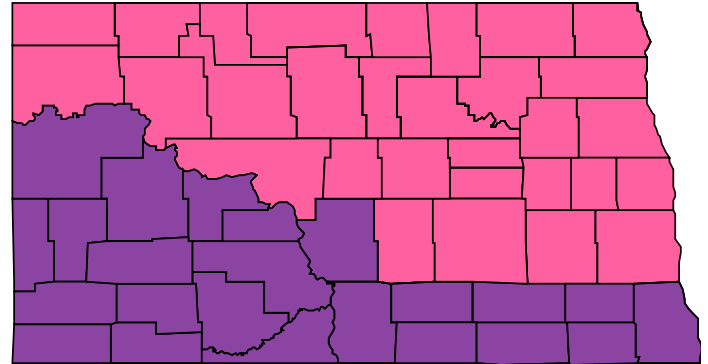


# IECC Compliance Guide for Homes in North Dakota

Code: 2012 International Energy Conservation Code

## Step-by-Step Instructions

- Using the climate zone map to the right, match the jurisdiction to the appropriate IECC climate zone. Use the simplified table of IECC building envelope requirements (below) to determine the basic thermal envelope requirements associated with the jurisdiction.
- Use the “Outline of 2012 IECC Requirements” printed on the back of this sheet as a reference or a categorized index to the IECC requirements. Construct the building according to the requirements of the IECC and other applicable code requirements.



## The 2012 International Energy Conservation Code

The 2012 IECC was developed by the International Code Council (ICC) and is currently available to states for adoption. The IECC is the national model standard for energy-efficient residential construction recognized by federal law. Users of this guide are strongly recommended to obtain a copy of the IECC and refer to it for any questions and further details on compliance. To obtain a copy of the 2012 IECC, contact the ICC or visit [www.iccsafe.org](http://www.iccsafe.org). IECC compliance training is also available from many sources.

CLIMATE ZONE 7		
Barnes	Griggs	Rolette
Benson	Kidder	Sheridan
Bottineau	McHenry	Steele
Burke	McLean	Stutsman
Cass	Mountrail	Towner
Cavalier	Nelson	Traill
Divide	Pembina	Walsh
Eddy	Pierce	Ward
Foster	Ramsey	Wells
Grand Forks	Renville	Williams

## Limitations

This guide is an energy code compliance aid for North Dakota based upon the simple prescriptive option of the 2012 IECC. It does not provide a guarantee for meeting the IECC. This guide is not designed to reflect the actual energy code, with amendments, if any, adopted in North Dakota and does not, therefore, provide a guarantee for meeting the state energy code. For details on the energy code adopted by North Dakota, including how it may differ from the IECC, please contact your local building code official. Additional copies of this guide are available on [www.reca-codes.com](http://www.reca-codes.com).

CLIMATE ZONE 6		
Adams	Grant	Oliver
Billings	Hettinger	Ransom
Bowman	LaMoure	Richland
Burleigh	Logan	Sargent
Dickey	McIntosh	Sioux
Dunn	McKenzie	Slope
Emmons	Mercer	Stark
Golden Valley	Morton	

	Windows			Insulation				Foundation		
	Fenestration U-Factor	Skylight U-Factor	Glazed Fenestration SHGC	Ceiling R-Value	Wood Frame Wall R-Value	Mass Wall R-Value	Floor R-Value	Basement Wall R-Value	Slab R-Value and Depth	Crawl Space Wall R-Value
<b>Zone 7</b>	<b>0.32</b>	<b>0.55</b>	<b>NR</b>	<b>49</b>	<b>20 + 5 or 13 + 10</b>	<b>19/21</b>	<b>38</b>	<b>15/19</b>	<b>10, 4 ft</b>	<b>15/19</b>
<b>Zone 6</b>	<b>0.32</b>	<b>0.55</b>	<b>NR</b>	<b>49</b>	<b>20+ 5 or 13+10</b>	<b>15/20</b>	<b>30</b>	<b>15/19</b>	<b>10, 4 ft</b>	<b>15/19</b>

NR indicates No Requirement

# Outline of 2012 IECC Requirements for North Dakota Homes

The simplified table of building envelope requirements (on the previous page) applies to new residential buildings, as defined in the IECC, with wood framing and/or mass walls. For steel-framed buildings, the same window requirements apply; however, refer to IECC section R402.2.6 for specific ceiling, wall and floor insulation R-value requirements. The table also applies to all additions, alterations and replacement windows. The table is based upon the thermal envelope requirements in the 2012 IECC's prescriptive compliance option for the appropriate climate zones (Table R402.1.1) and does not reflect any state-specific amendments to the IECC.

## Fenestration (IECC Sections R303.1.3, R402.3, R402.5)

- Fenestration (including all windows and doors) and Skylight U-factors are maximum acceptable levels. The Glazed Fenestration SHGC maximums apply to all windows, skylights and glazed doors (except certain skylights). An area-weighted average of fenestration products is permitted to satisfy these requirements.
- Window, door and skylight U-factors and SHGCs must be determined from a National Fenestration Rating Council (NFRC) rating that is independently certified and set forth on a label on the product or from a limited table of product default values in the IECC. See [www.nfrc.org](http://www.nfrc.org) for more details on the NFRC rating system.
- Windows, skylights, and sliding glass doors must also be labeled in a manner to show that they meet the IECC's air infiltration requirements.
- Up to 15 square feet of glazed fenestration is permitted to be exempt from the U-factor and SHGC requirements. One side-hinged opaque door assembly up to 24 square feet is exempt from the Fenestration U-factor requirement. These exceptions apply in the prescriptive path only. Special exceptions may apply for Fenestration U-factor requirements in thermally isolated sunrooms. (see IECC section R402.3.5)

## Insulation (IECC Sections R303.1.4 and R402.2)

- Insulation R-values are minimum acceptable levels and must be determined according to FTC rule.
- R-values for walls represent the sum of cavity insulation plus insulated sheathing, if any. The second R-value for mass walls applies when more than half the insulation is on the interior of the mass wall.
- The insulation for basement walls must be from the top of the wall down 10 feet below grade or to the basement floor, whichever is less. Basement wall insulation is not required in warm-humid locations as defined in IECC Figure R301.1 and Table R301.1. Insulation requirements for crawl space walls are further specified in IECC section R402.2.10.
- Floor insulation must be installed to maintain contact with the underside of the subfloor decking.
- Access doors from conditioned spaces to unconditioned spaces (e.g., attics and crawl spaces) shall be weatherstripped and insulated to a level equivalent to the insulation on the surrounding surfaces.
- Insulation requirements for slab on grade floors are further specified in IECC section R402.2.9. R-5 shall be added to the required slab edge R-values for heated slabs.

- Special Insulation exceptions related to ceilings with attic spaces, ceilings without attic spaces, masonry veneer and thermally isolated sunrooms are set forth in IECC section R402.

## Ducts (IECC Section R403.2)

- Ducts must be tested and verified to have total leakage of no more than 4cfm/100 sq. ft. (or 3cfm if air handler is not installed), except where air handler and all ducts are inside conditioned space.
- Supply ducts in attics shall be sealed and insulated to a minimum of R-8. All other ducts shall be sealed and insulated to a minimum of R-6. Ducts or portions thereof located completely inside the building thermal envelope are exempted from the insulation requirement. Air handlers and filter boxes must also be properly sealed.

## Air Sealing (IECC Section R402.4)

- The building envelope is required to be properly sealed and tested, and verified as having an air leakage rate no higher than 3 ACH. Recessed lighting must also be sealed to limit air leakage.

## Documentation (IECC Sections R103, R303.3, R401.3)

- The appropriate construction documents and preventative maintenance information must be provided, along with a permanent certificate listing certain insulation, window and HVAC performance information.

## Systems (IECC Section R403)

- HVAC system must be properly sized in accordance with ACCA Manual S based on building loads calculated in accordance with ACCA Manual J or other approved methodologies.
- Temperature controls must be installed, including a programmable thermostat where required.
- Mechanical system piping must be insulated to a minimum of R-3. Hot water piping must be insulated to R-3, with certain exceptions.
- Specific requirements apply to circulating hot water systems, mechanical ventilation, snow melt systems, and pools.

## Lighting (IECC Sections R202 and R404.1)

- A minimum of 75% of lamps in permanently installed fixtures must be high-efficacy as defined in the IECC.