

Energy Efficiency Design Summary

(Building Code Part 9, Residential)

This form is used by a designer to demonstrate that the energy efficiency design of a house complies with the building code

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 [indicate the building code compliance option being employed in this house design]

| | |
|--|---|
| <input type="checkbox"/> SB-12 Prescriptive (circle one): A B C D E F G H I J K L M or <input type="checkbox"/> Table 2.1.1.10. (Additions) | |
| <input type="checkbox"/> prescriptive trade-offs used (<i>Specify 2.1.1.2. or 2.1.1.3. sentences being employed</i>): | |
| <input type="checkbox"/> SB-12 Performance* [SB-12 - 2.1.2.] | * Attach energy performance calculations using an approved software |
| <input type="checkbox"/> Energy Star®* [SB-12 - 2.1.3.] | * Attach Builder Option Package [BOP] form |
| <input type="checkbox"/> EnerGuide 80®* | * 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"/> Zone 2 (≥ 5000 degree days) | <input type="checkbox"/> ≥ 78% < 90% AFUE | <input type="checkbox"/> Oil | <input type="checkbox"/> Electric |
| | | <input type="checkbox"/> Solid Fuel | <input type="checkbox"/> Earth Energy |
| Ratio of Windows, Skylights & Glass (W, S & G) to Wall Area | | Other Building Conditions | |
| Area of walls = _____ m ² | W, S & G % = _____ | <input type="checkbox"/> ICF Basement | <input type="checkbox"/> Walkout Basement |
| Area of W, S & G = _____ m ² | | <input type="checkbox"/> Log/Post&Beam | <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 & Doors Provide U-Value in W/m ² .K, or ER rating | |
| Ceiling with Attic Space | | Windows/Sliding Glass Doors | |
| Ceiling without Attic Space | | Skylights/Glazed Roofs | |
| Exposed Floor | | Mechanicals | |
| Walls Above Grade | | Heating Equip.(AFUE or condensing type) | |
| Basement Walls | | HRV Efficiency (SRE% at 0° C) | |
| Slab (all >600mm below grade) | | DHW Heater (EF) | |
| Slab (edge only ≤600mm below grade) | | DWHR (CSA B55.1 Efficiency) | |
| 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. House Designer [name & BCIN, if applicable, of person providing information herein to substantiate that design meets the building code]

| | | |
|------|------|-----------|
| Name | BCIN | Signature |
|------|------|-----------|

Guide to the Energy Efficiency Design Summary Form

This form must accurately reflect the information contained on the drawings and specifications being submitted. 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 or the municipal building department.

The building code permits a house designer to use one of four energy efficiency compliance options:

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. Certain trade-off options are permitted.
- SB-12 Performance refers to the method of compliance 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 verified on completion by a licensed energy evaluator and/or service organization. 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, glazing in doors and sliding 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.

F. House Designer

The building code requires designers providing information about whether a building complies with the building code to have a BCIN. Exemptions apply to architects, engineers and owners designing their own house.

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 may issue labels for new homes constructed under their energy efficiency programs. The building code does not currently regulate or require new home labelling.