

MECHANICAL VENTILATION DESIGN SUMMARY RESIDENTIAL

Housetype T02 The Thistle

File # 6912

Builder	Esquire
Address	
City	
Phone	

Heat Loss Due to Mechanical Ventilation		
PVC X DTDh X 1.2 X (1-E)=	0	BTU
Heat Gain Due to Mechanical Ventilation		
PVC X DTDc X 1.2 X (1-E)=	0	BTU

The Above is N/A if no HRV is installed

Combustion Appliances	
<input checked="" type="checkbox"/>	a) Direct Vent (sealed combust) including fireplaces
<input type="checkbox"/>	b) Positive venting induced draft (exclude fireplace)
<input type="checkbox"/>	c) Natural Draft, B vent or induced draft fireplaces
<input type="checkbox"/>	d) Solid Fuel
<input type="checkbox"/>	e) No Combustion Appliances

Total Ventilation Capacity			
Bsmt & Master	2	21.2 cfm	42.4
Other Bed	2	10.6 cfm	21.2
Bath & Kitchen	4	10.6 cfm	42.4
Other Rooms	2	10.6 cfm	21.2
Room Count cfm			127.2
Air Change TVC= HouseVol.X0.3/60			87.9

Heating System	
<input checked="" type="checkbox"/>	Forced Air
<input type="checkbox"/>	Non Forced Air
<input type="checkbox"/>	Electric Space Heat

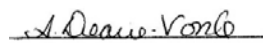
Housetype	
<input checked="" type="checkbox"/>	I - Type a or b appliances only, no solid fuel
<input type="checkbox"/>	II - Type I with solid fuel (including fireplace)
<input type="checkbox"/>	III - Type C appliance
<input type="checkbox"/>	IV - Type I or II with electric space heat
<input type="checkbox"/>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

Supplemental Ventilation Capacity	
TVC room or air change (which larger)	127
Less Principal Exhaust Capacity (Bath)	70
Required Supp.Vent Capacity CFM	57

System Design Option	
<input checked="" type="checkbox"/>	Exhaust Only/Forced air system
<input type="checkbox"/>	HRV Simplified Connection to Forced Air System
<input type="checkbox"/>	HRV with ducting to forced air system
<input type="checkbox"/>	HRV fully ducted/ not coupled with forced air sys.
<input type="checkbox"/>	Part 6 design CSA F326-M91
<input checked="" type="checkbox"/>	Part 9 9.32.3.1

Supplemental Fans			
Location	cfm	Model	Pipe
Ens	50	Broan ZB80M	4"
Pwd	50	Broan ZB80M	4"
all fans HVI listed			

Principal Ventilation Fan			
Model			
Bathroom	Broan ZB80	6"	70cfm

Designer Certification	
I have reviewed and take responsibility for this design and am qualified as an "other designer" as required by the OBC 3.2.5 as it relates to residential HVAC design	
Alexis Dearie-Vonk	
BCIN# 27098	HRAI# 3986

NEWRES HVAC DESIGN

9 Hurontario St
Orangeville Ont
L9W 1Y8
416-320-5870

Heat Loss Calculation

Heat loss ^T 76 f Heat Gain ^T 11 f Bsmt ^T 22 f

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as it relates to residential HVAC design.

Alexis Dearie-Vonk BCIN# 27098 HRAI# 3986

Alexis Dearie-Vonk

Customer Esquire
Housetype T02 The Thistle
File # 6912
Date May-15
Township Ajax

	Eff	Ens		Mas		Br2		Br3		Bath		Liv/Din		Kit		Foy																				Bsmt	
	Fac	Act	Loss	Act	Loss	Act	Loss	Act	Loss	Act	Loss	Act	Loss	Act	Loss	Act	Loss	Act	Loss	Act	Loss	Act	Loss	Act	Loss	Act	Loss	Act	Loss	Act	Loss	Act	Loss	Act	Loss		
Width	20.8	5		14		10		10		19		10		9		8																		25			
Length		17		17		13		14		8		24		24		16																	25				
Area		85		238		130		140		152		240		216		128																	625				
Height		8		8		8		8		8		9		9		9																	8				
LinFtWall		5		14		10		12		1		10		20		24																	54				
Gr.Wall		40		112		80		96		8		90		180		216																					
Net Wall		32	117	94	343	52	190	69	252	8	29	64	234	132	482	192	702																				
Windows																																					
E,W		8	194	18	437	28	680	27	656			26	631	48	1165	24	583																3	73			
S																																					
N																																					
Skylight	3.13																																				
Door	4													21	399																	21	399				
Ceiling	49.2	85	131	238	368	130	201	140	216	152	235																										
Cold Flr	27.7					130	357	30	82																												
Header	20.8										10	37	20	73	24	88																					
HL bgcr																																	3072				
SlabHLbgcr																																					
People/App			1		1		1				1		3																								
HL agcr			442		1148		1427		1206		264		902		1721		1771																				
HL airr	2	157	2	407	2	505	2	427	2	93	1	489	1	934	1	961																	2242				
HL dr					130	193	30	163																													
Tot.Rm.Loss BTU		599		1555		2126		1797		358		1391		2654		2732																	5314				

HL airr= 498 / 3.6 X 42 X 1.2 X 0.19 1311 W X 3.41 4472 BTU
BasementHLR 762 W X 3.41 2600 BTU

Hlirr Multipliers	2nd BTU	4488	0.2
	1st BTU	4394	0.31
	Bsmt BTU	3072	0.73

All Calculations based on CAN/CSAF280 and HRAI Digest Standards

Total Structure Heat Loss 18525
Mech.Vent Loss NA
TOTAL HEAT LOSS BTU 18525

NEWRES HVAC DESIGN

9 Hurontario street
Orangeville Ont
L9W 1Y8
416-320-5870

Heat Gain Calculation

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as it relates to residential HVAC design.
Alexis Dearie-Vonk BCIN# 27098 HRAI# 3986
A. Dearie-Vonk

Customer Esquire
Housetype T02 The Thistle
File # 6912
Date May-15
Township Ajax

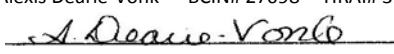
Heat loss ^T 76 f Heat Gain ^T 11 f Bsmt ^T 22 f

	Fac	Ens		Mas		Br2		Br3		Bath		Liv/Din		Kit		Foy																		Bsmt	
		Act	Gain	Act	Gain	Act	Gain	Act	Gain	Act	Gain	Act	Gain	Act	Gain	Act	Gain	Act	Gain	Act	Gain	Act	Gain	Act	Gain	Act	Gain	Act	Gain	Act	Gain	Act	Gain		
Width	20.8	5		14		10		10		19		10		9		8																	25		
Length		17		17		13		14		8		24		24		16																	25		
Area		85		238		130		140		152		240		216		128																	625		
Height		8		8		8		8		8		9		9		9																	8		
LinFtWall		5		14		10		12		1		10		20		24																	54		
Gr.Wall		40		112		80		96		8		90		180		216																			
Net Wall		32	22	94	63	52	35	69	46	8	5	64	43	132	89	192	129																		
Windows																																			
E,W		285	8	337	18	673	28	1009	27	975		26	942	48	1681	24	874																3	169	
S		160																																	
N		93																																	
Skylight		534																																	
Door		4														21	74																21	74	
Ceiling		49.2	85	73	238	203	130	111	140	120	152	130																							
Cold Flr		27.7					130	42	30	10																									
Header		20.8										10	7	20	13	24	16																54	36	
HG svr																																			
HG dr							368		363																										
Total Cond				431		939		1197		1151		135		991		1783		1093																279	
Air Leak.				3		6		8		8		1		7		12		7																2	
Peop/App					1	240	1	240	1	240			1	240	3	1604																			
HG sr			434		1186		1813		1762		136		1238		3399		1101																		281

HG salb= 0.016 X 138 X 6 C X 1.2 16 W X 3.41 54 BTU
Mech. Vent Gain BTU HG cb 8000 BTU

All Calculations based on CAN/CSAF280 and HRAI Digest Standards

Total Structure Heat Gain 11349
Latent Load Multiplier 1.3
Total Heat Gain BTU 14754

Heat Loss & Gain Calculation Summary Sheet						CSA-F280-M12	
These documents issued for the use of					Esquire		Project #
and may not be used by any other person without authorization. Documents for permit and/or construction are signed in red							
Building Location							
Model:	T02 The Thistle			Site:	River Run		
Address:				Lot:			
City:	Ajax			Postal Code:			
Calculations Based On							
Dimensional Info. Based on:				Hunt Designs			
Attachment:	Semi-Detached			Front Face:	East		Assumed? Yes
# of Stories:	2+Bsmt			Air Tight:	Very Tight		Assumed? Yes
Weath Loc:	Ajax		Ventilated? Inc	Wind Exp:	Part-Shelter		
HRV?	NO			Int.Shade:	Yes		Occupants: 4
Recovery %				Unit:	Imperial		
Heating Design Conditions				Cooling Design Conditions			
Out Temp:	-20	Ind.Temp:	22	Soil Temp:	10	Out Temp:	30
						Ind.Temp:	24
						Lat:	43.85
						ST ran:	10
Above Grade Walls				Below Grade Walls			
Style A:	2X6 @16"OC R24 Brick or Siding			Style A:	R20 Full Height Insulation		
Style B:				Style B:			
Style C:				Style C:			
Style D:				Style D:			
Floors on Soil				Ceilings			
Style A:	No Bsmt Insul below frost line			Style A:	R50 Batt Insulation		
Style B:				Style B:			
Exposed Floors				Style C:			
Style A:	R31-Garage Ceil			Doors			
Style B:				Style A:	R4 Insulated		
Windows				Style B:			
Style A:	Assumed Dbl Low E Argon operable R3.13			Style C:			
Style B:				Skylights			
Style C:				Style A:			
Style D:				Style B:			
Att.Docs:							
Notes:							
Calculations Performed By				I have reviewed and take responsibility for this design & am qualified as an "other designer" as required by the OBC 3.2.5 as it relates to residential HVAC design. Alexis Dearie-Vonk BCIN# 27098 HRAI# 3986 			
Name:	Alexis Dearie-Vonk						
Company:	New Res Hvac Design						
Address:	9 Hurontario Street						
City:	Orangeville ON						
Postal Code:	L9W 1Y8						
Phone:	416-320-5870						
Email:	alexis_dearie@hotmail.com						

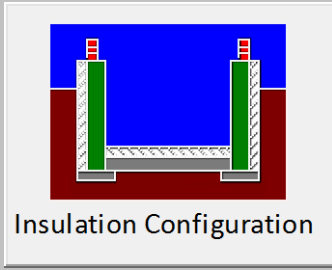
Envelope Air Leakage Calculator

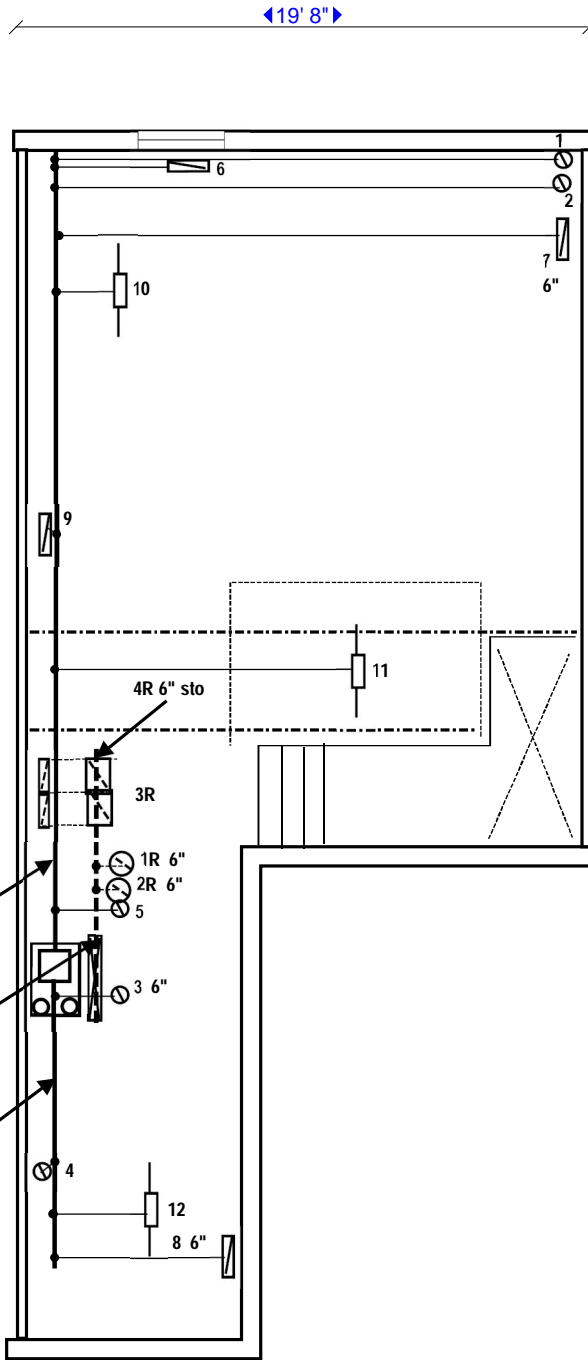
Supplemental tool for CAN/CSA-F280

Weather Station Description				
Province:	Ontario ▼			
Region:	Atx ▼			
Weather Station Location:	Open flat terrain, grass ▼			
Anemometer height (m):	10			
Local Shielding				
Building Site:	Suburban forest ▼			
Walls:	Very heavy ▼			
Flue:	Heavy ▼			
Highest Ceiling Height (m):	6.3			
Building Configuration				
Type:	Semi-Detached ▼			
Number of Stories:	Two ▼			
Foundation:	Full ▼			
House Volume (m ³):	497			
Air Leakage/Ventilation				
Air Tightness Type:	Present (1961-) (ACH=3.57) ▼			
Custom BDT Data:	ELA @ 10 Pa. ▼ 628.75 cm ² 3.57 ACH @ 50 Pa			
Mechanical Ventilation (L/s):	Total Supply:	Total Exhaust:		
	80	60		
Flue Size				
Flue #:	#1	#2	#3	#4
Diameter (mm):	0	0	0	0
Envelope Air Leakage Rate				
Heating Air Leakage Rate (ACH/H):		0.188		
Cooling Air Leakage Rate (ACH/H):		0.016		

Residential Foundation Thermal Load Calculator

Supplemental tool for CAN/CSA-F280

Weather Station Description		
Province:	Ontario	▼
Region:	Ajax	▼
Site Description		
Soil Conductivity:	Normal conductivity: dry sand, loam, clay	▼
Water Table:	Normal (7-10 m, 23-33 Ft)	▼
Foundation Dimensions		
Floor Length (m):	12.8	 <p>Insulation Configuration</p>
Floor Width (m):	6.1	
Exposed Perimeter (m):	17.6	
Wall Height (m):	2.5	
Depth Below Grade (m):	1.9	
Window Area (m ²):	0.27	
Door Area (m ²):	0	
Radiant Slab		
Heated Fraction of the Slab:	0	
Fluid Temperature (°C):	33	
Design Months		
Heating Month	1	
Foundation Loads		
Heating Load (Watts):		762



Notes:

- Furnace to have ECM motor
- Hot Water Tank Minimum 0.67 EF
- Heat and Cool loads calculated using CAN/CSA F280

1435 SF

Package D

	Nom	Act		Nom	Act
Ceil.w Attic	R50	R49.2	Bsmt wall	R20	R20
Ceil.w/o Attic	R31	R27.7	Windows		R3.13
Exp.Floor	R31	R27.7	Skylights		U2.8
Walls	R24	R20.8	Furn Eff		94%
ECM Motor	Yes		HRV Eff		NA

Heat Loss: 18525 BTU
Heat Gain: 14754 BTU

(Or Equivalent Furnace)

All runs 5" unless otherwise specified

River Run Ajax

UNIT DATA		
Make	Model	
Bryant	925SA040	
Input	40000 BTU	Output 39000 BTU
Cooling	1.5 Tons	Fan 575 Cfm
No. of Runs	S/A	R/A
2nd Floor	5	2
1st Floor	4	1
Basement	3	1

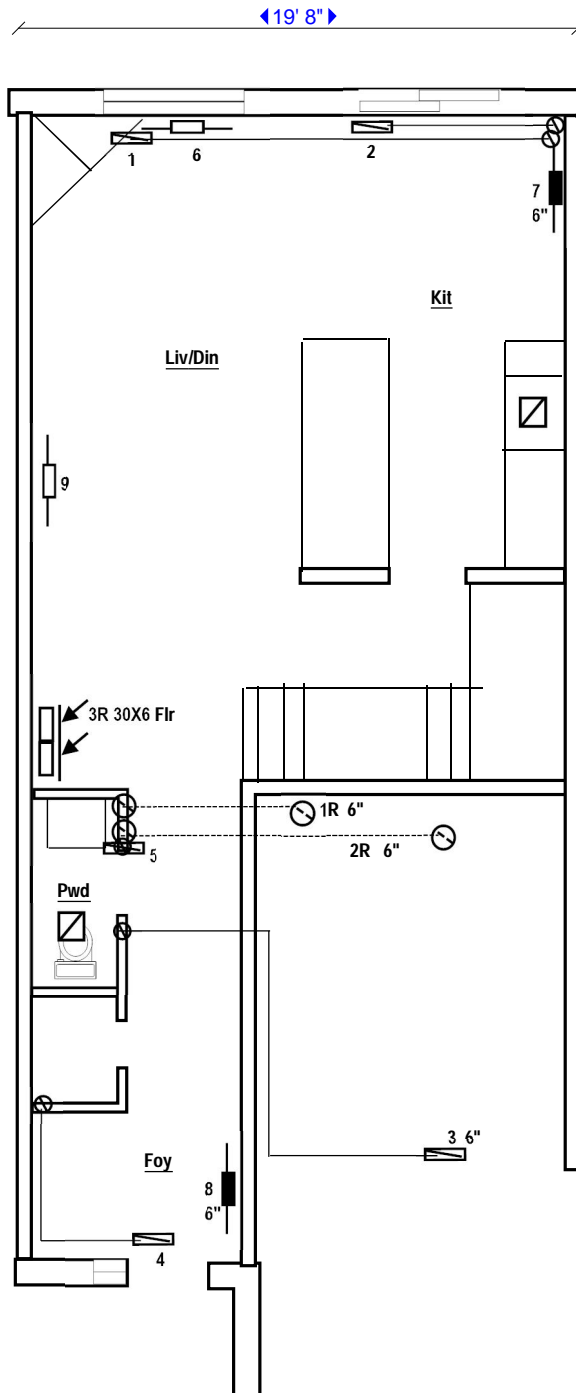
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Alexis Dearie-Vonk

Alexis Dearie-Vonk 27098 3986
BCIN HRAI

Type	T02 The Thistle	
Floor	Basement	
Scale	3/16" = 1'0"	
Date	May-15	
Revised		
Client		Esquire
LO#		6912

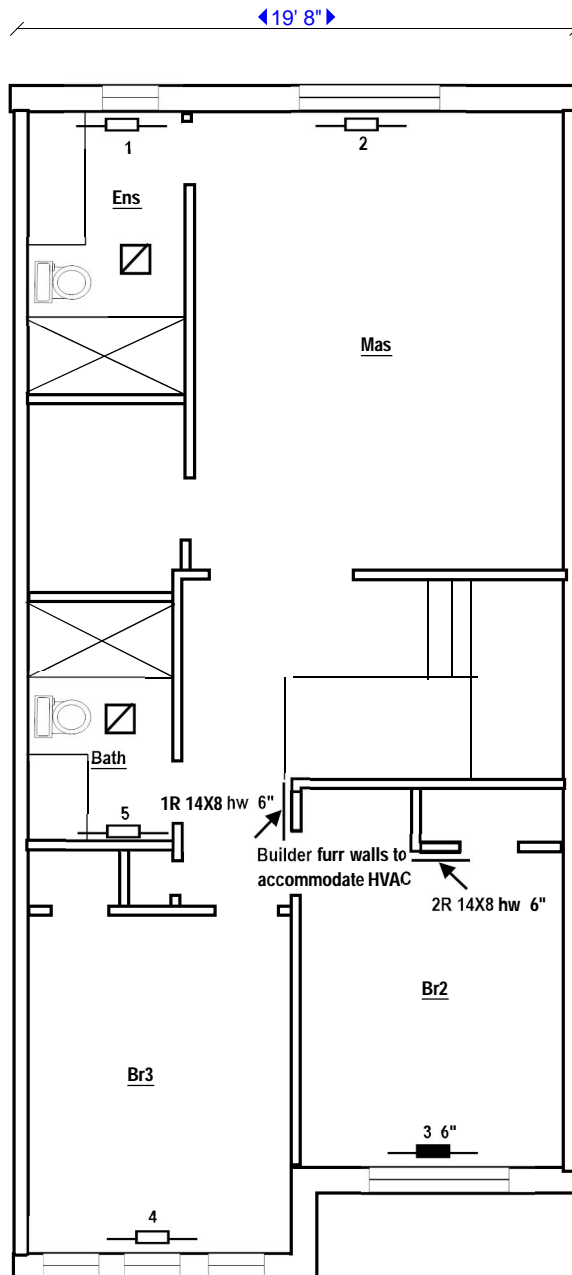
NewRes
HVAC Design
9 Hurontario st Orangeville On L9W 1Y8
Phone (416) 320-5870



All runs 5" unless otherwise specified

River Run-Ajax

Make		UNIT DATA Model		I have reviewed and take responsibility for this design and am qualified as an "other designer" as described by the OBC Div.C, Part 3, ss 3.2.5 in relation to HVAC design. <u>Alexis Dearie-Vonk</u> Alexis Dearie-Vonk 27098 3986 BCIN HRAI	Type T02 The Thistle	NewRes HVAC Design 9 Hurontario st Orangeville On L9W 1Y8 Phone (416) 320-5870 Client Esquire LO# 6912
Input		BTU	Output		Floor First	
Cooling		Tons	Fan		Scale 3/16"=1'0"	
No. of Runs	S/A		R/A		Date May-15	
2nd Floor					Revised	
1st Floor						
Basement						



All runs 5" unless otherwise specified

River Run-Ajax

Make		UNIT DATA		I have reviewed and take responsibility for this design and am qualified as an "other designer" as described by the OBC Div.C, Part 3, ss 3.2.5 in relation to HVAC design. <i>Alexis Dearie-Vonk</i> Alexis Dearie-Vonk 27098 3986 BCIN HRAI	Type	T02 The Thistle	NewRes HVAC Design 9 Hurontario st Orangeville On L9W 1Y8 Phone (416) 320-5870
Input		BTU	Output		Floor	Second	
Cooling		Tons	Fan		Scale	3/16" = 1'0"	
No. of Runs	S/A		R/A		Date	May-15	
2nd Floor					Revised		Client
1st Floor							Esquire
Basement							LO# 6912