National Conference of States on Building Codes and Standards, Inc.

1970 Chain Bridge Road, McLean, Virginia 22102

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FINAL REPORT

MASTER

SEMINAR
ON

BUILDING CODES AND STANDARDS

HOTEL ADOLPHUS

DALLAS, TEXAS

JANUARY 22 & 23, 1980

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Sponsored by:

NATIONAL CONFERENCE OF STATES ON BUILDING CODES AND STANDARDS, INC.

UNDER GRANT NO. DE-FG01-79CS60474

U. S. DEPARTMENT OF ENERGY

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TABLE OF CONTENTS

	Page
GRANT OBJECTIVE.....	1
GRANT PROGRESS SUMMARY.....	1
Date.....	1
Seminar Location.....	1
Participants.....	1
Seminar Agenda.....	2
Critiques and Evaluations from Participants.....	3
SESSIONS.....	6
Tuesday, January 22, 1980.....	6
Welcoming Address by John Wenning.....	6
Keynote Address by John Millhone.....	8
Building Energy Performance Standards Development by James Binkley.....	15
Lighting Standards in Existing Buildings by Dorothy Cronheim.....	55
Summation of First-Day's Session.....	57
Wednesday, January 23, 1980.....	58
Implementation of BEPS by Archie Twitchell.....	58
Sanctions for Building Energy Performance Standards by Sue Sicherman.....	62
Summation of Implementation Program.....	64
Conclusion of Seminar.....	64

ATTACHMENTS

	Attachment
Official Roster of Participants.....	1
Agenda for Two Sessions.....	2
Critiques and Evaluations from Participants..	3

FINAL REPORT

Grant No. DE-FG01-79CS60474
Seminar on Building Codes and Standards
Grant Period: July 16, 1979 - June 15, 1980
National Conference of States on Building Codes and
Standards, Inc. (NCSBCS)
1970 Chain Bridge Road
McLean, VA 22102
March 1980

I. GRANT OBJECTIVE

The objective of this grant was to conduct a seminar for state building code officials and state energy officials to discuss the following issues:

- status of the states regulatory activities for energy conservation standards for buildings;
- the development, administration and enforcement processes for energy conservation standards affecting new construction;
- lighting and thermal standards for existing buildings;
- status of the development and implementation of the Title III Program, Building Energy Performance Standards (BEPS); and
- current status of the State Energy Conservation Program.

II. GRANT PROGRESS SUMMARY

Date: January 22 & 23, 1980

Seminar Location: Hotel Adolphus
1321 Commerce Street
Dallas, Texas 75221

Participants:

State Officials - 107 State Building Code and Energy
Officials

Federal Representatives from --

- U. S. Department of Energy Headquarters
- U. S. Department of Energy Regions
- Federal Trade Commission
- Office of Technology Assessment of the U. S. Congress

Others -

- National Governors Association
- Model Code Groups
- Harbridge House
- AIA/Research Corporation
- Tennessee Valley Authority
- Local government officials

NCSBCS - Energy Division Staff

See Attachment 1 for Roster of Participants.

Seminar Agenda:

A copy of the official seminar agenda is included as Attachment 2.

The seminar agenda was designed (1) to brief the state representatives on the development of the BEPS program; (2) to discuss the basic concept and the research efforts in developing the Notice of Proposed Rulemaking and its Technical Support Documents; (3) to discuss progress of the proposed implementation program; and (4) to identify issues and concerns of implementing BEPS at the state and local levels in order to make this a workable standard. To achieve these objectives, the seminar was designed and conducted as follows:

January 22, 1980 (First Day) - The agenda for the first day included welcoming remarks by JOHN WENNING, President of National Conference of States on Building Codes and Standards, and a keynote address by JOHN MILLHONE, Director, Office of Buildings and Community Systems, U. S. Department of Energy, who reviewed the extensive and comprehensive federal activities in the development of a performance-based energy conservation program in new buildings. JAMES BINKLEY, Acting Branch Chief, Building Codes and Standards, U. S. Department of Energy, presented an overview of the proposed Building Energy Performance Standards; and PETER BACK,

Branch Chief, Systems Analysis, Division of Planning and Program Development, U. S. Department of Energy, briefed the participants on the overall rationale on how DOE determined the economic levels promulgated in the Notice of Proposed Rulemaking.

Ample time was allotted for a question/answer period after each presentation which resulted in an excellent exchange of views between the state participants and the Department of Energy staff.

DOROTHY CRONHEIM, Program Analyst, State Energy Conservation Program Division, Department of Energy, completed the first day's session with a presentation on the results of the Notice of Inquiry issued by DOE on lighting standards in existing buildings.

January 23, 1980 (Second Day) - The second day was devoted to an in-depth discussion on implementation issues pertaining to the Building Energy Performance Standards presented by ARCHIE TWITCHELL, Senior Program Manager, BEPS Implementation Program, Department of Energy, and was supported by SUE SICHERMAN, Program Analyst, Building Codes and Standards, Department of Energy, who discussed the matter of sanctions.

At the completion of the one and one-half day session, the National Governors Association convened a BEPS task force comprised of state energy officials to discuss implementation issues relative to BEPS.

Critiques and Evaluations from Participants:

A complete compilation of comments, evaluations and recommendations received from seminar participants is attached. (See Attachment 3.)

Some excerpts from these critiques are summarized as follows:

TYPICAL BEPS SEMINAR CRITIQUES

Comments on Seminar Proceedings

- One and one-half days was too short. Need more time, especially for question and answer periods.
- There was not enough time for an exchange of experiences, etc., between states.
- There was a good exchange between federal government and states.
- BEPS Team was very open to comments and very patient.
- There was good two-way communication with DOE officials who responded well to concerns of the group.
- DOE officials were highly professional in their presentations and extremely informative.
- DOE officials appeared much more attentive to state concerns than at last seminar and they appeared to understand the problems of state and local officials.
- The opportunity to comment and question the DOE officials was beneficial to the states since many share the same concerns.
- The next seminar should be planned to allow for more interaction among smaller groups.
- One energy official indicated "I left the meeting with a much better attitude toward the whole BEPS issue."
- More handouts, charts and graphs supporting comments and figures on the need for BEPS would have been useful to the individual states.
- Accommodations were quite adequate and surprisingly pleasant.
- This type of seminar is more adequately geared towards the development of a workable rule.
- DOE officials encouraged expression of experience from the seminar participants and was obviously recording comments for further study by program officials.

Principal Concerns Regarding BEPS

- What affect will BEPS have on existing energy standards states have already adopted?
- A thorough analysis of BEPS and ASHRAE 90-75 is needed in order to evaluate the impact of BEPS.
- The presentation on the second day did not build up an air of confidence on the overall implementation program.
- Will there be sufficient funding by the federal government for an enforcement program?
- Will computers be used in the implementation program?
- When exactly will BEPS become law?
- What kind of training will be offered?
- Will funds be withheld (or is it just merely a threat)?
- When will a manual of recommended practice be issued?
- A workshop on implementation should be arranged as soon as practical.
- It is apparent that much work remains to be done before this program can become either workable or effective within the framework of existing building code enforcement programs.
- What codes will be certified for equivalency?
- Climatological information appears inadequate.
- Weighting factors approach seems difficult at the state and local levels.
- Standard Metropolitan Statistical Areas (SMSA) should be expanded by DOE to include discrete areas, such as counties, to ensure consistent application of Energy Budget Levels.

III. SESSIONS

Session: Tuesday, January 22, 1980

The first day was devoted to a briefing on the background, development and details of the Building Energy Performance Standards (BEPS).

Henry S. Wakabayashi, NCSBCS Energy Program Director and Moderator for the seminar, opened the session with a roll call of state representatives and briefly outlined the agenda and program for the seminar.

John Wenning, President, National Conference of States on Building Codes and Standards, Inc., gave a welcoming address to the participants and guests.

Welcoming Address by John Wenning

Good morning ladies and gentlemen! On behalf of National Conference of States on Building Codes and Standards, I extend a cordial and warm welcome to each of you participating in this important event concerning the Building Energy Performance Standards program.

We, at the Conference, are particularly pleased that the Department of Energy has selected our organization to undertake a seminar of this nature to further an understanding of various issues and concerns pertaining to the Building Energy Performance Standards. In this connection, the Conference has worked closely with the Department of Energy to assure that each of you had received in a timely manner a copy of the Notice of Proposed Rulemaking and all available accompanying documents. Moreover, we trust that the executive summary which was prepared by the Conference to provide you with a concise overview of the total package was helpful to you. In summary, the Conference is very pleased to be in a pivotal and supportive role to our constituents as well as the Department of Energy in the overall Building Energy Performance Standards program.

Historically, the Conference is committed to a strong national energy conservation program as being in the best interest and welfare of every citizen of local and state jurisdictions and, indeed, the whole nation. The Conference initiated this commitment

in 1973 when we requested the National Bureau of Standards to develop energy conservation guidelines. These completed guidelines were submitted by the Conference to the American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. (ASHRAE), in 1974 with a request to develop a standard. The American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc., completed that consensus standard, commonly known as ASHRAE 90-75, in 1975.

In 1976, the Conference received a contract from the Energy Research and Development Administration to develop an energy conservation code for new building construction, based on ASHRAE 90-75, and educational materials. The Conference signed subcontracts with Building Officials and Code Administrators International, Inc. (BOCA), International Conference of Building Officials (ICBO) and Southern Building Code Congress International, Inc. (SBCCI), for development of the code. The jointly produced Model Code for Energy Conservation in New Building Construction was completed in 1977.

Your role, as building code and energy program administrators, in the national energy consumption scenario is indeed a significant one in that approximately one-third of the total energy consumed daily in this nation is attributable to heating and cooling of buildings. Moreover, against the current background of the traumatic, dramatic and hectic events developing virtually daily in the Mideast, conservation of our scarce energy resources becomes even more important. The Department of Energy has recently announced, among these conservation measures, the matter of the Building Energy Performance Standards. This, then, will be explored in detail and your questions and apprehensions pertaining to this program will hopefully be resolved during this seminar. We are fortunate in having those persons who were intimately involved for many months and even years in the development of this program.

All of us have heard at one time or another of the Building Energy Performance Standards program as mandated by Congress in Title III of Public Law 94-385. We have had an opportunity to gain an insight of the Building Energy Performance Standards when it was first presented to the public in November 1978. We had an opportunity to comment on the advance notice and, at that time, Charles Dinezio, the Past-President of the Conference, clearly voiced the concern of state building code and

energy program administrators regarding the program being proposed by the Department of Energy. Past-President Dinezio's comments, on behalf of those state administrators, emphasized the desirability of utilizing existing state programs to implement this standards program and facilitating the effective implementation of this program by providing prescriptive alternatives to the total performance standards.

It is my understanding that the voluminous comments on that advance notice were "loud and clear." Based on these responses, the Department of Energy has revised the Building Energy Performance Standards program as it is being presented today. The discussion for the next day and a half will be principally aimed at the Standards themselves--the research efforts, the background and the development of the Standards. Many of you will feel that the implementation aspect of the Building Energy Performance Standards will be the prevailing and the pervasive issue in assuring success or failure of the overall program, and I must agree with you. However, at the present time the implementation procedures are still being developed and, while there will be some preliminary discussions as to the concept of the implementation procedures, I wish to emphasize that the specific and definitive implementation plans and policies will be made a subject of a subsequent conference.

With this in mind, I urge that each of you carefully listen, analyze and evaluate the presentations made herein and be responsive to the Department of Energy representatives so they might benefit from the extensive experience represented by those in this room in administering code regulations. I have been given to understand that the Department of Energy considers the input from this group to be one of the most significant and important elements in assuring successful implementation of the Building Energy Performance Standards program.

Again, welcome to our meeting and I trust that you will depart tomorrow afternoon with a much deeper understanding of the Building Energy Performance Standards program.

Keynote Address by John Millhone

John Millhone, Director, Office of Building and Community Systems of the U. S. Department of Energy,

set the tone for the day's session by reviewing overall federal activities in the area of energy conservation in new buildings, as outlined below--

- Review of overall energy situation
 - Stressed the urgency for making general public aware of the seriousness of the energy problems.
- Action at state and local levels
 - Some states had started work on energy conservation program prior to the passage of P. L. 94-163, EPCA.
 - Since 1976, 44 states have some kind of energy code, if only for public buildings.
 - Comparing the work that has been done by the states in developing their energy conservation programs and the events in the energy supply area that have occurred in same period of time, it appears we are coming to grips with energy crisis since
 - a large percentage of the nation's energy is utilized by the building sector, both commercial and residential, and
 - this has been an area that has not been as responsive towards increased energy conservation as others.
 - This is the main reason why so much attention has been focused on BEPS and residential conservation program, such as retrofit programs.
- Critical issues of developing a performance standard
 - Why a performance approach?
 - This is an innovative approach to the issue of government energy savings.
 - Elements which have to be considered
 - existing standards,
 - life cycle costing,

- setting budgets,
- environmental considerations,
- marketability of standard,
- consumer benefits, and
- the relationship of the performance standard to other energy conservation programs.
- DOE is about to enter into a critical point in time on the BEPS program, thus:
 - DOE needs assistance from everyone in this room.
- Three Federal Acts set the stage for the BEPS.
 - The Energy Policy and Conservation Act in 1975.
 - Provided the state energy conservation program.
 - First indication that some kind of action in the buildings area was critically important.
 - Rapid response by many states.
 - The Energy Conservation and Production Act in 1976.
 - Provided for the Energy Conservation in New Buildings Act which was the beginning of BEPS research activity.
 - Gave HUD responsibility to propose a performance code within a three-year period.
 - HUD analyzed a large number of buildings constructed during that period: commercial, residential and mobile homes.
 - Critical point here is that we are looking at a performance standard.
 - Legislation states that energy consumption goals are to be met without specification to the methods, materials and processes to be employed in achieving goals.

- A performance concept has a number of conceptual advantages--
 - it focuses attention on the actual energy performance of the whole building,
 - it gives flexibility to building designers to more creatively and artistically meet energy efficient goals and also other interests of building owner, and
 - it can nurture and stimulate use of solar or other innovative design capabilities.
- Problem of performance approach in accomplishing the concept in practice through regulations gets into some very complicated matters.
- DOE Organization Act in fall of 1977.
 - This was a transfer of responsibility of development of the standards from HUD to DOE.
 - HUD was to continue with the collection of data.
 - DOE was to monitor HUD data until data collection is completed, analyze research and then decide where to proceed from there.
 - DOE's first full-time employee on the BEPS program came on board during the summer of 1978.
- ANPR published in November 1978.
 - Voluminous comments indicated that a great deal of work needed to be done.
 - Intensive effort during the last year by DOE to develop proposed standards involved a large headquarters staff, laboratory staff and consultants.

- Because of this intensive effort, DOE has not had ability to communicate with the state and local people on the different elements of this program.
- A special emphasis should be placed now on encouraging communication between DOE and the states.
- NOPR published in Federal Register on November 28, 1979, along with the Technical Support Documents (TSD's) which provide background information.
 - Due to the delay in making TSD's available, comment period has been extended by 60 days and hearings rescheduled.
 - From DOE's view, NOPR and TSD's represent the most comprehensive effort to study the issue of energy performance in buildings that has ever been undertaken.
 - Three principal concepts considered in the NOPR:
 - Design energy budget
 - Design energy consumption
 - Standard evaluation technique
- Emerging issues which DOE foresees:
 - Will Congress decide to impose sanctions to assure compliance with the new standards?
 - Act states "no federal financial assistance shall be made available for the construction of any new commercial or residential building in any area of any state unless certain actions are undertaken to avoid the sanction".
 - Sanctions would increase regulation of the building industry, and should not be used unless there is no other way.
 - Sanctions would have a major impact on new construction unless that construction is done in compliance with BEPS.

- Sanctions would have a positive effect on energy savings.
- How stringent should design energy budgets be?
 - The legislation language does not provide instruction for answering this question.
 - What level of stringency is maximum practicable?
 - Statute specifically mentions increase in use of renewable sources of energy.
 - Numbers can be selected which are conservation forcing.
 - Numbers can be selected which would eliminate the energy glutton.
 - Conservation forcing budgets would be preferred.
 - Environmental issue concerns on interior air quality.
- What weights should be given to different energy sources (petroleum, natural gas, electricity and solar)?
 - Notice the question is what weights, not whether we should give any weights at all.
 - Redesign of buildings which had been previously analyzed.
 - Life-cycle costing analysis.
 - Net present value of budgets with different levels of leniency or stringency. Should lead towards stringent net present value budgets.
 - Site based standards versus alternative source based factors.
 - Evaluation of the capacity of the building industry to adjust to the more energy-efficient construction. Is there the know-how and technical assistance for doing this?

- DOE encourages comments on numbers that have been selected.
- Timing of proposed standards
 - Congress gave HUD and DOE three years to prepare proposed standards (August 14, 1979).
 - Six months was set out in the statute between publication of proposed standards and final standards.
 - Six months discretionary time was allowed.
 - Three months of this time was used in getting out proposed standards.
 - DOE is planning to use the additional three months before publishing final standards on or before August 14, 1980.
 - Congress has up to 90 days after promulgation of standards to impose sanctions. Effective date of sanctions would be one year after standards are promulgated or August 14, 1981, whichever occurs earlier.
- Implementation of BEPS
 - Implementation responsibility rests with HUD.
 - Proposed rules on implementation will be published on August 14, 1980.
 - Chapter 5 of the proposed regulations indicates what DOE and HUD have done in this area, and how they want to deal with implementation. It gives a view on how the standards and implementation will fit together.
 - After proposed rules are published, there will be a comment period and hearings. The final rules will be published in six months.
- There is a recognized need to provide technical assistance to state and local governments as well as architects and engineers.
- Work is being done with ASHRAE to develop more stringent figures for ASHRAE 90-75 so that it could

be used to meet BEPS. Also, the same thing is being done with HUD on Minimum Property Standards and other codes.

- DOE is seeking advisory opinion to ascertain if a model code is equivalent to BEPS.
- Make publicly available standard evaluation technique. Review and approval of commercial evaluation techniques could qualify and be used in the determination of whether a building design met the BEPS requirement.
- Determine how to use an alternate approval process specified in the Act. If a locality does not have a qualified code implemented, there should be some method of meeting BEPS.
- DOE would desire to build BEPS into ASHRAE program.
- Energy conservation in new building construction is a high-priority item at the federal level, but we need assistance from the states to move ahead and accomplish this goal.

Building Energy Performance Standards Development

Mr. Wakabayashi introduced James Binkley, Acting Branch Chief, Building Codes and Standards, U. S. Department of Energy. Mr. Binkley was substituting for John Cable, Division Director, Architectural and Engineering Branch, who was unable to attend.

Mr. Binkley outlined the DOE organization and those within that organization who were responsible for various portions of the BEPS development. He then presented an overview of the proposed Building Energy Performance Standards. Mr. Binkley's slide presentation is as follows:

Department of Energy

Office of Buildings and Community Systems

Buildings Division

Presentation by: John H. Cable, AIA Director

Legislative Mandate for Standards

P.L.94-163 "Energy Policy and Conservation Act"

Prescriptive: Specify Components, Subsystems or Systems to Achieve Objective—One of Five Mandatory Actions Necessary for Federal Money

P.L.94-385 "Energy Conservation and Production Act"

Performance: Specify Desired Goals of Components Subsystems or Systems, without Regard to Specific Means Employed

P.L.95-91 "DOE Organization Act"

Transfers Development and Promulgation to DOE

1977 All Fuel Use

Total 75.8 Quads

Source: EIA

Promulgation

November
1978

- Issued to Facilitate Public Participation
- Described Findings of Research to Date
- Outlined Tentative Approach
- Identified and Defined Issues
- Sought Public Comment

November
1979

- Makes Formal Proposal
- Responds to Comments on ANOPR
- Outlines Future Research
- Identifies and Defines Issues
- Seeks Public Comment

- Will Establish the Final Standards
- Will Respond to Public Comment on NOPR
- Will Incorporate Results of Continuing Research

Public Comment on Advance Notice of Proposed Rulemaking

348 Comments or Requests from:

- Utility Companies
- Building Material Suppliers and Manufacturers
- Public Interest/Consumer/Environmentalists
- Design Professionals
- States
- Builders

6 Major Areas of Concern:

- Schedule
- Thermal Performance Guidelines (TPG)
- Source or Building Line Budgets
- Methodology for Budget Derivation
- Implementation
- Renewable Resources

Response to Public Comments

Issue	ANOPR	NOPR
Commercial/ Multifamily Budget Levels	Generally 30th Percentile	Down to 10th Percentile
Residential Budget Derivation	TPG "Floating" Budget	Btu/SF/Yr through Life-Cycle Cost Analysis

Contents of the NOPR

1.0 The Standards Program

2.0 The Research Effort

3.0 Selection of Proposed Design Energy Budgets

4.0 Building Design Evaluation Technique

5.0 Implementation

6.0 Other Matters

7.0 Opportunities for Public Comment

8.0 Guide to the Proposed Rule

The Proposed Rule

Section 1.0: The Standards Program

Background and legislative mandate

Expected energy savings

Summary of Proposed Rule

Section 2.0: The Research Effort

- Background
- Current program organization
- Commercial and multifamily research
- Single-family residential research
- Energy budget examples
- Renewable energy resources
- Climate
- Building operating conditions
- Environment
- Economics

Section 3.0:

Proposed Energy Budget Selection

- Expert judgment
- Practicability
- Technical
- Health and safety
- Existing standards
- Life cycle costs
- Energy savings
- Economic impacts
- First costs
- Environmental impacts
- Renewable energy

Section 4.0:

Building Design Evaluation Techniques

Performance approach **Standard Evaluation
Technique or alternate**

Equivalent approach **Model code, manual of
recommended practice**

Section 5.0: Implementation

Federal financial assistance

State certification

Alternate approval process

- **Exemption**

Impact on financing new construction

Section 6.0: Other Matters

Review of Draft Environmental Impact Statement

Regulatory analysis summary

Mandate for government action

Analysis of alternatives

Comparative analysis of alternatives

Section 7.0: Public Comment

Washington, D.C.	January 28, 29, 30, 1980
Atlanta, Ga.	February 4, 5, 6, 1980
Kansas City, Mo.	February 4, 5, 6, 1980
Los Angeles, Calif.	February 11, 12, 13, 1980
Boston, Mass.	February 11, 12, 13, 1980

Section 8.0: Guide to Proposed Rule

- **Application to typical design process**
- **Performance path**
- **Alternate compliance path(s)**

Proposed Rule

- **Purpose and scope**
- **Definitions**
- **Requirements for the performance standards**
- **Building design and function classifications**
- **Selection of applicable climate**
- **Procedure for establishing alternate evaluation techniques**

Subpart B - Implementation (space reserved)

Subpart C - Administrative Review (space reserved)

Appendix I: Energy Budget Level Tables

Appendix II: Climate Tables

Appendix III: Approved Alternate Evaluation Techniques (space reserved)

Appendix IV: Model Codes and Standards (space reserved)

Major Concepts in Proposed Standards

**Design Energy
Budget**

**Responsive to Building
Type and Location**

**Standard Evaluation
Technique**

**Uniform Method for
Determining
Compliance**

**Design Energy
Consumption**

**Result of Applying
Standard Evaluation
Technique**

Design Energy Budget

**Maximum Allowable Design Energy
Consumption, Expressed in MBtu/
Sq. Ft./Yr., without Specification
of Methods, Materials or Processes**

Standard Evaluation Technique

**Detailed Data
Concerning
Building Design
Characteristics**

**Appropriate
Weather Data for
Building Location**

**Appropriate
Standardized
Building Operating
Conditions**

**Detailed Engineering
Calculations Producing
Computation of Design
Energy Consumption**

Design Energy Consumption

**Annual Energy Required Per Square
Foot Area of a Building Design, As
Calculated by the Standard Evaluation
Technique or an Approved Alternate**

Standards Concept Diagram

Site and Source Energy

Energy Budget Alternatives

Site	Building line
Source	Resource utilization factors/resource impact factors
Weighted	Economically based

Application of Weighting Factors

$$\text{Site energy} \times \begin{array}{c} \text{Weighting Factors for} \\ \text{Natural Gas, Oil and} \\ \text{Electricity} \end{array} = \text{Design Energy Consumption}$$

Weighting Factors

	Natural Gas	Oil	Electricity
Single-Family Residential	1.00	1.22	2.79
Commercial and Multifamily Residential	1.00	1.20	3.08

Example Energy Budget Levels

State	SMSA	Clinic	Community Center	Gymnasium	Hospital	Hotel/Motel	Multifamily High-Rise	Multifamily Low-Rise	Nursing Home	Office, Large	Office, Small	School, Elementary	School, Secondary	Shopping Center	Store	Theater/Auditorium	Warehouse
Minnesota	Minneapolis	142	109	144	335	180	140	110	177	123	117	122	138	198	155	157	93
Missouri	St. Louis	133	110	128	353	175	128	112	171	119	109	105	128	192	150	149	72
District of Columbia	Washington	127	107	129	353	169	120	109	164	115	104	96	121	185	144	142	63
Florida	Miami	152	142	161	406	203	133	147	195	140	125	103	141	219	179	178	41
Texas	Dallas	131	116	136	358	175	119	119	169	120	107	94	124	190	152	150	60
California	San Diego	114	103	117	364	158	104	106	153	107	92	75	107	172	134	128	40
Oregon	Portland	119	98	120	353	161	116	99	157	108	97	91	115	176	135	131	66
Massachusetts	Boston	125	101	126	338	165	121	102	161	111	102	99	121	181	140	139	72

Large Office Building, Kansas City

1975-1976	Average Redesign	After BEPS
67,000 Btu/SF/Yr. Building Line	49,000 Btu/Sf/Yr. Building Line	46,000 Btu/SF/Yr. Building Line

Life Cycle Cost Analysis Concept

Scope of limited cost analyses

Scope of life cycle cost analyses-over "life" of building

Life Cycle Cost Example-Atlanta (Gas Heat)

Ways to Meet Energy Budget Levels (Atlanta, Gas Heat)

- 1. Double glazing; R-38 ceiling; R-19 wall; R-11 floor**
- 2. Increase south windows; decrease other windows; double glazing; R-30 ceiling; R-11 wall; R-11 floor**
- 3. Active solar hot water system; double glazing; R-19 ceiling; R-11 wall; R-7 floor**

Residential Single Family, Chicago

Gas Heat, Electric A/C

1975-1976		After BEPS	
51,100	Btu/SF/Yr. Building Line	35,000	Btu/SF/Yr. Building Line

Relationship of Proposed Standards to Current Practices

Residential Buildings **Between 22% and 51%
less energy**

Commercial Buildings **Between 17% and 52%
less energy**

Depending on building type and climate, in comparison with 1975-76 base

Initial Building Cost Impacts of Proposed Standards

**Residential
Buildings** **\$0.75 to \$1.00 per Square Foot
above 1978 Base**

**Commercial
Buildings** **3%—5% above 1978 Base**

**But Producing Major Savings Benefits in
Reduced Operating Costs over the Building's
Useful Life**

Energy Savings from Proposed Standards

**At the End
of 5 Years 100,000 Barrels per Day of Oil Equivalent**

**At the end
of 10 Years 216,000 Barrels per Day of Oil Equivalent**

**Over and Above Savings Produced by Other
Conservation Efforts**

Changes in Buildings

- Less demand for energy-using systems
- Increased responsiveness to climate and site
- More efficient HVAC and lighting systems
- More responsive manual and automated controls
- Greater use of renewable resources

Technical Support Documents for the Notice of Proposed Rulemaking

Standard Evaluation Technique

Statistical Analysis

Weighting Factors

Draft Regulatory Analysis

Energy Budget Levels Selection

Economic Analysis

Climate Classification Analysis

**Draft Environmental Impact
Statement**

**Standard Building Operating
Conditions**

**Passive and Active Solar
Heating Analysis**

Information Available for Comment on Proposed Rule

Notice of Proposed Rulemaking (NPR)

- Technical Support Documents
- How the Standards Work
- Public Comment
- Proposed Budgets and Evaluation Techniques

Phase II Reports

- Commercial and Multifamily
- Redesign

Regulatory Analysis

Economic Assessment

- Building Economics
- Residential Life-Cycle Costs
- National Economics

Environmental Impact Statement

- Environmental Effects
- Major Alternatives

Issues Regarding Future Research

Life cycle cost analyses for commercial buildings

Mobile homes

Industrial buildings

Restaurants

Indoor air quality

Climate analysis

Improvements to standard evaluation technique

Equivalency with other standards

Advanced technology residences

Department of Energy

Building Energy Performance Standards

U.S. Department of Energy

Room 2254C

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Mr. Binkley entertained questions from the participants at various points in his presentation. The BEPS staff, including Joseph Derringer, AIA/RC and one of the three project managers involved in developing BEPS; Archie Twitchell, Senior Program Manager, BEPS Implementation Program; Sue Sicherman, Program Analyst, Building Codes and Standards; Peter Back, Branch Chief, Systems Analysis, Division of Planning and Program Development; and Jim Shivar, Program Manager, Building Codes and Standards, supported Mr. Binkley in responding to questions on the development and details concerning BEPS.

Some questions from the participants included:

- How were climatic factors determined?
- How do you derive energy budget levels in regions and locations throughout the country that would reflect equal difficulties so that it would be equitable for all regions?
- Has DOE looked at the variation in residential designs between parts of the U. S. with wide divergent temperatures?
- What about professional liability?
- What are DOE's plans for validation?
- What about the actual energy consumption of a building versus what it was actually designed for?
- What could be done with ASHRAE to make it equivalent to BEPS?

Lighting Standards in Existing Buildings

Mr. Wakabayashi introduced Dorothy Cronheim, Program Analyst, State Energy Conservation Program Division, Department of Energy. A summary of Dr. Cronheim's presentation follows:

In August 1979, the U. S. Department of Energy issued a Notice of Inquiry (NOI) regarding lighting efficiency standards for existing buildings. These current criteria require that the standards be mandatory and contain the elements deemed appropriate by the state. The intent of this notice was to determine whether a change was needed in the existing criteria for such lighting standards. DOE invited the states and others who favored changing the criteria to suggest what standard might be used. The Department then proposed three standards for comment--

- the Massachusetts State Building Code Commission's Lighting Regulations for Existing Buildings,
- EMS-4: Illuminating and Engineering Society of North America (IES) Recommended Procedures for Lighting Energy Management of Existing Buildings, and
- UPD: IES Lighting Power Budget Determination by Unit Power Density Procedure.

The reason for the NOI was to obtain reactions to the possibility of substituting one or more of these standards for the existing minimum criteria. Only nineteen of fifty-six states and territories have adopted a lighting efficiency standard for existing buildings to date as mandated by the state energy conservation program, so it seemed possible more might if they could use a new standard.

Respondents to the question of the need for new standards included twenty-seven who preferred no changes or non-mandatory approaches. Thirty indicated there should be a change, with the Massachusetts Lighting Standard receiving most of the votes. EMS-4 was suggested for more complicated buildings by some, while others held that UPD was preferable for more general use.

In view of the close division of opinion on the value of trying a new standard, DOE decided not to change the current broad criteria. To assist and encourage more states to adopt and implement lighting efficiency standards, however, DOE will take the following actions:

- Prepare and circulate a full report on the Notice of Inquiry--expected by or about May 1980.

- Identify states which have no standard or a standard which could be strengthened, and request these states to move toward full compliance.
- Conduct a lighting standards implementation conference in 1980. This will be a one day working session for state energy directors and their lighting program directors and other interested parties. Its purpose is to make available to the states the special tools and strategies needed to bring about the adoption and implementation of an effective program of lighting efficiency standards where none now exists.

Summation of First-Day's Session

John Millhone expressed delight in the comments that DOE staff had been receiving throughout the day. He stated that this discussion will be very useful to DOE and hopefully beneficial to the states in understanding the views and intentions of the government as to where it wants to go with this program. Millhone indicated that this session has proven to the DOE staff that state representatives are a very informed and knowledgeable group and one which DOE should work closely with in the development and implementation of this program.

Session: Wednesday, January 23, 1980

Hank Wakabayashi opened the second morning's session and introduced Archie Twitchell, Senior Program Manager, BEPS Implementation Program, Department of Energy, who briefed the seminar participants on the implementation program being developed for the Building Energy Performance Standards. An outline of Mr. Twitchell's presentation follows:

Implementation of BEPS

- Transfer of authority from HUD to DOE
 - DOE authority for implementation has not been consummated by Congress.
 - Valuable time has been lost due to inaction on proposed transfer of authority.
- Review of various sections of P. L. 94-385
 - Authorization to have performance standards developed
 - Need for Environmental Impact Statement (EIS)
 - Requirement to consult with affected parties
 - Requirement to monitor implementation program for effectiveness
 - Requirement to do analysis of energy efficiency and to stimulate use of non-renewable resources
 - Requirement that all federal buildings in the future be built to BEPS
- Issues of Implementation
 - Certification
 - Equivalency
 - Compliance process

- Wide diversity of state and local building code programs and methods used to implement codes.
- Certification
 - Section 305 of P. L. 94-385 states that sanctions are already in place unless activity happens.
 - Need to develop a process so that the implementation phase avoids the sanctions.
 - States must comply with two requirements
 - adopt an energy code
 - "Adopt" means that there is legislative authority.
 - implement the energy code
 - "Implement" means having a routine process of plan checking and field inspection, at a minimum, plus several other features.
 - In other words, certification must assure that what a state has adopted produces buildings that are as energy efficient as buildings built using BEPS.
- Value Set
 - How centralized or decentralized should this program be?
 - Law provides for states to certify, not the federal government.
 - This places a burden on the states but gives an opportunity to fit program to local situation.
 - In other words, states certify, federal government monitors.

- Leadership in a national policy needs to interface with current state activity.
- States need flexibility and responsibility to do this job.
- What does federal government expect from states?
 - Statement indicating what has been adopted.
 - Implementation plan.
 - Statement that code contains a performance approach.
 - Occupancy permit is not given unless the building meets energy-efficiency requirements through design review.
 - Statement that there is periodic inspections during construction.
 - Certain criteria for buildings of a certain size.
- Equivalency
 - Purpose: To make a determination that an energy code produces buildings that are as energy efficient as BEPS.
 - There are a number of ways to determine equivalency.
 - NIBS contract
 - To develop a mechanism that has capacity to take criteria in an energy code, translate into computer input form to determine energy requirements in that building. Thus, direct comparison of BEPS budget numbers with a product building constructed to standards of energy code can be made. If numbers agree, then equivalency has been achieved.

- Equivalency is only one part of certification.
 - Energy efficiency of buildings and the comparison of a state's energy code requirements with BEPS budget numbers.
- Alternate Approval Process
 - Purpose: To fill void between the time the law states you should be complying to a code and legislature's action on adopting a code, which usually takes 18 months.
 - It is a mechanism by which a building can be deemed to be in compliance with BEPS.
 - One problem is that it is outside of traditional codes processes.
 - A qualified design professional asserts that a building has been designed according to BEPS, a pre-qualified code, or a computer program that has been certified. This assertion is by a private individual.
 - There is no stated definition for a qualified design professional.
 - A review is then made by the municipality, which is virtually administrative.
 - Where there are no design professionals or enforcement officer, local government can state that it does not have the capacity or the will to do this; then it goes up the ladder to become the responsibility of the next jurisdiction or state.
 - An exception is provided where there is insufficient building activity to warrant code application.
 - Technical Assistance
 - Tools need to be provided the code official to get the job done.

- There is work going on in a number of major areas:

1. Provide a "son of ASHRAE" which would be equivalent and would use the language of ASHRAE. Work would be done by contractors and would not go through consensus procedure.
2. NCSBCS model code and training program.
3. An analysis by NBS to provide regulation techniques--taking DOE II and putting into a small computer chip to be used by a small calculator.
4. Manuals for recommended practice by SERI.
5. All federal codes will have to be revised to be in compliance with BEPS.
6. Details on certified alternate approval process will be available in August.
7. Examine the computer design program for energy conservation in buildings to determine its equivalency with DOE II.
8. Contract with NACO and NLC to set forth legislative and administrative point of view to prepare a manual for small cities.

Sanctions for Building Energy Performance Standards

After a morning break, Hank Wakabayashi introduced Sue Sicherman, Program Analyst, Building Codes and Standards, Department of Energy, who discussed the issue of sanctions for BEPS. An outline of her presentation follows:

- Sanctions

- Sanctions are key elements of implementation program.
- The regulation states withdrawal of federal financial assistance from any commercial or residential building of any area of any state.
 - Actually sanctions would be imposed on applicant or consumer requiring financial assistance--not imposed against the state.
- Institutions affected
 - Banks (state banks that are not part of FDIC or Home Loan Bank Board)
 - Institutions subject to regulation by Federal Reserve System
 - FDIC
 - Comptroller of the Currency
 - Federal Savings and Loan Insurance Corporation
 - Federal Home Loan Bank Board
 - National Credit Union Administration
- Congress will have to decide whether to impose sanctions.
 - If sanctions are not imposed, all federal buildings will still have to comply.
- Penetration Rates Chart
 - Chart projects anticipated level of compliance throughout country for the following alternatives:
 - Alternative 1: BEPS with no sanctions or alternatives.
 - Alternative 2: Voluntary BEPS program, without grants, technical assistance and training.

- Alternative 3: BEPS program with incentives and sanctions.
- Alternative 4: BEPS program with sanctions only, no incentives.

-- This chart was developed while doing Environmental Impact Statement. Figures by Oakridge Laboratories.

Ms. Sicherman led a question and answer period as a part of her presentation. Some of the topic areas which were open to discussion were:

- The Alternative Approval Process
- Definition of qualified design professional
- Liabilities of design professionals
- The need by the states for sanctions
- Enforcement of BEPS, specifically at the local level

Summation of Implementation Program

Following Ms. Sicherman's presentation, Archie Twitchell summarized the implementation program. He indicated that the tenor of the states' message to DOE is to expeditiously develop a means of enforcement, help with tools for enforcement and be concerned about how this added burden to state and local jurisdictions would be financed.

Conclusion of Seminar

Hank Wakabayashi concluded the one-and-a-half day Seminar on Building Energy Performance Standards with a brief summary of what had been discussed and what events would be occurring in the near future. He thanked all in attendance for their excellent participation.

JOHN WENNING, President, National Conference of States on Building Codes and Standards extends a welcome to participants to the Dallas Seminar.

JOHN MILLHONE, Director, Office of Buildings and Community Systems DOE, reviews the extensive and comprehensive federal activities in the development of BEPS.

JIM BINKLEY, Acting Branch Chief,
Building Codes and Standards, DOE,
presents an overview of the proposed
Standards.

Forty-seven states, two territories
and the District of Columbia were
represented at the Dallas Seminar.

ARCHIE TWITCHELL, Senior Program Manager, BEPS Implementation Program, leads an in-depth discussion on implementation issues.

SUE SICHERMAN, Program Analyst, Building Codes and Standards, discusses the issue of imposing sanctions.

The National Governors Association convened a BEPS task force comprised of state energy officials to discuss implementation issues relative to BEPS.

ARCHIE TWITCHELL leads discussion of NGA task force group.

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OFFICIAL

ROSTER OF PARTICIPANTS

NATIONAL CONFERENCE OF STATES ON BUILDING CODES AND STANDARDS, INC.

SEMINAR

ON

BUILDING ENERGY PERFORMANCE STANDARDS

Dallas, Texas

January 22 - 23, 1980

Sponsored by:

U. S. DEPARTMENT OF ENERGY

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Archie Twitchell
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BEPS Implementation Program
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Jim Shivar
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Sue Sicherman
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Dorothy Cronheim
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DEPARTMENT OF ENERGY REGIONAL REPRESENTATIVES

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II	(No Representation) U. S. Department of Energy 26 Federal Plaza, Room 3200 New York, NY 10007 212/264-1021	New York, New Jersey, Puerto Rico, Virgin Islands
III	Joseph L. DiBiase Acting Director Office of Energy Programs U. S. Department of Energy 1421 Cherry Street Philadelphia, PA 19102 Ernestine Harris Office of Energy Programs U. S. Department of Energy 1421 Cherry Street Philadelphia, PA 19102	Pennsylvania, West Virginia, Virginia Washington, DC, Maryland, Delaware
IV	Fred Singleton Energy Manager Conservation and Solar Applications U. S. Department of Energy 1655 Peachtree Street, N. W. Atlanta, GA 30309 404/881-2526	Kentucky, Tennessee, North Carolina, South Carolina, Florida, Mississippi, Alabama, Georgia

REGIONAL REPRESENTATIVES (continued)

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NATIONAL CONFERENCE OF STATES ON BUILDING CODES
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1970 Chain Bridge Road
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Seminar Coordinator

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Chattanooga, TN 37401

Frank White
City of Arlington
Arlington, TX 76010

Jerry Matthews
Dallas, TX 75221

KEY TO STATE ABBREVIATIONS

AK	Alaska	MS	Mississippi
AL	Alabama	MT	Montana
AS	American Samoa	NE	Nebraska
AZ	Arizona	NV	Nevada
AR	Arkansas	NH	New Hampshire
CA	California	NJ	New Jersey
CO	Colorado	NM	New Mexico
CT	Connecticut	NY	New York
DE	Delaware	NC	North Carolina
DC	District of Columbia	ND	North Dakota
FL	Florida	OH	Ohio
GA	Georgia	OK	Oklahoma
GU	Guam	PA	Pennsylvania
HI	Hawaii	PR	Puerto Rico
ID	Idaho	RI	Rhode Island
IL	Illinois	SC	South Carolina
IN	Indiana	SD	South Dakota
IA	Iowa	TN	Tennessee
KS	Kansas	TX	Texas
KY	Kentucky	UT	Utah
LA	Louisiana	VT	Vermont
MA	Massachusetts	VA	Virginia
ME	Maine	VI	Virgin Islands
MD	Maryland	WA	Washington
MI	Michigan	WV	West Virginia
MN	Minnesota	WI	Wisconsin
MO	Missouri	WY	Wyoming

AGENDA

NATIONAL CONFERENCE OF STATES ON BUILDING CODES AND STANDARDS, INC.

SEMINAR ON
BUILDING ENERGY PERFORMANCE STANDARDS

ADOLPHUS HOTEL
DALLAS, TEXAS

MONDAY, JANUARY 21, 1980

4:00 - 7:00 p.m.	Registration	Main Lobby	NCSBCS Staff
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TUESDAY, JANUARY 22, 1980

8:00 - 8:30 a.m.	Registration		NCSBCS STAFF
8:30 a.m.	Call to Order/Introductions	Rose Room	Henry S. Wakabayashi, NCSBCS
8:35 a.m.	Welcome		John Wenning, President, NCSBCS
8:45 a.m.	Keynote Presentation		John Millhone, DOE
9:15 a.m.	DOE's Energy Efficient Buildings Project and Related Programs		John Cable, DOE
10:15 a.m.	Coffee Break		
10:30 a.m.	Standards Notice of Proposed Rulemaking		James Binkley, DOE
11:30 a.m.	Questions and Answers		BEPS Team, DOE
12:30 p.m.	Lunch Break (On Your Own)		
2:30 p.m.	Standards - Continued . Compliance Process (Standard Evaluation Technique) . Comparison of BEPS and ASHRAE Standard	Rose Room	James Binkley, DOE
	Questions and Answers		BEPS Team, DOE
3:00 p.m.	Coffee Break		
3:15 p.m.	Standards - Continued		Peter Back, DOE
	Questions and Answers		Tom Foley, Battelle, Pacific Northwest Laboratory
4:15 p.m.	Notice of Inquiry on Lighting Standards		Dorothy Cronheim, DOE
4:30 p.m.	Summary		John Cable, DOE
5:00 p.m.	Adjournment		
6:30 - 7:30 p.m.	Reception	Grand Ball Room	Hosted by NCSBCS
7:30 p.m.	Banquet	Grand Ball Room	Hosted by NCSBCS

AGENDA
NATIONAL CONFERENCE OF STATES ON BUILDING CODES AND STANDARDS, INC.
SEMINAR ON
BUILDING ENERGY PERFORMANCE STANDARDS
ADOLPHUS HOTEL
DALLAS, TEXAS

WEDNESDAY, JANUARY 23, 1980

8:30 a.m.	Standards Implementation	Rose Room	Archie Twitchell, DOE
	. Sanctions		
	. Certification		
	. Equivalency		
	. Applicable Approval Process		
	Questions and Answers		BEPS Team, DOE
10:00 a.m.	Coffee Break		
10:15 a.m.	Technical Acceptance		Sue Sicherman, DOE
	. Grants		
	. Monitoring		
	Questions and Answers		BEPS Team, DOE
11:30 a.m.	Summary of Seminar		John Cable, DOE
12:00 m.	Adjournment		

ARIZONA

OFFICE
OF THE
GOVERNOR
BRUCE BABBITT

OFFICE OF
ECONOMIC PLANNING AND DEVELOPMENT

General Offices of OEPAD • 4th Floor

January 25, 1980

Mr. Henry Wakabayashi
National Conference of States on
Building Codes and Standards, Inc.
1970 Chain Bridge Road
McLean, VA 22101

Dear Mr. Wakabayashi:

The NCSBCS BEPS Seminar was informative and helpful. The format and presentations were appropriate. More useful information on technical issues such as ASHRAE - BEPS comparability should have been included. I believe that shortening the original two-day schedule to one and one-half days was a mistake. The additional afternoon would have allowed more discussion of the problems inherent in going to a more severe standard. Also, an opportunity to hear from more individual states on the status and problems of energy code adoption and enforcement would have been helpful.

A key issue in Arizona is whether or not adopting the NCSBCS code will result in more energy efficient buildings. Will you provide a report on the differences in energy consumption in buildings resulting from the adoption of an energy code in the states that have done so? Until a clear statement based on state data can be made that adoption of the code has resulted in more energy efficient buildings, it will be impossible to counter the arguments of those who maintain that adopting the code makes no difference in buildings. I understand that Florida has some data and would hope that other states do also.

Overall, the Seminar was a very worthwhile event. I look forward to seeing the survey results and attending the remaining BEPS workshops.

Very truly yours,

Diane H. Olivenbaum, Planner
Energy Policy and Conservation Programs

DHO/ms

RECEIVED

JAN 28 1980

CRITIQUE OF THE JANUARY, 1980 MEETING

NCSBCS

IN DALLAS, TEXAS ON BEPS

William A. Polk

This meeting was much more productive than the one in Asheville, primarily because the DOE representatives were more responsive and knowledgeable.

RECEIVED

JAN 28 1980

NCSBCS

DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT

DIVISION OF CODES AND STANDARDS - Administrative Office

21 - 10th Street, Sacramento, CA 95814

(916) 445-9471

January 31, 1980

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FEB 4 1980

NCSECS

Mr. Henry S. Wakabayashi
Energy Program Director
National Conference of States on
Building Codes and Standards, Inc.
1970 Chain Bridge Road
McLean, VA 22102

Dear Mr. Wakabayashi:

SUBJECT: SUMMARY OF THE SEMINAR ON BUILDING ENERGY PERFORMANCE STANDARDS

The attitude and sense of cooperation at this particular meeting was a definite improvement over the seminar held in Ashville, North Carolina. I think that this is a result of perhaps a little more effort on the part of HUD and Department of Energy to understand the various problems that exist in implementing energy performance standards at the state level. While the attitude was certainly more cooperative, I personally could detect some apprehension which stemmed from the feeling that a lot of items were being passed over lightly and not dealt with adequately. Some of these omissions were the result of time constraints. In general, I think it is safe to say that the majority of those present recognized a need for energy conservation in buildings. I think that the political changes in the world have highlighted this need for all Americans.

There were a number of items that I feel need further input and study before the Building Energy Performance Standards (BEPS) could be successfully implemented. The climatical information appears to be inadequate for some locations. This concern was expressed at the meeting by the representative from the State of Tennessee. Similar problems exist in the State of California as a result of the varied climate within the boundaries of the state. I think the issue of weighting factors is one that needs to be studied further. While the weighting factor approach may be better than the original dealing with RIFS and RUFFS, there still appears to be a need to examine weighting factors at the state or local level. Failure to do so might actually result in an increase in energy usage.

The issue of implementation is probably of greatest concern to the states. While there was some discussions as to the probability of sanctions being imposed or not being approved by Congress, the issue was left unresolved. The fact that the proposed implementation program is not yet available, coupled with the possibility of sanctions, is somewhat disturbing. I feel that the implementation program is probably the single most important aspect of the

Mr. Henry S. Wakabayashi
January 31, 1980
Page 2

entire standards program. The challenge that is faced in developing a successful program is formidable. Such a program will have to deal with various code enforcement programs administered by officials possessing varied level of sophistication and statutory authority. While it was not discussed, I have a concern that states that have a program of some stature will be used as a training ground or "whipping boy" by the federal government as has happened in other programs such as the Mobilehome Construction and Safety Standards Program. I would hope that in the BEPS program the most effort is applied where most needed.

I would certainly hope that every effort is made to continue and even increase the dialogue between the affected jurisdiction and the federal government so that the worthwhile concept of energy conservation can be achieved. Because of the complexity of the issue, it might be well to separate the various elements so that each phase such as standards or implementation can be dealt with in greater depth than was possible at the seminar in Dallas.

Sincerely,

A handwritten signature in dark ink, appearing to read "Jack L. Kerin". The signature is fluid and cursive, with a long horizontal stroke extending to the right.

Jack L. Kerin
Chief

STATE OF FLORIDA

Office of the Governor

THE CAPITOL
TALLAHASSEE 32301BOB GRAHAM
GOVERNOR

February 27, 1980

Mr. Henry S. Wakabayashi
NCS/BCS
1970 Chain Bridge Road
McLean, Virginia 22102

Dear Hank:

The Dallas Seminar on BEPS revealed little in the way of new avenues to consider in the acceptance of an implementation of the BEP Standards.

As you may know, the State of Florida has been selected as a pilot state to ascertain Equivalency of the Florida Model Energy Code for Building Construction to the Building Energy Performance Standards, and has been notified by DOE, Washington, that the Grant to perform the Equivalency procedure has been approved and should be funded and initiated in mid or late March, 1980.

The presentation in Dallas was quite clear, concise, and direct, and was a step in the right direction for the BEPS team to inform the states of their directions and intent.

It was a pleasure to attend, and we shall look forward to working with you and all other organizations in a combined effort to conserve energy in our construction industries.

If we can be of any assistance in your efforts, please call or write.

Sincerely,

A handwritten signature in cursive script, reading "David L. Shaffer".

David L. Shaffer
Program Manager
Governor's Energy Office

RECEIVED

MAR 3 1980

NCSBCS

DLS/jt

RECEIVED

JAN 28 1980

NCSBCS

PROGRAM CRITIQUE

Seminar of BEPS
Dallas, Texas

I. ORGANIZATION - A professional job and I liked the hotel and location.

II.. CONTENT - WEAK

The information given was basically in the Proposed Rules. The program was the selling of BEPS. We recognize a lot of work had gone into it.

The BEPS Team is to be congratulated on the work done to date. We hope they realize that the problem is not getting the buildings designed and permitted per Energy Code but is in getting the buildings built according to the plan.

III. ABILITY FOR FEEDBACK - EXCELLENT

The BEPS Team did seem to be open for comments and was very patient. This was an excellent forum for two-way communication. Too bad more of the building officials did not open up.

James R. Henry

Office of Planning and Budget

Executive Department

January 25, 1980

Clark T. Stevens
Director

Mr. Henry Wakabayashi
Energy Program Director
National Conference of States on
Building Codes and Standards, Inc.
1970 Chain Bridge Road
McLean, Virginia 22102

Dear Hank:

Enclosed is my expense statement for the Dallas Workshop. I found the Workshop very helpful and informative, and I appreciate the opportunity to have attended.

Generally, I believe the Workshop proceeded very well; the DOE staff was very articulate and responded well to the concerns of the group. It would have been beneficial if more time had been available for questions, especially at the end of major presentation components. In practical terms, this would have meant questions and answer periods set aside three or four times each morning and afternoon. These periods need not be lengthy, but would allow the questions needed to clarify the last presentation and set the stage for the next.

I look forward to working with you and your fine organization in the future, and I hope that you will let me know if we may ever be of assistance to you.

Sincerely,

Robin Meyer
Office of Energy Resources

RM:taj

BUILDING DEPARTMENT

CITY AND COUNTY OF HONOLULUHONOLULU MUNICIPAL BUILDING
650 SOUTH KING STREET
HONOLULU, HAWAII 96813FRANK F. FASI
MAYOR HOWARD M. SHIMA
DIRECTOR AND BUILDING SUPERINTENDENT

M80-6

January 28, 1980

RECEIVED

FEB 5 1980

NCSBCS

Mr. Henry S. Wakabayashi, P.E.
Energy Program Director
National Conference of States on
Building Codes and Standards, Inc.
1970 Chain Bridge Road
McLean, Virginia 22102

Dear Mr. Wakabayashi:

Subject: Summary Report on BEPS Seminar

As requested in your letter dated January 9, 1980, I am submitting herewith my travel voucher and this brief summary report relating to the Building Energy Performance Standards (BEPS) Seminar held in Dallas, Texas, on January 22 and 23, 1980.

The seminar was revealing to me in several aspects including not only more information regarding the BEPS program but also the many questions and problems raised and my realization that there are many problems of which I am unaware.

The concept of performance standards as a means of achieving energy conservation is a good one. However, it appears that implementation in its various phases contain many pitfalls. Determining the appropriate Energy Budget Levels for various occupancies in the State of Hawaii should be made. On the other end of the list is code enforcement. Do we have personnel that can be trained for this task? Are we sufficiently staffed to handle the extra work load? These problems are even greater for the other counties in the State of Hawaii.

How equivalency is shown to be proven is a matter for further discussion. This also applies to certification. However, the major question is shouldn't the end result be policed to see that the energy consumption under actual conditions does not exceed the energy budget level? And if it does, what action should be taken?

Mr. Henry S. Wakabayashi, P.E.

Page 2

January 28, 1980

In retrospect, the seminar was invaluable in generating eyeball-to-eyeball exchange between state government officials and the Federal Department of Energy representatives. We cannot forecast the final decisions regarding these proposed rules but at least we know the position of those who have expressed themselves at the seminar.

Respectfully submitted,

Francis L. Lau

FRANCIS L. S. LAU
Mechanical Engineer

FLSL:iz

Attach.

cc: Alfred S. Harris

CONCUR:

HOWARD M. SHIMA, Chairman
Hawaii Association of County
Building Officials

Division of Codes Administration

~~1718 Forest Drive, Annapolis, Maryland 21401 • 301-269-2701~~
2525 Riva Road

Harry Hughes
Governor
James O. Roberson
Secretary

January 24, 1980

Mr. Henry J. Wakabayashi
Energy Program Director
NCSBCS
1970 Chain Bridge Road
McLean, Virginia 22102

Subject: Dallas Seminar on BEPS Standards

Dear Mr. Wakabayashi:

I would first like to thank NCSBCS and DOE for the opportunity to attend the Dallas BEPS Seminar. It was very helpful in gaining a first hand understanding of some aspects of the proposed BEPS Standards.

The open atmosphere of the seminar allowed many of the codes' and energy offices' questions to be answered. However I was disappointed in the length of the seminar. The question and answer format took time away from the actual presentation. Had the seminar been longer, the question period could have been better proportioned.

Other than the time element, I found the seminar to be very helpful. Several points were clarified that should enable us in the State of Maryland Codes Administration to aid local jurisdictions in adopting Energy Conservation Codes. I am looking forward to the future seminar on implementation, as this will also be of great benefit to our local jurisdictions.

Sincerely,

A handwritten signature in dark ink that reads "R. Joseph Chonoski".

R. Joseph Chonoski
Energy Resource Officer

RJC:hs

RECEIVED
JAN 26 1980
NCSBCS

STATE OF MARYLAND
DEPARTMENT OF NATURAL RESOURCES
ENERGY ADMINISTRATION

RECEIVED

JAN 25 1980

NCSBCS

1302 STATE OFFICE BUILDING
301 W. PRESTON STREET
BALTIMORE, MARYLAND 21201
TELEPHONE: (301) 383-6810

ENERGY OFFICE

January 24, 1980

National Conference of States on
Building Codes & Standards, Inc.
1970 Chainbridge Road
McLean, Virginia 22101

Dear Sirs:

I found the seminar to be highly beneficial and extremely informative. The explanation and definition of the proposed rule was concise and to the point. Most helpful was the question and answer periods and the inter-relations from each state and the federal agency. I personally feel that this type of a seminar is more adequately geared towards the development of a workable rule.

I found the program material concise and well developed, and the panel to be well informed and professionally acquainted to the problems posed to them. The accommodations were adequate and surprisingly pleasant. The only adverse critique I found was that perhaps the seminar should have had a longer period of time for the development of the prepared topics of discussion. Two full days could have been utilized for the breakdown of this information, including the question/answer and discussion periods.

It is my intent to attend the next two proposed seminars to make the comments of my office heard to the DOE panel and the other states' representatives.

Thank you.

Sincerely,

Melvin L. Stimmel, Jr.
Conservation Program Manager
Commercial/Industrial Programs

MS/rp

EDWARD J. KING
GOVERNOR
William P. Kramer
CHAIRMAN

CHARLES J. DINEZIO
EXECUTIVE DIRECTOR

*The Commonwealth of Massachusetts
State Building Code Commission
John W. McCormack State Office Building
13th Floor
One Ashburton Place, Boston 02108*

(617) 727-6916

M E M O R A N D U M

TO: Gary Pringy
FROM: Bob Sheridan and Pat Fallon
SUBJECT: Attached Travel Vouchers

Pat Fallon

Attached are our travel vouchers for reimbursement for our participation in the NCSBCS conference in Dallas, Texas. As you will recall, Pat substituted for David Miller as the second NCSBCS-sponsored participant from Massachusetts.

Whenever possible, expenses for both of us were charged to a single credit card held by Bob. We have indicated only the "not to exceed amount" for ground transportation, although the receipts indicate substantially higher fares. Also, please note that your allotted roundtrip airfares from Boston to Dallas was \$416 when in fact the fare was \$430; as per our conversation, we have indicated the actual fare on the vouchers.

We would appreciate reimbursement in separate checks, forwarded to the home addresses show on the vouchers.

* Thank you for your help, and again our congratulations and appreciation for a job well done at what was surely a very informative and productive conference.

BS:PF/dlm

Attachment

STATE OF MICHIGAN

WILLIAM G. MILLIKEN, Governor

DEPARTMENT OF LABOR

C. PATRICK BABCOCK, Director

BUREAU OF CONSTRUCTION CODES
STATE SECONDARY COMPLEX
7150 HARRIS DR., P.O. BOX 30015
LANSING, MICHIGAN 48909
517/322-1701

January 25, 1980

Mr. Henry S. Wakabayashi, P.E.
Energy Program Director
NCS/BCS
1970 Chain Bridge Road
McLean, VA 22102

Dear Mr. Wakabayashi:

Per your request, I am submitting a summary report on BEPS seminar attended on January 22 and 23, 1980.

The seminar speakers clarified many questions that I and my staff had regarding the impact of these rules.

Our major concern was the effect BEPS will have on Michigan's energy standards, and this is still a concern. We have adopted by reference the ASHRAE 90-75 Standard, as many other states have. I believe a thorough analysis of the two standards (BEPS vs. ASHRAE 90-75) is needed in order to evaluate the impact of BEPS, and in order to make comments prior to implementation.

Our other concern, of course, is enforcement. Training of those who will be required to enforce and comply with these standards will be required. The speakers at the seminar shed some light on this concern.

Overall, I felt the seminar was very beneficial and the presentations informative. It is also helpful discussing how energy matters are addressed in other states.

I look forward to further participation in such seminars on this issue.

Sincerely,

Bill B. Moyer
Acting Director
Bureau of Construction Codes

BBM:KI:sb

Attachment

WILLIAM G. MILLIKEN, Governor

DEPARTMENT OF COMMERCE

WILLIAM F. McLAUGHLIN, Director

ENERGY ADMINISTRATION

P.O. BOX 30228

LANSING, MICHIGAN 48909

January 24, 1980

Mr. Henry Wakabayashi
NCSBCS
1970 Chain Bridge Road
McLean, VA 22102

Dear Mr. Wakabayashi:

The January 22 and 23 seminar on the Building Energy Performance Standards was a welcome opportunity to gain additional information on the proposed standards.

My reaction to the seminar is that a large amount of information was provided, and that it is necessary to have this type of interaction between states and DOE.

My reaction to the NOPR is difficult to provide since I have yet to receive the technical support documents. Without these documents it is very difficult to respond to the NOPR in a reasonable manner.

You will be receiving my comments on the NOPR in the near future, and I am looking forward to participating in future seminars on implementation.

Sincerely,

Reginald D. Whalon
Small Business Coordinator
Consumer and Educational
Programs Division

RDW:par

RECEIVED

JAN 30 1980

MCL

MEMORANDUM

Date: January 28, 1980
 To: J. W. Abbott
 From: Debbie Goldammer
 Subject: NCSBCS Meeting on BEPS

On January 21 and 22, 1980, I attended a NCSBCS meeting on the proposed federal Building Energy Performance Standards. The meeting, although sponsored by NCSBCS, was conducted by DOE staff.

The areas covered by DOE were as follows:

- 1) The history of NCSBCS involvement in energy codes and the purpose of the meeting (John Wenning, President NCSBCS).
- 2) A general description of BEPS with background on development of BEPS and reasons for selecting the standards. Weighing factors on the standards were explained including economics, energy savings, national policies, timing, implementation and evaluation. Weighing factors on fuel types were determined by projected 1985 prices and adjusted using the Fuel Use Act. Standards will be finalized in August 1980. Congress has 90 days to improve sanctions; BEPS will be implemented one year after standards are promulgated. Implementation will be proposed in August 1980. DOE plans on building on existing ASHRAE programs and progress already made by the states. (John Millhone, Office of Buildings & Communities).
- 3) Explanation of BEPS in the DOE structure and how they are applying the BEPS statute (James Binkley, Building Codes & Standards).
- 4) A review of the structure of the "Notice of Proposed Rule Making" (James Binkley).
- 5) A review of the standards themselves including data base, standard evaluation technique, comparison of BEPS to other standards, and, weighing factors (James Binkley).
- 6) Progress of the notice of inquiry on lighting standards and DOE's decision to remain with the present rules (Dorothy Cronheim, State Energy Conservation Program).

MISSOURI DEPARTMENT OF NATURAL RESOURCES

P.O. Box 176 Jefferson City, Missouri 65102 (314) 751-3332

Joseph P. Teasdale Governor
 Fred A. Lafser Director

- 7) The remainder of time the first day was spent on discussion and questions on the proposed standards by the states (James Binkley).
- 8) The second day, which only consisted of the morning, was devoted to a presentation on proposal implementation strategies (Archie Twitchell, BEPS implementation program).
- 9) Legal questions were also covered concerning the responsibilities of the states and the consumer (Sue Seicherman, Building Codes & Standards).
- 10) Questions and discussion followed the presentation.

Over all I found the meeting informative and helpful. DOE officials appeared much more attentive to state concerns than last year and appear to somewhat understand the problems of state and local officials. Missouri's problems with BEPS were not adequately addressed, but I plan to write a letter listing our concerns.

I am concerned about them understanding our situation. For one thing, a special task force was created by DOE from the state representatives to be advisors on BEPS. All the states chosen were states having experience with statewide codes for several years with the exception of Texas. They are also the same states that continue to lead in this area.

It appears that the state government will not have to participate in the program. The burden of proof will be on the consumer who must have certification from 1) a local government; 2) a state government; or, 3) a qualified professional (undefined at this time). Therefore, our involvement would be assisting Missouri residents through certification of new construction. This is the way they are suggesting that it be done.

Controversy still exists over the implementation process; the weighting factors for fuel and the climatology factors. Some states have also questioned DOE's methodologies in reaching the standards. All of these must be worked out by August 1980. Comments will be accepted until the end of April.

There was too much discussed at the meeting to cover here. Please let me know if you have more specific questions.

DEPARTMENT OF NATURAL RESOURCES
AND CONSERVATION
ENERGY DIVISION

MONTANA

THOMAS L. JUDGE, GOVERNOR

32 SOUTH EWING

STATE OF MONTANA

HELENA, MONTANA 59601

Janaury 31, 1980

RECEIVED
JAN 31 1980
NCS/BCS

Henry S. Wakabayaski
Energy Program Director
National Conference of States on Building Codes and Standards
1970 Chain Bridge Road
McLean, VA 22102

Dear Mr. Wakabayaski:

The recent BEPS seminar held in Dallas was very informative. The Department of Energy speakers were well prepared and presented the Building Energy Performance Standard in a clear manner. The opportunity to comment and question at the meeting was beneficial to the states in that many of us shared the same concerns. I hope NCS/BCS will sponsor meetings of the same caliber in the future.

Sincerely,

A handwritten signature in cursive script that reads "Louise Moore".

Louise Moore
Home Energy Specialist
Conservation Bureau

LM/es

DEPARTMENT OF ADMINISTRATION

BUILDING CODES DIVISION
STATE CAPITOL, HELENA, MT 59601

THOMAS L. JUDGE, GOVERNOR

JG6:49-3933

DAVE LEWIS, DIRECTOR

January 25, 1980

Henry S. Wakabayashi, P.E.
Energy Program Director
NCSBCS
1970 Chain Bridge Road
McLean, Virginia 22102

Re: January 22-23, 1980
Seminar on BEPS

Dear Hank:

I would like to thank you for the opportunity to attend the above seminar. I would further like to compliment DOE on the high professional quality of the presentation. At past seminars, I felt that something was lacking. The panel gave an excellent image of what federal government should be in their thoughts and efforts. I came away with a much better feeling towards BEPS and the Federal Government.

One suggestion would be a little better control of the speakers from the floor as to relevance to comments and repetition of comments.

Please find enclosed my expense voucher.

Sincerely,

W. James Kembel
W. JAMES KEMBEL, P.E.
Administrator

WJK:js

Enclosure

RECEIVED

JAN 29 1980

NCSBCS

STATE of NEBRASKA

DEPARTMENT OF HEALTH
DIVISION OF HOUSING AND ENVIRONMENTAL HEALTH
301 CENTENNIAL MALL SOUTH
P.O. BOX 95007
LINCOLN, NEBRASKA 68509
PHONE (402) 471-2541
FRED H. JOLLY, R.S., DIVISION DIRECTOR

TO: National Conference of States on Building Codes
and Standards, Inc. - Energy Program

FROM: Jack L. Daniel, R.S., Assistant Director *[Signature]*
Division of Housing and Environmental Health

DATE: January 25, 1980

RE: Critique of BEPS Meeting, Dallas, Texas

Tuesday's program was informative to those attending and gave the impression to the attendants that the Department of Energy and other involved parties had researched in detail the technical aspects of BEPS, resulting in an overall feeling of technical confidence in the standard itself.

Wednesday's program geared at "implementation" did much to erode the confidence established in Tuesday's meeting. Questions presented were answered in generalities, often resulting in more questions that often went unanswered. One got the feeling that the "atmosphere of vagueness" created by the program participants was due either to the fact that not enough thought had been given to the matter of implementation - or - to some of the questions and problems presented there may not be an adequate solution.

In summary, I do not foresee the national energy program being successful unless the problem(s) of implementation are resolved. As one program attendant stated, "a code is only as good as the enforcement".

JLD:jb

JAN 28 1980

NCBCS

STATE OF NEW YORK
DIVISION OF HOUSING AND COMMUNITY RENEWAL
TWO WORLD TRADE CENTER
NEW YORK, N.Y. 10047

JOSEPH B. GOLDMAN
ACTING COMMISSIONER

January 29, 1980

Henry S. Wakabayashi, P.E.
Energy Program Manager
National Conference of States on
Building Codes and Standards, Inc.
1970 Chain Bridge Road
McLean, Virginia 22102

Re: BEPS Seminar
Dallas, Texas

Dear Mr. Wakabayashi:

The BEPS team presentation of the proposed Standards was excellent. Provisions for alternate evaluation techniques and plans to have other methodologies reflect BEPS Design Energy Budgets will facilitate use by both designers and building code officials.

Standard Metropolitan Statistical Areas (SMSA) should be expanded by DOE to include discrete areas, such as counties, to ensure consistent application of Energy Budget Levels.

The development of Standards implementation including sanctions and certification would appear as a major item yet to be resolved. The ideas discussed at the meeting of the National Governors Association BEPS Task Force following the seminar could provide a basis for an optimum solution.

Sincerely,

A handwritten signature in cursive script, appearing to read "Kenneth S. Lewison".

Kenneth S. Lewison
Associate Building
Mechanical Engineer

James B. Hunt, Jr.
Governor

M. Faircloth
Secretary

NORTH CAROLINA
DEPARTMENT
OF COMMERCE

James E. Gibson, Jr.

Director

ENERGY DIVISION
(919) 733-2230

RECEIVED

March 18, 1980

MAR 21 1980

NCSBCS

MEMORANDUM

TO: National Conference of States
on Building Codes and Standards, Inc.

FROM: Doug Culbreth
Energy Division

SUBJECT: Reimbursement for Building Energy Performance
Standards Meeting Held in Dallas, Texas

Attached are my reimbursement forms for expenses and a brief critique of the conference.

Critique

The Conference was well planned and ran on time. The speakers from DOE and other agencies were extremely cooperative and sensitive to the concerns of the participants. The information provided on the first day was more background in nature and a little too technical for most of the attendees. The second day was more informative than the first. I suggest in the future that the Conference format allow for interaction among smaller groups.

DC/jp

Attachments

RECEIVED

MAR 21 1980

NCSBCS

SENATE CHAMBER

Forty-sixth Legislative Assembly

STATE OF NORTH DAKOTA

BISMARCK 58505

Sen. Donald W. Hanson
District 45
2513 - 9 1/2 Street North
Fargo, ND 58102

Committees
Appropriations

January 24, 1980

SUMMARY REPORT

Seminar on Building Performance Standards

Dallas, Texas

January 22 & 23, 1980

The following are my observations and comments on the seminar on BEPS held on January 22 & 23 in Dallas, Texas.

1. I completely agree with the concept of BEPS as being necessary in the design of any and all buildings. I question the need for such drastic implementation measures and procedures as was outlined to us. I believe that, for starters, BEPS should be a design tool only, with evaluations of building energy use monitored for a period prior to more stringent enforcement.
2. Since 1975 and 76 when this standard was first conceived, the public has become more aware of energy shortages and energy cost and is demanding energy efficient buildings. I would like to see a survey taken in 1980 which would compare with the data collected in 1975-76. Maybe, the longer BEPS is delayed, the less it may become necessary to have mandated.
3. I have a strong concern about the liability of certifying that buildings meet BEPS. The fact that BEPS is based on national averages plus some assumptions, I strongly question the liability exposure for certifying for a particular location.
4. It appears that computer technology and use will be a major factor in implementing the use and certification of BEPS. Computers may be easy to incorporate into large population states with strong code administration; but, to less populated, rural states, the untrained personnel and politics will very likely not allow this degree of sophistication to be incorporated.
5. My state, North Dakota, has both a building and energy code. I don't believe that legislation will be needed to incorporate BEPS. We can adopt a model energy performance code (Uniform Building Code) if that model code meets BEPS minimum requirements. I would hope that the model code people get on this right away, so that it will be acceptable to DOE, and the need for special legislation be eliminated.

Summary Report
January 24, 1980
Page 2

6. Regarding the Seminars:

- a. Excellent and informative.
- b. Because of the Seminar size (200 persons) it wouldn't be necessary to hold it in the heart of a large city. A small city or sub-urban setting with good airline connections, may be more conducive to a good working session than downtown of any large city.
- c. I would suggest a congregating or hospitality room be established for the evening prior to the start of the seminar. This would help in establishing early, a line of communication between states and with the DOE that presently seems to improve only near the end of the seminar.

I hope that in the future, I can remain being a participant in this type of endeavor by NCSBCS, as it helps me to inform my state of national building code issues.

Sincerely,

Donald W. Hanson
Registered Professional Engineer
North Dakota State Senator
2513 9½ Street North
Fargo, ND 58102

State of North Dakota

DEPARTMENT OF STATE
Bismarck

January 25, 1980

NCS/BCS
1970 Chain Bridge Road
McLean, Virginia 22102

RE: BEPS Seminar
Dallas, Texas

ATT: Mr. Henry Wakabayashi
Energy Program Director

Dear Sir;

This is to thank NCS/BCS for my sponsorship to attend the BEPS Seminar in Dallas. I found the two-day meeting to be very rewarding to me, especially the exchange of thoughts, ideas and problems common with all those persons attending.

Implementation of the BEPS is probably the main area of concern of my department. Enforcement of our Energy Conservation Code and Building Code is strictly on the local level. Except for state buildings only, there is no state agency designated the authority to enforce either code. Such authority could come about only through legislative action.

Technical assistance from the DOE would be a must for a proper implementation program in North Dakota. Presently, we do not have a state agency enforcing the HUD mobile home standards so I think the mobile home provisions in the BEPS would have to be deleted.

Being our state is very rural, we have very few qualified, knowledgeable building officials capable of taking on the technical aspects of the BEPS implementation. I would urge DOE to develop an implementation plan that will be workable on "grass-roots" level.

I think it would be advantageous to have a workshop or seminar on BEPS implementation in the very near future so all states could offer suggestions on what they think could be a possible solution to the problem.

Again, I thank you for the privilege of attending the BEPS seminar in Dallas and would be very interested in attending any follow-up sessions, thank you.

Respectfully;

Robert W. Lawyer

Supt. of Construction
State of North Dakota

Encl: Travel Voucher

OHIO

STATE OF OHIO
DEPARTMENT OF INDUSTRIAL RELATIONS

Division of Factory and Building Inspection
2323 West Fifth Avenue • P.O. Box 825
Columbus, Ohio 43216

(614) 466-6631

January 24, 1980

JAMES A. RHODES
Governor

HELEN W. EVANS
Director

GEORGE G. WILSON, III
Assistant Director

JERALD E. BRUCE
Chief of Division

Mr. Henry S. Wakabayashi
Energy Program Director
National Conference of States
on Building Codes & Standards
1970 Chain Bridge Road
McLean, Virginia 22101

Dear Mr. Wakabayashi:

Please find enclosed the required travel voucher for the recent BEPS seminar at Dallas, Texas on January 22 and January 23, 1980. Also please find enclosed my thoughts, or as you termed them "critique", of the over all seminar. The variety of speakers provided for the seminar was indicative of the good planning evident throughout the seminar. Each individual speaker accomplished his or her goal in my opinion mostly due to their particular expertise or profession. The abundant use of questions and answers from the floor tended to keep the interest level at an above average rate for conferences of this type. There was not evident the usual bureaucratic pride in any of the speakers which again is indicative of the good planning evident in the seminar.

Although handout materials were sparse, but coupled with ample slides and transparent overhead materials, the over all program of audio visual use was well balanced. The use of hard core statistics was limited therefore creating a more stimulating and less dry delivery for each speaker. I especially enjoyed the comments of the economist on the panel and his ability to deliver the program's thoughts at a level the attendees could understand. Also I appreciate the tone of the seminar as being one of encouraging expression of experience from any member attending the seminar and his obvious recording of said comments for further study by the program officials. Very seldom have I attended federal sponsored conferences of this magnitude where the above aspect was evident as at the Dallas seminar.

Page 2
January 24, 1980

The food at the hotel restaurant was excellent and although this author noticed many dead end violations throughout the hotel, I felt relatively comfortable in the room provided. Please realize that I do not blame you or the organization for the hotel's violations, but I am sure you also noticed those particular features of the hotel. If possible, I look forward to seeing you at further seminars to contribute whatever is possible from our experiences in the State of Ohio.

Yours very truly,

A large, stylized handwritten signature in black ink, appearing to read "Gerald E. Bruce". The signature is written over the typed name and title.

Gerald E. Bruce, P.E. & P.S.
Chief of Division
Factory & Building Inspection

JEB/cr
Attachment (1)

STATE OF OKLAHOMA
DEPARTMENT OF ENERGY

4400 NORTH LINCOLN BOULEVARD SUITE 251
OKLAHOMA CITY, OKLAHOMA 73105
PHONE: (405) 521-2995 521-3941

GEORGE NIGH
GOVERNOR

RICHARD G. HILL
DIRECTOR

CHARLES H. HILL
DEPUTY DIRECTOR

TRIP REPORT

NCSBCS - SPONSORED WORKSHOP

ON

BUILDING ENERGY PERFORMANCE STANDARDS

The BEPS workshop, sponsored by NCSBCS, provided me with a great deal of insight on the strategy involved in the development of the standard. Unfortunately, from my standpoint as a state energy officer involved in the implementation of the standard, many questions remain unanswered.

Oklahoma does not have a state building code commission. No other agency is prepared to assist the Oklahoma Department of Energy in the implementation of the standard. The Department, not having regulatory authority, must rely on state legislation for all regulations dealing with energy conservation.

The state legislation requiring local units of government to adopt an ASHRAE 90-75-based energy code is vague, inaccurate, and lacking in enforcement provisions. Few municipalities have adopted a model code, in spite of concerted training efforts by the Department. Local officials must partake of the training opportunities and municipalities actively adopt model codes for the model code to be successfully implemented.

Local officials are aware of BEPS and its threat of sanctions to areas not adopting a code modeled on BEPS. What they need to be aware of is the details on implementation including:

- A. When (exactly) will BEPS become law?
- B. What Kind of Training will be offered?
- C. Will funds be withheld (or is it just merely a threat?)
- D. When will a manual of recommended practice be issued?
- E. What codes will be certified for equivalency?

Until these and many other questions are answered, BEPS will be viewed with skepticism in Oklahoma.

It was my opinion, through, that the presentations by Jim Binkley and Peter Back did much to answer questions on the technical and of the development of the BEPS.

Department of Commerce
BUILDING CODES DIVISION

401 LABOR & INDUSTRIES BUILDING, SALEM, OREGON 97310 PHONE 378-4133

February 5, 1980

Henry S. Wakabayashi
 Energy Program Director
 National Conference of States on
 Building Codes & Standards, Inc.
 1970 Chain Bridge Road
 Maclean, VA 22102

RECEIVED

FEB 8 1980

NCSBCS

Re: Evaluation of Building Energy Performance Standards Seminar, Dallas, Texas
 on 1/22-23/80

We appreciate the opportunity to participate. The system outlined at Dallas we believe is far superior to the concepts delivered at Asheville, N.C. The Dallas seminar was successful in reducing my level of anxiety, but not eliminating it.

I detected less arrogance and more understanding of the needs of the states and local governments in the presentation and responses from the federal staff. But, the insights into the problems of state and local politics still appear to be simplistic. Murphy's second and third laws apply: "It's always harder than it looks," and "It always takes longer than you think it will" to get codes adopted and in effect which will follow from the BEPS standard.

To gain insight, the key federal people should visit local building departments, talk to the building officials, and ride for a day with the building inspector. These visits should not be to the big cities of New York or Washington, D.C., but to the one- or two-person building department. Climb down from the marble palaces and sophisticated labs in Washington and see the real world of construction. Attend meetings of the local advisory groups grappling with the practical energy issues.

We believe that the existing Oregon code based on ASHRAE 90-75 with Oregon amendments is already far superior to our ability to ensure compliance on the job.

Oregon has one of the better code enforcement programs in the nation. Our program includes an enlightened legislature and governor on energy issues, a good base of public awareness, a statewide code, entire state coverage, plans review, inspection by state and local staff, state interpretation program, building department staff certified through tests and continuing education, training from the state level through seminars and community colleges, short schools, etc., state and local co-operation. We still have trouble assuring that the existing standards are satisfied. We question how areas of the country without such a system and support can assure compliance.

At the same time that higher standards are being thrust upon state and local governments, we perceive an unwillingness by local, state and federal agencies to deal with the issue of how enforcement of these new regulations are funded. I voiced this concern on the floor of the Asheville and Dallas meetings. "Each additional

increment of regulation requires an additional increment of cost." No significant additional revenue seems forthcoming to support the existing energy conservation requirements nor the cost of applying additional increments proposed in BEPS. Ignoring this issue leaves only two alternatives. 1) With resources fixed, the majority of enforcement will continue with the life, health, safety provisions of building codes, and little or no resource will be applied to energy conservation; or 2) with resources fixed, Peter will be robbed to pay Paul, energy conservation emphasis will increase, and the level of fire & life safety building regulation will decrease. Most persons in code enforcement believe they open themselves to higher personal liability if they ignore the fire and life safety regulations than if they ignore the energy conservation requirements. In order to rebalance the equation to ensure that traditional fire & life safety base is not eroded and energy codes are applied, additional resources must be placed in the hands of persons directly applying the energy regulations, namely the building official.

An old logger's saying is, "There is no value in sand-papering one end of the log while using an axe on the other end." BEPS seems to qualify as sand-paper, while enforcement is only to the level of the axe in Oregon. From talking to others in Asheville and Dallas, many states are still banging on the log with pointed stones, and almost no one owns a chainsaw.

It is my perception that funds delivered to jurisdictions under block grants or through state departments of energy are diverted away from conventional code enforcement to more elegant, popular programs, and funds never filter down to individual building departments to support the additional inspection positions and the associated transportation and overhead costs.

The \$10 million mentioned in Dallas which is available for grants to support conservation is a paltry amount compared to the level of assurance apparently expected under the BEPS concept. Knowing there are 356 building inspectors in Oregon employed in structural system work, and estimating one added inspection beyond the four now required to assure energy code compliance and knowing that the population of Oregon is 1% of the population of the nation, and that at current costs \$30,000/year is required to support each inspector, we estimate $356 \times 0.2 \times 100 \times \$30,000 = \$214$ million is required to enforce energy codes across the nation. Of this amount, $356 \times 0.2 \times \$30,000 = \$2,136,000$ is required just for Oregon. This assumes an administrative structure is already in place in most of the nation; we know this is not so. Costs will be even higher. Someone must pay these costs if any assurance of compliance is expected. Funding sources:

- increase permit fees?
- local general fund?
- state general fund?
- federal general fund?
- windfall profits taxes?

Since the federal government is mandating the standard, shouldn't they pay the lion's share of the tab?

In closing, the standards already far exceed the ability of most building departments to deliver assurance of compliance with resources currently available to them. The attached graph illustrates our understanding of our ability to assure compliance with the energy code. If the federal government is serious about energy conservation they are going to have to balance priorities between perfecting the paperwork and the nuts and bolts of personnel and equipment to carry out the laws already in effect. Until the delivery system is in effect to apply the standards, they are kidding themselves they can produce any significant conservation effect through regulation.

I was disappointed that at the Dallas meeting there was no opportunity for participants to exchange information about advances made by other states. This is valuable to all concerned to know how they compare.

Once it's available, we request that NCSBCS provide copies of the "Son of ASHRAE" showing the changes that must be made to the numbers in order for them to satisfy BEPS. Early availability of this document would allow us to meet with our advisory groups and begin the desensitizing effort so that once the BEPS requirements are in effect we would be able to adopt codes in line with BEPS within the time schedule.

Again, thank you for the opportunity to participate. Attached is a copy of my travel vouchers.

Walter M. Friday
Walter M. Friday, P.E.
Assistant Administrator--Structural

WMF:cw

Encl.

cc: Trevor Jacobson, Administrator

QUALITATIVE ILLUSTRATION ONLY

Summary of Seminar on Building Energy Performance Standards
at Dallas, Texas, January 22-23, 1980

Introduction

The National Conference of States on Building Codes and Standards, Inc. (NCSBCS), under a conference grant from the U.S. Department of Energy, conducted a Seminar on proposed Building Energy Performance Standards (BEPS) for new buildings at Dallas, Texas on January 22-23, 1980. Representatives from most of the states (4 persons for Pennsylvania) attended the seminar. The purpose of the seminar was to facilitate a better understanding of the technical aspects and the implementation of the proposed Federal Standards. It also provided a forum for continuing interaction between the states and federal representatives relating to the energy conservation codes. The main speakers were the officials of the United States Department of Energy who are responsible for the development of technical standards and implementation regulations. The salient features of the seminar deliberations are as below:

Legal Provisions and Implementation

In 1976, Congress passed the Energy Conservation Standards for New Buildings Act, which ordered the development and promulgation of building standards. The act was adopted as Title III of the Energy Conservation and Production Act (P.L. 94-385). Per requirements of the Act, the Department of Energy will promulgate the final "Energy Performance Standards for New Buildings" by August 14, 1980. By this date, the Department will also issue the proposed implementation regulations. The states and/or local governments are expected to enforce these standards.

The Act provides that "no Federal financial assistance shall be made available for the construction of any new commercial or residential building in any area of any state" unless certain actions are taken by state and local governments to avoid imposition of the sanction. Federal financial assistance include:

- (A) Any form of loan, grant, guarantee, insurance payment, rebate, subsidy, or any other form of direct or indirect Federal assistance (other than general or special revenue sharing or formula grants made to states) approved by any Federal officer or agency; or
- (B) Any loan made or purchased by any bank, saving and loan association, or similar institution subject to regulation by the Board of Governors of the Federal Reserve System, the Federal Deposit Insurance Corporation, the Comptroller of the Currency, the Federal Home Loan Bank Board, the Federal Saving and Loan Insurance Corporation, or the National Credit Union Administration

The Act requires that each House of Congress must approve the need for the sanction before it comes into effect. If the Congress decides to use sanctions, these will be effective one year after the publication of standards i.e. by August 14, 1981.

Under the Act, a State may avoid imposition of the sanction by certifying that:

- (a) the unit of general purpose local government which has jurisdiction over such area has adopted and is implementing a building code, or other construction control mechanism, which meets or exceeds the requirements of such final performance standards, or
- (b) such state has adopted and is implementing, on a statewide basis or with respect to such area, a building code or other laws or regulations which provide for the effective application of such final performance standards.

The Secretary is authorized to review and investigate the accuracy of, and to periodically update, such certification. After providing notice to a state, and opportunity for a hearing, the Secretary may disapprove or require the withdraw of a state certificate.

The Act permits the sanction to be avoided where new buildings are determined to be in compliance with the final energy performance standards pursuant to an alternate approval process.

The Act authorizes the Department to make grants to states and local governments to assist them in meeting the cost of administering State certification procedures or an alternate approval process. The Department may provide, directly or indirectly by contract or other methods, technical assistance to states and local governments to aid them in meeting the requirements of the Act.

Building Energy Performance Standards

About one-third of the total energy used in the United States is used in buildings. One objective of the Energy Conservation Act is "to achieve the maximum practicable improvements in energy efficiency and increases in the use of non-depleteable sources of energy".

Energy used in buildings is primarily for heating and cooling interior space, lighting, heating hot water, and operating mechanical ventilation and other equipment.

There are numerous variables in building occupancy, usage, climatic conditions, and the type and amount of fuel consumed in different regions. Because of the magnitude of these variables, and because flexibility in evaluating energy use is believed to produce the most efficient method of eliminating waste, Congress specified that the standards be developed on a performance basis.

The proposed Building Energy Performance Standards (BEPS) for new buildings take a purely performance approach, which mean a ceiling is set on buildings total energy consumption expressed in BTU's (British Thermal Units) per square foot per year, as calculated based on its design. Building designers have the flexibility to make trade-offs and introduce innovations, including the use of non-depletable energy sources, in the designs of energy efficient buildings. Specifically, the proposed stand comprise two fundamental elements: design energy budgets, and a method for determining design energy consumption of a building design. The design energy consumption of a new building design must not exceed the design energy budget for that building type in the climate area where the building is to be built.

The proposed standards define 19 building design classifications, to provide guidance in determining the design energy budget applicable to a given building. They also establish the manner in which climate conditions for a proposed building are selected. An appendix to the proposed rule provides data for 78 standard metropolitan statistical areas (SMSA's) or cities, and sets forth procedures for selecting applicable climate conditions in localities outside those listed.

Impacts of the Proposed Standards

Analyses have been conducted on the projected impacts of the proposed standards on energy consumption, the economy, and the environments. The projections are considered generally positive.

For residential buildings, application of the standards is projected to produce designs using 22% to 51% less energy than current practices, based on the most current data for construction (1975-76). For commercial buildings, the reduction in energy use would be between 17% and 52% based on similar data.

The analyses show that the proposed standards would produce greater conservation results than existing component performance standards including ASHRAE 90-75R.

The proposed standards would bring net economic benefits to individual homeowners, owners of commercial buildings, the construction industry and the national economy. Despite slightly higher initial costs, single-family residences built in compliance with the standards would realize net savings in the cost of home ownership over time, due to the savings in energy used. The projected impacts of the natural and socio-economic environments are, in general, beneficial.

Mobile Homes and Industrialized Housing

The Department of Energy has not included mobile homes in the proposed standards for energy conservation. The research that is necessary to propose mobile home energy performance standards has not been completed. To be responsive to the economic requirements of potential mobile home owners, a full and detailed cost-benefit analysis would be completed. This is currently planned and will provide a sound economic basis for the selection in the future of appropriate levels of standards for mobile homes.

Responding to a question from Yash Goel, Mr. James Brinkley of DOE said that no consideration was given to the modular (industrialized) housings, and since there are no separate provisions for modulars in the proposed rulemaking, these housing units would fall under single-family residences. Attention of the representatives of DOE was drawn to the special nature of modulars and the difficulties in enforcement of standards because the final destination and at-site climatic conditions cannot be determined in advance at the time of product design approval. There is a need of wide climatic zones for modulars, like 3 zones for mobile homes instead of 78 SMSA's in the proposed rule-making. Mr. Brinkley stated that the Department will consider these special problems for modular homes before issuing final rulemaking.

RHODE ISLAND
RECEIVED

MAR 25 1980

NCSBCS

STATE OF RHODE ISLAND & PROVIDENCE PLANTATIONS
EXECUTIVE CHAMBER
PROVIDENCE

JOSEPH GARRAHO
GOVERNOR

March 18, 1980

National Conference of States on
Building Codes and Standards, Inc.
1970 Chain Bridge Road
McLean, VA 22012

Attention: Henry S. Wakabayashi, P.E.
Energy Program Director

Gentlemen:

Fall Seminar on BEPS

Roger Bavoux and I thank you for inviting us to the fall seminar on BEPS.

We have reviewed the "Comments on Energy Performance Standards for New Buildings" as prepared by William A. Polk, Architectural Review Coordinator, Arkansas Department of Energy, 3000 Kavanagh, Little Rock, Arkansas, 72205, and agree completely with the conclusions noted in this document. A copy of this document was obtained by this office at the BEPS seminar.

There was general agreement at the seminar that:

1. The quantity of energy in the U.S. is limited and will be exhausted at some time in the future;
2. People use energy; the smaller the population, the longer the limited energy supply may be expected to last.

One basic question to be addressed is - "Would the existing energy resources of the U.S. last if immigration were suddenly curtailed?"

It is expected that the State of Rhode Island will adopt a revised NCSBCS "code for energy conservation in New Building Construction" after it has been approved as equivalent to the BEPS standard.

Rhode Island now uses the NCSBCS code, except Section 505.3 Lighting Power Budget, which has been replaced with a code based on watts per square foot for various occupancies.

Suggested changes to the NCSBCS code are as follows:

- (1) 502.1 (a) Limit the U value increase of any assembly to not more than 10%.
- (2) Delete the exception under Note 3, Table 5-1. Cathedral ceilings in residential buildings should be discouraged as being energy inefficient. Thermal efficiency should be increased by applying additional insulation above the roof deck if cathedral ceiling must be provided.

The most flagrant violator of building energy conservation codes in this area is probably HUD with its low cost housing projects where heating is not metered and windows are left open year round. The suggested solution to this problem is to remove all heating elements from bedrooms, and provide heating only to the kitchen, bathroom, and living room. This arrangement would be in accordance with standard practice for people who pay for their fuel, and now heat only a central core of their homes.

In general, although it is recognized that the NCSBCS code is a minimum, knowledgeable people in this area have not hesitated to increase the insulation provided 50% above the code when it is explained the payback period for the increased insulation is about four years.

Very truly,

Chester Niedzwicki

**TENNESSEE ENERGY AUTHORITY
SUITE 707
CAPITOL BOULEVARD BUILDING
NASHVILLE 37219
615/741-2994 or 1772**

RECEIVED

January 29, 1980

NCSBCS

Mr. Hank Wakabayashi
NCSBCS
1970 Chain Bridge Road
McLean, Virginia 22102

Dear Hank:

You asked that a critique of the Dallas meeting accompany our travel voucher.

To simply express my feelings, it was the best NCSBCS/DOE meeting that I have attended. It was very informative. The DOE representatives seem to have only recently grasped many of the issues that State officials have been concerned about since the conception of BEPS. Their answers were fairly complete and expressed well. I left this meeting with a much better attitude toward the whole BEPS issue.

It was also a pleasure to be invited to attend the BEPS Implementation Task Force meeting after the regularly scheduled seminar. I think that the represented states can furnish definite information particular to their own states that will aid DOE in publishing their implementation standards.

Sincerely,

Bryan Jones
Thermal and Lighting

BJ:pas

Texas Department Of Community Affairs

ney M. Wieser, Executive Director

January 25, 1980

Mr. Henry Wakabayashi
Energy Program Director
National Conference of States on
Building Codes & Standards, Inc.
1970 Chain Bridge Road
McLean, Virginia 22102

Dear Mr. Wakabayashi:

By way of a report on the Asheville, North Carolina, seminar on the Building Energy Performance Standards of last January, you may recall that our Executive Director sent a letter expressing alarm over the nature and direction of the program to then, Energy Secretary Schlesinger.

We certainly retain some of the concerns which motivated last January's letter, even after the recently completed seminar in Dallas. It should be added, however, that what took place at the seminar revealed that much hard work and much thought has gone into this project by the BEPS staff at DOE since last January. The staff has taken account of some of the concerns voiced by the state representatives in attendance at the Asheville meeting. It remains clear, however, that much work remains to be done before this program can become either workable or effective within the framework of existing building code enforcement programs. We will elaborate what we still identify as some of the most difficult remaining problem areas in our written commentary on the NOPR, and we will provide the NCS/BCS energy program with a copy of that commentary.

The seminar itself was efficiently and effectively organized, and it provided us, as state personnel concerned with this important

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AUSTIN, TEXAS 78704

AN EQUAL OPPORTUNITY
AFFIRMATIVE ACTION EMPLOYER

Letter to Mr. Wakabayashi
January 25, 1980
Page - 2

Federal program, another valuable opportunity to be face-to-face with people responsible for the BEPS, to share our concerns with them, and to hear out their current thinking on solutions to these problem areas.

Our state remains indebted to NCS/BCS for providing the mechanism through which this important contact could take place.

Very truly yours,

A handwritten signature in cursive script that reads "Roy Fewell". The signature is written in dark ink and is positioned above the printed name and title.

Roy Fewell
Codes Specialist
Training & Technical Assistance
Section, Housing Division

RF/mjl

P.S. Enclosed herewith is documentation and charges for any travel to Dallas for the seminar.

STATE OF
WASHINGTON

Dixy Lee Ray
Governor

DEPARTMENT OF LABOR AND INDUSTRIES

General Administration Building, Olympia, Washington 98504

February 15, 1980

RECEIVED

FEB 22 1980

NCSBCS

Mr. Henry Wakabayshi
Energy Program Director
National Conference of States on
Building Codes and Standards
1970 Chain Bridge Road
McLean, Virginia 22101

Dear Henry:

Attached please find my expense account, along with supporting documents, for the recent meeting in Dallas, Texas. At the end of the meeting you asked for comments relative to the seminar. First of all, I think seminars of this type are extremely helpful, especially when the individual state representatives are able to meet and discuss appropriate issues with the individuals in charge of the federal programs. I was, however, disappointed in the fact that none of the federal officials had any handouts, graphs or charts which could be used by the individual states supporting their comments and figures on the need for the BEPS standards. I do not mean to sound negative; however, it is virtually impossible to retain all of the facts and figures that we heard if we did not have a tape recorder or the ability to take shorthand.

I am sure that the BEPS topic will be of major concern at the upcoming NCS/BCS semi-annual meeting in Indianapolis. Along that line, it is my desire to work with you and your staff to provide more information relative to the BEPS standards and to carry on a dialogue that will be both informative and productive.

I wish to thank you for the opportunity to participate in the BEPS seminar and look forward to the upcoming semi-annual meeting.

Sincerely,

F. Byron Swigart
F. Byron Swigart
Deputy Director

FBS:ki
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