Setting the Standard

Codes and Standards—cooperative efforts to raise minimum energy efficiency standards

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OFFICE OF BUILDING TECHNOLOGY, STATE AND COMMUNITY PROGRAMS
OFFICE OF ENERGY EFFICIENCY AND RENEWABLE ENERGY
U.S. DEPARTMENT OF ENERGY

Strengthening the Foundation of Energy Efficiency

U.S. Department of Energy and the State of Vermont Host the 2001 National Workshop on State Building Energy Codes

The 2001 *National Workshop on State Energy Building Codes* is scheduled for July 16-19, 2001, at the Sheraton Burlington Hotel and Conference Center in Burlington, Vermont.

Builders, chief code officials, and staff from state energy offices, state code offices, building code commissions, utilities, market transformation programs, and energy advocacy groups are expected to attend. The workshop is also open to others impacted by building energy codes, including building product supplier/manufacturer representatives, utility representatives, architects and engineers, insurance industry policy-makers, and local code officials and code enforcement staff.

A workshop planning committee is currently reviewing potential session topics, formats, and speakers. Likely topics for the workshop include:

- Code Implementation
- Code Compliance and Enforcement
- Impact of Codes on Building Issues
- Cooling Climates
- Indoor Air Quality
- Proper Ducts
- Building Commissioning
- Consumer Education
- Building Alliances with Industry
- Voluntary Beyond-Code Efforts
- Using Codes as Part of Market Transformation Strategies
- State Networking

Workshop registration is $225.000, which includes continental breakfasts, lunches, an evening reception, an evening dinner event, and pre- and post-workshop activities. Lodging is $82.00 per night. Contact the Sheraton Burlington Hotel and Conference Center at (802) 865-6600 for reservations–ask for *National Workshop on Building Energy Codes.*

The workshop will feature an exhibit with displays showcasing the latest in energy-efficient products, code implementation support materials, and more. Exhibit space is still available. Please contact Jeff Forward at (802) 434-3770 to reserve space.

For more information on the workshop, visit our web site at **www.eren.doe.gov/buildings/codes_standards/buildings** or contact the Delaney Meeting and Event Management at **(802) 655-7769.**

Tools for States:

Alternative Implementation Strategies Guideline

As support for building energy codes increases, many key states are adopting new codes or updating existing ones. While strong energy codes are important in improving energy efficiency, they do not deliver the promised energy savings without strong enforcement by local code officials and compliance by the construction industry. Many code enforcement officials are facing a new challenge in implementing these new code requirements given their current workloads. As a result, some jurisdictions are exploring alternative enforcement strategies.

> "Many code enforcement officials are facing a new challenge in implementing these new code requirements..."

Over the past several years, state and local governments have increased their use of various types of privatization as alternative ways to enforce codes. DOE's Building Standards and Guidelines Program recently published a guideline on alternative privatization techniques entitled, *Alternative Implementation Strategies for States.* This guideline discusses the problems many jurisdictions are facing in implementing building energy codes and provides possible solutions, including hiring a qualified third party to review energy plans and documentation. The guideline also describes the model used by the state of Washington to successfully implement its building energy code, as well as information on what jurisdictions in other states are doing to help solve this problem.

To determine if your state could benefit from these alternative implementation strategies, visit **http://www.eren.doe.gov/buildings/codes_standards/buildings** to obtain a copy of the guideline.

DOE Status of State Codes Database

In a continual effort to provide stakeholders with thelatest information regarding the administrative andtechnical aspects of state energy codes, the U.S. Department of Energy maintains a State Code Database. This database is updated continually throughout the year and is posted to the website (see address below) as changes are reported by the Regional Offices, Building Codes Assistance Project (BCAP), and State Primary Technical Contacts. The database generates reports that include:

- State Primary Technical Contact
- State Agency/Office Head
- Other Contacts
- Current Status
- Adoption Process
- Compliance Methods
- Enforcement
- Background/History
- Residential Construction Data
- Commercial Construction Data

See **http://www.eren.doe.gov/buildings/codes_standards/buildings/states/status_list.html** for report listings by state.

Code Comparison Documents

If your state is considering upgrading its current energy code, you can review the differences between the Model Energy Codes (MEC) and International Energy Conservation Codes (IECC) in publications describing revisions to the

- 1992 MEC contained in the 1993 MEC *(15 pages)*
- 1993 MEC contained in the 1995 MEC *(23 pages)*
- 1995 MEC contained in the 1998 IECC *(22 pages)*
- 1998 IECC contained in the 2000 IECC *(2-page summary).*

To download these publications (.pdf format), visit **http://www.eren.doe.gov/buildings/codes_standards/buildings/res_determinations.html.**

Software Tip:

Enter separate R-values for each type of insulation indicated. For cavity insulation, enter the R-value for insulation to be installed in the cavities between structural members (i.e., batts). For continuous insulation, enter the R-value for insulation that is continuous over framing members (i.e., rigid foam). For example, if you enter R-38 for cavity and R-7 for continuous, your total R-value for the assembly is R-45.

The program accounts for the insulating values of other parts of the building assembly (e.g., gypsum board and air films), so these values should not be included. For structural insulated panels and insulated concrete forms, enter the manufacturer-reported R-value for the entire assembly.

Spotlight on State Activities:

Massachusetts Leads the Way in Energy Code Implementation

The Massachusetts Board of Building Regulations and Standards (BBRS), in cooperation with the U.S. Department of Energy and the state's gas and electric utilities, is helping building professionals prepare to comply with the state's new energy codes. BBRS is offering a training series that introduces design professionals, contractors, code officials, and equipment suppliers to the state's new commercial energy code, and is involved in other implementation activities that will alert them to the new requirements and provide technical support.

On July 13, 1999, BBRS voted to adopt a complete revision to the energy conservation requirements for new buildings (other than low-rise residential) into the Massachusetts State Building Code. The requirements become mandatory on July 1, 2001. The revised code includes elements from both *ASHRAE/IESNA Standard 90.1-1999* and from the *2000 International Energy Conservation Code*, as well as some requirements unique to Massachusetts. It also contains 20 "emergency" amendments based on comments from building professionals who attended BBRS seminars throughout 2000.

The energy conservation requirements for new low-rise residential buildings took effect on March 1, 1998 (780 CMR, Appendix J). These requirements are based on the *1995 Model Energy Code,* with Massachusetts-specific amendments. Appendix J offers great flexibility in determining a compliant design, with several alternatives that allow many combinations of insulation, window performance, and heating system efficiency. BBRS's outreach and training efforts that accompanied the introduction of Appendix J reached over 7,500 building professionals.

Both the commercial and residential energy provisions have easy-to-use software to help building professionals demonstrate design compliance using trade-offs. Users can use the **COM*check-EZ*™** software to show envelope or lighting design compliance in commercial buildings, and the **MAS*check*™** software (now included as part of **MEC*check*™ 3.2**) to show design compliance in residential buildings. As it has done with many other states, the Department's Building Standards and Guidelines Program worked with Massachusetts to modify the software so it captures the state-specific code requirements.

To make code compliance easier, BBRS is using Department and utility funding to deliver **free training seminars** to design professionals, contractors, code officials, and other affected parties. The seminar series on the new commercial energy code offers separate sessions on envelope, HVAC, and lighting requirements, and includes a training session that introduces users to the COM*check-EZ*™ software.

Outreach on the new code is having a snowball effect. Product suppliers, specification writers, and architects who have attended the state sessions are also delivering their own in-house versions of the training.

BBRS has promoted its seminar series by speaking at trade association meetings, advertising in trade magazines, and mailing brochures to all Massachusetts-registered architects and engineers. Since the training sessions began in February 2000, over 2,000 people have attended, and BBRS estimates that an additional 2,000 people will attend the sessions in 2001.

BBRS also makes **presentations** on the commercial and residential codes to various groups, ranging from brief introductions on group-specific topics to full-length seminars. Over 200 people have attended these presentations, and BBRS anticipates that another 300 will attend in 2001.

BBRS has also developed a **self-help tool** for code users to familiarize themselves with the new commercial energy code. The tool offers the code text with an index, commentary on the code with links back to the code text, and an introduction to the COM*check-EZ*™ software.

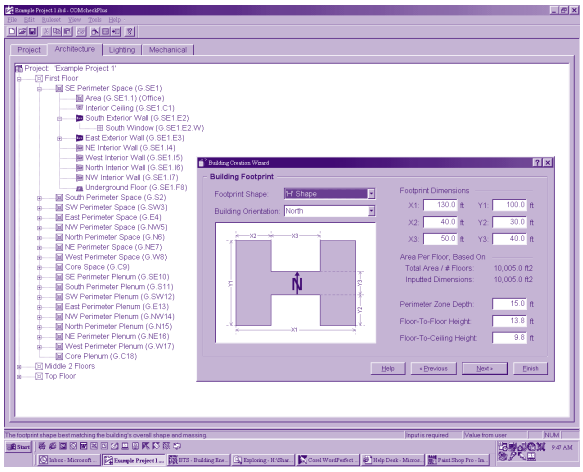
Beginning this spring, BBRS will be working with the Northeast Energy Efficiency Partnership (NEEP) to promote a **circuit rider program**. Designers who have attended a BBRS seminar but are having difficulty incorporating the code's new requirements will be eligible to receive technical assistance on specific design problems. A professional familiar with the new code will visit their offices to discuss design alternatives.

BBRS is also actively involved in improving its energy code for existing buildings. It holds a monthly Energy Advisory Committee meeting, in which members continue to work on revisions to requirements for existing buildings. BBRS also hosted a meeting of architects, contractors, and manufacturers' representatives that led to the formation of a new trade association dealing with air barriers.

For more information on the Massachusetts energy code, visit the BBRS web site at **http://www.state.ma.us/bbrs/energy.htm.**

Software News:

COM*check-Plus*™ 1.1 Available for Download



The latest version of COM*check-Plus*™ is available for download from **http://www.eren.doe.gov/buildings/codes_standards/buildings/com_comcheck_plus.html.** While most users will continue to find COM*check-EZ*™ the fastest and easiest way to demonstrate energy code compliance, COM*check-Plus*™ offers compliance options not available using this more simplified tool. Plus is intended to complement rather than replace EZ.

COM*check-Plus*™ is designed to simplify compliance using the whole-building performance option. This option allows trade-offs between major sections of the code. Plus analyzes the design's performance using the DOE-2.1E simulation program and produces compliance reports that compare your design to the code budget design.

The Plus software can be used for designs that include unusual design features (such as large skylight areas), for optimizing the building design (e.g., to meet efficiency requirements at the lowest construction cost), or for documenting above-code performance.

The latest upgrade supports a variety of popular multiple-zone HVAC system types in addition to the single-zone package systems supported in the earlier version. Version 1.1 addresses mandatory code requirements as well as whole-building compliance trade-offs, making it a comprehensive tool for energy code compliance. The program's Help system has been enhanced to include a new compliance checklist feature, and guidance on demonstrating compliance for additions and alterations.

For more information or to download COM*check-Plus*™ Version 1.1, visit **http://www.eren.doe.-gov/buildings/codes_standards/buildings/com_comcheck_plus.html.**

International Code Highlights:

IECC Development Hearings Held in Portland, Oregon

On March 27, 2001, the International Code Council held the 2001 International Energy Conservation Code (IECC) Development Hearings in Portland, Oregon. Interested parties submitted 61 proposed code changes to the IECC. The 12-member Energy Conservation Code Development Committee voted on each of these code changes using a simple majority voting system. The committee approved 19 and disapproved 32 code changes, and the proponents withdrew 10 changes. The following are highlights of some of the most important changes discussed at the meeting.

The committee rejected a series of proposals by the American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. (ASHRAE) to replace the existing Chapter 8 with wording and requirements directly from *ASHRAE/IESNA Standard 90.1-1999*. The committee also rejected proposals to entirely remove Chapter 8 of the IECC and to allow the use of certain AAMA standards in place of NFRC standards for glazing.

For specific information on the results of the code development hearings, visit **http://www.intlcode.org/codes/hearingresults.html.**

The committee disapproved the following proposals to the residential portion of the code (Chapters 4 - 6) to:

- Exempt north-facing windows, south windows with overhangs, and windows with sun-blocking screens from the 0.40 maximum SHGC requirement
- Modify sunroom addition requirements
- Substitute annual energy cost for site energy use as the metric for code compliance using the performance approach
- Require simulation software to pass BESTEST requirements
- Require a programmable thermostat

The committee approved proposals to:

- Remove language on renewables in Chapter 4
- Replace the A-1 and A-2 classifications with R-2 and R-4 and use the term, "detached one- and two-family dwellings"
- Make duct sealing requirements consistent between the residential and commercial codes
- Add requirements for recessed light sealing and moisture control to Chapter 6 of the code
- Add more explicit options for manual lighting controls in commercial buildings
- Limit lighting requirements for exit signs to 5 watts per side

Status of State Energy Codes:

Great Strides Expected in 2001

In a continuing effort to help reduce costs for homeowners and building managers, reduce energy use, and lower environmental emissions through energy-efficient buildings, several key states and local jurisdictions have adopted, or plan to adopt, more stringent energy codes in 2001. Many of these new or revised codes are based on the International Code Council's (ICC) *2000 International Energy Conservation Code* (IECC) and the American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc., *ASHRAE/IESNA Standard 90.1-1999*.

California's energy crisis prompted the California Energy Commission to adopt new emergency amendments to its energy efficiency standards for residential buildings on January 3, 2001. The new amendments take effect on June 1, 2001. On January 1, 2001, **Maryland's** 2000 International Building Code, which includes the 2000 IECC, became effective. A revision to the **Massachusetts** commercial code took effect on January 19, 2001, and becomes mandatory on July 1, 2001. Amendments to the **Washington** energy code became effective on July 1, 2001. On that same date, **Idaho's** Section Law Chapter 465 became effective, requiring jurisdictions that have adopted the Uniform Building Code to upgrade to the most recent version of the IECC. **Florida, Indiana, Maine, Michigan, New York, North Carolina, Tennessee, Vermont, Wisconsin,** and **Wyoming** also plan to adopt new or revised energy codes in 2001.

In **Texas**, the Regional Codes Coordinating Committee of the North Central Texas Council of Governments for the Dallas/Fort Worth area overwhelmingly approved a recommendation that the jurisdictions in their area adopt a broad set of the ICC International Codes, including the IECC and the International Residential Code (IRC), with amendments. El Paso adopted the ICC International Codes, including the IECC and the IRC, on December 12, 2000. All codes became effective on February 1, 2001, except for the IRC, which became effective on April 1, 2001.

Project contractors and representatives from the Texas State Energy Conservation Office (SECO), the Denver Regional Office, and Texas A&M University are meeting in Austin to follow up on the successful adoption of the 2000 IECC by the North Central Texas Council of Governments. Texas is also submitting a proposal under the 2001 Department of Energy Special Projects solicitation to continue the voluntary adoption of the residential 2000 IECC in several areas of Texas having EPA nonattainment problems like Houston. In this new proposal, SECO will add a commercial section to promote the new *ASHRAE/IESNA Standard 90.1-1999*, with the goal to update the existing 1993 Texas Design Standard to be based on the new standard.

The next steps in the ongoing effort to adopt energy-efficient building standards in Texas include developing a training schedule for municipalities adopting the 2000 IECC and a plan of action for similar activities in other major metropolitan areas in Texas, such as Houston and San Antonio.

For more information on building energy codes and state activities, or to receive a free subscription to the Status of State Energy Codes newsletter, the bimonthly publication of the Building Codes Assistance Project (BCAP), contact BCAP at bcap@ase.org or via the Internet at www.bcap-energy.org.

Free COM*check*™ and MEC*check*™ Training at AIA 2001

Come to AIA a day early and join us for free hands-on training on COM*check-EZ*™ or MEC*check*™. Learn the major requirements of the 2000 IECC and how to determine compliance using the software. Walk away with the latest version of the COM*check-EZ*™ or MEC*check*™ materials. Computers will be provided but feel free to bring a laptop. Six AIA Learning Unit Hours can be earned by attending the training.

Denver, Colorado
May 16, 2001
8:30 am - 4:00 pm

Register on the web at
www.eren.doe.gov/buildings/codes_standards/buildings/aia_training.html
or via the BSGP hotline at
1-800-270-CODE (2633), option 2,
or e-mail to **training@bsgp.pnl.gov.**

You must register to attend. (Select either COM*check-EZ*™ or MEC*check*™). Logistical information will be provided when registration is confirmed. Training will be held at a conference hotel.

Calendar

May 2001

9-10 West Coast Energy Management Conference, San Diego Concourse – San Diego, CA **See www.aeecenter.org**

17-19 AIA 2001 National Convention and Expo, Colorado Convention Center – Denver, CO **See www.aia.org**

31-1 Building Smarter in the Digital Age, Hilton Crystal City at National Airport – Arlington (Crystal City), VA **See www.ncsbcs.org**

June 2001

3-6 2001 Energy – An Energy Efficiency Workshop and Expo, Hyatt Regency Crown Center – Kansas City, MO **See www.energy2001.ee.doe.gov**

18-21 A/E/C SYSTEMS 2001, McCormick Place, Lakeside Center – Chicago, IL **See www.aecsystems.com**

22-27 2001 ASHRAE Annual Meeting, Cincinnati Convention Center – Cincinnati, OH **See www.ashrae.org**

July 2001

16-19 2001 National Workshop on State Energy Building Codes, Sheraton – Burlington, VT **See www.eren.doe.gov/buildings/codes_standards/buildings**

July 2001

24-27 ACEEE's 2001 Summer Study on Energy Efficiency in Industry, Tarrytown Hilton – Tarrytown, NY **See www.aceee.org**

September 2001

10-12 Hot Topics, Cool Solutions 2001: The Sustaining Desert - Building Livable Futures, Radisson Presidio Plaza Hotel – Tucson, AZ **Call (520) 791-3109**

16-20 BOCA/ICBO Annual Conference, 2001 – A Cincinnati Odyssey, Cincinnati Convention Center – Cincinnati, OH **See www.icbo.org**

October 2001

21-24 NCSBCS 34th Annual Conference – Orlando, FL **See www.ncsbcs.org**

25-28 2001 EEBA's Excellence in Building Conference, Rosen Center Hotel – Orlando, FL **See www.eeba.org**

28-1 SBCCI 56th Annual Research and Education Conference, Sheraton Four Seasons Hotel – Greensboro, NC **See www.sbcci.org**

Setting the Standard is published three times a year by the Building Standards and Guidelines Program of the U.S. Department of Energy Office of Building Technology, State and Community Programs at the Pacific Northwest National Laboratory. Its purpose is to encourage information exchange among building industry professionals and organizations, state and local code officials, and researchers to facilitate timely development and early adoption of the building energy conservation standards. Send comments and contributions to Ruth Taylor at Pacific Northwest National Laboratory (ruth.taylor@pnl.gov).

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