



## MANUFACTURED HOUSING CONSENSUS COMMITTEE

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# MINUTES MHCC MEETING

September 11-13, 2018

Holiday Inn - Capital | Washington, DC

# MINUTES

## MANUFACTURED HOUSING CONSENSUS COMMITTEE (MHCC) MEETING

September 11-13, 2018

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### DAY 1: Tuesday, September 11, 2018

#### Call to Order

MHCC Chairman, Tim O’Leary, called the meeting to order at 9:09 a.m. (EDT) and welcomed new committee members: Mitchel Baker, Cameron Tomasbi, David Tompos, Michael Wade, Russell Watson, and Catherine Yielding. MHCC Vice-Chair, Debra Blake asked the MHCC Members to introduce themselves to the committee. Public comments would be allowed only after the committee has had a chance to discuss each topic, if time permits.

#### Roll Call

Kevin Kauffman, Program Manager of the Administering Organization (AO) Home Innovation Research Labs, called the roll and announced that a quorum was present. Dominic Frisina, Sean Oglesby, and Myles Standish were unable to attend the meeting.

#### Introduction and Opening Remarks

Teresa Payne, Acting Administrator of the Office of Manufactured Housing Programs and Designated Federal Officer (DFO), welcomed the MHCC members to Washington, D.C. DFO Payne noted that this is a meeting of the Manufactured Housing Consensus Committee (MHCC) and that the meeting notice was published in the *Federal Register* dated July 31, 2018.

A moment of silence was observed to honor the lives lost in the September 11, 2001 attacks.

DFO Payne introduced the HUD staff present at the meeting. Guests were asked to introduce themselves. See [Appendix A](#) for a list of meeting participants. DFO Payne thanked the meeting planner team for providing the meeting planning logistics.

DFO Payne announced that a new *Federal Register* will be published in a few weeks asking for new applications to fill upcoming MHCC vacancies. DFO Payne reminded committee members to keep discussions on topic and to address the topic rather than the person. Chairman O’Leary asked comments to be brief and limit the number of similar comments to further the discussion.

Mr. Kauffman provided a summary of meeting procedures to ensure compliance with MHCC Bylaws and that Robert’s Rules of Order would be followed. He noted that all voting items would be followed-up by a letter ballot and that the vote would not be final until the letter ballot is complete. Thus, allowing members who were not present an opportunity to participate in the process.

#### Approval of the Minutes

**MHCC Motion to Approve the December 12, 2016 MHCC Committee meeting minutes.**

Maker: Garold Miller

Second: Joe Sadler

The motion carried unanimously via voice vote.

## Update on the Regulatory Process

Aaron Santa Anna, Assistant General Counsel for Regulations, provided an update on how the regulatory process works at HUD. He highlighted the complexity of the rulemaking process and its implementation.

Aaron Santa Anna presented a summary of two Executive Orders related to rulemaking (see [Appendix B](#)):

- Executive Order 13771, “Reducing Regulation and Controlling Regulatory Costs”, Issued January 30, 2017 (82 Fed. Reg. 9339, February 3, 2017)
- Executive Order 13777, “Enforcing the Regulatory Reform Agenda” Issued February 24, 2017 (82 Fed. Reg. 12285, March 1, 2017)

The purpose of Executive Order (EO) 13771 is to create a regulatory budget across the government to help identify the cost of regulation. EO 13771 requires any executive department or agency who plans to publicly announce a new regulation to propose at least two regulations which will in turn be repealed. The cost of the implementation of these new regulations must be less than or equal to 0 dollars. If costs above 0 dollars are accrued, the payment of these costs shall be funded through the elimination of more regulations. Advice on the financial aspect of these matters is provided by the Director of the Office of Management and Budget. HUD’s Department-wide regulation budget for 2019 shows a net decrease of 28 million dollars.

Executive Order 13777 is complementary to EO 13771. It requires that agencies designate an agency official as its Regulatory Reform Officer (RRO) to oversee the implementation of regulatory reform initiatives and policies.

The committee members asked how the Executive Orders affect the MHCC or the Manufactured Housing Program Office. Clarifications and comments on the Executive Orders based on the discussion include:

- If MHCC recommends a regulatory action to HUD, then the two-regulation offset can occur in other area of the department.
- The EO requires HUD to convince the OMB that updating code incurs minimal cost. Therefore, the MHCC needs to provide data and justification with its recommendations that make the argument that the industry has moved further than the code.
- Interpretative Bulletins are held to the same level as regulations.
- If a rulemaking action includes multiple codes updates or changes, then the rule would be counted as one regulatory change.
- If a code change has negligible impact, then it doesn’t have to be offset so long as there is data and justification demonstrating the negligible impact

## Review of HUD’s On-Site Completion of Construction Report

DFO Payne introduced Michael Hollar, Daniel Marcin and Alastair McFarlane from HUD’s Office of Policy Development and Research (PDR) who gave a report on their review of HUD’s On-Site Completion of Construction Regulation ([Appendix C](#)). The presentation regarded a report that is to be delivered to Congress as required by the Explanatory Agreement to the Consolidated Appropriations Act of 2018 which covers the following:

- Review final rule concerning on-site completion
- Develop alternatives that minimize costs and ensure safety

- Explore whether state and local planning and permitting agencies should have jurisdiction over on-site completion of construction

Two primary alternatives to the On-Site Rule and their pros and cons were presented to the committee:

1. Delegate authority to local jurisdictions to conduct inspections instead of the Inspection Primary Inspection Agencies (IPIA)s; and
2. Allow Quality Control of completion of construction by IPIAs (less than 100 percent inspection)

The committee asked if non-life threatening construction could allow for lower inspection rates. For example, french doors could have a lower inspection rate than furnaces. The committee members asked for the inspections to be streamlined by requiring fewer inspections, potentially even a single inspection, instead of multiple inspections. Having fewer inspections would lower costs significantly. The committee highlighted the disadvantages of inspections on innovative or specialized features as it limits use of the features in the manufactured home.

DFO Payne requested comments on the statutory requirement requiring manufacturers to acknowledge that the home complies with the HUD standard. The DFO asked, “how could this be done if the manufacturer is not involved in the on-site completion of the home?” The committee had the following comments and suggestions:

- The IPIA could ensure that the home complies with HUD Code and the manufacturer could confirm with the IPIA.
- On-site work requires DAPIA-approved engineered plans that could be DAPIA-approved as part of a manufacturer’s home installation instructions. David Tompos suggested potentially adding a detailed checklist of on-site items to the installation inspection which would eliminate the cost of the on-site completion through consolidated inspections.
- Tim O’Leary noted that some jurisdictions do not have any local codes; therefore, it either falls on the state or the homeowner to perform the inspections. Incorporating the rule and allowing local jurisdictions to inspect will increase jobs, revenues, and local economy and potentially increase local involvement with manufactured homes. Tim O’Leary suggested more coordination is needed between the IPIA and local authority having jurisdiction (AHJ) in terms of inspection training. This would help reduce the stigma associated with manufactured homes. Tim O’Leary emphasized the need to improve public perception of manufactured homes. No more derogatory terms like double wide. Most consumers would like to have their homes 100% inspected. The industry should coordinate with the International Code Council (ICC) to get these inspectors trained better.

## **BREAK**

Before starting the review of Proposed Changes (Log Items) and Deregulatory Comments (DRC), the AO outlined how the categories have been organized and the log items and comments will not be reviewed in a numerical order. The categories ([Appendix D](#)) were organized by HUD prior to the meeting.

## **Carports**

### **LOG 179: § 3280.2, 3282.8, 3282.14, 3282.601, and 3285.903 Accessory structure**

The proposal addresses both structurally independent structures and non-structurally independent structures. The change would take accessory structure out of the alternative construction process and move it to the manufactured section.

**MHCC Motion to Approve as Modified Log 179.**

Maker: Michael Wade                      Second: Debra Blake  
The motion carried unanimously via voice vote.

**LUNCH BREAK**

Based on the type of comments received regarding the DRCs and committee feedback, the committee discussed how to address the DRCs. The AO explained that the DRCs will have two-tier actions. The first action will always be “Reviewed and Considered”, which will signify that the committee has addressed the comment. The secondary action will identify the action taken, if any, on the comment. Examples of a secondary action are: “No Further Action Required,” “Refer Comment to HUD for Further Consideration,” “Refer to Subcommittee,” or “Reject Premise and Conclusion.”

**DRC 9:                      FR6030-N-01 – 24 CFR part 3282.11**

Log 179 addresses this Deregulation Comment.

**MHCC Motion: Reviewed and Considered – No Further Action Required**

Maker: Russell Watson                      Second: Alan Spencer  
The motion carried unanimously via voice vote.

**DRC 10:                      FR6030-N-01 – Interpretive Bulletin**

Log 179 addresses this Deregulation Comment.

**MHCC Motion: Reviewed and Considered – No Further Action Required**

Maker: Alan Spencer                      Second: Joseph Sadler  
The motion carried unanimously via voice vote.

**DRC 16:                      FR6030-N-01 – Interpretive Bulletin**

Jason McJury brought up the point that MHCC has previously proposed changes that will conflict with current comment.

**MHCC Motion: Reviewed and Considered – Refer to Technical Systems Subcommittee**

Maker: Russell Watson                      Second: Alan Spencer  
The motion carried via voice vote with 1 negative vote.

Based on the topic of the next DRC 24 – Guidance on Alternative Construction, the committee decided to take a proactive approach by addressing the guidance letter related to carports. Leslie Gooch, from the Manufactured Housing Institute (MHI), expressed concerns about the arbitrary expansion of the guidance letter that deals with garages that now includes carports. The industry should not rely on these guidance letters. The committee should take this deregulation opportunity to make recommendation to the HUD Secretary about how to change HUD and its bureaucracy. Leslie Gooch emphasized the influence that the MHCC has to provide recommendations to the Secretary. The MHCC should consider alternative construction and on-site completion as regulatory matters. Although Log 179 addresses Alternative Construction issues, the timeframe for having the rule out is unknown whereas rescinding the letter has a shorter time frame.

**MHCC Motion: MHCC Recommends HUD rescind the guidance letter dated 5-10-2017, which expanded upon the 6-12-2014 guidance letter to include designs for carport ready homes.**

Maker: Luca Brammer                      Second: Michael Wade  
The motion carried. Meeting Vote: 18-0-0

**DRC 24:**            **FR6030-N-01 – 24 CFR Part 3282**  
**MHCC Motion: Reviewed and Considered – No Further Action Required**  
Maker: David Tompos                      Second: Alan Spencer  
The motion carried unanimously via voice vote.

**BREAK**

**MHCC Motion: Add the Approved as Modified language from Log 179 to the third set of revisions to the MHCCS.**

As HUD standards are published in sets, the purpose of this motion is to allow for consistency when a set of proposed changes is published.

Maker: Alan Spencer                      Second: Michael Wade  
The motion carried unanimously via voice vote.

**DRC 40:**            **FR6075-N-01 – HUD Code Updates MHCC**  
**MHCC Motion: Reviewed and Considered – No Further Action Required**  
Maker: Lori Dibble                      Second: Russell Watson  
The motion carried unanimously via voice vote.

**DRC 48:**            **FR6075-N-01 – HUD Code Updates**  
**MHCC Motion: Reviewed and Considered – No Further Action Required**  
Maker: Joseph Sadler                      Second: Mitchel Baker  
The motion carried unanimously via voice vote.

**DRC 119:**            **FR6075-N-01 – Carport/Add-on Guidance**  
**MHCC Motion: Reviewed and Considered – No Further Action Required**  
Maker: Lori Dibble                      Second: Alan Spencer  
The motion carried unanimously via voice vote.

**DRC 120:**            **FR6075-N-01 – Carport/Add-on Guidance**  
**MHCC Motion: Reviewed and Considered – No Further Action Required**  
Maker: Lori Dibble                      Second: Joseph Sadler  
The motion carried unanimously via voice vote.

**DRC 121:**            **FR6075-N-01 – Carport/Add-on Guidance**  
**MHCC Motion: Reviewed and Considered – No Further Action Required**  
Maker: Lori Dibble                      Second: Alan Spencer  
The motion carried unanimously via voice vote.

**DRC 122:**            **FR6075-N-01 – Carports Garages**  
**MHCC Motion: Reviewed and Considered – No Further Action Required**  
Maker: Lori Dibble                      Second: Debra Blake  
The motion carried unanimously via voice vote.

**DRC 125:**            **FR6075-N-01 – Carport/Add-on Guidance**  
**MHCC Motion: Reviewed and Considered – No Further Action Required**  
Maker: Lori Dibble                      Second: Richard Nolan

The motion carried unanimously via voice vote.

**MHCC Motion: MHCC strongly suggest HUD to adopt a 2-year cycle for updating and publishing a final rule on the Manufactured Housing Safety and Construction Standards.**

This motion stemmed from discussion on the length of Alternative Construction (AC) letters. AC letters are implemented to have the MH industry keep up with the innovation in the market. The implementation of the following motion will limit the use of AC letters.

Maker: David Tompos                      Second: Michael Wade

The motion carried unanimously via voice vote.

**DRC 126:                      FR6075-N-01 – Carport/Add-on Guidance**

**MHCC Motion: Postpone until Log 180 has been reviewed**

Maker: David Tompos                      Second: Lori Dibble

The motion carried unanimously via voice vote.

**BREAK**

## DOE Conservation Standards for Manufactured Housing – Notice of Data Availability; Request for Information

The U.S. Department of Energy (DOE) announced the notice of data availability (NODA) ([Appendix E](#)) and soliciting public input regarding data relating to certain aspects in developing energy conservation standards for manufactured housing. Comments to DOE were due on or before September 17, 2018.

According to the Energy Independence and Security Act of 2007 (EISA), DOE is required to establish a standard for the energy efficiency of manufactured housing in terms of the Proposed Rule. To establish these regulations, DOE must satisfy two conditions based on 42 U.S. Code § 17071(a)(2) –

*(2) NOTICE, COMMENT, AND CONSULTATION Standards described in paragraph (1) shall be established after—*

*(A) notice and an opportunity for comment by manufacturers of manufactured housing and other interested parties; and*

*(B) consultation with the Secretary of Housing and Urban Development, who may seek further counsel from the Manufactured Housing Consensus Committee.*

Mark Weiss from the Manufactured Housing Association for Regulatory Reform (MHARR), noted that the EISA issued by Congress took away jurisdiction from HUD in terms of energy efficiency.

The committee discussed that the MHCC should assert jurisdiction on the DOE energy efficiency standards making process to ensure the standards meet MH consumer needs. This committee made comments on a previous DOE Proposed Rule (See [Appendix F](#)) stating the actual costs were higher than estimated in the proposed rule. The current proposed energy standard also underestimates cost and consumers will be excluded from the market due to these cost increases. The \$4K - \$6K was calculated on the retail side of the consumer and didn't include the regulatory costs. The committee further discussed the DOE presentation ([Appendix G](#)) on the different tiered packages that is referenced in the NODA. The presentation didn't cover all the packages.

The MHCC meeting adjourned at 4:51 p.m.

## DAY 2: Wednesday, September 12, 2018

### Reconvene

MHCC Chairman, Tim O’Leary, reconvened the meeting at 9:10 a.m. DFO Payne welcomed the committee back into session. Kevin Kauffman (AO) called the roll and announced that a quorum was present.

### DOE Conservation Standards for Manufactured Housing – Notice of Data Availability; Request for Information

The committee continued discussion on the DOE’s Request for Information. David Tompos stated that DOE is not well informed on manufactured housing. The MHCC wants DOE to shift authority back to HUD in terms of energy conservation standards. This will avoid different agencies regulating the MH industry. The committee discussed the fact that DOE may not respond to the MHCC; therefore, a response should be sent through HUD.

The committee decided to take a two-track approach to the DOE’s Request for Information. The committee will (1) send a letter to the Secretary of HUD objecting to DOE’s request for information and asking the Secretary to re-delegate the regulatory authority for energy conservation standards back to HUD/MHCC and (2) submit comments in response to the DOE’s request for information.

**MHCC Motion: Send a letter to the Secretary of HUD regarding DOE’s request for information and content of the Proposed Rule. ([Appendix H](#))**

Maker: Russell Watson      Second: Kylin Parks  
The motion carried. Meeting Vote: 18-0-0

### BREAK

The committee wants DOE to know that the energy standards must not conflict with HUD standards, which are preemptive per 42 U.S.C §5403(g) that states:

*(g) Manufactured housing construction and safety standards*

*(1) The Federal manufactured home construction and safety standards established by the Secretary under this section shall include preemptive energy conservation standards in accordance with this subsection.*

*(2) The energy conservation standards established under this subsection shall be cost-effective energy conservation performance standards designed to ensure the lowest total of construction and operating costs.*

*(3) The energy conservation standards established under this subsection shall take into consideration the design and factory construction techniques of manufactured homes and shall provide for alternative practices that result in net estimated energy consumption equal to or less than the specified standards.*

The committee noted that previous comments to DOE were not included in the new proposed standard. The comments to DOE should provide awareness of the current HUD process of changing the MH code. The MHCC would like to inform DOE about the deficiencies in the proposed rule. The following motion was made based on the discussion:

**MHCC Motion: MHCC to provide comments on the DOE Energy Conservation Standards for Manufactured Housing: Notice of Data Availability; Request for Information. ([Appendix I](#))**

Maker: Joseph Sadler      Second: Mitchel Baker

The motion carried unanimously via voice vote.

The committee discussed the cost analysis done in EERE-2009-BT-BC-0021 (NODA Packages-Draft Results July 2018) (see [Appendix G](#)). The committee wanted comparable cost figures and discussed asking HUD for it through this motion:

**MHCC Motion: Request HUD's PD&R to submit a document to the MHCC which includes comparable cost figures similar to EERE-2009-BT-BC-0021 (NODA Packages-Draft Results July 2018) by November 14, 2018. ([Appendix J](#))**

Maker: Joseph Sadler      Second: Catherine Yielding

The motion carried.

## Frost-Free Foundation

The committee discussed Log Items and Deregulatory comments related to frost-free foundations and the Proposed Interpretative Bulletin (IB). The MHCC previously sent comments on the IB stating that it should be rescinded and highlighted its deficiencies.

There are two options for complying with the current standards: 1) American Society of Civil Engineers (ASCE) 32, and 2) accepted engineering practice. There is less clarity on the accepted engineering practices option. The IB created confusion on what can be accepted as accepted engineering practice. The proposed IB states that ASCE 32 is the accepted engineering practice; however, it is not written as such in the current code.

Cameron Tomasbi, MHCC member, stated that SEBA (HUD's Installation Contractor) is enforcing the IB even though it is not finalized. Leslie Gooch stated that field reports show the proposed IB is being enforced. Michael Henretty from SEBA clarified that it is not being enforced and that 3285 is being enforced. Henretty stated, the inspectors are asking for the foundation plans and are receiving plans that are either incorrect or out of date. There needs to be guidance for the inspectors to know if plans are acceptable.

DFO Payne gave context for issuing the proposed IB since there was no additional guidance on these types of more innovative foundations. HUD tried to provide that guidance with the letter. She also stated that HUD is not currently working on a final IB.

Based on this discussion, the MHCC made two motions on the proposed IB:

**MHCC Motion: Refer Frost Free Foundation Issue/Deregulation Comments to the Technical Systems Subcommittee. The Subcommittee should review and consider all of the comments.**

Maker: Dave Anderson      Second: Michael Wade

The motion carried unanimously via voice vote.

**MHCC Motion: MHCC requests that HUD withdraw the proposed IB on Frost Free Foundation Issue until the MHCC takes action based on the Technical Systems Subcommittee recommendation on Frost Free Foundation Issue/Deregulation Comments.**

Maker: Dave Anderson      Second: Michael Wade

The motion carried unanimously via voice vote.

**LUNCH BREAK**

Multifamily vs. Single-Family Homes

**LOG 160: § 3280.2 Definitions**

The language for this proposal is consistent with the IRC and Log 128. The committee had a detailed discussion on the comparison between Log 160 and a previously approved Log 128 on the same topic.

**MHCC Motion to Approve Log 160 as Modified.**

Maker: David Tompos                      Second: Lori Dibble

The motion carried via voice vote with 2 negative votes.

**LOG 161: § 3280.711 Instructions**

The proposal was modified to be consistent with Log 128.

**MHCC Motion to Approve Log 161 as Modified.**

Maker: David Tompos                      Second: Russell Watson

The motion carried via voice vote with 3 negative votes.

**BREAK**

**LOG 162: § 3280.211 Dwelling Unit Separation**

**MHCC Motion to Approve Log 162.**

Maker: David Tompos                      Second: Michael Wade

The motion carried unanimously via voice vote.

**LOG 186: § 3280.6 Serial number**

**MHCC Motion to Approve Log 186.**

Maker: Alan Spencer                      Second: Mitchel Baker

The motion carried unanimously via voice vote.

**LOG 198: § 3280.202 Definitions**

The proposal would revise the definition of MH and allow it to compete with site-built homes. The change in definition will allow park model to be built from the HUD code.

**MHCC Motion to Refer Log 198 to the Regulatory Subcommittee.**

Maker: Alan Spencer                      Second: Debra Blake

The motion carried unanimously via voice vote.

**DRC 12: FR6030-N-01 – Manufactured Housing Requirements**

The committee agrees with commenter that HUD should explore ways to enable more timely updates to manufactured housing requirements, particularly through the incorporation by reference of voluntary consensus standards.

**MHCC Motion: Reviewed and Considered – Refer Comment to HUD for Further Consideration**

Maker: Mitchel Baker                      Second: Michael Wade

The motion carried unanimously via voice vote.

**DRC 58:**           **FR6075-N-01 – HUD Code**  
Log Items 128, 160, 161 address the adoption of multi-family manufactured homes.  
**MHCC Motion: Reviewed and Considered – No Further Action Required**  
Maker: Lori Dibble                               Second: Dave Anderson  
The motion carried unanimously via voice vote.

**DRC 59:**           **FR6075-N-01 – HUD Code**  
The comment address Alternative construction and performance vs. prescriptive based standards. The committee discussed the merits of having performance and prescriptive requirements. Mark Weiss stated that consumers have difference preference for performance and affordability.  
**MHCC Motion: Reviewed and Considered – Refer Comment to HUD for Further Consideration**  
Maker: Alan Spencer                            Second: Michael Wade  
The motion carried unanimously via voice vote.

**DRC 270:**       **FR6075-N-01 – Regulatory Benefits**  
The comment is highlighting the positive aspect of the HUD Code.  
**MHCC Motion: Reviewed and Considered – No Further Action Required**  
Maker: Lori Dibble                            Second: Mitchel Baker  
The motion carried unanimously via voice vote.

**DRC 272:**       **FR6075-N-01 – Regulatory Benefits**  
NAHB comment is on the affordable housing in the country. Danny Ghorbani stated that NAHB is trying to stifle the MH industry by imposing regulation and bring up the MH prices. MHCCS code avoids costs from local and state codes that homebuilders have incurred. The committee agreed with that sentiment and rejects the premise and conclusion of the comment.  
**MHCC Motion: Reviewed and Considered – Reject Premise and Conclusion**  
Maker: Luca Brammer                        Second: Garold Miller  
The motion carried unanimously via voice vote.

The MHCC adjourned at 5:15 p.m.

## DAY 3: Thursday, September 13, 2018

### Reconvene

MHCC Chairman, Tim O’Leary, reconvened the meeting at 9:02 a.m. DFO Payne welcomed the committee back into session and encouraged members whose first term is expiring to apply for re-appointment. Kevin Kauffman (AO) called the roll and announced that a quorum was present.

### Office of Housing Statement

Joe Gormley, Chief of Staff for the Office of Housing, gave a statement on behalf of Brian Montgomery, FHA Commissioner and Assistant Secretary of Housing. He was grateful for the dedication and commitment to the mission and objectives of the MHCC, and the active role in helping HUD understand industry perspectives. He thanked members whose term expired at the end of the year and the MHCC Chair and Vice-Chair.

Mr. Gormley went on to state that the Manufactured Housing industry will no longer be an afterthought—it is an important part of the nation’s housing stock and constitutes a critical component of affordable housing. He stated that the industry is on pace to produce about 100,000 homes in 2018, which is twice the production number during the challenging times around 2007. He articulated HUD’s plan to reduce regulatory burdens, improve and modernize its programs and regulations. He thanked DFO Payne and her team for doing a great job but believes that additional staff support will allow the program office to be even more responsive.

There are two rules that are the highest priority for the administration: 1) rulemaking on Formaldehyde Emissions; and 2) the rule on clarifying the RV exemptions. The Office of Housing is also prepared to move forward with a rule revising the payments to states if the budget allows for those payments with the appropriation.

After Joe Gormley’s statement, a committee member brought up a few concerns regarding the MH industry. The committee was dissatisfied how the rulemaking process did not consider MHCC recommendations in a timely manner and asked how improvements can be made to the process. Joe Sadler from the North Carolina State Administrative Agency (SAA) and MHCC member asked that there be more funding for the states since they are burdened with a lot of the costs. The state agencies pay for a lot of the implementation and inspection costs associated with regulations.

### 3280 Subpart A - General

#### **LOG 152: § 3280 Attic**

The committee disapproved the proposal because attic access for all types of roof isn’t appropriate and the proposal isn’t feasible to be implemented.

#### **MHCC Motion to Disapprove Log 152.**

Maker: Alan Spencer                      Second: Cameron Tomasbi

The motion carried via voice vote with 1 abstention.

Vice-Chair Debra Blake requested Log 153 and 154 to be reviewed by the committee.

#### **LOG 153: § 3282.416(a)(4) Oversight of notification and correction activities**

The proposal will reduce the number of reviews to one per calendar quarter and reduce expenses for the manufacturer.

#### **MHCC Motion to Approve Log 153.**

Maker: Dave Anderson                      Second: Mitchel Baker

The motion carried via voice vote with 1 abstention.

**LOG 154:**

**§ 3280.607(b)(3)(i) Plumbing fixtures**

The committee has discussed and addressed this issue in Log 108.

**MHCC Motion to Disapprove Log 154.**

Maker: Dave Anderson                      Second: Luca Brammer

The motion carried unanimously via voice vote.

**LOG 159:**

**§ 3280.1 Scope**

The proposal reflects previous changes to the definition of Dwelling or Dwelling Units. The change links the standards to the statute

**MHCC Motion to Approve Log 159 as Modified.**

Maker: Michael Wade                      Second: Richard Nolan

The motion carried unanimously via voice vote.

**BREAK**

**LOG 170:**

**§ 3280 Energy efficiency and affordability of manufactured housing**

The proposal was submitted prior to the DOE Proposed Rule and the current item discusses DOE working group's previous discussion that is not applicable. Richard Nolan stated that the DOE has come back with a different proposal for request of information therefore the following item isn't applicable so disapprove the item.

**MHCC Motion to Disapprove Log 170.**

Maker: Luca Brammer                      Second: Mitchel Baker

The motion carried unanimously via voice vote.

Based on the discussion, the committee made two motions that asked for a subcommittee review of energy standards in the MHCSS and informed DOE about the review that MHCC subcommittee will be undertaking.

**MHCC Motion: Create an Action Item – Regulatory Enforcement Subcommittee to review the energy standards in the MHCSS with specific focus on the RFI from DOE. The subcommittee to review each of the questions/issues from the RFI and provide recommendations to the MHCC on proposed action.**

Maker: Luca Brammer                      Second: Lori Dibble

The motion carried unanimously via voice vote.

**MHCC Motion: Add the following language to the MHCC Comments on the DOE Energy Conservation Standards for Manufactured Housing that the MHCC made on Day 2 of the meeting:**

*"The MHCC has reviewed and has referred the DOE's notice of data availability; request for information to a MHCC Subcommittee for review and comment."*

Maker: Alan Spencer                      Second: Kylin Parks

The motion carried unanimously via voice vote.

**LOG 193:**

**§ 3280.4 Incorporation by Reference & 3280.801 Scope**

**MHCC Motion: Refer Log 193 to Structure and Design Subcommittee.**

Maker: David Tompos                      Second: Mitchel Baker

The motion carried unanimously via voice vote.

**LOG 199: § 3280.4 Incorporation by reference  
MHCC Motion to Approve Log 199.**

Maker: Alan Spencer                      Second: Joseph Sadler  
The motion carried unanimously via voice vote.

**LOG 200: § 3280.4 Incorporation by reference  
MHCC Motion to Disapprove Log 200.**

Maker: Joseph Sadler                      Second: Kylin Park  
The motion carried unanimously via voice vote.

**LOG 201: § 3280.304 Materials**

The proposal updates a reference standard. There is no cost impact as the windows are already been updated to the newest standard. The manufacturers are using the latest standards

**MHCC Motion to Approve Log 201 as Modified.**

Maker: David Tompos                      Second: Michael Wade  
The motion carried via voice vote with 1 abstention.

**LOG 202: § 3280.403 Requirements for windows, sliding glass doors, and skylights  
MHCC Motion to Refer Log 202 to Structure and Design Subcommittee.**

Maker: David Tompos                      Second: Joseph Sadler  
The motion carried unanimously via voice vote.

## Public Comment Period

Leslie Gooch thanked the MHCC for their time and asked HUD to push through the regulatory process. She reiterated the point to make sure that MHCC has jurisdiction over MH industry regulatory issues especially related to DOE's standard. Mark Weiss thanked the MHCC and the chairs for their work. Michael Moglia, from the Pennsylvania SAA, asked HUD to consider MH installers as appointed committee members especially with the eight vacancies coming up at the end of the year. Having an installer's input will be valuable for the MHCC especially with on-site completion.

## Wrap-up

DFO Payne thanked the MHCC members and the HUD staff. DFO thanked outgoing committee members—Tim O'Leary, Debra Blake, and Dominic Frisina—for their leadership and participation on behalf of HUD. DFO Payne also thanked Tim O'Leary for chairing this meeting.

The MHCC meeting adjourned at 12:30 p.m.



## MANUFACTURED HOUSING CONSENSUS COMMITTEE

1.888.602.4663 | [HUD.GOV/MHS](http://HUD.GOV/MHS)

MHCC MEETING  
September 11-13, 2018

# APPENDIX A: Participant List



**HUD Manufactured Housing  
Consensus Committee  
Meeting**

**September 11–13, 2018**  
**Holiday Inn Washington – Capitol • Washington, DC**



**Postmeeting Participant List**

**Manufactured Housing Consensus Committee Members**

**Dave Anderson**  
Executive Director  
National Manufactured Home Owners  
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## MANUFACTURED HOUSING CONSENSUS COMMITTEE

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MHCC MEETING  
September 11-13, 2018

# APPENDIX B: REGULATORY REFORM

Aaron Santa Anna, Assistant General Counsel, Office of Regulations



# REGULATORY REFORM

*Aaron Santa Anna, Assistant General Counsel, Office of Regulations*

# Two Executive Orders

- Executive Order 13771, “Reducing Regulation and Controlling Regulatory Costs”,
  - Issued January 30, 2017 (82 Fed. Reg. 9339, February 3, 2017)
- Executive Order 13777, “Enforcing the Regulatory Reform Agenda”
  - Issued February 24, 2017 (82 Fed. Reg. 12285, March 1, 2017)

# OMB Guidance

- Interim Guidance dated February 2, 2017 Implementing Section 2 of Executive Order of January 30, 2017, Titled “Reducing Regulation and Controlling Regulatory Costs”
- Guidance dated April 5, 2017 on Implementing Executive Order 13771, Titled “Reducing Regulation and Controlling Regulatory Costs” (M-17-21)
- Guidance dated April 28, 2017 on Regulatory Reform Accountability under Executive Order 13777, titled “Enforcing the Regulatory Reform Agenda” (M-17-23)

# Executive Order 13771, Reducing Regulation and Controlling Regulatory Costs

## Regulatory Cap for Fiscal Year 2017

Unless prohibited by law, whenever an executive department or agency (agency) publicly proposes for notice and comment or otherwise promulgates a new regulation, it shall:

- Identify at least two existing regulations to be repealed; and
- The total incremental cost of all new regulations, including repealed regulations, to be finalized this year shall be no greater than zero.
- Goal: Any new incremental costs associated with new regulations shall, to the extent permitted by law, be offset by the elimination of existing costs associated with at least two prior regulations.

# Executive Order 13771, Reducing Regulation and Controlling Regulatory Costs

## Regulatory Cap for Fiscal Year 2018 and beyond

- For FY 2018 and after, for each regulation that increases incremental costs the agency shall identify the two offsetting regulations.
- Regulatory Cap. The OMB Director shall identify to agencies a total amount of incremental costs that will be allowed for each agency in issuing new regulations and repealing regulations for the next fiscal year. No regulations exceeding the agency's total incremental cost allowance will be permitted in that fiscal year, unless required by law or approved in writing by the Director.
- Each regulation (regulatory and deregulatory) shall be included in the Unified Regulatory Agenda. No regulation shall be issued by an agency if it was not included on the most recent version or update of the published Unified Regulatory Agenda.

# OMB Guidance to Agencies on 13771

## DEFINITION: Deregulatory Action

- Deregulatory actions include any final rule that revises any section of the Code of Federal Regulations (CFR) as long as it provides a cost savings for purposes of the incremental cost allowance.
- May also include guidance and interpretive guidance, and information collection requests that repeal or streamline recordkeeping, reporting or disclosure requirements.
- Significant proposed rules issued before January 20, 2017 that are formally withdrawn and removed from the Unified Agenda may qualify as repeal actions (but do not qualify as cost savings).

# OMB Guidance to Agencies on 13771

## KEY POINTS

- Executive Order 12866 remains primary governing EO regarding regulatory planning and review.
- Executive Order 13771 covers BOTH significant regulatory actions AND significant guidance documents.
- “Non-Significant regulatory actions” are not subject to EO 13771 but may count as a deregulatory action.
- Federal Spending Programs: Regulatory actions that cause only income transfers between taxpayers and program beneficiaries are considered “transfer rules” and are not covered by EO 13771. However, in some cases, such regulatory actions may impose requirements apart from transfers, or transfers may distort markets causing inefficiencies

# Executive Order 13777, “Enforcing the Regulatory Reform Agenda

- Requires that agencies designate an agency official as its Regulatory Reform Officer (RRO) to oversee the implementation of regulatory reform initiatives and policies .
- Each agency is also required to establish a Regulatory Reform Task Force to evaluate existing regulations and make recommendations to the agency head regarding their repeal, replacement, or modification, consistent with applicable law.

# Executive Order 13777, “Enforcing the Regulatory Reform Agenda

- Section 3(d) of the Order provides that, at a minimum, each task force must attempt to identify regulations that:
  - Eliminate jobs, or inhibit job creation;
  - Are outdated, unnecessary, or ineffective;
  - Impose costs that exceed benefits;
  - Create a serious inconsistency or otherwise interfere with regulatory reform initiatives and policies;
  - Are inconsistent with the requirements of section 515 of the Treasury and General Government Appropriations Act, 2001 (44 U.S.C. 3516 note), or the guidance issued pursuant to that provision, in particular those regulations that rely in whole or in part on data, information, or methods that are not publicly available or that are insufficiently transparent to meet the standard for reproducibility; or
  - Derive from or implement Executive Orders or other Presidential directives that have been subsequently rescinded or substantially modified.
- When implementing regulatory offsets under EO 13771, agencies should prioritize rules identified by the Regulatory Task Force as being outdated, unnecessary or ineffective.

# Executive Order 13777, “Enforcing the Regulatory Reform Agenda

FY 2019 Annual Performance Plan (APP) agencies must, at a minimum, include in their plans the following performance indicators, with goals, on:

- Number of evaluations to identify potential EO 13771 deregulatory actions that included opportunity for public input and/or peer review;
- Number of EO 13771 deregulatory actions recommended by the Regulatory Reform Task Force to the agency head, consistent with applicable law;
- Number of EO 13771 deregulatory actions issued that address recommendations by the Regulatory Reform Task Force;
- Number of EO 13771 regulatory actions and, separately, EO 13771 deregulatory actions issued; and
- Total incremental cost of all EO 13771 regulatory actions and EO 13771 deregulatory actions (including costs or cost savings carried over from previous fiscal years).



**QUESTIONS?**



## MANUFACTURED HOUSING CONSENSUS COMMITTEE

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MHCC MEETING  
September 11-13, 2018

# APPENDIX C: REVIEW OF HUD'S ON-SITE COMPLETION OF CONSTRUCTION REGULATION

By [Michael Hollar](#), [Daniel Marcin](#), and [Alastair McFarlane](#)

*September 2018 MHCC Meeting*

# **Review of HUD's On-Site Completion of Construction Regulation**

**Michael Hollar, Daniel Marcin, and Alastair McFarlane**

**September 11, 2018**



# Outline

1. Report to Congress
2. Review of On-Site Completion Rule
3. Consideration of Alternatives
4. Feedback?



PD&R



# Report to Congress

Required by Explanatory Agreement to the Consolidated Appropriations Act of 2018

- Review Final Rule concerning On-Site Completion
- Develop alternatives that minimize costs and ensure safety
- Explore whether state and local planning and permitting agencies should have jurisdiction over on-site completion of construction



# What is On-site Completion?

- Completion of new manufactured housing at the installation site, rather than in the factory
- On-site completion allows for greater product variety and reduces damage during transport
- Examples: Gable-end window, dormers, French doors, roof jacks, hinged roofs.
- Stakeholders: Manufacturers, Retailers, IPIAs, DAPIAs
- Approximately 1,000 annually (1-2% of total shipments)





PD&R



# Review of On-Site Rule

## Motivation of rule:

- Eliminate need for an “alternative construction” letter for on-site completion
- Maintain federal superintendence of manufactured housing production

## Primary Requirement of On-site Rule:

IPIA is required to conduct 100% of on-site completions of specific design features described in the rule.



# Benefits of On-Site Rule

## Producers:

Eliminates delay of “Alternative Construction” approval process  
Establishes uniform procedures for on-site completion

## Consumer Gains:

Enhanced safety and quality assurance from 100% inspection



# Costs of Rule

## Additional Cost of Inspection to Producers:

- Cost of additional IPIA inspections ranges from \$200 - \$500 per home
- Time spent by manufacturer/retailer and IPIA/designee to coordinate inspection of completion of construction before occupancy

## Loss to Consumers from Increased Cost:

- Affordability: Cost pass-through ranges from 50% to 90% of increased cost
- Consumer choice: Producers limit product variety to avoid costs
- Financing opportunities: MH Advantage from FNMA requires SC features (MH Advantage offers up to 97% LTV for homes with features similar to site-built homes)



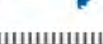
# Primary Alternatives

1. Delegate authority to local jurisdictions to conduct inspections (instead of IPIAs).
2. Allow Quality Control of completion of construction by IPIAs. (Less than 100 percent inspection.)

Examine pros and cons...



PD&R



# Alternative: Local Authority

Allow local jurisdictions to conduct inspections.

(Note: IPIAS can already designate local jurisdictions to inspect. However, they do so on behalf of the IPIA and HUD.)

## Pros:

- Proximity could increase availability of inspectors and make it easier to schedule inspections.
- Less travel by inspectors could reduce cost of inspections.
- Others?



# Disadvantages of Local Authority

## Challenges of Managing Program

- 3,000 counties and 35,000 cities and towns
- Lack of consistency will weaken the benefits of a national program.
- Some localities may use on-site inspection role to purposefully delay or discourage completion.
- Would require process to de-certify inspectors if needed.
- Harder to collect complaints concerning completion defects.

## Potential burden on local government

- May not want authority due to resource constraints.
- Will require additional training to inspect completions (IRC vs HUD Code).
- Local inspection fees are likely to vary more than current IPIA fees.



# Quality Control Alternative

- IPIAs would be required to inspect less than 100% of on-site completions of construction
- HUD would set the minimum required percentage
- Manufacturer continues to certify all completions
- Complaints sent to IPIA
- Would adjust inspection based on frequency of complaints
- DAPIA validates approach



# Pros and Cons of Quality Control Alternative

## Pros:

- Reduce inspection costs.
- Will expand consumer choice.
- Percentage could be adjusted based on performance.

## Cons:

- Initially, will be difficult to determine the appropriate inspection rate. Would be an iterative process requiring feedback.
- Increased risk to consumer safety.



# Quality Control Alternative: Risk-reducing option

Minimum inspection rates could vary by feature. Would maintain a high rate for any features that pose a significant safety risk, such as a furnace, but allow lower rates for non-hazardous features.

## Pros:

- Reduce inspection costs.
- Allow more consumer choice.
- Would not exclude life-threatening items.

## Cons:

- Places burden on consumer to report defects.



# Feedback?



PD&R



AS EVIDENCED BY THIS LABEL NO. [REDACTED]

THE MANUFACTURER CERTIFIES TO THE BEST OF THE MANUFACTURER'S KNOWLEDGE AND BELIEF THAT THIS MANUFACTURED HOME HAS BEEN INSPECTED IN ACCORDANCE WITH THE REQUIREMENTS OF THE DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT AND IS CONSTRUCTED IN CONFORMANCE WITH THE FEDERAL MANUFACTURED HOME CONSTRUCTION AND SAFETY STANDARDS IN EFFECT ON THE DATE OF MANUFACTURE. SEE DATA PLATE.



PD&R



# Request for Report to Congress

## Explanatory Agreement to the Consolidated Appropriations Act of 2018

“The Department has issued a final rule, interpretive bulletin, and memorandum regarding the on-site completion of construction of manufactured homes cited in section 424 of H.R. 3354 that has caused concern among various stakeholders. The agreement directs the Department to review such rule, interpretive bulletin, and memorandum, and develop a solution that ensures the safety of consumers and minimizes costs and burdensome requirements on manufacturers and consumers. The agreement also directs the Department to explore if state and local planning and permitting agencies should have jurisdiction over on-site completion and to provide a report to the House and Senate Committees on Appropriations within 120 days of enactment of this Act.”





## MANUFACTURED HOUSING CONSENSUS COMMITTEE

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# APPENDIX D: PROPOSED CHANGES AND DEREGULATION COMMENTS ORGANIZED BY CATEGORIES



## MANUFACTURED HOUSING CONSENSUS COMMITTEE

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# MHCC

## Proposed Changes and Deregulation Comments Organized by Categories

August, 2018

## Carports

Log 179	DRC 40	DRC 122
DRC 9	DRC 48	DRC 125
DRC 10	DRC 119	DRC 126
DRC 16	DRC 120	
DRC 24	DRC 121	

## Frost-Free Foundations

DRC 11	DRC 154	DRC 173
DRC 13	DRC 156	DRC 174
DRC 14	DRC 157	DRC 175
DRC 31	DRC 158	DRC 176
DRC 150	DRC 169	DRC 177
DRC 151	DRC 170	DRC 178
DRC 152	DRC 171	DRC 179
DRC 153	DRC 172	

## Multi-family vs. Single-family Homes

Log 160	Log 198	DRC 270
Log 161	DRC 12	DRC 272
Log 162	DRC 58	
Log 186	DRC 59	

## 3280 Subpart A - General

Log 152	Log 170	Log 199
Log 159	Log 193	Log 200

## 3280 Subpart B - Planning Considerations

Log 150	Log 173	Log 189
Log 156	Log 185	
Log 157	Log 187	

## 3280 Subpart C - Fire Safety

Log 174	Log 196	
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### 3280 Subpart D - Body and Frame Construction Requirements

Log 158 Log 184

Log 177 Log 201

### 3280 Subpart E - Testing

Log 148 Log 197 Log 204

Log 153 Log 202 Log 206

Log 191 Log 203

### 3280 Subpart F - Thermal Protection

Log 123 Log 155 Log 205

### 3280 Subpart G - Plumbing Systems

Log 149 Log 154 Log 188

Log 151 (W) Log 171 Log 190

### 3280 Subpart H - Heating, Cooling and Fuel Burning Systems

Log 175 Log 176 Log 183

### Alternative Construction Requirements

Log 180 DRC 81 DRC 128

Log 181 DRC 123 DRC 129

DRC 63 DRC 124

DRC 80 DRC 127

### Consumer Complaint Handling and Remedial Actions

DRC 5 DRC 141 DRC 146

DRC 26 DRC 142 DRC 147

DRC 27 DRC 143 DRC 148

DRC 139 DRC 144 DRC 149

DRC 140 DRC 145

### Dispute Resolution

DRC 6 DRC 250 DRC 252

DRC 249 DRC 251 DRC 253

### Financing Issues

DRC 229 DRC 230 DRC 231

DRC 232	DRC 237	DRC 242
DRC 233	DRC 238	DRC 243
DRC 234	DRC 239	DRC 244
DRC 235	DRC 240	DRC 245
DRC 236	DRC 241	DRC 246

#### Formaldehyde

DRC 8	DRC 247
DRC 22	DRC 248

#### Foundation Requirements

DRC 155	DRC 163	DRC 168
DRC 159	DRC 164	DRC 180
DRC 160	DRC 165	DRC 181
DRC 161	DRC 166	DRC 182
DRC 162	DRC 167	DRC 183

#### General Comments about Manufactured Housing Construction and Safety Standards

DRC 25	DRC 45	DRC 62
DRC 30	DRC 46	DRC 64
DRC 32	DRC 47	DRC 65
DRC 33	DRC 49	DRC 66
DRC 34	DRC 50	DRC 67
DRC 35	DRC 51	DRC 68
DRC 36	DRC 52	DRC 69
DRC 37	DRC 53	DRC 70
DRC 38	DRC 54	DRC 71
DRC 39	DRC 55	DRC 72
DRC 41	DRC 56	DRC 73
DRC 42	DRC 57	DRC 74
DRC 43	DRC 60	DRC 75
DRC 44	DRC 61	DRC 76

DRC 77	DRC 82	DRC 85
DRC 78	DRC 83	
DRC 79	DRC 84	

#### HUD Regulation

DRC 1	DRC 188	DRC 193
DRC 184	DRC 189	DRC 194
DRC 185	DRC 190	DRC 195
DRC 186	DRC 191	DRC 196
DRC 187	DRC 192	DRC 197

#### Land Issues

DRC 287	DRC 290	DRC 293
DRC 288	DRC 291	
DRC 289	DRC 292	

#### MHCC Issues

DRC 281	DRC 283	DRC 285
DRC 282	DRC 284	DRC 286

#### Model Manufactured Home Installation Standards

Log 146	Log 165	Log 168
Log 147	Log 166	Log 169
Log 164	Log 167	Log 192

#### OMHP Administration

DRC 254	DRC 256	DRC 258
DRC 255	DRC 257	DRC 259

#### On-Site Completion

DRC 2	DRC 86	DRC 92
DRC 4	DRC 87	DRC 93
DRC 17	DRC 88	DRC 94
DRC 18	DRC 89	DRC 95
DRC 19	DRC 90	DRC 96
DRC 28	DRC 91	DRC 97

DRC 98	DRC 105	DRC 112
DRC 99	DRC 106	DRC 113
DRC 100	DRC 107	DRC 114
DRC 101	DRC 108	DRC 115
DRC 102	DRC 109	DRC 116
DRC 103	DRC 110	DRC 117
DRC 104	DRC 111	DRC 118

### Preemption

DRC 130	DRC 133	DRC 136
DRC 131	DRC 134	DRC 137
DRC 132	DRC 135	DRC 138

### Procedural and Enforcement Regulations

Log 163	Log 178	Log 194
Log 172	Log 182	Log 195

### Regulatory Benefits

DRC 266	DRC 273	DRC 278
DRC 267	DRC 274	DRC 279
DRC 268	DRC 275	DRC 280
DRC 269	DRC 276	
DRC 271	DRC 277	

### Regulatory Burden and Overreach

DRC 3	DRC 201	DRC 210
DRC 7	DRC 202	DRC 211
DRC 15	DRC 203	DRC 212
DRC 20	DRC 204	DRC 213
DRC 21	DRC 205	DRC 214
DRC 23	DRC 206	DRC 215
DRC 198	DRC 207	DRC 216
DRC 199	DRC 208	DRC 217
DRC 200	DRC 209	DRC 218

DRC 219

RV Rule

DRC 219

DRC 223

DRC 227

DRC 220

DRC 224

DRC 228

DRC 221

DRC 225

DRC 222

DRC 226

State Issue

DRC 29

DRC 261

DRC 264

DRC 228

DRC 262

DRC 265

DRC 260

DRC 263

Miscellaneous

DRC 294

DRC 296

DRC 298

DRC 295

DRC 297

DRC 299

MHCC MEETING  
September 11-13, 2018

APPENDIX E:  
DOE'S NOTICE OF DATA AVAILABILITY; REQUEST FOR  
INFORMATION: ENERGY CONSERVATION STANDARDS  
FOR MANUFACTURED HOUSING

By HUD

# Proposed Rules

Federal Register

Vol. 83, No. 150

Friday, August 3, 2018

This section of the FEDERAL REGISTER contains notices to the public of the proposed issuance of rules and regulations. The purpose of these notices is to give interested persons an opportunity to participate in the rule making prior to the adoption of the final rules.

## DEPARTMENT OF ENERGY

### 10 CFR Part 460

[EERE-2009-BT-BC-0021]

RIN 1904-AC11

### Energy Conservation Program: Energy Conservation Standards for Manufactured Housing

**AGENCY:** Office of Energy Efficiency and Renewable Energy, Department of Energy.

**ACTION:** Notice of data availability; request for information.

**SUMMARY:** The U.S. Department of Energy (DOE) is announcing this notice of data availability (“NODA”) and soliciting public input regarding data relating to certain aspects in developing energy conservation standards for manufactured housing. These data are likely to help serve as support for DOE’s further refinement of certain aspects of its proposed standards for these structures. They may also serve as the basis for DOE’s restructuring of its approach in laying out the framework for standards that would apply to manufactured housing. DOE is seeking comment on these data along with several options that it is currently considering that could form an alternative basis for regulating the energy efficiency of manufactured housing. DOE also seeks any additional information that might further inform the agency’s views regarding the manner in which to regulate these structures.

**DATES:** Written comments and information are requested and will be accepted on or before September 17, 2018.

**ADDRESSES:** Interested persons are encouraged to submit comments using the Federal eRulemaking Portal at <http://www.regulations.gov>. Follow the instructions for submitting comments. Alternatively, interested persons may submit comments, identified by docket number EERE-2009-BT-BC-0021, by any of the following methods:

1. *Federal eRulemaking Portal:* <http://www.regulations.gov>. Follow the instructions for submitting comments.

2. *Email:* to [Manufactured\\_Housing@ee.doe.gov](mailto:Manufactured_Housing@ee.doe.gov). Include EERE-2009-BT-BC-0021 in the subject line of the message.

3. *Postal Mail:* Appliance and Equipment Standards Program, U.S. Department of Energy, Building Technologies Office, Mailstop EE-5B, 1000 Independence Avenue SW, Washington, DC 20585-0121. If possible, please submit all items on a compact disc (CD), in which case it is not necessary to include printed copies.

4. *Hand Delivery/Courier:* Appliance and Equipment Standards Program, U.S. Department of Energy, Building Technologies Office, 950 L’Enfant Plaza SW, Suite 600, Washington, DC 20024. Telephone: (202) 287-1445. If possible, please submit all items on a CD, in which case it is not necessary to include printed copies.

No telefacsimilies (faxes) will be accepted. For detailed instructions on submitting comments and additional information on the rulemaking process, see section III of this document.

*Docket:* The docket for this activity, which includes **Federal Register** notices, comments, and other supporting documents/materials, is available for review at <http://www.regulations.gov>. All documents in the docket are listed in the <http://www.regulations.gov> index. However, some documents listed in the index, such as those containing information that is exempt from public disclosure, may not be publicly available.

The docket web page can be found at <https://www.regulations.gov/docket?D=EERE-2009-BT-BC-0021>. The docket web page contains simple instructions on how to access all documents, including public comments, in the docket. See section III for information on how to submit comments through <http://www.regulations.gov>.

#### FOR FURTHER INFORMATION CONTACT:

Ms. Sofie Miller, U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy, Building Technologies Office, EE-5B, 1000 Independence Avenue SW, Washington, DC 20585-0121. Telephone: (202) 287-1943. Email: [Manufactured\\_Housing@ee.doe.gov](mailto:Manufactured_Housing@ee.doe.gov).

Mr. Michael Kido, U.S. Department of Energy, Office of the General Counsel, GC-33, 1000 Independence Avenue SW, Washington, DC 20585-0121. Telephone: (202) 586-8145. Email: [Michael.Kido@hq.doe.gov](mailto:Michael.Kido@hq.doe.gov).

For further information on how to submit a comment or review other public comments and the docket, contact the Appliance and Equipment Standards Program staff at (202) 287-1445 or by email: [Manufactured\\_Housing@ee.doe.gov](mailto:Manufactured_Housing@ee.doe.gov).

#### SUPPLEMENTARY INFORMATION:

#### Table of Contents

- I. Introduction
  - A. Authority and Background
  - B. Rulemaking History
- II. Request for Information
  - A. June 2016 Proposal’s Analytical Assumptions
  - B. Ownership-Related Costs
  - C. Prescriptive and Performance-Based Standards
  - D. Alternative Approaches
  - E. Compliance Lead-Times
- III. Submission of Comments

#### I. Introduction

Manufactured housing comprises a housing category that consists of structures constructed in a factory, built on a permanent chassis, and transportable in one or more sections that are then erected on-site. See 24 CFR 3280.2 This type of housing has traditionally been regulated by the Department of Housing and Urban Development (“HUD”), which has regulated these structures with the purpose of reducing personal injuries, deaths, property damage, and insurance costs, and to improve the quality, durability, safety, and affordability of these homes. See 42 U.S.C. 5401(b). Consistent with its statutory authority, HUD has created a comprehensive regulatory framework to address a variety of aspects related to these structures, including certain elements related to their energy efficiency. See, e.g. 24 CFR 3280.507(a) (specifying thermal insulation requirements) and 24 CFR 3280.508(d) (detailing requirements related to the installation of high-efficiency heating and cooling equipment in manufactured homes). HUD’s standards are preemptive nationwide and differ from standards developed under the auspices of (and published by) the International Code Council (“ICC”). The ICC standards,

known as the International Energy Conservation Code (“IECC”), have been adopted by many state and local governments in establishing minimum design and construction requirements for the energy efficiency of residential and commercial buildings. However, due to the preemptive nature of HUD’s standards, the ICC standards are not currently applied to manufactured housing. Consistent with this approach and Federal law, DOE is tasked with evaluating whether the adoption of standards based on the most recent version of the IECC would satisfy the applicable statutory requirements.

#### A. Authority and Background

Section 413 of the Energy Independence and Security Act of 2007, Public Law 110–140 (December 19, 2007) (“EISA”) requires DOE to establish by regulation standards for the energy efficiency of manufactured housing. See 42 U.S.C. 17071(a)(1). Prior to establishing these regulations, DOE must satisfy two conditions—(1) provide manufacturers and other interested parties with notice and an opportunity for comment and (2) consult with the Secretary of HUD, who may then “seek further counsel from the Manufactured Housing Consensus Committee.”<sup>1</sup> 42 U.S.C. 17071(a)(2). These standards must generally be based on the most recent version of the IECC, except where DOE finds that the IECC is not cost effective, or a more stringent standard would be more cost effective. A finding that standards based on the IECC are not cost effective or that standards more stringent than the IECC are cost effective would be based on the impact of the adoption of the IECC standards on the purchase price of manufactured housing and on total life-cycle construction and operating costs. See 42 U.S.C. 17071(b)(1). In establishing its standards, DOE may consider:

- The design and factory construction techniques of manufactured housing,
- The climate zones established in the U.S. Department of Housing and Urban Development’s Manufactured Home Construction and Safety Standards (“the HUD Code”) rather than

the climate zones included as part of the IECC, and

- Alternative practices that result in net estimated energy consumption equal to or less than the specific IECC standards. See 42 U.S.C. 17071(b)(2).

In addition, EISA provides that a manufacturer who violates the regulations established by DOE under 42 U.S.C. 17071(a) “is liable to the United States for a civil penalty in an amount not exceeding 1 percent of the manufacturer’s retail list price of the manufactured housing.” See 42 U.S.C. 17071(c).

#### B. Rulemaking History

In the years since EISA became law, DOE has undertaken several steps down the complex regulatory path of fulfilling Section 413’s directive for promulgating new regulations under the processes and conditions set forth in the statute. After studying the issue, on February 22, 2010, DOE published an advanced notice of proposed rulemaking and request for comment identifying 13 distinct issues concerning energy efficiency in manufactured housing about which it sought public input. See Energy Standards for Manufactured Housing, 75 FR 7556, 7557 (February 22, 2010). After receiving and considering the submitted comments, DOE prepared a draft notice of proposed rulemaking (“draft NOPR”) and submitted it to the Office of Information and Regulatory Affairs (“OIRA”) in the Office of Management and Budget for review, pursuant to Executive Order 12866. Ultimately, the draft NOPR did not clear the OIRA review process, and DOE withdrew it on March 13, 2014.<sup>2</sup>

Following the withdrawal of the draft NOPR from OIRA, DOE notified the public of its intent to establish a negotiated rulemaking working group for manufactured housing. DOE believed that this approach would be “better suited to resolving complex technical issues” concerning the standards, among other benefits. 79 FR 33874 (June 13, 2014). The working group was convened and met for a total of 12 days over a three-month period. See Energy Conservation Program: Energy Efficiency Standards for Manufactured Housing, 80 FR 7550,

7551 (February 11, 2015).<sup>3</sup> These meetings led to the adoption of a term sheet detailing numerous technical recommendations for energy efficiency standards for manufactured housing. See Document ID EERE–2009–BT–BC–0021–0107.<sup>4</sup> Also, in accordance with a recommendation from the working group, DOE sought further public comment regarding some technical issues that had arisen in the rulemaking process. See 80 FR 7551–7553. In addition to these extensive efforts to solicit comments from the public and the expertise of the working group, DOE also held meetings with HUD throughout the regulatory process and engaged in discussions with the Manufactured Housing Consensus Committee. See 81 FR 39762–39763, 39765. It has also conferred with various other stakeholders. See *id.* 81 FR 39763, 39765.

On June 17, 2016, DOE published in the **Federal Register** a NOPR, which, in addition to comprehensively describing DOE’s analysis, was accompanied by a technical support document detailing DOE’s analyses supporting that proposal. See 81 FR 39756. See also Document ID EERE–2009–BT–BC–0021–0136.<sup>5</sup> The agency also prepared a draft environmental assessment pursuant to the National Environmental Policy Act, on which it sought public input, particularly regarding the impacts of the proposed standards on the indoor air quality of manufactured homes. See Draft Environmental Assessment for Notice of Proposed Rulemaking, “Energy Conservation Standards for Manufactured Housing” With Request for Information on Impacts to Indoor Air Quality, 81 FR 42576 (June 30, 2016). DOE received nearly 50 comments on the proposed rule during the comment period. After considering those comments, DOE prepared a draft final rule governing energy efficiency in manufactured housing and submitted it to OIRA for review under Executive Order 12866. OIRA received the draft final rule on November 1, 2016.<sup>6</sup> Again,

<sup>3</sup> See also Appliance Standards and Rulemaking Federal Advisory Committee (ASRAC)—Manufactured Housing Working Group, 79 FR 48097 (August 15, 2014); Appliance Standards and Rulemaking Federal Advisory Committee (ASRAC)—Manufactured Housing Working Group, 79 FR 59154 (October 1, 2014).

<sup>4</sup> Available at: <https://www.regulations.gov/document?D=EERE-2009-BT-BC-0021-0107>.

<sup>5</sup> Available at: <https://www.regulations.gov/document?D=EERE-2009-BT-BC-0021-0136>.

<sup>6</sup> See *supra*, note 2. On November 9, 2016, DOE also published a notice of proposed rulemaking for test procedures, as a companion to the draft energy efficiency standards rule for manufactured housing. See Energy Conservation Program: Test Procedures for Manufactured Housing, 81 FR 78733 (November 9, 2016). Test procedures specify how those subject

<sup>1</sup> HUD describes its Manufactured Housing Consensus Committee as “a statutory Federal Advisory Committee body charged with providing recommendations to the Secretary on the revision and interpretation of HUD’s manufactured home construction and safety standards and related procedural and enforcement regulations. The [Committee] is charged with developing proposed model installation standards for the manufactured housing industry.” [https://www.hud.gov/program\\_offices/housing/rmra/manufacturedhousing/cc1](https://www.hud.gov/program_offices/housing/rmra/manufacturedhousing/cc1) (last accessed on July 9, 2018).

<sup>2</sup> The withdrawn date can be found at <https://www.reginfo.gov/public/do/eoAdvancedSearch> and entering “1904–AC11” for the RIN and checking “Concluded” under “Review Status”. Additionally, while the OIRA review was ongoing, on June 25, 2013, DOE published a request for information in which it sought additional public input regarding four identified issues related to its rulemaking. See Energy Efficiency Standards for Manufactured Housing, 78 FR 37995, 37996–37997 (June 25, 2013).

however, DOE's draft final rule did not clear the OIRA review process and was withdrawn on January 31, 2017.<sup>7</sup>

## II. Request for Information

Since the publication of DOE's proposals, the agency has re-examined its available data and re-evaluated its approach in developing standards for manufactured housing. In particular, HUD made DOE aware of the adverse impacts on manufactured housing affordability that would likely follow if DOE were to adopt the approach laid out in its June 2016 proposal. As a result, and in consideration of specific suggestions offered by HUD, DOE initiated a review of its data and analysis and has begun reconsidering the framework to use in regulating these structures. In particular, DOE had previously considered a regulatory regime similar to the one it administers with regard to appliance and commercial equipment standards, *i.e.*, setting a uniform, minimum mandatory level of efficiency that must be achieved by all subject products. However, DOE's authority to establish energy efficiency standards for appliance standards is separate from its authority to establish energy conservation standards for manufactured homes. Thus, DOE is examining if it must set a single, mandatory level of efficiency. As a result of this re-examination, DOE developed a number of alternatives on which it seeks further input from the public. These alternatives would facilitate a variety of different levels of efficiency. In developing these alternatives, DOE gave careful consideration to a variety of factors, including the first-time costs related to the purchase of these homes. In the following sections, DOE presents a series of issues on which it seeks input to aid in the development of the technical and economic analyses regarding each of these potential alternatives to the proposed regulatory framework contained in DOE's June 2016 standards proposal.

Additionally, DOE welcomes comments on other issues relevant to the conduct of this process that may not specifically be identified in this document. In particular, DOE notes that under Executive Order 13771, "Reducing Regulation and Controlling Regulatory Costs," Executive Branch agencies such as DOE are directed to manage the costs associated with the imposition of expenditures required to comply with Federal regulations. *See* 82

FR 9339 (February 3, 2017). Consistent with that Executive Order, DOE encourages the public to provide input on measures DOE could take to lower the cost of its regulations applicable to manufactured housing consistent with the requirements of EISA.

### A. June 2016 Proposal's Analytical Assumptions

As with any of its appliance and equipment standards rulemaking proposals, DOE made a number of analytical assumptions to determine what minimum level of efficiency it should use in establishing mandatory energy conservation standards for manufactured housing. These assumptions spanned a variety of factors, including affordability, which climate zones to use, which solar heat gain coefficient ("SHGC") to use in a given climate zone, the price elasticity value to use in DOE's calculation of potential impacts, whether to include certification, compliance, and enforcement costs as part of DOE's analysis, and whether the tightening of a manufactured home's building envelope—which is what the proposed standards were designed to help accomplish—would impact indoor air quality by increasing the likelihood of trapping pollutants inside the building.

*Issue 1:* What analytical aspects related to DOE's June 2016 proposal—aside from those specifically noted later in this document—should DOE consider re-examining as part of its ongoing consideration of a final rule for manufactured housing? (Within this context, this request also encompasses whether DOE's analysis sufficiently addresses the cost-effectiveness of standards based on the current IECC code when considering the code's impact on both the purchase price of manufactured housing and on total life-cycle construction and operating costs. *See* 42 U.S.C. 1771(b)(1). Why should DOE reconsider these aspects and what specific changes, if any, should DOE make to them? As part of this request, DOE is interested in any specific supplemental supporting data regarding any changes that commenters may suggest.

Additionally, in further researching the manufactured housing market, DOE has examined additional information from a variety of sources. Of particular note is information from the Consumer Financial Protection Bureau ("CFPB"), which released a report in 2014 that focused on this particular market.<sup>8</sup> That report, "Manufactured-Housing

Consumer Finance in the United States," [hereinafter, "CFPB Report"] detailed the characteristics of manufactured housing consumers and the market for manufactured home financing. Key findings from the report include:

- Manufactured home ownership varies widely by region, with the majority of manufactured homes located outside of metropolitan areas;
- Manufactured home owners tend to have lower incomes and less net worth than their counterparts who own site-built homes;
- There is an extremely constrained secondary market for manufactured homes, following the collapse of the manufactured home market in the late 1990s through the early 2000s;
- Most manufactured-housing purchasers who finance their homes obtained a loan of between \$10,000 and \$80,000, with a median loan value of \$55,000.

These data suggest that manufactured housing purchasers face substantial constraints compared to traditional home purchasers. In turn, these constraints may make purchasers of manufactured homes more price-sensitive to potential changes that would impact the costs to construct (and purchase) a manufactured home.<sup>9</sup>

The CFPB data also point to certain key demographic characteristics. On a regional level, the CFPB noted that manufactured housing is more common in certain regions than others—with this type of housing being more common in the South and the West than in certain Northeastern states. Manufactured homes are also much more prevalent in rural areas, with about 2/3 of all occupied manufactured homes being located outside of metropolitan statistical areas; in these areas, 14% of homes are manufactured homes. Manufactured housing as a proportion of occupied housing units is lowest in Maryland, New Jersey, Connecticut, Hawaii and Massachusetts (1%) and highest in South Carolina, New Mexico, and Mississippi (17%, 16%, and 15%, respectively). *See* CFPB Report, at 10–12.

<sup>9</sup> The CFPB Report also suggests that manufactured home consumers are particularly cost-driven: "There is evidence that some households who move into manufactured housing are less satisfied with their homes than those who choose to move into site-built housing. These results suggest that for at least some households, the choice to live in a manufactured home may be more cost-driven than quality-driven." CFPB, *Manufactured-housing consumer finance in the United States*, at 22 (September 2014) [hereinafter, "CFPB Report"] (available at [http://files.consumerfinance.gov/f/201409\\_cfpb\\_report\\_manufactured-housing.pdf](http://files.consumerfinance.gov/f/201409_cfpb_report_manufactured-housing.pdf)).

to energy efficiency standards are to confirm products are in compliance with such standards.

<sup>7</sup> *See supra*, note 2.

<sup>8</sup> *See* [https://files.consumerfinance.gov/f/201409\\_cfpb\\_report\\_manufactured-housing.pdf](https://files.consumerfinance.gov/f/201409_cfpb_report_manufactured-housing.pdf).

Further, manufactured home owners are more likely to be older and likely to have lower incomes or net worth. The median annual income of families living in manufactured homes is also slightly over \$26,000, and the median net worth of these families is \$26,000 (a quarter of that of families in site-built homes). *See id.* at 16–18.

The CFPB also made a number of other observations with respect to the available financial data it examined.

First, it indicated that the manufactured home market collapsed in the late 1990s through the early 2000s as consumers experienced loan repayment difficulties driven by low-quality manufactured home lending. Following the collapse, at least eight large lenders exited the manufactured home lending market, some of which drove losses in the secondary market. *See generally id.* at 26–29. At the time of CFPB's report, sales and production remained depressed with an extremely constrained resale market for manufactured homes. *See id.* at 6, 26–28, 37.

Second, most manufactured-housing purchasers finance between \$10,000 and \$80,000, with a loan median of \$55,000. *See id.* at 30. Owners of manufactured homes finance different amounts depending on whether they finance the costs of only the manufactured home or the costs of both the home and the land on which it is sited. *See id.* at 21.

Manufactured home owners who finance their homes tend to pay higher interest rates than their site-built home counterparts. A key reason for this difference is that the vast majority of manufactured housing stock is titled as chattel, and as a result is eligible only for chattel financing. Chattel financing is typically offered to purchasers at a significantly higher interest rate than the rates offered to their site-built home counterparts. While some manufactured home owners who also own the land on which the manufactured home is sited may be eligible for mortgage financing, there is a tradeoff between lower origination costs with significantly higher interest rates (chattel loans) and higher origination costs with significantly lower interest rates and greater consumer protections (mortgage). *See id.* at 23–25.

Issue 2: a. DOE seeks comment regarding the CFPB's findings. Are these findings reasonably accurate or are there other factors that DOE should consider when determining the economic impact of energy conservation standards on the ability of purchasers to buy manufactured homes? Assuming that these findings are reasonably accurate, what role, if any, should they play in

shaping the standards that DOE ultimately adopts for manufactured housing and why? If the CFPB's findings are not accurate, what specific shortcomings do they have and what assumptions/changes should DOE apply when determining the stringency and types of standards the agency should establish for manufactured housing?

b. DOE's own data from its Residential Energy Consumption Survey of 2015 suggests that manufactured housing households pay about 60% more for their energy per square foot than the entire housing stock. Is this estimate accurate—and if so, why? What specific factors contribute to this condition? If this estimate is not accurate, why—what specific factors are being overlooked in the survey that contribute to this inaccuracy?

#### B. Ownership-Related Costs

DOE's analysis for its June 2016 proposal considered the economic impacts of the proposed standards on individual manufactured home purchasers. Similar to its approach toward appliance standards, these analyses focused on the prospect of applying a single, uniform minimum standard that all manufactured homes of a given size (single- or multi-section) and in a given climate zone (*i.e.*, region of the country) would need to meet. Necessarily, this approach examined the overall economic impacts in a broad fashion by applying a uniform standard to all manufactured housing units within a given climate zone and home size category. However, the approaches that the Department has taken with respect to appliance standards may not be suitable in the case of manufactured housing, which fills a distinct need for housing for a particular subset of consumers. In particular, under the statutory provision requiring the Department to develop standards for manufactured housing, the standards must generally be based on the most recent version of the IECC, except where DOE finds that the IECC is not cost effective, or a more stringent standard would be more cost effective. A finding that standards based on the IECC are not cost effective or that standards more stringent than the IECC are cost effective would be based on the impact of the adoption of the IECC standards on the purchase price of manufactured housing and on total life-cycle construction and operating costs. As a result, the approach presented by the working group (and adopted by DOE in its proposal) may have inadvertently overlooked certain factors and yielded an incomplete picture regarding the potential impacts flowing from its

proposal and whether the standards must be based on the most recent version of the IECC. Consequently, DOE is seeking comment on a variety of issues related to these factors to help further inform its views regarding the economic impacts related to the establishment of energy efficiency standards for manufactured housing, and how those impacts effect use of the most recent version of the IECC.

Issue 3: Manufactured housing owners tend to be lower-income than other homeowners,<sup>10</sup> and are also likely to finance their manufactured housing purchase using high-rate chattel loans. As a result, the Department is particularly interested in comments and data regarding the affordability of manufactured housing and how the options outlined in this NODA would affect upfront manufactured housing affordability. DOE also seeks comment on whether and how the different approaches outlined in this NODA would differently affect the affordability of manufactured homes.

Additionally, as part of this inquiry, DOE seeks public input on each of the following items:

a. Affordability is a combination of upfront cost, which may price out some consumers at time of purchase, and operating costs, which will affect all manufactured housing owners over a longer time horizon. The Department seeks comments that provide information on how to weigh these components in defining “affordability,” with particular focus on affordability for low-income consumers.

b. The Department also seeks comment on what a reasonable payback period might be for efficiency in manufactured homes, and any relevant tradeoffs between upfront cost and payback period that the Department should consider to avoid creating a situation where the upfront cost increases may price consumers out of the market for new homes, even if those costs might be recouped over time. While the cost of site-built home efficiency upgrades may be recouped when an owner sells the home, the same may not be true of manufactured homes because (1) manufactured housing owners have relatively short tenancies<sup>11</sup>

<sup>10</sup> “Certain consumer segments are disproportionately represented among owners and renters of manufactured homes, in particular older consumers, consumers that have completed only high school, households with relatively low income, and households with relatively low net worth.” CFPB Report, at 13.

<sup>11</sup> *See* Consumer Financial Protection Bureau, Manufactured-housing consumer finance in the United States, September 2014 at 42–43; [http://files.consumerfinance.gov/f/201409\\_cfpb\\_report\\_manufactured-housing.pdf](http://files.consumerfinance.gov/f/201409_cfpb_report_manufactured-housing.pdf).

and (2) the resale market for manufactured housing is highly constrained,<sup>12</sup> such that the original owner will likely not recoup upfront efficiency investments if the payback period exceeds tenancy. DOE seeks additional information from commenters on the manufactured housing resale market that would inform the Department's consideration of what a reasonable payback period would be. If available, the Department also seeks information on the distribution of manufactured housing tenancy rates.

c. The Department is also interested in comments that inform whether special consideration should be given to affordability, particularly given that low-income and older consumers are disproportionately represented among manufactured housing owners.<sup>13</sup> Executive Order 13563, which reinforces the principles of Executive Order 12866, indicates that agencies "may consider (and discuss qualitatively) values that are difficult or impossible to quantify, including equity, human dignity, fairness, and distributive impacts"<sup>14</sup> where appropriate and permitted by law.

d. The Department seeks data and information regarding basing standards on the most recent version of the IECC, in particular, whether standards based on the most recent version of the IECC would not be cost effective or that standards more stringent than the most recent version of the IECC would be cost effective, in either case based on the impact of the adoption of the IECC standards on the purchase price of manufactured housing and on total life-cycle construction and operating costs.

Issue 4: DOE is aware that efficiency standards for manufactured housing may affect consumers in different regions differently, and seeks information on (1) the disparate regional effects of a standard, and (2) whether these effects are mitigated by use of tiered standards or a tiered labeling program.

Issue 5: DOE seeks to better understand the market for manufactured homes. Available sources provide information regarding the average or median manufactured housing purchase price<sup>15</sup> or the proportion of

manufactured housing owners who borrowed different amounts to finance their manufactured housing purchase,<sup>16</sup> but do not directly show the distribution of manufactured housing prices across the market and the percentage of consumers who purchase at each price category. DOE is interested in such information, particularly to the extent that such information could inform the consideration of threshold standards.

#### C. Prescriptive and Performance-Based Standards

In DOE's June 2016 standards proposal, the agency laid out two possible approaches it was considering at the time. The first option involved potential prescriptive requirements that would apply to a variety of components used in constructing the thermal envelope of a given manufactured home. These requirements laid out prescribed specifications related to thermal resistance (R-value) for wall, ceiling, and floor insulation, thermal transmittance specifications (U-factor) for windows, skylights, and doors, and glass glazing (SHGC) requirements. See 81 FR 39757. These prescriptive levels would vary based on the climate zone in which the home is located. 81 FR 39766. The second option presented a potential performance-based approach that would establish a maximum overall thermal transmittance for requirement for the building structure's thermal envelope (U<sub>o</sub>) and set additional U-factor and SHGC requirements. See *id.* Like with the prescriptive approach, these requirements would also vary by climate zone.

In addition to these approaches, DOE also considered including provisions for determining U-factor, R-value, SHGC, and U<sub>o</sub>. It also considered establishing prescriptive requirements for installation of insulation and sealing the building's thermal envelope and duct system to limit air leakage, which would in turn reduce potential thermal losses. See *id.*

Issue 6: DOE is interested in feedback regarding whether any aspects of its 2016 proposal need further consideration and if so, why. For comments pointing to weaknesses or strengths with respect to DOE's proposal, the agency seeks any supporting data in addition to that which DOE has already made public as part of the manufactured housing standards rulemaking docket.

#### D. Alternative Approaches

DOE is also considering an altogether different approach consisting of incremental packages that maximize energy savings of a manufactured home within certain incremental cost parameters. These options respond to concerns from stakeholders, including HUD, regarding the potentially prohibitive upfront costs of its 2016 proposed standards. As a result, this analysis illustrates packages that maximize energy savings within incremental cost thresholds of \$500, \$1,000, or \$1,500. DOE is seeking comment on whether any of the cost threshold packages presented here (*i.e.* either \$500, \$1,000, or \$1,500), when applied as a national standard, would address the concerns of stakeholders regarding the high upfront cost of its 2016 proposed standards. Further, DOE developed two sets of cost threshold packages: One set includes envelope and duct sealing as options to include in the cost threshold packages, and one set does not include envelope and duct sealing regardless of cost effectiveness.

Unlike the tiered standards discussed in this NODA, these cost threshold packages illustrate the costs and benefits of a potential national standard that would apply across the fleet of manufactured homes. However, given the Department's interest in tailoring its standards to consumers with differing preferences and needs, DOE is also soliciting comments on whether it can employ a tiered approach to these standards, wherein the \$500, \$1,000, and \$1,500 cost packages could be applied to, or offered as an option for, various segments of the market for manufactured homes.

The Department also recognizes the value of providing accurate information on potential energy savings. In addition to being low incremental or additional cost to manufacturers, better informed consumers are empowered to make choices that meet their individual needs for energy savings within their own personal economic circumstances. This approach builds on the guidance in Executive Order 12866, which instructs each agency to identify opportunities to provide information the public can use to make informed choices.<sup>17</sup> To this end, the Department is considering a tiered labeling approach that would classify various levels of energy savings based on stringency and categorize these options within certain tiers, such as a Brass, Bronze, Silver, Gold, and Platinum tier, wherein the Platinum tier

<sup>12</sup> Kevin Jewell, "Manufactured Housing Appreciation: Stereotypes and Data." Consumers Union, Southwest Regional Office, May 2003. Page 6. <http://consumersunion.org/pdf/manufacturedhousing/Appreciation.pdf>.

<sup>13</sup> See footnote 10, *supra*.

<sup>14</sup> Executive Order 13563, Section 1(c), 76 FR 3821 (January 21, 2011).

<sup>15</sup> See U.S. Census Bureau, *Cost and Size Comparison: New Manufactured Homes and Single-Family Site Built Homes (2007–2014)*, for example.

<sup>16</sup> See Consumer Financial Protection Bureau, *Manufactured-housing consumer finance in the United States*, September 2014, for example.

<sup>17</sup> Executive Order 12866, "Regulatory Planning and Review," 58 FR 51735 (October 4, 1993) (Section 1(b)(3)).

would represent the most efficient products on the market and Brass would represent the least efficient.

Consequently, DOE is evaluating the following options:

**Package 1**—This package would maximize the energy savings of a manufactured home at an upfront cost of either \$500, \$1,000, or \$1,500. The accompanying analysis illustrates the associated lifecycle costs and payback period for each potential standard level across climate zones.<sup>18</sup> This package would exclude envelope and duct sealing to maximize energy savings under any of the cost threshold options examined.

**Package 2**—Like Package 1, this package would maximize the energy savings of a manufactured home at an upfront cost of either \$500, \$1,000, or \$1,500. The accompanying analysis illustrates the associated lifecycle costs and payback period for each potential standard level across climate zones.<sup>19</sup> Unlike Package 1, this package would allow envelope and duct sealing to maximize energy savings under all of the cost threshold options examined.

**Package 3**—Rather than setting a national standard within a specified cost threshold, this option would create a framework where several different tiers of energy efficiency would be offered to consumers based on their particular needs and pricing sensitivities. These tiers would be based on cost increments, which, for purposes of DOE's current analysis, would be based on \$500 increments with a cap at \$1,500.

**Package 4**—This package would require each manufactured home to include a label prior to sale indicating expected energy use and savings. The labeling system would be tiered in the sense that different levels of energy savings would be labeled differently, such as by being categorized with a Brass, Bronze, Silver, Gold, or Platinum rating. These tiers would be based on potential energy savings. The Department is considering this package in conjunction with any of the other alternatives discussed above or with potential alternatives that may be suggested in response to this request for comment.

**Package 5**—Finally, to ensure that manufactured housing continues to be a viable source for affordable housing, this package would exclude all manufactured homes with a cost level and retail purchase price (not including land costs) equal to or less than the loan

limit established in accordance with Section 2(b)(1)(C) of the National Housing Act, 12 U.S.C. 1703(b)(1)(C), plus 5% (Title I Loan Limits). (Currently = \$73,162 or  $1.05 \times \$69,678$ .) Similarly, under this package, DOE would apply a higher price threshold (\$294,515) under the same conditions—*i.e.* cost level and purchase price (not including land costs)—that would encourage (but not require) manufactured housing at a certain price to meet DOE's standards. For all other manufactured housing that exceeds this level, DOE could apply one of the package approaches described under Packages 1 through 4.

In evaluating these various options, DOE is considering a scenario where manufacturers continue to offer more economical versions of manufactured homes for certain segments of the market that are currently available but that may not necessarily fall into one of the cost incremental categories described above. A regime in which manufacturers continue to offer those manufactured homes that are currently available on the market as well as variants at greater levels of efficiency would allow particularly price sensitive individuals who may not have the financial means to pursue other housing options to maintain their ability to purchase a manufactured home of their choice while also allowing those with greater means who desire increased energy efficiency to purchase a manufactured home that suits their desires. Under any of these scenarios, DOE would consider developing a labeling framework to inform consumers regarding these options. DOE also seeks comment on implementing a tiered labeling system in conjunction with the other options discussed in this document to address any potential information asymmetry and preserve consumer choice.

**Issue 7:** DOE seeks comment on whether it should consider and implement a cost-based tier structure with respect to regulating the energy efficiency of manufactured housing. DOE notes that a tiered approach could better address some of the concerns that may exist with respect to the first-time costs that purchasers may encounter with more efficient—but more expensive—manufactured homes. If so, why—and if not, why not?

**Issue 8:** Consumers may fail to optimize the efficiency of their homes due to a lack of available information on the benefits of energy savings. Recognizing this, the NODA presents an option that would provide tiered labeling for consumers to compare and contrast information on upfront costs and long-term energy savings across

manufactured housing structures. The Department is seeking comments on the benefit of providing consumers with such information, which preserves consumer choice, and the best way to provide consumers with information that they can easily understand and put to use.

a. What information is available to consumers when they make manufactured housing purchasing decisions, and what additional information would be useful? Further, how can the Department add value in the provision and display of information?

b. DOE seeks comments regarding whether access to information is a barrier to manufactured housing consumers, and if so, what is the magnitude of this barrier (*i.e.* to what extent does the lack of information prevent consumers from purchasing efficient homes)?

**Issue 9:** DOE is also considering a number of approaches that would increase consumer access to information and increase the efficiency of manufactured homes.

a. In weighing these approaches, the Department seeks comment on the advantages and disadvantages of using a tiered approach for efficiency standards versus using a single national standard that would apply to all manufactured homes within a single climate zone. DOE also seeks information regarding what a labeling framework would need to consider if a tiered approach were used and what the costs of such an approach would likely be. The Department further seeks comment on the advantages and disadvantages of using a tiered approach to labeling requirements versus a single national labeling standard for manufactured homes.

b. Within the tiered options discussed above, the Department seeks public input on what the appropriate criteria are to use for establishing thresholds (*e.g.*, price, cost, region, etc.) and how best to define these criteria (*e.g.*, manufacturer added cost, retail price, etc.). DOE also seeks public input on other factors that it should consider when establishing tiered standards.

With respect to tightening a manufactured home's building envelope, the agency notes that this technique appears to be a cost-effective way to increase energy efficiency. However, many previous commenters, including HUD's Manufactured Housing Consensus Committee, raised the possibility that sealing requirements may pose challenges for indoor air

<sup>18</sup> See <https://www.regulations.gov/document?D=EERE-2009-BT-BC-0021-0200>.

<sup>19</sup> See footnote 18, *supra*.

quality.<sup>20</sup> Degraded indoor air quality could introduce additional costs in terms of health and safety or operation and maintenance that may impede the cost efficacy of these approaches.

Previous commenters have submitted existing literature on manufactured housing indoor air quality, including a report from the Centers for Disease Control and Prevention (“CDC”), an agency within the Department of Health and Human Services (“HHS”). The CDC report, which was prepared in conjunction with HUD, found generally that indoor air can contain a number of contaminants that contribute to health complaints, and that indoor air quality is of particular concern in manufactured housing due to its confined spaces and, in some cases, lower ventilation and air exchange rates.<sup>21</sup> In addition, the CDC report found that “manufactured structures with relatively less air circulation may develop higher levels of indoor contaminants.” However, comprehensive data on air quality in manufactured homes was unavailable at the time of CDC’s report.<sup>22</sup>

Issue 10: Is new information available on the relationship between tightening the home envelope and indoor air quality? If so, what is the nature of that information, why should DOE consider it, and how should the agency integrate it into its analyses?

Issue 11: DOE is particularly interested in baseline measures of air flow in recently-built manufactured housing against which to measure any potential reductions in air changes per hour (“ACH”). DOE also seeks information related to what the appropriate ACH threshold is for maintaining adequate indoor air quality.<sup>23</sup>

Issue 12: What potential health and safety costs of incremental reductions in ACH and/or indoor air quality should the Department consider when evaluating this approach and why? What steps should DOE consider taking to reduce these costs while preserving indoor air quality for manufactured home residents and what disadvantages, if any, are there to each of these specific steps?

Issue 13: Regarding the overall structure of DOE’s approach to its

proposed climate zones, should these zones be reconsidered—and if so, why? Should DOE use HUD’s existing climate zones? If DOE were to develop its own climate zones, what factors should it consider in doing so? What factors would support the continued use of the proposed climate zones and how do those factors weigh against using HUD’s existing climate zones or in favor of adjusting them further?

#### E. Compliance Lead-Times

The June 2016 proposal used a compliance date lead-time of one year from the publication of a final rule. DOE proposed a lead-time of one year under the belief that this amount of time would be sufficient to allow manufacturers to transition their designs, materials, and factory operations and processes to comply with the finalized version of the energy conservation standards that DOE considered adopting. In light of the amount of time that has elapsed since the date of DOE’s June 2016 proposal, and the possibility that the agency may explore an alternative approach for regulating the energy efficiency of manufactured homes through the use of a tiered system along with variants of DOE’s earlier proposal that would rely on HUD’s three climate zones, DOE is interested in soliciting public comment on whether its proposed lead-time remains appropriate.

Issue 14: Should DOE continue to apply a one year lead-time to the energy conservation standards for manufactured housing? Does the approach—*i.e.* single uniform national standard versus a multi-tiered national standard—impact the amount of lead-time manufacturers would require to meet the applicable standards? If so, why—and if not, why not? If DOE were to adopt an approach that presented different compliance options in the form of cost-based tiers, would manufacturers require more, less, or the same amount of lead-time as the agency’s proposal (*i.e.* one year)? Why or why not?

Issue 15: With respect to the manufactured housing standards that DOE promulgates, DOE seeks comment on what enforcement mechanism would be the most appropriate to apply and why. In considering enforcement mechanisms, DOE is interested in information concerning the burden and cost impacts for suggested approach(es), as well as the compliance lead-time needed by the industry. Further, DOE seeks information as to whether enforcement cost of any suggested approach may extend beyond the manufacturing industry to the sales and

distribution channels that interface with prospective purchasers.

#### III. Submission of Comments

DOE invites all interested parties to submit in writing by the date listed in **DATES**, comments and information on matters addressed in this notice and on other matters relevant to DOE’s consideration of energy conservation standards for manufactured housing. These comments and information will aid in the development of energy conservation standards for these structures.

Submitting comments via <http://www.regulations.gov>. The <http://www.regulations.gov> web page will require you to provide your name and contact information. Your contact information will be viewable to DOE Building Technologies staff only. Your contact information will not be publicly viewable except for your first and last names, organization name (if any), and submitter representative name (if any). If your comment is not processed properly because of technical difficulties, DOE will use this information to contact you. If DOE cannot read your comment due to technical difficulties and cannot contact you for clarification, DOE may not be able to consider your comment.

However, your contact information will be publicly viewable if you include it in the comment or in any documents attached to your comment. Any information that you do not want to be publicly viewable should not be included in your comment, nor in any document attached to your comment. Persons viewing comments will see only first and last names, organization names, correspondence containing comments, and any documents submitted with the comments.

Do not submit to <http://www.regulations.gov> information for which disclosure is restricted by statute, such as trade secrets and commercial or financial information (hereinafter referred to as Confidential Business Information (“CBI”). Comments submitted through <http://www.regulations.gov> cannot be claimed as CBI. Comments received through the website will waive any CBI claims for the information submitted. For information on submitting CBI, see the Confidential Business Information section.

DOE processes submissions made through <http://www.regulations.gov> before posting. Normally, comments will be posted within a few days of being submitted. However, if large volumes of comments are being processed simultaneously, your

<sup>20</sup> <https://www.regulations.gov/document?D=EERE-2009-BT-BC-0021-0162>.

<sup>21</sup> CDC and HHS, Safety and Health in Manufactured Structures (2011) [hereinafter, “Safety and Health”].

<sup>22</sup> Safety and Health, at p. 25.

<sup>23</sup> As of 2003, ASHRAE and HUD had established a minimum whole-house ventilation requirement of 0.35 ACH for achieving appropriate indoor air quality. See <https://www.huduser.gov/publications/pdf/moisturereport.pdf>.

comment may not be viewable for up to several weeks. Please keep the comment tracking number that <http://www.regulations.gov> provides after you have successfully uploaded your comment.

Submitting comments via email, hand delivery, or mail. Comments and documents submitted via email, hand delivery, or mail also will be posted to <http://www.regulations.gov>. If you do not want your personal contact information to be publicly viewable, do not include it in your comment or any accompanying documents. Instead, provide your contact information on a cover letter. Include your first and last names, email address, telephone number, and optional mailing address. The cover letter will not be publicly viewable as long as it does not include any comments.

Include contact information each time you submit comments, data, documents, and other information to DOE. If you submit via mail or hand delivery, please provide all items on a CD, if feasible. It is not necessary to submit printed copies. No facsimiles (faxes) will be accepted.

Comments, data, and other information submitted to DOE electronically should be provided in PDF (preferred), Microsoft Word or Excel, WordPerfect, or text (ASCII) file format. Provide documents that are not secured, written in English and free of any defects or viruses. Documents should not contain special characters or any form of encryption and, if possible, they should carry the electronic signature of the author.

Campaign form letters. Please submit campaign form letters by the originating organization in batches of between 50 to 500 form letters per PDF or as one form letter with a list of supporters' names compiled into one or more PDFs. This reduces comment processing and posting time.

Confidential Business Information. According to 10 CFR 1004.11, any person submitting information that he or she believes to be confidential and exempt by law from public disclosure should submit via email, postal mail, or hand delivery two well-marked copies: One copy of the document marked confidential including all the information believed to be confidential, and one copy of the document marked "non-confidential" with the information believed to be confidential deleted. Submit these documents via email or on a CD, if feasible. DOE will make its own determination about the confidential status of the information and treat it according to its determination.

Factors of interest to DOE when evaluating requests to treat submitted information as confidential include (1) a description of the items, (2) whether and why such items are customarily treated as confidential within the industry, (3) whether the information is generally known by or available from other sources, (4) whether the information has previously been made available to others without obligation concerning its confidentiality, (5) an explanation of the competitive injury to the submitting person which would result from public disclosure, (6) when such information might lose its confidential character due to the passage of time, and (7) why disclosure of the information would be contrary to the public interest.

It is DOE's policy that all comments may be included in the public docket, without change and as received, including any personal information provided in the comments (except information deemed to be exempt from public disclosure).

DOE considers public participation to be a very important part of the process for developing test procedures and energy conservation standards. DOE actively encourages the participation and interaction of the public during the comment period in each stage of the rulemaking process. Interactions with and between members of the public provide a balanced discussion of the issues and assist DOE in the rulemaking process. Anyone who wishes to be added to the DOE mailing list to receive future notices and information about this process should contact Appliance and Equipment Standards Program staff at (202) 287-1445 or via email at [Manufactured\\_Housing@ee.doe.gov](mailto:Manufactured_Housing@ee.doe.gov).

Signed in Washington, DC, on July 31, 2018.

**Cathy Tripodi,**

*Acting Assistant Secretary, Energy Efficiency and Renewable Energy.*

[FR Doc. 2018-16650 Filed 8-2-18; 8:45 am]

**BILLING CODE 6450-01-P**

## FEDERAL DEPOSIT INSURANCE CORPORATION

### 12 CFR Parts 308 and 327

**RIN 3064-AE75**

#### Rules of Practice and Procedure

**AGENCY:** Federal Deposit Insurance Corporation.

**ACTION:** Notice of proposed rulemaking and request for comments.

**SUMMARY:** The Federal Deposit Insurance Corporation (FDIC) proposes

to amend its rules of practice and procedure to remove duplicative, descriptive regulatory language related to civil money penalty (CMP) amounts that restates existing statutory language regarding such CMPs, codify Congress's recent change to CMP inflation-adjustments in the FDIC's regulations, and direct readers to an annually published notice in the **Federal Register**—rather than the Code of Federal Regulations (CFR)—for information regarding the maximum CMP amounts that can be assessed after inflation adjustments. These revisions are intended to simplify the CFR by removing unnecessary and redundant text and to make it easier for readers to locate the current, inflation-adjusted maximum CMP amounts by presenting these amounts in an annually published chart. Additionally, the FDIC proposes to correct four errors and revise cross-references currently found in its rules of practice and procedure.

**DATES:** Comments must be received by October 2, 2018.

**ADDRESSES:** You may submit comments, identified by RIN 3064-AE75, by any of the following methods:

- **Agency website:** <http://www.fdic.gov/regulations/laws/Federal/>. Follow the instructions for submitting comments on the Agency website.

- **Email:** [Comments@fdic.gov](mailto:Comments@fdic.gov). Include the RIN 3064-AE75 in the subject line of the message.

- **Mail:** Robert E. Feldman, Executive Secretary, Attention: Comments, Federal Deposit Insurance Corporation, 550 17th Street NW, Washington, DC 20429.

- **Hand Delivery:** Comments may be hand-delivered to the guard station at the rear of the 550 17th Street Building (located on F Street) on business days between 7 a.m. and 5 p.m.

**Public Inspection:** All comments received must include the agency name and RIN for this rulemaking. All comments received will be posted without change to <http://www.fdic.gov/regulations/laws/Federal/>—including any personal information provided—for public inspection. Paper copies of public comments may be ordered from the FDIC Public Information Center, 3501 North Fairfax Drive, Room E-1002, Arlington, VA 22226 by telephone at (877) 275-3342 or (703) 562-2200.

**FOR FURTHER INFORMATION CONTACT:** Graham N. Rehrig, Senior Attorney, Legal Division, (202) 898-3829, [grehrig@fdic.gov](mailto:grehrig@fdic.gov), or Sydney Mayer, Attorney, Legal Division, (202) 898-3669.

**SUPPLEMENTARY INFORMATION:**



## MANUFACTURED HOUSING CONSENSUS COMMITTEE

1.888.602.4663 | HUD.GOV/MHS

MHCC MEETING  
September 11-13, 2018

# APPENDIX F: MHCC COMMENTS ON ENERGY CONSERVATION STANDARDS FOR MANUFACTURED HOUSING: PROPOSED RULE 2016\_08\_15

By MHCC



## MANUFACTURED HOUSING CONSENSUS COMMITTEE

1.888.602.4663 | HUD.GOV/MHS

### MHCC Comments on the DOE Proposed Rule: Energy Conservation Standards for Manufactured Housing

Docket Number: EERE-2009-BT-BC-0021

RIN 1904-AC11

On August 9, 2016, HUD's Manufactured Housing Consensus Committee met via teleconference to review the *DOE Proposed Rule: Energy Conservation Standards for Manufactured Housing*. As a result of their review and deliberations, the following comments on the Proposed Rule were developed and are being submitted to DOE on behalf of the Manufactured Housing Consensus Committee:

1. Table 460.101-1 & 2. The State of California is not included in the tables. It appears the entire State of California is located in Climate Zone III.
2. Table 460.102-1. Note 3 states "Ceiling Insulation must have either a uniform thickness or uniform density." Uniform thickness will not generally be possible. Therefore, a uniform density will be required in the prescriptive method. This seems to not allow compression of insulation in the truss heel area. It will be very difficult to build a roof with the insulation levels required by the proposed rule without some compression.

MHCC recommends eliminating this requirement.

Remove text ~~(3) Ceiling insulation must have either a uniform thickness or a uniform density.~~

3. Table 460.102-1. Note 7 requires a maximum glazing area of 12% of the floor area, when using the prescriptive method. There is no such glazing area restriction in the 2015 IECC.

MHCC recommends eliminating this requirement.

Remove text ~~(7) The total area of glazed fenestration must be no greater than 12 percent of the area of the floor.~~

4. Table 460.103 – Installation of Insulation. Under floors, the Proposed Rule requires floor insulation to be installed in contact with the underside of the floor decking. This requirement has been debunked by building scientists, and has been removed from the 2015 IECC. It serves no purpose since the rim joist is required to be insulated. It is extremely difficult to do in a factory environment.

MHCC recommends this section be removed.

5. 460.201 Duct system – The Proposed Rule states “Each manufactured home must be equipped with a duct system.” This seems to imply that ductless systems, such as mini split heat pumps are not allowed.

MHCC recommends revising the section to state “when a duct system is installed.”

6. 460.201 Duct system – Section (b) states “Building framing cavities must not be used as ducts or plenums”. Does this section apply to return air plenums?

MHCC recommends revising this section to state “...Building framing cavities must not be used as ducts or plenums when directly connected to mechanical systems.”

7. The Proposed Rule does not address how these standards will be enforced. Does DOE have an enforcement plan? How are plan review and inspections to be performed? It would be a burden on the industry to have to deal with an additional Federal Agency. There needs to be regulatory clarity before this rule can be final.

The DOE Proposed Rule is substantially incomplete as stated. The Proposed Rule does not contain compliance and enforcement details to ensure that homes are constructed and installed in compliance with the standard. Neither does its cost analysis include or support the cost efficiency or justification for compliance costs. The enforcement of the Proposed Rule significantly affects the costs, planning, and implementation. Therefore, the MHCC cannot recommend this proposal be adopted as a final rule until the enforcement and compliance path is included.

MHCC recommends enforcement and compliance be performed by HUD.

8. DOE has not adequately considered the impact of the proposed rule on the future affordability and access to credit for low income purchasers. DOE projected an average retail cost increase of 5% or \$2,226 for single section homes and \$3,109 for a multi-section homes.

MHCC recommends that DOE should further revise its retail cost impact analysis based on the past industry projected retail cost mark-up factor of 2.30, rather than 1.67 factor used by DOE in its cost analysis.

9. DOE has under estimated the reduction in production levels and future availability of manufactured homes due to the implementation of its proposed standards. DOE projections, based on 2014 shipment data, would suggest a loss in production and availability of over 40,000 homes over a 30-year period using a -0.48 elasticity in demand factor (as price goes up-demand goes down). Past HUD estimates of elasticity on demand used a higher factor of -2.40 which would suggest a loss of production of over 200,000 homes over the same 30-year period. However, based on more recent and current industry production growth rates, shipment data, and potential underestimates of retail costs by DOE; these projected production losses would appear to also underestimate the future losses in production, shipments, and availability of manufactured homes.
10. DOE has not adequately addressed the impact of the proposed rule on small manufacturers. Small manufacturers may not be able to compete in the marketplace due to economies of scale afforded to large manufacturers that are able to purchase materials in volume at discounted rates not available to smaller manufacturers. DOE could not certify that the proposed rule would not have a significant impact on small manufacturers.

11. DOE has not adequately addressed the potential health effects on indoor air quality that may result from several proposed measures to increase the tightness and thereby reduce natural air infiltration through the thermal envelope, with no proposed increase in mechanical ventilation requirements. Implementation should be deferred pending study of this issue. The measures are currently designed to enhance the tightness of the thermal envelope needed to achieve the projected reduction of natural air infiltration from eight (8) air changes per hour to five (5) air changes per hour and other benchmarks should be considered.

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Administering Organization  
Manufactured Housing Consensus Committee  
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## MANUFACTURED HOUSING CONSENSUS COMMITTEE

1.888.602.4663 | [HUD.GOV/MHS](http://HUD.GOV/MHS)

MHCC MEETING  
September 11-13, 2018

# APPENDIX G: EERE-2009-BT-BC-0021 [NODA Packages-Draft Results July 2018]

By Department of Energy: Building Technologies Office



# Manufactured Housing

NODA Packages – Draft Results

July 2018

U.S. DEPARTMENT OF  
**ENERGY**

Energy Efficiency &  
Renewable Energy

Department of Energy  
Building Technologies Office  
EERE-2009-BT-BC-0021

# Description of Packages

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## **PACKAGE 1:**

This package would maximize the energy savings of a manufactured home, but exclude envelope and duct sealing to maximize energy savings.

## **PACKAGE 2:**

This package would maximize the energy savings of a manufactured home, but allow envelope and duct sealing to maximize energy savings.

## **Method:**

- Energy savings is maximized by minimizing  $U_o$  of the home.
- Package 1 and 2 are created for incremental price targets of \$500, \$1000, and \$1500.
- Incremental costs and savings calculations are based on methods and data presented in the 2016 NOPR.

# Package 1 (no sealing): HUD CZ 1

NOPR CLIMATE ZONE 1 – HUD Zone 1		Single Section					
HOUSTON, TX	Efficiency Measures Description				Incremental Costs and Savings Results (2017\$)		
Component	HUD (Current Practice)*	\$500 Cost Package	\$1000 Cost Package	\$1500 Cost Package	\$500 Cost Package	\$1000 Cost Package	\$1500 Cost Package
Wall	N/A (R-11)	R-13	R-11	R-13	\$68.27	\$0.00	\$68.27
Ceiling	N/A (R-22)	R-30	R-22	R-22	\$451.74	\$0.00	\$0.00
Floor	N/A (R-22)	R-19	R-19	R-19	-\$136.44	-\$136.44	-\$136.44
Window U-factor	N/A (1.08)	1.08	0.5	0.35	\$0.00	\$1,048.43	\$1,495.84
Window SHGC	N/A (0.70)	0.7	0.6	0.33			
U <sub>o</sub>	0.116	0.1071	0.0937	0.0854			
Envelope Leakage (ACH)	8	N/A (8)	N/A (8)	N/A (8)	\$0.00	\$0.00	\$0.00
Duct Leakage (cfm25/100 ft <sup>2</sup> CFA)	N/A (12)	N/A (12)	N/A (12)	N/A (12)	\$0.00	\$0.00	\$0.00
Domestic HW	None	R-3	R-3	R-3	\$55.18	\$55.18	\$55.18
<b>Total Incremental Cost</b>					\$438.76	\$967.17	\$1,482.86
<b>Average Annual Energy Bill Savings</b>					\$105.85	\$157.88	\$270.22
<b>Simple Payback Period</b>					6.6	9.7	8.6
<b>Average Annual Energy Bill Savings (AEO High Oil and Gas Resource)</b>					\$103.48	\$154.42	\$264.45
<b>Simple Payback Period (AEO High Oil and Gas Resource)</b>					6.7	9.8	8.7

\*The energy efficiency measures presented provide one potential path to comply with the HUD U<sub>o</sub> requirement.

# Package 1 (no sealing): HUD CZ 1

NOPR CLIMATE ZONE 2 – HUD Zone 1		Single Section					
Efficiency Measures Description					Incremental Costs and Savings Results (2017\$)		
JACKSON, MS							
Component	HUD (Current Practice)*	\$500 Cost Package	\$1000 Cost Package	\$1500 Cost Package	\$500 Cost Package	\$1000 Cost Package	\$1500 Cost Package
Wall	N/A (R-11)	R-13	R-11	R-13	\$68.27	\$0.00	\$68.27
Ceiling	N/A (R-22)	R-30	R-22	R-22	\$451.74	\$0.00	\$0.00
Floor	N/A (R-22)	R-19	R-19	R-19	-\$136.44	-\$136.44	-\$136.44
Window U-factor	N/A (1.08)	1.08	0.5	0.35	\$0.00	\$1048.43	\$1,495.84
Window SHGC	N/A (0.70)	0.7	0.6	0.33			
U <sub>o</sub>	0.116	0.1071	0.0937	0.0854			
Envelope Leakage (ACH)	8	N/A (8)	N/A (8)	N/A (8)	\$0.00	\$0.00	\$0.00
Duct Leakage (cfm25/100 ft <sup>2</sup> CFA)	N/A (12)	N/A (12)	N/A (12)	N/A (12)	\$0.00	\$0.00	\$0.00
Domestic HW	None	R-3	R-3	R-3	\$55.18	\$55.18	\$55.18
<b>Total Incremental Cost</b>					\$438.76	\$967.17	\$1,482.86
<b>Average Annual Energy Bill Savings</b>					\$131.29	\$181.61	\$287.31
<b>Simple Payback Period</b>					5.5	8.6	8.1
<b>Average Annual Energy Bill Savings (AEO High Oil and Gas Resource)</b>					\$128.33	\$177.59	\$281.11
<b>Simple Payback Period (AEO High Oil and Gas Resource)</b>					5.5	8.6	8.2

\*The energy efficiency measures presented provide one potential path to comply with the HUD U<sub>o</sub> requirement.

# Package 1 (no sealing): HUD CZ 2

NOPR CLIMATE ZONE 3 – HUD Zone 2		Single Section					
MEMPHIS, TN	Efficiency Measures Description				Incremental Costs and Savings Results (2017\$)		
Component	HUD (Current Practice)*	\$500 Cost Package	\$1000 Cost Package	\$1500 Cost Package	\$500 Cost Package	\$1000 Cost Package	\$1500 Cost Package
Wall	N/A (R-11)	R-13	R-13	R-19	\$68.27	\$68.27	\$674.12
Ceiling	N/A (R-22)	R-22	R-22	R-22	\$0.00	\$0.00	\$0.00
Floor	N/A (R-19)	R-13	R-22	R-22	-\$81.95	\$136.44	\$136.44
Window U-factor	N/A (0.5)	0.35	0.31	0.31	\$447.41	\$627.99	\$627.99
Window SHGC	N/A (0.6)	0.33	0.25	0.25			
U <sub>o</sub>	0.096	0.0920	0.0819	0.0728			
Envelope Leakage (ACH)	8	N/A (8)	N/A (8)	N/A (8)	\$0.00	\$0.00	\$0.00
Duct Leakage (cfm25/100 ft^2 CFA)	N/A (12)	N/A (12)	N/A (12)	N/A (12)	\$0.00	\$0.00	\$0.00
Domestic HW	None	R-3	R-3	R-3	\$55.18	\$55.18	\$55.18
<b>Total Incremental Cost</b>					\$488.92	\$887.88	\$1,493.73
<b>Average Annual Energy Bill Savings</b>					\$140.63	\$167.33	\$277.20
<b>Simple Payback Period</b>					5.4	8.3	8.7
<b>Average Annual Energy Bill Savings (AEO High Oil and Gas Resource)</b>					\$137.47	\$163.48	\$270.44
<b>Simple Payback Period (AEO High Oil and Gas Resource)</b>					5.5	8.4	8.7

\*The energy efficiency measures presented provide one potential path to comply with the HUD U<sub>o</sub> requirement.

# Package 1 (no sealing): HUD CZ 3

NOPR CLIMATE ZONE 4 – HUD Zone 3		Single Section					
CHICAGO, IL	Efficiency Measures Description				Incremental Costs and Savings Results (2017\$)		
Component	HUD (Current Practice)*	\$500 Cost Package	\$1000 Cost Package	\$1500 Cost Package	\$500 Cost Package	\$1000 Cost Package	\$1500 Cost Package
Wall	N/A (R-13)	R-21	R-21	R-21	\$746.16	\$746.16	\$746.16
Ceiling	N/A (R-30)	R-22	R-22	R-30	-\$451.74	-\$451.74	\$0.00
Floor	N/A (R-22)	R-22	R-30	R-30	\$0.00	\$406.52	\$406.52
Window U-factor	N/A (0.35)	0.32	0.31	0.31	\$86.24	\$180.57	\$180.57
Window SHGC	N/A (0.33)	0.33	0.25	0.25			
U <sub>o</sub>	0.079	0.0713	0.0659	0.0610			
Envelope Leakage (ACH)	8	N/A (8)	N/A (8)	N/A (8)	\$0.00	\$0.00	\$0.00
Duct Leakage (cfm25/100 ft <sup>2</sup> CFA)	N/A (12)	N/A (12)	N/A (12)	N/A (12)	\$0.00	\$0.00	\$0.00
Domestic HW	None	R-3	R-3	R-3	\$55.18	\$55.18	\$55.18
<b>Total Incremental Cost</b>					\$435.85	\$936.70	\$1,388.44
<b>Average Annual Energy Bill Savings</b>					\$138.79	\$153.87	\$233.40
<b>Simple Payback Period</b>					5.9	11.2	10.8
<b>Average Annual Energy Bill Savings (AEO High Oil and Gas Resource)</b>					\$129.14	\$143.54	\$217.96
<b>Simple Payback Period (AEO High Oil and Gas Resource)</b>					6.0	11.3	11.0

\*The energy efficiency measures presented provide one potential path to comply with the HUD U<sub>o</sub> requirement.

# Package 2 (with sealing): HUD CZ 1

NOPR CLIMATE ZONE 1 – HUD Zone 1		Single Section					
HOUSTON, TX	Efficiency Measures Description				Incremental Costs and Savings Results (2017\$)		
Component	HUD (Current Practice)*	\$500 Cost Package	\$1000 Cost Package	\$1500 Cost Package	\$500 Cost Package	\$1000 Cost Package	\$1500 Cost Package
Wall	N/A (R-11)	R-13	R-13	R-13	\$68.27	\$68.27	\$68.27
Ceiling	N/A (R-22)	R-22	R-22	R-22	\$0.00	\$0.00	\$0.00
Floor	N/A (R-22)	R-19	R-30	R-19	-\$136.44	\$406.52	-\$136.44
Window U-factor	N/A (1.08)	1.08	1.08	0.5	\$0.00	\$0.00	\$1,048.43
Window SHGC	N/A (0.70)	0.7	0.7	0.6			
U <sub>o</sub>	0.116	0.1120	0.1048	0.0909			
Envelope Leakage (ACH)	8	5	5	5	\$253.85	\$253.85	\$253.85
Duct Leakage (cfm25/100 ft <sup>2</sup> CFA)	N/A (12)	4	4	4	\$209.70‡	\$209.70‡	\$209.70‡
Domestic HW	None	R-3	R-3	R-3	\$55.18	\$55.18	\$55.18
<b>Total Incremental Cost</b>					\$450.57	\$993.53	\$1,499.00
<b>Average Annual Energy Bill Savings</b>					\$186.95	\$188.70	\$301.86
<b>Simple Payback Period</b>					3.9	8.6	8.0
<b>Average Annual Energy Bill Savings (AEO High Oil and Gas Resource)</b>					\$182.81	\$184.50	\$295.23
<b>Simple Payback Period (AEO High Oil and Gas Resource)</b>					3.9	8.7	8.1

\*The energy efficiency measures presented provide one potential path to comply with the HUD U<sub>o</sub> requirement.

‡ The package assumes duct sealing requirements would require following prescriptive duct sealing methods to achieve the duct leakage numerical performance value, without needing to perform testing.

# Package 2 (with sealing): HUD CZ 1

NOPR CLIMATE ZONE 2 – HUD CZ 1		Single Section					
JACKSON, MS	Efficiency Measures Description				Incremental Costs and Savings Results (2017\$)		
Component	HUD (Current Practice)*	\$500 Cost Package	\$1000 Cost Package	\$1500 Cost Package	\$500 Cost Package	\$1000 Cost Package	\$1500 Cost Package
Wall	N/A (R-11)	R-13	R-13	R-13	\$68.27	\$68.27	\$68.27
Ceiling	N/A (R-22)	R-22	R-22	R-22	\$0.00	\$0.00	\$0.00
Floor	N/A (R-22)	R-19	R-30	R-19	-\$136.44	\$406.52	-\$136.44
Window U-factor	N/A (1.08)	1.08	1.08	0.5	\$0.00	\$0.00	\$1,048.43
Window SHGC	N/A (0.70)	0.7	0.7	0.6			
U <sub>o</sub>	0.116	0.1120	0.1048	0.0909			
Envelope Leakage (ACH)	8	5	5	5	\$253.85	\$253.85	\$253.85
Duct Leakage (cfm25/100 ft <sup>2</sup> CFA)	N/A (12)	4	4	4	\$209.70‡	\$209.70‡	\$209.70‡
Domestic HW	None	R-3	R-3	R-3	\$55.18	\$55.18	\$55.18
<b>Total Incremental Cost</b>					\$450.57	\$993.53	\$1,499.00
<b>Average Annual Energy Bill Savings</b>					\$231.25	\$238.10	\$365.64
<b>Simple Payback Period</b>					3.2	7.0	6.7
<b>Average Annual Energy Bill Savings (AEO High Oil and Gas Resource)</b>					\$226.04	\$232.71	\$357.48
<b>Simple Payback Period (AEO High Oil and Gas Resource)</b>					3.3	7.0	6.8

\*The energy efficiency measures presented provide one potential path to comply with the HUD U<sub>o</sub> requirement.

‡ The package assumes duct sealing requirements would require following prescriptive duct sealing methods to achieve the duct leakage numerical performance value, without needing to perform testing.

# Package 2 (with sealing): HUD CZ 2

NOPR CLIMATE ZONE 3 – HUD Zone 2		Single Section					
MEMPHIS, TN		Efficiency Measures Description			Incremental Costs and Savings Results (2017\$)		
Component	HUD (Current Practice)*	\$500 Cost Package	\$1000 Cost Package	\$1500 Cost Package	\$500 Cost Package	\$1000 Cost Package	\$1500 Cost Package
Wall	N/A (R-11)	R-13	R-19	R-21	\$68.27	\$674.12	\$814.43
Ceiling	N/A (R-22)	R-22	R-22	R-22	\$0.00	\$0.00	\$0.00
Floor	N/A (R-19)	R-19	R-19	R-22	\$0.00	\$0.00	\$136.44
Window U-factor	N/A (0.5)	0.5	0.5	0.5	\$0.00	\$0.00	\$0.00
Window SHGC	N/A (0.6)	0.6	0.6	0.6			
U <sub>o</sub>	0.096	0.0909	0.0818	0.0779			
Envelope Leakage (ACH)	8	5	5	5	\$253.85	\$253.85	\$253.85
Duct Leakage (cfm25/100 ft <sup>2</sup> CFA)	N/A (12)	N/A (12)	N/A (12)	4	\$0.00	\$0.00	\$209.70‡
Domestic HW	None	R-3	R-3	R-3	\$55.18	\$55.18	\$55.18
<b>Total Incremental Cost</b>					\$377.31	\$983.15	\$1,469.60
<b>Average Annual Energy Bill Savings</b>					\$200.51	\$310.78	\$382.11
<b>Simple Payback Period</b>					3.2	5.5	6.6
<b>Average Annual Energy Bill Savings (AEO High Oil and Gas Resource)</b>					\$195.03	\$302.38	\$371.93
<b>Simple Payback Period (AEO High Oil and Gas Resource)</b>					3.3	5.5	6.6

\*The energy efficiency measures presented provide one potential path to comply with the HUD U<sub>o</sub> requirement.

‡ The package assumes duct sealing requirements would require following prescriptive duct sealing methods to achieve the duct leakage numerical performance value, without needing to perform testing.

# Package 2 (with sealing): HUD CZ 3

NOPR CLIMATE ZONE 4 – HUD Zone 3		Single Section					
CHICAGO, IL	Efficiency Measures Description				Incremental Costs and Savings Results (2017\$)		
Component	HUD (Current Practice)*	\$500 Cost Package	\$1000 Cost Package	\$1500 Cost Package	\$500 Cost Package	\$1000 Cost Package	\$1500 Cost Package
Wall	N/A (R-13)	R-21	R-21	R-21	\$746.16	\$746.16	\$746.16
Ceiling	N/A (R-30)	R-22	R-22	R-22	-\$451.74	-\$451.74	-\$451.74
Floor	N/A (R-22)	R-22	R-22	R-38	\$0.00	\$0.00	\$578.30
Window U-factor	N/A (0.35)	0.49	0.31	0.32	-\$347.68	\$180.57	\$86.24
Window SHGC	N/A (0.33)	0.71	0.25	0.33			
U <sub>o</sub>	0.079	0.0775	0.0710	0.0647			
Envelope Leakage (ACH)	8	5	5	5	\$253.85	\$253.85	\$253.85
Duct Leakage (cfm25/100 ft <sup>2</sup> CFA)	N/A (12)	4	4	4	\$209.70‡	\$209.70‡	\$209.70‡
Domestic HW	None	R-3	R-3	R-3	\$55.18	\$55.18	\$55.18
<b>Total Incremental Cost</b>					\$465.47	\$993.73	\$1,477.69
<b>Average Annual Energy Bill Savings</b>					\$350.43	\$424.80	\$441.14
<b>Simple Payback Period</b>					2.8	4.3	6.2
<b>Average Annual Energy Bill Savings (AEO High Oil and Gas Resource)</b>					\$321.28	\$395.94	\$410.48
<b>Simple Payback Period (AEO High Oil and Gas Resource)</b>					2.8	4.4	6.3

\*The energy efficiency measures presented provide one potential path to comply with the HUD U<sub>o</sub> requirement.

‡ The package assumes duct sealing requirements would require following prescriptive duct sealing methods to achieve the duct leakage numerical performance value, without needing to perform testing.

# Draft Results Summary

		\$500 Cost Package 1	\$1000 Cost Package 1	\$1500 Cost Package 1	\$500 Cost Package 2	\$1000 Cost Package 2	\$1500 Cost Package 2
<b>Total Incremental Cost</b>	<b>DOE CZ 1 – Houston (HUD CZ 1)</b>	\$438.76	\$967.17	\$1,482.86	\$450.57	\$993.53	\$1,499.00
<b>Average Annual Energy Bill Savings</b>		\$105.85	\$157.88	\$270.22	\$186.95	\$188.70	\$301.86
<b>Average Annual Cash Flow*</b>		\$72.18	\$83.65	\$156.42	\$152.38	\$112.45	\$186.81
<b>Simple Payback Period</b>		6.6	9.7	8.6	3.9	8.6	8.0
<b>LCC Savings</b>		\$645.33	\$636.96	\$1,270.10	\$1,478.15	\$930.01	\$1,582.25
<b>Annualized Costs at 7% DR (in 000s, 2016\$)</b>		\$4,953	\$10,862	\$16,569	\$5,086	\$11,155	\$16,746
<b>NPV Costs at 7% DR (in 000s, 2016\$)</b>		\$61,464	\$134,786	\$205,606	\$63,118	\$138,427	\$207,803
<b>Total Incremental Cost</b>	<b>DOE CZ 2 – Jackson (HUD CZ 1)</b>	\$438.76	\$967.17	\$1,482.86	\$450.57	\$993.53	\$1,499.00
<b>Average Annual Energy Bill Savings</b>		\$131.29	\$181.61	\$287.31	\$231.25	\$238.10	\$365.64
<b>Average Annual Cash Flow*</b>		\$97.61	\$107.38	\$173.51	\$196.67	\$161.85	\$250.60
<b>Simple Payback Period</b>		5.5	8.6	8.1	3.2	7.0	6.7
<b>LCC Savings</b>		\$910.13	\$883.84	\$1,447.90	\$1,939.68	\$1,444.66	\$2,246.53
<b>Annualized Costs at 7% DR (in 000s, 2016\$)</b>		\$3,065	\$6,721	\$10,252	\$3,147	\$6,902	\$10,361
<b>NPV Costs at 7% DR (in 000s, 2016\$)</b>		\$38,029	\$83,397	\$127,217	\$39,054	\$85,650	\$128,575
<b>Total Incremental Cost</b>	<b>DOE CZ 3 – Memphis (HUD CZ 2)</b>	\$488.92	\$887.88	\$1,493.73	\$377.31	\$983.15	\$1,469.60
<b>Average Annual Energy Bill Savings</b>		\$140.63	\$167.33	\$277.20	\$200.51	\$310.78	\$382.11
<b>Average Annual Cash Flow*</b>		\$103.11	\$99.19	\$162.56	\$171.55	\$235.33	\$269.32
<b>Simple Payback Period</b>		5.4	8.3	8.7	3.2	5.5	6.6
<b>LCC Savings</b>		\$955.26	\$817.29	\$1,328.59	\$1,693.25	\$2,209.21	\$2,444.26
<b>Annualized Costs at 7% DR (in 000s, 2016\$)</b>		\$2,639	\$4,774	\$7,983	\$2,039	\$5,281	\$7,856
<b>NPV Costs at 7% DR (in 000s, 2016\$)</b>		\$32,747	\$59,240	\$99,062	\$25,302	\$65,529	\$97,485
<b>Total Incremental Cost</b>	<b>DOE CZ 4 – Chicago (HUD CZ 3)</b>	\$435.85	\$936.70	\$1,388.44	\$465.47	\$993.73	\$1,477.69
<b>Average Annual Energy Bill Savings</b>		\$138.79	\$153.87	\$233.40	\$350.43	\$424.80	\$441.14
<b>Average Annual Cash Flow*</b>		\$105.34	\$81.99	\$126.84	\$314.71	\$348.54	\$327.73
<b>Simple Payback Period</b>		5.9	11.2	10.8	2.8	4.3	6.2
<b>LCC Savings</b>		\$975.61	\$609.91	\$959.35	\$3,113.94	\$3,342.43	\$3,004.71
<b>Annualized Costs at 7% DR (in 000s, 2016\$)</b>		\$4,115	\$8,800	\$12,986	\$4,394	\$9,330	\$13,808
<b>NPV Costs at 7% DR (in 000s, 2016\$)</b>		\$51,063	\$109,200	\$161,140	\$54,521	\$115,779	\$171,350
<b>Annualized Costs at 7% DR (in millions, 2016\$)</b>	<b>National (SS+MS)**</b>	\$64	\$146	\$224	\$60	\$145	\$224
<b>NPV Costs at 7% DR (in millions, 2016\$)</b>		\$796	\$1,816	\$2,780	\$743	\$1,802	\$2,782

Energy Efficiency & Renewable Energy

\*Average Annual Cash Flow = Average Annual Energy Bill Savings – (Average Annual Mortgage Payments + Average Annual Property Tax Payments)

Note: Most buyers finance the home, meaning the increased upfront cost (down payment) is 10% to 20% of the total incremental cost.

\*\*National (SS+MS) results correspond to all single-section and multi-section MH affected by the standards. All other results are for single-section only.



## MANUFACTURED HOUSING CONSENSUS COMMITTEE

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MHCC MEETING  
September 11-13, 2018

# APPENDIX H:

## MHCC Letter to HUD Secretary regarding DOE Energy Conservation Standards for Manufactured Housing

By MHCC



## MANUFACTURED HOUSING CONSENSUS COMMITTEE

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September 17, 2018  
Secretary Ben Carson  
U.S. Department of Housing and Urban Development  
451 7th Street S.W.,  
Washington, DC 20410

Dear Secretary Carson,

On September 11-13, 2018, HUD's Manufactured Housing Consensus Committee (MHCC) met in Washington D.C. At that meeting the MHCC reviewed the Department of Energy (DOE) *Energy Conservation Program: Energy Conservation Standards for Manufactured Housing*, Notice of Data Availability; Request for Information (Docket Number EERE-2009-BT-BC-0021). As a result of their review and deliberation, the following comments and concerns were developed and are being submitted to the Secretary of HUD on behalf of the Manufactured Housing Consensus Committee.

The Manufactured Housing Consensus Committee objects to the timing and substance of the Department of Energy (DOE) *Energy Conservation Program: Energy Conservation Standards for Manufactured Housing*, Notice of Data Availability; Request for Information (Docket Number EERE-2009-BT-BC-0021) and the previously Proposed Rule. MHCC has read and discussed the issues as published. MHCC sees a need for significant review of work done previously as well as further review of conclusions reached in this Notice of Data Availability. The time allotted for comment in this notice is insufficient for the committee to properly consider all the questions posed by DOE.

We strongly urge the Secretary to exercise his option under 42 U.S.C. 17071(a)(2) to seek further and ongoing counsel from the MHCC regarding proposed rules published by the DOE in the Federal Register Vol. 83 No. 150.

(2) NOTICE, COMMENT, AND CONSULTATION Standards described in paragraph (1) shall be established after—

(A) notice and an opportunity for comment by manufacturers of manufactured housing and other interested parties; and

(B) consultation with the Secretary of Housing and Urban Development, who may seek further counsel from the Manufactured Housing Consensus Committee.

In accordance with HUD's preemptive authority under 42 U.S.C 5403 (g), it is the belief of this committee that the goals of affordable and safe energy efficient housing would be best served by re-delegating this regulatory authority to HUD/MHCC.

(g) Manufactured housing construction and safety standards

(1) The Federal manufactured home construction and safety standards established by the Secretary under this section shall include preemptive energy conservation standards in accordance with this subsection.

(2) The energy conservation standards established under this subsection shall be cost-effective energy conservation performance standards designed to ensure the lowest total of construction and operating costs.

(3) The energy conservation standards established under this subsection shall take into consideration the design and factory construction techniques of manufactured homes and shall provide for alternative practices that result in net estimated energy consumption equal to or less than the specified standards.

The committee is appreciative of your time and consideration. The committee is looking for your guidance and actions on these matters. Thank you for your public service.

Sincerely,  
Kevin Kauffman, Project Manager  
Administering Organization,  
Manufactured Housing Consensus Committee  
Home Innovation Research Labs  
400 Prince George's Blvd.  
Upper Marlboro, MD 20774  
Phone: 888-602-4663  
E-mail: MHCC@HomeInnovation.com

MHCC MEETING  
September 11-13, 2018

APPENDIX I:  
MHCC Comments on the DOE Energy Conservation  
Standards for Manufactured Housing Notice of Data  
Availability; RFI 09-17-2018  
By MHCC



## MANUFACTURED HOUSING CONSENSUS COMMITTEE

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# MHCC Comments on the DOE Energy Conservation Standards for Manufactured Housing: Notice of Data Availability; Request for Information

Docket Number: EERE-2009-BT-BC-0021

RIN 1904-AC11

On September 11-13, 2018, HUD's Manufactured Housing Consensus Committee (MHCC) met in Washington D.C. At that meeting the MHCC reviewed the Department of Energy (DOE) *Energy Conservation Program: Energy Conservation Standards for Manufactured Housing*, Notice of Data Availability; Request for Information. As a result of their review and deliberation, the following comments on the Notice of Data Availability; Request for Information were developed and are being submitted to DOE on behalf of the Manufactured Housing Consensus Committee:

**The MHCC objects to the timing and substance of DOE's notice of data availability; request for information and the content of the 2016 Proposed Rule. MHCC has read and discussed the issues as published. In a cursory review the MHCC notes deficiencies in, but not limited to, design, manufacturing feasibility, and cost analysis. MHCC sees a need for significant review of work done previously as well as further review of conclusions reached in this notice of data availability pursuant to 42 U.S.C. § 17071(a)(2). The time allotted for comment in this notice is insufficient for the committee to properly consider all of the questions posed by DOE.**

**MHCC previously submitted comments (Appendix A) to DOE (i.e. regarding cost and compliance etc.), regarding the proposed rule, and we have been given no documentation to show that our comments were submitted to and considered by Office of Information and Regulatory Affairs (OIRA).**

**Any proposed energy standard must not conflict with HUD standards, which are preemptive pursuant to 42 U.S.C. § 5403(g). DOE must work with HUD to develop a clear compliance path to avoid overlapping or conflicting regulations and ensure feasibility, cost effectiveness and clarity. The MHCC has reviewed and has referred the DOE's notice of data availability; request for information to a MHCC Subcommittee for review and comment.**

**42 U.S.C. § 5403(a)(3) directs the MHCC to provide recommendations to the United States Secretary of Housing and Urban Development to adopt, revise and interpret the Manufactured Home Construction and Safety Standards (MHCSS). The committee recommends that DOE submit proposed code language and corresponding cost analysis to HUD for review and consideration. The process for submitting changes to the MHCSS can be found in the MHCC Bylaws Section 9(Appendix B).**

Kevin Kauffman, Project Manager  
Administering Organization,  
Manufactured Housing Consensus Committee  
Home Innovation Research Labs  
400 Prince George's Blvd.  
Upper Marlboro, MD 20774  
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## MANUFACTURED HOUSING CONSENSUS COMMITTEE

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### Appendix A

MHCC Comments on Energy Conservation Standards for Manufactured Housing;  
Proposed Rule 20160815



## MANUFACTURED HOUSING CONSENSUS COMMITTEE

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### MHCC Comments on the DOE Proposed Rule: Energy Conservation Standards for Manufactured Housing

Docket Number: EERE-2009-BT-BC-0021

RIN 1904-AC11

On August 9, 2016, HUD's Manufactured Housing Consensus Committee met via teleconference to review the *DOE Proposed Rule: Energy Conservation Standards for Manufactured Housing*. As a result of their review and deliberations, the following comments on the Proposed Rule were developed and are being submitted to DOE on behalf of the Manufactured Housing Consensus Committee:

1. Table 460.101-1 & 2. The State of California is not included in the tables. It appears the entire State of California is located in Climate Zone III.
2. Table 460.102-1. Note 3 states "Ceiling Insulation must have either a uniform thickness or uniform density." Uniform thickness will not generally be possible. Therefore, a uniform density will be required in the prescriptive method. This seems to not allow compression of insulation in the truss heel area. It will be very difficult to build a roof with the insulation levels required by the proposed rule without some compression.

MHCC recommends eliminating this requirement.

Remove text ~~(3) Ceiling insulation must have either a uniform thickness or a uniform density.~~

3. Table 460.102-1. Note 7 requires a maximum glazing area of 12% of the floor area, when using the prescriptive method. There is no such glazing area restriction in the 2015 IECC.

MHCC recommends eliminating this requirement.

Remove text ~~(7) The total area of glazed fenestration must be no greater than 12 percent of the area of the floor.~~

4. Table 460.103 – Installation of Insulation. Under floors, the Proposed Rule requires floor insulation to be installed in contact with the underside of the floor decking. This requirement has been debunked by building scientists, and has been removed from the 2015 IECC. It serves no purpose since the rim joist is required to be insulated. It is extremely difficult to do in a factory environment.

MHCC recommends this section be removed.

5. 460.201 Duct system – The Proposed Rule states “Each manufactured home must be equipped with a duct system.” This seems to imply that ductless systems, such as mini split heat pumps are not allowed.

MHCC recommends revising the section to state “when a duct system is installed.”

6. 460.201 Duct system – Section (b) states “Building framing cavities must not be used as ducts or plenums”. Does this section apply to return air plenums?

MHCC recommends revising this section to state “...Building framing cavities must not be used as ducts or plenums when directly connected to mechanical systems.”

7. The Proposed Rule does not address how these standards will be enforced. Does DOE have an enforcement plan? How are plan review and inspections to be performed? It would be a burden on the industry to have to deal with an additional Federal Agency. There needs to be regulatory clarity before this rule can be final.

The DOE Proposed Rule is substantially incomplete as stated. The Proposed Rule does not contain compliance and enforcement details to ensure that homes are constructed and installed in compliance with the standard. Neither does its cost analysis include or support the cost efficiency or justification for compliance costs. The enforcement of the Proposed Rule significantly affects the costs, planning, and implementation. Therefore, the MHCC cannot recommend this proposal be adopted as a final rule until the enforcement and compliance path is included.

MHCC recommends enforcement and compliance be performed by HUD.

8. DOE has not adequately considered the impact of the proposed rule on the future affordability and access to credit for low income purchasers. DOE projected an average retail cost increase of 5% or \$2,226 for single section homes and \$3,109 for a multi-section homes.

MHCC recommends that DOE should further revise its retail cost impact analysis based on the past industry projected retail cost mark-up factor of 2.30, rather than 1.67 factor used by DOE in its cost analysis.

9. DOE has under estimated the reduction in production levels and future availability of manufactured homes due to the implementation of its proposed standards. DOE projections, based on 2014 shipment data, would suggest a loss in production and availability of over 40,000 homes over a 30-year period using a -0.48 elasticity in demand factor (as price goes up-demand goes down). Past HUD estimates of elasticity on demand used a higher factor of -2.40 which would suggest a loss of production of over 200,000 homes over the same 30-year period. However, based on more recent and current industry production growth rates, shipment data, and potential underestimates of retail costs by DOE; these projected production losses would appear to also underestimate the future losses in production, shipments, and availability of manufactured homes.
10. DOE has not adequately addressed the impact of the proposed rule on small manufacturers. Small manufacturers may not be able to compete in the marketplace due to economies of scale afforded to large manufacturers that are able to purchase materials in volume at discounted rates not available to smaller manufacturers. DOE could not certify that the proposed rule would not have a significant impact on small manufacturers.

11. DOE has not adequately addressed the potential health effects on indoor air quality that may result from several proposed measures to increase the tightness and thereby reduce natural air infiltration through the thermal envelope, with no proposed increase in mechanical ventilation requirements. Implementation should be deferred pending study of this issue. The measures are currently designed to enhance the tightness of the thermal envelope needed to achieve the projected reduction of natural air infiltration from eight (8) air changes per hour to five (5) air changes per hour and other benchmarks should be considered.

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## MANUFACTURED HOUSING CONSENSUS COMMITTEE

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Appendix B  
MHCC Bylaws



U. S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT

**BYLAWS**

Manufactured Housing Consensus Committee  
*a federal advisory committee*

**SECTION. 1. Purpose**

The purpose of the Manufactured Housing Consensus Committee (Committee), a federal advisory committee subject to the Federal Advisory Committee Act (FACA) and established by the Manufactured Housing Improvement Act of 2000 (MHIA), is set forth in its Charter.

The purpose of these Bylaws is to provide procedural guidance for the conduct of the Committee's business and meetings.

**SECTION. 2. Organization and Operation**

- a. The Committee shall be organized and operate in accordance with the MHIA, the FACA, the Charter of the Committee and these Bylaws.
- b. The Committee adheres to procedures established by the American National Standards Institute.
- c. The Committee is overseen by a Designated Federal Official.
- d. The Committee officers include a Chairperson and a Vice Chairperson.

**SECTION. 3. Administrative Support**

Administrative, managerial, and technical support for the Committee is available from an Administering Organization (AO) – a recognized, voluntary, private sector, consensus standards body with specific experience in developing model residential building codes and standards involving all disciplines regarding construction – which includes the following, to the extent provided by the Secretary:

- a. reasonable staff resources; and
- b. technical support to any of the interest categories, provided that
  - i. The resources and support are necessary to ensure the informed participation of the Committee members; and
  - ii. The costs are reasonable

## SECTION. 4. Membership

### a. Members

- i. The Committee shall have twenty-one (21) voting members appointed by the Secretary; and
- ii. One (1) nonvoting member appointed by the Secretary to represent the interests of the Secretary

### b. Member Terms and Rotation

- i. Members serve at the pleasure of the Secretary or for a term of three (3) years, not to exceed two (2) consecutive terms.
- ii. A rotation of seven (7) members per annum shall be maintained where reasonably possible, except that this requirement shall not inhibit the Secretary's discretion to remove and appoint members.

### c. Review of Membership

The Secretary shall review the Committee membership list annually by the criteria specified in MHIA, other applicable laws and regulations and such additional criteria as the Secretary may specify to ensure the character and integrity of the Committee. Members are expected to fulfill obligations of active participation. Where a member is in habitual default of these obligations, the Secretary may take appropriate action, including termination of membership.

### d. Interest Categories

Committee membership shall consist of three (3) categories of voting members:

- i. Producers. Seven (7) producers or retailers of manufactured housing.
- ii. Users. Seven (7) persons representing consumer interests, such as consumer organizations, recognized consumer leaders, and owners who are residents of manufactured homes.
- iii. General interest and public officials. Seven (7) general interest and public official members three of whom must be a representative of the Public Official Category.

### e. Selection and Appointment of Members

- i. Member(s) may be selected and appointed upon review by the Secretary of qualifying information submitted to the AO.
- ii. The nominations for members may be made at any time.
- iii. Appointment(s) of qualified candidates may be made as vacancies occur and/or at the discretion of the Secretary.

f. Membership Roster

- i. A current and accurate Committee roster shall be maintained and shall include the following:
  1. Title of the Committee and its designation;
  2. Scope of the Committee;
  3. Administering organization: name of organization, name of secretary, and address;
  4. Officers: chair; vice chair;
  5. Members: name, address, and business affiliation of individual member(s);
  6. Interest category of each member;
  7. Tally of interest categories: total of voting members and subtotals for each interest category; and
  8. For each subcommittee: title, chair, and names and addresses of all members.
- ii. The roster shall be distributed to Committee members, the HUD Committee Management Officer (CMO), and the DFO at least annually and upon any change in membership or member information.
- iii. The roster shall be made available in a publicly accessible web posting.

**SECTION. 5. Subcommittees**

- a. Subcommittees may be created to facilitate the Committee's work
  - i. A subcommittee should consist of the minimum number of members necessary to accomplish the assigned task.
  - ii. Subcommittees shall reflect the Committee's required balance of interests and prohibition against dominance as prescribed in the MHIA, to the extent reasonably possible within the size of the established subcommittee.
  - iii. The Secretary has exclusive authority to create subcommittees.
  - iv. The Secretary shall clearly state the size, scope, and duties of the subcommittee and that the subcommittee is not intended to constitute a FACA committee.
  - v. The Committee may propose the establishment of one or more subcommittees to the Secretary. The proposal shall include the information set forth in paragraph ii.
  - vi. Voting privileges shall be limited to MHCC members of a subcommittee.
  - vii. Subcommittees may report only to the Committee, and shall not provide advice or work products directly to the agency.

- b. Subcommittee Chairpersons and members of subcommittees

The Secretary shall appoint the chair and members of a subcommittee.

- c. Annual review; continuation on the basis of need

- i. The Committee shall review the scope, duties, and membership of all subcommittees annually and recommend to the DFO those subcommittees that should be continued or discontinued.
- ii. Continuation of a subcommittee shall be based on demonstrated need of the Committee for advice and guidance on its subject matter. The Secretary, through the DFO, shall dispose of the recommendation.

- d. Delivery of Subcommittee Recommendations

Subcommittees shall make recommendations only to the Committee.

## **SECTION. 6. Meetings**

- a. Meetings of the Committee and its subcommittees, if any, shall be held only upon approval of the DFO.

- b. Meetings of the Committee and subcommittees shall be open to the public.

- c. Quorum

- i. A majority of the voting members of the Committee shall constitute a quorum for conducting business at a meeting. If a quorum is not present, actions shall only be taken subject to subsequent confirmation by letter ballot or recorded vote at a future meeting.
- ii. Notwithstanding the foregoing paragraph, the DFO shall ensure that the lawful requirements of balance of interests and prohibition against dominance shall be preserved.

- d. Conduct of Meetings

- i. It is the Secretary's intent in appointing members to the Committee to promote balance of interests and prevent a position or exercise of dominant authority, leadership, or influence by reason of superior leverage, strength, or representation.
- ii. Members shall conduct the business of the Committee in such a manner as shall ensure that all directly and materially-affected interests have the opportunity for fair and equitable participation without dominance by any single interest.

## **SECTION. 7. Voting**

### a. Single Vote

Each member of the Committee shall have one vote. Members may not vote by proxy.

### b. Actions affecting Recommendations

A vote by two-thirds of the members present at a meeting shall be required to send a proposed revised standard forward to the Secretary, provided a fair balance of all three groups is present.

## **SECTION. 8. Letter Ballots**

### a. Letter ballots may be used by the Committee as a procedure to facilitate the work of the Committee in an efficient, timely, accurate and fair manner. Letter ballots may be utilized by the Committee:

- i. In the absence of a quorum at a duly called meeting;
- ii. To present a matter to the Committee when exigent circumstances prevent convening a meeting;
- iii. To validate voting results in the absence of a clear record of the vote taken.

### b. Letter Ballots

Each voting member shall reflect one of the following positions:

- i. Affirmative;
- ii. Affirmative, with comment;
- iii. Negative, with reasons (the reasons for a negative vote shall be given and, if possible, should include specific wording or actions that would resolve the objection);
- iv. Abstain, with or without reasons.

### c. Balloting

Letter balloting shall be conducted electronically, except if a member is unable to reasonably obtain access to a means of receiving and sending electronic documents (fax or email) in which case the ballot shall be sent by priority mail with a provision for return of the ballot by similar means.

- d. Voting Period for Letter Ballots
  - i. The voting period for letter ballots shall end the earliest of fourteen (14) calendar days from the date of issue or upon receipt of votes from all eligible voters. An extension of time may be granted by the DFO upon a finding of exigent circumstances;
  - ii. Ballot results with comments and reasons for voting negative or abstaining shall be circulated to the Committee members for review within seven (7) working days of the close of the authorized balloting period;
  - iii. Disposition of views and objections;
  - iv. When the balloting has been closed, the AO shall forward the ballot tally to the chair of the Committee and the DFO.

**SECTION. 9. Submittal of Proposed Changes to the MHCSS**

- a. All Proposed Changes shall be submitted to the AO via an established process.
- b. Proposed Changes may be submitted to the AO by anyone at anytime.
- c. Proposed Changes shall be in the form of a proposed rule, including a cost benefit analysis consisting of the costs associated with the proposal and related benefits that would result from the change. To satisfy this requirement, each Proposed Change must:
  - i. Provide a clear, detailed narrative of the proposal and identify the existing Standards that will be affected by the proposal;
  - ii. Justify the recommendation as (i) reasonable and practical, (ii) meeting high standards of consumer protection consistent with the purposes of MHIA; and provide best estimates of the cost and economic effects on consumers of the proposal.
- d. A Proposed Change can be withdrawn by the submitter up to the point the proposal has been formally transmitted to the Committee (e.g., as part of a committee meeting agenda or through a ballot).
- e. Each duly authorized Proposed Change shall be submitted to HUD by the AO at the end of each two-year cycle.
- f. Each two-year cycle will consist of two years (calendar years);
- g. The deadline for submitting Proposed Changes for each two-year cycle shall be published in the Federal Register at least 45 days before the deadline.
- h. Those Proposed Changes submitted after the published deadline shall be held by the AO until the beginning of the next two-year cycle.
- i. At the discretion of the Committee Chair and the AO, a subcommittee or a committee member may submit a Proposed Change during the two-year cycle if that proposal is intended to specifically resolve an issue raised by another proposal submitted in accordance with the deadline for submitting proposals for that two-year cycle.

## **SECTION. 10. Communications**

Formal correspondence of the Committee shall bear the heading “Manufactured Housing Consensus Committee.” Committee requests for action shall be sent to both the AO and HUD.

## **SECTION. 11. Certification of Financial Independence**

Committee members in the “User” category and three designated members of the “General Interest/Public Official” category shall certify not less than annually and as a continuing prerequisite to membership on the Committee that there exists no significant financial interest between the certifier, or any member of the certifier’s immediate family, in any segment of the manufactured housing industry and, further, that there exists no material relationship between the certifier and any other person engaged in the manufactured housing industry.

The certification shall be made in a form and content provided by the Secretary.

## **SECTION. 12. Conflict of Laws and Parliamentary Procedures**

### **a. Conflicts between laws; interpretations**

Issues arising from conflicts between various provisions in the authorities referred to in Section 2 or assertions of interpretations shall be resolved by the DFO.

### **b. Application of Roberts Rules of Order**

In all matters of parliamentary procedure, the Committee shall be governed by Roberts Rules of Order, except where any such action shall be governed by law, regulation, the Committee Charter, or these Bylaws.

## **SECTION. 13. Secretary**

Wherever used in these Bylaws, the term Secretary shall mean the Secretary of the U.S. Department of Housing and Urban Development, the DFO, or such other person that the Secretary may designate.

## **SECTION. 14. Amendment of Bylaws**

The Secretary shall have sole authority to amend these Bylaws.

MHCC MEETING  
September 11-13, 2018

APPENDIX J:  
MHCC Request to HUD's PD&R  
By MHCC



## MANUFACTURED HOUSING CONSENSUS COMMITTEE

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To whom it may concern,

On September 11, 2018, HUD's Manufactured Housing Consensus Committee (MHCC) met in Washington D.C to review the Department of Energy(DOE) *Energy Conservation Program: Energy Conservation Standards for Manufactured Housing*, Notice of Data Availability; Request for Information. As a result of their review and deliberation, the MHCC has made the following request to the Department of Housing and Urban Development's (HUD's) Office of Policy Development and Research (PD&R):

**MHCC Motion:**

**MHCC requests HUD's PD&R to submit a document to the MHCC which includes comparable cost figures similar to EERE-2009-BT-BC-0021 [NODA Packages-Draft Results July 2018] (Appendix A) by November 14, 2018.**

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## Appendix A

EERE-2009-BT-BC-0021 [NODA Packages-Draft Results July 2018]



# Manufactured Housing

NODA Packages – Draft Results

July 2018

U.S. DEPARTMENT OF  
**ENERGY**

Energy Efficiency &  
Renewable Energy

Department of Energy  
Building Technologies Office  
EERE-2009-BT-BC-0021

# Description of Packages

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## **PACKAGE 1:**

This package would maximize the energy savings of a manufactured home, but exclude envelope and duct sealing to maximize energy savings.

## **PACKAGE 2:**

This package would maximize the energy savings of a manufactured home, but allow envelope and duct sealing to maximize energy savings.

## **Method:**

- Energy savings is maximized by minimizing  $U_o$  of the home.
- Package 1 and 2 are created for incremental price targets of \$500, \$1000, and \$1500.
- Incremental costs and savings calculations are based on methods and data presented in the 2016 NOPR.

# Package 1 (no sealing): HUD CZ 1

NOPR CLIMATE ZONE 1 – HUD Zone 1		Single Section					
HOUSTON, TX	Efficiency Measures Description				Incremental Costs and Savings Results (2017\$)		
Component	HUD (Current Practice)*	\$500 Cost Package	\$1000 Cost Package	\$1500 Cost Package	\$500 Cost Package	\$1000 Cost Package	\$1500 Cost Package
Wall	N/A (R-11)	R-13	R-11	R-13	\$68.27	\$0.00	\$68.27
Ceiling	N/A (R-22)	R-30	R-22	R-22	\$451.74	\$0.00	\$0.00
Floor	N/A (R-22)	R-19	R-19	R-19	-\$136.44	-\$136.44	-\$136.44
Window U-factor	N/A (1.08)	1.08	0.5	0.35	\$0.00	\$1,048.43	\$1,495.84
Window SHGC	N/A (0.70)	0.7	0.6	0.33			
U <sub>o</sub>	0.116	0.1071	0.0937	0.0854			
Envelope Leakage (ACH)	8	N/A (8)	N/A (8)	N/A (8)	\$0.00	\$0.00	\$0.00
Duct Leakage (cfm25/100 ft <sup>2</sup> CFA)	N/A (12)	N/A (12)	N/A (12)	N/A (12)	\$0.00	\$0.00	\$0.00
Domestic HW	None	R-3	R-3	R-3	\$55.18	\$55.18	\$55.18
<b>Total Incremental Cost</b>					\$438.76	\$967.17	\$1,482.86
<b>Average Annual Energy Bill Savings</b>					\$105.85	\$157.88	\$270.22
<b>Simple Payback Period</b>					6.6	9.7	8.6
<b>Average Annual Energy Bill Savings (AEO High Oil and Gas Resource)</b>					\$103.48	\$154.42	\$264.45
<b>Simple Payback Period (AEO High Oil and Gas Resource)</b>					6.7	9.8	8.7

\*The energy efficiency measures presented provide one potential path to comply with the HUD U<sub>o</sub> requirement.

# Package 1 (no sealing): HUD CZ 1

NOPR CLIMATE ZONE 2 – HUD Zone 1		Single Section					
Efficiency Measures Description					Incremental Costs and Savings Results (2017\$)		
JACKSON, MS							
Component	HUD (Current Practice)*	\$500 Cost Package	\$1000 Cost Package	\$1500 Cost Package	\$500 Cost Package	\$1000 Cost Package	\$1500 Cost Package
Wall	N/A (R-11)	R-13	R-11	R-13	\$68.27	\$0.00	\$68.27
Ceiling	N/A (R-22)	R-30	R-22	R-22	\$451.74	\$0.00	\$0.00
Floor	N/A (R-22)	R-19	R-19	R-19	-\$136.44	-\$136.44	-\$136.44
Window U-factor	N/A (1.08)	1.08	0.5	0.35	\$0.00	\$1048.43	\$1,495.84
Window SHGC	N/A (0.70)	0.7	0.6	0.33			
U <sub>o</sub>	0.116	0.1071	0.0937	0.0854			
Envelope Leakage (ACH)	8	N/A (8)	N/A (8)	N/A (8)	\$0.00	\$0.00	\$0.00
Duct Leakage (cfm25/100 ft <sup>2</sup> CFA)	N/A (12)	N/A (12)	N/A (12)	N/A (12)	\$0.00	\$0.00	\$0.00
Domestic HW	None	R-3	R-3	R-3	\$55.18	\$55.18	\$55.18
<b>Total Incremental Cost</b>					\$438.76	\$967.17	\$1,482.86
<b>Average Annual Energy Bill Savings</b>					\$131.29	\$181.61	\$287.31
<b>Simple Payback Period</b>					5.5	8.6	8.1
<b>Average Annual Energy Bill Savings (AEO High Oil and Gas Resource)</b>					\$128.33	\$177.59	\$281.11
<b>Simple Payback Period (AEO High Oil and Gas Resource)</b>					5.5	8.6	8.2

\*The energy efficiency measures presented provide one potential path to comply with the HUD U<sub>o</sub> requirement.

# Package 1 (no sealing): HUD CZ 2

NOPR CLIMATE ZONE 3 – HUD Zone 2		Single Section					
MEMPHIS, TN	Efficiency Measures Description				Incremental Costs and Savings Results (2017\$)		
Component	HUD (Current Practice)*	\$500 Cost Package	\$1000 Cost Package	\$1500 Cost Package	\$500 Cost Package	\$1000 Cost Package	\$1500 Cost Package
Wall	N/A (R-11)	R-13	R-13	R-19	\$68.27	\$68.27	\$674.12
Ceiling	N/A (R-22)	R-22	R-22	R-22	\$0.00	\$0.00	\$0.00
Floor	N/A (R-19)	R-13	R-22	R-22	-\$81.95	\$136.44	\$136.44
Window U-factor	N/A (0.5)	0.35	0.31	0.31	\$447.41	\$627.99	\$627.99
Window SHGC	N/A (0.6)	0.33	0.25	0.25			
U <sub>o</sub>	0.096	0.0920	0.0819	0.0728			
Envelope Leakage (ACH)	8	N/A (8)	N/A (8)	N/A (8)	\$0.00	\$0.00	\$0.00
Duct Leakage (cfm25/100 ft <sup>2</sup> CFA)	N/A (12)	N/A (12)	N/A (12)	N/A (12)	\$0.00	\$0.00	\$0.00
Domestic HW	None	R-3	R-3	R-3	\$55.18	\$55.18	\$55.18
<b>Total Incremental Cost</b>					\$488.92	\$887.88	\$1,493.73
<b>Average Annual Energy Bill Savings</b>					\$140.63	\$167.33	\$277.20
<b>Simple Payback Period</b>					5.4	8.3	8.7
<b>Average Annual Energy Bill Savings (AEO High Oil and Gas Resource)</b>					\$137.47	\$163.48	\$270.44
<b>Simple Payback Period (AEO High Oil and Gas Resource)</b>					5.5	8.4	8.7

\*The energy efficiency measures presented provide one potential path to comply with the HUD U<sub>o</sub> requirement.

# Package 1 (no sealing): HUD CZ 3

NOPR CLIMATE ZONE 4 – HUD Zone 3		Single Section					
CHICAGO, IL	Efficiency Measures Description				Incremental Costs and Savings Results (2017\$)		
Component	HUD (Current Practice)*	\$500 Cost Package	\$1000 Cost Package	\$1500 Cost Package	\$500 Cost Package	\$1000 Cost Package	\$1500 Cost Package
Wall	N/A (R-13)	R-21	R-21	R-21	\$746.16	\$746.16	\$746.16
Ceiling	N/A (R-30)	R-22	R-22	R-30	-\$451.74	-\$451.74	\$0.00
Floor	N/A (R-22)	R-22	R-30	R-30	\$0.00	\$406.52	\$406.52
Window U-factor	N/A (0.35)	0.32	0.31	0.31	\$86.24	\$180.57	\$180.57
Window SHGC	N/A (0.33)	0.33	0.25	0.25			
U <sub>o</sub>	0.079	0.0713	0.0659	0.0610			
Envelope Leakage (ACH)	8	N/A (8)	N/A (8)	N/A (8)	\$0.00	\$0.00	\$0.00
Duct Leakage (cfm25/100 ft <sup>2</sup> CFA)	N/A (12)	N/A (12)	N/A (12)	N/A (12)	\$0.00	\$0.00	\$0.00
Domestic HW	None	R-3	R-3	R-3	\$55.18	\$55.18	\$55.18
<b>Total Incremental Cost</b>					\$435.85	\$936.70	\$1,388.44
<b>Average Annual Energy Bill Savings</b>					\$138.79	\$153.87	\$233.40
<b>Simple Payback Period</b>					5.9	11.2	10.8
<b>Average Annual Energy Bill Savings (AEO High Oil and Gas Resource)</b>					\$129.14	\$143.54	\$217.96
<b>Simple Payback Period (AEO High Oil and Gas Resource)</b>					6.0	11.3	11.0

\*The energy efficiency measures presented provide one potential path to comply with the HUD U<sub>o</sub> requirement.

# Package 2 (with sealing): HUD CZ 1

NOPR CLIMATE ZONE 1 – HUD Zone 1		Single Section					
HOUSTON, TX	Efficiency Measures Description				Incremental Costs and Savings Results (2017\$)		
Component	HUD (Current Practice)*	\$500 Cost Package	\$1000 Cost Package	\$1500 Cost Package	\$500 Cost Package	\$1000 Cost Package	\$1500 Cost Package
Wall	N/A (R-11)	R-13	R-13	R-13	\$68.27	\$68.27	\$68.27
Ceiling	N/A (R-22)	R-22	R-22	R-22	\$0.00	\$0.00	\$0.00
Floor	N/A (R-22)	R-19	R-30	R-19	-\$136.44	\$406.52	-\$136.44
Window U-factor	N/A (1.08)	1.08	1.08	0.5	\$0.00	\$0.00	\$1,048.43
Window SHGC	N/A (0.70)	0.7	0.7	0.6			
U <sub>o</sub>	0.116	0.1120	0.1048	0.0909			
Envelope Leakage (ACH)	8	5	5	5	\$253.85	\$253.85	\$253.85
Duct Leakage (cfm25/100 ft <sup>2</sup> CFA)	N/A (12)	4	4	4	\$209.70‡	\$209.70‡	\$209.70‡
Domestic HW	None	R-3	R-3	R-3	\$55.18	\$55.18	\$55.18
<b>Total Incremental Cost</b>					\$450.57	\$993.53	\$1,499.00
<b>Average Annual Energy Bill Savings</b>					\$186.95	\$188.70	\$301.86
<b>Simple Payback Period</b>					3.9	8.6	8.0
<b>Average Annual Energy Bill Savings (AEO High Oil and Gas Resource)</b>					\$182.81	\$184.50	\$295.23
<b>Simple Payback Period (AEO High Oil and Gas Resource)</b>					3.9	8.7	8.1

\*The energy efficiency measures presented provide one potential path to comply with the HUD U<sub>o</sub> requirement.

‡ The package assumes duct sealing requirements would require following prescriptive duct sealing methods to achieve the duct leakage numerical performance value, without needing to perform testing.

# Package 2 (with sealing): HUD CZ 1

NOPR CLIMATE ZONE 2 – HUD CZ 1		Single Section					
JACKSON, MS	Efficiency Measures Description				Incremental Costs and Savings Results (2017\$)		
Component	HUD (Current Practice)*	\$500 Cost Package	\$1000 Cost Package	\$1500 Cost Package	\$500 Cost Package	\$1000 Cost Package	\$1500 Cost Package
Wall	N/A (R-11)	R-13	R-13	R-13	\$68.27	\$68.27	\$68.27
Ceiling	N/A (R-22)	R-22	R-22	R-22	\$0.00	\$0.00	\$0.00
Floor	N/A (R-22)	R-19	R-30	R-19	-\$136.44	\$406.52	-\$136.44
Window U-factor	N/A (1.08)	1.08	1.08	0.5	\$0.00	\$0.00	\$1,048.43
Window SHGC	N/A (0.70)	0.7	0.7	0.6			
U <sub>o</sub>	0.116	0.1120	0.1048	0.0909			
Envelope Leakage (ACH)	8	5	5	5	\$253.85	\$253.85	\$253.85
Duct Leakage (cfm25/100 ft <sup>2</sup> CFA)	N/A (12)	4	4	4	\$209.70‡	\$209.70‡	\$209.70‡
Domestic HW	None	R-3	R-3	R-3	\$55.18	\$55.18	\$55.18
<b>Total Incremental Cost</b>					\$450.57	\$993.53	\$1,499.00
<b>Average Annual Energy Bill Savings</b>					\$231.25	\$238.10	\$365.64
<b>Simple Payback Period</b>					3.2	7.0	6.7
<b>Average Annual Energy Bill Savings (AEO High Oil and Gas Resource)</b>					\$226.04	\$232.71	\$357.48
<b>Simple Payback Period (AEO High Oil and Gas Resource)</b>					3.3	7.0	6.8

\*The energy efficiency measures presented provide one potential path to comply with the HUD U<sub>o</sub> requirement.

‡ The package assumes duct sealing requirements would require following prescriptive duct sealing methods to achieve the duct leakage numerical performance value, without needing to perform testing.

# Package 2 (with sealing): HUD CZ 2

NOPR CLIMATE ZONE 3 – HUD Zone 2		Single Section					
MEMPHIS, TN		Efficiency Measures Description			Incremental Costs and Savings Results (2017\$)		
Component	HUD (Current Practice)*	\$500 Cost Package	\$1000 Cost Package	\$1500 Cost Package	\$500 Cost Package	\$1000 Cost Package	\$1500 Cost Package
Wall	N/A (R-11)	R-13	R-19	R-21	\$68.27	\$674.12	\$814.43
Ceiling	N/A (R-22)	R-22	R-22	R-22	\$0.00	\$0.00	\$0.00
Floor	N/A (R-19)	R-19	R-19	R-22	\$0.00	\$0.00	\$136.44
Window U-factor	N/A (0.5)	0.5	0.5	0.5	\$0.00	\$0.00	\$0.00
Window SHGC	N/A (0.6)	0.6	0.6	0.6			
U <sub>o</sub>	0.096	0.0909	0.0818	0.0779			
Envelope Leakage (ACH)	8	5	5	5	\$253.85	\$253.85	\$253.85
Duct Leakage (cfm25/100 ft <sup>2</sup> CFA)	N/A (12)	N/A (12)	N/A (12)	4	\$0.00	\$0.00	\$209.70‡
Domestic HW	None	R-3	R-3	R-3	\$55.18	\$55.18	\$55.18
<b>Total Incremental Cost</b>					\$377.31	\$983.15	\$1,469.60
<b>Average Annual Energy Bill Savings</b>					\$200.51	\$310.78	\$382.11
<b>Simple Payback Period</b>					3.2	5.5	6.6
<b>Average Annual Energy Bill Savings (AEO High Oil and Gas Resource)</b>					\$195.03	\$302.38	\$371.93
<b>Simple Payback Period (AEO High Oil and Gas Resource)</b>					3.3	5.5	6.6

\*The energy efficiency measures presented provide one potential path to comply with the HUD U<sub>o</sub> requirement.

‡ The package assumes duct sealing requirements would require following prescriptive duct sealing methods to achieve the duct leakage numerical performance value, without needing to perform testing.

# Package 2 (with sealing): HUD CZ 3

NOPR CLIMATE ZONE 4 – HUD Zone 3		Single Section					
CHICAGO, IL	Efficiency Measures Description				Incremental Costs and Savings Results (2017\$)		
Component	HUD (Current Practice)*	\$500 Cost Package	\$1000 Cost Package	\$1500 Cost Package	\$500 Cost Package	\$1000 Cost Package	\$1500 Cost Package
Wall	N/A (R-13)	R-21	R-21	R-21	\$746.16	\$746.16	\$746.16
Ceiling	N/A (R-30)	R-22	R-22	R-22	-\$451.74	-\$451.74	-\$451.74
Floor	N/A (R-22)	R-22	R-22	R-38	\$0.00	\$0.00	\$578.30
Window U-factor	N/A (0.35)	0.49	0.31	0.32	-\$347.68	\$180.57	\$86.24
Window SHGC	N/A (0.33)	0.71	0.25	0.33			
U <sub>o</sub>	0.079	0.0775	0.0710	0.0647			
Envelope Leakage (ACH)	8	5	5	5	\$253.85	\$253.85	\$253.85
Duct Leakage (cfm25/100 ft <sup>2</sup> CFA)	N/A (12)	4	4	4	\$209.70‡	\$209.70‡	\$209.70‡
Domestic HW	None	R-3	R-3	R-3	\$55.18	\$55.18	\$55.18
<b>Total Incremental Cost</b>					\$465.47	\$993.73	\$1,477.69
<b>Average Annual Energy Bill Savings</b>					\$350.43	\$424.80	\$441.14
<b>Simple Payback Period</b>					2.8	4.3	6.2
<b>Average Annual Energy Bill Savings (AEO High Oil and Gas Resource)</b>					\$321.28	\$395.94	\$410.48
<b>Simple Payback Period (AEO High Oil and Gas Resource)</b>					2.8	4.4	6.3

\*The energy efficiency measures presented provide one potential path to comply with the HUD U<sub>o</sub> requirement.

‡ The package assumes duct sealing requirements would require following prescriptive duct sealing methods to achieve the duct leakage numerical performance value, without needing to perform testing.

# Draft Results Summary

		\$500 Cost Package 1	\$1000 Cost Package 1	\$1500 Cost Package 1	\$500 Cost Package 2	\$1000 Cost Package 2	\$1500 Cost Package 2
<b>Total Incremental Cost</b>	<b>DOE CZ 1 – Houston (HUD CZ 1)</b>	\$438.76	\$967.17	\$1,482.86	\$450.57	\$993.53	\$1,499.00
<b>Average Annual Energy Bill Savings</b>		\$105.85	\$157.88	\$270.22	\$186.95	\$188.70	\$301.86
<b>Average Annual Cash Flow*</b>		\$72.18	\$83.65	\$156.42	\$152.38	\$112.45	\$186.81
<b>Simple Payback Period</b>		6.6	9.7	8.6	3.9	8.6	8.0
<b>LCC Savings</b>		\$645.33	\$636.96	\$1,270.10	\$1,478.15	\$930.01	\$1,582.25
<b>Annualized Costs at 7% DR (in 000s, 2016\$)</b>		\$4,953	\$10,862	\$16,569	\$5,086	\$11,155	\$16,746
<b>NPV Costs at 7% DR (in 000s, 2016\$)</b>		\$61,464	\$134,786	\$205,606	\$63,118	\$138,427	\$207,803
<b>Total Incremental Cost</b>	<b>DOE CZ 2 – Jackson (HUD CZ 1)</b>	\$438.76	\$967.17	\$1,482.86	\$450.57	\$993.53	\$1,499.00
<b>Average Annual Energy Bill Savings</b>		\$131.29	\$181.61	\$287.31	\$231.25	\$238.10	\$365.64
<b>Average Annual Cash Flow*</b>		\$97.61	\$107.38	\$173.51	\$196.67	\$161.85	\$250.60
<b>Simple Payback Period</b>		5.5	8.6	8.1	3.2	7.0	6.7
<b>LCC Savings</b>		\$910.13	\$883.84	\$1,447.90	\$1,939.68	\$1,444.66	\$2,246.53
<b>Annualized Costs at 7% DR (in 000s, 2016\$)</b>		\$3,065	\$6,721	\$10,252	\$3,147	\$6,902	\$10,361
<b>NPV Costs at 7% DR (in 000s, 2016\$)</b>		\$38,029	\$83,397	\$127,217	\$39,054	\$85,650	\$128,575
<b>Total Incremental Cost</b>	<b>DOE CZ 3 – Memphis (HUD CZ 2)</b>	\$488.92	\$887.88	\$1,493.73	\$377.31	\$983.15	\$1,469.60
<b>Average Annual Energy Bill Savings</b>		\$140.63	\$167.33	\$277.20	\$200.51	\$310.78	\$382.11
<b>Average Annual Cash Flow*</b>		\$103.11	\$99.19	\$162.56	\$171.55	\$235.33	\$269.32
<b>Simple Payback Period</b>		5.4	8.3	8.7	3.2	5.5	6.6
<b>LCC Savings</b>		\$955.26	\$817.29	\$1,328.59	\$1,693.25	\$2,209.21	\$2,444.26
<b>Annualized Costs at 7% DR (in 000s, 2016\$)</b>		\$2,639	\$4,774	\$7,983	\$2,039	\$5,281	\$7,856
<b>NPV Costs at 7% DR (in 000s, 2016\$)</b>		\$32,747	\$59,240	\$99,062	\$25,302	\$65,529	\$97,485
<b>Total Incremental Cost</b>	<b>DOE CZ 4 – Chicago (HUD CZ 3)</b>	\$435.85	\$936.70	\$1,388.44	\$465.47	\$993.73	\$1,477.69
<b>Average Annual Energy Bill Savings</b>		\$138.79	\$153.87	\$233.40	\$350.43	\$424.80	\$441.14
<b>Average Annual Cash Flow*</b>		\$105.34	\$81.99	\$126.84	\$314.71	\$348.54	\$327.73
<b>Simple Payback Period</b>		5.9	11.2	10.8	2.8	4.3	6.2
<b>LCC Savings</b>		\$975.61	\$609.91	\$959.35	\$3,113.94	\$3,342.43	\$3,004.71
<b>Annualized Costs at 7% DR (in 000s, 2016\$)</b>		\$4,115	\$8,800	\$12,986	\$4,394	\$9,330	\$13,808
<b>NPV Costs at 7% DR (in 000s, 2016\$)</b>		\$51,063	\$109,200	\$161,140	\$54,521	\$115,779	\$171,350
<b>Annualized Costs at 7% DR (in millions, 2016\$)</b>	<b>National (SS+MS)**</b>	\$64	\$146	\$224	\$60	\$145	\$224
<b>NPV Costs at 7% DR (in millions, 2016\$)</b>		\$796	\$1,816	\$2,780	\$743	\$1,802	\$2,782

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\*Average Annual Cash Flow = Average Annual Energy Bill Savings – (Average Annual Mortgage Payments + Average Annual Property Tax Payments)

Note: Most buyers finance the home, meaning the increased upfront cost (down payment) is 10% to 20% of the total incremental cost.

\*\*National (SS+MS) results correspond to all single-section and multi-section MH affected by the standards. All other results are for single-section only.