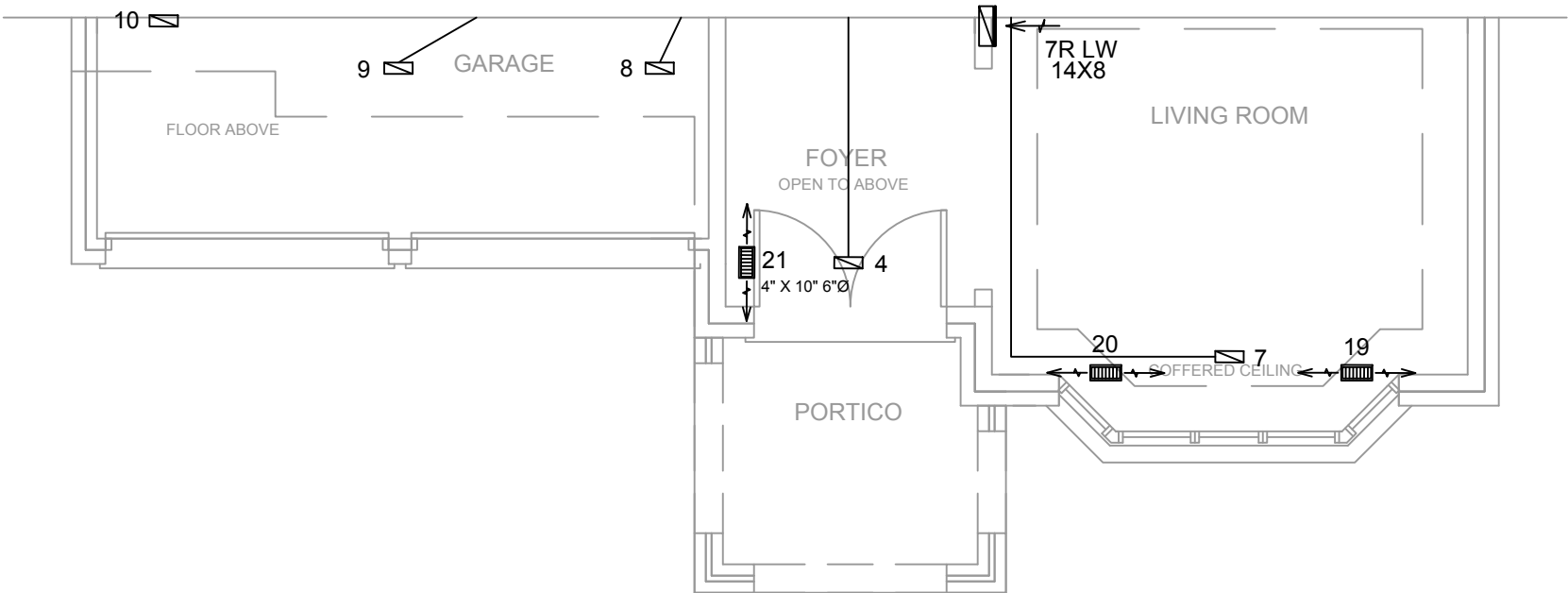
# OF RUNS	S/A	R/A	FANS
3RD FLOOR			
2ND FLOOR	11	4	3
1ST FLOOR	10	3	3
BASEMENT	5	1	
FLOOR PLAN: SECOND FLOOR			
DRAWN BY: RB	CHECKED: DD	SQFT	3454
LAYOUT NO. JB-02086	DRAWING NO. M3		

DATE:	MAY 09, 2016
CLIENT:	HIGHCASTLE HOMES
MODEL:	50-3 5 BED OPT.
PROJECT:	RIVERWALK PHASE 2 BRAMPTON,ONT.
SCALE:	3/16" = 1'-0"

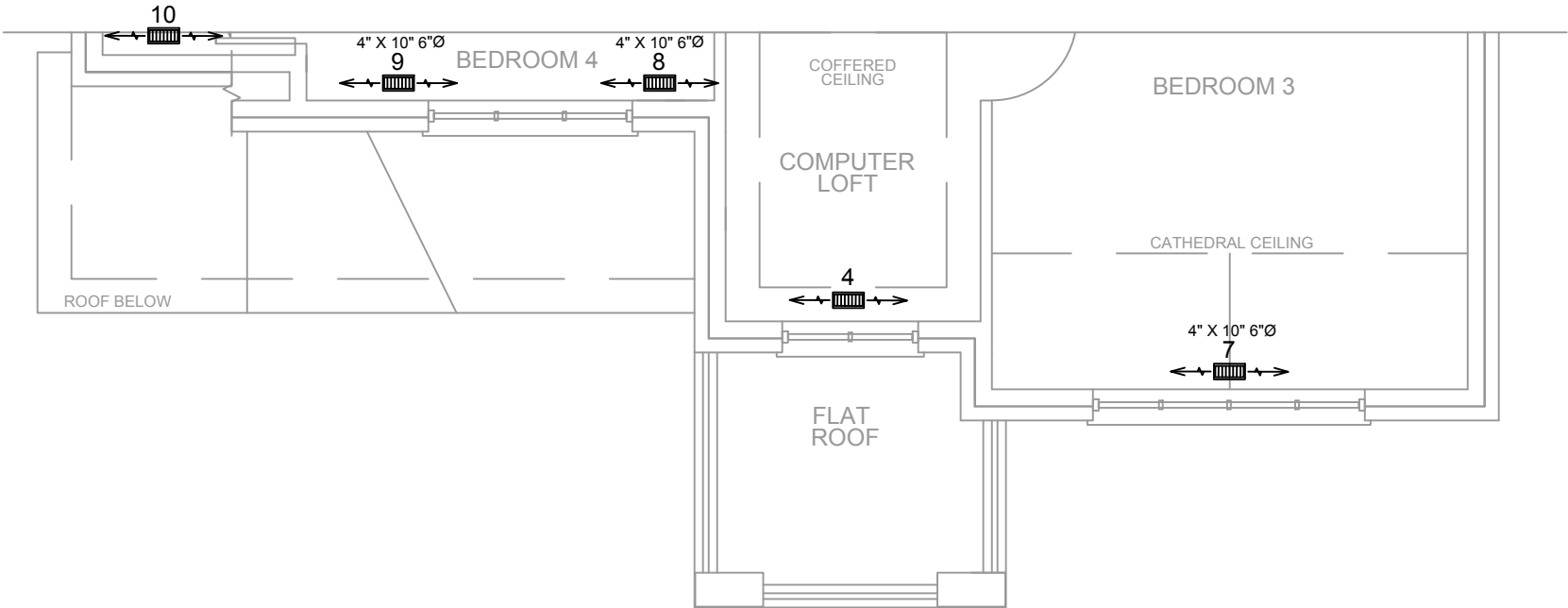
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	SUPPLY DIFFUSER		SUPPLY AIR PIPE RISER		RETURN ROUND DUCT		RETURN AIR FROM BASEMENT SECOND FLOOR		THERMOSTAT
			VOLUME DAMPER						PRINCIPAL EXHAUST FAN SWITCH W/R & PRINCIPAL EXHAUST FAN



BASEMENT ELEV. 'B'



GROUND FLOOR ELEV. 'B'



OPTIONAL - 5 BEDROOM
SECOND FLOOR - ELEV. 'B'

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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

OBC 2012

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

NOTES

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 **gtaDesigns**



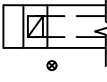







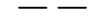





2985 DREW ROAD
SUITE 202,
MISSISSAUGA, ONT.
L4T 0A4 TEL: 416-268-6820
email: dave@gtadesigns.ca
web: www.gtadesigns.ca

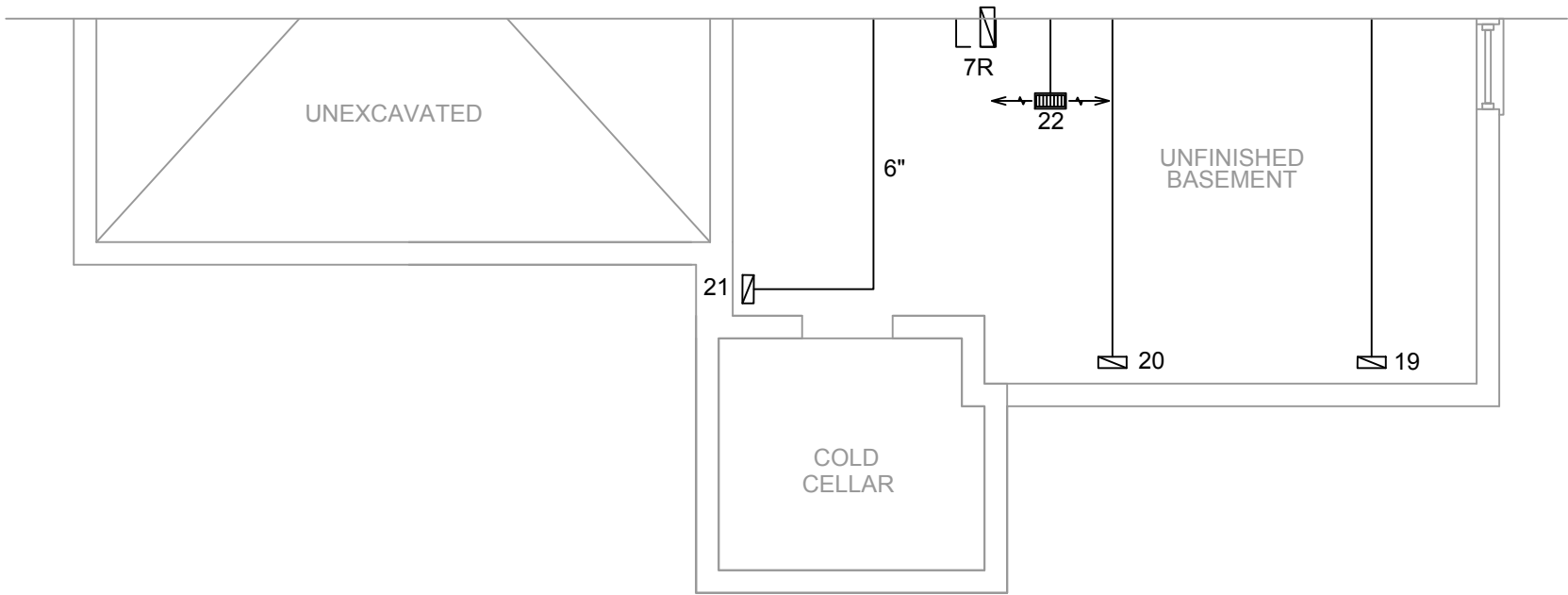
HEAT-LOSS	60,814	BTU/HR.
UNIT MAKE	AMANA	OR EQUAL.
UNIT MODEL	GMEC96-0803BNA	OR EQUAL.
UNIT HEATING INPUT	80,000	BTU/HR.
UNIT HEATING OUTPUT	76,800	BTU/HR.
A/C COOLING CAPACITY	3.0	TONS.
FAN SPEED	1172	CFM

# OF RUNS	S/A	R/A	FANS
3RD FLOOR			
2ND FLOOR	11	4	3
1ST FLOOR	10	3	3
BASEMENT	5	1	

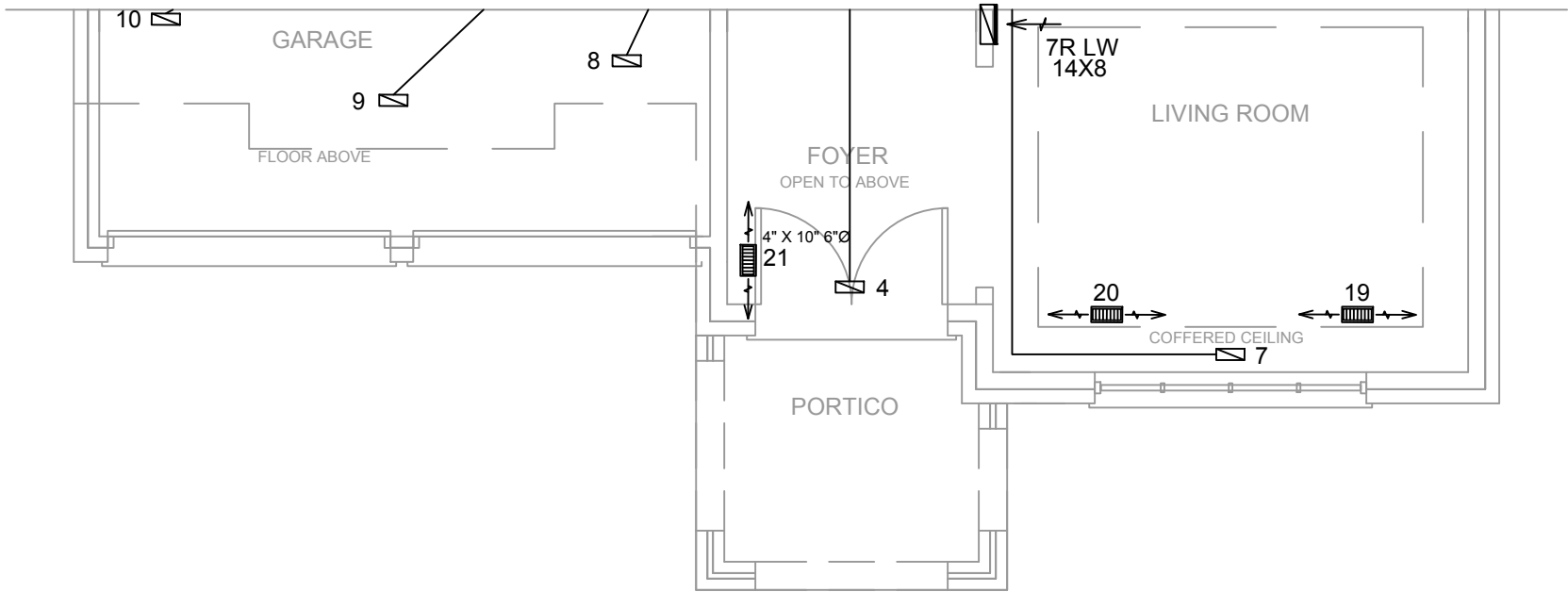
FLOOR PLAN:	PARTIAL PLAN(S)
DRAWN BY: RB	CHECKED: DD
LAYOUT NO. JB-02086	DRAWING NO. M4
	SQFT 3454

DATE:	MAY 09, 2016
CLIENT:	HIGHCASTLE HOMES
MODEL:	50-3 5 BED OPT.
PROJECT:	RIVERWALK PHASE 2 BRAMPTON,ONT.
SCALE:	3/16" = 1'-0"

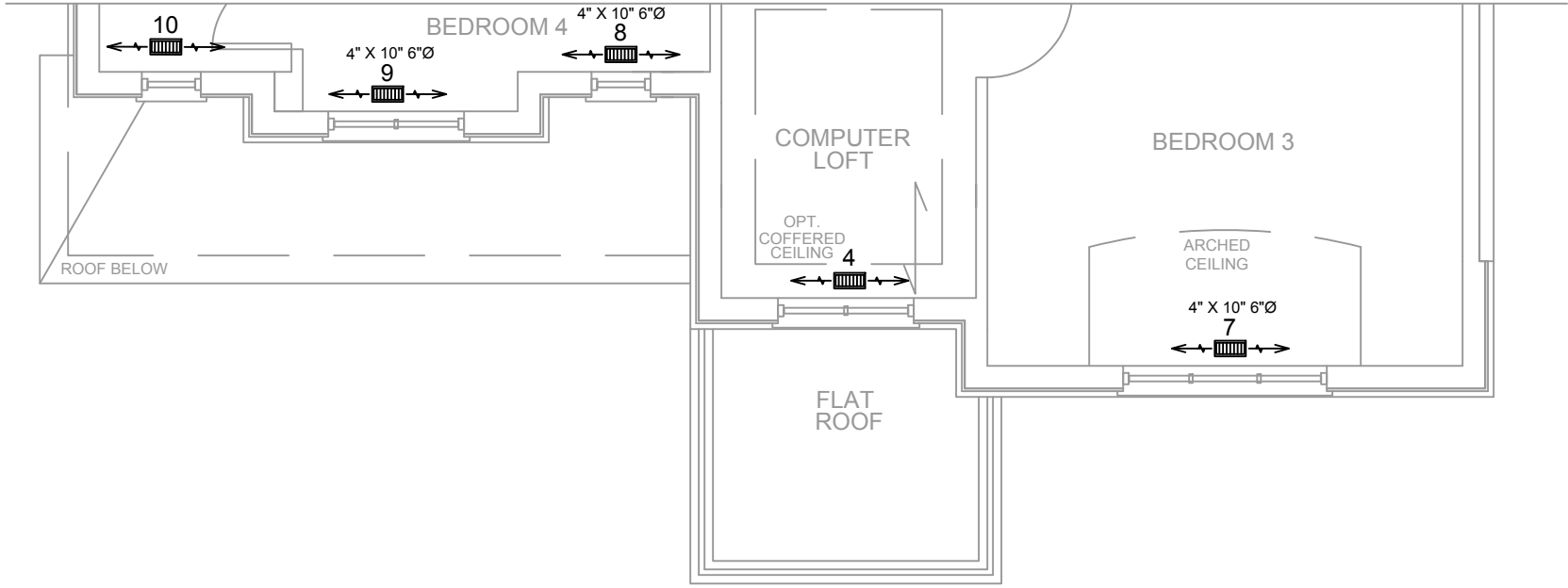
	FLEX DUCT		LOW/HIGH WALL/KICK SUPPLY DIFFUSER		DUCT CONNECTION TO JOIST LINING		RETURN AIR GRILLE (SIZE INDICATED ON DRAWING)	S.A.	SUPPLY AIR
	RIGID ROUND DUCT		HRV EXHAUST GRILL		RETURN AIR PIPE RISER		RETURN AIR RISER UP TO FLOOR ABOVE	R.A.	RETURN AIR
	SUPPLY DIFFUSER		SUPPLY AIR PIPE RISER		RETURN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



BASEMENT ELEV. 'C'



GROUND FLOOR ELEV. 'C'



OPTIONAL - 5 BEDROOM
SECOND FLOOR - ELEV. 'C'

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

OBC 2012

ZONE 1 COMPLIANCE
PACKAGE "J" 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.
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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FLOOR PLAN:	PARTIAL PLAN(S)
DRAWN BY: RB	CHECKED: DD
LAYOUT NO. JB-02086	DRAWING NO. M5
	3454

DATE:	MAY 09, 2016
CLIENT:	HIGHCASTLE HOMES
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