

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 50-2			Lot:	
			Lot/con.	
Municipality Brampton	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 ☐ Small Buildings ☐ Large Buildings ☐ Complex Buildings ☒ HVAC – House ☐ Building Services ☐ Detection, Lighting and Power ☐ Fire Protection ☐ Building Structural ☐ Plumbing – House ☐ Plumbing – All Buildings ☐ On-site Sewage Systems				
Description of designer's work		Model Certification		Project # PJ-00067
				Layout # JB-00857
Heating and Cooling Load Calculations		Builder	Highcastle Homes	
Air System Design		Project	Riverwalk Phase 2	
Residential mechanical ventilation Design Summary		Model	50-2	
Residential System Design per CAN/CSA-F280-12		SB-12	Package J	
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: - The information contained in this schedule is true to the best of my knowledge. - I have submitted this application with the knowledge and consent of the firm.				
<u>July 30, 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 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-00857	
Building Location					
Address (Model): 50-2			Site: Riverwalk Phase 2		
Model:			Lot:		
City and Province: Brampton			Postal code:		
Calculations based on					
Dimensional information based on:			RN Design		
Attachment: Detached		Front facing: East/West		Assumed? Yes	
No. of Levels: 3		Ventilated? Included		Air tightness: 1961- Present (ACH=3.57)	
Weather location: Brampton		Wind exposure: Shelterd		Assumed? Yes	
HRV? VanEE		40H+		Internal shading: Light-translucent	
Sensible Eff. at -25C 55%		Apparent Effect. at -0C 72%		Occupants: 5	
Units: Imperial		Area Sq. ft 3223			
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		
Style C:			Style C:		
Exposed floors			Doors		
Style A: As per Selected OBC SB12 Package J R 31			Style A: As per Selected OBC SB12 Package J R 3.01		
Style B:			Style B:		
Windows			Skylights		
Style A: As per Selected OBC SB12 Package J R 3.15			Style A: As per Selected OBC SB12 Package J R 2.03		
Style B: Existing Windows (When Applicable) R 1.99			Style B:		
Style C:			Style C:		
Style D:			Style D:		
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		



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2015

July 30, 2015

Model:

50-2

System 1

Individual BCIN: 32964

David DaCosta

Project # PJ-00067
Layout # JB-00857

Supply Trunk Duct Sizing					
Trunk	CFM	Press.	Round	Rect. Size	
A	680	0.05	14.0	22x8	18x10
B	341	0.05	11.0	14x8	10x10
C	285	0.06	10.0	12x8	
D	491	0.06	12.0	16x8	12x10
E	271	0.06	9.5	10x8	
F					
G					
H					
I					
J					
K					

2012 OBC

Builder: Highcastle Homes

Date: July 30, 2015

Project: Riverwalk Phase 2

Model: 50-2

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: 3223

Project # PJ-00067
Layout # JB-00857

Level 1

Run ft. exposed wall A	176	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Run ft. exposed wall B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
Ceiling height	3.5	AG	AG	AG	AG	AG	AG	AG	AG	AG	AG	AG	AG	AG	AG	AG
Floor area	1371	Area	Area	Area	Area	Area	Area	Area	Area	Area	Area	Area	Area	Area	Area	Area
Exposed Ceilings A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Exposed Ceilings 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
Gross Exp Wall A	616															
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	20	471	555											
East/West	3.15	23.56	27.75	6	141	128											
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	21	518	77											
Net exposed walls A	8.50	8.73	1.29	569		736											
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	Slab On Grade (x)			7769													
Total Conductive	Heat Loss			8899													
Air Leakage	Heat Loss/Gain	0.8911	0.0444	7930		1496											
Ventilation	Case 1	0.09	0.06														
	Case 2	22.44	11.88														
	Case 3	x	0.04	386		86											
Heat Gain People			239														
Appliances Loads	1 =.25 percent		5441														
Duct and Pipe loss			10%														
Level 1 HL Total	17,215		Total HL for per room	17215													
Level 1 HG Total	2,143		Total HG per room x 1.3			2143											

Level 2

Run ft. exposed wall A	18	A	53	A	42	A	36	A	26	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	B	B	B
Ceiling height	11.0		11.0		11.0		11.0		11.0							
Floor area	96	Area	424	Area	447	Area	225	Area	152	Area	Area	Area	Area	Area	Area	Area
Exposed Ceilings A	A	A	A	A	50	A	44	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
Exposed Floors	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr	Flr
Gross Exp Wall A	198		583		462		396		286							
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	16	377	444	48	1131	1332	61	1437	1693	60	1413	1665	20	471
East/West	3.15	23.56	27.75				36	848	766								
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	26	641	95	21	518	77								
Net exposed walls A	14.49	5.12	0.76	156	799	118	478	2448	363	401	2053	304	336	1721	255	245	1255
Net exposed walls B	8.50	8.73	1.29														
Exposed Ceilings A	50.00	1.48	0.76							50	74	38	44	65	33		
Exposed Ceilings B	22.86	3.25	1.66														
Exposed Floors	22.05	3.37	0.23														
Foundation Conductive Heatloss	Slab On Grade (x)		x														
Total Conductive	Heat Loss			1817				4944			3565			3199		2243	
Air Leakage	Heat Loss/Gain	0.3018	0.0444	548		657	29	1492		113	2035		90	965		1953	
Ventilation	Case 1	0.03	0.06														
	Case 2	22.44	11.88														
	Case 3	x	0.04	79		38		214		146	154		117	139		113	
Heat Gain People			239														
Appliances Loads	1 =.25 percent		5441					1.0		1360	1.0		1360	1.0		1360	
Duct and Pipe loss			10%														
Level 2 HL Total	21,209		Total HL for per room	2444				6650		5404	4795		4684	4303		4567	
Level 2 HG Total	16,296		Total HG per room x 1.3			942										700	

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	56,714	btu/h
Total Heat Gain	30,943	btu/h

2012 OBC

Builder: Highcastle Homes

Date: July 30, 2015

Project: Riverwalk Phase 2

Model: 50-2

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: 3223

Project # PJ-00067
Layout # JB-00857

Level 3

	MAST	ENS	LAUND	ENS 2	BED 2	WIC 2	BED 3	S.ENS	BED 4		
Run ft. exposed wall A	42 A	27 A	25 A	13 A	30 A	13 A	11 A	18 A	12 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	406 Area	141 Area	214 Area	50 Area	205 Area	38 Area	233 Area	77 Area	218 Area	Area	Area
Exposed Ceilings A	406 A	141 A	214 A	50 A	205 A	38 A	233 A	77 A	218 A	A	A
Exposed Ceilings B	B	B	B	B	B	B	B	B	B	B	B
Exposed Floors	Flr	Flr	Flr	Flr	Flr	10 Flr	133 Flr	77 Flr	100 Flr	Flr	Flr
Gross Exp Wall A	336	216	200	104	240	104	88	144	96		
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																																				
East/West				3.15	23.56	27.75	40	942	1110	8	188	222					34	801	943	16	377	444		16	377	444	8	188	222	18	424	204									
South				3.15	23.56	21.28										6	141	128																							
Existing Windows				1.99	37.29	22.15																																			
Skylight				2.03	36.55	88.23																																			
Doors				3.01	24.65	3.85																																			
Net exposed walls A				14.49	5.12	0.76	296	1516	225	196	1004	149	200	1024	152	98	502	74	206	1055	156	88	451	67	72	369	55	136	696	103	78	399	59								
Net exposed walls B				8.50	8.73	1.29																																			
Exposed Ceilings A				50.00	1.48	0.76		406	603	309	141	209	107	214	318	163	50	74	38	205	304	156	38	56	29	233	346	177	77	114	59	218	324	166							
Exposed Ceilings B				22.86	3.25	1.66																																			
Exposed Floors				22.05	3.37	0.23																	10	34	2	133	448	30	77	259	17	100	337	23							
Foundation Conductive Heatloss																																									
Total Conductive		Heat Loss					3060				1684		1342		717		2160		918		542		1539		706		1258		401		1483		451								
		Heat Gain										733		314		240		1256																							
Air Leakage		Heat Loss/Gain		0.2240	0.0444		686	73		377	33	301	14		161	11	484	56	206	24		345	31		282	18		332	20												
Ventilation		Case 1			0.02	0.06																																			
		Case 2			22.44	11.88																																			
		Case 3		x		0.04	0.06		133	95		73	42	58	18		31	14		94	72		40	31		67	41		55	23		64	26								
									478											1	239					1	239														
Heat Gain People						239																																			
Appliances Loads		1 =.25 percent			5441																																				
Duct and Pipe loss					10%							1.0		1360																											
Level 3 HL Total		18,290		Total HL for per room			3879				2134		1700		909		2737		1163		776		1	188	94	1	154	40		1880											
Level 3 HG Total		12,503		Total HG per room x 1.3				2976			1051			2219		344		2110						1445		627					957										

Level 4

Run ft. exposed wall A	A	A	2015	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Run ft. exposed wall B	B	B		B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
Ceiling height																					
Floor area	Area	Area		Area	Area	Area	Area	Area	Area	Area	Area	Area	Area	Area	Area	Area	Area	Area	Area	Area	Area
Exposed Ceilings A	A	A		A	A	A	A	A	A	A	A	A	A	A	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	B
Exposed Floors	Flr	Flr		Flr	Flr	Flr	Flr	Flr	Flr	Flr	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	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																		
Net exposed walls A	14.49	5.12	0.76																		
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																					
Total Conductive	Heat Loss																				
	Heat Gain																				
Air Leakage	Heat Loss/Gain	0.0000	0.0444																		
	Case 1		0.00	0.06																	
Ventilation	Case 2		22.44	11.88																	
	Case 3	x	0.04	0.06																	
Heat Gain People			239																		
Appliances Loads	1 =.25 percent		5441																		
Duct and Pipe loss			10%																		
Level 4 HL Total	0		Total HL for per room																		
Level 4 HG Total	0		Total HG per room x 1.3																		

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 J

Total Heat Loss	56,714	btu/h
Total Heat Gain	30,943	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:

50-2

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)	☒	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	5 @ 10	cfm	50 cfm
Total			<u>170</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
VanEE	40H+	Base
80 cfm		Sones

Heat Recovery Ventilator		
Make	VanEE	
Model	40H+	
	80 cfm high	40 cfm low
Sensible efficiency @ -25 deg C	<u>55%</u>	
Sensible efficiency @ 0 deg C	<u>63%</u>	

Supplemental Ventilation Capacity	
Total ventilation capacity	170.0
Less principal exhaust capacity	<u>75.0</u>
REQUIRED supplemental vent. Capacity	<u>95.0</u> cfm

Supplemental Fans 9.32.3.5.			
Location	cfm	Model	Sones
S.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	<i>David DaCosta</i>		
HRAI #	5190	BCIN #	32964
Date	July 30, 2015		

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-00857

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	Unit number	Lot/Con
50-2		
Municipality	Postal code	Reg. Plan number / other description
Brampton		

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 J
☐ 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 = 378 m ²	☐ ICF Basement ☐ Walkout Basement ☐ Log/Post&Beam
Gross Window+ Area = 39 m ²	☐ ICF Above Grade ☐ Slab-on-ground
% Windows+ 10%	

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	Space Heating Equip. ²	94%
Basement Walls	12	HRV Efficiency (%)	60%
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/m ² .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 J System: System 1
Project: Brampton Model: 50-2

Air Leakage Calculations

Building Air Leakage Heat Loss				
B	LRairh	Vb	HL ^{AT}	HL _{leak}
0.018	0.321	36960	74.2	15860

Building Air Leakage Heat Gain				
B	LRairh	Vb	HG ^{AT}	HG _{Leak}
0.018	0.094	36960	11	686

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	15860	8899	0.8911
2	0.3		15768	0.3018
3	0.2		14162	0.2240
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	
	686		
BUILDING CONDUCTIVE HEAT GAIN	15454		0.0444

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	74.2	0.28	1683	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	0.06			
	1	0.5	1683	8899	0.09	Building	15454				
	2	0.3		15768	0.03						
	3	0.2		14162	0.02						
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	22.44		C	HG^T	11.88			
	1.08	74.2	0.28			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		1683	0.04		HGbvent		HG*1.3	891	0.06	
						891		1			

Foundation Conductive Heatloss Level 1	2277	Watts	7769	Btu/h
--	------	-------	------	-------

Foundation Conductive Heatloss Level 2		Watts		Btu/h
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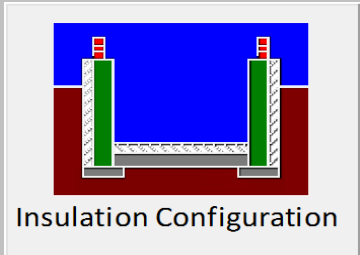
Envelope Air Leakage Calculator

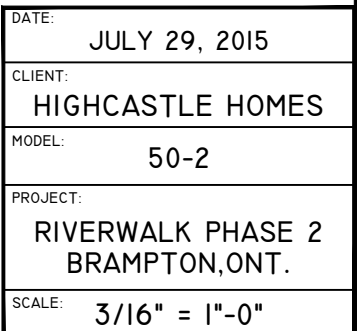
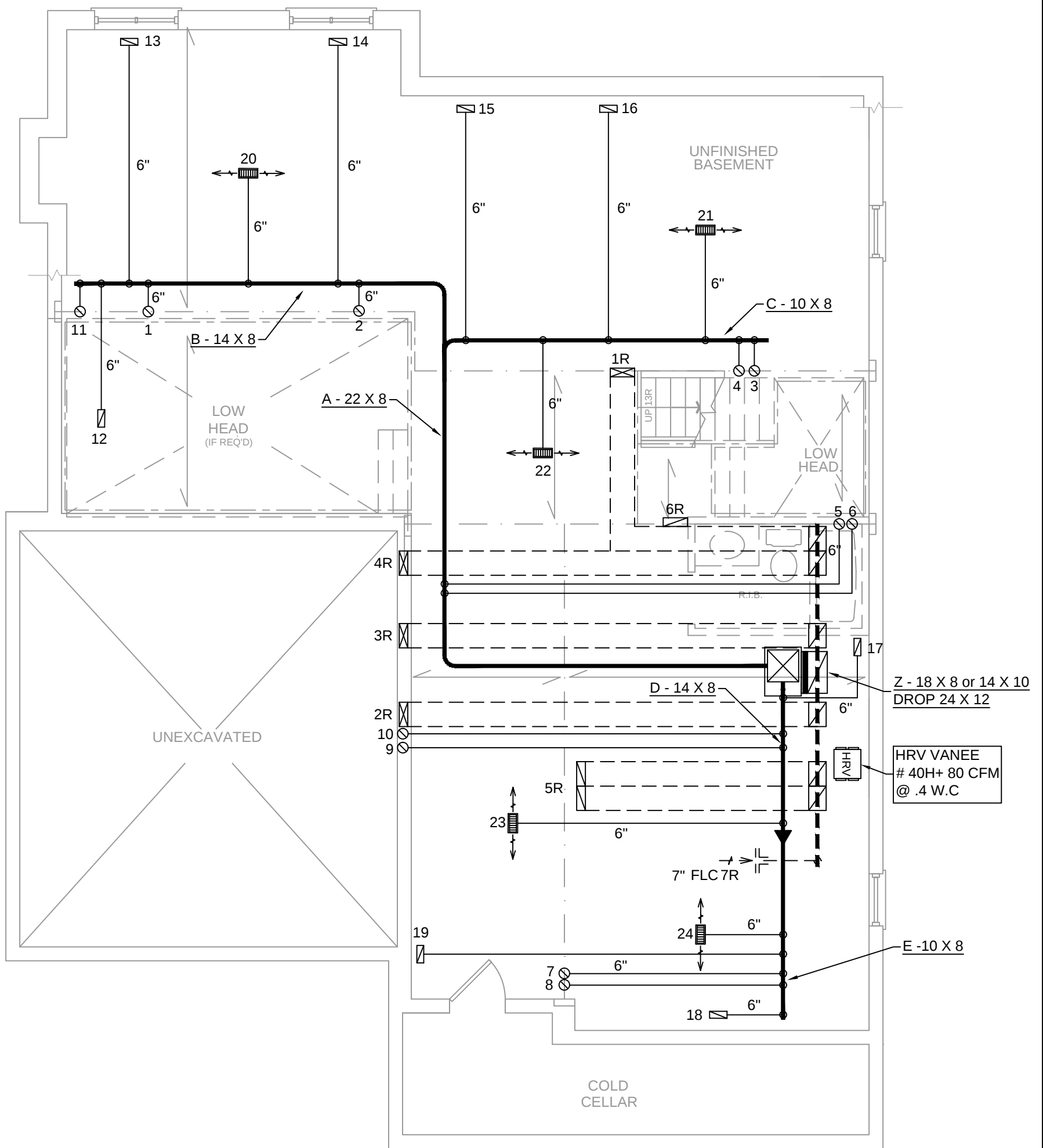
Supplemental tool for CAN/CSA-F280

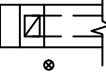
Weather Station Description				
Province:	Ontario ▼			
Region:	Brampton ▼			
Weather Station Location:	Open flat terrain, grass ▼			
Anemometer height (m):	10			
Local Shielding				
Building Site:	Suburban, forest ▼			
Walls:	Heavy ▼			
Flue:	Heavy ▼			
Highest Ceiling Height (m):	6.86			
Building Configuration				6.4
Type:	Detached ▼			
Number of Stories:	Two ▼			
Foundation:	Full ▼			
House Volume (m ³):	566.3 1046.71			
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:	
	37.5		37.5	
Flue Size				
Flue #:	#1	#2	#3	#4
Diameter (mm):	0	0	0	0
Envelope Air Leakage Rate				
Heating Air Leakage Rate (ACH/H):		0.321		
Cooling Air Leakage Rate (ACH/H):		0.094		

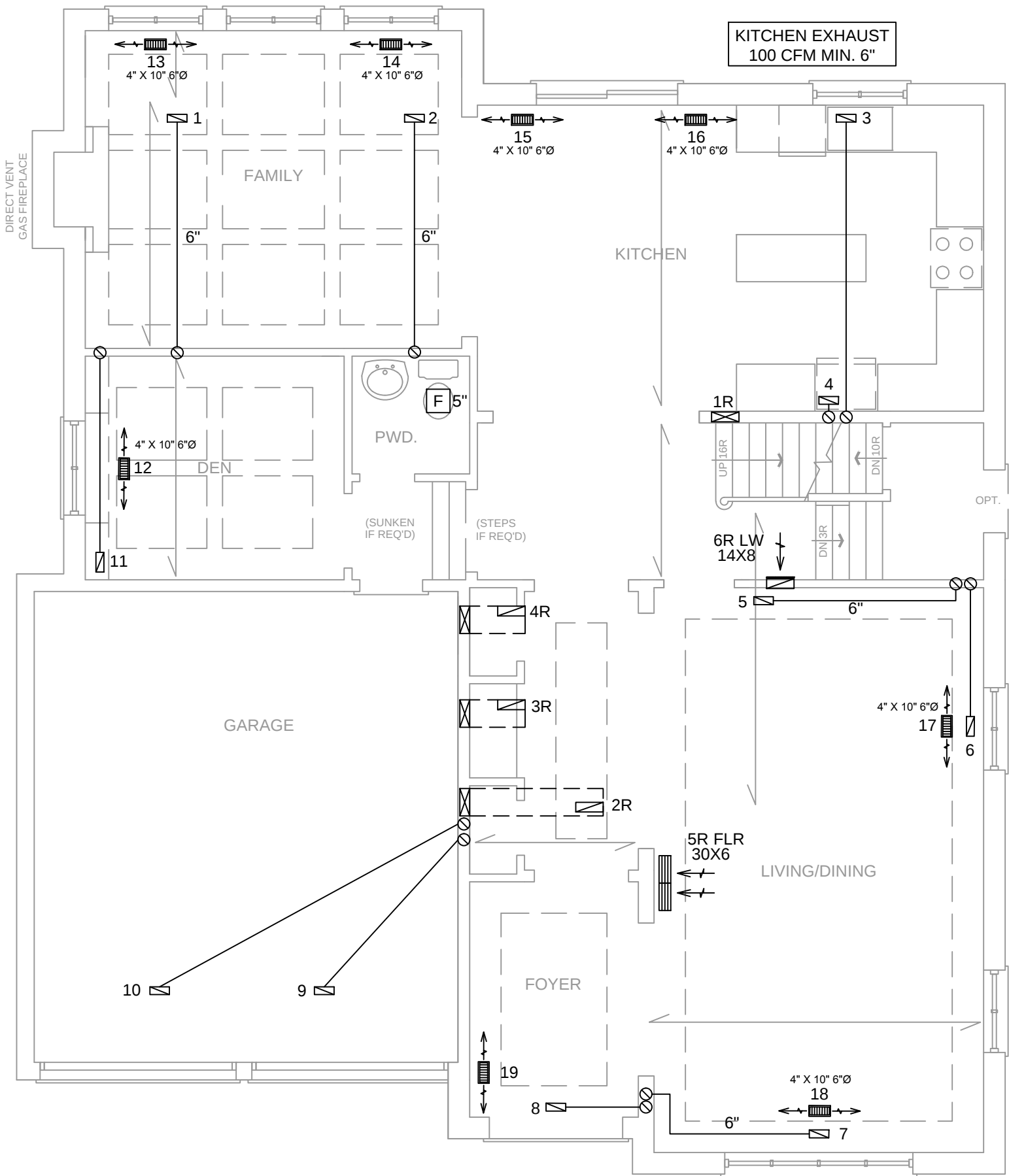
Residential Foundation Thermal Load Calculator

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):	20.52	 Insulation Configuration
Floor Width (m):	6.15	
Exposed Perimeter (m):	53.64	
Wall Height (m):	2.44	
Depth Below Grade (m):	2.13	
Window Area (m ²):	2.42	
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):		2277



	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



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)

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

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.
ALL R/A PARTITIONS 6" (FIRST FLOOR ONLY)
INSULATE DUCTS IN UNCONDITIONED SPACES R12 UNDERCUT ALL DOORS 1" MIN.
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L4T 0A4 TEL: 416-268-6820
email: dave@gtadesigns.ca
web: www.gtadesigns.ca

HEAT-LOSS	56,714	BTU/HR.
UNIT MAKE	AMANA	OR EQUAL.
UNIT MODEL	GMEC960803BNA	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	5
1ST FLOOR	8	2	2
BASEMENT	5	1	

FLOOR PLAN:	GROUND FLOOR
DRAWN BY:	AM
CHECKED:	DD
LAYOUT NO.	JB-00857
SQFT	3223
DRAWING NO.	M2

DATE:	JULY 29, 2015
CLIENT:	HIGHCASTLE HOMES
MODEL:	50-2
PROJECT:	RIVERWALK PHASE 2 BRAMPTON,ONT.
SCALE:	3/16" = 1'-0"

 FLEX DUCT

 RIDIT ROUND DUCT

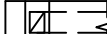
 SUPPLY DIFFUSER

 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.

 T

 F

 PE

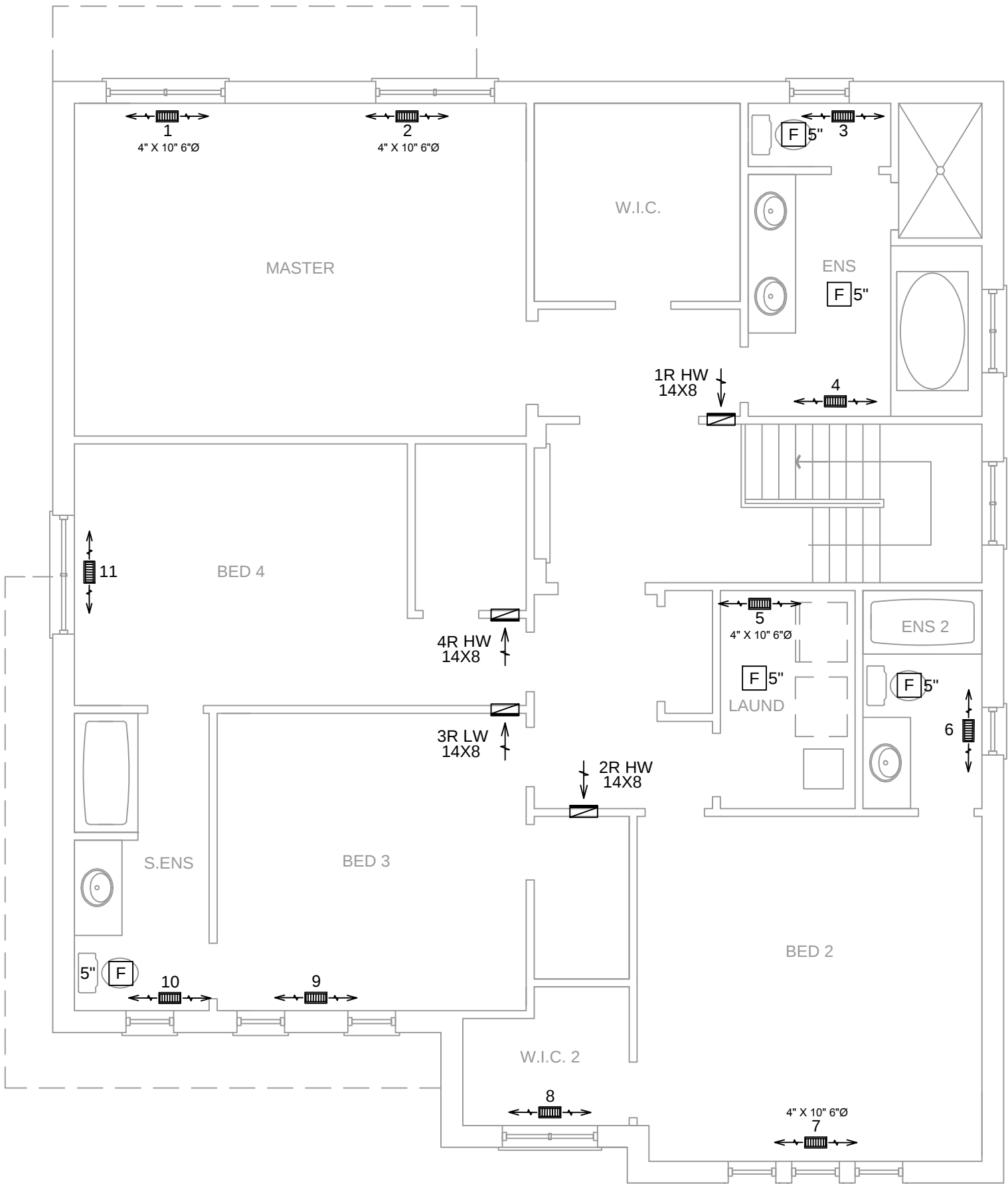
SUPPLY AIR

RETURN AIR

THERMOSTAT

PRINCIPAL EXHAUST FAN SWITCH

W/R & PRINCIPAL EXHAUST FAN



INSULATE ALL DUCTS IN UNCONDITIONED SPACES MIN. R12

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OBC 2012

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

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David Da Costa



B.C.I.N. 32964

Signature of Designer

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gtaDesigns

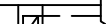
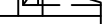
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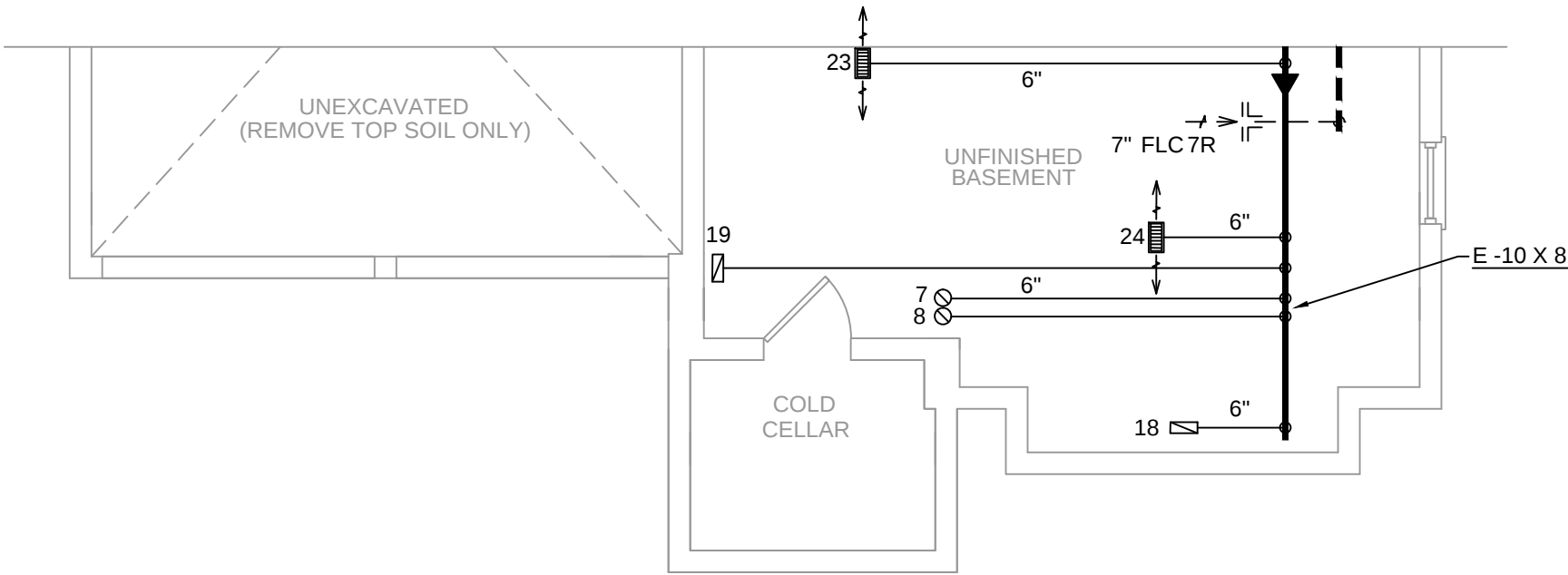
HEAT-LOSS	56,714	BTU/HR.
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A/C COOLING CAPACITY	3.0	TONS.
FAN SPEED	1172	CFM

# OF RUNS	S/A	R/A	FANS
3RD FLOOR			
2ND FLOOR	11	4	5
1ST FLOOR	8	2	2
BASEMENT	5	1	

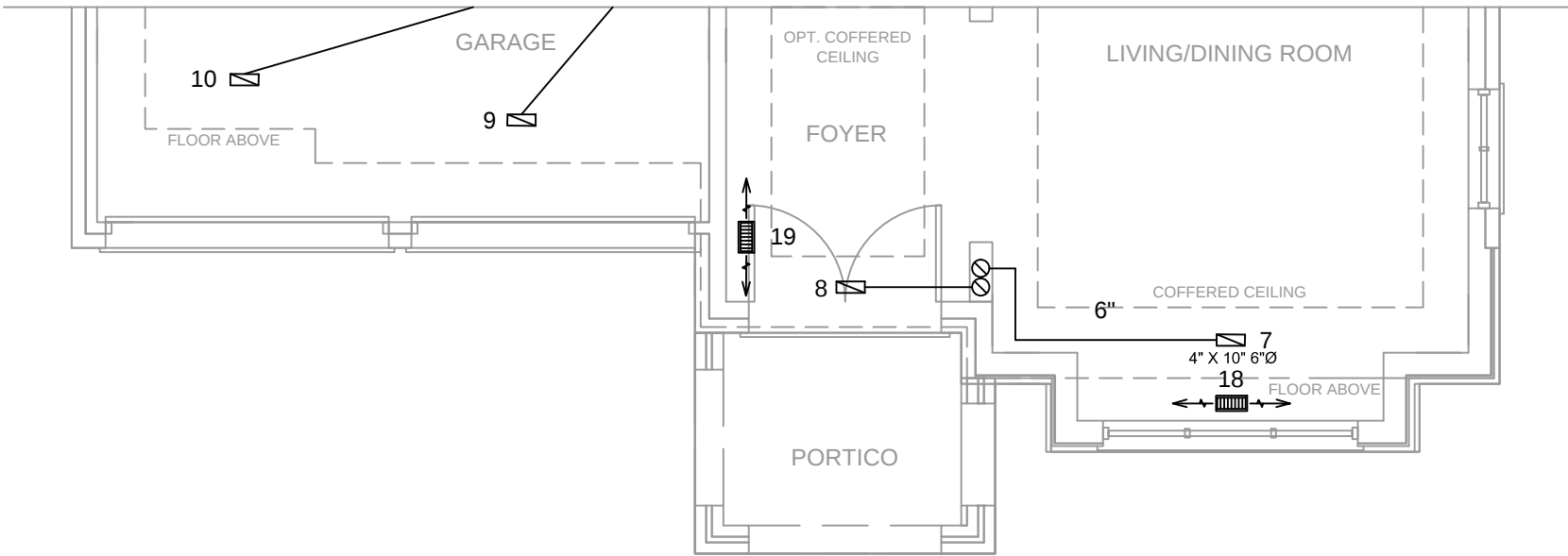
FLOOR PLAN: SECOND FLOOR		
DRAWN BY: AM	CHECKED: DD	SQFT 3223
LAYOUT NO. JB-00857	DRAWING NO. M3	

DATE:	JULY 29, 2015
CLIENT:	HIGHCASTLE HOMES
MODEL:	50-2
PROJECT:	RIVERWALK PHASE 2 BRAMPTON, ONT.
SCALE:	3/16" = 1'-0"

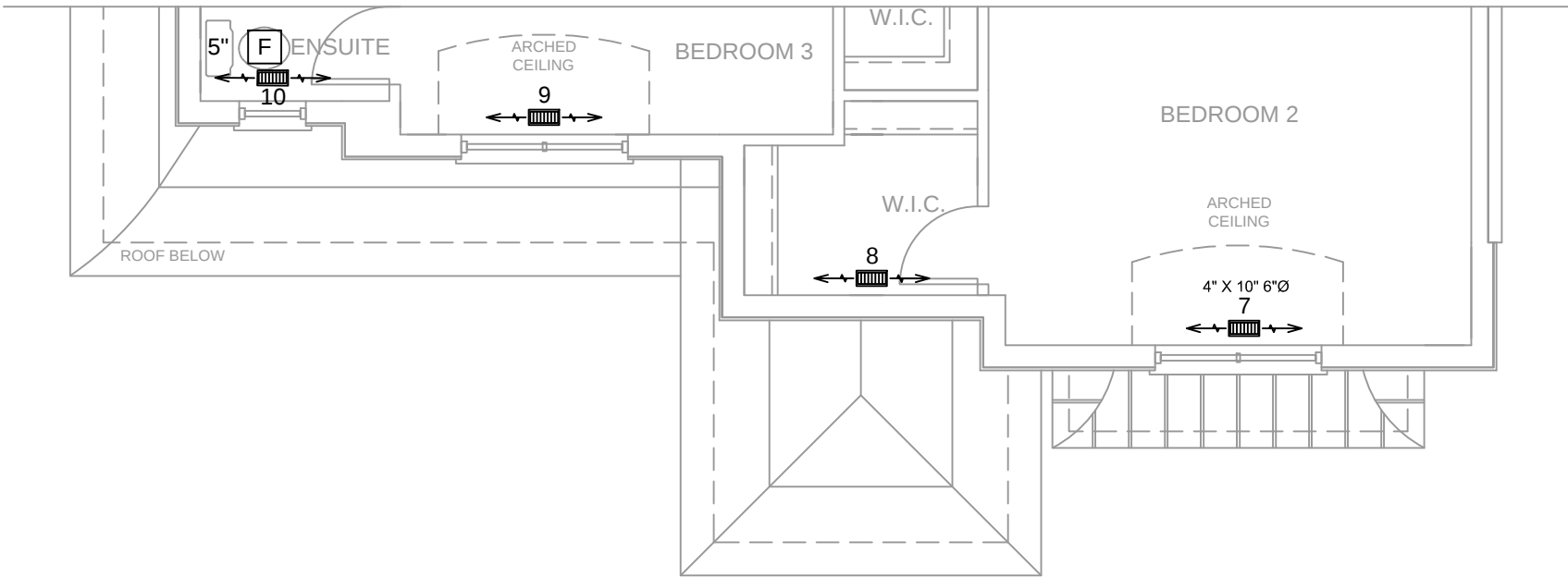
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	RIDIT ROUND DUCT		HRV EXHAUST GRILLE		RETURN AIR PIPE RISER		RETURN AIR RISER UP TO FLOOR ABOVE	R.A.	RETURN AIR
	SUPPLY DIFFUSER		SUPPLY AIR PIPE RISER		RETURN ROUND DUCT		RETURN AIR FROM BASEMENT SECOND FLOOR		THERMOSTAT
			VOLUME DAMPER						PRINCIPAL EXHAUST FAN SWITCH
									W/R & PRINCIPAL EXHAUST FAN



BASEMENT FLOOR ELEV. 'C'



GROUND FLOOR ELEV. 'C'



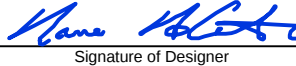
SECOND FLOOR ELEV. 'C'

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B.C.I.N. 32964

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OBC 2012

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FAN SPEED	1172	CFM

# OF RUNS	S/A	R/A	FANS
3RD FLOOR			
2ND FLOOR	11	4	5
1ST FLOOR	8	2	2
BASEMENT	5	1	

FLOOR PLAN:	PARTIAL PLAN(S)
DRAWN BY:	AM
CHECKED:	DD
LAYOUT NO.	JB-00857
SQFT	3223
DRAWING NO.	M4

DATE:	JULY 29, 2015
CLIENT:	HIGHCASTLE HOMES
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