

NBC, Section 9.36, Energy Efficiency Compliance Form

(MUST be submitted with Building Permit Application)

Compliance & Application:

Section 9.36 – Energy Efficiency, shall apply to design & construction of buildings & additions;

- Buildings of residential occupancy to which Part 9 applies.
- Buildings containing business & personal services, mercantile or low-hazard industrial occupancies to which Part 9 applies whose combined total floor area does NOT exceed 300sq.m., excluding parking garages that serve residential occupancies.
- Buildings containing a mix of residential & non-residential occupancies.

Energy Performance Compliance applies to:

- Houses with or without a secondary suite.
- Buildings containing only dwelling units & common spaces whose total floor area does NOT exceed 20% of the total floor area of the building.

Definitions (as defined by Building Standards):

- **Competent Person** – a person who is familiar & fluent with building design under Section 9.36 of the NBC & acceptable to the Authority Having Jurisdiction (AHJ).
- **New Building, for ground oriented Dwelling Units** – the initial construction & footprint of the base of the building.
- **New Building, for other project types** – the base of the building & initial tenant development / fitout.
- **Addition** – any conditioned space that is added to an existing building that increases the building footprint & / or the above grade floor area.

Climate Zone: 7A

All calculations are required to be completed by a 'Competent Person' with analysis included with this form for review.

Project Information:

Municipality: _____ Owner: _____

Project location: _____
 (civic address, land location, lot & block)

Competent Person:

Company: _____ Telephone: _____

Address: _____
 (address, street, City, Province)

Designer: _____
 (Print name)

Conversions:	R = 5.678 x RSI	U = 1 / RSI
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Occupancy Group: _____	Total combined Floor Area: _____
Design Option: <input type="checkbox"/> Prescriptive (See Section A) <input type="checkbox"/> Trade-Off (See Section B) <input type="checkbox"/> Performance (See Section C) (Check design option & complete required section)	

Section A *Prescriptive – NBC: 9.36.2*

HRV System included (Check appropriate box): YES NO

(Provide proposed option)

Effective Thermal Resistance - Above Ground Opaque Building Assemblies (RSI)			
<i>Assembly</i>	<i>with HRV</i>	<i>without HRV</i>	<i>Proposed</i>
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	5.02	5.02	
Floors over garage	4.86	4.86	
Thermal Characteristics of Fenestration, Doors & Skylights (U)			
<i>Assembly</i>	<i>Efficiency</i>	-	<i>Proposed</i>
Windows & Doors	<i>Max. U-Value 1.60 OR Min. Energy Rating ≥ 25</i>	-	
One Door exception	<i>Max. U-Value 2.60</i>	-	
Attic Hatch	<i>Max. U-Value 2.60</i>	-	
Skylights	<i>Max. U-Value 2.70</i>	-	
Effective Thermal Resistance - Below Ground or In Contact with Ground Opaque Building Assemblies (RSI)			
<i>Assembly</i>	<i>with HRV</i>	<i>without HRV</i>	<i>Proposed</i>
Foundation Walls	2.98	3.46	
Slab-on-Grade & Integral Ftg.	2.84	3.72	
Unheated Floors (Not applicable to crawlspaces):			
Below Frost Line	<i>Uninsulated</i>	<i>Uninsulated</i>	
Above Frost Line	1.96	1.96	
Heated Floors	2.84	2.84	

Section B *Trade Off – NBC: 9.36.2.11*

- **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 area 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 with a low floor to ceiling height & a fenestration & door area to gross wall area ratio of 15% or less.
- **Opaque to opaque** – One or more above-ground opaque building envelope assemblies are permitted to be less than required, one or more above-ground opaque building envelope assemblies are increased to more than required.
 - Walls & joist-type roofs must maintain minimum 55% of the required RSI_{eff}
 - Other assemblies must be 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

The location & extent of assemblies used in the calculation(s) shall be clearly identified on the submitted drawings.

Section C Performance – NBC: 9.36.5

(Provide required details to each column)

Input Parameters	Reference Model	Proposed Model
Airtightness (air exchanges per hour@ 50 Pa)		
Thermal Mass (MJ/m ² .°C)		
Ventilation Rate (l/s)		
HRV efficiency		
Fenestration & door to wall ratio (FDWR) – reference (%)		
Direction of front elevation		North Northeast East Southeast South Southwest West Northwest (circle appropriate direction)
Area of windows & doors		
Front elevation (m ²)		
Rear elevation (m ²)		
Left elevation (m ²)		
Right elevation (m ²)		
Energy Use (GJ)		
Software	Title: (Provide program detail) _____	Version: (Provide program detail) _____
Software is ANSI/ASHRAE 140, "Evaluation of Building Energy Analysis Computer Programs"	<input type="checkbox"/> YES	<input type="checkbox"/> NO

The calculation methods employed in the energy model shall be used for both the reference & proposed models, submit complete generated modeling report with application.

- A) HVAC to be designed & installed to 9.36.3 YES NO
- B) Service Water Heating System designed & installed to 9.36.4 YES NO
- C) IF "NO" to any, submit approval document, alternative solution, with the Seal of the Professional Engineer.

This form MUST be completed in its entirety & submitted with the Building Permit Application to MA Inspections. Failure to accurately or completely fill in the form may prevent the Building Permit from being approved, resulting with construction not permitted to commence.

I hereby certify that the calculations & details submitted were prepared in full accordance with NBC, Section 9.36

Competent person: (Person who completed analysis, same as above)

Signature: _____ Date: _____