

MECHANICAL VENTILATION DESIGN SUMMARY RESIDENTIAL

Housetype	T05 Cattail
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File #	6917
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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	
☒	a) Direct Vent (sealed combust) including fireplaces
☐	b) Positive venting induced draft (exclude fireplace)
☐	c) Natural Draft, B vent or induced draft fireplaces
☐	d) Solid Fuel
☐	e) No Combustion Appliances

Total Ventilation Capacity			
Bsmt & Master	2	21.2 cfm	42.4
Other Bed	3	10.6 cfm	31.8
Bath & Kitchen	4	10.6 cfm	42.4
Other Rooms	4	10.6 cfm	42.4
Room Count cfm			159
Air Change TVC= HouseVol.X0.3/60			108.7

Heating System	
☒	Forced Air
☐	Non Forced Air
☐	Electric Space Heat

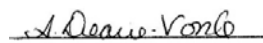
Housetype	
☒	I - Type a or b appliances only, no solid fuel
☐	II - Type I with solid fuel (including fireplace)
☐	III - Type C appliance
☐	IV - Type I or II with electric space heat
☐	Other - Type I,II,or IV no forced air

Supplemental Ventilation Capacity	
TVC room or air change (which larger)	159
Less Principal Exhaust Capacity (Bath)	70
Required Supp.Vent Capacity CFM	89

System Design Option	
☒	Exhaust Only/Forced air system
☐	HRV Simplified Connection to Forced Air System
☐	HRV with ducting to forced air system
☐	HRV fully ducted/ not coupled with forced air sys.
☐	Part 6 design CSA F326-M91
☒	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 T05 Cattail
File # 6917
Date May-15
Township Ajax

	Eff	Br4		Mas		Ens		Br2		Br3		Bath		Laun		Liv		Kit		Pwd		Foy		Din														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	Act	Loss		
Width	20.8	10		10		10		10		10		10		10		9		9		9		9		10													27		
Length		13		16		15		14		12		20		6		17		21		6		20		13												28			
Area		130		160		150		140		120		200		60		170		189		54		180		130												756			
Height		8		8		8		8		8		8		8		9		9		9		9		9												8			
LinFtWall		10		10		1		10		16		1		1		10		9		9		29		1												62			
Gr.Wall		80		80		8		80		128		8		8		90		81		81		261		9															
Net Wall		62	227	54	197	8	29	54	197	102	373	8	29	8	29	54	197	39	143	81	296	233	851	9	33														
Windows																																							
E,W		18	437	26	631			26	631	26	631					36	874	42	1020			28	680													3	73		
S																																							
N																																							
Skylight	3.13																																						
Door	4																		21	399	42	798												21	399				
Ceiling	49.2	130	201	160	247	150	232	140	216	120	185	200	309	60	93																								
Cold Flr	27.7						140	384	60	165																													
Header	20.8														10	37	9	33	9	33	29	106	1	4															
HL bgcr																																				3352			
SlabHLbgcr																																							
People/App	1		1				1		1				2		1		3																						
HL agrcr			864		1076		261		1429		1354		338		122		1108		1195		728		2435		37														
HL airr	2	226	2	281	2	68	2	373	2	353	2	88	2	32	1	416	1	449	1	273	1	915	1	14												2983			
HL dr							140	180	60	171																													
Tot.Rm.Loss BTU		1090		1357		329		1982		1878		426		154		1524		1644		1001		3350		50												6335			

HL airb=

615 / 3.6 X 42 X 1.2 X 0.20

1758 W X 3.41 5998 BTU
BasementHLR 844 W X 3.41 2880 BTU

Total Structure Heat Loss

Mech.Vent Loss

TOTAL HEAT LOSS BTU

21121

NA

21121

Hlairr Multipliers

2nd BTU	5280	0.23
1st BTU	5503	0.32
Bsmt BTU	3352	0.89

All Calculations based on CAN/CSAF280 and HRAI Digest Standards

NEWRES HVAC DESIGN

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

Heat Gain Calculation

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

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Alexis Dearie-Vonk BCIN# 27098 HRAI# 3986
A. Dearie-Vonk

Customer Esquire
Housetype T05 Cattail
File # 6917
Date May-15
Township Ajax

	Fac	Br4		Mas		Ens		Br2		Br3		Bath		Laun		Liv		Kit		Pwd		Foy		Din														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	Act	Gain	Act	Gain		
Width	20.8	10		10		10		10		10		10		10		10		9		9		9		10													27		
Length		13		16		15		14		12		20		6		17		21		6		20		13												28			
Area		130		160		150		140		120		200		60		170		189		54		180		130													756		
Height		8		8		8		8		8		8		8		9		9		9		9		9													8		
LinFtWall		10		10		1		10		16		1		1		10		9		9		29		1													62		
Gr.Wall		80		80		8		80		128		8		8		90		81		81		261		9															
Net Wall		62	42	54	36	8	5	54	36	102	69	8	5	8	5	54	36	39	26	81	55	233	157	9	6														
Windows																																							
E,W		285	18	673	26	942			26	942	26	942				36	1278	42	1479			28	1009													3	169		
S		160																																					
N		93																																					
Skylight		534																																					
Door		4																		21	74	42	147												21	74			
Ceiling		49.2	130	111	160	137	150	128	140	120	102	200	171	60	51																								
Cold Flr		27.7							140	45	60	19																											
Header		20.8														10	7	9	6	9	6	29	20	1	1										62	42			
HG svr																																							
HG dr									364																														
Total Cond				826		1115		133		1143		1132		176		57		1321		1511		134		1332		7												284	
Air Leak.			7		10		1		10		10		2		0		11		13		1		12		0												2		
Peop/App		1	240	1	240			1	240	1	240			2	1195	1	240	3	1604																				
HG sr		1073		1364		135		1757		1382		178		1252		1572		1538		135		1344		7												287			

HG salb= 0.019 X 171 X 6 C X 1.2 23 W X 3.41 80 BTU

Mech. Vent Gain BTU HG cb 9171 BTU

All Calculations based on CAN/CSAF280 and HRAI Digest Standards

Total Structure Heat Gain 12023
Latent Load Multiplier 1.3
Total Heat Gain BTU 15630

Heat Loss & Gain Calculation Summary Sheet						CSA-F280-M12	
These documents issued for the use of						Esquire	
and may not be used by any other person without authorization. Documents for permit and/or construction are signed in red						Project #	
Building Location							
Model:	T05 Cattail			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: 5
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 C:							
Style D:							
Floors on Soil				Ceilings			
Style A:	No Bsmt Insul below frost line			Style A:	R50 Batt Insulation		
Style B:							
Exposed Floors				Style C:			
Style A:	R31-Garage Ceil			Doors			
Style B:							
Windows				Style A:	R4 Insulated		
Style B:							
Style C:							
Style A:	Assumed Dbl Low E Argon operable R3.13			Style C:	Skylights		
Style B:							
Style C:							
Style D:							
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						

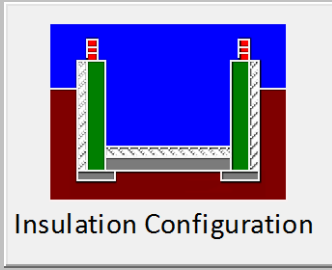
Envelope Air Leakage Calculator

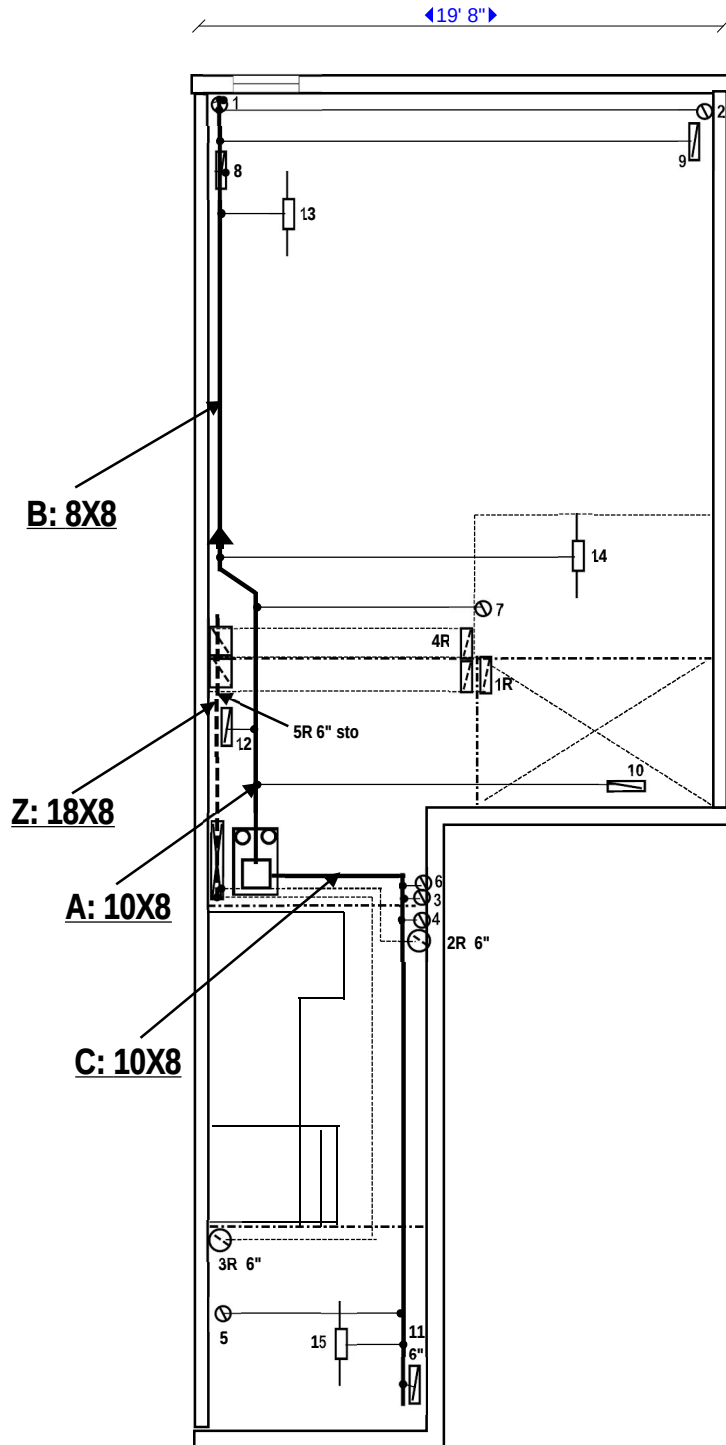
Supplemental tool for CAN/CSA-F280

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):	615			
Air Leakage/Ventilation				
Air Tightness Type:	Present (1961-) (ACH=3.57) ▼			
Custom BDT Data:	ELA @ 10 Pa. ▼ 778.03 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):		0.204		
Cooling Air Leakage Rate (ACH/H):		0.019		

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):	17	 Insulation Configuration
Floor Width (m):	5.7	
Exposed Perimeter (m):	18	
Wall Height (m):	2.5	
Depth Below Grade (m):	1.9	
Window Area (m ²):	0.27	
Door Area (m ²):	1.9	
Radiant Slab		
Heated Fraction of the Slab:	0	
Fluid Temperature (°C):	33	
Design Months		
Heating Month	1	
Foundation Loads		
Heating Load (Watts):		844



Notes:

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

1791 SF

(Or Equivalent Furnace)

All runs 5" unless otherwise specified

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: 21121 BTU

Heat Gain: 15630 BTU

River Run Ajax

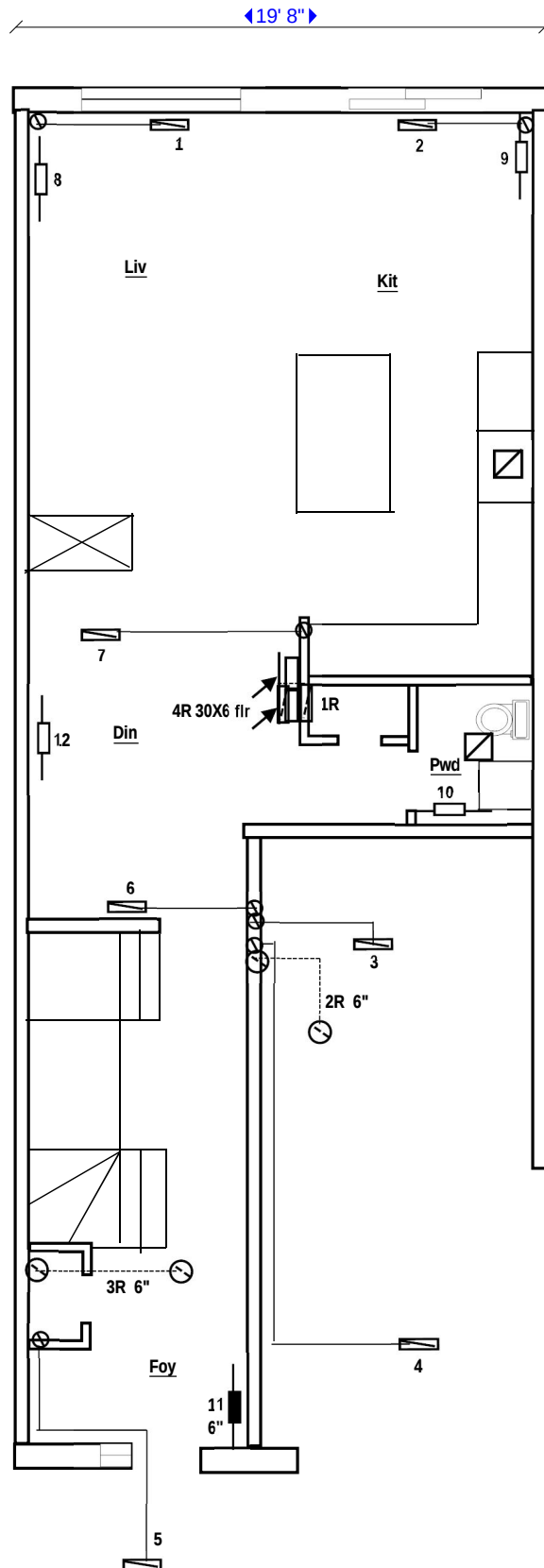
UNIT DATA		
Make	Model	
Bryant	925SA040	
Input	40000 BTU	Output 39000 BTU
Cooling	1.5 Tons	Fan 575 Cfm
No. of Runs	S/A	R/A
2nd Floor	7	3
1st Floor	5	1
Basement	3	1

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Alexis Dearie-Vonk

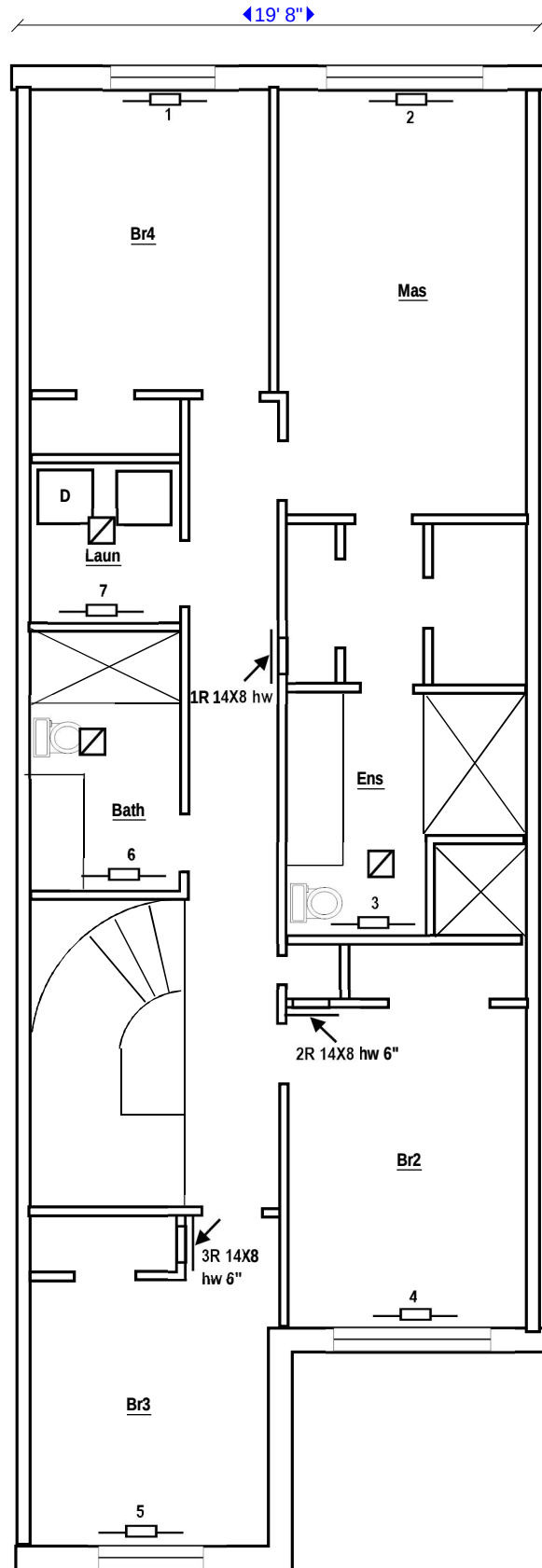
Alexis Dearie-Vonk 27098 3986
BCIN HRAI

Type	T05 Cattail	NewRes HVAC Design 9 Hurontario st Orangeville On L9W 1Y8 Phone (416) 320-5870
Floor	Basement	
Scale	3/16"=1'0"	
Date	May-15	Client Esquire
Revised		LO# 6917



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. <u>Alexis Dearie-Vonk</u> Alexis Dearie-Vonk 27098 3986 BCIN HRAI	Type	T05 Cattail	NewRes HVAC Design 9 Hurontario st Orangeville On L9W 1Y8 Phone (416) 320-5870
Input		Model			Floor	First	
Cooling		Output			Scale	3/16"=1'0"	
BTU		BTU			Date	May-15	Client
Tons		Fan			Revised		Esquire
Cfm		Cfm			LO#		6917
No. of Runs		S/A			R/A		
2nd Floor							
1st Floor							
Basement							



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. <i>Alexis Dearie-Vonk</i> Alexis Dearie-Vonk 27098 3986 BCIN HRAI	Type	T05 Cattail	NewRes HVAC Design 9 Hurontario st Orangeville On L9W 1Y8 Phone (416) 320-5870 Client Esquire LO# 6917
Input		BTU Output BTU			Floor	Second	
Cooling		Fan Cfm			Scale	3/16"=1'0"	
No. of Runs		S/A R/A			Date	May-15	
2nd Floor					Revised		
1st Floor							
Basement							