Using this Guide
This guide contains three color-coded climate zones (2, 3, or 4) designed to simplify determination of the envelope requirements of the 2009 International Residential Code (IRC, Chapter 11) for Texas. Each county is assigned to one of the three climate zones in Texas. Please refer to the 2009 IRC for a complete description of all the requirements and compliance alternatives. Local requirements may also vary.

Step-by-Step Instructions
1. Use the color-coded map to locate the county in which the construction or remodeling is taking place and find the climate zone (2, 3, or 4) associated with that county.
2. Use the Table of Building Envelope Requirements on the back of this sheet to find the set of construction options associated with the climate zone selected. Construct or remodel the building according to the envelope requirements and comply with basic code requirements, which include:
   - Installing components to manufacturer specifications
   - Documenting load calculations to ensure properly sized HVAC equipment
   - Providing preventive maintenance manuals
   - Installing temperature controls
   - Limiting window and door leakage
   - Caulking or sealing joints, gaps, and penetrations
   - Installing vapor retarders where required
   - Sealing and insulating ducts (duct tape not allowed)
   - Insulating pipes properly

Texas Counties by Climate Zones

Use the color-code lists or Texas map to locate a county. The reverse side of the guide shows the prescriptive paths for the selected zones.
Texas has enacted a statewide energy code. This guide provides a simplified prescriptive specification for individual envelope components to aid with code compliance. This guide does not provide a guarantee for meeting the IRC. For additional details on the IRC or IECC, refer to the code documents, consult local code officials, or contact the International Code Council.

The second R-value applies when more that half the insulation is on the interior.

Notes:
1. The Table of Building Envelope Requirements is based upon the 2009 International Residential Code (IRC), published by the International Code Council.
2. The IRC Prescriptive requirements are applicable to single family construction. Alternately, the International Energy Conservation Code (IECC) may be used.
3. Applies to single-family, wood-frame residential construction only. For mass wall construction, see IRC Section N1102.4; for steel-framed ceilings, walls, and floors, see IRC Section N1102.5.
4. “Glazed” refers to any translucent or transparent material in exterior openings of buildings, including windows, skylights, sliding glass doors, the glass areas of opaque doors, and glass block.
5. Fenestration product (window, door, glazing) U-factor and SHGC must be determined from the National Fenestration Rating Council (NFRC) label on the product, or obtained from the default tables [IRC Table N1101.5(1) for glazing; IRC Table N1101.5(2) for doors; and N1101.5(3) for SHGC].
6. Opaque doors are not considered glazing (or windows) and must meet the U-factor requirements in IRC Section N1102.1.
7. Up to 15 square feet of glazed fenestration per dwelling unit shall be exempted from U-factor and SHGC requirements in IRC Section N1102.3.3 and one side-hinged opaque door assembly up to 24 square feet in area is exempted from the U-factor requirement in section N1102.3.4. The exemptions do not apply if using the U-factor alternative approach in Section N1102.1.2 and the total-UA alternative approach in Section N1102.1.3.
8. Air sealing and insulation: Building envelope air tightness and insulation installation shall be demonstrated to comply through a blower door test or through visual inspection (IRC Section N1102.4). Ducts shall be sealed and tested (N1103.2.2).
9. A minimum of 50% of the lamps shall be high-efficacy (N1104.1).
10. Prescriptive packages are based upon meeting or exceeding minimum equipment efficiencies for HVAC and water heating set by the Department of Energy (DOE) and the National Appliance and Energy Conservation Act (NAECA).

IRC Table N1102.1—Building Envelope Requirements

<table>
<thead>
<tr>
<th>Climate Zone</th>
<th>Ceiling R-value</th>
<th>Wood Frame Wall R-value</th>
<th>Insulation R-value</th>
<th>Floor R-value</th>
<th>Basement Wall R-value</th>
<th>Slab R-value</th>
<th>Crawl Space Wall R-value</th>
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</table>

Notes:

a. R-values are minimums. U-factors and SHGC are maximums. R-19 batts compressed into a nominal 2 x 6 framing cavity such that the R-value is reduced by R-1 or more shall be marked with the compressed batt R-value in addition to the full-thickness R-value.
b. The fenestration U-factor column excludes skylights. The SHGC column applies to all glazed fenestration.
c. The first R-value applies to continuous insulation, the second to framing cavity insulation, either insulation meets the requirement.
d. R-5 shall be added to the required slab-edge R-values for heated slabs. Insulation depth shall be the depth of the footing or 2 feet, whichever is less in zones 2 and 3 for heated slabs.
e. Basement wall insulation is not required in warm-humid locations as defined by Figure N1101.2 and Table N1101.2.
f. For impact-rated fenestration complying with Section R301.2.1.2, the maximum U-factor shall be 0.75 in Zone 2 and 0.65 in Zone 3.
g. For impact-resistant fenestration complying with Section R301.2.1.2 of the IRC, the maximum SHGC shall be 0.40.
h. The second R-value applies when more that half the insulation is on the interior.