



## Schedule 1: Designer Information

Use one form for each individual who reviews and takes responsibility for design activities with respect to the project.

A. Project Information			
Building number, street name <b>Northglen 40-4</b>		Unit no.	Lot/con.
Municipality <b>Bowmanville</b>	Postal code	Plan number/ other description	
B. Individual who reviews and takes responsibility for design activities			
Name <b>David Da Costa</b>		Firm <b>GTA Designs Inc.</b>	
Street address <b>2984 Drew Road, Suite 202</b>		Unit no.	Lot/con.
Municipality <b>Mississauga</b>	Postal code <b>L4T 0A4</b>	Province <b>Ontario</b>	E-mail <a href="mailto:dave@gtadesigns.ca">dave@gtadesigns.ca</a>
Telephone number <b>905-671-9800</b>		Fax number <b>647-494-9643</b>	Cell number
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 <b>Heating and Cooling Load Calculations Air System Design Residential mechanical ventilation Design Summary Residential System Design per CAN/CSA-F280-12</b>		Model Certification <b>SB-12</b>	Project #: <b>15-34</b>
		Builder	<b>Highcastle Homes</b>
		Project	<b>Bowmanville</b>
		Model	<b>Northglen 40-4</b>
			<b>Package D</b>
D. Declaration of Designer			
I, <u>David Dacosta</u> declare that (choose one as appropriate): (print name)			
<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. Individual BCIN: _____ Firm BCIN: _____			
<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. Individual BCIN: <u>32964</u> Basis for exemption from registration: <u>Division C 3.2.4.1. (4)</u>			
<input type="checkbox"/> 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>February 13, 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.

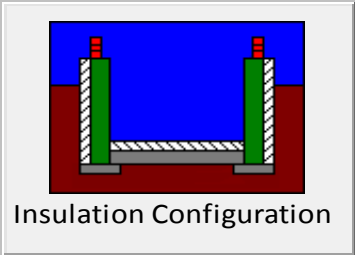
# Envelope Air Leakage Calculator

Supplemental tool for CAN/CSA-F280

Weather Station Description				
Province:	Ontario			
Region:	Oshawa			
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				
Type:	Detached			
Number of Stories:	Two			
Foundation:	Full			
House Volume (m <sup>3</sup> ):	845.92			
Air Leakage/Ventilation				
Air Tightness Type:	Present (1961-) (ACH=3.57)			
Custom BDT Data:	ELA @ 10 Pa. 860.26 cm <sup>2</sup>			
	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):			0.286	
Cooling Air Leakage Rate (ACH/H):			0.071	

# Residential Foundation Thermal Load Calculator

Supplemental tool for CAN/CSA-F280

Weather Station Description		
Province:	Ontario	▼
Region:	Oshawa	▼
Site Description		
Soil Conductivity:	Normal conductivity: dry sand, loam, clay	▼
Water Table:	Normal (7-10 m, 23-33 Ft)	▼
Foundation Dimensions		
Floor Length (m):	15.55	 <p>Insulation Configuration</p>
Floor Width (m):	6.09	
Exposed Perimeter (m):	43.28	
Wall Height (m):	2.44	
Depth Below Grade (m):	1.83	
Window Area (m <sup>2</sup> ):	0.84	
Door Area (m <sup>2</sup> ):	1.95	
Radiant Slab		
Heated Fraction of the Slab:	0	
Fluid Temperature (°C):	33	
Design Months		
Heating Month	1	
Foundation Loads		
Heating Load (Watts):		1350

# Air Leakage Calculations

Building Air Leakage Heat Loss				
B	LRairh	Vb	HL^T	HLLeak
0.018	0.286	29870	76	11687

Building Air Leakage Heat Gain				
B	LRairh	Vb	HG^T	HG Leak
0.018	0.071	29870	11	420

Air Leakage Heat Loss/Gain Multiplier Table (Section 11)				
Level	Level Factor (LF)	Building Air Leakage Heat Loss	Level Conductive Heat Loss (HLclevel)	Air Leakage Heat Loss Multiplier
1	0.5	11687	5354	1.0915
2	0.3		10771	0.3255
3	0.2		9243	0.2529
4			0	0.0000

Air Leakage Heat Gain Multiplier		
HG LEAK	420	0.0492
BUILDING CONDUCTIVE HEAT GAIN	8535	

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

Levels this Dwelling	
3	

# Ventilation Calculations

## Ventilation Heat Loss

Ventilation Heat Loss				
C	PVC	HL^T	(1-E) HRV	HLbvent
1.08	60	76	1.00	4925

## Case 1

### Ventilation Heat Loss (Exhaust only Systems)

Case 1 - Exhaust Only				
Level	LF	HLbvent	LVL Cond. HL	Multiplier
1	0.5	4925	5354	0.46
2	0.3		10771	0.14
3	0.2		9243	0.11
4	0		0	0.00

## Case 2

### Ventilation Heat Loss (Direct Ducted Systems)

			Multiplier
C	HL^T	(1-E) HRV	82.08
1.08	76	1.00	

## Case 3

### Ventilation Heat Loss (Forced Air Systems)

		HLbvent	Multiplier
Total Ventilation Load		4925	0.19

## Ventilation Heat Gain

Ventilation Heat Gain			
C	PVC	HG^T	HGbvent
1.08	60	11	713

## Case 1

### Ventilation Heat Gain (Exhaust Only Systems)

Case 1 - Exhaust Only		Multiplier
HGbvent	713	0.08
Building Cond. HG	8535	

## Case 2

### Ventilation Heat Gain (Direct Ducted Systems)

		Multiplier
C	HG^T	11.88
1.08	11	

## Case 3

### Ventilation Heat Gain (Forced Air Systems)

		Vent Heat Gain	Multiplier
HGbvent	HG*1.3	713	0.08
713	1		



Air System Design

Package D

2986 Drew Road, Suite 202, Mississauga, Ontario L4T 0A4 Tel: 905-671-9800  
Fax: 647-494-9643 e-mail dave@gtadesigns.ca

Builder: Highcastle Homes

Date: February 13, 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.

Project # 15-34

Project: Bowmanville

Model: Northglen 40-4

System 1

Individual BCIN: 32967

David DaCosta

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DESIGN LOAD SPECIFICATIONS				AIR DISTRIBUTION & PRESSURE				FURNACE/AIR HANDLER DATA:				BOILER/WATER HEATER DATA:				A/C UNIT DATA:			
Level 1 Net Load	12,236	btu/h		Equipment External Static Pressure	0.5	"w.c.		Make	Amana			Make		Type		Amana	2.0	Ton	
Level 2 Net Load	16,368	btu/h		Additional Equipment Pressure Drop	0.225	"w.c.		Model	GMEC960603BNA			Model				Cond.-----	2.0		
Level 3 Net Load	13,374	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	41,978	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	19,811	btu/h		S/A Plenum Pressure	0.14	"w.c.		Water Temp		deg.	F.	Blower DATA:							
Ventilation PVC	60	cfm		Heating Air Flow Proportioning Factor	0.0279	cfm/btuh		AFUE	96%			Blower Speed Selected:	W2			Blower Type	ECM		
Building Volume Vb	29870	ft³		Cooling Air Flow Proportioning Factor	0.0486	cfm/btuh		Aux. Heat				Heating Check	1170	cfm		Cooling Check	963	cfm	
Total Heat Loss + 10%	46,176	Btuh.		R/A Temp				SB-12 Package	Package D			Selected cfm>	1170	W2		Cooling Air Flow Rate	963	cfm	
Supply Branch and Grill Sizing				S/A Temp	116	deg. F.		Temp. Rise>>>	46	deg. F.									
				Diffuser loss	0.01	"w.c.													

	Level 1 Outlets														Level 2 Outlets											
S/A Outlet No.	18	19	20	21											10	12	13	14	15	16	17	11				
Room Use	BASE	BASE	BASE	BASE											KIT	LAUND	FOY	PWD	LIV	GREAT	PLEN	DIN				
Btu/Outlet	3059	3059	3059	3059											2567	1783	2412	1148	1784	2740	1367	2567				
Outlet Airflow Rate CFM	85	85	85	85											72	50	67	32	50	76	38	72				
Cooling Airflow Rate CFM	9	9	9	9											126	50	41	56	75	98	6	126				
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	
Actual Duct Length	19	32	25	36											33	5	39	41	30	38	36	3				
Equivalent Length	110	120	110	165	90	90	90	90	90	90	90	90	90	90	90	130	135	155	100	100	145	100	90	90	90	
Total Effective Length	129	152	135	201	90	90	90	90	90	90	90	90	90	90	123	135	174	196	130	138	181	103	90	90	90	
Adjusted Pressure	0.10	0.09	0.10	0.06	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.11	0.10	0.07	0.07	0.10	0.09	0.07	0.13	0.14	0.14	0.14	
Duct Size Round	6	6	6	6	5	5	5	5	5	5	5	5	5	5	6	5	6	5	6	6	5	6	5	5	5	
Outlet Size	4x10	4x10	4x10	4x10	3x10	3x10	3x10	3x10	3x10	3x10	3x10	3x10	3x10	3x10	4x10	3x10	4x10	3x10	4x10	4x10	3x10	4x10	3x10	3x10	3x10	
Trunk	A	B	C	D											A	A	D	D	C	B	D	PTO				

Level 3 Outlets										Level 4 Outlets														
S/A Outlet No.	1	3	4	5	6	7	8	9	2															
Room Use	MAST	ENS	BATH	BED 2	WIC 2	BED 3	BED 4	STAIR	WIC															
Btu/Outlet	1618	1918	560	2259	700	2330	1336	1035	1618															
Outlet Airflow Rate CFM	65	53	16	63	20	65	37	29	25															
Cooling Airflow Rate CFM	65	35	10	56	18	64	47	19	35															
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
Actual Duct Length	46	21	15	58	51	52	40	15	33															
Equivalent Length	110	120	140	125	115	105	130	90	100	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90
Total Effective Length	156	141	155	183	166	157	170	105	133	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90
Adjusted Pressure	0.08	0.09	0.08	0.07	0.08	0.08	0.08	0.12	0.10	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	0.14	0.14
Duct Size Round	6	5	5	6	5	6	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Outlet Size	4x10	3x10	3x10	4x10	3x10	4x10	3x10	3x10	3x10	3x10	3x10	3x10	3x10	3x10	3x10	3x10	3x10	3x10	3x10	3x10	3x10	3x10	3x10	3x10
Trunk	B	A	A	D	D	D	B	PTO	A															

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	160	105	105	160	429	40	171					
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	39	63	58	9	43	23					
Equivalent Length	175	170	185	160	130	190	95	70	70	70	70	
Total Effective Length	209	209	248	218	139	233	118	70	70	70	70	
Adjusted Pressure	0.06	0.06	0.05	0.05	0.08	0.05	0.10	0.17	0.17	0.17	0.17	
Duct Size Round	7	6	6	7	2x8	5	7					
Inlet Size	8	8	8	8	8	8	FLC					
" "	x	x	x	x	x	x	x	x	x	x	x	
Inlet Size	14	14	14	14	30	14						

Return Trunk Duct Sizing				
Trunk	CFM	Press.	Round	Rect. Size
Drop	1170	0.05	17.0	24x12
Z	1170	0.05	17.0	26x10
Y	476	0.05	12.0	16x8
X	305	0.05	10.5	12x8
W				
V				
U				
T				
S				
R				
Q				

Supply Trunk Duct Sizing				
Trunk	CFM	Press.	Round	Rect. Size
A	1070	0.06	16.0	30x8 22x10
B	264	0.06	9.5	10x8
C	505	0.06	12.0	16x8
D	370	0.06	11.0	14x8
E				
F				
G				
H				
I				
J				
K				

Builder: Highcastle Homes

Date: February 13, 2015

Project: Bowmanville

Model: Northglen 40-4

System 1

Heat Loss ^T 76 deg. F

Ht gain ^T 11 deg. F


GTA: 2337

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Level 1				BASE																	
Run ft. exposed wall A				142	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		
Ceiling height				2	AG	2	AG	2	AG	2	AG	2	AG	2	AG	2	AG	2	AG		
Floor area				1019	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		
Exposed Ceilings 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		
Gross Exp Wall A				284																	
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	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	254		203												
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				22.86	3.32	0.22															
Foundation Conductive Heatloss				Slab On Grade (x)			4606														
Total Conductive				Heat Loss			5354														
				Heat Gain				490													
Air Leakage				Heat Loss/Gain	1.0915	0.0492	5843		24												
Ventilation				Case 1		0.46															
				Case 2		82.08	11.88														
				Case 3	x	0.19	0.08	1039		41											
Heat Gain People						239															
Appliances Loads				1 =.25 percent		4376															
Duct and Pipe loss						10%															
Level 1 HL Total				12,236			12236														
Level 1 HG Total				722				722													

Level 2				KIT/DIN		LAUND		FOY		PWD		LIV		GREAT		PLEN																
Run ft. exposed wall A				43	A	13	A	15	A	12	A	15	A	26	A	30	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	
Ceiling height				10		10		10		10		10		10		2		10		10		10		10		10		10		10		
Floor area				410	Area	43	Area	92	Area	33	Area	196	Area	197	Area	180	Area		Area		Area		Area		Area		Area		Area		Area	
Exposed Ceilings A				60	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	
Exposed Floors					Flr		Flr		Flr		Flr		Flr		Flr		Flr		Flr		Flr		Flr		Flr		Flr		Flr		Flr	
Gross Exp Wall A				430		130		150		120		150		260		60																
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	Loss	Gain
North Shaded				3.15	24.13	11.31	22	531	249																							
East/West				3.15	24.13	27.75	37	893	1027																							
South				3.15	24.13	21.28																										
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	371	1864	270	104	522	76	108	542	79	112	563	81	128	643	93	234	1175	170	60	301	44					
Net exposed walls B				8.50	8.94	1.29																										
Exposed Ceilings A				50.00	1.52	0.76	60	91	46																							
Exposed Ceilings B				22.86	3.32	1.66																										
Exposed Floors				22.86	3.32	0.22																										
Foundation Conductive Heatloss				Slab On Grade (x)		x																										
Total Conductive				Heat Loss				3378																								
				Heat Gain																												
Air Leakage				Heat Loss/Gain		0.3255	0.0492																									
Ventilation				Case 1		0.14	0.08																									
				Case 2		82.08	11.88																									
				Case 3	x	0.19	0.08																									
Heat Gain People						239																										
Appliances Loads				1 =.25 percent																												
Duct and Pipe loss						10%																										
Level 2 HL Total				16,368				5134																								
Level 2 HG Total				11,886				5187																								



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

**Project:** Bowmanville **Model:** 40-4 **Northglen** **Page** 5

## RESIDENTIAL MECHANICAL VENTILATION DESIGN SUMMARY

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

Location of Installation	
Lot #	Plan #
Township	Bowmanville
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 type="checkbox"/> Direct vent (sealed combustion) only
b)	<input checked="" 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 checked="" type="checkbox"/> Exhaust only / forced air system
2	<input type="checkbox"/> HRV WITH DUCTING / forced air system
3	<input 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	@	20 cfm	40 cfm
Other Bedrooms	2	@	10 cfm	20 cfm
Bathrooms & Kitchen	4	@	10 cfm	40 cfm
Other rooms	4	@	10 cfm	40 cfm
Total				<u>140</u>


Principal Ventilation Capacity 9.32.3.4(1)				
Master bedroom	1	@	30 cfm	30 cfm
Other bedrooms	2	@	15 cfm	30 cfm
Total				<u>60</u>

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

Heat Recovery Ventilator	
Make	
Model	
	cfm high
Sensible efficiency @ -25 deg C	0%
<i>HRV is HVI listed</i>	

Supplemental Ventilation Capacity	
Total ventilation capacity	140.0
Less principal exhaust capacity	<u>60.0</u>
REQUIRED supplemental vent. Capacity	<u>80.0</u> cfm

Supplemental Fans 9.32.3.5.			
Location	cfm	Model	Sones
Bath	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 Da Costa
Signature	
HRAI #	5190      BCIN #      32964
Date	February 13, 2015



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	<b>Northglen 40-4</b>	Unit number	Lot/Con
Municipality	<b>Bowmanville</b>	Postal code	Reg. Plan number / other description

## B. Compliance Option

<input checked="" type="checkbox"/> <b>SB-12 Prescriptive</b> [SB-12 - 2.1.1.]	Table: Package: A B C D E F G H I J K L M	<b>Package D</b>
<input type="checkbox"/> <b>SB-12 Performance*</b> [SB-12 - 2.1.2.]	* Attach energy performance calculations using an approved software	
<input type="checkbox"/> <b>Energy Star®*</b> [SB-12 - 2.1.3.]	* Attach BOP form	
<input type="checkbox"/> <b>EnerGuide 80®*</b>	* 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)	<input type="checkbox"/> ≥ 78% < 90% AFUE	<input type="checkbox"/> Oil	<input type="checkbox"/> Electric	<input type="checkbox"/> Earth Energy

Windows+Skylights+Glass Doors		Other Building Conditions		
Gross Wall Area =	250 m <sup>2</sup>	% Windows+	9%	<input type="checkbox"/> ICF Basement
Gross Window+ Area =	22 m <sup>2</sup>			<input type="checkbox"/> Walkout Basement
				<input type="checkbox"/> Log/Post&Beam
				<input type="checkbox"/> ICF Above Grade
				<input type="checkbox"/> 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
<b>Thermal Insulation</b>		<b>Windows &amp; Doors<sup>1</sup></b>	
Ceiling with Attic Space	50	Windows/Sliding Glass Doors	1.8
Ceiling without Attic Space	31	Skylights	2.8
Exposed Floor	31	<b>Mechanicals</b>	
Walls Above Grade	24	Space Heating Equip. <sup>2</sup>	94%
Basement Walls	20	HRV Efficiency (%)	
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 <sup>2</sup> .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:

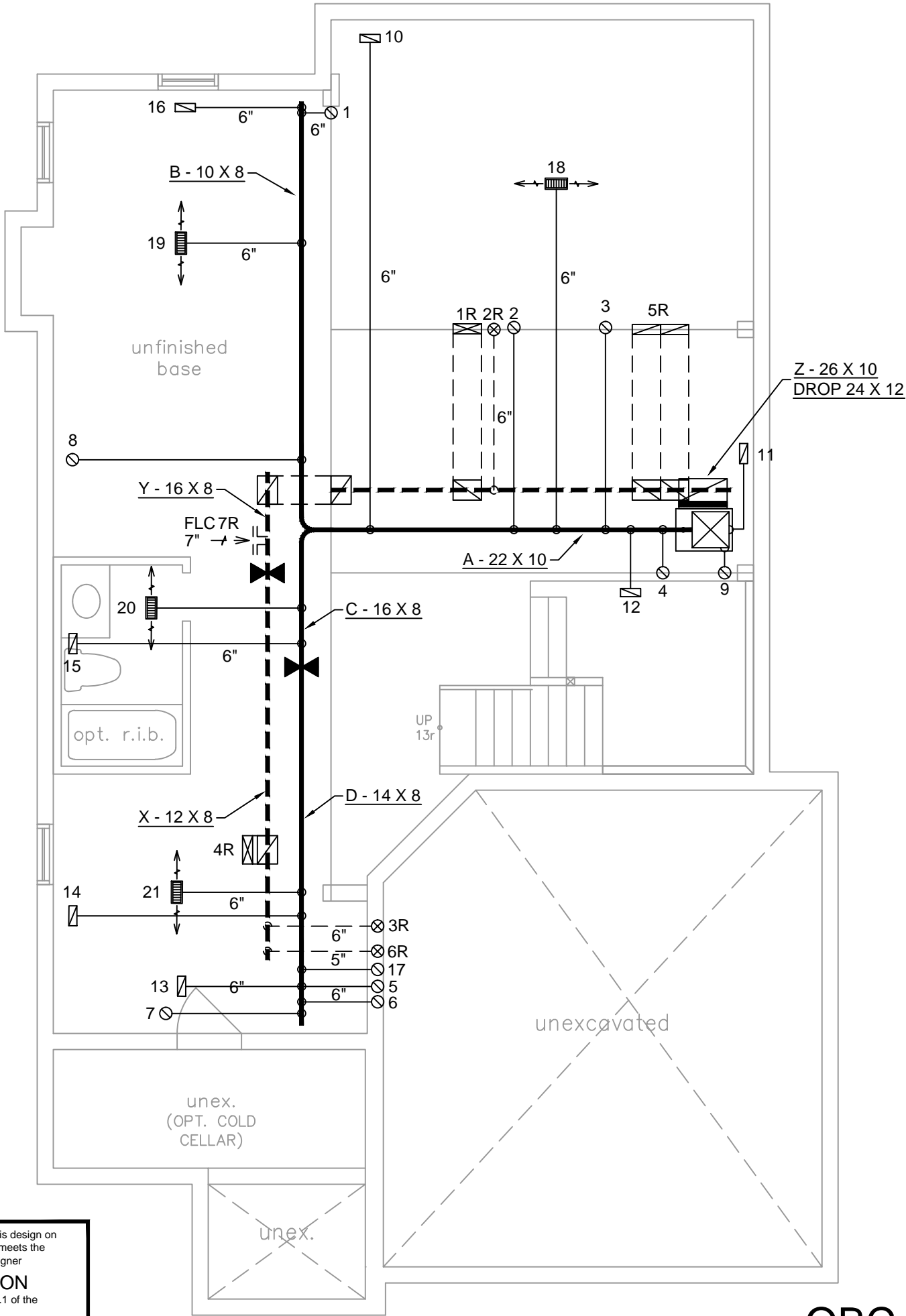
**Energy Star and EnerGuide80:**

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 

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



INSULATE ALL DUCTS IN UNCONDITIONED SPACES MIN. R12  
SEAL ALL JOINTS WITH APPROVED SEALANT OR FOIL TAPE


ALL DUCTWORK LOCATED IN CONDITIONED SPACES 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

**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



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


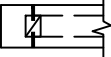

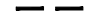

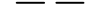









2985 DREW ROAD  
SUITE 202,  
MISSISSAUGA, ONT.  
L4T 0A4 TEL: 416-268-6820  
email: dave@gtadesigns.ca  
web: www.gtadesigns.ca

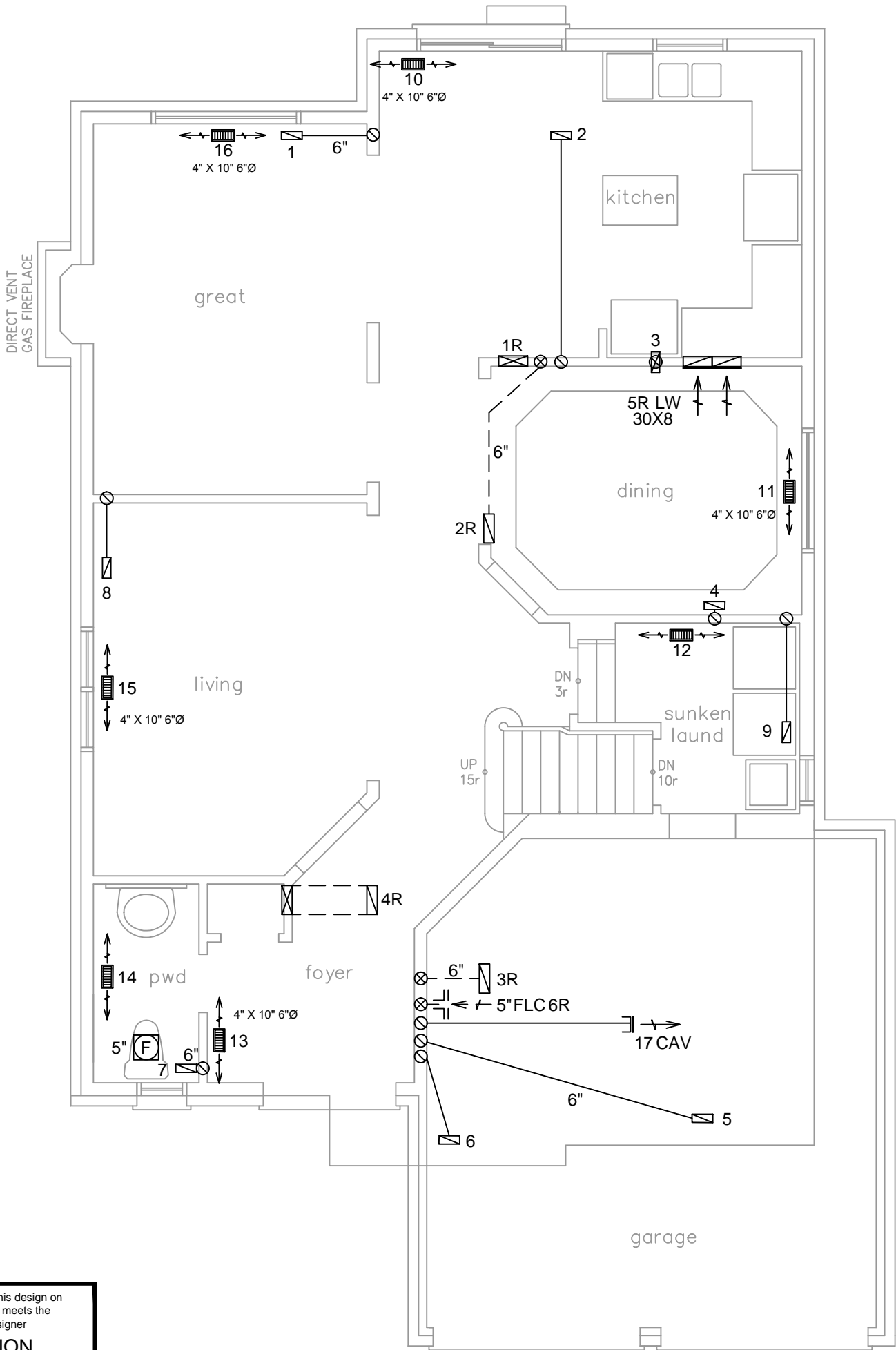
HEAT-LOSS	41,978	BTU/HR.
UNIT MAKE	AMANA	
UNIT MODEL	GMEC960603BNA	
UNIT HEATING INPUT	60,000	BTU/HR.
UNIT HEATING OUTPUT	57,600	BTU/HR.
A/C COOLING CAPACITY	2.0	TONS.
FAN SPEED	1,170	CFM

# OF RUNS	S/A	R/A	FANS
3RD FLOOR			
2ND FLOOR	9	4	2
1ST FLOOR	8	2	2
BASEMENT	4	1	

FLOOR PLAN: BASEMENT	
DRAWN BY: D. DACOSTA	SQFT: 2337
LAYOUT NO. 15-34	DRAWING NO. 1/3

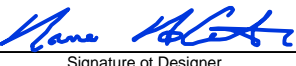
DATE:	FEBRUARY 13, 2015
CLIENT:	HIGHCASTLE HOMES
PROJECT:	40-4 NORTHGLEN BOWMANVILLE, ON.
SCALE:	3/16" = 1"-0"

H.V.A.C. SYMBOLS			
	FLEX DUCT		RETURN AIR GRILLE (SIZE INDICATED ON DRAWING)
	RIDIT ROUND DUCT		RETURN AIR PIPE RISER
	SUPPLY MAIN DUCT		DUCT CONNECTION TO JOIST LINING
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ABBREVIATIONS			
S.A.	SUPPLY AIR		W/R PRINCIPAL EXHAUST FAN
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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  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.  
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INSULATE DUCTS IN UNCONDITIONED SPACES R12 UNDERCUT ALL DOORS 1" MIN.  
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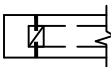













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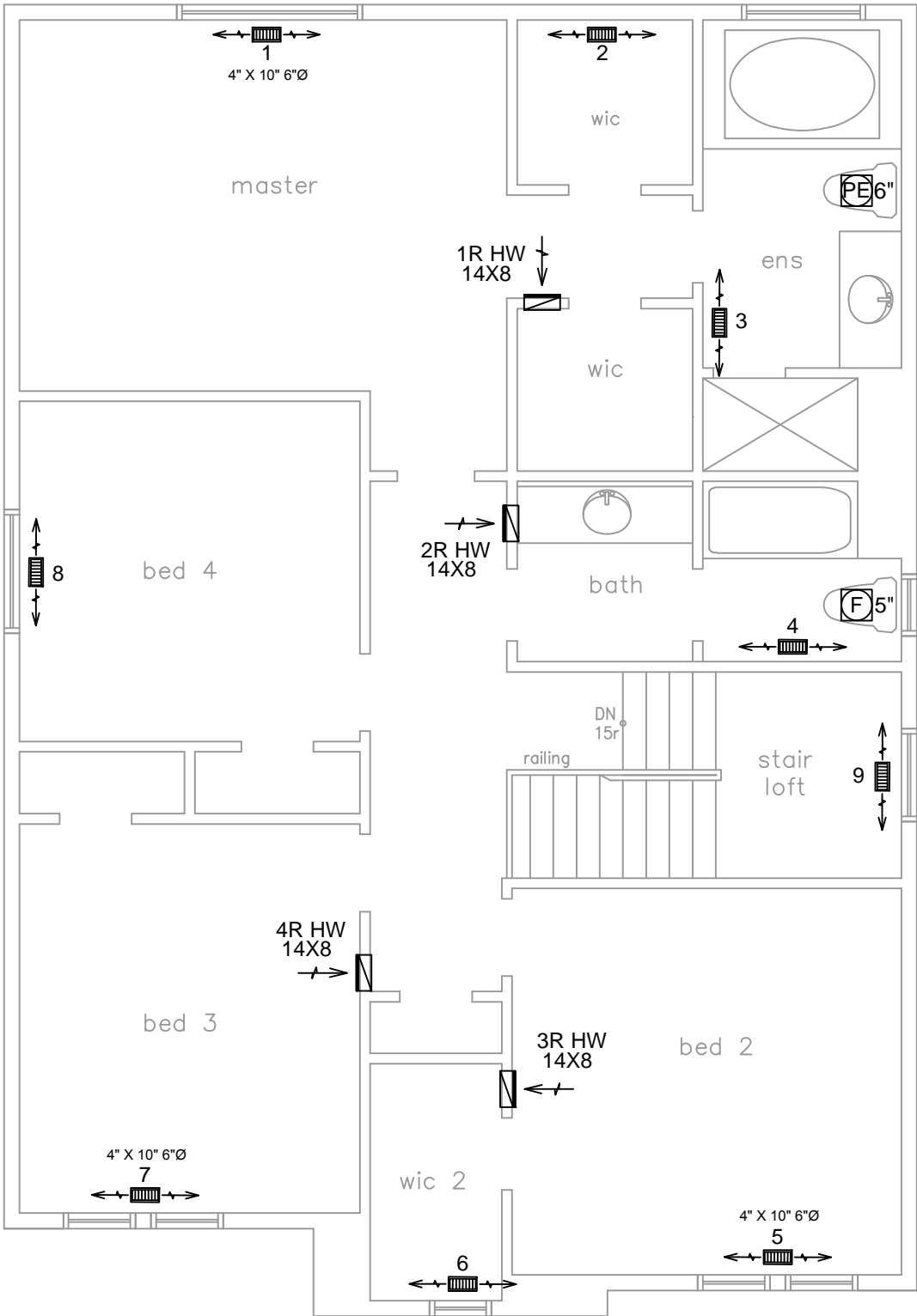
HEAT-LOSS	BTU/HR.
UNIT MAKE	
UNIT MODEL	
UNIT HEATING INPUT	BTU/HR.
UNIT HEATING OUTPUT	BTU/HR.
A/C COOLING CAPACITY	TONS.
FAN SPEED	CFM

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

FLOOR PLAN:	
GROUND FLOOR	
DRAWN BY	SQFT
D. DACOSTA	2337
LAYOUT NO.	DRAWING NO.
15-34	2/3

DATE:	FEBRUARY 13, 2015
CLIENT:	HIGHCASTLE HOMES
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ABBREVIATIONS			W/R PRINCIPAL EXHAUST FAN
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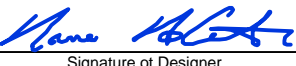
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David Da Costa



B.C.I.N. 32964

Signature of Designer

OBC 2012

ZONE 1 COMPLIANCE  
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HEAT-LOSS	BTU/HR.
UNIT MAKE	
UNIT MODEL	
UNIT HEATING INPUT	BTU/HR.
UNIT HEATING OUTPUT	BTU/HR.
A/C COOLING CAPACITY	TONS.
FAN SPEED	CFM

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

FLOOR PLAN:	
SECOND FLOOR	
DRAWN BY	SQFT
D. DACOSTA	2337
LAYOUT NO.	DRAWING NO.
15-34	3/3

DATE:	FEBRUARY 13, 2015
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