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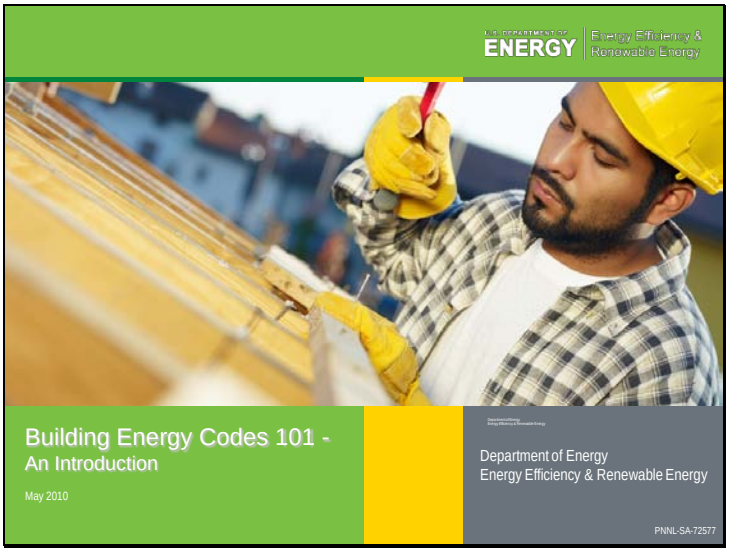

Welcome to **Building Energy Codes 101**, from the U.S. Department of Energy's Building Energy Codes Program (BECP). This resource is designed as a brief primer on the motivations, challenges, and processes involved in striving for greater energy efficiency in buildings—particularly through codes and standards. This tool is **designed for multiple uses**: follow these "speaker notes" for self-training, or use them to present to others.

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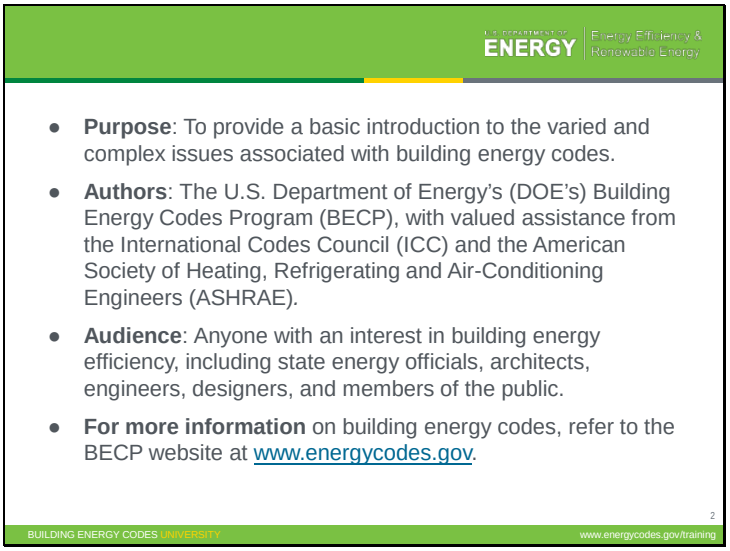

A few definitions…

The term "Building Energy Codes" is used within this presentation as a generic term that includes ASHRAE 90.1 (a standard), the IECC (a code), and other forms of building energy standards, guidelines, laws, rules, etc.

These are adopted as part of the larger body of building codes and required to be satisfied as a condition for approval to construct and occupy buildings.

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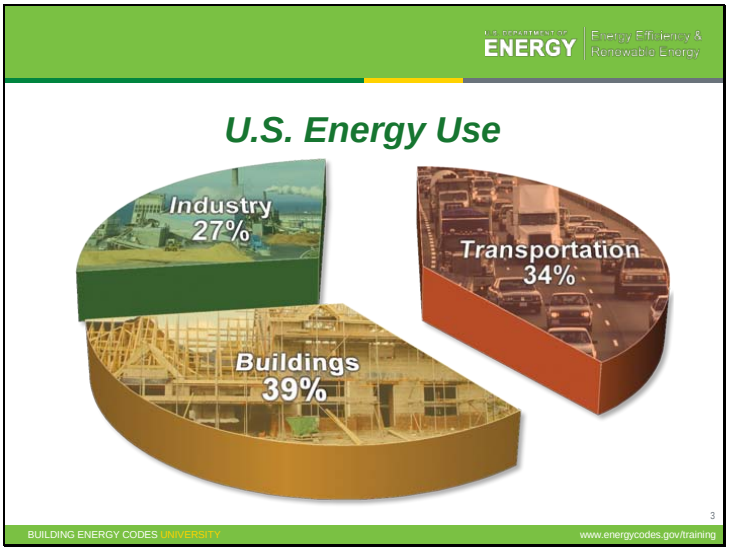

Energy use in buildings makes up a very significant piece of the pie. Thus, it has a direct impact on the greatest challenges of our time, including:

- Economic well-being for individuals, businesses, and governments
- Dependence on foreign oil and national security
- Global climate change.

Even **human health** is at stake—for many families, rising energy costs make it unaffordable to sustain a comfortable, conditioned indoor environment.

Some sobering statistics help drive home the reality of building energy use:

- Nearly 5 million commercial buildings and 115 million residential households in the United States consume over 40 percent of the nation's total primary energy
- Buildings consume 70 percent of electricity in the United States
- In 2007, carbon dioxide emissions attributable to lighting, heating, cooling, cooking, refrigeration, water heating, and other building services totaled 2517 million metric tons—40 percent of the U.S. total and 8 percent of the global total.

Clearly, **building energy use must be addressed** to protect the interests of individual consumers, our nation, and the world. Building energy codes are a critical component of the effort to curb the ever-growing impacts of building energy use.

But why codes?

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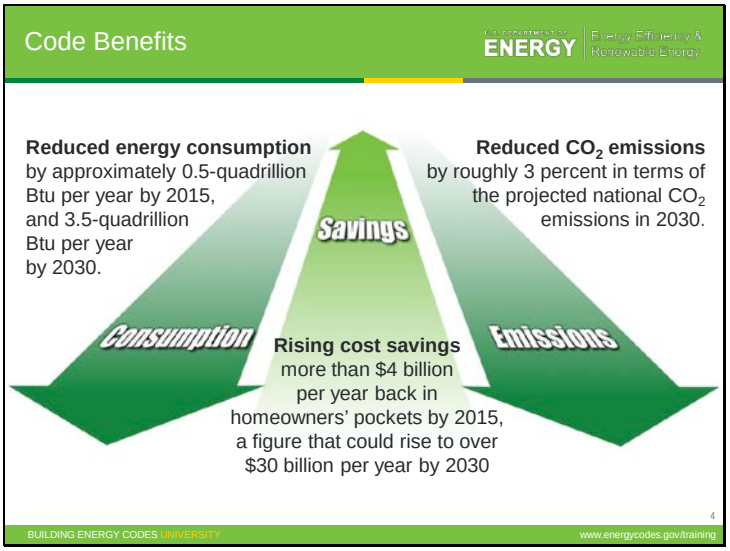

Building energy codes set minimum efficiency boundaries that **bring about vital, tangible benefits.**

Not surprisingly, better codes mean better benefits. Recent research shows that if building energy codes* were upgraded to be 30 to 50 percent more stringent, adopted among states, and effectively implemented, excellent progress would be made in the areas of energy consumption, cost savings, and CO_2 emissions reduction:

- **Reduced energy consumption—**by approximately 0.5-quadrillion Btu per year by 2015, and 3.5-quadrillion Btu per year by 2030. This is equivalent to the power generated by 260 medium power plants.
- **Rising cost savings—**more than $4 billion per year back in homeowners' pockets by 2015, a figure that could rise to over $30 billion per year by 2030. *Even accounting for increased up-front efficiency investment costs*, net benefits are quite significant.
- **Reduced CO_2 emissions—**by roughly 3 percent in terms of the projected national CO_2 emissions in 2030.

*2006 International Energy Conservation Code® (IECC) and ANSI/ASHRAE/IESNA5 Standard 90.1-2004

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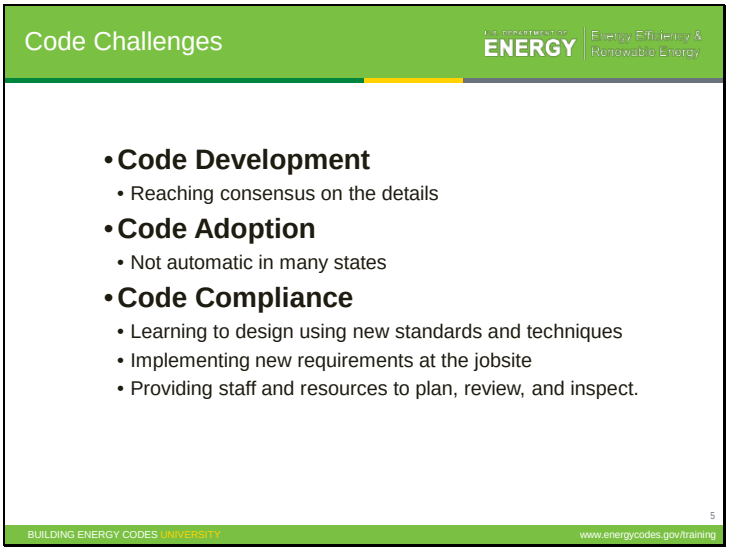


Despite these clear benefits, the road to achieving them is challenging.
To be effective, building energy codes must first be painstakingly developed, then go through a complex, coordinated process that includes code adoption, implementation, compliance, and enforcement by states and other jurisdictions.

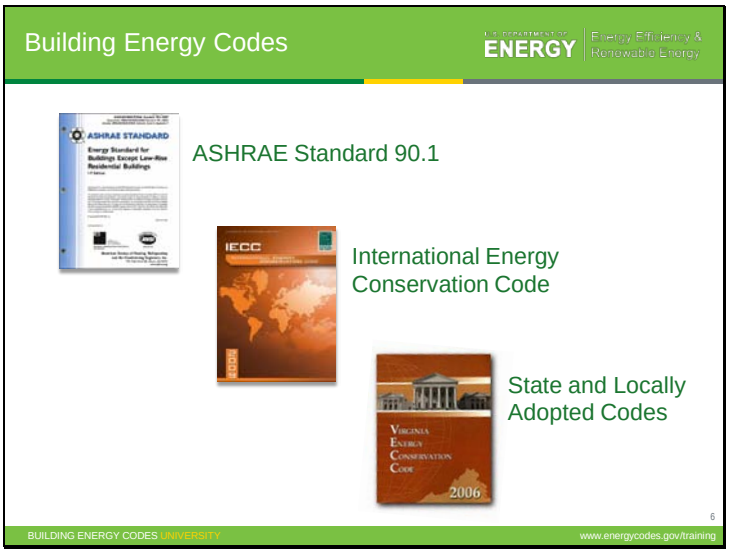
One **example of a code challenge** is that code adoption is not automatic in most states. Without statewide adoption, local jurisdictions are left without state guidance or resources, and builders on the ground can face a confusing patchwork of codes across their region. Adding complication, the challenges of implementation, compliance, and enforcement vary with different jurisdictions; lack of both training and manpower are often cited as roadblocks to proper enforcement.

As with any aspect of building codes, plan review and inspections **take time**, and this must be accounted for in department staffing. **Training** is also critical across the design, building, and enforcement communities. Not only is there a need for understanding new code **language**, but new construction **techniques**, **materials,** and **technologies** must also be considered and learned.

Now that the broad-strokes benefits and challenges are understood, **let's move to a deeper level of detail** (in the next few slides):

» **What terms should be defined?**
» **What do building energy codes and standards cover?**
» **Which particular codes and standards are we talking about?**
» **How are these codes and standards developed?**

Slide 6



When people speak in general about Building Energy Codes, they may be referring to:

- ASHRAE Standard 90.1 Standards
- The International Energy Conservations Code, or IECC
- State and locally adopted codes.

So, what building features are covered?

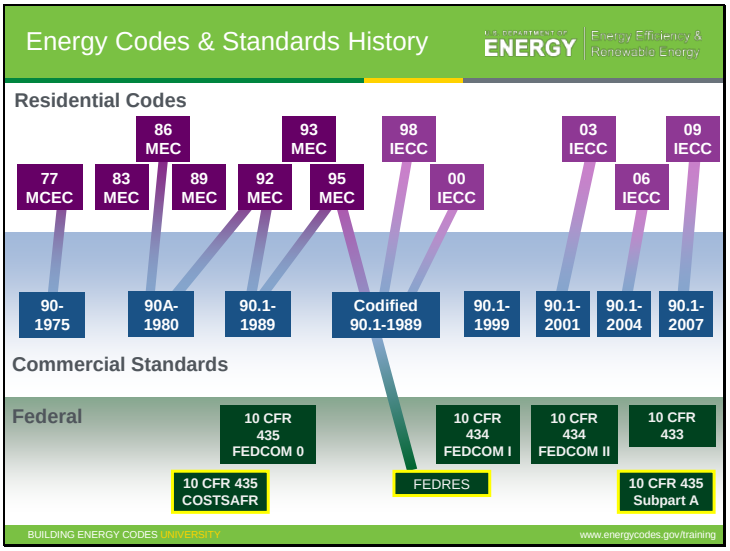
Slide 7

Building energy codes are **minimum requirements** for energy-efficient design and construction for new and renovated residential and commercial buildings. Using them doesn't necessarily equal (what some refer to as) "green" building. Building energy codes are a solid baseline of requirements—but they do set the standard by which "above-code" efforts are defined.

So, what specific parts of buildings do they cover?
Simply put, they apply to a building's envelope (the materials that make up its outer shell) as well as its systems and built-in equipment. These will be described in more detail later in this presentation.

The life cycle of a building is decades or even centuries long. As minimum requirements in these vital areas are improved, future generations will receive more efficient and less costly living and working environments.

Slide 8



Legend: boxes highlighted in yellow are residential only; boxes highlighted in maroon are commercial only

- The 92 MEC allowed 90.1-1989 for commercial.
- The 93 MEC specifically references 90.1-1989.
- The 95 MEC changes the ASHRAE reference to the 1993 codified version.
- In 1998, the change is made to the IECC, and a new commercial chapter is added as a simplified approach limited to low-rise commercial buildings with “simple” mechanical systems.
- 90.1-1999 is a complete revision to the previous version and is written in mandatory, enforceable language.
- The 2000 IECC commercial chapter was broadened to include ALL commercial buildings.
- The 2001 IECC changes the ASHRAE reference to 90.1-1999.
- 90.1-2001 includes addenda
- 2003 IECC changes the ASHRAE reference to 90.1-2001.
- 90-1975 “Energy Conservation in New Building Design” was the first to comprehensively address the design and construction of new buildings from an energy standpoint.
- The 83, 86, and 89 MEC are based largely on 90A-1980.
- 90.2-1993 is a complete revision of 90A-1980 for low-rise residential buildings.
- The 2000 IECC added a residential prescriptive compliance approach.
- 90.2-2001 revises 90.2-1993 and includes a number of addenda.

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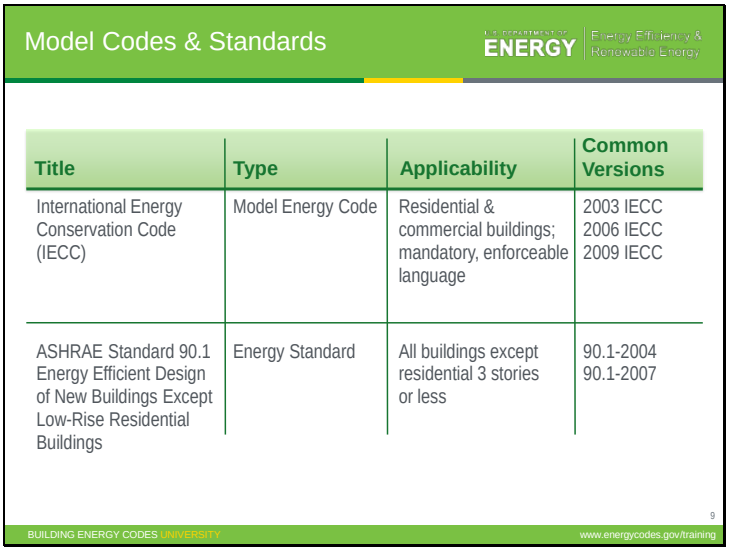


This table describes the **building codes** that are currently at different stages of adoption among U.S. states and jurisdictions:

Currently, the 2009 IECC and ASHRAE Standard 90.1-2007 make up the latest baseline codes and standards, though further versions are always being developed.

Their applicability is listed in the table, and the publications themselves are **developed, revised, and adopted in open public forums.**

Because of their related nature and the necessity to **cover both commercial and residential buildings**, the 2009 IECC and ASHRAE Standard 90.1-2007 are also available in a combined book. These particular versions have received a lot of recent attention because they are referred to in the American Recovery and Reinvestment Act. At the end of this presentation we provide information on where to purchase the codes.

Slide 10

Which Codes Apply in Which Building Types?

The IECC applies to both residential and commercial buildings. Updated every three years, the most current version available is the 2009 IECC.

ASHRAE 90.1 applies to commercial buildings (including multi-family high-rise buildings). Also updated every three years, the most current version available is ASHRAE 90.1-2007.

While both the IECC and ASHRAE 90.1 may be used for many complex commercial buildings, ASHRAE 90.1 is likely the choice for the following reasons:

- The energy cost budget approach of ASHRAE 90.1 is used in the modeling that is often performed on the buildings
- Some lighting designers prefer the space-by-space approach
- It addresses the more complex mechanical systems more comprehensively than the IECC.

Slide 11

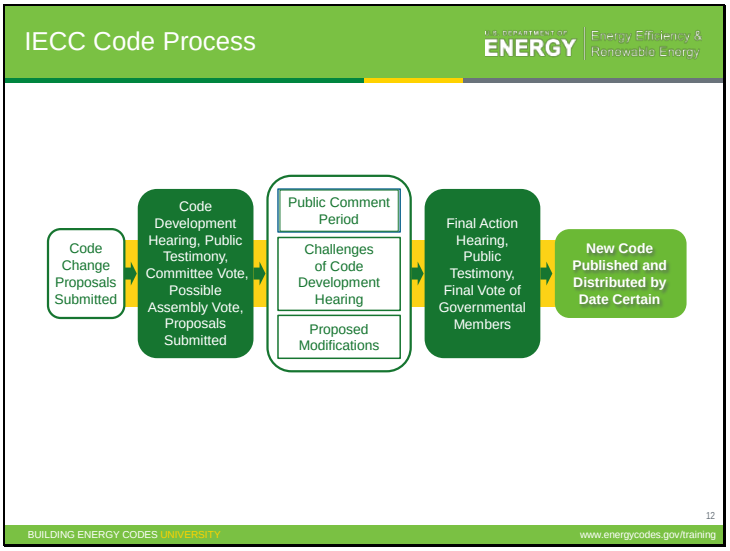
A community of professionals from diverse areas of government and industry collaborate to develop building energy codes.

Both the IECC and ASHRAE 90.1 are developed, revised, and adopted in open public forums. The openness and transparency of these processes is critical to widespread acceptance of the end result. Stakeholders representing a cross-section of interests are involved in maintaining these documents, and they include:

- The design community, including architects, lighting designers, and mechanical and electrical engineers
- The code enforcement community, including building code officials, representatives of code organizations, and state and local regulatory agencies
- Builders and contractors
- Building owners and operators
- Industry and manufacturers for the building industry
- Utility companies
- Energy advocacy groups
- The academic community
- Federal agency staff, including DOE's Building Energy Codes Program (BECP).

Next, we'll get into the **detailed processes** in which these professionals engage to develop more efficient and effective building energy codes.

Slide 12



The IECC is revised every three years through the well-defined revision process shown in this flow chart. The details of this process are described here.

Anyone may propose a revision to the IECC by submitting suggested changes and supporting documentation. The International Code Council (ICC) publishes proposed changes and distributes them to the public for review. This review occurs about six weeks prior to an open public hearing held to discuss the proposed revisions.

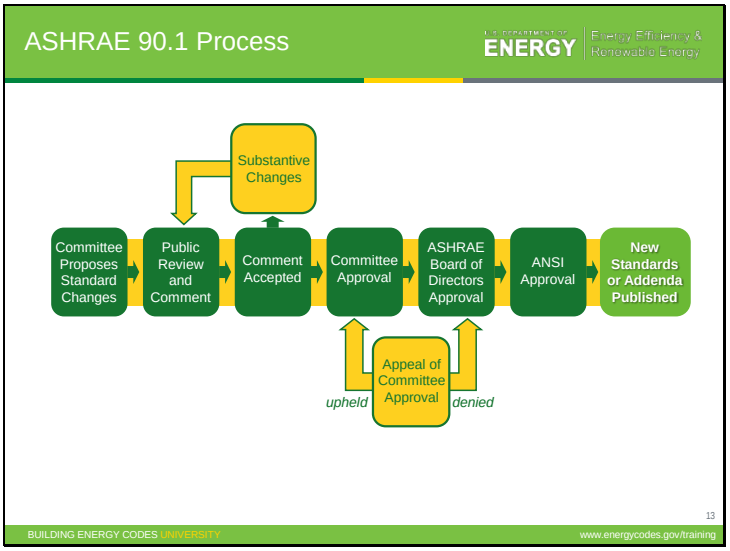
At the public hearing, testimony for and against each code change proposal is presented to a **Code Development Committee of 7 to 11 individuals appointed by the ICC**. The committee is represented by government members, code officials, home builder representatives, industry groups, and other interested and affected parties.

The committee receives testimony and then votes to recommend a disposition on each change (approve, deny, or approve as modified at the hearing). The committee's decision may be overturned by a "**floor action**"—a two-thirds affirmative vote of ICC members in attendance. The ICC publishes the results of the first hearing, and those wishing to **challenge the results of the first hearing** may submit a public comment proposing the change. Their submission will place the code change on the agenda for a **second public hearing**. All public comments are published so that interested parties can present additional information on each change at a second public hearing. The final disposition of all changes is then decided by a **vote of the governmental members** (as distinguished from industry members) of ICC in attendance at the second public hearing.

Slide 12 continued

The ICC process allows for an **appeal to the ICC Board of Directors** concerning the action of the second hearing. Those changes approved at the second hearing are then implemented in the IECC, and the finished documents represent the next edition of the IECC. **Code Development Hearings are released three months after the hearings**. Any interested and affected party is allowed to submit public comments up to six months after the results are released. The **Final Action Hearings** are held approximately four months after public comments are received. The final printed version of **IECC is typically released in the calendar year following the Final Action Hearings**. The most recently published ICC energy code is the 2009 IECC. The final public hearings for the 2012 IECC are scheduled for October 2010. All of the proposed changes approved during the final action hearings will be published in the 2012 IECC.

Slide 13



The details of the ASHRAE Standard 90.1 development process are described here.

ASHRAE 90.1 is maintained continually through the development, review, and issuance of addenda to the Standard with approved addenda collected and a new edition published every three years. ASHRAE establishes project committees (the consensus body) of a minimum of five voting members from a broad representation of stakeholders. In some instances, ASHRAE will co-sponsor standard development. In the case of ASHRAE 90.1, their co-sponsor is IES.

After the committee proposes and approves, for public review, addenda to the standard, those addenda are approved by the Standards Project Liaison Subcommittee and are then made available for public review. Commenters provide written comments and the committee must address those comments and attempt to resolve the commenter either by accepting their comment in some manner, or if not, advising the commenter why their comment cannot be accepted. Once all commenters indicate the issues are either resolved, are unresolved (but do not wish to delay publication), or are unresolved, then the revision to the standard moves forward for approval. The committee responsible for the maintenance and revision of ASHRAE 90.1 for each addendum attempts to reach a resolution with the commenter. In some cases, this requires a further revision to the proposed addendum; in others, an impasse is reached. If the changes proposed are considered non-substantive, then another public review is not necessary; the revisions to the Standard will then move forward for publication approval. Changes deemed substantive require additional public review. Occasionally, when the committee maintaining and revising ASHRAE 90.1 feels the changes can be approved (either because there are no outstanding unresolved comments, or if there are some, they are resolved or cannot be resolved), the revisions to the standard are submitted for approval to the ASHRAE Standards Committee, the Technology Council, and then the Board of Directors.

Slide 13 continued

Those who have submitted unresolved comments can appeal the Board of Directors' approval. An ASHRAE Appeals Panel reviews the record and addresses the appeal. If the appeal is upheld by the panel, the revision is sent back to the ASHRAE 90.1 committee for further work. If it is not upheld, the Board of Directors' approval stands, the addendum is approved by the American National Standards Institute (ANSI), and the addendum proceeds to publication if no appeals are received at ANSI. Unresolved commenters that have completed the ASHRAE appeals process may appeal the ANSI approval of the addendum. If the appeals at ANSI are denied or no appeals are received, then the addendum is published.

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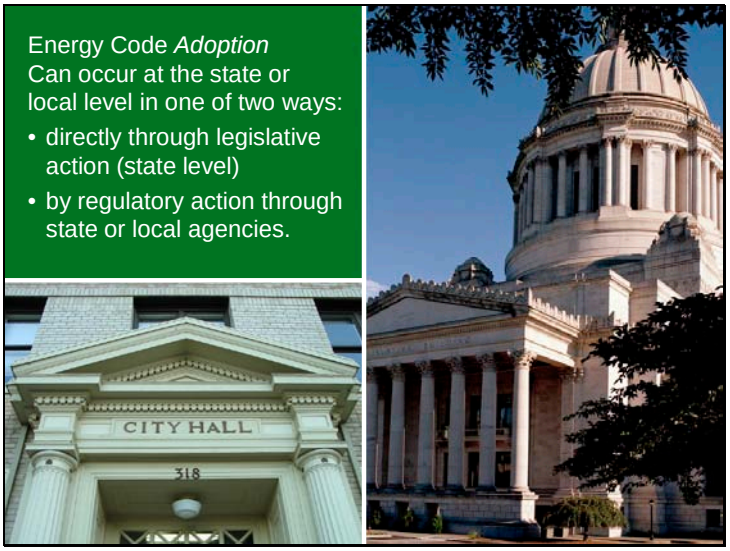

Once building energy codes are developed, they are merely books on the shelf until governing bodies adopt (and sometimes adapt) them into laws.

Adoption of energy codes can occur in one of two ways:

- Directly through legislative action
- By regulatory action through agencies authorized by the legislative body to oversee the development and adoption of codes.

When adoption is accomplished **through legislation**, a committee may be appointed to provide recommendations and/or draft the legislation.

When adoption occurs **through a regulatory process**, states and local governments often appoint an advisory body comprising representatives of the design, building construction, and enforcement communities. This advisory panel recommends revisions that should be considered for adoption. In basing their recommendations on model energy codes, the advisory panel considers modifications to the model codes to account for local preferences and construction practices. The panel also may serve as a source of information during the adoption process. Their recommendations then enter a public review process.

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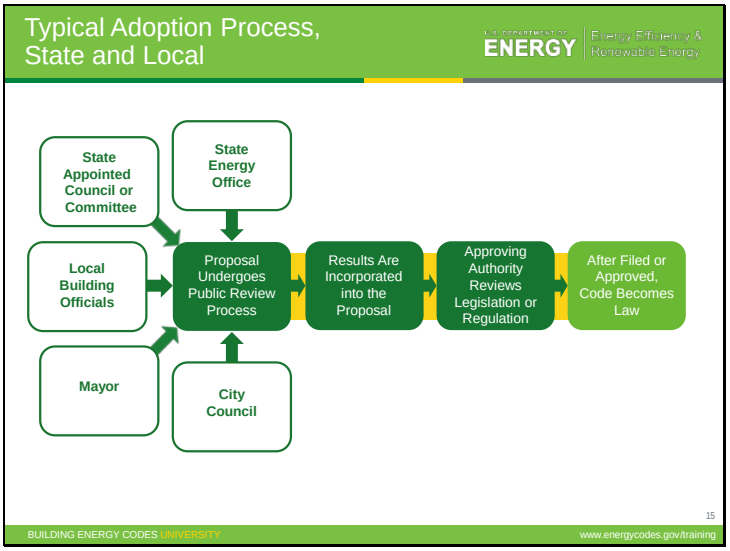


The code adoption process *generally* includes the following steps (details of the adoption process vary depending on whether the energy code is adopted by legislation or regulation at a statewide or local government):

- A change is initiated by a legislative or regulatory agency with the authority to promulgate energy codes. Interested or affected parties also may initiate a change. An advisory body typically is convened and will recommend a new energy code or revisions to an existing energy code. **Examples of typical initiators include State Energy Office, State Appointed Energy Code Council, Local Building Officials, Mayor, or City Council.**

    - **Particularly when the change is not initiated at the state level, local building officials or policy makers may initiate change within their jurisdiction.**

- The proposal undergoes a public review process consistent with the legislative or regulatory process under which the code is being considered. Public review options include publishing a notice in key publications, filing notices of intent, or holding public hearings. Interested and affected parties are invited to submit written or oral comments.

Slide 15 continued

- The results of the review process are incorporated into the proposal, and the final legislation or regulation is prepared for approval.

- The approving authority reviews the legislation or regulation. Revisions may be submitted to the designated authority for final approval or for filing.

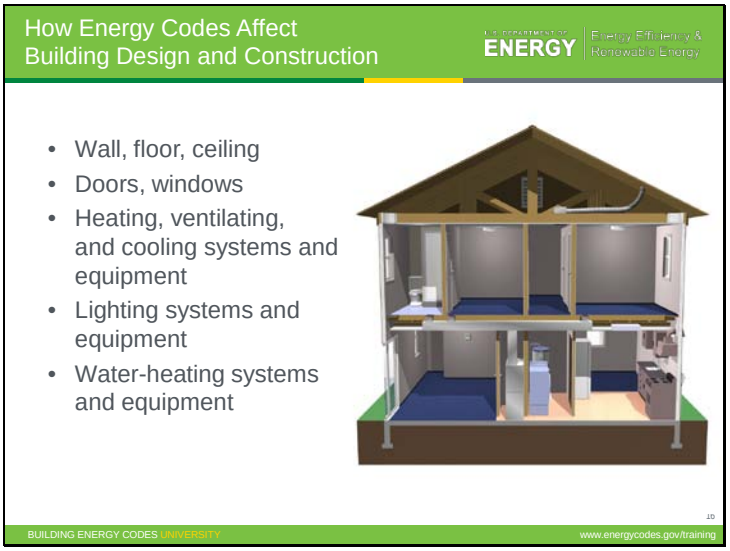
- After being filed or approved, the code becomes effective, usually on some specified future date.

This delay creates a grace period that allows those regulated to become familiar with any new requirements. The period between adoption and effective date typically varies from 30 days to six months.

So that's the policy side of building energy codes. Once codes are adopted, they apply to design and construction in new and renovated buildings.

Now let's shift from the hearing room to the design board–and further, to the jobsite.

Slide 16



Baseline building energy codes—the IECC and ASHRAE 90.1—currently address the energy-efficiency requirements for the design, materials, and equipment used in nearly all new construction, additions, renovations, and construction techniques.

These requirements affect the overall energy efficiency of any structure and can reduce the energy needed to maintain a healthy, comfortable, and fully functioning indoor environment. Quite comprehensive in nature, these energy codes apply to:

- Wall, floor, and ceiling
- Doors and windows
- Heating, ventilating, and cooling systems and equipment
- Lighting systems and equipment
- Water-heating systems and equipment.

Note that both the IECC and ASHRAE 90.1 provide for exceptions; however, the vast majority of buildings must comply with the codes.

Slide 17

Efficiency by Design: *Codes and Architecture*

Architects need to design buildings that meet all the adopted local building codes **within the building owner's budget**.

Complying with a building energy code is an additional challenge and affects the design of all building systems (e.g., building envelope, heating, ventilation, and air conditioning (HVAC), and lighting). Complying with energy codes also affects the materials selected for the building by requiring, for example, glazing with correct efficiencies, proper insulation levels, and lighting controls that meet the intent of the code.

To minimize the first cost for the project, the architect must work collaboratively with the HVAC and lighting designer to optimize the building design and take advantage of the increased efficiencies in the building. For example, increased insulation levels and efficient windows coupled with an efficient lighting system will reduce the heat loss from the building and heat gain from the lighting system. **With such efficiencies in place, the HVAC contractor can optimize the heating and cooling system to reduce the higher first costs of the building's increased efficiencies**. The benefit for the building owner is reduced utility bills for the life of the building.

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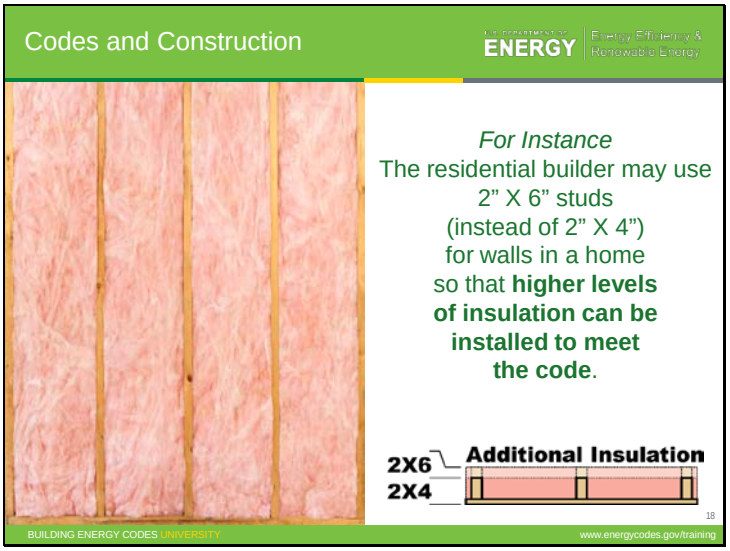

Building for the Future: *Codes and Construction*

Builders face similar compliance challenges with local building codes and applicable energy codes. They must keep the building within budget, whether it is established by the building owner or their own business model.

The builder must select products and materials that best fit the design of the building and satisfy the requirements of the energy code. For example, the builder may use 2" X 6" studs (instead of 2" X 4") for walls in a home so that higher levels of insulation can be installed to meet the code. Increasing the wall framing sizing will impact the cost of finish materials used in the building and may affect its design.

As with architects, builders must collaborate with their subcontractors to take advantage of the reduction in system sizes that result from the increased efficiencies installed in the building. Buildings that comply with an energy code will have **higher levels** of efficient materials and systems, **leading to a decrease in the first cost for the efficiency measures.**

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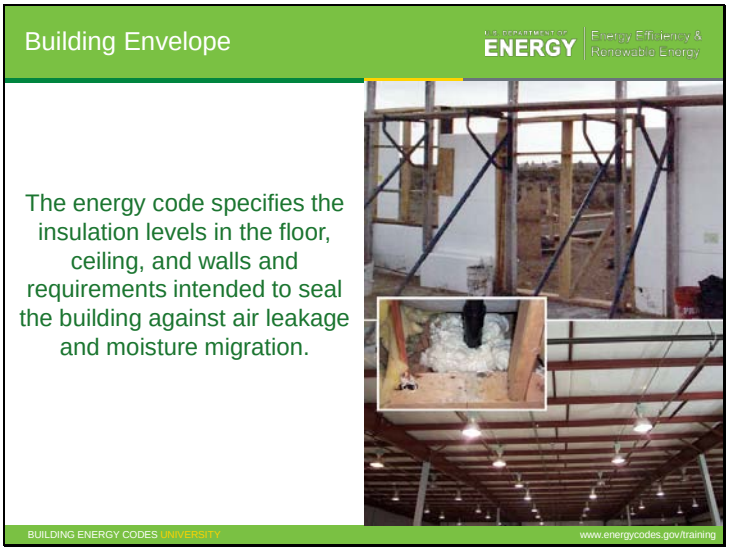

Local climate plays a role in building energy code requirements–especially with respect to **materials and techniques** used to construct the **building envelope**.

Code requirements specify the insulation levels in the **floor, ceiling, and walls** and are intended to seal the building against air leakage and moisture migration. The defined energy-efficiency levels of doors and windows take into consideration heat loss and gain. **Daylighting,** the practice of placing windows to maximize natural light use, is also taken into account. Designers and contractors must make sure that the building materials and installation are **completed as specified** for the building to comply with the code.

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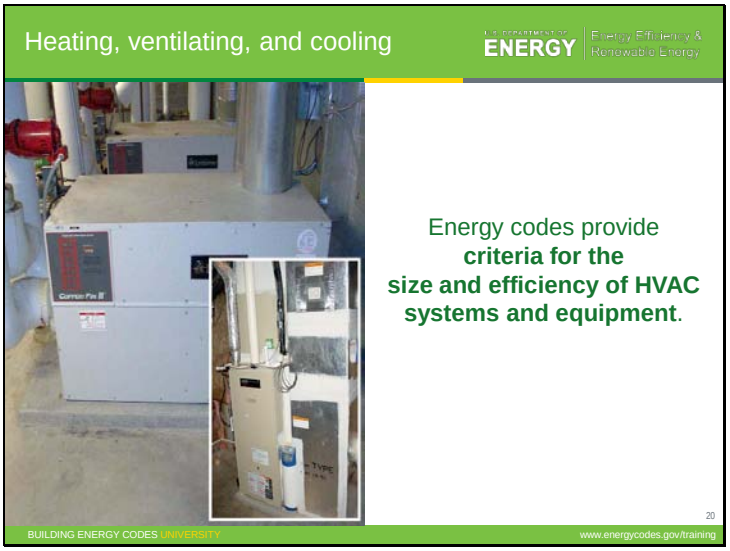

Of course, much of a building's energy use comes in the form of its heating, ventilation, and air conditioning (HVAC) systems.

HVAC systems are composed of equipment that **creates conditioned air or tempered liquid**, conveys air or liquid **through passageways** (ducts and plenums) or pipes, and **automatically regulates** the amount to be conveyed via recirculation or exhausting. HVAC system efficiency can be improved by adding equipment that can convert delivered gas or electric power efficiently or by using economizers, which allow the automatic use of outside air or allow users to regulate space conditions.

Energy codes provide minimum criteria for the size of HVAC systems and equipment, taking into consideration the energy demands of the building space.

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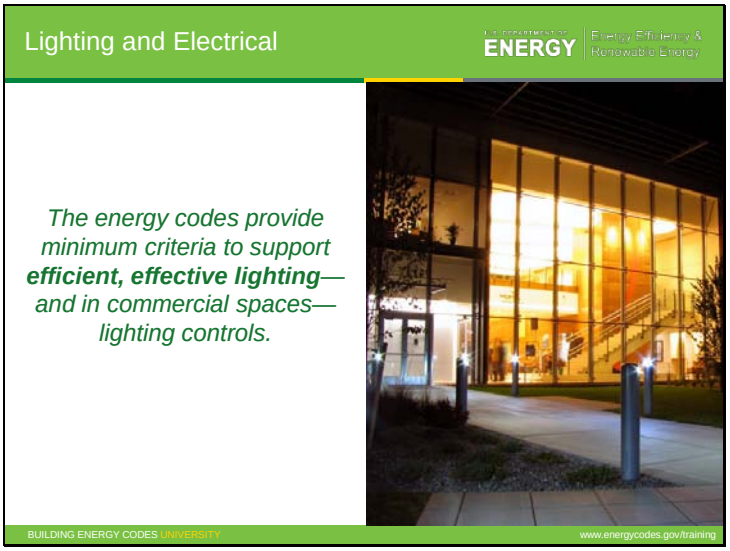


Lighting and electrical systems are another primary source of building energy use.

Energy **efficiency for lighting is gained** by:

- Using efficient sources of illumination
- Considering the number and location of lights throughout the space
- Considering the control systems for appropriate operation.

Building energy codes provide minimum criteria to provide effective lighting control. Motor and transformer efficiency is also covered in this area.

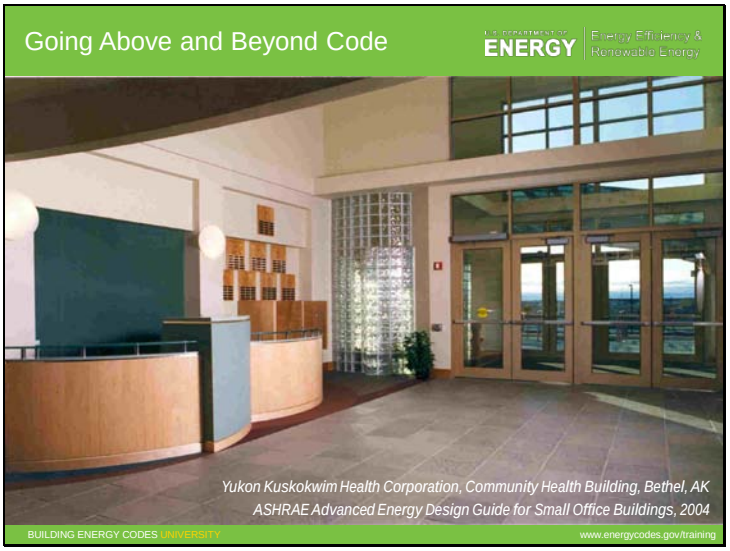
Slide 22

Another everyday form of building energy use is the provision of hot water.

Water-heating energy efficiency **depends upon water-heating equipment, delivery, and operational controls**.

Energy codes provide criteria for such issues as insulating circulating hot water systems, service water heating equipment performance efficiencies in commercial applications, heat traps, controls and pool heaters.

Slide 23



What is the relationship between beyond-code programs and the baseline energy codes and standards?

Designers, builders, plan review and inspection staff, and all interested parties still need to thoroughly understand the underlying baseline energy code when working with a **stretch-** or **beyond-code** program.

Most above-code programs use the IECC and/or ASHRAE 90.1 as a **baseline**, with additional requirements beyond that. Jurisdictions are **both mandating the programs** and offering them as **voluntary compliance tools**.

These codes vary widely in scope—from a simple requirement to comply 10% above the current IECC, to comprehensive programs such as Green Globes and the U.S. Green Building Council's Leadership in Energy & Environmental Design (LEED). As of August 2009, there were over 300 such beyond-code programs adopted by states and jurisdictions nationwide.

Building energy efficient materials and methods that are included in stretch and above-code programs are often submitted to the IECC or ASHRAE development process for consideration. **Above-code programs are used to the make efficiency improvements in the residential and commercial building marketplace**. Once the efficiency features have saturated the market and have become common practice, it is then proposed as a change to the code so that it will become mandatory for all buildings. High efficacy lighting systems for residential homes is an example of this. The New Building Institute's Core Performance Guide has also been codified and submitted as proposed code change to increase the efficiency of commercial buildings.

Slide 23 continued

One source of guidance in designing above-code is the ASHRAE Advanced Energy Design Guide series. Each guide is geared toward a specific type of building, for example retail or warehouse, and provides specific guidance in achieving a target of 30% energy savings over ASHRAE 90.1-1999.

Slide 24

In this training, we've followed the **basic life cycle of building energy codes**, from their very inception in public forums to their adoption by jurisdictions and application in the building industry. **The final stage—implementation by designers and the building industry, and enforcement by the adopters —is absolutely vital.**

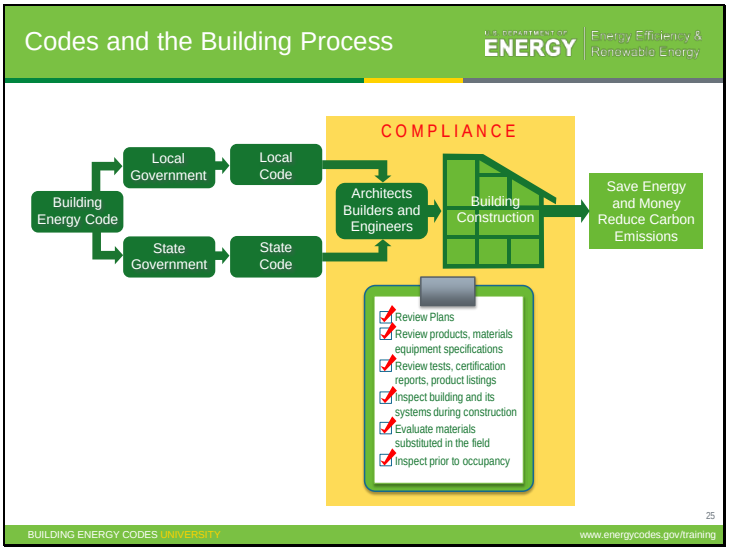
After all, if energy codes don't truly guide on-the-ground practices, their corresponding energy savings and environmental benefits are not realized.

'Enforcement' simply means 'making sure that a building is in compliance with an energy code' and is the last step in the building process.

The **responsibility to enforce** building energy codes falls upon states or jurisdictions, and **the responsibility to comply** with the building energy code falls on developers, designers, and contractors. Education and communication regarding energy codes are vital to the effective delivery of both enforcement and compliance.

Let's examine **the basics of energy code enforcement strategies.**

Slide 25



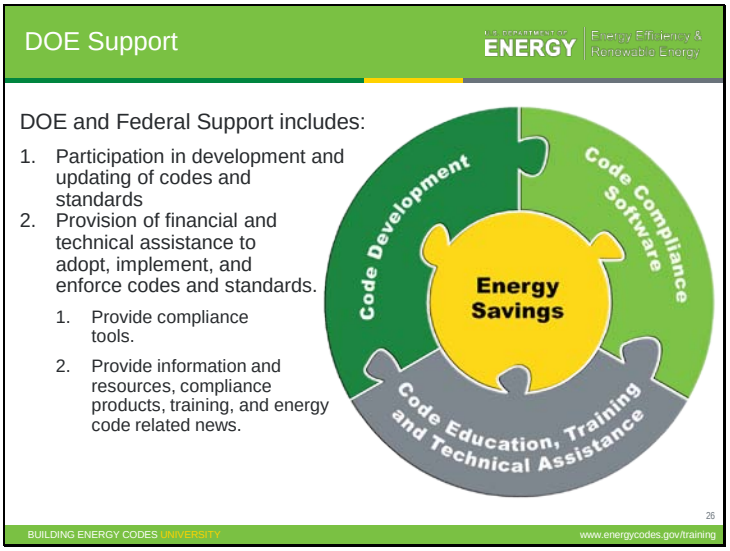
Enforcement strategies will vary according to a state or local government's **regulatory authority, resources, and manpower.**

Commonly, they include all or some of the following **activities**:

- Review of plans
- Review of products, materials, and equipment specifications
- Review of tests, certification reports, and product listings
- Review of supporting calculations
- Inspection of the building and its systems during construction
- Evaluation of materials substituted in the field
- Inspection immediately prior to occupancy.

Thankfully, government and industry leaders at the state and local levels are not alone as they attempt to fulfill their energy code compliance and enforcement responsibilities. Let's take a brief look at some of the federal support for building energy codes activities.

Slide 26



DOE's Building Energy Codes Program is here to help, from the development of more energy-efficient codes and technical assistance to the states, to their practical end-user application in building projects.

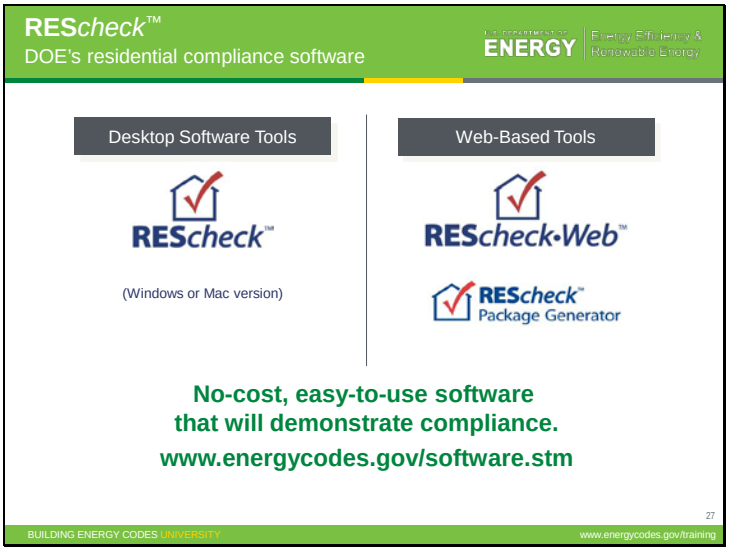
Federal funding has included the American Recovery and Reinvestment Act, through which energy efficiency funding has been made available to support model building energy codes that reduce energy consumption, create jobs, and spur economic growth.

But **funding isn't an automatic answer; thus, federal support is not limited to funding**. Of the bullets listed here, **BECP's role** includes the following:

- Provide compliance tools
- Provide information and resources, compliance products, training, and energy code-related news.

Let's take a quick look BECP's compliance tools in the next two slides.

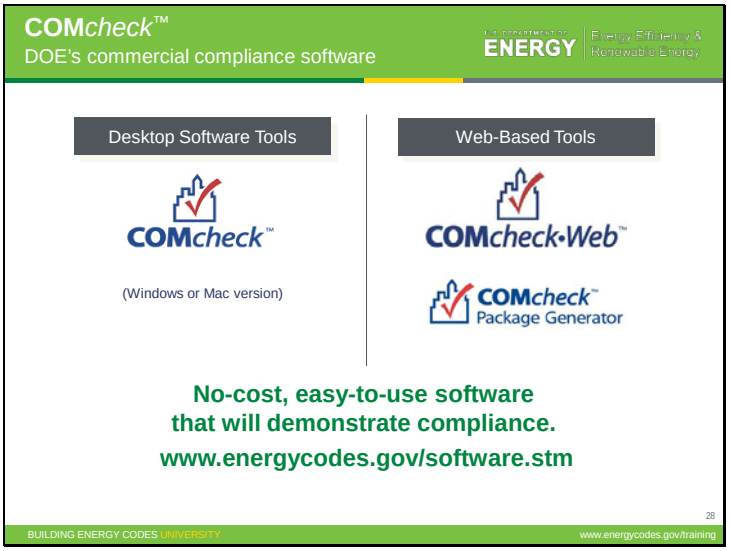
Slide 27



DOE's easy-to-use code **residential** compliance software, **RES*check*,** along with associated training and support resources, is **available for download at no cost** at **www.energycodes.gov/software.stm.**

Software programs such as RES*check*™ and COM*check*™ are helpful tools for end-users of codes to determine whether a building or renovation is in compliance. The user inputs building component areas, efficiencies, and other specifications to generate a compliance report. The software allows flexibility and trade-offs between components. For example, a designer may choose to include a greater glass area on a particular wall for a view corridor, and compensate by increasing insulation levels elsewhere.

Slide 28



DOE's easy-to-use code **commercial** compliance software, **COM*check,*** along with associated training and support resources, is also **available for download at no cost** at **www.energycodes.gov/software.stm.**

Slide 29

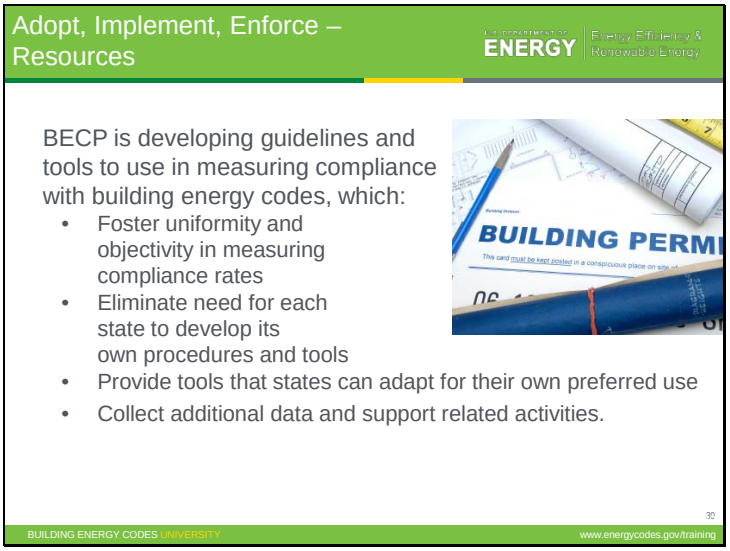
Aside from these important compliance tools, a wealth of other resources are provided by BECP at www.energycodes.gov.

BECP is an information resource on national model energy codes. We work with other government agencies, state and local jurisdictions, national code organizations, and industry to promote stronger building energy codes and help states adopt, implement, and enforce those codes.

The program recognizes that energy codes maximize energy efficiency only when they are fully embraced by users and supported through education, implementation, and enforcement.

We encourage you to visit our website and explore some of the resources and tools available to you.

Slide 30



As many states focus on increased compliance with the energy codes, the BECP is developing guidelines, training and tools, and data collection and analysis to support their efforts.

Information on this effort can also be found on **www.energycodes.gov**.

Look for “Helping States Measure Compliance” at **www. energycodes.gov/arra/reaching_compliance.stm.**

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Building Energy Codes Assistance for States	**Status of State Energy Codes**	Check on the current code status of any U.S. state or territory using BECP's interactive map tool. Also find links to state specific portions of BECP's recent nationwide analysis reports, state-level energy official contact information, and many other details.	www.energycodes.gov/states
	Technical Assistance to States	BECP provides specialized technical assistance to the states in the form of economic analysis, code comparisons, webcast training, and compliance material development requested by states to help them adopt, upgrade, implement, and enforce their building energy codes.	http://www.energycodes.gov/states/techAssist.stm
	State Compliance Assistance	BECP has developed an approach states can use for measuring compliance with building energy codes.	http://www.energycodes.gov/arra/compliance_evaluation.stm
No-cost Compliance Tools	**Residential Code Compliance Software**	REScheck™ and REScheck-Web™	http://www.energycodes.gov/software.stm
	Commercial Code Compliance Software	COMcheck™ and COMcheck-Web™	
Training	**Building Energy Codes University (BECU)**	To help stakeholders broaden and deepen their knowledge of building energy codes, BECP is collecting its diverse training resources in an extensive Building Energy Codes University (BECU) that features webcasts, training videos, self-paced online courses, presentations, and other BECP materials and tools.	www.energycodes.gov/training
Resource Center	**Building Energy Codes Knowledge Base**	This knowledge base provides a variety of different media types, including articles, graphics, online tools, presentations, and videos that anyone can use to create their own training and presentations.	http://resourcecenter.pnl.gov/
Advocacy	**The Building Codes Assistance Project (BCAP)**	BCAP is an initiative of the Alliance to Save Energy, the American Council for an Energy-Efficient Economy, and the Natural Resource Defense Council that provides states with code advocacy assistance on behalf of DOE.	www.bcap-energy.org

DOE offers comprehensive support for the energy codes. This table provides a reference to the resources available, specific BECP resources are provided at the following web pages.

Building Energy Codes Assistance for States

Status of State Energy Codes

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Technical Assistance to States

BECP provides specialized technical assistance to the states in the form of economic analysis, code comparisons, webcast training, and compliance material development requested by states to help them adopt, upgrade, implement, and enforce their building energy codes.
www.energycodes.gov/states/techAssist.stm

State Compliance Assistance

BECP has developed an approach states can use for measuring compliance with building energy codes. **www.energycodes.gov/arra/compliance_evaluation.stm**

Slide 31 continued

Training

Codes University. To help stakeholders broaden and deepen their knowledge of building energy codes, BECP is collecting its diverse training resources in an extensive Codes University that features webcasts, training videos, self-paced online courses, presentations, and other BECP materials and tools. **www.energycodes.gov/training**

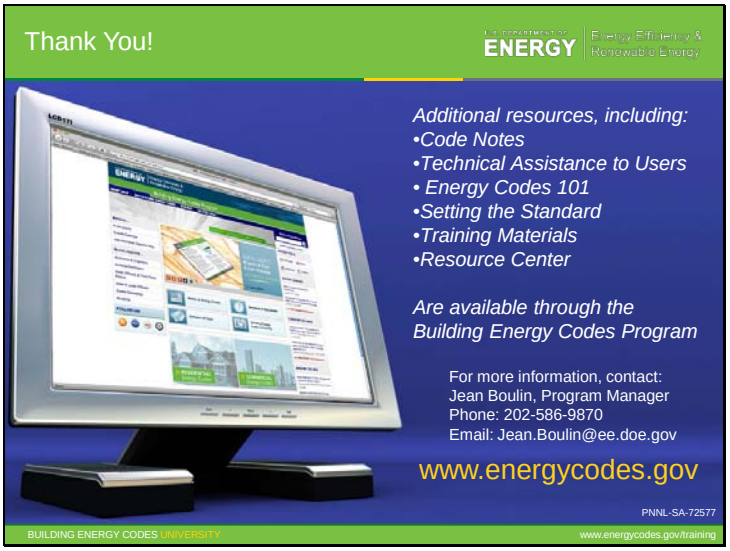
Resource Center

Building Energy Codes Knowledge Base This knowledge base provides a variety of different media types, including articles, graphics, online tools, presentations, and videos that anyone can use to create their own training and presentations. **resourcecenter.pnl.gov**

Advocacy

The Building Codes Assistance Project (BCAP) This project is an initiative of the Alliance to Save Energy, the American Council for an Energy-Efficient Economy, and the Natural Resource Defense Council that provides states with code advocacy assistance on behalf of DOE. **www.bcap-energy.org**

Slide 32



Thank you for learning the basics of building energy codes!

Please don't hesitate to present this information to interested parties. For more resources, continue to visit BECP's website at **www.energycodes.gov.**