Recommendations by Climate

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Users should determine the recommendations for their construction project by first locating the correct climate zone. The U.S. Department of Energy (DOE) has identified eight climate zones for the United States, with each defined by county borders, as shown in Figure 3-1. This Guide uses these DOE climate zones in defining energy recommendations that vary by climate.

This chapter contains a unique set of energy-efficient recommendations for each climate zone. The recommendation tables represent *a way*, but *not the only way*, for reaching the 30% energy savings target over Standard 90.1–1999. Other approaches may also save energy, but they are not part of the scope of this Guide; assurance of those savings is left to the user. The user should note that the recommendation tables do not include all of the components listed in Standard 90.1 since the Guide focuses only on the primary energy systems within a building.

When a recommendation is provided, the recommended value differs from the requirements in Standard 90.1–1999. When "No recommendation" is indicated, the user must meet at least the minimum requirements of Standard 90.1-1999 or the requirements of local codes whenever they exceed the requirements of Standard 90.1-1999.

Each of the climate zone recommendation tables includes a set of common items arranged by building subsystem: envelope, lighting, HVAC, and service water heating (SWH). Recommendations are included for each item, or subsystem, by component within that subsystem. For some subsystems, recommendations depend on the construction type. For example, insulation values are given for mass, metal building, and steel-framed and wood-framed wall types. For other subsystems, recommendations are given for each subsystem attribute. For example, vertical glazing recommendations are given for size, thermal transmittance, solar heat gain coefficient (SHGC), window orientation, and exterior sun control.

Bonus Savings

Chapter 5 provides additional recommendations and strategies for savings for plug loads and exterior lighting over and above the 30% savings recommendations contained in the following eight climate regions.

The fourth column in each table lists references to how-to tips for implementing the recommended criteria. The tips are found in Chapter 5 under separate sections coded for envelope (EN), daylighting (DL), electric lighting (EL), HVAC systems and equipment (HV), and water heating systems and equipment (WH) suggestions. Besides how-to tips for design and maintenance suggestions that represent good practice, these tips include cautions for what to avoid. Important QA considerations and recommendations are also given for the building design, construction, and post-occupancy phases. Note that each tip is tied to the applicable climate zone in Chapter 5. The final column is provided as a simple checklist to identify the recommendations being used for a specific building design and construction.

The recommendations presented are either minimum or maximum values. Minimum values include R-values, mean lumens/watt, SEER, SRI, EER, IPLV, AFUE, E_c, HSPF, COP, E_t, EF, and insulation thicknesses. Maximum values include U-factors, SHGC, area, LPD, and friction rate.