

ENERGY EFFICIENCY COMPLIANCE FORM

Section 9.36 of the National Building Code of Canada

This form is intended to clarify the design direction chosen to comply with Section 9.36 of the current National Building Code of Canada (NBC) and ensure the minimum code requirements are met. **To be completed and submitted for review by a** *competent person**

Address:									
Occupancy Class:			r Area:		Climate Zone: 7A				
Conditioned Space Volume (Tier	Achieved:	Tier 1	Tier 2 Tier 3					
Design Option: Image: Complete Section 'A' Trade-Off Performance Prescriptive Trade-Off Complete Section 'C'									
Section A: Prescriptive All calculations and specifications must be attached to this <u>Conversions:</u>									
form to be considered compl	ete and be acce	pted for review. R = 5.			′8 x RSI	U = 1 / RSI			
HRV / ERV: Yes No									
Effective Thermal Resistance of Above Ground Opaque Building Assemblies (RSI)									
Assembly	w/ HRV		w/o HRV		Pro	oposed			
Ceilings below attics	8.67		10.43						
Cathedral / Flat roofs	5.02		5.02						
Walls & Rim joists	2.97		3.08						
Floors over unheated spaces		5.0)2						
Floors within garage	4.8	36							
Thermal C	haracteristics of	f Fene	stration, Doors	s and Sky	/lights (U)				
Assembly Efficiency Prop					oposed				
Windows & Doors	Maximu Minimum	um U-\ n Energ	/alue 1.61 or gy Rating <u>></u> 25						
One door exception	Maximum thermal transmittance up to 2.6								
Attic hatch	Minimum RSI _{nom} 2.6								
Skylights	Maximum the	ermal t	transmittance 2.	75					
Effective Thermal Resistance of Below-Grade or In-Contact-With-Ground Opaque Buildings Assemblies (RSI)									
Assembly	w/ HRV w/o HRV		/	Proposed					
Foundation Walls	2.98		3.46			_			
Slab On Grade with Integral Footing	2.84		3.72						
Unheated Floor Below Frost Line	uninsulated	uninsulated uninsulat		ed					
Unheated Floor Above Frost Line	1.96 1.9								
Heated Floors	2.84								



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HVAC Equipment Performance Requirements										
Equipment	Capacity KW	Standard	Min. Efficiency	Proposed						
Gas Fired	<u>< 66 using single phase</u> electric current	CAN/CSA-P.2	AFUE ≥ 95%							
w or w/o A/C	> 66 & <u><</u> 117.23	CSA/ANSI Z21.47/CSA 2.3	E _t ≥ 80 %							
Electric Boiler	< 88	No standard to address efficiency	Must be equipped with an automatic water temperature control							
	< 88	CAN/CSA-P.2	AFUE <u>></u> 90%							
Gas Fired Boiler	<u>></u> 88 & < 733	ANSI/AHRI 1500 or DOE 10 CFR, Part 431, Subpart E, Appendix A	E _t ≥ 83%							
Other										
Heat Loss Heat Gain	Calculations v	vere prepared in conformance with	n CSA F280-12	BTU						
Nomenclature	AFUE= annual fuel utilization	n efficiency, E t= thermal efficiency								
	Water H	eaters Performance Require	ements							
Equipment	Capacity KW	Standard	Min. Efficiency	Proposed						
Tank Storage Electric	≤ 12 kW (> 50 L to 270 L capacity)	0411/004-0404	$SL \leq 35 + 0.20V \text{ (top} \\ \text{inlet)}$ $SL \leq 40 + 0.20V \\ \text{(bottom inlet)}$							
	<u><</u> 12 kW (> 270 L to 454 L capacity)	CAN/CSA-C191	$SL \le (0.472V) - 38.5$ (top inlet) $SL \le (0.472V) - 33.5$ (bottom inlet)							
	> 12 kW	CAN/ANSI Z21.10.3/CSA 4.3 or DOE 10 CFR, Part 431, Subpart G, Appendix B	SL ≤ 0.30 + (102.2 V _s)							
Tank Storage Gas Fired		CAN/CSA-P.3	UEF <u>></u> 0.3456 – (0.00053 V₅)							
	\leq 22 kW first hour \geq 68 L but < 193 L	CAN/CSA-P.3	UEF ≥ 0.5982 – (0.00050 V _s)							
	≤ 22 kW first hour ≥ 193 L but < 284 L	CAN/CSA-P.3	UEF ≥ 0.6483 – (0.00045 V _s)							
	\leq 22 kW first hour \geq 284 L	CAN/CSA-P.3	UEF ≥ 0.6920 – (0.00034 V _s)							
	> 22 kW but <u><</u> 30.5 kW and V _r <u>≤</u> 454 L	CAN/CSA-P.3	UEF ≥ 0.8107 – (0.00021 V _s)							
	> 22 kW	DOE 10 CFR, Part 431, Subpart G, Appendix A	E _t ≥ 90% and SL ≤ 0.84 [(1.25 Q) + (16.57 √V _r)							
Tankless Gas Fired	< 58.56 kW, V _r ≤ 7.6 L and max. flow rate < 6.4 L/min	CAN/CSA-P.3	UEF ≥ 0.86							
	< 58.56 kW, V _r ≤ 7.6 L and max. flow rate ≥ 6.4 L/min	CAN/CSA-P.3	UEF <u>≥</u> 0.87							
	≥ 58.56 kW, V _r ≤ 37.85 L and input rate to Vr ratio ≥ 309 W/L	DOE 10 CFR, Part 431, Subpart G	E _t ≥ 94 %							
Tankless Electric	No standard addresses the performance efficiency; however, efficiency typically approaches 100%									
Other										
Nomenclature	EF = energy factor in %/h, Et = thermal efficiency, V= volume S = standby loss in %h, SL = standby loss in W, Vm = measured storage volume in US gallons									



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Air Conditioner Performance Requirements							
Equipment	Capacity kW	Standard	Min. Efficiency	Proposed			
			SEER = 14.5				
Split system	< 19	CSA C656	EER = 11.5				
			HSPF V = 7.1				
Single-			SEER = 14				
package	< 19	CSA C656	EER = 11				
system			HSPF V = 7				
Other							
Nomenclature	SEER = seasonal energy-efficiency ratio, in (Btu/h)/W EER = energy-efficiency ratio, in (Btu/h)/W						
	HSPF V = heating seasonal performance factor for region V (see map in CSA C656), in (Btu/h)/W						

Section B: Trade Off

All calculations must be attached to this form to be considered complete and be accepted for review. The location and extent of assemblies used in the calculation shall be clearly identified on the drawings by hatch or note.

- □ Opaque to opaque One or more above-ground opaque building envelope assemblies are permitted to be less than required, provided one or more above-ground opaque building envelope assemblies are increased to more than required.
 - Walls and joist type roofs must maintain minimum 55% of the required RSI_{eff.}
 - All other assemblies must maintain minimum 60% of the required RSI_{eff.}
 - The sum of the areas of all traded assemblies divided by their RSI_{eff} must be less than or equal to what it would have been if all assemblies had met 9.36.2.6.
- □ Transparent to transparent One or more windows are permitted to be less than required, provided one or more windows are increased to be more than required.
 - The traded windows must have the same orientation.
 - The sum of the areas of all traded windows divided by their RSI_{eff} must be less than or equal to what it would have been if all windows had met 9.36.2.7.
- Opaque to transparent This option is meant to allow reduced insulation for factory-constructed buildings with a low floor to ceiling height and a fenestration and door area to gross wall area ratio of 15% or less.



Section C: Performance

This option is available only to houses with or without secondary suites, buildings that contain only dwelling units with common spaces that are less than 20% of the building's total floor area, and additions where the total gross floor area of the proposed addition(s) is less than 10m².

The modelling summary reports for both the reference and proposed house generated from Hot2000 or the ANSI/ASHRAE 140 compliant software are required to be attached to this form to be considered complete and be accepted for review.

Input parameters				Reference Model Proposed Model									
Airtightness (air exchanges per hour @ 50 Pa)													
Heat Loss/Heat Gain													
HRV efficiency	/												
Thermal mass	(MJ/m ² •°	C)											
Ventilation rate	e (I/s)												
Fenestration and door to wall ratio (FDWR) – reference (%)					(%)								
Direction of front elevation (clearly circle one)						N S	NE SW	E W	SE NW	N S	NE SW	E W	SE NW
Area of windows and doors Front elevation (m ²)													
Rear elevation (m ²)													
Left elevation (m ²)													
			Right elevation (m ²)										
			Total area of windows	s (m²	2)								
			Total area of opaque	door	rs (m²)								
Energy use (GJ)													
Software Info	rmation					I							
Software title				Ve	rsion								
Is software Hot2000 or ANSI/ASHRAE 140 Yes				Yes / No									
Declaration													
Name					Firm								
Address					Phone								
Email	Signati				Signatur	e							
I hereby certify that the calculations submitted were prepared in full accordance with the operation procedures of the software and:													
Subsection 9.36.5 of the 2020 NBC													
Alternative Solution - Energuide Rating System v15 w/ variance greater than or equal to 5% above the Reference Model (attach supporting documents)													

Alternative Solution – Specify:

(attach supporting documents)

**Competent person* is defined as a person who is familiar and fluent with building design under Section 9.36 of the NBC and acceptable to the Authority Having Jurisdiction.