**BSESC—National Codes and Standards**

## Proficiency Level 1: Remember

### Learning Objective 1.1

* Define building codes and list professionals who apply building codes.

### Lecture Notes 1.1

Building codes are sets of regulations governing the design, construction, alteration and maintenance of structures. Building codes specify how buildings *must* be constructed or perform, and are written in mandatory, enforceable language. Usually, states and local governments adopt and enforce building codes for their jurisdictions.

The purpose of building codes is to specify the minimum requirements to adequately safeguard the health, safety and welfare of building occupants. Building codes are applied by architects, builders, contractors, subcontractors, engineers, interior designers, electricians, plumbers, and other professions. In addition, realtors, manufacturers of building products, building scientists, insurance companies, facility managers, owners, and others need an understanding of building codes.

The International Code Council (ICC) publishes and maintains the International Residential Code (IRC), which applies to new and existing one- and two-family dwellings and townhouses of not more than three stories in height, and the International Building Code (IBC), which applies to new and existing buildings, except those residential buildings covered under the IRC.

The ICC publishes and maintains a variety of model codes, to which the IRC and IBC can be applied. These model codes make allowances for different climate zones and local issues that may impact buildings. The model codes are adopted by state and local governments that enforce the codes for their jurisdictions. This code enforcement is usually the responsibility of local government building officials who review design plans, inspect construction work and issue building and occupancy permits.

Examples of model codes published by the ICC include the International Energy Conservation Code (IECC), International Mechanical Code, International Plumbing Code, International Fire Code, International Electrical Code, International Fuel Gas Code, International Private Sewage Code, International Property Maintenance Code, and International Zoning Code.

In addition to building codes, industry organizations publish and maintain industry standards. These standards describe how a building *should* be constructed. They are published by organizations such as the American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE). They are not mandatory, but serve as national recommendations, with some variation for regional climate. States and local governments frequently use standards as the technical basis for developing their energy codes. Some standards are written in mandatory, enforceable language, making it easy for jurisdictions to incorporate the provisions of the energy standards directly into their laws or regulations.

### Learning Objective 1.2

* Define an industry standard, give an example of an industry standard, and explain how a building standard is different from a building code.

### Lecture Notes 1.2

In addition to building codes, industry organizations publish and maintain industry standards related to buildings. These standards describe how a building *should* be constructed. They are published by organizations such as the American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE), the American Society of Testing and Materials (ASTM), and the Air-Conditioning, Heating and Refrigeration Institute (AHRI). They are not mandatory, but serve as national recommendations, with some variation for regional climate.

States and local governments frequently use standards as the technical basis for developing their energy codes. Some standards are written in mandatory, enforceable language, making it easy for jurisdictions to incorporate the provisions of the energy standards directly into their laws or regulations.

## References

Bartlett, R., M.A. Halverson, and D.L. Shankle. 2003. *Understanding Building Energy Codes and Standards*. PNNL-14235. Prepared for the U.S. Department of Energy by Pacific Northwest National Laboratory, Richland, WA.