

MECHANICAL VENTILATION DESIGN SUMMARY RESIDENTIAL

Housetype T06 Trillium

File # 6919

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	2	10.6 cfm	21.2
Bath & Kitchen	4	10.6 cfm	42.4
Other Rooms	3	10.6 cfm	31.8
Room Count cfm			137.8
Air Change TVC= HouseVol.X0.3/60			103.7

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

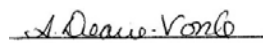
Housetype	
☒	I - Type a or b appliances only, no solid fuel
☐	II - Type I with solid fuel (including fireplace)
☐	III - Type C appliance
☐	IV - Type I or II with electric space heat
☐	Other - Type I,II,or IV no forced air

Supplemental Ventilation Capacity	
TVC room or air change (which larger)	138
Less Principal Exhaust Capacity (Bath)	70
Required Supp.Vent Capacity CFM	68

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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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
Alexis Dearie-Vonk

Customer Esquire
Housetype T06 Trillium
File # 6919
Date May-15
Township Ajax

	Eff	Mas		Ens		Br2		Bath		Br3		Great		Kit		Din		Pwd		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	13		6		16		16		18		11		8		19		5		5															27		
Length		16		16		11		8		13		16		19		14		6		12															27		
Area		208		96		176		128		234		176		152		266		30		60																729	
Height		8		8		8		8		8		9		9		9		9		9																8	
LinFtWall		29		6		28		8		15		27		8		26		16		24																109	
Gr.Wall		232		48		224		64		120		243		72		234		144		216																	
Net Wall		188	687	34	124	170	621	56	205	84	307	195	713	30	110	192	702	120	438	184	672																
Windows																																					
E,W		28	680	14	340	36	874					24	583	42	1020			12	291																3	73	
S		16	388			18	437	8	194	36	874	24	583			42	1020	12	291	32	777													6	146		
N																																					
Skylight	3.13																																				
Door	4																	21	399														21	399			
Ceiling	49.2	208	321	96	148	176	272	128	198	234	361																										
Cold Flr	27.7				120	329	80	219																													
Header	20.8										27	99	8	29	26	95	16	58	24	88																	
HL bgcr																																				3948	
SlabHLbgcr																																					
People/App		1			1		2		1		1		3																								
HL agrcr			2077		612		2533		816		1543		1977		1159		1816		1080		1936																
HL airr		2	452	2	133	2	551	2	178	2	336	1	614	1	360	1	564	1	335	1	601															2803	
HL dr					120	308	80	99																													
Tot.Rm.Loss BTU		2529		746		3393		1093		1878		2591		1519		2381		1415		2537																6751	

HL airb=587 / 3.6 X 42 X 1.2 X 0.20

BasementHLR1652 W X 3.41

976 W X 3.41

5637 BTU

3330 BTU

Total Structure Heat Loss26832

Mech.Vent LossNA

TOTAL HEAT LOSS BTU26832

Hlairr Multipliers	2nd BTU	7581	0.15
	1st BTU	7967	0.21
	Bsmt BTU	3948	0.71

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

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

Customer Esquire
Housetype T06 Trillium
File # 6919
Date May-15
Township Ajax

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

	Fac	Mas		Ens		Br2		Bath		Br3		Great		Kit		Din		Pwd		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	Act	Gain		
Width	20.8	13		6		16		16		18		11		8		19		5		5															27		
Length		16		16		11		8		13		16		19		14		6		12														27			
Area		208		96		176		128		234		176		152		266		30		60															729		
Height		8		8		8		8		8		9		9		9		9		9															8		
LinFtWall		29		6		28		8		15		27		8		26		16		24															109		
Gr.Wall		232		48		224		64		120		243		72		234		144		216																	
Net Wall		188	127	34	23	170	114	56	38	84	57	195	131	30	20	192	129	120	81	184	124																
Windows																																					
E,W		285	28	1009	14	539	36	1278					24	874	42	1479			12	471															3	169	
S		160	16	373			18	411	8	220	36	753	24	525			42	867	12	297	32	677													6	89	
N	93																																				
Skylight	534																																				
Door	4																		21	74														21	74		
Ceiling	49.2	208	178	96	82	176	150	128	109	234	200																										
Cold Flr	27.7					120	39	80	26																												
Header	20.8											27	18	8	5	26	18	16	11	24	16													109	73		
HG svr																																					
HG dr						451		282																													
Total Cond			1686		643		1992		393		1009		1549		1505		1014		859		891														405		
Air Leak.			10		4		12		2		6		9		9		6		5		5													2			
Peop/App		1	240			1	240	2	240	1	240	1	240	3	1604																						
HG sr		1936		647		2695		917		1256		1798		3118		1020		870		896														407			

HG salb=

0.018

X

163

X

6 C

X

1.2

21

W

X

3.41

72

BTU

Mech. Vent Gain

BTU

HG cb

11946

BTU

Total Structure Heat Gain

15560

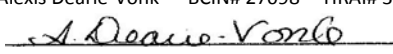
Latent Load Multiplier

1.3

Total Heat Gain BTU

20228

All Calculations based on CAN/CSAF280 and HRAI Digest Standards

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:	T06 Trillium				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+Bsm't			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 Bsm't 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			
Name:	Alexis Dearie-Vonk			qualified as an "other designer" as required by the OBC 3.2.5			
Company:	New Res Hvac Design			as it relates to residential HVAC design.			
Address:	9 Hurontario Street			Alexis Dearie-Vonk BCIN# 27098 HRAI# 3986			
City:	Orangeville ON						
Postal Code:	L9W 1Y8						
Phone:	416-320-5870						
Email:	alexis_dearie@hotmail.com						

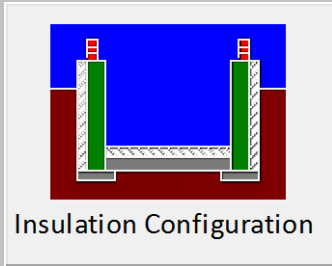
Envelope Air Leakage Calculator

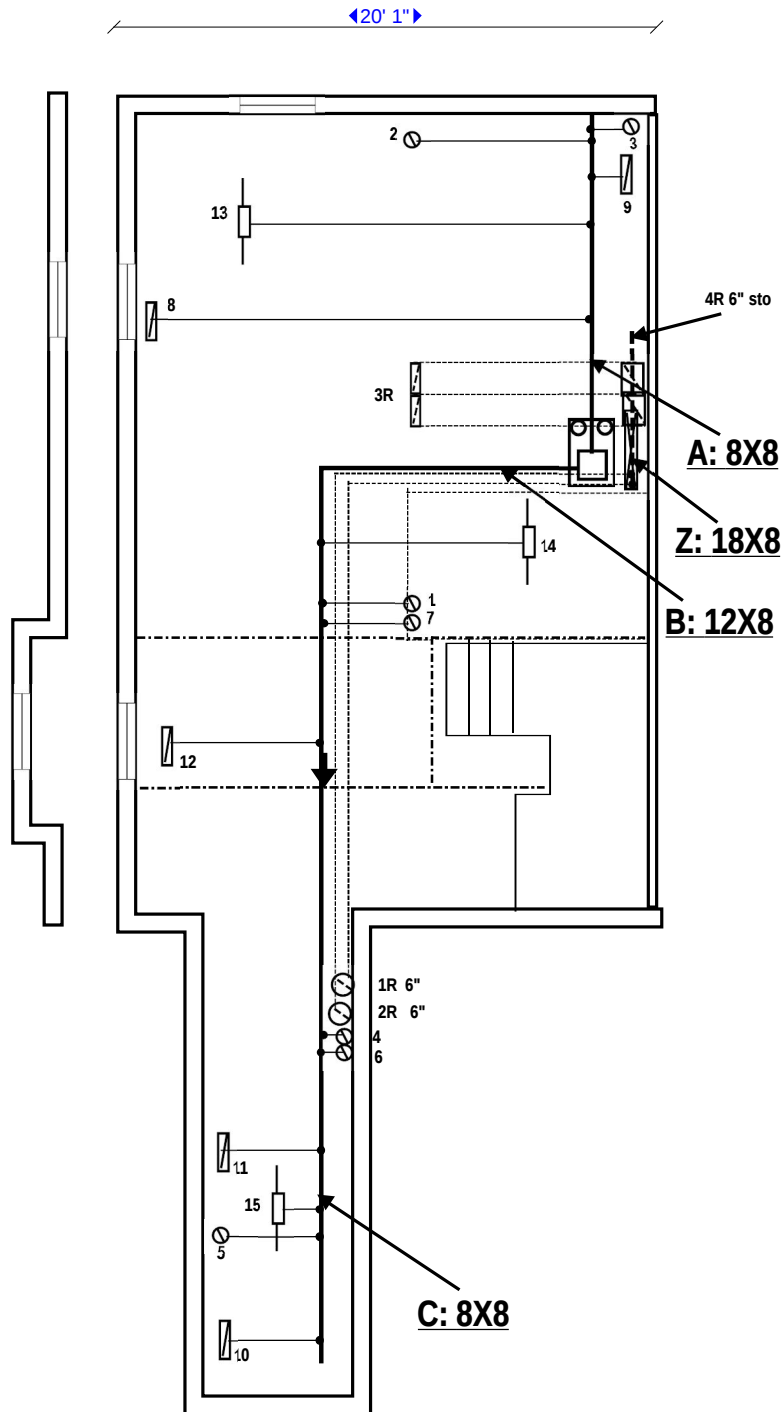
Supplemental tool for CAN/CSA-F280

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):	587			
Air Leakage/Ventilation				
Air Tightness Type:	Present (1961-) (ACH=3.57) ▼			
Custom BDT Data:	ELA @ 10 Pa. ▼ 742.61 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):		0.201		
Cooling Air Leakage Rate (ACH/H):		0.018		

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):	14.3	 Insulation Configuration
Floor Width (m):	6.4	
Exposed Perimeter (m):	32	
Wall Height (m):	2.5	
Depth Below Grade (m):	1.9	
Window Area (m ²):	0.83	
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):		976



Notes:

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

1692 SF

(Or Equivalent Furnace)

All runs 5" unless otherwise specified

Package D

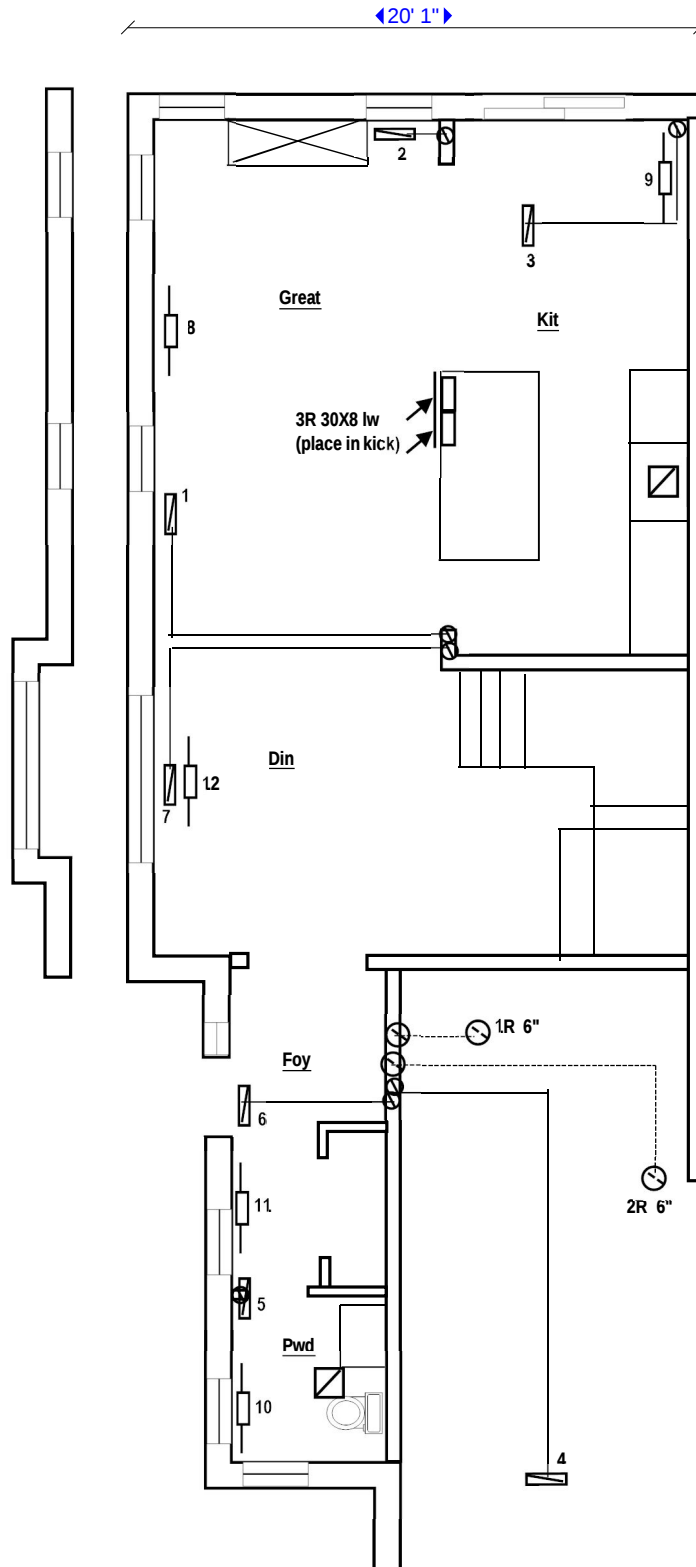
	Nom	Act		Nom	Act
Ceil.w Attic	R50	R49.2	Bsmt wall	R20	R20
Ceil.w/o Attic	R31	R27.7	Windows		R3.13
Exp.Floor	R31	R27.7	Skylights		U2.8
Walls	R24	R20.8	Furn Eff		94%
ECM Motor	Yes		HRV Eff		NA

Heat Loss: 26832 BTU

Heat Gain: 20228 BTU

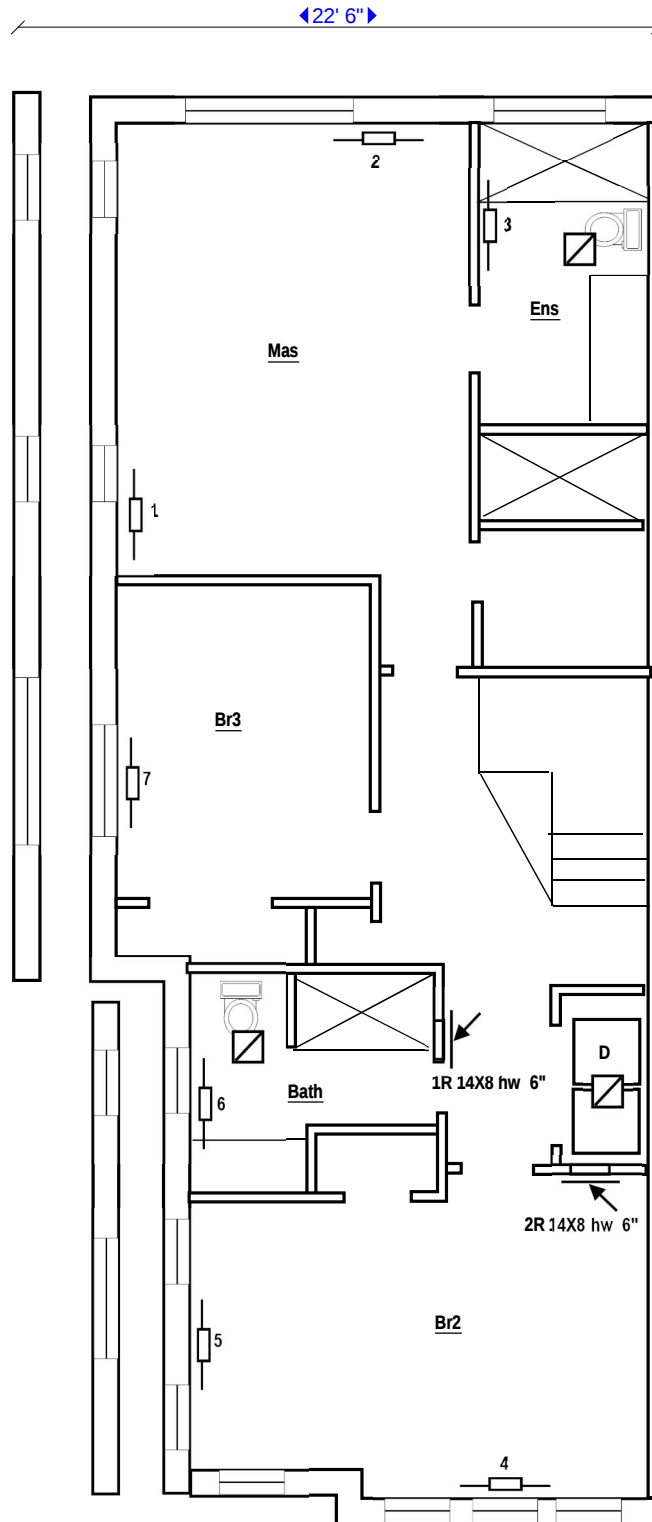
River Run Ajax

Make Bryant	UNIT DATA Model 925SA040		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.		Type T06 Trillium	NewRes HVAC Design 9 Hurontario st Orangeville On L9W 1Y8 Phone (416) 320-5870
Input 40000 BTU	Output 39000 BTU				Floor Basement	
Cooling 1.5 Tons	Fan 575 Cfm		<i>Alexis Dearie-Vonk</i> Alexis Dearie-Vonk 27098 3986 BCIN HRAI		Scale 3/16"=1'0"	
No. of Runs	S/A	R/A			Date May-15	Client Esquire
2nd Floor	7	2			Revised	LO# 6919
1st Floor	5	1				
Basement	3	1				



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	T06 Trillium	NewRes HVAC Design 9 Hurontario st Orangeville On L9W 1Y8 Phone (416) 320-5870	
Input		BTU	Output		Floor	First		
Cooling		Tons	Fan		Scale	3/16"=1'0"		
No. of Runs	S/A		R/A		Date	May-15	Client	Esquire
2nd Floor					Revised		LO#	6919
1st Floor								
Basement								



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	T06 Trillium	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		
1st Floor							Client
Basement							LO#
							Esquire
							6919