



# FORM A.6.1 ENERGY EFFICIENCY DESIGN SUMMARY PRESCRIPTIVE METHOD

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(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 using the prescriptive method described in Subsection 3.1.1. of SB-12. This form is applicable where the ratio of gross area of windows/sidelights/skylights/glazing in doors and sliding glass doors to the gross area of peripheral walls is not more than 22%.

For use by Principal Authority	
Application number:	Model/Certification Number

A. Project Information			
Building number, street name	Unit number	Lot/con.	
Municipality	Postal code	Plan number/other description	

B. Prescriptive Compliance [indicate the building code compliance package being employed in this house design]	
SB-12 Prescriptive (input design package):	Package: _____ Table: _____

C. Project Design Conditions		
<b>Climatic Zone (SB-1):</b>	<b>Heating Equipment Efficiency</b>	<b>Space Heating Fuel Source</b>
<input type="checkbox"/> Zone 1 (< 5000 degree days)	<input type="checkbox"/> ≥ 92% 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"/> ≥ 84% < 92% AFUE	<input type="checkbox"/> Oil <input type="checkbox"/> Electric <input type="checkbox"/> Earth Energy
<b>Ratio of Windows, Skylights &amp; Glass (W, S &amp; G) to Wall Area</b>		<b>Other Building Characteristics</b>
Area of walls= _____ m <sup>2</sup> or _____ ft <sup>2</sup>	W, S & G % = _____	<input type="checkbox"/> Log/Post & Beam <input type="checkbox"/> ICF Above Grade <input type="checkbox"/> ICF Basement
		<input type="checkbox"/> Slab-on-ground <input type="checkbox"/> Walkout Basement
		<input type="checkbox"/> Air Conditioning <input type="checkbox"/> Combo Unit
Area of W, S & G= _____ m <sup>2</sup> or _____ ft <sup>2</sup>	Utilize window averaging: <input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Air Sourced Heat Pump (ASHP)
		<input type="checkbox"/> Ground Sourced Heat Pump (GSHP)

### D. Building Specifications [provide values and ratings of the energy efficiency components proposed]

Energy Efficiency Substitutions			
<input type="checkbox"/> ICF (3.1.1.2.(5) & (6) / 3.1.1.3.(5) & (6))			
<input type="checkbox"/> Combined space heating and domestic water heating systems (3.1.1.2.(7) / 3.1.1.3.(7))			
<input type="checkbox"/> Airtightness substitution(s)  Airtightness test required (Refer to Design Guide Attached)	<input type="checkbox"/> Table 3.1.1.4.B	Required: _____	Permitted Substitution: _____
	<input type="checkbox"/> Table 3.1.1.4.C	Required: _____	Permitted Substitution: _____
		Required: _____	Permitted Substitution: _____
Building Component	Minimum RSI / R values or Maximum U-Value	Building Component	Efficiency Ratings
<b>Thermal Insulation</b>	Nominal   Effective	<b>Windows &amp; Doors</b> Provide U-Value <sup>(1)</sup> or ER rating	
Ceiling with Attic Space		Windows/Sliding Glass Doors	
Ceiling without Attic Space		Skylights/Glazed Roofs	
Exposed Floor		<b>Mechanicals</b>	
Walls Above Grade		Heating Equip. (AFUE)	
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 (min. 42% efficiency))	#Showers _____
Slab (all ≤600mm below grade, or heated)		Combined Heating System	

(1) U value to be provided in either W/(m<sup>2</sup>•K) or Btu/(h•ft<sup>2</sup>•F) but not both

### E. Designer(s) [names(s) & BCIN(s), if applicable, of person(s) providing information herein to substantiate that design meets the building code]

Qualified Designer Declaration of designer to have reviewed and take responsibility for the design work.		
Name	BCIN / License #	Signature

Personal information contained in this form and schedules is collected under the authority of subsection 8(1.1) of the *Building Code Act, 1992*, and will be used in the administration and enforcement of the *Building Code Act, 1992*. Questions about the collection of personal information may be addressed to: a) the Chief Building Official of the municipality or upper-tier municipality to which this application is being made, or, b) the inspector having the powers and duties of a chief building official in relation to sewage systems or plumbing for an upper-tier municipality, board of health or conservation authority to whom this application is made, or, c) Director, Building and Development Branch, Ministry of Municipal Affairs and Housing 777 Bay St., 2nd Floor. Toronto, M5G 2E5 (416) 585-6666.

# Guide to the Prescriptive 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 (this form is for this option (Option 1)),
2. Use the *SB-12 Performance* compliance method, and model the design against the prescriptive standards,
3. Design to *Energy Star*, or
4. Design to *R2000* standards.

## 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 3.1.1. of SB-12. Energy efficiency design modeling and testing of the building is not required under this option. Certain substitutions are permitted. In which case, the applicable airtightness targets in Table 3.1.1.4.A must be met.

### 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 3.1.1.1. 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, alternative ICF wall insulation is permitted in certain conditions where other design elements meet higher standards. Refer to SB-12 for further details. Where effective insulation values are being used, the Authority Having Jurisdiction may require supporting documentation.

## 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 air leakage rates in Table 3.1.1.4.A are not requirements. This provision is a voluntary provision for when credits for airtightness are claimed. Credit for air tightness allows the designer to substitute the requirements of compliance packages as set out in Table 3.1.1.4.B or 3.1.1.4.C. Neither the air leakage test nor compliance with airtightness targets given in Table 3.1.1.4.A are required, unless credit for airtightness is claimed. Table 3.1.1.4.A provides airtightness targets in three different metrics; ACH, NLA, NLR. Any one of them can be used. OBC Reference Default Air Leakage Rates (Table 3.1.1.4.A)

Building Type	Airtightness Targets				
	ACH @ 50 Pa	NLA @ 10 Pa		NLR @ 50 Pa	
Detached dwelling	2.5	1.26 cm <sup>2</sup> /m <sup>2</sup>	1.81 in <sup>2</sup> /100ft <sup>2</sup>	0.93 L/s/m <sup>2</sup>	0.18 cgm50/ft <sup>2</sup>
Attached dwelling	3.0	2.12 cm <sup>2</sup> /m <sup>2</sup>	3.06 in <sup>2</sup> /100ft <sup>2</sup>	1.32 L/s/m <sup>2</sup>	0.26 cgm50/ft <sup>2</sup>

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 Prescriptive* option with airtightness credit being applied. Results of the airtightness test may need to be submitted to the Authority Having Jurisdiction. Airtightness of less than 2.5 ACH @ 50 Pa (or NLA or NLR equivalent) in the case of detached houses, or 3.0 ACH @ 50 Pa (or NLA or NLR equivalent) in the case of attached houses is necessary to meet the required energy efficiency standard.

### E. 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.