

SB-12 Package A1					
	Nom	Act		Nom	Act
Ceil.w Attic	60	59.22	Bsmt wall	20ci	21.1
Ceil.w/o Attic	31	27.65	Windows		R3.5
Exp.Floor	31	29.8	Skylights		
Walls	24	17.03	Furn Eff		96%
ECM Motor	Yes		HRV Eff		75%

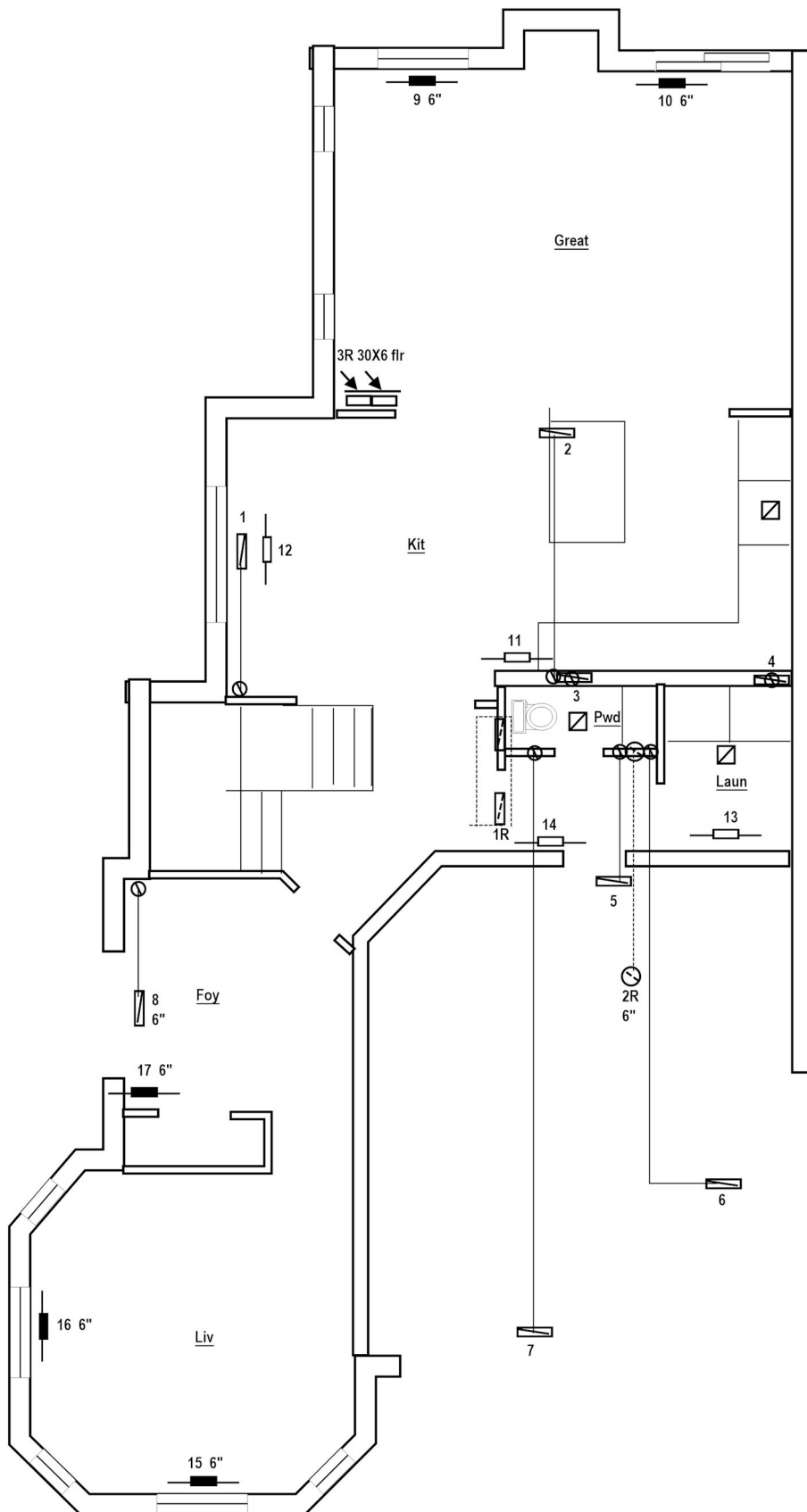
2273 SF

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.

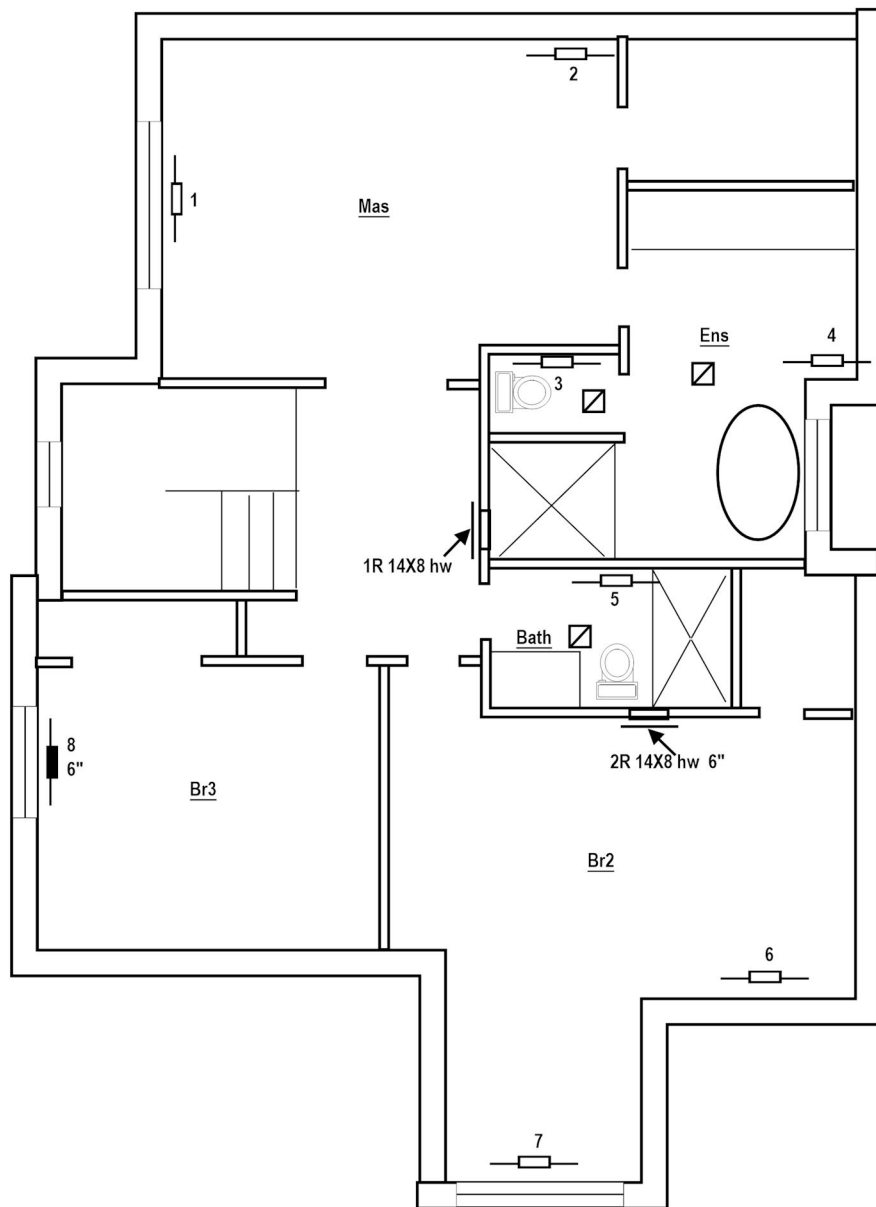
Alexis Dearie-Vonk

Alexis Dearie-Vonk	27098	3986
	BCIN	HRAI

Type	4003 Edmund	NewRes HVAC Design 9 Hurontario st Orangeville On L9W 1Y8 Phone (416) 320-5870
Floor	Basement	
Scale	3/16"=1'0"	
Date	Mar-18	Client Esquire
Revised		LO# 9179



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	4003 Edmund		NewRes HVAC Design 9 Hurontario st Orangeville On L9W 1Y8 Phone (416) 320-5870
Input		Output			Floor	First		
Cooling		Fan			Scale	3/16"=1'0"		
Tons		Cfm			Date	Mar-18		
No. of Runs		S/A			Revised	LO#		
2nd Floor		R/A						
1st Floor								
Basement								



All runs 5" unless otherwise specified

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	4003 Edmund	NewRes HVAC Design 9 Hurontario st Orangeville On L9W 1Y8 Phone (416) 320-5870
Input		Output			Floor	Second	
Cooling		Fan			Scale	3/16"=1'0"	
BTU		BTU			Date	Mar-18	
Tons		Cfm			Revised		
No. of Runs		S/A		R/A		Client	Esquire
2nd Floor						LO#	9179
1st Floor							
Basement							

MECHANICAL VENTILATION DESIGN SUMMARY RESIDENTIAL

Housetype 4003 Edmund

File # 9179

Builder Esquire
Address
City
Phone

Heat Loss Due to Mechanical Ventilation
PVC X DTDh X 1.08 X (1-E)= 1576 BTU
Heat Gain Due to Mechanical Ventilation
PVC X DTDc X 1.08= 760 BTU

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 4 10.6 cfm 42.4
Room Count cfm 148.4

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) 148
Less Principal Exhaust Capacity (HRV) 64
Required Supp.Vent Capacity CFM 84

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 5"
Pwd 50 Broan ZB80M 5"
Bath 50 Broan ZB80M 5"
all fans HVI listed

HRV-Principal Ventilation
Model
RNC Lifebreath 155
30 L/S 64 cfm
ASE 84

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 ΔT 76 f Heat Gain ΔT 11 f Bsmt ΔT 62 f

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

Alexis Dearie-Vonk

Customer Esquire
Housetype 4003 Edmund
File # 9179
Date Mar-18
Township Ajax

	Eff	Mas		Ens		Bath		Br2		Br3		Great		Kit		Laun/Pwd		Liv		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	17.0	17		10		16		16		13		20		25		27		14		9															35		
Length		13		16		6		12		17		15		12		7		14		10															35		
Area		221		160		96		192		221		300		300		189		196		90															1225		
Height		8		8		8		8		8		9		9		9		11		9															8		
LinFtWall		30		26		7		38		32		50		25		28		42		20															206		
Gr.Wall		240		208		56		304		256		450		225		252		462		180																	
Net Wall		210	937	192	857	56	250	280	1250	220	982	366	1633	189	843	252	1125	372	1660	152	678																
Windows																																					
E,W								24	511			60	1277					52	1107																4	85	
S		30	639							36	766	24	511	36	766				38	809	28	596													12	255	
N			16	341																																	
Skylight	3.57																																				
Door	4														21	399			32	608																	
Ceiling	59.2	221	284	160	205	96	123	192	246	221	284	300	385					196	252																		
Cold Flr	29.8					96	245	192	490																												
Header	17.0													25	103	28	115			20	82												206	846			
HL bgcr																																				6258	
SlabHLbgcr																																					
People/App		1						1		1		1		3		2																					
HL agcr			1859		1403		618		2497		2032		3807		1713		1639		3828		1965																
HL airr		2	637	2	481	2	212	2	856	2	696	1	1271	1	572	1	547	1	1278	1	656															7206	
HL dr						96	83	192	335																												
Tot.Rm.Loss BTU		2497		1884		913		3688		2728		5077		2284		2186		5106		2620															14651		

HL airb= 29929 X 0.018 X 76 X 0.3520 4224 W 14412 BTU
BasementHLR 1834 W X 3.41 6258 BTU

HLairr Multipliers

2nd BTU (0.2)	8409	0.34
1st BTU (0.3)	12950	0.33
Bsmt BTU (0.5)	7445	0.97

All Calculations based on CAN/CSAF280 and HRAI Digest Standards

Total Structure Heat Loss 43633
Mech.Vent Loss 1576
TOTAL HEAT LOSS BTU 45209

NEWRES HVAC DESIGN

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

Heat Gain Calculation

Heat loss ΔT 76 f Heat Gain ΔT 11 f Bsmt ΔT 62 f

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

Alexis Dearie-Vonk

Customer Esquire
Housetype 4003 Edmund
File # 9179
Date Mar-18
Township Ajax

		Mas		Ens		Bath		Br2		Br3		Great		Kit		Laun/Pwd		Liv		Foy														Bsmt	
	Fac	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	17.03	17		10		16		16		13		20		25		27		14		9														35	
Length		13		16		6		12		17		15		12		7		14		10														35	
Area		221		160		96		192		221		300		300		189		196		90														1225	
Height		8		8		8		8		8		9		9		9		11		9														8	
LinFtWall		30		26		7		38		32		50		25		28		42		20														206	
Gr.Wall		240		208		56		304		256		450		225		252		462		180															
Net Wall		210	49	192	45	56	13	280	66	220	52	366	86	189	44	252	59	372	87	152	36														
Windows																																			
E,W		27						24	656			60	1640					52	1421															4	109
S		18	30	545						36	654	24	436	36	654			38	691	28	509													12	218
N		11			16	174																													
Skylight		49																																	
Door		4													21	21			32	32															
Ceiling	59.22	221	287	160	208	96	125	192	250	221	287	300	390				196	255																	
Cold Flr	29.8					96	-3	192	-6																										
Header	17.03												25	5	28	6		20	4													206	45		
HG svr			66		32		10		72		74		191		53		6	184		44													28		
HG dr						30		455																											
Total Cond			882		427		135		965		993		2552		704		86	2454		581													372		
Air Leak.			42		20		6		46		48		122		34		4	117		28													18		
Peop/App		1	240					1	240	1	240	1	1000	3	1800	2	800																		
HG sr		1230		480		181		1778		1355		3866		2590		897		2873		652													418		

HG salb= 29928.5 X 0.018 X 11 X 0.082 142 W 486 BTU

Mech. Vent Gain 760 BTU HG cb 10152 BTU

All Calculations based on CAN/CSAF280 and HRAI Digest Standards

Total Structure Heat Gain 16321

Latent Load Multiplier 1.3

Total Heat Gain BTU 21217

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

Duct Calculation

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
Alexis Dearie-Vonk BCIN# 27098 HRAI# 3986

Customer Esquire
Housetype 4003 Edmund
File # 9179
Date Mar-18
Township Ajax

Trunk	D					C						B					A														
Outlet #	15	16	21	17	8	7	14	20	5	6	13	1	12	19	9	11	2	3	18	10	4										
Outlet Loc	Liv	Liv	Bsmt	Foy	Br3	Br2	aun/Pw	Bsmt	Bath	Br2	aun/Pw	Mas	Kit	Bsmt	Great	Kit	Mas	Ens	Bsmt	Great	Ens										
BTU/RM	5106	5106	14651	2620	2728	3688	2186	14651	913	3688	2186	2497	2284	14651	5077	2284	2497	1884	14651	5077	1884										
# Out/Rm	2	2	4	1	1	2	2	4	1	2	2	2	2	4	2	2	2	2	4	2	2										
CFM/Outlet	46	46	66	47	49	33	20	66	16	33	20	22	21	66	46	21	22	17	66	46	17										
Act&Eff Len	145	155	165	180	195	150	160	165	180	195	200	155	160	165	180	185	150	170	170	185	195										
Adj.Press	0.09	0.08	0.08	0.07	0.07	0.09	0.08	0.08	0.07	0.07	0.07	0.08	0.08	0.08	0.07	0.07	0.09	0.08	0.08	0.07	0.07										
Pipe Size	5	5	6	5	5	5	5	6	5	5	5	5	5	6	5	5	5	5	6	5	5										
Tr.Fl.Rate					254						442					175					343										
TrunkWidth					10						14					8					12										
Tr.Height					8						8					8					8										
Velocity					457						568					394					515										

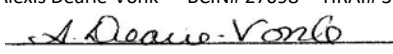
Trunk	Y	Z								
Inlet #	3R	1R	4R	2R						
CFM	435	160	95	95						
Inlet Size	30X8	14X8	6"	6"						
Act&Eff Len	180	205	185	170						
Adj.Press.	0.06	0.05	0.06	0.06						
Tr.Fl.Rate	435			785						
Tr.Width	14			22						
Tr.Height	8			8						
Velocity	559			642						

Equipment	
Manufacturer	Goodman
Furnace	GMEC96060
Output	57600
AirFlow	785
AC Size	2

Supply Air Pres	0.15
S.Air Plenum Pres	0.14
Diffuser Loss	0.01
System Static	0.5

Return Air Pres	0.15
R.Air Plenum Pres	0.11
Diffuser Loss	0.04

Required equipment capacity based on CAN/CSA-F280 standards
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:	4003 Edmund				Site:		
Address:					Lot:		
City:	Ajax				Postal Code:		
Calculations Based On							
Dimensional Info. Based on:				Hunt Design			
Attachment:	Detached			Front Face:	East	Assumed?	Yes
# of Stories:	2+Bsm't			Air Tight:	Very Tight	Assumed?	Yes
Weath Loc:	Ajax	Ventilated? Yes		Wind Exp:	Partial Shade		
HRV?	Yes			Int.Shade:	Yes	Occupants:	5
Recovery %	75			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:	R22 Nominal			Style A:	R20ci Nominal		
Style B:	(R 17.03 Actual)			Style B:	(R21.12 Actual)		
Style C:				Style C:			
Style D:				Style D:			
Floors on Soil				Ceilings			
Style A:				Style A:	R60 Nominal		
Style B:				Style B:	(R59.22 Actual)		
Exposed Floors				Style C:	(R27.65 Actual Ceiling with no attic)		
Style A:	R31 Nominal			Doors			
Style B:	(R29.8 Actual)			Style A:	Assumed Insulated		
Windows				Style B:			
Style A:	U 0.28			Style C:			
Style B:	(R 3.57 Actual)			Skylights			
Style C:				Style A:	U 0.49		
Style D:				Style B:	(R 2.04 Actual)		
Att.Docs:							
Notes:	96% Furnace; Min 0.8EF HWT						
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						

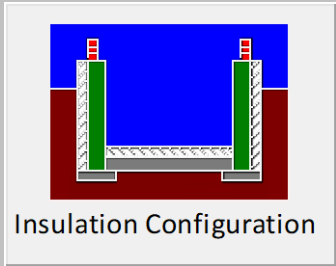
Envelope Air Leakage Calculator

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:	Urban ▼			
Flue:	Hwy ▼			
Highest Ceiling Height (m):	8.2			
Building Configuration				
Type:	Detached ▼			
Number of Stories:	Two ▼			
Foundation:	Full ▼			
House Volume (m ³):	875			
Air Leakage/Ventilation				
Air Tightness Type:	Present (1961-) (ACH=3.57) ▼			
Custom BDT Data:	ELA @ 10 Pa. ▼ 1128.4 cm ² 3.57 ACH @ 50 Pa			
Mechanical Ventilation (L/s):	Total Supply:	Total Exhaust:		
	30	30		
Flue Size				
Flue #:	#1	#2	#3	#4
Diameter (mm):	0	0	0	0
Envelope Air Leakage Rate				
Heating Air Leakage Rate (ACH/H):		0.352		
Cooling Air Leakage Rate (ACH/H):		0.082		

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):	11	 Insulation Configuration
Floor Width (m):	19.8	
Exposed Perimeter (m):	61.6	
Wall Height (m):	2.5	
Depth Below Grade (m):	1.9	
Window Area (m ²):	1.1	
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):		1834