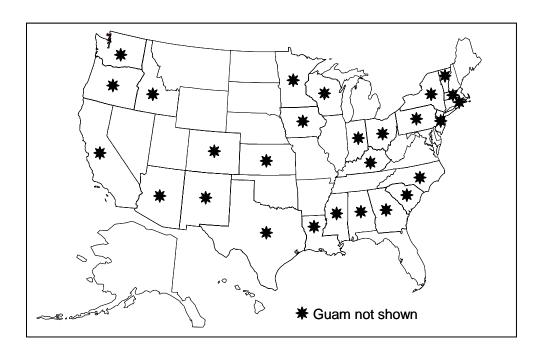
Building Standards and Guidelines Program

2001 State Grant Summaries



December 2001

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Foreword

This report is one in a series of documents describing activities in support of the U.S. Department of Energy (DOE) Building Standards and Guidelines Program (the Program.) The Pacific Northwest National Laboratory (PNNL) provides technical support for the Program.

The primary issue addressed by the Program (and other programs at DOE) is that new commercial and residential buildings being designed, built, and occupied do not use currently available, technically feasible, and economically justified technologies and practices to eliminate wasteful use of energy. The Program seeks to advance the energy-conserving design and construction of buildings by promoting and assisting in the development and implementation of energy-efficient codes and standards that are technically feasible, economically justified, and environmentally beneficial. These activities are required of DOE by Title III of the Energy Conservation and Production Act as amended by the Energy Policy Act of 1992 (EPAct).

The Program's long-term goal is to make sustainable, energy-efficient building design and construction commonplace. The Program's approach to meeting this goal is to initiate and manage individual research in this area; standards and guidelines development efforts that are planned and conducted in cooperation with representatives from throughout the buildings community. Current projects involve practicing architects and engineers, professional societies and code organizations, industry representatives, and researchers from the private sector and national laboratories. Research results and the technical justification for standards criteria are provided to standards development and model code organizations and to Federal, state, and local jurisdictions as a basis to update their codes and standards. This approach helps ensure that the standards incorporate the latest research results to achieve maximum energy savings in new buildings, yet remain responsive to the needs of the affected professions, organizations and jurisdictions. It also assists in the implementation, deployment and use of the codes and standards.

The Program works in cooperation with DOE's "Energy Partnerships for a Strong Economy," which is an innovative approach to environmental quality and economic growth designed to leverage Federal dollars through partnerships with private industry. This program does not duplicate, but rather complements, existing Federal and State programs and accelerates their benefits. Located under the umbrella of "Energy Partnerships for a Strong Economy," Action 10 of the Climate Change Action Plan, Update State Building Codes, builds on Section 101 of EPAct to further address the use and enforcement of building energy codes. Under Section 101, states are required to update their commercial building energy codes to meet or exceed the American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc./Illuminating Engineers Society of North America (ASHRAE) Standard 90.1-1989 and to consider whether to update their residential codes to meet or exceed the 2000 International Energy Conservation Code. DOE is required to provide technical assistance and incentive funding to states to respond to the legislative requirements of EPAct.

iV December 3, 2001

Summary

During FY 2001, 29 states and territories received grants totaling approximately \$4 million to update and implement the energy efficiency provision of their state building codes. The grants were awarded on a competitive, cost-shared basis. Some of the states have existing energy codes but need additional support to expand or enhance their code to equal or exceed the 2000 International Energy Conservation Code (IECC) and ASHRAE/IESNA Standard 90.1-1989 (Standard 90.1-1989).

The IECC is an energy performance standard for low-rise residential buildings and the Standard 90.1-1989 is an energy performance standard for commercial and multi-family high-rise buildings. The IECC and Standard 90.1-1989 are benchmark residential and commercial standards under the Energy Policy Act of 1992 (EPAct).

This document contains summaries of Building Standards and Guidelines Program (the Program) FY 2001 incentive grants for the 29 states. The summaries provide background information on the status of the state code, outline state project descriptions, cost data, partners, transferability to other states, and the value of incentive grants to the Building Standards and Guidelines Program. The funding will help develop codes where they do not exist and strengthen existing building codes. In addition, the assistance will help builders, states, and consumers to make buildings more energy-efficient and cost-effective.

In July 2000, the Residential Energy Code (RECA) of Alabama was revised from the 1993 Model Energy Code (MEC) to the 1995 MEC. RECA; however, is totally voluntary and must rely on local governments to adopt it as part of their building code. To date, no jurisdiction has adopted RECA.

Purpose

The main goal of the project is to further the use of the MEC in Alabama.

Project Description

Alabama proposes to do the following:

- S Review both the 1998 and 2000 editions of the International Energy Conservation Code (IECC) and analyze them for their appropriateness for the Alabama home building community.
- S Survey the Alabama home building industry to determine the current level of energy-efficient construction.
- S Work with utilities to integrate the Alabama code into utility promotional programs.
- S Work with local building code officials to promote municipal adoption of the Alabama code.
- S Promote the code to the building community and home buyers through workshops, media, a website, and publicity.

Cost Data

Federal \$ 60,000 Other \$ 20,000 Total \$ 80,000

Arizona is a home-rule state, thus codes are adopted and enforced on a local level. Presently, the City of Tucson and Pima County are the only jurisdictions that have adopted the International Energy Conservation Code (IECC). The Housing and Infrastructure Development Division (HID) of the Department of Commerce incorporates the 2000 IECC in its Tax Credit Program.

Purpose

The main purpose of the project is to provide training and outreach materials.

Project Description

Arizona proposes to do the following:

- S Contact Arizona communities and affordable housing groups to inform them of the Arizona energy efficiency codes, assist them with adoption of the codes, and provide them with technical assistance and training on coderelated issues.
- S Provide training to the building industry, affordable housing community and code officials on issues related to building performance.

Cost Data

Federal \$100,000 Other \$247,800 Total \$347,800

Partners

Arizona Public Service
Tucson Electric Power Company
Southwest Gas Corporation
Electric League of Arizona
Salt River Project
City of Tucson
Yavapai College Construction Technical
Department
D.R. Wastchak, L.L.C.

Energy Rated Homes of the Southwest

Transferability

Arizona is one of the fastest growing building markets in the U.S., and lessons learned can eventually be transferred nationwide by the variety of large builders operating in the state.

Current California Building Energy Efficiency standards exceed the Model Energy Code by approximately 25%. Recent updates will result in exceeding present standards by as much as 50%. This proposal continues the builder energy code training program that has been provided to builders in California through the California Energy Commission (CEC) and the Building Industry Institute (BII) public-private partnership funded through DOE grants. This program continues to focus on the largest, most influential builders in the major markets. The program has resulted in over 84,500 homes being built to a new standard of energy-efficient excellence. The consumer savings related to the first year of ownership of these homes is more than \$1.5 million and will continue to accrue for the life of the buildings.

Purpose

A specific goal of this project is to continue the training efforts and accomplishments from prior years. Additional goals include the effective collaborative efforts with a wide variety of participants which have resulted in the development of programs and tools to further energy-efficient, quality construction; develop a close partnership with utilities to provide much needed additional training sessions not only for builders but for building officials and architects; and to seek additional avenues to publicize the components, accomplishments and advantages of the training.

Project Description

California proposes to do the following:

- S Builder training that begins with a review and critique of current compliance documentation.
- S Classroom training for builders' V.P. of Construction, purchasing agents, and contracts personnel to instruct on how to read compliance documentation, what are typical problems with the documentation, and how to direct their subcontractors to correctly bid and

- properly install the required energy code features and/or equipment.
- S On-site training of field superintendents. The builders' own homes under construction are examined (typically two homes one in the framing, insulation stage, and one nearly final). Builders are provided a field inspection checklist for their use.
- S Diagnostics. Instructors perform diagnostics on site such as envelope air leakage, duct leakage, airflow from registers, and system static pressure for the participants.

Cost Data

Federal \$400,000 Other \$250,119 Total \$650,119

Partners

Building Industry Institute
California Building Industry Association
California Association of Building Officials
Nevada Home Builders Association
National Association of Home Builders
Pacific Gas and Electric
Southern California Edison
Southern California Gas Company
San Diego Gas and Electric
Sacramento Municipal Utility District

Transferability

The California Energy Commission's web site contains most of the materials from the actual training manual, including the protocols for proper installation of insulation, caulking and sealing, installation of windows, and HVAC design and installation.

Colorado is a home-rule state which means that building codes must be adopted at the local level. E-Star Colorado is therefore combining code adoption efforts with voluntary program promotion to reduce resistance to improving building energy codes.

Purpose

The main project objectives include: continued builder education on energy efficiency building science principles, continued education and technical support of local code jurisdictions; consumer education; and promotion of voluntary programs.

Project Description

Colorado proposes to do the following:

- S Present workshops titled "Building It Right The First Time" to generate interest in energy efficiency among code officials and builders.
- S Continue to offer "Demonstration Ratings" and follow-up technical support to builders.
- S Develop revised code training materials and provide code training.
- S Provide Built Green/E-Star University training and rater support and hold rater training.
- S Provide ongoing support to local jurisdictions as requested.
- S Maintain web site that tracks code activities in Colorado counties and produce collateral consumer education materials promoting energy efficiency awareness.

Cost Data

Federal \$188,000 Other \$110,061 Total \$298,061

As the state's leading building code agency, the Department of Community Affairs (DCA) is in the process of updating the Georgia state minimum standard codes for construction. The third step in the DCA's three-step approach is the adoption of the 2000 International Energy Conservation Code (IECC) and ASHRAE/IESNA Standard 90.1-1999. The DCA plans to appoint a task force in the fall of 2001 to review the current energy code. At the completion of the review, the DCA anticipates adopting new energy codes with an intended effective date of January 1, 2003.

Purpose

The purpose of the project is to provide training and technical assistance to ensure local implementation of the energy code.

Project Description

Georgia proposes to do the following:

- S Provide training and direct technical assistance on residential and commercial energy codes to over 600 building officials and design and construction professionals.
- S Evaluate the effectiveness of both traditional and innovative code compliance tools and programs.
- S Conduct an outreach campaign to inform consumers, government and business leaders of the importance of energy codes in reducing building operating codes and protecting the environment.
- S Integrate energy code training materials and compliance tools into the state's ongoing curricula for code officials and design and construction professionals.

Cost Data

Federal \$ 185,732 Other \$ 85,000 Total \$ 270,732

The Guam Energy Office (GEO), working with the Department of Public Works (DPW), amended Guam's building code to include measures that would make buildings more energy efficient. Guam's Building Energy Code became law in May 2000 and enforcement began in November 2000.

Purpose

The goals for the project are to continue educating the building industry on the new energy code and to conduct an evaluation of the effectiveness of the new code.

Project Description

Guam proposes to do the following:

- S Hold additional and smaller training sessions to redirect the thinking of the building industry to understand the savings resulting from the code are worth the investment.
- S Develop evaluation procedures to measure the effectiveness of the code.
- S Post actual savings resulting from the code on the web site.
- S Start an ad campaign to publicize the availability of the web site as well as share information with neighboring islands in need of implementing their own energy codes.

Cost Data

Federal \$50,000 Other \$20,000 Total \$70,000

Pursuant to Idaho Code 39-4109, the Division of Building Safety (DBS) will develop legislation for statewide adoption of the 2000 International Building Code (IBC), International Energy Conservation Code (IECC), and International Residential Code (IRC). With IBC bill passage in the legislature, jurisdictions who enforce the Uniform Building Code (UBC) will be mandated by Idaho Code 39-4116(2) to adopt the 2000 IECC, thus adopting the IRC and the specified non-residential energy standard.

Purpose

The DBS takes over lead responsibility for energy code activities in Idaho which includes hiring and training Energy Specialists to implement energy codes and develop a strategy for implementing the IECC in Idaho.

Project Description

Idaho proposes to do the following:

- S Transfer energy code activities to DBS.
- S Hire and train Energy Specialists to implement energy codes.
- S Develop a draft implementation strategy for the IECC and present the draft to the Local Government Energy Committee.
- S Provide technical assistance to building officials, builders, architects, and engineers in support of implementation of the IECC.

Cost Data

Federal \$50,000 Other \$40,000 Total \$90,000

The State of Indiana adopted the 1992 Model Energy Code (MEC) in 1992 for commercial buildings but retained electrical and lighting requirements from a 1979 code based on the 1977 MEC. Indiana proposes to adopt the 2000 International Energy Conservation Code (IECC) as its new commercial code. The state is currently adopting the International Residential Code (IRC) Chapter 11 with amendments that focus on the addition of provisions from the 2000 IECC that aren't included in the IRC.

Purpose

The main goals of the project include: 1) a baseline study of current commercial building practices; 2) training for enforcement personnel and the building design and construction industry; and 3) an assessment of the impact of these activities on commercial building practices.

Project Description

Indiana proposes to do the following:

- S Develop survey and analysis instruments.
- S Select 50 new construction commercial projects for plan review and field inspection.
- S Conduct plan review of the selected projects.
- S Train enforcement personnel for field inspection.
- S Perform field inspection of the selected projects.
- S Analyze the data to determine if current practice meets the requirements of the 2000 IECC.
- S Conduct a follow-up assessment.

Cost Data

Federal \$ 84,377

Other \$ 28,126 Total \$112,503 **Transferability**

The data collected might be of interest to surrounding states. Training materials might be useful for other states training enforcement personnel on how to plan review and inspect for code compliance. Photos of typical problem areas will also be available.

The State of Indiana adopted the 1992 Model Energy Code (MEC) in 1992 for commercial buildings but retained electrical and lighting requirements from a 1979 code based on the 1977 MEC. Indiana proposes to adopt the 2000 International Energy Conservation Code (IECC) as its new commercial code. The state is currently adopting the International Residential Code (IRC) Chapter 11 with amendments that focus on the addition of provisions from the 2000 IECC that aren't included in the IRC.

Purpose

The goal of the project is to assess current construction practice quality for single-family residences in relation to the energy code and to provide code training.

Project Description

Indiana proposes to do the following:

- S Develop a data collection form.
- S Select and notify ten enforcement agencies to cooperate in the data gathering process.
- S Perform 125 single-family residence plan review and field inspections.
- S Use MEC*check* to analyze 125 residences compared to Chapter 11 of the IRC.
- S Conduct one-day training sessions for participating enforcement agencies and other interested parties.
- S Prepare a final report including an analysis of the collected data.

Cost Data

Federal \$125,000 Other \$42,425 Total \$167,425

Partners

Raintree Home Inspections THERMO-SCAN Energy Management Corporation

Iowa

Background

lowa has adopted ASHRAE/IESNA Standard 90.1-1989 and the 1992 Model Energy Code (MEC), and statewide compliance is required and enforced by local jurisdictions. The lowa Department of Nature Resources will assist the lowa State Fire Marshal (the Building Commissioner) in the adoption of the 2000 International Energy Conservation Code (IECC).

Purpose

The main goals of the project include to: 1) adopt a more recent energy code; 2) provide energy code training; and 3) collect building data to determine a baseline of current residential building practices and level of energy code compliance.

Project Description

lowa proposes to do the following:

- S Assist the Iowa State Building Code Commissioner to update the state building energy code.
- S Train state and local officials on how to perform building energy code reviews and field inspections through actual plan review and field inspections of 65 new homes and determine the level of building energy code compliance in the state.
- S Use evaluations from the plan review and field inspection training to develop recommendations about future directions to increase building energy code compliance and enforcement.

Cost Data

Federal \$148,200

Other \$ 85,400 Total \$233,600

Partners

International Conference of Building Officials Iowa Association of Building Officials Iowa League of Cities Iowa State Building Code Commissioner Iowa Association of Municipal Utilities Alliant Energy MidAmerican Energy

The Kansas Corporation Commission has conducted a building energy code program for the last five years with funding from DOE. Over 350 architects, engineers and code officials have been trained on ASHRAE/IESNA Standard 90.1 and over 250 have been trained on the Model Energy Code.

Purpose

The goal of the project is to achieve actual energy performance of new residential and commercial buildings in Kansas equal to or greater than resulting from compliance with the 2000 International Energy Conservation Code (IECC).

Project Description

Kansas proposes to do the following:

- S Provide technical assistance to local code officials on adoption of the 2000 IECC for residential and commercial buildings.
- S Provide energy code training for architects, engineers, and code officials based on the compliance paths detailed in the 2000 IECC.
- S Provide 2000 IECC workshops for builders and code officials with MEC*check* training and including a HERS field day.
- S Continue distribution of energy code compliance and energy efficiency information to new home buyers, the real estate community, and the building industry.

Cost Data

Federal \$140,608 Other \$78,000 Total \$218,608

Kentucky's current code is the 1992 Model Energy Code (MEC). Past activities through North Carolina Special Projects funding included the development of code compliance and high performance building publications and a series of workshops throughout the state.

Purpose

The purpose of the project is to inform decision makers and building design and construction professionals about energy code options, including the International Energy Conservation Code (IECC) and compliance tools.

Project Description

Kentucky proposes to do the following:

- S Conduct an informal survey of target group representatives and of homes under construction in three high-growth areas.
- S Develop a more widespread audience interested in influencing and supporting the energy code in the state and determine whether support exists for adopting the IECC.
- S Organize, publicize, and hold residential workshops with specific groups including builders, architects, engineers, code enforcement officers, utility representatives, insulation subcontractors, and mechanical contractors.
- S Conduct two, three-day workshops that involve both classroom and field training on high performance homes.
- S Conduct two, two-day commercial workshops that focus on ASHRAE/IESNA Standard 90.1-1999 and improved construction methods.
- S Improve the existing web page, update the technical and calendar information, and seek more widespread use.

S Assemble an ongoing group of designers, builders, code enforcement officials, and other building professionals who meet regularly to discuss energy code development.

Cost Data

Federal \$ 81,000 Other \$ 24,243 Total \$105,243

Partners

Southface Energy Institute Kentucky Homebuilders Association Kentucky Governor's Housing Corporation East Kentucky Power Tennessee Valley Authority

Louisiana has adopted the 1995 Model Energy Code (MEC) - mandatory statewide (for low rise buildings only), and ASHRAE/IESNA Standard 90.1-1989 for commercial buildings - mandatory statewide. Historic buildings present challenges to energy code compliance: how to upgrade the energy efficiency of the structure without compromising its historic nature and how to insure that energy efficiency improvements do not contribute to other problems that may affect indoor air quality or result in deterioration of the structure.

Purpose

The goal of the project is to develop an easilyunderstood manual for hot and humid climates describing the correct methods for making energy efficiency and comfort-related renovations to historic residential buildings.

Project Description

Louisiana proposes to do the following:

- S Research the issues and collect data.
- S Design and produce the manual.
- S Print 10,000 copies of the manual.
- S Mail the manual to an identified target mailing list (approximately 3000).
- S Distribute the manual at four selected conferences.
- S Distribute a news release and feature story to historic preservation societies, non-profit housing entities and major daily papers throughout the Southeast U.S.

Cost Data

Federal \$ 46,791 Applicant \$ 15,597 Total \$ 62,388

Over the past three years, Massachusetts has promulgated advanced energy codes for both residential and commercial buildings based on the Model Energy Code (MEC), International Energy Conservation Code (IECC), and ASHRAE/IESNA Standard 90.1.

Purpose

The main purpose of the project is to maintain the successful momentum of current activities and extend efforts into new areas to more fully capture energy savings.

Project Description

Massachusetts proposes to do the following:

- S Launch a consumer awareness and outreach campaign.
- S Continue the commercial code outreach and training program.
- S Provide technical assistance to designers.
- S Amend energy provisions of the commercial code for existing buildings.
- S Continue participation in regional and national code development and support.

Cost Data

Federal	\$ 378,651
Applicant	\$ 31,502
Other	\$ 107,033
Total	\$ 517,186

Transferability

The development of modifications to the code for existing buildings has the capacity for energy savings and may be a model for other states.

The Minnesota energy code was last updated in July 1999 for commercial, industrial, and high-rise residential buildings, and April 2000 for residential buildings other than high-rise. Minnesota's codes meet or exceed the 1995 Model Energy Code (MEC) - where the state building code applies - and ASHRAE/IESNA Standard 90.1-1989 (mandatory statewide).

Purpose

The purpose of the project is to improve the energy efficiency and indoor air quality in homes.

Project Description

Minnesota proposes to do the following:

- S Provide grants to local jurisdictions to assist with energy code enforcement.
- S Prepare brochures and web site information on proper home operation and maintenance for new home owners.
- S Provide pre- and post-project energy and ventilation code training to code enforcement personnel in participating cities.
- S Create a database of new homes in the state and mail a postcard to the occupants to provide them with information.

Cost Data

Federal \$ 98,184 Other \$ 70,000 Total \$168,184

Currently Mississippi has a residential code that is less stringent than the 1992 Model Energy Code (MEC) and a commercial code that is less stringent than ASHRAE/IESNA Standard 90.1-1989. Mississippi also has no statewide construction code; although some of the counties and cities have various construction codes in place, many have no minimum construction standards. The Energy Division intends to adopt the 2000 International Energy Conservation Code (IECC) and to update the other building energy standards and policy currently listed.

Purpose

The primary objectives of this project are (1) the adoption of the 2000 IECC; (2) mandatory energy efficiency training requirements for building code officials, builders, subcontractors, architects, and engineers; (3) effective code enforcement strategies; (4) energy-efficient building standards for state-supported affordable housing programs; and (5) new energy standards and reporting procedures, especially for public schools and state office buildings.

Project Description

Mississippi proposes to do the following:

- S Create a strong base of support for energy codes through identifying potential community partners, schedules, and workshop presentations.
- S Create educational materials including information, graphics, and maps for packets to be distributed to at least 7000 targeted community partners by mail.
- S Draft amending legislation to be presented for review by the Mississippi Development Authority by September 2002. The amendments will be filed with the Mississippi legislature by the 2003 session.

Cost Data

Federal	\$212,312
Other	\$ 70,771
Total	\$283,083

New Jersey is currently using the 1993 BOCA National Energy Conservation Code (NECC) with ASHRAE 90A-1980 as the basis for its residential energy code. The Department of Community Affairs funded a study to compare the requirements of the 1993 BOCA NECC with the 1995 Model Energy Code (MEC) and believes it is cost effective to adopt the MEC.

Purpose

The goals of the project include: adoption of the 1995 MEC, adoption of ASHRAE/IESNA Standard 90.1-1999, and integration of the Public Service Electric and Gas Five Star Program into the Department's Balanced Housing Program.

Project Description

New Jersey proposes to do the following:

- S Provide MEC and MECcheck training to 1000 building inspector licensees and 100 builders.
- S Adopt ASHRAE/IESNA Standard 90.1-1999.
- S Train 100 architects and engineers on Standard 90.1-1999.
- S Provide training on how to comply with the Public Service Electric and Gas Five Star Energy Program (30% more energy efficient than MEC).

Cost Data

Federal \$ 52,912 Applicant \$ 17,638 Total \$ 70,550

New Mexico enforces the 1986 Model Energy Code (MEC) for commercial buildings and the 1992 MEC for residential buildings.

Purpose

The purpose of the project is to develop the first model Architectural Surety Code and to promote the adoption of the International Energy Conservation Code (IECC) to replace the current state commercial building energy code.

Project Description

New Mexico proposes to do the following:

- S Form an Architectural Surety Team representing four key interests in assuring building security will not conflict with energy efficiency and conservation in structures.
- S Draft proposed code elements and write final code as a national model.
- S Resolve conflicts between energy and security goals using Energy-10 to compare pre- and post-code building impacts.
- S Quantify benefits of the IECC using Energy-10 software to examine 10-12 new commercial plan sets.
- S Improve the ease of code compliance and gain support of code enforcers and building professionals.
- S Design and present code officials workshops.

Cost Data

Federal \$ 115,461 Applicant \$ 60,460 Total \$ 175,921

Partners

Sandia National Laboratories City of Albuquerque Association of Energy Engineers, NM Chapter School of Architecture - University of NM New Mexico Public Interest Research Group Alliance for Green Development

The International Energy Code Committee established by the New York Department of State (DOS) prepared seven code "enhancements" along with 61 editorial changes to the 2000 International Energy Conservation Code (IECC) and presented the NY-IECC to the Building Codes Council. The Council has approved the new code language and has forwarded the recommendations to the Governor's Office of Regulatory Reform for rulemaking. The NY-IECC code could be officially adopted in late 2001 with an effective start date of early 2002.

Purpose

The primary purpose of the project is to deliver the NY-IECC to the code enforcement, building, and design community in New York.

Project Description

New York proposes to do the following:

- S Provide support to New York City for enactment and enforcement of the new NY-IECC code.
- S Promote the new code to the design community through linkages with Energy Star.
- S Provide building science/commercial code training for architects and engineers.
- S Recalibrate the baselines for the commercial New Construction Program and for the Energy Star residential program based upon the NY-IECC requirements.
- S Develop a comprehensive website to support the code.
- S Develop and implement an integrated work plan to include a timeframe for phased implementation of the code, training deliverables, NY-IECC commentary, development of support networks, and outline needs to sustain efforts beyond the initial first-year efforts.

- S Create linkages to New York State universities and colleges.
- S Develop and deliver training on code-based building commissioning to architect/ engineering firms and expand the commissioning network within the state.

Cost Data

Federal \$380,000 Other \$246,000 Total \$626,000

Partners

New York State Energy Research and Development Authority (NYSERDA) New York State Builders Association Northeast Energy Efficiency Partnership Building Owners and Managers (BOMA) Chapters Building Codes Assistance Project (BCAP)

North Carolina

Background

North Carolina has adopted a simplified version of the 1995 Model Energy Code (MEC) and ASHRAE/IESNA Standard 90.1-1989. The State Building Code Council plans to adopt the International Energy Conservation Code (IECC).

Purpose

The main goal of the project is to design and conduct an assessment of building code compliance for both residential and commercial buildings.

Project Description

North Carolina proposes to do the following:

S Select communities and regions to survey, determine the scope of the assessment, and

design an evaluation procedure.

- S Conduct an engineering analysis and use energy simulation software to estimate the energy savings from improved energy codes and more stringent enforcement.
- S Prepare detailed conclusions and recommendations.
- S Conduct 10, two-day commercial energy code workshops targeted to building designers and code enforcement officials.
- S Conduct 10 residential energy code/high performance home workshops.

Cost Data

Federal \$155,000 Other \$ 51,860

Total \$206,860

North Dakota's energy standard is based on the 1993 Model Energy Code (MEC) and ASHRAE/IESNA Standard 90.1-1989. If local governments elect to adopt a code, it must meet this standard.

Purpose

The main objective of the project is the voluntary adoption of the 2000 International Energy Conservation Code (IECC).

Project Description

North Dakota proposes to do the following:

- S Work with the North Dakota Association of Builders to distribute fact sheets at the four largest home builder trade shows and evaluate the costs and benefits of building homes to the 2000 IECC.
- S Work with Fannie Mae to identify energyefficient mortgages (EEM) programs in the state, provide training and promotion as needed to realtors and lenders, and increase EEM participation.
- S Evaluate the viability and benefit of a home energy rating system.
- S Compare the energy improvement of adopting the 2000 IECC over energy use using the current energy code.
- S Promote adoption of the 2000 IECC to communities and support adoption through training to local building officials.

Cost Data

Federal \$ 50,000 Other \$ 16,667 Total \$ 66,667

Partners

North Dakota Association of Builders Fannie Mae Transferability

State activities ensuring the technical accuracy of association materials will add joint credibility and be of interest to other states with similar relationships with local government subdivisions which may not have adopted the state code.

The Ohio Basic Building Code (OBBC) lists the codified ASHRAE/IESNA Standard 90.1-1989 or the 1995 Model Energy Code (MEC) as the energy conservation standards. The Ohio Board of Building Standards is reviewing the 2000 International Building Code and the International Energy Conservation Code (IECC).

Purpose

The main purpose of the project is to focus on training code officials, design professionals, those in the building trades, and teachers and students of the allied building trades in universities and vocational technical schools.

Project Description

Ohio proposes to do the following:

- S Provide MEC*check* and COM*check-EZ* training to code officials, builders, and designers.
- S Develop materials suitable for web-based or computer-based training.
- S Conduct a random sample of training participants six months after training to determine if the training led to changes in how they deal with energy issues.
- S Work with architectural schools, secondary and post-secondary design and trade schools to provide training on aspects of energy code compliance, advanced design, and good construction practice.
- S Create consumer awareness that buildings can vary significantly in performance through speakers bureaus, trade shows, home and garden shows, fairs, parades of homes, and other public events.

Cost Data

Federal \$ 87,300

Applicant \$ 29,100 Total \$116,400

Oregon has a mandatory state-developed residential and commercial energy code which exceeds the 1995 Model Energy Code (MEC) and ASHRAE/IESNA Standard 90.1-1989.

Purpose

The goal of the project is to be more effective in supporting energy code standards and improving energy efficiency.

Project Description

Oregon proposes to do the following:

- S Compare Oregon's Non-Residential Energy Code to ASHRAE/IESNA Standard 90.1-1999 and assess how Standard 90.1-1999 can be modified in Oregon.
- S Assess alternatives and develop standards to make steel frame construction energy-equivalent to wood construction.
- S Evaluate shell, lighting, and HVAC standards that would minimize cooling load and energy impacts of server farms.

Cost Data

Federal \$122,397 Applicant \$41,000 Total \$163,397

The Commonwealth of Pennsylvania recently enacted a law (Act 45) establishing the most recent BOCA National Building Code or its successor as a mandatory statewide code for all new buildings. In complying with this law, the Commonwealth intends to implement the 2000 International Building Code including the 2000 International Energy Conservation Code. Final regulations are intended to be published in late 2000 to take effect in early 2001.

Purpose

The project has two parts: the purpose of the first is to conduct training and other implementation activities in order to realize the full energy savings potential Act 45 represents. The purpose of the second is to develop a short presentation on green buildings, alternative materials and methods of construction, and building code and regulatory compliance.

Project Description

Pennsylvania proposes to do the following in the first part:

- S Provide training for state and local government officials and their supervisors, private code officials, builders, subcontractors, designers, and architects.
- S Develop public awareness materials including informational brochures and a web site.
- S Support the Pennsylvania Code Training consortium.

In the second part:

- S Collect, evaluate, and summarize any relevant information that may be useful from the Development Center for Appropriate Technologies (DCAT) Green Buildings and Building Codes Survey.
- S Collect, evaluate, and summarize information obtained with the assistance of the United

States Green Buildings Council (USGBC) on code problems experienced by architects and engineers, builders, and developers trying to use the USGBC Leadership in Energy and Environmental Design (LEED) green building rating system.

- S Identify and prioritize a preliminary list of key technologies including three or four to be included in a mini-training workshop.
- S Develop a preliminary outline of technology training modules for three to five of the alternative technologies.
- S Develop a one to two hour training module and identify opportunities for presenting it.

Cost Data

Federal \$ 93,750 + 28,338 Other \$ 31,250 + ?? Total \$125,000 + ??

Partners

Pennsylvania Association of Boroughs
Pennsylvania Association of Township
Supervisors
Building Codes Assistance Project
Northeast Energy Efficiency Partnerships, Inc.
New Buildings Institute
DCAT
USGBC
National Conference of States on Building Codes
and Standards

Rhode Island will upgrade its energy code to the 2000 International Energy Conservation Code (IECC) with the 2001 Supplement in 2001 with an effective date of January 2002.

Purpose

The main project objectives include:

- S Updating residential and commercial building energy codes in the New England and Mid-Atlantic states to meet or exceed ASHRAE/IESNA Standard 90.1-1999 and the 2000 IECC with the 2001 Supplement based on best current practices in at least six states.
- S Enhancing resources to support state building energy code development and implementation.
- S Informing national model building codes and standards to reflect regional needs, integrated building performance, indoor air quality, and best practices.
- S Enhancing building energy code implementation in Northeast states.
- S Building awareness of the public benefits of updated building energy codes and improve implementation.
- S Integrating building energy code development and implementation with voluntary ratepayer funded energy efficiency programs and efforts to improve building design and energy performance in at least six states.
- S Document the results of the project.

Project Description

Rhode Island proposes to do the following:

- S Continue meetings of the Code Project Advisory Committee.
- S Provide a biannual Project newsletter and a technical workshop on selected energy-

- related topics.
- S Coordinate energy code upgrade support.
- S Provide regional input to the national residential and commercial model energy code development process through the International Code Council and other relevant forums.
- S Conduct residential and commercial training sessions and outreach on commercial energy codes to architects and engineers through a circuit rider.
- S Coordinate ratepayer-funded energy efficiency programs with the building energy code project.

Cost Data

Federal \$300,000 Other \$191,118 Total \$491,118

Partners

Northeast Energy Efficiency Partnerships, Inc. National Grid USA Companies Rhode Island State Building Commission

Transferability

The project will:

- S Help the entire region adopt and implement codes that meet or exceed Standard 90.1-1999 and 2000 IECC.
- S Coordinate individual state efforts and include industry trade allies and utilities and link ratepayer-funded energy efficiency programs for new construction to building energy codes.
- S Transfer learning and information between states to improve energy code implementation and effectiveness.
- S Help develop regional capabilities to ensure codes are adopted and supported through specific materials and deployment activities that become institutionalized in state energy

South Carolina

Background

On July 1, 2001, South Carolina formally adopted the International Code Series, including the International Energy Conservation Code (IECC). Under this project, South Carolina will provide training in implementing the energy code to heating, ventilation and air conditioning (HVAC) contractors. Since the HVAC system accounts for over forty percent of the energy use in a typical building, targeting this sector for code training should increase energy code compliance in the state, in turn decreasing the amount of energy consumed.

Purpose

The purpose of this project is to provide residential and light commercial HVAC contractors with training and information they will need to ensure compliance with the IECC, International Fuel/Gas Code, and the International Mechanical Code, including an overview of the 10-20 most frequently found violations of these codes and how to avoid them.

Project Description

South Carolina proposes to do the following:

- S Consult representatives from the building industry, the HVAC industry, housing authorities, schools, governments, as well as code officials to develop a marketing strategy for the workshops.
- S Design and produce training materials, learning aids, and student outlines for use at the workshops.
- S Conduct 11 workshops.

Cost Data

Federal \$55,095 Other \$24,780 Total \$79,875

In the session that ended May 28, 2001, the 77th Texas Legislature established residential building and energy codes: the International Residential Code (IRC) and the International Energy Conservation Code (IECC).

Purpose

The main objectives of the project include:

- S Demonstrate clear benefits of energy efficiency codes and standards.
- S Develop practical tools and coordinated outreach services that take into account the unique characteristics of Texas communities that reflect their differing needs, capabilities and resources.
- S Provide assistance to communities in applying those tools, and help them develop and implement their own energy-efficient building practices.
- S Develop training workshops on the use of building codes.

Project Description

Texas proposes to work with partners to provide training on the energy efficiency chapter of the IRC and the IECC at locations throughout the state. The target audience includes builders, city building officials, architects, and engineers. This effort will initiate the educational process through training sessions, interactive web materials, and other traditional materials.

Cost Data

Federal \$190,000 Other \$63,878 Total \$253,878

Partners

Texas Municipal League
Building Officials Association of Texas
Texas Association of Builders through the Texas
Engineering Experimental Station of the Texas
A&M University

In 1997, Vermont passed and signed into law the Vermont Residential Building Energy Standards (RBES), an energy code based on the 1995 Model Energy Code (MEC). Through funding by DOE, builder handbooks and outreach materials were developed, and over 1000 builders have been trained through dozens of code training workshops. An annual builder training conference and toll-free hotline were also established. Vermont has developed and is implementing the Commercial Building Energy Standards (CBES) based on the 2000 International Energy Conservation Code (IECC).

Purpose

The main goal of the project is to transform the new construction market into an industry that understands basic building science principles as well as code compliance requirements.

Project Description

Vermont proposes to do the following:

- S Continue the Energy Code Assistance Center (ECAC) to support Vermont builders, developers, and the building design community.
- S Continue integration of commercial code support into ECAC.
- S Continue to support the building solutions conference by participating in planning, soliciting vendors, developing partnerships and being a major sponsor.
- S Continue to provide mailings and commercial code support materials.
- S Revise the Vermont RBES Handbook and Energy Code Certificate.
- S Develop and implement an ECAC Institutional Plan.
- S Create a sustainable in-state funding source over the next two years to maintain the code

support activities.

Cost Data

Federal \$199,500 Other \$197,500 Total \$397,000

Partners

Vermont Energy Investment Corporation

Transferability

Vermont participates in the NEEP Multi-State Regional Code Support Project and coordinates with nearby states on outreach for conference and other training events.

The year 2001 begins a new three-year cycle for code development and adoption in Washington. However, the current energy situation could prompt the governor's office to place the current adoption cycle on a fast track.

Purpose

The main goal of the project is to promote progressive energy codes by participating in code development activities at the state and international levels.

Project Description

Washington proposes to do the following:

- S Continue to support Internet-based training and provide eight opportunities for on-site training.
- S Update and add to the code support materials available on the web site.
- S Work with the Oregon Office of Energy to improve understanding of steel frame building systems by developing and disseminating reference U-factors for steel frame attics and floors.
- S Support green building initiatives including the U.S. Green Building Council's residential LEED program.
- S Continue to distribute and support the WATTSUN code compliance software.

Cost Data

Federal \$220,000 Other \$95,000 Total \$315,000

Wisconsin currently has unique codes based on the 1995 Model Energy Code (MEC) and ASHRAE/IESNA Standard 90.1-1989. The state will be adopting the International Energy Conservation Code (IECC) in 2001 with an expected effective date in 2002. This will apply to all buildings except one- and two-family dwellings that will continue to be governed by Wisconsin's Uniform Dwelling Code.

Purpose

The goal of the project is to increase the understanding of the Wisconsin energy codes, building science techniques, the Wisconsin Energy Star Homes program, and the science behind the energy code.

Project Description

Wisconsin proposes to do the following:

- S Conduct a series of half-day training sessions on the new 2002 Multifamily Building Energy Code (4-8 sessions).
- S Conduct a series of full-day training sessions on building science and its relationship to codes (at least 6 sessions).
- S Conduct a two-day conference for builders and trade contractors that emphasizes Wisconsin Energy Star and the Building America programs.

Cost Data

Federal \$120,000 Other \$170,000 Total \$290,000

Partners

Energy Center of Wisconsin

State	State Contact	Telephone	Purpose
Alabama (Advancement of the Alabama Residential Energy Code)	Russell Moore Science, Technology and Energy Division Alabama Department of Economic and Community Affairs PO Box 5690 Montgomery, AL 36103-5690	(334) 242-5294	Further the use of the MEC in Alabama. The 1998 and 2000 IECC will be reviewed. A survey will be conducted to determine the current level of residential construction.
Arizona (Arizona Energy Efficiency Code Program)	Charlie Gohman Arizona Department of Commerce Energy Office 3800 N. Central Ave., Suite 1200 Phoenix, AZ 85012	(602) 280-1428	Provide training and outreach materials. Information, technical assistance, and training on the code will be provided to communities and affordable housing groups. Training on building performance issues will also be provided.
California (Builder Energy Code Training)	Eurlyne Geiszler California Energy Commission 1516 Ninth Street, MS25 Sacramento, CA 95814	(916) 654-4052	Development of additional programs and tools to further energy- efficient, quality construction; to develop a close partnership with utilities to provide much needed additional training sessions not only for builders but for building officials and architects; and to seek additional avenues to publicize the components, accomplishments and advantages of the training.
Colorado (Promotion of Energy Efficiency to Building Code Jurisdictions and Their Clients)	Megan Edmunds Energy Rated Homes of Colorado 1981 Blake Street Denver, CO 80202	(303) 297-7480	Continued builder education on energy efficiency and building science issues, continued technical support to local code jurisdictions, consumer education and promotion of voluntary programs.
Georgia (Georgia Energy Code Project)	Julia Miller Division of Energy Resources Georgia Environmental Facilities Authority 100 Peachtree Street, NW, Suite 2090 Atlanta, GA 30303	(404) 656-7972	Provide training and technical assistance, conduct an outreach campaign, integrate energy code training into the state's curricula for code officials and design and construction professionals.

Guam (Guam Energy Code 2000: Evaluation and Refinement)	James Mummert Guam Energy Office 548 North Marine Drive Tamuning, GU 96911	(671) 646-4361	Continue educating the building industry on the new energy code and conduct an evaluation of the effectiveness of the new code. Start an ad campaign.
Idaho (Codes and Beyond)	Robert Hoppie Idaho Department of Water Resources 1301 North Orchard Boise, ID 83706	(208) 327-7968	Transfer energy code activities to the Department of Building Safety. Hire and train Energy Specialists to implement energy codes and develop a strategy for implementing the IECC.
Indiana (Assessment and Training on Residential Energy Code Requirements)	Niles Parker Indiana Department of Commerce Energy Policy Division One North Capitol, Suite 700 Indianapolis, IN 46204-2288	(317) 232-8939	Assess current residential building practices. Perform 125 single-family building plan reviews and field inspections. Conduct training sessions for participating enforcement agencies.
Indiana (Commercial Energy Code Baseline Study and Training)	Niles Parker Indiana Department of Commerce Energy Policy Division One North Capitol, Suite 700 Indianapolis, IN 46204-2288	(317) 232-8939	Conduct a baseline study of current commercial building practices. Provide training and conduct plan review and field inspection of 50 new projects. Assess the impact of these activities on building practices.
lowa (Building Energy Code Education: Updating lowa's Code and Field Inspection Training)	Angela Chen Iowa Department of Natural Resources 502 East 9 th Street Des Moines, Iowa 50319	(515) 281-4736	Adopt the 2000 IECC. Train state and local officials through actual plan review and field inspection of 65 new homes and determine the level of compliance.
Kansas (Technical Assistance to Local Code Officials)	Jim Ploger SEP Program Manager Kansas Corporation Commission 1500 S.W. Arrowhead Road Topeka, KS 66604-4027	(785) 271-3349	Provide technical assistance to local code officials on adoption of the 2000 IECC. Provide training and continue distribution of energy efficiency and energy code information.

Kentucky (Kentucky Energy Code Outreach, Education and Training)	Gregory T. Guess Kentucky Division of Energy 663 Teton Trail Frankfort, KY 40601	(502) 564-7192	Provide information and gain support for adoption of the IECC. Hold workshops and conduct training on high-performance homes and ASHRAE/IESNA Standard 90.1-1999.
Louisiana (Model Energy Code Compliance for Historic Buildings in Hot, Humid Climates)	Wade Byrd Energy Section Louisiana Department of Natural Resources PO Box 44156 Baton Rouge, LA 70804-4156	(225) 342-3476	Develop and distribute an easily-understood manual for hot and humid climates describing the correct methods for making energy efficiency and comfort-related renovations to historic residential buildings.
Massachusetts (Supporting Advanced Energy Codes)	Bruce Ledgerwood Division of Energy Resources 70 Franklin St., 7 th Floor Boston, MA 02110	(617) 727-4732	Launch a consumer awareness and outreach campaign. Continue to provide training and technical assistance. Amend energy provisions of commercial code for existing buildings.
Minnesota (Energy Code Advancement Project 2001)	Bruce Nelson Building Science Specialist Minnesota Department of Public Service 121 7 th Place East, Suite 200 St. Paul, MN 55101-2145	(651) 297-2313	Provide grants to local jurisdictions to assist with energy code enforcement. Provide information on operations and maintenance to new home owners. Provide pre- and post-project energy and ventilation training to participating code enforcement personnel.
Mississippi (Mississippi Energy Management Plan)	Betty Norman Energy Division Mississippi Department of Economic & Community Development PO Box 850 Jackson, MS 39205-0850	(601) 359-6600	Adopt the 2000 IECC. Provide educational materials. Draft amending legislation.

New Jersey (Residential Energy Code Implementation)	Michael Baier New Jersey Department of Community Affairs Division of Codes and Standards 101 South Broad St., PO Box 802 Trenton, NJ 08625	(609) 984-7609	Adopt the 1995 MEC and ASHRAE/IESNA Standard 90.1-1999. Integrate the Public Service Electric and Gas Five Star Program into the Balanced Housing Program.
New Mexico (Codes and Standards)	Harold Trujillo Energy Conservation and Management Division New Mexico Energy, Minerals and Natural Resources Department 1220 South St. Francis Drive Santa Fe, NM 87505	(505) 476-3318	Develop the first model Architectural Surety Code and promote the adoption of the IECC to replace the current state commercial building energy code.
New York (Delivery of NY-IECC 2000 to the New York Building Community)	Mark Eggers New York State Energy Research and Development Authority Corporate Plaza West 286 Washington Avenue Extension Albany, NY 12203-6399	(518) 862-1090 ext.3308	Provide support to New York City for enactment and enforcement of the new code. Provide training and a comprehensive web site. Develop and implement a work plan to implement the code.
North Carolina (North Carolina Energy Code Assessment)	Starlette Brown State Energy Office North Carolina Department of Administration 1340 Mail Service Center Raleigh, NC 27699-1340	(919) 733-1897	Design and conduct an assessment of building code compliance for both residential and commercial buildings. Conduct commercial training and residential high-performance homes training.
North Dakota (Construction Practices for the 21 st Century)	Kim Christianson ND Division of Community Services 14 th Floor - State Capitol 600 East Boulevard Avenue Bismarck, ND 58505-0170	(701) 328-4137	Provide information on the 2000 IECC and promote its adoption. Work with Fannie Mae to identify energy-efficient mortgage programs. Evaluate the viability and benefit of a home energy rating system.

Ohio (Ohio Codes and Standards Special Project '01)	Stjepan Vlahovich Office of Energy Efficiency 77 South High Street, PO Box 1001 Columbus, OH 43216-1001	(614) 466-6797	Train code officials, design professionals, those in the building trades, and teachers and students in universities and vocational technical schools.
Oregon (Oregon Progressive Codes & Standards)	Alan Seymour Oregon Office of Energy 625 Marion Street NE, Suite 1 Salem, OR 97301-3742	(503) 378-5873	Compare Oregon's commercial code to ASHRAE/IESNA Standard 90.1-1999. Assess alternatives and develop standards to make steel frame construction energy-equivalent to wood construction.
Pennsylvania (Implementation and Training for 2000 IECC)	Edwin Pinero Pennsylvania Department of Environmental Protection Rachel Carson State Office Building PO Box 8772 Harrisburg, PA 17105-8772	(717) 783-0542	Conduct t raining and other implementation activities in order to realize the full energy savings potential Act 45 represents. Develop a short presentation on green buildings, alternative materials and methods of construction, and building code and regulatory compliance.
Rhode Island (Northeast Regional Building Energy Code Project)	Janice McClanaghan Rhode Island State Energy Office 1 Capitol Hill Providence, RI 02908	(401) 222-3370	Update codes to meet or exceed ASHRAE/IESNA Standard 90.1-1999 and the 2000 IECC with 2001 Supplement in at least six states. Build awareness of public benefits of energy codes.
South Carolina (Transition to Energy Code Compliance)	Jean-Paul Gouffray South Carolina State Energy Office 1201 Main Street, Suite 820 Columbia, SC 29201	(803) 737-8038	Provide residential and light commercial HVAC contractors with training and information to ensure compliance with the IECC.
Texas (Promote Adoption of Residential and Commercial Energy Codes)	Felix A. Lopez 111 East 17 th St., LBJ State Office Building Austin, TX 78701	(512) 463-1030	Develop tools and outreach services and provide assistance to communities in using those tools. Develop training workshops on the use of building codes.

Vermont (Enhancing and Institutionalizing the Vermont Energy Code Assistance Center)	Scudder Parker Vermont Department of Public Service 112 State Street, Drawer 20 Montpelier, VT 05620-2601	(802) 828-4009	Continue the Energy Codes Assistance Center. Support the building solutions conference. Continue to provide code support materials.
Washington (Advancing and Promoting Energy Codes in Washington State)	Chuck Murray Washington State University Cooperative Extension Energy Program PO Box 43165 Olympia, WA 98504-3165	(360) 956-2157	Provide training and update support materials available on the web site. Work with Oregon on steel frame building systems and support the residential LEED program.
Wisconsin (2001 Wisconsin Energy Code Compliance and Enforcement Training)	Norman Bair Wisconsin Division of Energy PO Box 7868 Madison, WI 53707-7868	(608) 266-5827	Conduct training on the energy code, building science techniques, and conduct a conference that emphasizes Energy Star and Building America programs.