

Energy Efficiency Design Summary

(Part 9 Residential)

This form is used to summarize the energy efficiency design of the project. Information on completing this form is on the reverse

For use by Principal Authority

| | |
|-----------------|----------------------------|
| Application No: | Model/Certification Number |
|-----------------|----------------------------|

A. Project Information

| | | | |
|------------------------------|-------------|--------------------------------------|---------|
| Building number, street name | | Unit number | Lot/Con |
| Municipality | Postal code | Reg. Plan number / other description | |

B. Compliance Option

| | |
|---|---|
| <input type="checkbox"/> <i>SB-12 Prescriptive</i> [SB-12 - 2.1.1.] | Table: Package: A B C D E F G H I J K L M (circle one) |
| <input type="checkbox"/> <i>SB-12 Performance*</i> [SB-12 - 2.1.2.] | * Attach energy performance calculations using an approved software |
| <input type="checkbox"/> <i>Energy Star®*</i> [SB-12 - 2.1.3.] | * Attach Builder Option Package form |
| <input type="checkbox"/> <i>EnerGuide 80®*</i> | * House must be evaluated by NRCAN advisor and meet a rating of 80 |

C. Project Design Conditions

| Climatic Zone (SB-1): | Heating Equipment Efficiency | Space Heating Fuel Source | | |
|--|---|--|---|--|
| <input type="checkbox"/> Zone 1 (< 5000 degree days) | <input type="checkbox"/> ≥ 90% AFUE | <input type="checkbox"/> Gas | <input type="checkbox"/> Propane | <input type="checkbox"/> Solid Fuel |
| <input type="checkbox"/> Zone 2 (≥ 5000 degree days) | <input type="checkbox"/> ≥ 78% < 90% AFUE | <input type="checkbox"/> Oil | <input type="checkbox"/> Electric | <input type="checkbox"/> Earth Energy |
| Windows+Skylights &Glass Doors | | Other Building Conditions | | |
| Gross Wall Area = _____ m ² | % Windows+ _____ | <input type="checkbox"/> ICF Basement | <input type="checkbox"/> Walkout Basement | <input type="checkbox"/> Log/Post&Beam |
| Gross Window+ Area = _____ m ² | | <input type="checkbox"/> ICF Above Grade | <input type="checkbox"/> Slab-on-ground | |

D. Building Specifications [provide values and ratings of the energy efficiency components proposed, or attach *Energy Star* BOP form]

| Building Component | RSI / R values | Building Component | Efficiency Ratings |
|--|----------------|---|--------------------|
| Thermal Insulation | | Windows & Doors¹ | |
| Ceiling with Attic Space | | Windows/Sliding Glass Doors | |
| Ceiling without Attic Space | | Skylights | |
| Exposed Floor | | Mechanicals | |
| Walls Above Grade | | Space Heating Equip. ² | |
| Basement Walls | | HRV Efficiency (SRE% at 0° C) | |
| Slab (all >600mm below grade) | | DHW Heater (EF) | |
| Slab (edge only ≤600mm below grade) | | NOTES 1. Provide U-Value in W/m ² .K, or ER rating 2. Provide AFUE or indicate if condensing type combined system used | |
| Slab (all ≤600mm below grade, or heated) | | | |

E. Performance Design Verification [complete applicable sections if *SB-12 Performance*, *Energy Star* or *EnerGuide80* options used]

SB-12 Performance:
The annual energy consumption using Subsection 2.1.1. SB-12 Package _____ is _____ GJ (1 GJ =1000MJ)
The annual energy consumption of this house as designed is _____ GJ
The software used to simulate the annual energy use of the building is: _____
The building is being designed using an air leakage of _____ air changes per hour @50Pa.

Energy Star: Submit the BOP form with Energy Advisor's certification on completion.

Energy Star and EnerGuide80:
Evaluator/Advisor/Rater Name: _____ Evaluator/Advisor/Rater Licence #: _____

F. Designers [names of designers who are responsible for the building code design and whose plans accompany the permit application]

| | |
|---------------|------------|
| Architectural | Mechanical |
|---------------|------------|

Guide to the Energy Efficiency Design Summary Form

The *Energy Efficiency Design Summary* form summarizes the compliance path used by a house designer to comply with energy efficiency requirements of the Ontario Building Code. This form must accompany the building permit application. The information on this form MUST reflect the drawings and specifications being submitted, or the building permit may be refused. Refer to Supplementary Standard SB-12 for details about building code compliance requirements. Further information about energy efficiency requirements for new buildings is available from the provincial building code website at www.mah.gov.on.ca, or the municipal building department.

Beginning January 1, 2012, a house designer must use one of four energy efficiency compliance options in the building code:

1. Comply with the *SB-12 Prescriptive* design tables,
2. Use the *SB-12 Performance* compliance method, and model the design against the prescriptive standards,
3. Design to *Energy Star* standards, or
4. Evaluate the design according to *EnerGuide* technical procedures and achieve a rating of 80 or more.

COMPLETING THE FORM

B. Compliance Options

Indicate the compliance option being used.

- *SB-12 Prescriptive* requires that the building conforms to a package of thermal insulation, window and mechanical system efficiency requirements set out in Subsection 2.1.1. of SB-12. Energy efficiency design modeling and testing of the building is not required under this option.
- *SB-12 Performance* refers to the alternative method of compliance set out in Subsection 2.1.2. of SB-12. Using this approach the designer must use recognized energy simulation software (such as HOT2000 V9.34c1.2 or newer), and submit documents which show that the annual energy use of the building is equal to a prescriptive package.
- *Energy Star* houses must be designed to *Energy Star* requirements and be labelled on completion by Enerquality or other agency. The *Energy Star* BOP form must be submitted with the permit documents.
- *EnerGuide80* houses are validated by NRCan authorized energy advisors and must achieve a rating of 80 or more when evaluated in accordance with *EnerGuide* administrative and technical procedures.

C. Project Design Conditions

Climatic Zone: The number of degree days for Ontario cities is contained in Supplementary Standard SB-1

Windows, Skylights and Glass Doors: If the ratio of the total gross area of windows, sidelights, skylights and glass doors to the total gross area of walls is more than 17%, higher efficiency glazing is required. If the ratio is more than 22% the *SB-12 Prescriptive* option may not be used. The total area is the sum of all the structural rough openings. Some exceptions apply. Refer to 2.1.1.1. of SB-12 for further details.

Fuel Source and Heating Equipment Efficiency: The fuel source and efficiency of the proposed heating equipment must be specified in order to determine which *SB-12 Prescriptive* compliance package table applies.

Other Building Conditions: These construction conditions affect *SB-12 Prescriptive* compliance requirements.

D. Building Specifications

Thermal Insulation: Indicate the RSI or R-value being proposed where they apply to the house design. Under the *SB-12 Prescriptive* option, RSI 3.52 wall insulation is permitted in certain conditions where other design elements meet higher standards. Refer to SB-12 for further details.

E. Performance Design Summary

This section is not required to be completed if the *SB-12 Prescriptive* option is being used.

BUILDING CODE REQUIREMENTS FOR AIRTIGHTNESS IN NEW HOUSES

All houses must comply with increased air barrier requirements in the building code. Notice of air barrier completion must be provided and an inspection conducted prior to it being covered. The building code requires that a blower door test be conducted to verify the air tightness of the house during construction if the *SB-12 Performance* option is used and an air tightness of less than 2.5 ACH @ 50 Pa in the case of detached houses, or 3.0 ACH @ 50 Pa in the case of attached houses is necessary to meet the required energy efficiency standard. A blower door test must also be conducted if the *EnerGuide 80* option is used.

ENERGY EFFICIENCY LABELING FOR NEW HOUSES

Energy Star and *EnerGuide* issue labels for new homes constructed under their energy efficiency programs. The building code does not regulate new home labelling.