

ACE

LEARNING SERIES

ADOPTION, COMPLIANCE & ENFORCEMENT

Building Energy Codes ENFORCEMENT TOOLKIT



Building Energy Codes



ACE

LEARNING SERIES

Building Energy Codes **ENFORCEMENT TOOLKIT**

Prepared by:
Building Energy Codes Program

The U.S. Department of Energy's Building Energy Codes Program is an information resource on energy codes and standards for buildings. They work with other government agencies, state and local jurisdictions, organizations that develop model codes and standards, and building industry to promote codes that will provide for energy and environmental benefits and help foster adoption of, compliance with, and enforcement of those codes.

September 2012

Prepared for the U.S. Department of Energy
under Contract DE-AC05-76RL01830
PNNL-SA-90467



TABLE OF CONTENTS

- 1 INTRODUCTION**
- 1 DEFINITIONS**
- 2 Chapter 1:** Organization of the Enforcement Toolkit
- 3 Chapter 2:** Acronyms and Abbreviations
- 4 Chapter 3:** Know the Requirements
- 6 Chapter 4:** Identify the Code and Compliance Path
- 7 Chapter 5:** Review the Design
- 8 Chapter 6:** Inspect the Building During and After Construction
- 9 Chapter 7:** Specific Inspection Challenges and Resources
- 12 Chapter 8:** Observe, Review, and Ensure Testing, Commissioning, and Owner Documentation
- 14 Chapter 9:** Get Help When You Need It

The U.S. Department of Energy’s (DOE) Building Energy Codes Program (BECP) developed this toolkit to help the enforcement community achieve higher levels of compliance with building energy codes.

BECP has developed two additional toolkits for the adoption and compliance communities with the goal of achieving higher levels of compliance with building energy codes.

Those toolkits can be found on the BECP website, www.energycodes.gov.

Although this toolkit is not necessarily intended for use by designers, developers, home owners or renters, building owners, or building operators, it may provide those individuals some insight into the issues facing the enforcement community.

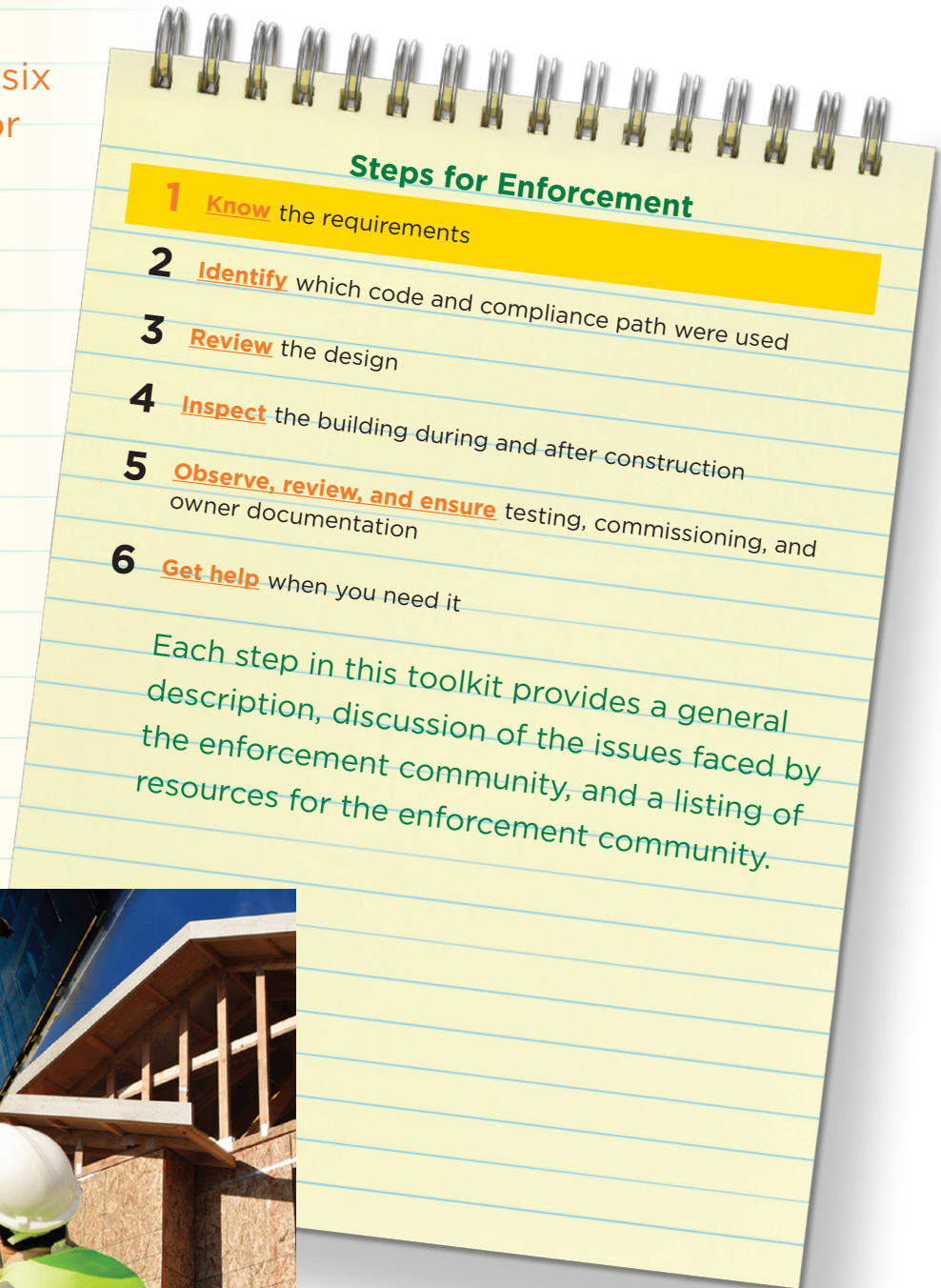


DEFINITIONS

- 1 TOOLKIT** means a mixed media assemblage of helpful information for enforcing residential and commercial building energy codes for a particular location, energy code, and building type (as applicable).
- 2 ENFORCEMENT COMMUNITY** means those practitioners engaged in ensuring that the design and construction of buildings meet the requirements of building energy codes. These practitioners are typically code officials, but they could also be peers in the commercial and residential build community.
- 3 The COMMERCIAL BUILD COMMUNITY** means those practitioners engaged in the design and construction of commercial and high-rise multifamily residential buildings that fall under the requirements of commercial building energy codes.
- 4 The RESIDENTIAL BUILD COMMUNITY** means those practitioners engaged in the design and construction of low-rise residential buildings that fall under the requirements of residential building energy codes. Practitioners include architects, engineers, and designers, as well as subcontractors responsible for various energy-using or energy-influencing systems in a building.

Organization of the Enforcement Toolkit

This toolkit is organized around six important steps for enforcement.



Acronyms and Abbreviations

CHAPTER 2



ANSI	American National Standards Institute
ASHRAE	American Society of Heating, Refrigerating and Air-Conditioning Engineers
BCAP	Building Codes Assistance Project
BECP	Building Energy Codes Program
BIM	building information modeling
BTP	U.S. Department of Energy, Building Technologies Program
CEC	California Energy Commission
DOE	U.S. Department of Energy
HERS	Home Energy Rating System
HVAC	heating, ventilation, and air conditioning
ICC	International Code Council
IES	Illuminating Engineering Society
IECC	International Energy Conservation Code
IgCC	International Green Construction Code
RESNET	Residential Energy Services Network

Current national model energy codes and standards are limited to the design and construction of buildings. That is, the operation and maintenance of the building, however important that might be to the overall energy usage of the building, is not considered in current national model energy codes and standards.¹

This toolkit is focused on the codes and standards called out in the American Recovery and Reinvestment Act of 2009 (ARRA), but most of the principles apply to any code.

For the residential build community, ARRA requires states to meet or exceed the 2009 International Energy Conservation Code (IECC) or achieve equivalent or greater energy savings. For the commercial

the 2009 IECC are similar but not identical. This toolkit will discuss some of those differences.

Both ASHRAE Standard 90.1-2007 and the 2009 IECC have been superseded by newer versions that require higher levels of energy efficiency. ASHRAE Standard 90.1-2010 was published in August of 2010 and the 2012 IECC was published in May of 2011. This toolkit also addresses enforcement issues that may arise in ASHRAE Standard 90.1-2010 and the 2012 IECC. The first step in effective enforcement of energy codes is to know the requirements of the applicable code.



build community, states must meet or exceed ANSI/ASHRAE/IESNA Standard 90.1-2007 (ASHRAE Standard 90.1-2007) or achieve equivalent or greater energy savings to qualify to receive federal funding. Many adopting authorities do not adopt ASHRAE Standard 90.1 directly but instead adopt the IECC. The 2009 IECC contains two options for commercial buildings: (1) ASHRAE Standard 90.1-2007 by reference, or (2) a set of requirements directly in the IECC. The commercial requirements in ASHRAE Standard 90.1-2007 and

However, be aware that codes are adopted at the state, county, or city level and these entities may make modifications or amendments to the IECC and/or ASHRAE Standard 90.1.

¹ Current model energy codes cover design, construction, and testing up to and including commissioning for some buildings.

It is also important to know if different codes are in force for different building types, including residential, commercial, state, or federal. If it is necessary to look up which code is in effect, there are a number of resources available, including BECP's Status of State Codes Database (www.energycodes.gov/adoption/states), the International Code Council's (ICC) adoption database (www.iccsafe.org/gr/pages/adoption.aspx), and the Building Codes Assistance Project (BCAP) Status of Codes Database (<http://energycodesocean.org/code-status>).

Most energy codes make reference to other codes and standards.

- The IECC references ASHRAE Standard 90.1.
- The 2009 IECC also makes references to the International Mechanical Code or International Residential Code for items such as residential heating, ventilating, and air-conditioning (HVAC) load calculations, HVAC sizing, and duct sealing.
- Both the IECC and ASHRAE Standard 90.1 refer to other standards organizations for testing and certification of materials and equipment.

These organizations include the American Society of Mechanical Engineers (ASTM), ASTM International, the Illuminating Engineering Society (IES), the National Fenestration Rating Council (NFRC), Sheet Metal and Air Conditioning Contractors' National Association, and Underwriters Laboratories, among others.

CHAPTER 3 RESOURCES

CHAPTER 3 RESOURCES	
1. Building Energy Codes	www.energycodes.gov/resource-center/eLearning
2. Building Energy Software Tools Directory	http://apps1.eere.energy.gov/buildings/tools_directory/
3. ASHRAE Standard 90.1-2010	http://openpub.realread.com/rrserver/browser?title=/ASHRAE_1/ashrae_90_1_2010_IP_1024
4. ASHRAE Standard 189.1-2011	http://openpub.realread.com/rrserver/browser?title=/ASHRAE_1/ashrae_189.1_113009
5. ASHRAE eLearning	www.ashrae.org/education--certification/online-learning
6. ASHRAE Learning Institute	www.ashrae.org/education--certification/instructor-led-courses
7. ICC IECC and International Green Construction Code (IgCC) Online Learning	www.iccsafe.org/Education/Courses/Pages/catalog.aspx
8. ICC Bookstore	www.iccsafe.org/Store/Pages/default.aspx
9. ASHRAE Bookstore	www.techstreet.com/ashrae/ashraegate.html

Identify the Code and Compliance Path

It is important to review the submitted documentation and identify which code was used for the building. Next, to determine whether the building complies with that code, the path used to demonstrate compliance must be identified.

There are several compliance paths available in the 2009 and 2012 IECC and ASHRAE Standards 90.1-2007 and 90.1-2010. Each of these codes/standards contains a prescriptive path that clearly states specific requirements.

Prescriptive paths limit design freedom. Each of these codes/standards also has a performance-based path that provides more design freedom and can lead to innovative design, but involves more complex energy simulations and tradeoffs between systems.

Residential and smaller commercial buildings with singular HVAC, service hot water, and lighting systems are more likely to be designed using a prescriptive approach. Larger commercial buildings that have multiple systems or varied uses and loads may find it more advantageous to follow a performance-based code. A topic brief has been prepared that discusses the various compliance paths in more detail (Resource 1).

BECP's REScheck™ or COMcheck™ software may be used to demonstrate compliance if approved by the code official. Although Chapter 5 of the 2009 IECC and Chapter C4 of the 2012 IECC do not include specific mention of an envelope tradeoff, they do allow use of ASHRAE Standard 90.1-2007/2010, which has an envelope tradeoff. Therefore, the COMcheck software implements the envelope tradeoff even for the 2009/2012 IECC. COMcheck is thus not an exact implementation of the 2009/2012 IECC and is referred to as deemed-to-comply software for the IECC. COMcheck is also deemed to comply with ASHRAE Standard 90.1 because COMcheck does not fully implement the space-by-space envelope requirements in ASHRAE Standard 90.1. The REScheck software is a close implementation of the IECC, but is not specifically mentioned in the IECC and is therefore deemed to comply as well. Resources 2 and 3 illustrate which jurisdictions allow the use of COMcheck and REScheck on a state-by-state basis. It is also recommended to check with the jurisdiction having authority. For information on where to look on the REScheck and COMcheck report to

identify the code and compliance path used, quick reference guides for code officials are available in the BECP Code Officials Resource Guide (Resource 4; see page 30 for REScheck and page 119 for COMcheck).

Some states and jurisdictions allow code compliance for residential buildings by way of the performance path using the Home Energy Rating System (HERS) scores. The HERS rating involves analysis of the home's construction plans and at least one on-site inspection. This information is used to estimate the home's annual energy costs and give the home an index between 0 and 100. The lower the score, the more efficient the home. The index is set up such that a home scoring 100 approximately complies with the 2006 IECC. A net zero energy home would score 0. Each reduction of one point equates to 1% reduction in estimated energy consumption. New Mexico is an example of a state that allows HERS scores for residential code compliance, see www.nmcpr.state.nm.us/nmregister/xxii/xxii03/14.7.6new.pdf.

CHAPTER 4 RESOURCES

1. Compliance Path Topic Brief	<i>Choosing an Energy Code Compliance Path</i> www.energycodes.gov/sites/default/files/documents/compliance_paths_topic_brief.pdf
2. REScheck	www.energycodes.gov/images/states-can-use-rescheck-show-compliance
3. COMcheck	www.energycodes.gov/images/states-can-use-comcheck-show-compliance
4. BECP Code Officials Resource Guide	www.energycodes.gov/sites/default/files/documents/BECP_Building Energy Codes Resource Guide Code Officials_October 2010_v00.pdf

Review the Design

CHAPTER 5

Plan review is one of the most important activities a code official undertakes.

A building design that passes plan review has a good chance of meeting the requirements of the energy code when it is actually constructed, as long as the builders and contractors working on the building follow the plans. Getting the design right is a key first step.

Code officials enforcing the energy codes will review a number of construction documents. The following information, with sufficient clarity to indicate location, nature, and extent of work proposed should be included in residential construction documents:

- Insulation materials and their R-values
- Air sealing details
- Fenestration U-factors and solar heat gain coefficients.

Commercial documents should include the items above as well as:

- Mechanical system design criteria
- Mechanical and service water heating system and equipment types, sizes, and efficiencies
- For HVAC, economizer description, equipment and system controls, fan motor horsepower, and controls
- For ductwork and piping, sealing, insulation, and location

- For lighting, fixture schedule with wattage and information on controls.

Plan review is a relatively straightforward activity IF all the necessary information is available on the plans and specifications. If the required information is not available, it can be a long, drawn-out activity. Code officials should not hesitate to ask for more information if they do not find what they need. Construction plans and specifications can be complex and the information may or may not be readily identifiable. DOE is currently upgrading a lot of its code support materials and software to put more of the burden on the designers and less on the code officials.

For example, rather than asking the designer to check a box that states that the building has an air barrier as required by Section C402.4.1 of the 2012 IECC, the new approach asks the designer to provide the location of information in the plans and specifications that can be used to confirm if the building has a proper air barrier.

This simple change in approach is expected to eventually make plan review much less burdensome to code officials.

In the future (possibly in the not-so-distant future in some jurisdictions), designers will be able to use computer aided design systems with building information modeling (BIM) capabilities to design their buildings and those systems will also have the ability to review for code compliance as the building is designed.

A topic brief has been prepared on this view of the future (Resource 3).

CHAPTER 5 RESOURCES

1. Residential Mechanical Equipment Loads and Sizing	www.energycodes.gov/sites/default/files/documents/HVAC_sizing_topic_brief.pdf
2. Additional Efficiency Package Options in the 2012 IECC	www.energycodes.gov/sites/default/files/documents/effic_options_topic_brief.pdf
3. Building Information Modeling and Demonstrating Code Compliance	www.energycodes.gov/sites/default/files/documents/BIM_topic_brief.pdf

Inspect the Building During and After Construction

A number of website resources offer checklists to help officials organize the many energy-code-related areas to inspect on the construction site.

Several examples of different checklists are listed below. When applicable and approved for use, REScheck and COMcheck inspection checklists should be provided as part of the energy code compliance documentation for the building.

- **REScheck/COMcheck checklists.** The REScheck and COMcheck software programs generate reports that list the energy-code-related items to be inspected. The lists include mandatory items such as air leakage control, duct insulation and sealing, temperature controls, and lighting requirements, and can be used by officials to assist during on-site inspections. The code official should ensure that the information provided in the REScheck/COMcheck documentation matches what is seen in the field.

Quick reference REScheck and COMcheck guides for the code official are available in the BECP Code Officials Resource Guide (see page 30 for REScheck and page 119 for COMcheck).

[www.energycodes.gov/sites/default/files/documents/BECP_Building Energy Codes Resource Guide Code Officials_October 2010_v00.pdf](http://www.energycodes.gov/sites/default/files/documents/BECP_Building_Energy_Codes_Resource_Guide_Code_Officials_October_2010_v00.pdf)

The Building Energy Codes Online Training includes modules on COMcheck and REScheck.

www.energycodes.gov/training-courses/comcheck101-2009-iecc

www.energycodes.gov/training-courses/rescheck101-2009-iecc

- **Building Energy Codes Resource Guide** (see chapters on Residential Inspections and Commercial Inspections). This particular resource guide was written specifically for code officials and contains over 200 pages of valuable information on plan reviews and inspections for both residential and commercial applications. [www.energycodes.gov/sites/default/files/documents/BECP_Building Energy Codes Resource Guide Code Officials_October 2010_v00.pdf](http://www.energycodes.gov/sites/default/files/documents/BECP_Building_Energy_Codes_Resource_Guide_Code_Officials_October_2010_v00.pdf)
- **ICC Energy Inspector's Guide**
The guide is designed to assist the field inspector in verifying code compliance and in completing energy field inspections efficiently and with relative ease by

identifying many common code requirements. The guide covers the 2009 IECC and ASHRAE Standard 90.1-2007. The Energy Inspector's Guide is available for purchase at

www.iccsafe.org/Store/Pages/default.aspx

- **California Energy Commission (CEC).** At this site there are separate columns for materials related to residential or nonresidential construction. Each column has links to flowcharts that list the steps needed during each stage of the enforcement process from plan review to construction inspection, to final inspection. Additionally, there are checklists and guides for inspectors giving detailed information on what to look for in many of the code requirements, such as insulation for heated slabs. Although written for California's unique energy code requirements (known as Title 24), the guides may be helpful for inspecting for compliance with other codes such as the IECC and ASHRAE Standard 90.1. www.title24learning.com/page.php?pg=resourselibrary.php²

² Note: You must cut and paste the link into your browser to avoid being redirected.

Specific Inspection Challenges and Resources

Some areas of on-site inspections can be challenging, and there are a number of resources available to provide detailed explanations and/or videos of what inspectors should be looking for and how to identify problems.

In this section a few problematic areas identified during BECP's compliance pilot studies are addressed, as well as links to resources targeting these areas.

LIGHTING

Determining lighting compliance, especially in commercial buildings, can be difficult. The following tips can help make the job easier.

- Rely on the lighting plans and specifications that were approved as part of the permitting process. These should contain the details on all equipment installed to meet

the energy code requirements. However, it is also good to have a checklist of the code requirements to check against the plans.

- If possible, consult with the building's lighting designer. They should be available to help locate specific installed controls (e.g., whole building shutoff systems) and provide verification of equipment types and wattages.
- For interior and exterior lighting power density compliance, refer to the lighting plans that were approved for energy code compliance as part of the permitting process. These will show the layout of the lighting fixtures in each space (reflected ceiling plans) and indicate equipment type (lighting schedule sheet). Selected rooms can be visited to verify fixture counts, as

well as lamp and ballast types installed.

- For controls such as occupancy sensors, refer to the design plan to identify which rooms contain the sensors. Rooms can then be randomly selected to verify the controls are functioning as required.

For residential requirements in the 2009 IECC, 50% of the lamps (bulbs) in permanently installed fixtures for the whole building (i.e., both inside and outside the dwelling) must be of a high-efficacy type. For residential requirements in the 2012 IECC, 75% of the lamps (bulbs) in permanently installed fixtures must be of a high-efficacy type or 75% of the permanently installed fixtures must contain only high-efficacy lamps. There are no control-related requirements in the 2009 or 2012 IECC for residential buildings.



INSULATION

It is critical that the insulation be properly installed in order for the full effectiveness of the insulation to be realized.

Even small gaps and compressed areas can reduce insulating levels significantly.

For example, compressing fiberglass insulation reduces its effectiveness such that it does not achieve the rated R-value.

The Residential Energy Services Network (RESNET) has set an industry standard for insulation installation. Although this standard is not required specifically in the energy codes, it is good practice and is referenced in ENERGY STAR for Homes Version 3.³ RESNET assigns insulation grades based on gaps and compression or incompletely filled areas, with Grade I being the best. For example, Grade I allows for “occasional very small gaps” and up to 2% of the insulated area can have compression or incomplete fill. For more information, visit RESNET at www.resnet.us/.

DOE’s Building Technologies Program (BTP) and Building America Program have several resources related to the proper installation of insulation in residential buildings. These resources do not cover the code requirements specifically but offer best practice suggestions.

- DOE’s BTP fact sheet, “Wall Insulation, Provide Moisture Control and Insulation in Wall Systems,” describes effective wall insulation and the various insulation types.
www.southface.org/factsheets/WI-Wallinsulation%2000-772.pdf
- DOE’s Office of Energy Efficiency and Renewable Energy offers an insulation fact sheet focused on homes and discusses why homes should be insulated and how insulation works.
www.ornl.gov/sci/roofs+walls/insulation/ins_01.html
- A Building America Partner, Building Science Corporation has an information sheet, “Installation of Cavity Insulation for All Climates,” that covers the installation techniques important to achieving the effective performance of cavity insulation.
http://apps1.eere.energy.gov/buildings/publications/pdfs/building_america/cavity_insulation.pdf
- Another Building Science Corporation information sheet covers slab edge insulation, “Slab Edge Insulation for All Climates.”
http://apps1.eere.energy.gov/buildings/publications/pdfs/building_america/slab_edge_insulation.pdf



³ www.energystar.gov/index.cfm?c=bldrs_lenders_raters.nh_v3_guidelines

- An article in Home Energy, “Insulation Inspections for Home Energy Ratings: Assessing insulation gaps, compression, and incomplete fill provides a way to measure installation effectiveness,” provides additional information on quality insulation installation. [www.bestofbuildingscience.com/pdf/Insulation inspections for home energy ratings HEM_22-1_p20-23.pdf](http://www.bestofbuildingscience.com/pdf/Insulation%20inspections%20for%20home%20energy%20ratings%20HEM_22-1_p20-23.pdf)
 - Southface Energy Institute’s Energy technical bulletins include several related to insulation installation. www.southface.org/learning-center/library/southface-factsheets
 - Northwest Energy Star critical details come in the form of color checklists and photos that depict both poor and proper installations of insulation. www.northwestenergystar.com/sites/default/files/resources/Critical-Details-Overview.pdf
 - The CEC developed a variety of educational videos to support energy code adoption, compliance, and enforcement. Videos are available that provide overviews of the five most common types of insulation.⁴
 - Cellulose insulation: www.energyvideos.com/crs_MM.php?S=1&L=20&C=204&M1=437&M2=784
 - Fiberglass insulation: www.energyvideos.com/crs_MM.php?S=1&L=20&C=204&M1=437&M2=785
 - Spray foam insulation: www.energyvideos.com/crs_MM.php?S=1&L=20&C=204&M1=437&M2=786
 - Structural insulated panels: www.energyvideos.com/crs_MM.php?S=1&L=20&C=204&M1=437&M2=787
 - Rigid foam insulation: www.energyvideos.com/crs_MM.php?S=1&L=20&C=204&M1=437&M2=782
- Most of these materials apply to commercial building installation as well.

CHAPTER 7 RESOURCES	
1. Lighting Topic Brief	www.energycodes.gov/sites/default/files/documents/lighting_topic_brief.pdf
2. BECP Inspection Checklists	<i>Residential</i> www.energycodes.gov/sites/default/files/documents/residential_checklists_iecc2009_0.zip
	<i>Commercial</i> <ul style="list-style-type: none"> • 2009 IECC—www.energycodes.gov/sites/default/files/documents/commercial_checklist_iecc2009_0.zip • ASHRAE Standard 90.1-2007—www.energycodes.gov/sites/default/files/documents/commercial_checklist_90.1-2007_0.zip
3. BECP Training Material	Over a dozen instructional videos relating to framing, duct sealing, insulation, lighting controls, air leakage, commissioning, and others. www.energycodes.gov/resource-center/eLearning
4. Southface	The Building Energy Codes section of the Southface website contains field guides for both residential and commercial applications for Georgia, Alabama, and Mississippi. Although specific to the energy codes applicable in each of these states, they could easily be applied in other states. The field guides contain examples from over 50 chosen provisions of the IECC together with diagrams and photographs allowing the user to easily visualize the provision. Each field guide is accompanied by a 10-15 minute video offering further explanations on use of the guide. www.southface.org/learning-center/library/building-energy-codes

⁴ Note: You must cut and paste the link into your browser to avoid being redirected.

Observe, Review, and Ensure Testing, Commissioning, and Owner Documentation

This section covers requirements in the codes that are not really amenable to plan review or field inspection.

These requirements include the results of testing, balancing, and commissioning, as well as documentation requirements.

Testing, Balancing, and Commissioning

These terms are used in various combinations with or without definition in all energy codes covered herein. The intent of all these requirements is to ensure that the building or system—as constructed—performs the way it is supposed to perform. This subject is covered in more detail in a topic brief entitled “Getting It Right.” This area is also covered in more detail in a section in the Compliance Toolkit entitled “Ensuring the Building Operates as Intended.”

Documentation Requirements

Most of the documentation requirements found in energy codes are provided to the code official to ensure compliance. However, there are also specific requirements for items that must be provided to the building owner in some codes. These items are typically items like as-built documents, narratives on how the building or its systems are designed to work, and proof that the building meets code. The items in the table below are specifically required in the IECC and ASHRAE Standard 90.1 to be provided to the building owner.

Residential Codes

ITEM	2009 IECC	2012 IECC
Maintenance Instructions	Required to be furnished in Section 303.3 but no mention of who they should be provided to.	Required to be furnished in Section R303.3 but no mention of who they should be provided to.
Permanent Certificate	401.3.	R401.3.



Commercial Codes

ITEM	ASHRAE STANDARD 90.1-2007	ASHRAE STANDARD 90.1-2010	2009 IECC	2012 IECC
Maintenance Instructions	Part of manuals.	Part of manuals.	Required to be furnished in Section 303.3 but no mention of who they should be provided to.	Required to be furnished in Section C303.3 but no mention of who they should be provided to.
Commissioning Plan	Required in Section 6.7.2.4 for large HVAC systems, but no specific mention of building owner receiving it.	Required in Section 6.7.2.4 for large HVAC systems, but no specific mention of building owner receiving it.	Not required.	Implicit in fact that commissioning is required.
Preliminary & Final Commissioning Report	Not required.	Not required.	Not required.	Section C408.2.4 and C408.2.5.4.
Drawings	Section 6.7.2.1 for HVAC, Section 8.7.1 for Power.	Section 6.7.2.1 for HVAC, Section 8.7.1 for Power, 9.7.2.1 for Lighting.	Not required.	Section C408.2.5.1.
Manuals	Section 4.2.2.3, Section 6.7.2.2 for HVAC, Section 8.7.2 for Power.	Section 4.2.2.3, Section 6.7.2.2 for HVAC, Section 8.7.2 for Power, 9.7.2.2 for Lighting.	Section 503.2.9.3 (does mention maintenance manuals).	Section C408.2.5.2 (does mention maintenance manuals).
System Balancing Report	Section 6.7.2.3.1.	Section 6.7.2.3.1.	Required in Section 503.2.9.1 and 503.2.9.2, but no mention of building owner receiving it.	Section C408.2.5.3.



Direct assistance on building energy code questions is available from several sources.

1. BECP Helpdesk
www.energycodes.gov/resource-center/help-desk
2. ICC Technical Opinions and Interpretations
www.iccsafe.org/cs/Pages/opinions.aspx
3. ASHRAE Standards Interpretations:
 - ASHRAE Standard 90.1-2007 Interpretation
www.ashrae.org/standards-research--technology/standards-interpretations/interpretation-for-standard-90-1-2007
 - ASHRAE Standard 90.1-2010 Interpretation
www.ashrae.org/standards-research--technology/standards-interpretations/interpretation-for-standard-90-1-2010

In addition, there are many training courses available to learn more about specific code requirements.

BECP TRAINING COURSES	
1. Residential Requirements of the 2009 IECC	www.energycodes.gov/training-courses/residential-requirements-2009-iecc
2. Residential Requirements of the 2012 IECC	www.energycodes.gov/training-courses/residential-requirements-2012-international-energy-conservation-code
3. Commercial Building Envelope Requirements of the 2009 IECC	www.energycodes.gov/training-courses/commercial-envelope-requirements-2009-iecc
4. Commercial Lighting Requirements of the 2009 IECC	www.energycodes.gov/training-courses/commercial-lighting-requirements-2009-iecc
5. Commercial Mechanical Requirements of the 2009 IECC	www.energycodes.gov/training-courses/commercial-mechanical-requirements-2009-iecc
6. Requirements of ASHRAE Standard 90.1-2007	www.energycodes.gov/training-courses/ansiashraeiesna-standard-901-2007
7. Requirements of ASHRAE Standard 90.1-2010	www.energycodes.gov/training-courses/ansiashraeies-standard-901-2010

NOTES

ACE

LEARNING SERIES

**ADOPTION,
COMPLIANCE
& ENFORCEMENT**

Building Energy Codes **ENFORCEMENT TOOLKIT**

EERE Information Center

1-877-EERE-INFO (1-877-337-3463)

www.eere.energy.gov/informationcenter

September 2012

PNNL-SA-90467



Building Energy Codes

For information on Building Energy Codes,
visit www.energycodes.gov