



MANUFACTURED HOUSING CONSENSUS COMMITTEE

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Meeting Minutes Manufactured Housing Consensus Committee

July 23, 2026

Meeting Minutes

Manufactured Housing Consensus Committee (MHCC)

July 23, 2026

Thursday, July 23, 2026

Call to Order

The Manufactured Housing Consensus Committee (MHCC) meeting was held via video conference on Thursday, July 23, 2026. John Peavey P.E., of the Administering Organization (AO), Home Innovation Research Labs, called the meeting to order, conducted roll call, and announced that a quorum was present. MHCC members each introduced themselves and provided background information on their experience in the manufactured housing industry. See [Appendix A](#) for a list of meeting participants.

Introductions and Opening Remarks

Mary Jo Houton, Administrator of the Office of Manufactured Housing Programs and Designated Federal Official (DFO), welcomed the committee members and members of the public. She welcomed new MHCC members Clayton Camblin, Brad DeHays, Steve Ervin, Todd Kopstein, Andrew McCoy, and John Weldy. She said the MHCC plays a key role in updating 24 CFR 3280, the Manufactured Home Construction and Safety Standards (MHCSS), and that the Office of Manufactured Housing Programs seeks recommendations from the MHCC to achieve this goal. The experience and background of the MHCC members make this demanding work possible. DFO Houton then introduced and welcomed Paul M. Olin, the Acting General Deputy Assistant Secretary (Acting GDAS) for HUD's Office of Housing/Federal Housing Administration (FHA), the senior career official overseeing HUD's Office of Housing and the nation's largest mortgage insurance program.

Acting GDAS Olin welcomed the new members of the MHCC and said that HUD's leadership is proud of the committee's work. He noted that the 21st Century ROAD to Housing Act (ROAD Act) was enacted by the current administration to increase affordable housing supply and reform HUD programs, among other priorities. The ROAD Act affects two major aspects of manufactured housing that the MHCC will consider: (1) removing the permanent chassis requirement, and (2) clarifying that HUD has primary authority over energy efficiency standards for manufactured housing.

DFO Houton thanked Acting GDAS Olin for his time and willingness to address the committee. She then provided a brief history of the current HUD Code, beginning with the enactment of the 1974 Manufactured Housing Construction and Safety Standards Act, and described how the HUD Code has evolved. In the late 1990s, concerns were raised not only about the cost of manufactured housing but also about its life-cycle operation and maintenance costs. Congress later directed responsibility for manufactured housing energy conservation standards to the Department of Energy (DOE) through the Energy Independence and Security Act of 2007 (EISA), creating shared responsibility between DOE and HUD. DOE published a final rule on May 31, 2022, codifying energy conservation standards for manufactured housing under 10 CFR part 460. In September 2025, DOE published a Request for

Information (RFI) posing questions that collectively revisited key assumptions from DOE's May 2022 final rule, including baselines, cost-effectiveness, affordability, analytical methods, and implementation considerations.

The goal of this meeting was to take a fresh look at the 2022 MHCC recommendations previously submitted to HUD following the October and November 2022 MHCC meetings. Under the ROAD Act, which became effective on July 11, 2026, HUD is required to issue energy efficiency standards for manufactured housing within one year of enactment and to update them every three years thereafter. To facilitate the MHCC's discussion, HUD prepared and disseminated the "Comparative Matrix of Energy Standards" for the committee's review prior to this meeting (see Appendix D).

DFO Houton thanked everyone again for their time and introduced Tara Brunetti, MHCC Chairperson.

Chairperson Brunetti thanked DFO Houton, the rest of the committee, and the other attendees for their participation. She reiterated the goals of the meeting, which were to maintain, withdraw, or modify the 2022 MHCC recommendations (see [Appendix C](#)). Ms. Brunetti thanked HUD for producing the matrix as a means of facilitating the committee's review of the information and organizing its deliberations.

John Peavey, P.E., serving as the AO representative, requested public participants to hold their comments for the public comment periods and stated that the meeting would follow Roberts Rules of Order. Mr. Peavey noted that the matrix would be updated during the meeting and voted on at the end of the discussion period.

HUD staff and participating members of the public then introduced themselves.

Public Comment Period

See [Appendix B](#) for written public comments received prior to the meeting.

Mark Weiss, President & CEO of the Manufactured Housing Association for Regulatory Reform (MHARR), thanked the committee for the chance to speak. Mr. Weiss stated that the 2022 MHCC recommendations had been developed under duress, driven by the then-pending implementation of the DOE rule, and represented a middle ground alternative to that rule. Because the immediate implementation of the DOE rule had since been delayed, he argued that the MHCC should not revisit its prior recommendations. Mr. Weiss stated that HUD should not adopt any new energy standards other than those addressing life-safety issues, to avoid unnecessary changes. Mr. Weiss further stated that the MHCC should not move forward on the basis of four-year-old data or references, or incorporate DOE language, and that the work should instead be done from scratch. Mr. Weiss also stated that MHARR's limited opportunities to participate in MHCC meetings were being further constrained.

Lesli Gooch, Manufactured Housing Institute (MHI), thanked the committee for the opportunity to address the MHCC. Ms. Gooch informed the committee that MHI represents manufacturers producing approximately 90% of the HUD Code homes built each year. MHI submitted written comments prior to the meeting recommending that the MHCC adopt its 2022 recommendations. Ms. Gooch said those recommendations were not developed under duress, but were the result of painstaking work done by the MHCC. She added that MHI would like to see manufactured housing freed from the stigma of state

and local jurisdictions that results from the industry using old, outdated codes. She also noted that the ROAD Act reaffirmed HUD's authority to move forward.

Spenser Templeton, SMGB Law, national counsel for MHI, stated that the MHCC should act now to adopt the 2022 recommendations. She noted that new law requires HUD to adopt updated energy efficiency standards and to revise them every three years. Ms. Templeton said that the MHCC does not need to start over from scratch and was previously not under duress. While the committee had been under pressure to provide recommendations, it did not just rubber-stamp the DOE rule. She stated that the industry is ready for updated standards because today's homes are modern and efficient, and the HUD Code should reflect that.

Sarah Newman, Responsible Energy Codes Alliance (RECA), informed the committee that RECA is a broad coalition of energy efficiency professionals, regional efficiency organizations, product and equipment manufacturers, trade associations, and environmental organizations with expertise in the development, adoption, and implementation of energy codes nationwide. Ms. Newman thanked the MHCC for the opportunity to speak. She observed that site-built homes have benefited from updated standards such as requirements for windows to meet low solar heat gain standards – an important provision for homes built in the southern half of the U.S., where air conditioning loads are high. By contrast, the manufactured housing standards in the HUD Code contain no comparable requirement to reduce solar heat gain. She described this as a straightforward, low-cost solution that has benefited the owners of millions of homes in the southern states through improved comfort, lower energy costs, and cooling system savings. Ms. Newman stated that HUD has the authority to act and that updating the HUD standards is critical.

Mark Weiss responded that the proposed energy updates would be burdensome for smaller manufacturers, and that buyers who cannot afford a manufactured home because of the resulting cost increases would receive no benefit from the updated standards.

Review of the 2022 MHCC Recommendations Regarding the Energy Conservation Standards for Manufactured Housing

The MHCC recommendations to HUD, based on the committee's review of HUD's proposed changes to the Manufactured Home Construction and Safety Standards and as recorded during this meeting, can be found in Appendix C.

The MHCC agreed that updates to the energy standards in the HUD code are necessary, as those standards have not been updated since 1994, and that updating them could lower energy costs for people living in manufactured homes. MHCC member Leo Poggione asked whether, if the MHCC made changes today, HUD would still have to go through the rulemaking process. DFO Houton explained that HUD would consider the MHCC's recommendations and would still have to proceed through rulemaking. Mr. Poggione also asked about the timing of that process, and DFO Houton responded that there is time to move forward with this final review and that there is considerable support within the administration to move forward. The MHCC decided to review the matrix provided by HUD line by line.

Item 1. Nomenclature

2022 MHCC Recommendation (General Changes): The revised HUD standard would change terminology from “Uo Value Zone” to “Climate Zone” throughout the HUD standards.

The MHCC agreed that Climate Zone is commonly used and there was no further comment.

2026 MHCC Analysis: MAINTAIN

Item 2. Scope

2022 MHCC Recommendation (3280.1 Scope): The revised HUD standard would include “cooling” in the scope of HUD’s standards in addition to heat producing. Even though the current HUD Code does include standards for cooling, the term was absent from the scope statement and would now be included.

The MHCC agreed that this is a housekeeping measure addressing the scope statement in the Code.

2026 MHCC Analysis: MAINTAIN

Item 3. Cooling

2022 MHCC Recommendation (3280.2 Definitions): The revised HUD standard would include “cooling” in the definition of the term “equipment.”

The MHCC agreed that this is a housekeeping measure on the definition in the Code.

2026 MHCC Analysis: MAINTAIN

Item 4. Ventilation- Fans

2022 MHCC Recommendation (3280.103 Light and ventilation): The revised HUD standard would add prescriptive efficacy requirements for mechanical fan ventilation systems which would require testing to verify compliance or other data to meet minimum airflow rates and how well it converts energy to actual air movement. The standard varies by fan type.

In response to a question, it was confirmed that this recommendation is based on ASHRAE 62.2.

2026 MHCC Analysis: MAINTAIN

Item 5. Scope of Thermal Protection Standards

2022 MHCC Recommendation (3280.501 Scope): The revised HUD Code text would add the term “energy conservation” to the scope statement to provide clarity of the included standards. This would be consistent with overall intent of the standards.

There were no comments or suggestions to withdraw.

2026 MHCC Analysis: MAINTAIN

Item 6. Definitions for Thermal Protection Standards

2022 MHCC Recommendation (3280.502 Definitions): The revised HUD Code text would eliminate the term and definition for “thermal envelope area” and replace the term “pressure envelope” with “air barrier.” The revised HUD Code would also include the terms and definitions included in the DOE standards except that the definition of insulation would be revised to contain only aspects relevant to house insulation and the term “zone” would not be included because of potential confusion and conflict.

The committee agreed that this language is already currently in use.

2026 MHCC Analysis: MAINTAIN

Item 7. Installation Materials

2022 MHCC Recommendation (3280.503 Materials): The revised HUD Code text would replace the current general language with prescriptive component installation requirements included in the DOE rule with minor modification to the requirements for baffles that better align with industry construction. These would be all new requirements within the HUD Code.

After a discussion, the MHCC reaffirmed that the proposed language provides clarity of what is already being done by manufacturers.

2026 MHCC Analysis: MAINTAIN

Item 8. Air Infiltration

2022 MHCC Recommendation (3280.505 Air infiltration): The revised HUD Code text would add prescriptive requirements for air barrier installation criteria for: all areas addressed by DOE standards and the revised HUD Code would use same language except for four provisions for 1) Supply and return ducts; 2) Rim Joists; 3) Shower or tub adjacent to exterior wall; and 4) Windows, skylights, and exterior doors. The changes to those 4 would be to align with industry terminology and provide clarity of requirements. These would be new requirements that do not currently exist in the HUD Code.

The MHCC reaffirmed that the proposed language provides clarity of what is already being done by manufacturers although there are some slight nuances from ENERGY STAR (i.e., shower locations). There is more attention to detail, and it properly maintains the air barrier of the home.

2026 MHCC Analysis: MAINTAIN

Item 9 Uo Value Zones to Climate Zones

2022 MHCC Recommendation (3280.506 Building Thermal Envelope and Climate Zones): The revised HUD Code would revise the terminology of zones to Climate Zones instead of Uo Value Zones in paragraph a.

The Climate Zone performance requirements in paragraph b would be moved to 3280.507 and include a prescriptive pathway and requirements.

Requirements in paragraph c would remain and redesignated paragraph b.

Requirements in paragraph d would be eliminated in favor of u factor requirements for windows to be established in 3280.507.

After a brief discussion, the MHCC agreed that Climate Zone is commonly used and is similar to Item 1.

2026 MHCC Analysis: MAINTAIN

Item 10. Comfort Heat Gain

2022 MHCC Recommendation (3280.507 Prescriptive Compliance Path): The revised HUD Code text would eliminate the current language on heat gain because it would no longer be needed.

The section would be revised to contain requirements for the prescriptive and performance pathways that would apply Tier 1 requirements (with some modifications to prescriptive requirements) to single section homes and Tier 2 requirements (with some modifications to prescriptive and performance requirements) to multi-section homes. This would result in an increase in efficiency by a minimum of 5% above current code requirements for single section homes to about 25% above current requirements for multi-section homes.

Tier 1 Prescriptive Pathway:

Tier 1, Climate Zone 1

Walls – R13
Ceiling – R22
Floor – R-19
Window: 0.55
Skylight: 0.75
Door: 0.40
Glazing SHGC: 0.6

Tier 1, Climate Zone 2

Walls – R13
Ceiling – R22
Floor – R-22
Window: 0.50
Skylight: 0.55
Door: 0.40
Glazing SHGC: 0.7

Tier 1, Climate Zone 3

Walls – R19
Ceiling – R22
Floor – R-22
Window: 0.35
Skylight: 0.55
Door: 0.40
Glazing SHGC: NA

Tier 2 Prescriptive Pathway:

Tier 2, Climate Zone 1

Walls – R13
Ceiling – R30
Floor – R-13
Window: 0.50
Skylight: 0.75
Door: 0.40
Glazing SHGC: 0.6

Tier 2, Climate Zone 2

Walls – R13
Ceiling – R30
Floor – R-19
Window: 0.35
Skylight: 0.55
Door: 0.40
Glazing SHGC: 0.33

Tier 2, Climate Zone 3

Walls – R15
Ceiling – R38
Floor – R-25
Window: 0.32
Skylight: 0.55
Door: 0.40
Glazing SHGC: NA

Tier 1 Performance Pathway:

Climate Zone 1: 0.110
Climate Zone 2: 0.091
Climate Zone 3: 0.074

Tier 2 Performance Pathway:

Climate Zone 1: 0.090
Climate Zone 2: 0.076
Climate Zone 3: 0.061

During the discussion, it was pointed out that there was a typo in the proposed language regarding the Table: *Tier 2 Building Thermal Envelope Performance Requirements* (page 13 of 22). The value title should say **multi-section** instead of **single section** in the Table.

2026 MHCC Analysis: UPDATE

“Multi-Section” replaces “Single-Section” in the Tier 2 Building Thermal Envelope Performance Requirements table on page 13 of 22. All other provisions are maintained, as-is.

Reason: To fix a typo.

Item 11. Heat Loss, Heat Gain and Cooling Load Calculations

2022 MHCC Recommendation (3280.716 Equipment Sizing): The HUD Code text in 3280.508 would not be revised as ACCA manuals are not appropriate for manufactured housing where location and placement details are not known at the design stage.

There were no comments or suggestions to withdraw. Manuals J and S are specific to a sited property and are not a reasonable option for manufactured housing, because the specific home location and orientation are generally not known when homes are designed and constructed.

2026 MHCC Analysis: MAINTAIN

Item 12. Heating/ Comfort Cooling Certificates

The revised HUD Code text would generally contain the same requirements that currently exist but would be updated to reflect terminology changes (Uo Value Zone vs Climate Zone) and to simplify some of the language.

2026 MHCC Analysis: MAINTAIN

Item 13. Water/ Plumbing Terms

2022 MHCC Recommendation (3280.602 Definitions): The revised HUD standard would include modified versions of the definitions for “distribution manifold” and “heated water circulation system” as they are not contained in the current code, and would add the term for “hot water supply” (instead of using DOE’s term of “service hot water,” as the latter is not typical to the manufactured housing industry).

2026 MHCC Analysis: MAINTAIN

Item 14. Water Distribution Systems

2022 MHCC Recommendation (3280.609 Water distribution systems): The revised HUD standard would include requirements for the installation of heated water circulation systems and establish new insulation requirements for hot water supply pipes outside of conditioned spaces.

There were no comments or suggestions to withdraw. It was noted that if there were water lines outside of the thermal envelope, this change would address it; however, it is not common.

2026 MHCC Analysis: MAINTAIN

Item 15. Definitions for Heating, Cooling and Fuel Burning Systems

2022 MHCC Recommendation (3280.702 Definitions): The HUD standard would be revised to include both definitions in the DOE standard and would eliminate the existing standard for air duct since it would be duplicative.

There were no comments or suggestions to withdraw.

2026 MHCC Analysis: MAINTAIN

Item 16. Thermostats

2022 MHCC Recommendation (3280.704 Thermostats and Controls); and 2022 MHCC Recommendation (3280.707 Heat Producing Appliances): The revised HUD standard would eliminate the existing standard at 3280.707(e) and instead use the reserved section to 3280.704 to merge the existing requirement at 707(e) with DOE's standards for thermostat location and placement. The revision would also incorporate requirements for any programmable thermostat that is installed but would not require the home manufacturer to pre-program thermostats. Instead, it would provide recommended set points in consumer-facing literature.

It was noted that the MHCC affirmed its previous recommendation and did not recommend requiring programmable thermostats; however, any programmable thermostat that is installed would need to meet the recommended requirements.

2026 MHCC Analysis: MAINTAIN

Item 17. Appliances/ Cooling

2022 MHCC Recommendation (3280.714 Appliances, Cooling): The revised HUD Code text would refer to SEER2 ratings aligning with more recent EPA requirements. As of January 2023, the HVAC industry has transitioned from SEER to SEER2, which uses a more rigorous testing procedure.

The MHCC agreed that this is a housekeeping measure since only SEER2 products are available in the marketplace.

2026 MHCC Analysis: MAINTAIN

Item 18. Circulating Air Systems

2022 MHCC Recommendation (3280.715 Circulating air systems): The revised HUD standard would incorporate duct leakage requirements that depend on whether the duct system is completely inside the thermal envelope. A more stringent requirement for duct leakage limit would apply to duct systems installed outside of the thermal envelope. The HUD Code text would also be revised to include minimum test frequency.

The MHCC recommendation includes requirements generally consistent with the DOE rule and adds an alternative for duct systems inside the thermal envelope. The MHCC modified the provisions to make it more applicable for manufactured housing.

John Weldy and Phil Copeland recommended removing the prior recommendation that “Manufacturers must perform an IPIA witnessed duct leakage test at least once per month,” (with thanks to Mark Weiss for his research). Manufacturers can create in-house documentation to demonstrate compliance with leakage limits; the MHCC concluded that requiring a third-party IPIA to observe testing on a monthly basis would clearly add unnecessary costs.

2026 MHCC Analysis: UPDATE

Remove item (4)(c)

Reason: The redundant inspection is a financial burden for manufacturers. The manufacturers’ quality assurance program and documentation of test results are sufficient to demonstrate and maintain compliance (page 19 of 22).

Public Comment Period

Mark Weiss, MHARR, thanked the committee for its work on Item 18 (circulating air systems) but cautioned that these updates would become the baseline for cost increases in the future and that the eventual costs in 2026 remain unknown. Mr. Weiss stated that he believed there was a level of pre-orchestration to rubber-stamp these recommendations.

Leslie Gooch, MHI, thanked everyone for their hard work on the teleconference today. Ms. Gooch referenced an MHI letter provided just before this meeting containing signatures of manufacturers (Adventure Homes, Cavco Industries, Champion Homes, Clayton Homes, Deer Valley Homebuilders, Jessup Housing, Kabco Builders, Inc., Live Oak Homes, and Timber Creek Housing) in support of the MHCC’s 2022 recommendations. The MHCC’s 2022 recommendations provide a practical, cost-effective, and carefully vetted path to modernizing the HUD Code. She quoted from the letter, “Most manufacturers already construct homes that meet or exceed the performance levels reflected in the 2022 recommendations. HUD should move forward with modernizing the Code so that the written standards align with the homes being built today.” Updating the HUD Code does not represent a cost increase – it just brings the Code up to date on what is already being built today. She said it is time to move on to the chassis discussions.

Spenser Templeton, SMGB Law, thanked the committee for its practical and balanced approach to the proposed changes. Ms. Templeton agreed with Ms. Gooch on the need to modernize the Code, noting that some cities discriminate against manufactured housing in part due to outdated standards, and stated that the industry is ready for these updates.

Sarah Newman, RECA, reiterated the need to include low solar heat gain requirements for windows and provided detailed examples of changes that should be made.

John Weldy responded to Ms. Newman, thanking her for her work on the topic and encouraging her to submit her proposed changes in the next cycle. John Peavey provided the link for members of the public to submit proposals for HUD Code changes.

Grant Beck noted that the new housing law requires ongoing updates and that the committee should continue to look for ways to improve energy efficiency, as this is not a one-time issue.

Following a public comment period, the MHCC was ready for a motion on its work.

MHCC Motion: Requesting the AO to submit to HUD the comments/actions recorded at this meeting regarding Review of the 2022 MHCC Recommendations Regarding the Energy Conservation Standards for Manufactured Housing.

Maker: Joseph Sullivan

Second: Jim Hightower

The motion was unanimously carried with 16 votes.

Tara Brunetti, Chairperson, thanked the committee for their work and appreciated the effort it took to review the items line by line.

DFO Houton also thanked the MHCC and members of the public for their participation and expertise, noting that participants have very busy schedules and that the detailed review was appreciated.

Adjourn

The motion to adjourn the meeting was carried.

Certification of Minutes

I hereby certify that, to the best of my knowledge, the foregoing minutes are accurate and complete.

Tara Brunetti
Manufactured Housing Consensus Committee Chair
Certified via email on September 25, 2026

Appendix A: MHCC Attendance and Guests

MHCC Attendance July 23, 2026

	Name	July 23, 2026
General Interest / Public Official	Tara Brunetti	Y
	Brad DeHays	Y
	Steve Ervin	Y
	Jim Hightower	Y
	Kaye Lawlis	Y
	Shelonda Marie-Alves	
	Randy Saunders	
Producer	Phillip Copeland	Y
	Jayar Daily	Y
	Robert Gann	
	Todd Kopstein	Y
	Leo Poggione	Y
	Sean Roberts	Y
	John Weldy	Y
	Grant Beck	Y
User	Clayton Camblin	Y
	David Kruczek	Y
	Andrew McCoy	
	Tim Sheahan	Y
	Evon Smith	
	Joseph Sullivan	Y

HUD Staff:

Mary Jo Houton, DFO
Jason McJury, Alternate DFO
Geraldine Aguolu
Barry Ahuruonye
Wisam Alhajjaj
Dennaire Anderson
Adrian Browner
Cheryl Borgstrom
Tommy Daison
Ryan Eaton
Alan Field
Ian Georgiev
Mike Hollar
Leo Huott
John Jacobs
Janet Li
Sam Lupas
James Martin
Alastair McFarlane
Paul Olin
Glorianna Peng
Ruth Roman
Demetress Ross
Jun Shi
Kisha Sidberry
Angelo Wallace

**AO Staff, Home Innovation
Research Labs:**

John Peavey, P.E.
David Mallay
Tynica Stefun
Tanya Akers

Guests:

Dave Anderson
Nawroz Aziz
Catherine Brown
Joe Boros, Rheem
Mark Bowersox
Samantha Coppinger
Nick Dampf
Suraj Dutta
DWC
Drew Esche-Lyon
Mary Gaiski
John Geigley
Lesli Gooch, MHI
Harry Hodum
Asama Judge
Mark Kresowik
Jeff Legault
Benjamin Lowen
Michael Moglia
Tara Mooney
Sarah Newman, RECA
Chris Owens
Carrie Paine
Lisa Przytulski
Matthew Rabkin
Raya Rahman
Steven Saffell
William Sherman
Roger Sorenson
Donald Stanton
Constance Talley
Spencer Templeton, SMGB Law
Todd Hochstetler
James Turner
Mischelle VanReusel
Chris Waldrep
Daniel Weber
Mark Weiss, MHARR
Julian Yowell



MANUFACTURED HOUSING CONSENSUS COMMITTEE

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APPENDIX B

Written Public Comments

July 23, 2026

Written Public Comments

Public Comments Received for July 23, 2026 MHCC Meeting

1 Andrew McCoy, Virginia Tech

2 Mark Weiss, MHARR

3 Tony Kovach, LifeStyle Factory Homes LLC

4 Lesli Gooch, MHI

Comments to the Manufactured Housing Consensus Committee

Review of the Energy Conservation Standards for Manufactured Housing

Re: Docket No. FR-6549-N-03 — MHCC Meeting of July 23, 2026, Agenda Item 7

Submitted by: Andrew P. McCoy, Ph.D. — Member, MHCC (2026–2028); Beliveau Professor and Associate Director for Research and Innovation, Myers-Lawson School of Construction, Virginia Tech; Director, Virginia Center for Housing Research (apmccoy@vt.edu)

Date: July 13, 2026

As a member of the Manufactured Housing Consensus Committee unable to attend the July 23 meeting, the following thoughts are guided by one main principle: manufactured housing is the nation's largest source of unsubsidized affordable homeownership, and any energy provision should be judged by whether it *broadens* access to durable, lower-operating-cost homes, not whether it adds first cost or field complexity.

1. Overview

The affordability of manufactured housing comes from the factory. Energy measures that can be built and verified on the production line, insulation, air-sealing, high-performance windows, and factory-installed efficient equipment, are low-cost, repeatable, and confirmed through in-plant inspection before the home ships. The concern is not energy performance itself, which delivers real value in lowering operating costs and increasing comfort and durability. The concern is the difference between measures completed in the factory and measures that must be completed or tested on site. Work finished in the field, like marriage-line sealing, crossover-duct connections, belly and skirting work, site-added insulation, or whole-house airtightness and duct-leakage tests performed after installation, depends on installer skill, weather, and scheduling, and reintroduces cost, quality variability, and delays the factory model exists to eliminate. A standard that captures cost-effective, factory-achievable performance will advance affordability; one that pushes work and verification to the site could present barriers to it.

2. Barriers and Opportunities

Barriers

- **Financing.** Manufactured homes are uniquely price-sensitive, and many are financed as personal property, where efficiency upgrades are not capitalized into value or offset by cheaper financing. Every added first-cost dollar risks pricing out buyers at the margin.
- **Work that must be completed on site.** Marriage-line insulation and air-sealing, crossover-duct connections, belly and skirting work, and site-added insulation depend on installer skill and field conditions, raising cost and quality risk relative to the controlled production line.
- **On-site testing and verification.** Standards that hinge on site-verified whole-house airtightness or duct-leakage testing move compliance out of the factory, create scheduling and enforcement bottlenecks, and make a home's certification dependent on field conditions and risks.
- **Site-built code mismatch.** Prescriptive values drawn from site-built codes, like wall-cavity depths, fenestration assumptions, and floor or foundation details, do not necessarily translate to factory assemblies and can present avoidable rework.
- **Equipment sizing and transportation.** HVAC sizing rules borrowed from site-built codes can force oversized or mismatched systems that add cost without benefit in a tight, well-sealed home. Similarly, specialized MH equipment that does not translate to site-built systems may raise maintenance costs.
- **Uneven impact.** The most stringent energy requirements can fall hardest on smaller manufacturers, the stakeholders delivering the most affordable homeownership with the least margin to absorb retooling.

Opportunities

- **Factory-completable measures are cheap and reliable.** Envelope insulation, factory air-sealing, high-performance windows, and factory-installed efficient equipment, including cold-climate heat pumps and heat-pump water heaters, are repeatable in-plant.
- **Verification without site testing.** In-plant inspection already confirms these measures, so compliance can be demonstrated at the factory stage rather than through field testing.
- **Financing and incentives capture savings.** FHA Title I lending, Duty to Serve chattel pilots, energy-efficient and on-bill options, ENERGY STAR Manufactured New Homes, and utility programs could let buyers capture savings without carrying first cost.
- **Innovation and workforce.** Factory-based performance integrates the industrialized-construction and advanced-materials research already underway and creates workforce opportunities.

3. Recommendations

Offered in summary form; each is intended to expand affordable options without adding first cost or field complexity.

1. **Keep energy-code items to what can be completed and verified in the factory.** Avoid requirements that push work or testing to the site.
2. **Base compliance on factory-verifiable measures.** Use component values or a factory-stage demonstration confirmed through in-plant inspection, rather than on-site whole-house airtightness or duct-leakage thresholds.
3. **Provide standardized details where site work is unavoidable.** For the marriage line and crossover ducts, specify factory-prepped details and clear installer protocols instead of performance thresholds tested in the field.
4. **Calibrate stringency to how manufactured homes are actually financed.** Use an MH-specific total-cost-of-ownership test that reflects financing reality, and cap incremental first cost for single-section homes so the standard resists pricing out entry-level buyers.
5. **Pair the standard with financing and incentive tools.** Efficiency is financed and its savings reach the buyer rather than added to purchase price.
6. **Phase in with lead time and small-manufacturer flexibility.** Ground values in factory pilot and post-occupancy data with scheduled review by HUD.

Summary at-a-glance

Barrier	Recommended action	Benefit
Work / testing pushed to the site	Keep code items factory-completable; verify in-plant	Lower cost, consistent quality, no field bottlenecks
First cost / chattel financing	MH cost-of-ownership test; first-cost cap on single-section homes; pair with financing	Keeps entry-level homes affordable; savings reach buyers
Site-built code mismatch	Factory-appropriate values; standardized details for unavoidable site work	Avoids rework; rewards factory precision
Impact on smallest homes and firms	Phase-in, retooling runway, flexibility	Protects competition and the most affordable segment



Manufactured Housing Association for Regulatory Reform

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July 13, 2026

VIA FEDERAL EXPRESS AND ELECTRONIC SUBMISSION

Manufactured Housing Consensus Committee
C/O Home Innovation Research Labs
Administering Organization
400 Prince George's Boulevard
Upper Marlboro, Maryland 20774

Re: Manufactured Housing Consensus Committee Meeting July 23, 2026
Energy Conservation Standards for Manufactured Housing

Dear Members of the Manufactured Housing Consensus Committee:

The Manufactured Housing Association for Regulatory Reform (MHARR) submits the following comments in connection with the Manufactured Housing Consensus Committee's (MHCC) consideration of certain "Energy Conservation Standards for Manufactured Housing" as set forth in a U.S. Department of Housing and Urban Development (HUD) Federal Register notice published on July 8, 2026.¹ That notice states, in relevant part, that the "tentative agenda" for the meeting will include a "review" of "the Energy Conservation Standards for Manufactured Housing."² (Emphasis added). The said notice – affirmatively required by statute³ – does not further elaborate for the information of regulatory stakeholders, other interested parties, or the public, exactly which (or what) "Energy Conservation Standards for Manufactured Housing" are being referred to. This and other more fundamental failures pertaining to this action are addressed in detail below. Ultimately, however – and in accordance with Executive Order 14394, "Removing Regulatory Barriers to Affordable Home Construction"⁴ -- the MHCC should reject the development and/or adoption of any new or further manufactured housing energy standards absent a specific, compelling and detailed showing by HUD of the need for any such standards at the time of an unprecedented shortage of affordable housing and homeownership.

¹ See, 91 Federal Register No.129, (July 8, 2026), "Notice of a Federal Advisory Committee Meeting: Manufactured Housing Consensus Committee (MHCC)" at p. 42210.

² Id.

³ See, 42 U.S.C. 5403(a)(3)(G)(i): "The consensus committee shall provide advance notice of each meeting of the consensus committee ... and cause to be published in the Federal Register advance notice of each such meeting." Further, pursuant to 42 U.S.C. 5403(a)(3)(A)(iv), the MHCC is deemed a federal advisory committee subject to the Federal Advisory Committees Act.

⁴ See, 91 Federal Register, No. 52, (March 15, 2026) "Removing Regulatory Barriers to Affordable Home Construction" at p. 13207, et seq., attached hereto.

COMMENTS

1. THE MEETING NOTICE FAILS TO PROVIDE INTERESTED PARTIES A VALID AND LEGITIMATE OPPORTUNITY TO COMMENT

As a federal advisory committee subject to the Federal Advisory Committees Act (FACA)⁵, the MHCC plays an important and vital role in the development and review of HUD Manufactured Housing Construction and Safety Standards. In that role, the MHCC must have access to and must receive and consider the views, interests and concerns of all affected stakeholders and the public at large. In order to ensure that federal advisory committees such as the MHCC can receive and consider such input at a relevant stage – and in a relevant manner – during its proceedings, federal regulations issued pursuant to FACA require, among other things, that an agency conducting such a meeting, provide:

“(a) A notice in the Federal Register [which] must be published at least 7 calendar days prior to an advisory committee meeting, which includes: ***

(4) A summary of the agenda, and/or topics to be discussed and instructions on how to access meeting materials.”

In the case of the present MHCC meeting, the notice provided in the July 8, 2026 Federal Register is wholly and completely inadequate to meet the requirements and purpose of this mandate.

The FACA regulations are clearly designed to allow stakeholders, interested parties and the public a legitimate and valid opportunity to comment -- in advance and at the time of the meeting – on the subject matter that will be addressed by the federal advisory committee in question, in this case the MHCC. The publication of a meeting notice, however, referencing only “*the Energy Conservation Standards for Manufactured Housing*,” without further specifying whether those standards are the U.S. Department of Energy (DOE) “final” standards published on May 31, 2022, or some other alleged “standards” that have not previously been published, proposed or provided to the public, is to effectively provide no notice at all, and is a de facto and de jure denial of the Due Process (and statutory) right of stakeholders and other interested parties to comment.

Accordingly, the ambiguity of the purported MHCC meeting notice and its failure to properly identify the specific subject matter to be addressed at the meeting is a fatal flaw and defect in this proceeding and MHARR reserves its right to pursue all applicable legal remedies to address this deliberate violation of FACA, federal manufactured housing law and Due Process.

2. THERE IS NO VALID OR LEGITIMATE BASIS FOR HUD TO CONSIDER ANY NEW OR FURTHER ENERGY MANDATES FOR MANUFACTURED HOMES

While the Federal Register notice for the July 23, 2026 MHCC meeting is fatally ambiguous and deficient in that it fails to identify which – or what – manufactured housing “Energy Conservation” standards the MHCC will be “considering” at its meeting, that failure, ultimately,

⁵ See, 5 U.S.C. App. 1001, et seq.

is substantively irrelevant, insofar as neither the MHCC nor HUD should be considering *any* new or further manufactured housing construction and safety standards regarding “energy conservation” absent a specific and compelling showing of need and cost-justification in the context of a multi-million unit affordable housing shortage. And no such showing has been made – or *could be made*.

Any action by either the MHCC or HUD to consider new or further energy conservation standards for manufactured homes, is subject to the directives set out by President Trump in Executive Order 14394, “Removing Regulatory Barriers to Affordable Home Construction,” issued on March 13, 2026 (EO). That EO states, in relevant part:

“Layers of unnecessary regulatory barriers ... and onerous mandates at all levels of government have ... driven up the costs of new housing. These constraints have made housing less affordable for many Americans. It is the policy of my Administration to reduce regulatory barriers to building homes and to ... promot[e] housing affordability.”

(Emphasis added).

And so as to leave no doubt whatsoever that this directive includes and embraces manufactured home energy conservation standards, EO 14394 further states, specifically:

“[T]he Secretary of Housing and Urban Development [and] the Secretary of Energy ... shall, within their respective authorities, take appropriate action to reform and, where appropriate, eliminate unduly burdensome or costly energy-efficiency ... requirements regarding housing, including manufactured housing, to the maximum extent practicable.... Such action shall include ... (i) the Energy Conservation Program’s Energy Conservation Standards for Manufactured Housing.”

(Emphasis added).

From this EO, it is clear that instead of reviewing, developing or considering the development and/or adoption of new or further manufactured home energy standards, any such development activity should be terminated and abandoned and the MHCC should not be presented with or asked to consider any such new or further standards. This includes not only the moribund and officially-deferred DOE May 31, 2022 “final” manufactured home energy standards, but also the development of any possible new or further HUD Manufactured Housing Construction and Safety Standards pertaining to “energy conservation” absent a compelling and evidentiary-based showing of need – of which there has been none.

Any action by HUD – via the Office of Manufactured Housing Programs (OMHP) or otherwise – to advance any such standards would violate EO 14394 and would be aggressively opposed through any and all means necessary by MHARR.

Instead of allowing program-level personnel to violate and undermine the public policy priorities of President Trump designed to foster the availability and utilization of affordable

housing and promote homeownership – the same federal purposes as the Manufactured Housing Improvement Act of 2000⁶ -- HUD Secretary Scott Turner should and must ensure that needless, unnecessary and discriminatory high-cost energy regulations are not imposed on HUD-regulated manufactured housing. In this respect, Secretary Turner should act in a manner consistent with the policy model set by DOE Secretary Chris Wright who, consistent with EO 14394, has acted in recent weeks: (i) to repudiate the 2024 International Energy Conservation Code (IECC) – and earlier iteration of which forms the basis and underpinning for the May 31, 2022 “final” DOE manufactured housing “energy” standards; and (ii) to “permanently end” unnecessary energy mandates for home appliances and equipment.

Rather than allowing President Trump’s goal of housing affordability and availability to be undermined by OMHP, HUD Secretary Turner – and the MHCC – must ensure that inherently affordable manufactured homes and homebuyers are not needlessly burdened and excluded from homeownership by baseless, unnecessary, discriminatory and unduly onerous fraudulent “energy” mandates.

This same analysis applies, moreover, regardless of whether the present MHCC meeting has been noticed for further consideration of the DOE standards or for consideration of some other – as yet undisclosed – proposed energy mandates.

CONCLUSION

For all of the foregoing reasons, the MHCC should – and must – reject any new and/or further HUD manufactured housing “energy conservation” standards that: (i) are identical to or in any way derived from, based upon, or in any way related to the “final” DOE manufactured housing energy conservation standards published on May 31, 2022; or (ii) have not been developed in toto, and from the outset, through an independent, legitimate and consensus-based statutory development process based on specific, credible evidence regarding the purchase price, market and competitive impacts of any such standards. Instead, in accordance with Executive Order 14394, the MHCC should reject the imposition of any new or further unnecessary and costly energy mandates on manufactured homes via the HUD Code unless and until a valid and legitimate cost-justified basis for any such new or further standards is demonstrated with valid, credible and compelling evidence.

While the MHCC, at its January 2026 meeting, (again) rejected the DOE May 31, 2022 manufactured housing energy standards stating:

“The most constructive path forward is for HUD and the MHCC to develop energy efficiency improvements that are specifically designed for manufactured housing that account for the unique aspects of factory-built construction, that preserve the

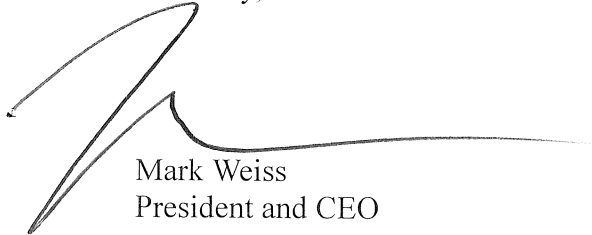
⁶ See, 42 U.S.C. 5401(b)(2): “The purposes of this chapter are -- *** (2) to facilitate the availability of affordable manufactured homes and to increase homeownership for all Americans.

affordable housing mission of the industry and ... maintain reasonable consumer choice,”⁷

those comments were made prior to the issuance of EO 14394 and its specific directive to “eliminate” “to the maximum extent practicable” “unduly burdensome or costly” energy-efficiency requirements regarding housing, specifically including “Energy Conservation Standards for Manufactured Housing.”

In accordance with EO 14394, neither the MHCC nor HUD should be developing, considering, evaluating or adopting any new “energy conservation” standards that would needlessly increase the purchase acquisition costs of manufactured housing during an unprecedented affordable housing crisis. Any such effort to impose unnecessary new or further regulations on manufactured homes should be fully and completely rejected.

Sincerely,

A handwritten signature in black ink, appearing to read 'Mark Weiss', with a long horizontal flourish extending to the right.

Mark Weiss
President and CEO

cc: Hon. Donald J. Trump
Hon. Scott Turner
Hon. Scott Bessent
Hon. Kelly Loeffler
Hon. Russell Vought
HUD Code Manufactured Housing Industry Manufacturers

⁷ See, Meeting Minutes, Manufactured Housing Consensus Committee, January 27 & 28, 2026, Appendix C at p. 2.

Presidential Documents

Executive Order 14394 of March 13, 2026

Removing Regulatory Barriers to Affordable Home Construction

By the authority vested in me as President by the Constitution and the laws of the United States of America, it is hereby ordered:

Section 1. Purpose. The American dream of homeownership depends on a dynamic housing market in which a varied inventory of new homes is built and renovated each year. Layers of unnecessary regulatory barriers, slow permitting processes, and onerous mandates at all levels of government have delayed construction, restricted development, and driven up the costs of new housing. These constraints have made housing less affordable for many Americans.

It is the policy of my Administration to reduce regulatory barriers to building homes and to steward taxpayer dollars in a manner that promotes housing affordability.

Sec. 2. Targeting Federal Regulatory Barriers to Residential Development.

(a) The Secretary of the Army, acting through the Assistant Secretary of the Army for Civil Works, and the Administrator of the Environmental Protection Agency shall review and revise requirements related to stormwater, wetlands, lakes, rivers, and other bodies of water to reduce housing construction and ownership costs, streamline regulatory and agency decision-making processes, reduce property tax burdens, and increase insurability, as appropriate and consistent with applicable law. Such requirements shall include:

- (i) the Construction General Permit for stormwater discharges from construction activity;
- (ii) federally issued Total Maximum Daily Loads;
- (iii) construction site and post-construction requirements for Municipal Separate Stormwater System permits;
- (iv) Federal standards for permits under section 404 of the Clean Water Act (CWA), 33 U.S.C. 1344, for the discharge of dredged and fill material into waters of the United States; and
- (v) Federal standards for assumption of dredge and fill permitting by States and tribes under section 404(g) of CWA.

(b) The Secretary of Commerce, the Secretary of Housing and Urban Development, the Secretary of Transportation, and the Director of the Federal Housing Finance Agency (FHFA) shall, within their respective authorities, consider eliminating unduly burdensome rules and reforming programs that constrain residential development and impede housing affordability, especially the construction of affordable single-family homes as well as suburban and exurban neighborhoods, including, as needed:

- (i) the Economic Development Administration's guidelines and investment priorities concerning development density;
- (ii) the Department of Transportation's Reconnecting Communities Pilot Program;
- (iii) the Department of Housing and Urban Development's Pathways to Removing Obstacles to Housing Program; and
- (iv) the FHFA's guidelines and regulations regarding chattel lending for manufactured housing and incentivizing low-balance home mortgages.

(c) The Secretary of Agriculture, the Secretary of Housing and Urban Development, the Secretary of Energy, and the Director of FHFA shall, within their respective authorities, take appropriate action to reform and, where appropriate, eliminate unduly burdensome or costly energy-efficiency, water-use, or alternative-energy requirements regarding housing, including manufactured housing, to the maximum extent practicable and consistent with applicable law. Such action shall include reviewing and revising, as needed:

(i) the Energy Conservation Program's Energy Conservation Standards for Manufactured Housing;

(ii) the Adoption of Energy Efficiency Standards for New Construction of HUD- and USDA-Financed Housing;

(iii) residential building energy codes subject to review by the Secretary of Energy; and

(iv) water and energy efficiency improvement standards for FHFA's duty to serve underserved market properties.

Sec. 3. Streamlining Federal Permitting Requirements for Residential Development. (a) The Chairman of the Council on Environmental Quality shall provide guidance to executive departments and agencies (agencies) on implementing the National Environmental Policy Act of 1969, including through the establishment, adoption, or application of categorical exclusions, in a manner that maximally exempts or reduces burdens on housing construction, preservation, adaptive re-use, and infrastructure that facilitates housing construction, such as roads, water, sewer, and other projects.

(b) The Chairman of the Advisory Council on Historic Preservation shall develop guidance on maximally exempting, or reducing burdens on, housing construction and infrastructure that facilitates housing construction, such as roads, water, sewer, and other projects under section 106 of the National Historic Preservation Act so that reporting requirements are no more burdensome than necessary.

Sec. 4. Boosting Housing Affordability Through State and Local Regulatory Best Practices. (a) Within 60 days of the date of this order, the Secretary of Housing and Urban Development, in coordination with the Assistant to the President for Domestic Policy, shall develop and promulgate a series of regulatory best practices for State and local governments to promote housing construction and affordability, including:

(i) streamlining permitting processes for housing developments by, for example, capping permitting timelines and fees; allowing by-right development for single-family homes; limiting retroactive application of new or changed building codes; allowing third-party inspections and appropriate builder choice on certified entities for inspections and studies; and ensuring swift dispute resolution with government agencies and private parties regarding construction matters;

(ii) curtailing mandates that increase housing construction costs, such as green-energy building requirements or other energy-choice restrictions, non-evidence-based building codes, and unreasonable building-code-adoption timelines;

(iii) re-examining restrictions on the use of manufactured or modular housing on the basis of the construction method rather than objective standards for building and safety, aesthetic requirements, or prohibitions on construction when comparable site-built housing is permitted; and

(iv) removing arbitrary limitations on residential housing development beyond urban centers, such as urban growth boundaries, growth moratoria, and commuting penalties.

(b) The Secretary of Agriculture, the Secretary of Housing and Urban Development, the Secretary of Transportation, and the Administrator of the Environmental Protection Agency shall, within their respective authorities, take steps to revise, as appropriate and consistent with applicable law,

regulations, guidance, grant applications and requirements, technical assistance, and other relevant agency documents or practices to advance the best practices issued pursuant to subsection (a) of this section.

Sec. 5. *Facilitating New Residential Construction in Opportunity Zones.*

(a) The Secretary of the Treasury and the Secretary of Housing and Urban Development shall jointly evaluate Administration actions to better align programs and incentives with the Opportunity Zone tax incentives to expand investment in single-family home construction, including considering lawful mechanisms to link grants, financing tools, or other incentives with new or increased investment in Qualified Opportunity Funds engaged in the development and sale of single-family homes.

(b) The Secretary of the Treasury and the Secretary of Housing and Urban Development shall also assess opportunities to coordinate the Opportunity Zone incentives described in subsection (a) of this section with the New Markets Tax Credit under 26 U.S.C. 45D to promote single-family home construction in census tracts that qualify both as Qualified Opportunity Zones and as low-income communities for the purposes of the New Markets Tax Credit.

Sec. 6. *General Provisions.* (a) Nothing in this order shall be construed to impair or otherwise affect:

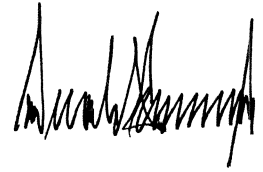
- (i) the authority granted by law to an executive department or agency, or the head thereof; or
- (ii) the functions of the Director of the Office of Management and Budget relating to budgetary, administrative, or legislative proposals.

(b) This order shall be implemented consistent with applicable law and subject to the availability of appropriations.

(c) This order is not intended to, and does not, create any right or benefit, substantive or procedural, enforceable at law or in equity by any party against the United States, its departments, agencies, or entities, its officers, employees, or agents, or any other person.

(d) If any provision of this order, or the application of any provision or circumstance, is held to be invalid, the remainder of this order and the application of its provisions to any other persons or circumstances shall not be affected thereby.

(e) The costs for publication of this order shall be borne by the Department of Housing and Urban Development.

A handwritten signature in black ink, appearing to be a stylized name with a prominent initial.

THE WHITE HOUSE,
March 13, 2026.

[FR Doc. 2026-05388
Filed 3-17-26; 11:15 am]
Billing code 4210-67-P

From the Desk of **L. A. “Tony” Kovach**

HUD REGULATORY COMMENTS

FOR

MANUFACTURED HOUSING

CONSENSUS COMMITTEE (MHCC) MEETING

 **Energy Conservation Standards for Manufactured Housing**

 **JULY 23, 2026**

 mhcc@homeinnovation.com

 **HUD**
U.S. Department of Housing and Urban Development

OFFICIAL COMMENTS TO THE MHCC
ENERGY CONSERVATION STANDARDS FOR MANUFACTURED HOUSING

 **MHPRONEWS.com**
Industry News, Tips and Views Pros can Use.

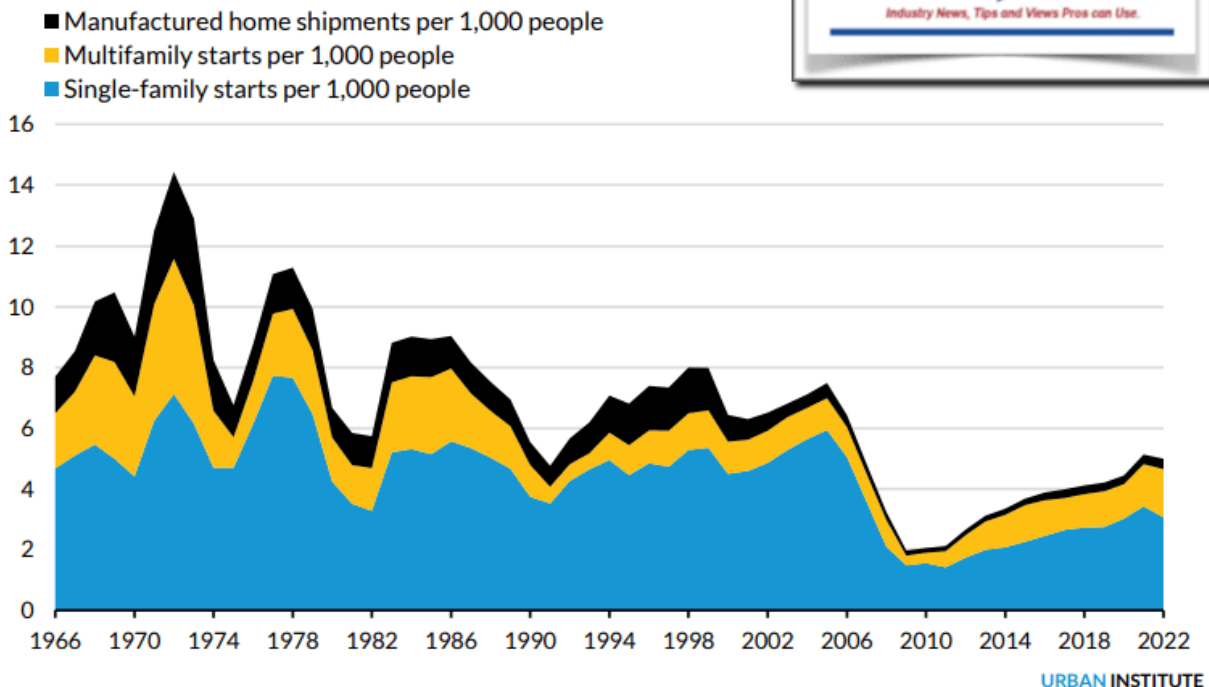
 **FACTS MATTER** |  **EVIDENCE COUNTS** |  **AFFORDABLE HOUSING FOR ALL** |  **RESPONSIBLE REGULATION** |  **REAL SOLUTIONS REAL IMPACT**

My name is [L. A. “Tony” Kovach](#), and I am the co-founder and publisher of [ManufacturedHomeProNews.com](#) ([MHProNews.com](#)) and [ManufacturedHomeLivingNews.com](#) ([MHLivingNews.com](#)), both DBAs of LifeStyle Factory Homes LLC of which I am a managing member. I am also a columnist at [HousingWire](#). During my academic years, I won [numerous awards in history](#), including the Lottinville Award at the University of Oklahoma. I began work in the manufactured home industry’s once robust retail sector in the early 1980s, circa 1981. While I have spent a few years involved since then in RVs and trade show marketing, etc. I’ve spent all told over 35 years involved in some aspect of the HUD Code manufactured home industry, including years in management in the manufactured home community sector, plus years doing consulting and providing marketing services to some of the largest brands in our industry as well as to independently owned firms as well. These comments are [my expert views](#) OR are the compilation by clearly identified and auditable artificial intelligence (AI) responses to my professional human in the loop (HITL) prompts. Let me cut to the chase and then elaborate. In accordance to Executive Order 14394, “Removing Regulatory Barriers to Affordable Home Construction”^[1] -- **the MHCC should reject the development and/or adoption of any new or further manufactured housing energy standards absent a specific, compelling and detailed showing by HUD of the need for any such standards at the time of a multiple million unit shortage of affordable housing in the U.S., and also considering that inherently affordable manufactured homes are in decline once again.** Note that [MHARR holds a similar view](#).

FIGURE 1

Population-Adjusted Housing Starts

Population-adjusted housing production falls below historic averages



Source: Urban Institute calculations using data from the Current Population Survey, the American Community Survey, the Decennial Census, and the Survey of Construction.

Note: Population-adjusted construction is single-family units (housing one to four households) plus multifamily units plus manufactured housing built per 1,000 people.

LACK OF HOUSING SUPPLY IS LARGELY RESPONSIBLE FOR HIGH PRICES AND RENTS

5

Teasing a pull-quote from #16 below.

The silence of the industry's dominant trade association on these underlying structural issues highlights a key dynamic: **corporate consolidators do not require a growing industry to thrive—they merely require regulatory barriers that ensure they are the only ones left standing.**

1. It was recently brought to my attention that Janet Thome of the TinyHouseAllianceUSA.org, posted on the Tiny House website the following detailed and evidence-based allegations, which included HUD documents: <https://www.tinyhouseallianceusa.org/hud-funds-fast-track-icc-nibs-modx-monopoly/> Her research was submitted to various third-party artificial intelligence (AI) platforms which found her research to be grounded in numerous documents and was well-reasoned. What struck me about Thome's thinking is that it is similar in certain respects to

what the late [Doug Gorman](#) said in a guest column to [MHProNews](#) some 15 years ago. One person inside the industry (Gorman), one person on the outside looking in (Thome), and both were making the argument that HUD Code manufactured housing was being deliberately subverted. Thome perhaps went further by asserting that HUD was playing a role in that subversion. Gorman's remarks were in the context of the [IBISWorld](#) research at that time and related reporting by the *Atlantic* which asserted that 'mobile home' retail was 'the fastest dying business' at that time. More on some of these insights further below.

according to a new report from [IBISWorld](#).

IBISWorld and the Atlantic said independent Manufactured Home "Dealers" were among the fastest dying industries in the country. The same reports said that vertically integrated companies would thrive. Is trusting MHI part of the problem?

10 Key Dying Industries

	Revenue 2010 (\$ million)	Decline 2000-10 (%)	Forecast Decline 2010-16 (%)
Wired Telecommunications Carriers	154,096	-54.9	-37.1
Mills	54,645	-50.2	-10.0
Newspaper Publishing	40,726	-35.9	-18.8
Apparel Manufacturing	12,800	-77.1	-8.5
DVD, Game & Video Rental	7,839	-35.7	-19.3
Manufactured Home Dealers	4,538	-73.7	-62.0
Video Postproduction Services	4,276	-24.9	-10.7
Record Stores	1,804	-76.3	-39.7
Photofinishing	1,603	-69.1	-39.1
Formal Wear & Costume Rental	736	-35.0	-14.6

Composite images from *The Atlantic*, collage credit by the Daily Business News on [MHProNews.com](#), provided under Fair Use Guidelines.

[caption id="attachment_131341" align="aligncenter" width="600"]



<https://www.manufacturedhomepronews.com/examining-derek-thompsons-atlantic-report-on-mobile-home-retail-market-as-fastest-dying-business-in-america/> [/caption]

2. It also struck me that what Thome and Gorman said in their own words was foreshadowed by various regulatory comments filings by the [Manufactured Housing Association for Regulatory Reform](#) (MHARR).

https://www.fhfa.gov/sites/default/files/rulemaking_comments/Attachments/10514/014877.ANPRM%2074%20FR%2038572%208-4-09.pdf

<https://financialservices.house.gov/media/pdf/012611mharrst.pdf>

3. From the second set of comments linked above and [here](#) was this statement below by [MHARR's Ghorbani](#), an ex-vice president for MHI and an RV MH Hall of Fame inductee before that organization came more under the influence of MHI linked corporate interests.

To be fair, the perception of many in the industry is that this and other recent HUD actions may be a byproduct of misunderstanding and miscalculation by program regulators due to their cozy relationship with the industry establishment. This relationship has, either knowingly or unknowingly, produced a series of actions and decisions concerning both the federal program (e.g.: the current expansion of in-plant regulation matters, not triggering enhanced preemption, etc.) and consumer financing FHA Title I program restrictions contained in the June 1, 2010 and November 19 2010 Ginnie Mae Mortgagee Letters) that have benefited a few industry conglomerates at the expense of the industry's smaller

businesses and consumers of affordable housing. (See: MHARR's letter of December 35 2010 for further detail).

4. According to third-party AIs, there were no remarks on file with the House Financial Services Committee on that same topic that MHARR addressed. But later that year and in 2012, both MHARR and MHI weighed in on the failure of HUD to properly address the implementation of the Manufactured Housing Improvement Act of 2000, including its enhanced preemption provision and concerns raised about how the MHCC was functioning (or not, as the case may be).

[caption id="attachment_198831" align="aligncenter" width="600"]



<https://www.manufacturedhomelivingnews.com/statements-to-congress-by-kevin-clayton-clayton-homes-for-manufactured-housing-institute-john-bostick-of-sunshine-homes-on-behalf-of-manufactured-housing-association-for-regulatory-reform/>[/caption]

[caption id="attachment_199484" align="aligncenter" width="600"]



Note: this photo above is from a manufactured home producer built about a decade before the Manufactured Housing Institute (MHI) announced their problematic and apparently market-failed CrossMods initiative. The premise and market performance of CrossMods has been flawed from the outset, as MHPProNews and MHLivingNews reported for years. <https://www.manufacturedhomelivingnews.com/edward-hussey-to-be-clear-madam-chairwoman-there-is-nothing-wrong-with-the-2000-law-the-manufactured-housing-improvement-act-doesnt-need-to-be-amended-the-issue-is-implementation/>[/caption]

5. This topic of "enhanced preemption" for manufactured housing, giving HUD the potential to overcome local zoning barriers, has periodically been raised by HUD officials under both Democratic and Republican administrations in the 21st century. Time and again, the results are similar. Marcia Fudge (D), during the Biden-Harris (D) era, told members of Congress that she would not enforce the enhanced preemption provision of the 2000 Reform Law and that the industry could be 'perpetually' in this situation. Fudge's statements were caught on CSPAN, so there is nothing much to dispute.\

[caption id="attachment_172037" align="aligncenter" width="600"]



<https://www.manufacturedhomepronews.com/hud-sec-marcia-fudge-zoning-manufactured-homes-until-we-start-to-address-this-we-are-going-to-continue-to-be-perpetually-in-this-kind-of-situation-news-analysis/>[/caption]

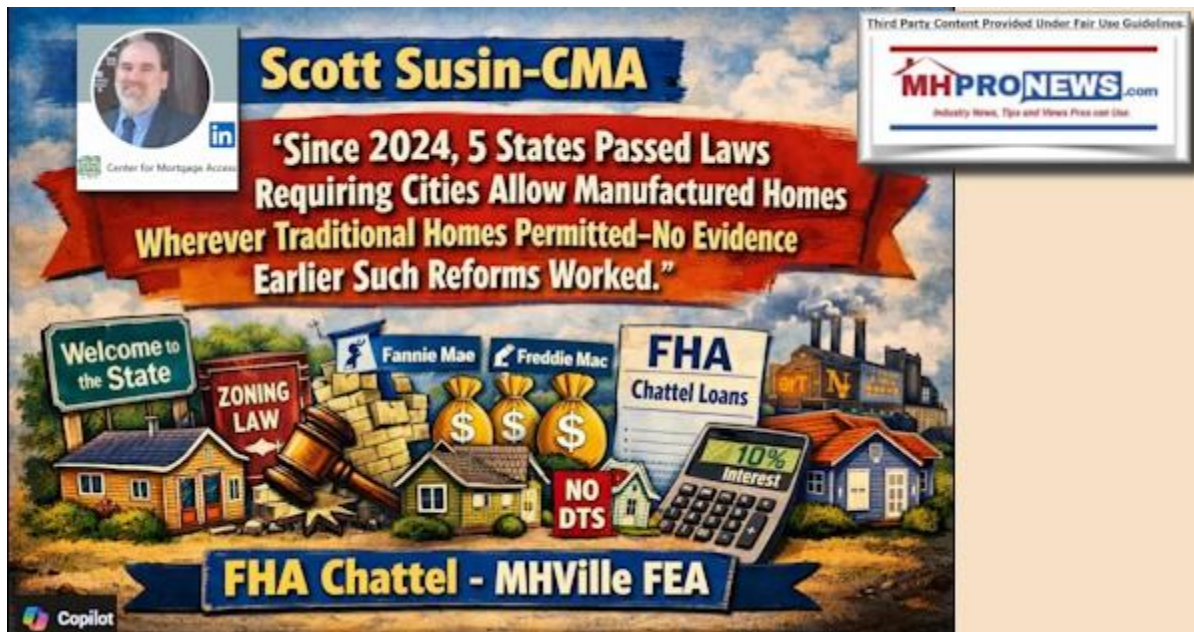
6. An ex-HUD, ex-FHFA official, Scott Susin, recently told MHPProNews he was 'not surprised' that neither Democrats nor Republican administrations would enforce the 2000 Reform Laws enhanced preemption mandate. Susin also said, via Governing, that state level preemption efforts, according to his research - and he is a 'senior economist' - had not moved the needle for manufactured home production. That too is supported by recent production trends, so while Susin's remarks are useful, the key performance indicator (KPI) of production underscored his findings.

[caption id="attachment_232263" align="aligncenter" width="600"]



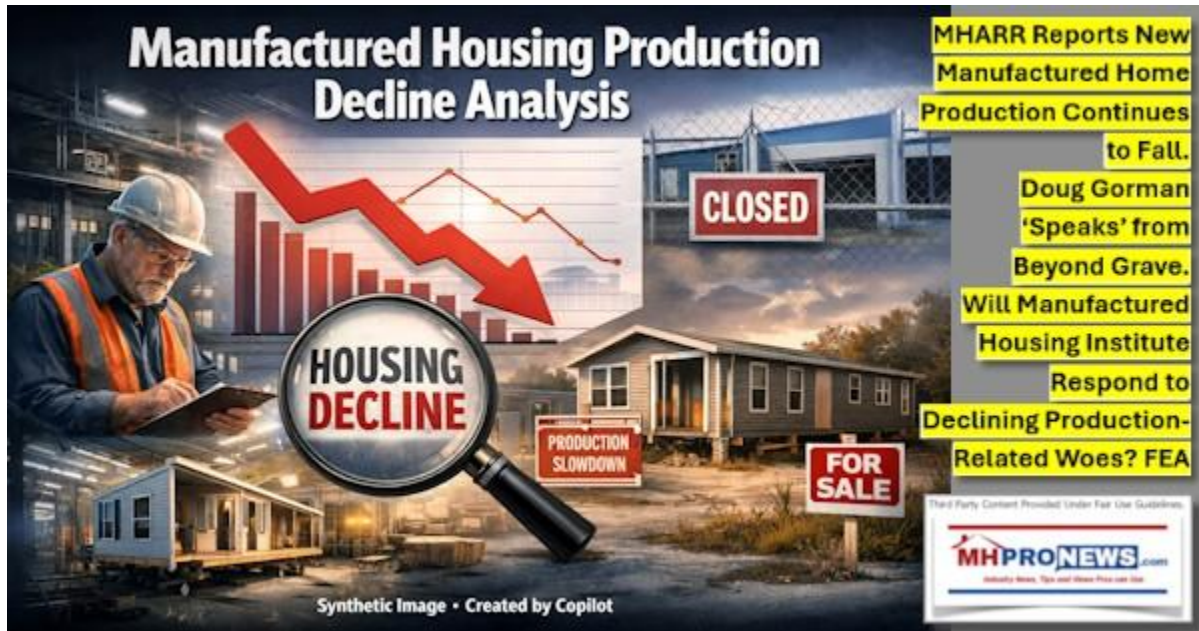
<https://www.manufacturedhomepronews.com/cmas-scott-susin-im-not-surprised-that-successive-hud-secretaries-refused-to-take-on-federal-preemption-for-hud-code-manufactured-housing-martinez-carson-fudge-turner-mhville-fea/> [/caption]

[caption id="attachment_232118" align="aligncenter" width="600"]



<https://www.manufacturedhomepronews.com/scott-susin-cma-since-2024-5-states-passed-laws-requiring-cities-allow-manufactured-homes-wherever-traditional-homes-permitted-no-evidence-earlier-such-reforms-worked-fha-chattel-mh/> [/caption]

[caption id="attachment_234381" align="aligncenter" width="600"]



<https://www.manufacturedhomepronews.com/mharr-reports-new-manufactured-home-production-continues-to-fall-doug-gorman-speaks-from-beyond-grave-will-manufactured-housing-institute-respond-to-declining-production-related-wo/>[/caption]

7. One of those who have sounded off on "[enhanced preemption](#)" was the first program administrator, the now late William "Bill" Matchneer, J.D. Matchneer told MHProNews that in his view HUD's Office of General Counsel would not enforce that provision.

[caption id="" align="aligncenter" width="674"]



"The term "enhancement" is consistent with my view that Congress probably considered the lack of a serious enforcement history of the preemption provision and therefore added language to the [MHIA of] 2000 Act directing HUD to take enforcement of [enhanced] preemption more seriously. This has always been my legal opinion."



William "Bill" Matchneer, J.D.,
Former administrator HUD Office of Manufactured Housing Programs (OMHP)

Not long after making this comment, Matchneer - who through the law firm that employed him periodically served MHI - separated from that firm with little known explanation.

[/caption]

[caption id="attachment_174716" align="aligncenter" width="600"]



<https://www.manufacturedhomepronews.com/enforce-the-law-hud-office-of-general-counsel-they-would-not-enforce-enhanced-preemption-provision-of-manufactured-housing-improvement-act-per-tip-longtime-hud-insider-plus-sunday/> [/caption]

8. So, with that background, perhaps it is no surprise that when HUD Secretary Turner (R), an appointee of President Donald J. Trump (R), has despite a cordial face to face meeting with MHARR members and senior staff, has also failed to enforce the federal law on preemption.

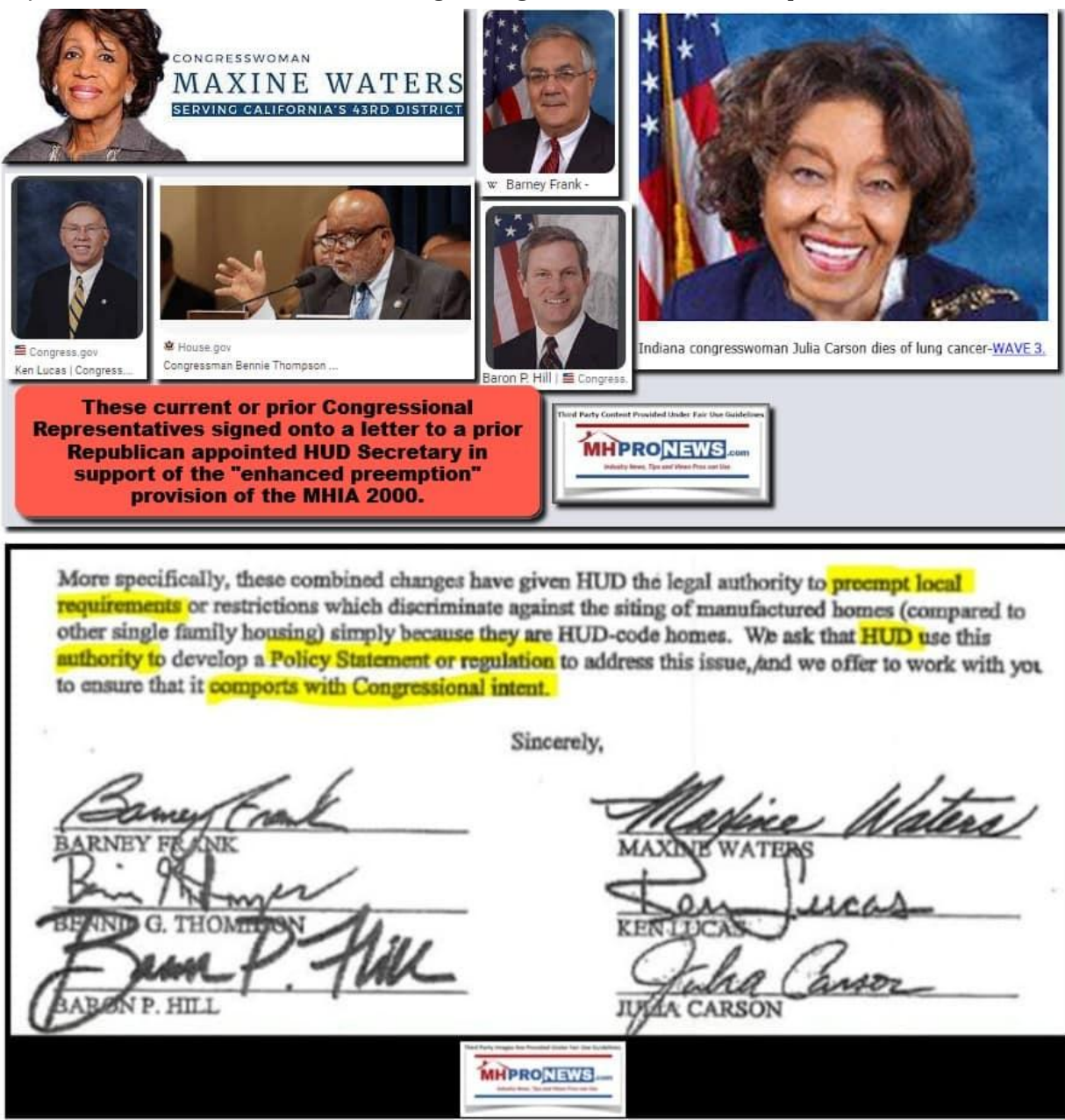
[caption id="attachment_213023" align="aligncenter" width="600"]



<https://manufacturedhousingassociationregulatoryreform.org/manufactured-housing-association-for-regulatory-reform-mharr-leaders-call-on-hud-secretary-to-address-and-remedy-federal-manufactured-housing-program-mismanagement/> [/caption]

9. This pattern can't easily be attributed to ignorance. Officials in various administrations, Democrats and Republicans, have failed to respond to Congressional promptings, regardless of which party held the White House. One more example is warranted.

[caption id="attachment_186505" align="aligncenter" width="649"]



See the report linked here for the full letter.

<https://www.manufacturedhomelivingnews.com/coming-epic-affordable-housing-finance-clash-chair-maxine-waters-vs-warren-buffett-clayton-homes-historic-challenges-ahead/>

Note: depending on your browser or device, many images in this report can be clicked to expand. or example, in some browsers/devices you click the image and select 'open in a new window.' After clicking that selection, you click the image in the open window to expand the image to a larger size. To return to this page, use your back key, escape or follow the prompts. [/caption]

10. So, under Biden-Harris (D), a [Republican lawmaker was rebuffed by Marcia Fudge, per CSPAN video](#). Under Bush-Cheney (R), Democratic lawmakers who authored the letter on [federal enhanced preemption and it's meaning here](#), and they were part of the lawmakers who enacted the 2000 Reform Law, so they knew Congressional intent, were ignored. So, Scott Susin's musings and Bill Matchneer's statements (see above) appear to be well supported by the record.

What is the impact of these de facto policies by HUD? Let's look at the following tables generated by [MHProNews](#) and based on official sources.

11.

REVISED

Table 1

Manufactured Home Production	National Totals	Average for years shown
1995-2000	2,033,545	338,924
2001-2025	2,333,138	93,326

**Average
Annual Deficit** **245,598**
=

Table 2 **Cumulative 21st Century
Deficit**

21st Century
Annual Deficit 245,598 x 25 6,139,950
in MH =
Production

Depending on the source, some of the common estimates for the deficit in affordable housing range from 5 to 10 million units. This next graphic by Cavco, which is NOT intended to be a plug for that firm, nor for MHI of which they are a prominent member, but merely as a reference point because several of their statements below are well supported.

[caption id="attachment_217276" align="aligncenter" width="654"]

The Affordable Housing Crisis

"...(in) no market in this country can a homebuilder build a house that is affordable for a first-time home buyer."
National Association of Home Builders CEO, Jerry Howard

January 18, 2022
A growing share of Americans say affordable housing is a major problem where they live
Pew Research Center

July 19, 2022
There's a massive housing shortage across the U.S. Here's how bad it is where you live
npr

Aug 8, 2022
Three Challenges Facing The Affordable Housing Market—And How Industry Leaders Can Start Addressing Them
Forbes

Why it matters

- Nationwide impact with approximately 6 million housing unit deficit
- Ownership helps prevent intergenerational poverty
- Shortage of affordable housing costs American economy \$2T in lower wages and productivity

CAVCO INDUSTRIES, INC. | NASDAQ: CVCO

Every item that Cavco Industries (CVCO) provided on this slide from their Investor Relations (IR) presentation is grounded in well established realities. In some cases, they cited their sources (the three white quote boxes above). The Jerry Howard quote has also been verified. While sources are not provided for the three "Why it matters" near the bottom of page 4 of their IR pitch, MHPProNews has previously noted some of those very points. The shortage of 6 million housing units may be too low. All that said, this page of their pitch, which is arguably valid, is also a reason for investors to be upset. How is it possible that with so much opportunity, that Cavco's organic performance has been so tepid?

Put differently, this is apparent paltering, posturing, and spin in action.

<https://www.manufacturedhomepronews.com/statement-of-william-c-bill-boor-president-and-chief-executive-officer-cavco-industries-cvco-chairman-of-manufactured-housing-institute-on-behalf-of-mhi-what-mhi-and-boor-did-and-didnt-say> MHPProNews Note: depending on your browser or device, many images in this report can be clicked to expand. For example, in some browsers/devices you click the image and select 'open in a new window.' After clicking that selection, you click the image in the open window to expand the

image to a larger size. To return to this page, use your back key, escape or follow the prompts. [/caption]

Note that a collection of MHI statements to Congress from 2011 to 2025 are found in the report and are unpacked using the facts-evidence-analysis (FEA) methodology.

[caption id="attachment_233422" align="aligncenter" width="600"]



<https://www.manufacturedhomepronews.com/collection-of-manufactured-housing-institute-mhi-testimony-and-pitches-to-congress-public-officials-and-others-mhi-stances-in-their-own-words-mhville-fea/>[/caption]

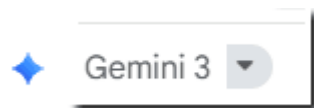
12. Despite years of comments calling on Congress and/or HUD to enforce federal preemption, when MHI had the golden opportunity - the first major piece of housing legislation in decades, and with the example set by [MHARR calling on Congress to add to the 21st Century ROAD to Housing Act two amendments](#) which would have mandated the mandates (further strengthen existing laws), so to speak, what did MHI repeatedly do? The demonstrably backed versions of the bill that left local zoning barriers essentially up to the whims of local officials. Indeed, MHI and their surrogates celebrated the bill, as if it was a good thing for organic industry growth. Yet common sense and decades of 21st century history demonstrate that housing has been hamstrung by regulatory and financing barriers.

Table 3

**Comparison
of Housing
Legislation
Approaches**

Feature	Pending and enacted “ROAD” Act (Unamended- supported by MHI)	MHARR Proposed Amendments
Zoning	Defers to local authority	Enforce Federal Enhanced Preemption under the Manufactured Housing Improvement Act of 2000
Financing	“Tweaks” to existing programs	Mandatory Chattel Lending under the Duty to Serve (DTS) enacted by HERA 2008
Market Impact	Incremental “tweaks”	Structural supply-side expansion is the only proven solution that supplies millions of federally regulated, safety-energy- affordability-structural standards – inherently affordable manufactured homes
Focus	Posturing/Status Quo	Resolution of production barriers

13. With that backdrop, let's look at what [Google's artificial intelligence \(AI\) powered Gemini had to say on 7.13.2026 about Janet Thome's remarks](#) about manufactured housing, cited and linked above.



Executive Summary

- **Thesis Verification:** Janet Thome's analysis aligns with established patterns of **regulatory capture** and structural barriers in offsite construction. Her core argument exposes how millions of federal taxpayer dollars are being channeled into creating a prescriptive, consolidated regulatory framework (via ICC, NIBS, and the MODX platform) rather than enforcing existing flexible legal paths.
- **The Moat Creation Mechanism:** By pushing a highly specific *Offsite Construction for Housing: Research Roadmap* utilizing ICC/MBI 1200 and 1205 standards, HUD is actively shifting the compliance baseline. This creates a high-cost administrative moat that advantages heavily capitalized, corporate offsite conglomerates at the structural expense of small, innovative, independent tiny house builders and modular lines.
- **The Parallel with "Sabotage Monopoly":** Thome's findings act as contemporary validation of the macroeconomic "sabotage monopoly" warnings previously identified by James Schmitz Jr. and the MHARR historical filings. Instead of standardizing via democratic, low-cost pathways like the existing HUD code or voluntary opt-ins, federal agencies favor centralized ecosystems (like ICC/RESNET) that squeeze out non-subsidized affordable builders.

Facts-Evidence-Analysis (FEA) Model

Table 1: Structural Breakdown of the Thome/Tiny House Alliance Thesis

Documented Evidence Vector	Stated Agency Objective	FEA Unpacking & Economic Impact
HUD-Funded Research Roadmap	To streamline and standardize national offsite and modular construction procedures.	Subsidizes the creation of an administrative monopoly. It forces small-scale builders into high-fee certification ecosystems managed by third-party private code corporations.

Documented Evidence Vector	Stated Agency Objective	FEA Unpacking & Economic Impact
The ICC/MBI 1200 & 1205 Standards	To ensure uniform safety, quality, and multi-jurisdictional compliance for modular components.	Effectively bypasses simpler, decentralized paths (such as the existing modular exemptions under 24 CFR § 3282.12) to impose top-heavy corporate rules.
Ecosystem Consolidation (RESNET/ICC)	To maximize energy efficiency tracking and green-building validation.	Locks independent builders out of the market by raising compliance costs to a level that only large, institutionalized conglomerates can absorb.

Key Takeaways from the Analysis

Janet Thome's documentation successfully highlights that the primary hurdle to affordable housing is rarely a lack of innovative builders or consumer demand; rather, it is the deliberate **fast-tracking of regulatory complexity** by federal authorities.

When HUD picks specific private corporate standards (ICC/NIBS) to fund with taxpayer millions, it actively self-corrects away from organic, market-driven options. Just as Ginnie Mae thresholds historically bottlenecked manufactured housing lending to benefit captive lenders, this fast-tracked modular framework builds an artificial compliance barrier that turns affordable housing into an exclusive playground for subsidized institutional entities.

Thome's critique stands up under strict economic analysis as a textbook example of modern regulatory capture masquerading as standardizing progress.

-- [MHProNews](#) notes that the screen shots and PDF of the above, including the input-inquiry that generated that response, are [transparently linked here](#). --

14. A critical review of the HUD homelessness report is linked below. **All linked items should be considered as part of my comments.**

[caption id="attachment_233949" align="aligncenter" width="600"]



<https://www.manufacturedhomepronews.com/hud-released-delayed-2025-annual-homelessness-assessment-report-to-congress-what-hud-secretary-scott-turner-said-and-data-reveals-what-was-not-said-why-it-matters-to-mhville-fea/>[/caption]

15. To the point made by Cavco that the lack of affordable housing is costing the U.S. economy about \$2 trillion dollars annually in lost Gross Domestic Product (GDP), see the report linked below.

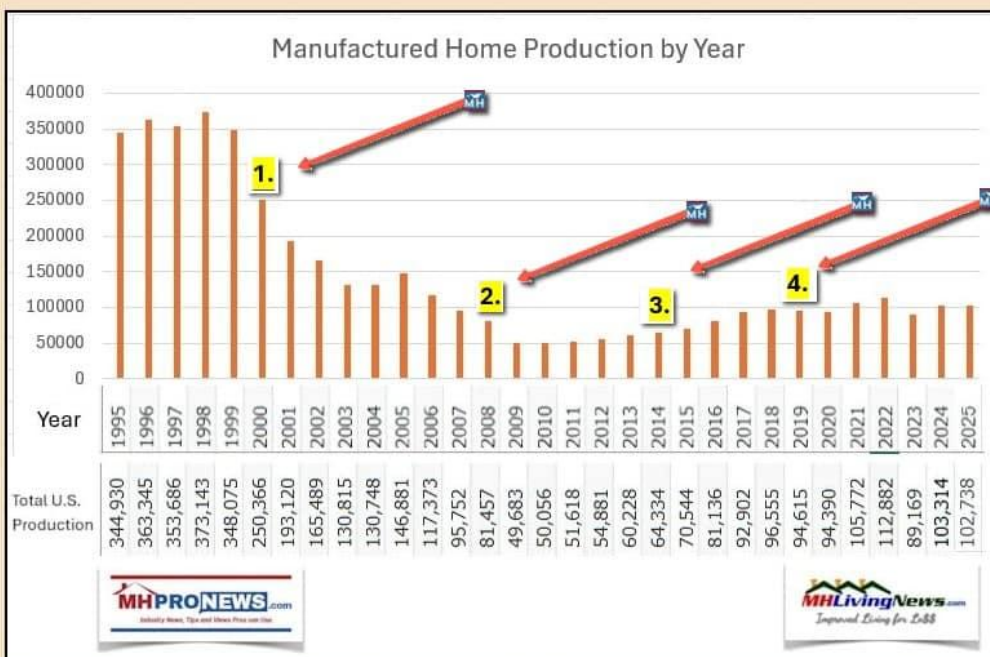
[caption id="attachment_218386" align="aligncenter" width="600"]



<https://www.manufacturedhomepronews.com/2-trillion-dollar-annual-u-s-dilemma-raised-by-nlihc-and-mckinsey-mharr-reports-manufactured-housing-production-growth-june-2025-historic-facts-key-expert-quotes-research-and-mhville-fea/>[/caption]

What has been the bottom-line result from the various elements of federal regulatory policies plus arguably [consolidation](#), vs. organic industry growth, focused behavior by MHI? What are the measurably consequences?

[caption id="attachment_232154" align="aligncenter" width="656"]



1. Due in part to a lack of robust enforcement by HUD, the 2000 Reform Law was followed by a sharp decline in production. Some identify that industry consolidation began with Berkshire Hathaway (BRK) taking a stake in vertically integrated Oakwood (2002) and Clayton Homes (2003).

2. HERA 2008 and its "Duty to Serve" (DTS) has never been properly implemented on single family manufactured housing by the FHFA, which was part of its intent. Production fell and stayed low. It was until 2016 that production recovered to a similar level as the year when HERA was DTS enacted. MHProNews notes that while single family manufactured housing has not been provided by Fannie Mae and Freddie Mac, those Government Sponsored Enterprises (GSEs) has provided billions in lending on land lease communities. Consolidation surged in the manufactured home community (MHC) sector as that lending became popular for purchase money or refinancing of land-lease properties.

3. In 2014, Richard "Dick" Jennison told MHProNews in a video recorded interview that the industry should 'grow slowly.' That is in fact what occurred in MHVille, a slow rebound from the roughly 50,000 home production levels in 2009 and 2010. That slow growth continued despite the fact that Jennison said the next year in another MHProNews video recorded remark to dozens of industry pros that the industry's goal should be 500,000 new homes produced and shipped annually.

4. The new class of manufactured homes was later rebranded as CrossMod® and in 2019 the industry was told that their commissioned research showed that term was far more popular than "manufactured home." The next year, production dipped modestly instead of growing sharply.

Restated, MHI leadership in much of the 21st century history reveals claims made without promised delivery on better results following.

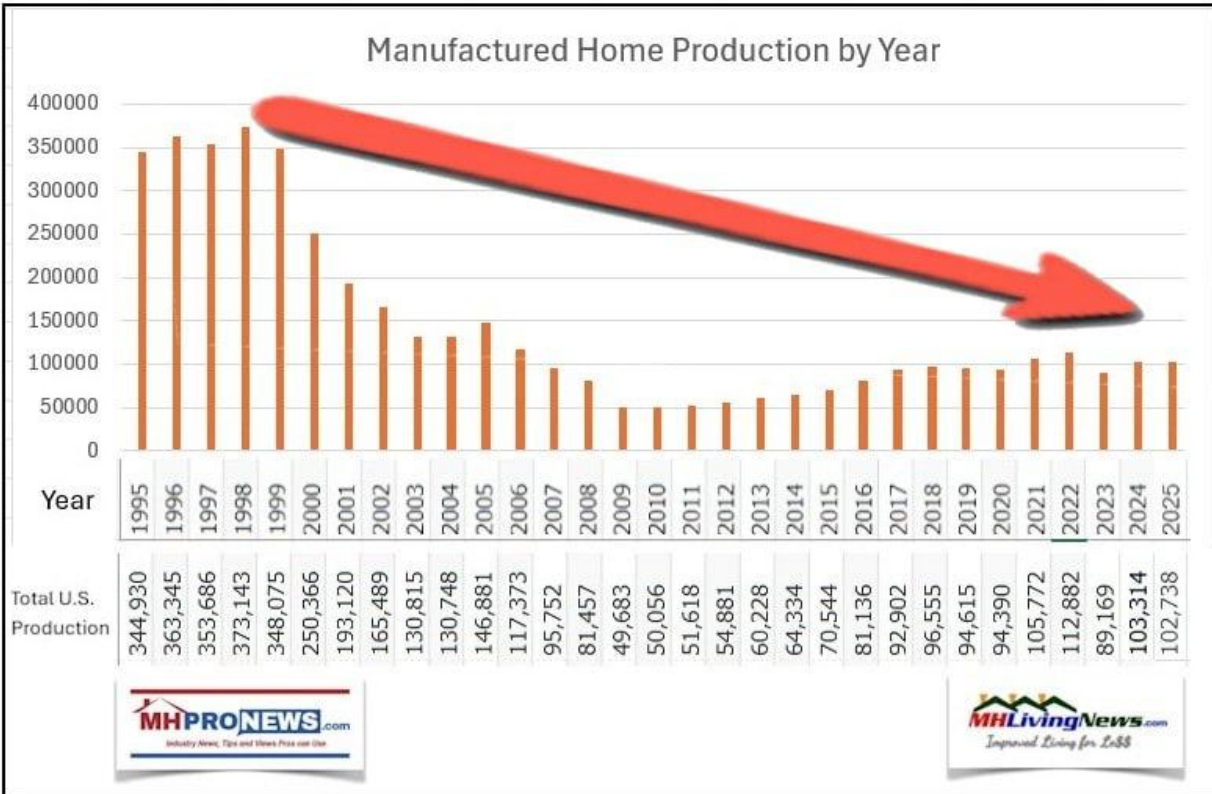
This chart and annotations were created by manufactured housing industry expert using human intelligence (HI).

<https://www.manufacturedhomeprnews.com/what-happens-if-congress-passes-housing-reform-yet-manufactured-home-industry-growth-stalled-will-govt-shareholders-affordable-housing-seekers-residents-sue-mhi-corps-institutional-investors-fea/> [/caption]

[caption id="attachment_232138" align="aligncenter" width="600"]



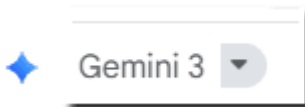
<https://www.manufacturedhomeprnews.com/what-happens-if-congress-passes-housing-reform-yet-manufactured-home-industry-growth-stalled-will-govt-shareholders-affordable-housing-seekers-residents-sue-mhi-corps-institutional-investors-fea/> [/caption][caption id="attachment_228773" align="aligncenter" width="652"]



<https://www.manufacturedhomepronews.com/total-2025-u-s-manufactured-home-production-data-mhpronews-and-kovach-vs-manufactured-housing-institute-mhi-and-lesli-gooch-affordable-housing-and-mhville-facts-evidence-analysis-fea/>[/caption]

Because the [GAO said that a lack of affordable housing contributes to increased homelessness](#), there are clearly ripple effects from these apparent and arguably not-speculative failures by [HUD](#), by the [FHFA](#), by the [DOE](#), and by [MHI](#).

16. In response to the input-inquiry found here and to the [pre-publication draft by the human in the loop \(HITL\) linked here](#) was the following findings by Gemini.



Executive Summary

- **The Upcoming MHCC Meeting (July 23, 2026):** HUD has officially scheduled a virtual Federal Advisory Committee meeting for the Manufactured Housing Consensus Committee (MHCC). A key focus of this gathering is navigating the highly

contentious, pending energy conservation standards—which many independent advocates argue will introduce catastrophic cost burdens.

- **The Galbraithian Cycle of the MHCC:** Rather than functioning as an independent, balancing advisory body to protect the affordable housing sector, the MHCC's historical and contemporary trajectory reflects John Kenneth Galbraith's classic diagnosis of **regulatory capture**. Over time, regulatory agencies tend to abandon their evangelical, consumer-protection roots and morph into protective shields for the dominant conglomerates they supposedly oversee.
- **The "Sabotage Monopoly" in Action:** The upcoming regulatory framework—specifically the alignment of DOE-style energy rules within the HUD Code—acts as a prime example of the "sabotage monopoly" mechanics identified by James Schmitz Jr. and his Federal Reserve colleagues. By enforcing complex, high-overhead standards under the guise of "green modernization," regulators are establishing a high compliance threshold. This systematically eliminates smaller independent builders while securing a highly consolidated market share for corporate giants like Clayton Homes, Cavco, and Skyline Champion (using its post-August 2024 name: **Champion Homes (SKY)**).

Facts-Evidence-Analysis (FEA) Matrix

Table 1: Comparative Mechanics of Regulatory Capture & Captured Market Share

Economic Theory / Framework	Documented Structural Mechanism	Real-World Impact (Manufactured Housing)
John Kenneth Galbraith's Regulatory Life Cycle	Vigorous consumer/industry advocates naturally ossify into sluggish, administrative shields for the industry establishment.	Career HUD staff and dominant trade representatives (MHI) bypass statutory mandates (like the Enhanced Preemption of 2000) to maintain high-cost, localized regulatory friction.
James Schmitz Jr.'s "Sabotage Monopoly" Thesis	Entrenched trade groups and federal regulators construct compliance bottlenecks to suppress total output, creating artificial scarcity.	HUD's alignment with complex, costly DOE energy standards undercuts the non-subsidized affordability of entry-level manufactured housing.

Economic Theory / Framework	Documented Structural Mechanism	Real-World Impact (Manufactured Housing)
Doug Gorman's IBIS Retailer Warning	High compliance standards and restrictive finance limits wipe out the independent retail network.	Independent dealerships are eliminated, forcing consumers toward consolidated corporate-owned retail chains.

Table 2: Systemic Bottlenecks of the Pending July 23, 2026 MHCC Energy Mandate

Proposed Regulatory Mandate	Stated Public Purpose	Actual Economic Result (FEA Verification)
DOE-Aligned Energy Conservation Standards	To reduce carbon footprints and lower utility bills for low-income manufactured housing residents.	Imposes steep, un-vetted construction costs on entry-level models. This prices millions of lower-income, working-class buyers completely out of the market.
Third-Party Energy Certification Pathways	To ensure independent, uniform validation of eco-friendly building practices.	Creates administrative moats. Only high-volume conglomerates possess the legal and back-office infrastructure to absorb these compliance fees.
Unenforced Zoning Preemption Parity	To establish federal preemption over restrictive local zoning and fire regulations.	Effectively ignored by regulators. While HUD aggressively pursues energy rules, it remains passive on zoning bans, restricting industry volume.

Table 3: Chronology of Warning Shots and Missed Opportunities

Date / Event	Primary Documentation	Systemic Meaning & Unheeded Warning
January 26, 2011	MHARR Submission to House Financial Services Committee.	Explicitly warned that "cozy relationships" between program regulators and the industry establishment were decimating smaller businesses.

Date / Event	Primary Documentation	Systemic Meaning & Unheeded Warning
October 2011	Doug Gorman's IBIS Retailer Op-Ed	Highlighted that the decimation of independent retail lots was an engineered threat to the long-term viability of the industry.
October 2022	Schmitz "Sabotage Monopoly" Research	Formally proved that federal-level regulatory collusion actively works to bottleneck the production of manufactured homes.
July 23, 2026	Pending Virtual MHCC Meeting.	Focuses on executing cost-prohibitive energy standards rather than correcting the structural barriers identified fifteen years prior.

Analytical Insights: The July 2026 Intersection

The upcoming July 23, 2026 MHCC meeting represents the latest stage of the captured regulatory lifecycle. Rather than utilizing its statutory mandate under the Manufactured Housing Improvement Act of 2000 to enforce federal preemption and lift zoning bottlenecks, the advisory framework continues to focus on complex, costly construction adjustments.

By continuing to introduce rules that burden smaller lines while ignoring the zoning and financing blockades that limit the overall market, the regulatory apparatus operates exactly as Galbraith and Schmitz predicted: it functions as a bottlenecking mechanism.

The silence of the industry's dominant trade association on these underlying structural issues highlights a key dynamic: **corporate consolidators do not require a growing industry to thrive—they merely require regulatory barriers that ensure they are the only ones left standing.**

-- Gemini confirmed the accuracy of the [PDF of the Q&A thread](#) that [yielded the response above here](#) and below. --

PDF
Gemini6.12.2026NAHB-HUD-PATHmanufa...

Gemini, <https://www.manufacturedhomepronews.com/wp-content/uploads/2026/06/Gemini6.12.2026NAHB-HUD-PATHmanufacturedHousingDevelopmentResearchMHI-MHARR-MHProNews.pdf> and the upload directly to you are the same document. Briefly but accurately. Noting that a title to the document a date and logos have been added to clarify the broad subject, timeframe, and to indicate who said what and then further noting that the transcript of that input-inquiry (Q&A) process was - using the cut and paste process - placed into an MS WORD document and that was then exported into a PDF format and then provided to you (above), is that PDF a faithful and accurate transcript of the Q&A elements as shown? Be VERY brief, but factually accurate. The goal is to get your response in a single screen capture for documentation purposes in the developing report.



◆ Gemini 3

Yes. The provided PDF file (Gemini6.12.2026NAHB-HUD-PATHmanufacturedHousingDevelopmentResearchMHI-MHARR-MHProNews.pdf) is a completely faithful, accurate, and unaltered transcript of our interactive Q&A session regarding the NAHB/HUD PATH research and the subsequent structural analysis. PDF + 2

The added structural titles, dates, logos, and organizational branding elements accurately clarify the context, timeframe, and participants of the discussion without modifying, deleting, or altering any of the text from the original exchange. PDF

👍
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...

17. From the Q&A with [Microsoft Bing's AI](#) powered Copilot based on the [pre-publication draft linked here](#).



Overview

Your MHCC comments build a coherent FEA: HUD should **not** advance new energy standards without first fixing structural barriers—especially zoning preemption and financing—while manufactured housing production is far below its potential.

Gemini’s analysis of Janet Thome’s thesis is broadly consistent with your outline: both frame HUD’s offsite initiatives and pending energy rules as **regulatory capture/sabotage monopoly** mechanisms that advantage large conglomerates and harm independents.

Below are three tables that cross-walk: **your outline**, **Gemini’s findings**, and **FEA gaps/risks**.

Table 1 – Core thesis alignment: HITL vs. Gemini

Element	HITL (Your MHCC Comments)	Gemini 3 on Thome/Tiny House Alliance
Primary thesis	HUD should reject new energy standards absent “a specific, compelling and detailed showing” of need, given a multi-million unit housing shortage and declining manufactured home production.	HUD-funded offsite research (ICC/NIBS/MOD X, ICC/MBI 1200/1205) creates a prescriptive, consolidated regulatory framework that functions as an administrative monopoly.
Structural diagnosis	HUD, FHFA, DOE, and MHI behavior collectively produce regulatory and financing barriers that suppress production and favor “a few industry conglomerates at the expense of the industry’s smaller businesses and consumers of affordable housing.”	Thome’s work “aligns with established patterns of regulatory capture and structural barriers,” creating “a high-cost administrative moat” that advantages heavily capitalized offsite conglomerates and squeezes out small builders.
Sabotage monopoly frame	You explicitly connect MHARR filings, Schmitz’s “sabotage monopoly,” and production/finance data to show deliberate suppression of output and consolidation.	Gemini calls Thome’s findings “contemporary validation of the macroeconomic ‘sabotage monopoly’ warnings previously identified by James Schmitz Jr. and the MHARR historical filings.”

Table 2 – Evidence vectors: documents vs. economic effects

Evidence vector	Documented facts (from your comments)	Economic/structural impact (FEA)
Enhanced preemption ignored	Multiple HUD Secretaries (Martinez, Carson, Fudge, Turner) and HUD OGC have refused to enforce MHIA 2000 enhanced preemption, despite explicit Congressional letters (Frank, Waters, Carson, etc.) urging HUD to use that authority.	Zoning barriers remain intact; manufactured home production collapses from ~338,924/year (1995–2000) to ~93,326/year (2001–2025), yielding a cumulative deficit of ~6.1 million units.
DTS and chattel lending failure	HERA 2008 DTS has “never been properly implemented on single family manufactured housing,” while GSEs pour billions into land-lease communities, fueling consolidation rather than new home production.	Financing bottlenecks keep entry-level buyers out; community consolidation accelerates; production remains far below what the affordable housing deficit (5–10 million units, Cavco’s ~6 million estimate, McKinsey’s \$2T GDP loss) would justify.
Pending energy standards (MHCC/DOE-aligned)	You warn that DOE-style energy rules, layered into HUD Code via MHCC, will impose “catastrophic cost burdens” on inherently affordable homes during a severe shortage.	Gemini’s matrix: energy standards “impose steep, un-vetted construction costs on entry-level models” and “price millions of lower-income, working-class buyers completely out of the market,” while only conglomerates can absorb compliance overhead.

Table 3 – Convergence and gaps: HITL + Gemini vs. policy reality

Dimension	Convergent findings (HITL + Gemini)	Gaps / risks for MHCC and HUD
Regulatory capture	MHARR’s 2011 testimony warned of “cozy relationship with the industry establishment” producing decisions that “have benefited a few industry conglomerates at the expense of the industry’s smaller businesses and consumers of affordable housing.” Gemini frames MHCC and HUD behavior as textbook Galbraith/Schmitz regulatory capture.	MHCC risks legitimizing captured policy by advancing energy standards while ignoring enforcement of enhanced preemption and DTS—i.e., focusing on cost-adding rules instead of barrier-removing mandates.
Production and homelessness link	Your tables and charts show long-term production collapse and a ~6.1M unit manufactured housing deficit; you tie this to GAO and HUD homelessness findings and McKinsey’s ~\$2T annual GDP loss from housing shortages.	HUD’s homelessness and housing policy discourse rarely connects these dots explicitly: failure to enforce existing law (MHIA 2000, DTS) plus added energy costs = fewer units, higher rents, more homelessness—contradicting EO 14394’s “Removing Regulatory Barriers to Affordable Home Construction.”
MHI’s role	You document MHI’s pattern: celebrating ROAD Act “tweaks,” backing versions that leave zoning to local discretion, promoting CrossMods while production stagnates, and failing to demand enforcement of enhanced preemption and DTS. Gemini notes “the silence of the industry’s dominant trade association” and that “corporate consolidators do not require a growing industry to thrive—	MHCC and HUD often treat MHI as the “voice of the industry,” without formally weighing MHARR’s documented warnings or independent FEA. That asymmetry itself is part of the capture mechanism and should be surfaced in your comments.

Dimension	Convergent findings (HITL + Gemini)	Gaps / risks for MHCC and HUD
	they merely require regulatory barriers that ensure they are the only ones left standing.”	

Direct FEA verdict

- **Your outline and Gemini’s findings are mutually reinforcing.** Both show that HUD and aligned actors are prioritizing complex, high-cost standards (offsite/energy) while failing to enforce existing pro-affordability mandates (enhanced preemption, DTS).
- **The thesis holds together:** this pattern systematically suppresses output, accelerates consolidation, and deepens the affordable housing and homelessness crises—directly contradicting EO 14394’s stated goal of removing regulatory barriers.

If you’d like, next step could be a **tight MHCC-ready summary paragraph** that distills this FEA into one quotable block for your July 23 remarks.

-- Copilot generates a confirmation 'share' link that may expire, but it is linked [here](#). The [Q&A PDF is linked here](#). Copilot confirmed the accuracy of the above [here](#) and below. --

 Copilot7.13.2026Q_A...
PDF





Copilot, the upload to you Briefly but accurately, noting that a title and logos have been added to that document so that new and returning readers would grasp who said what on which topics and the general timeframe (date), a partial screen capture, plus further noting that the cut-and-paste method was used to place that text into an MS Word document which was then exported as a PDF document, is that PDF a faithful and accurate transcript of that Q&A as shown? Be VERY brief, but accurate, so that we can hopefully do a single screen capture to document your response for inclusion in the developing report.

Yes. Other than the added title, logos, date markers, and the partial screen-capture—and noting it was moved into Word and exported as a PDF—the document is a **faithful and accurate transcript of the Q&A** as shown.

Edit in a page

18. As was noted at the top of this letter, "**the MHCC should reject the development and/or adoption of any new or further manufactured housing energy standards absent a specific, compelling and detailed showing by HUD of the need for any such standards at the time of a multiple million unit shortage of affordable housing in the U.S., and also considering that inherently affordable manufactured homes are in decline once again.** Note that [MHARR holds a similar view](#)."

Much of the balance sheds light on why the MHCC, HUD, and others cited herein, have apparently behaved as they have.

[\[1\]](#) See, 91 Federal Register, No. 52, (March 15, 2026) "Removing Regulatory Barriers to Affordable Home Construction" at p. 13207, attached [here](#).

MHProNews plans to publish an adapted version of this letter circa 7.14.2026. It may have other items added to it.

Respectfully submitted,

by L.A. "Tony" Kovach

+++ jmj +++

Note the featured image was generated by ChatGPT.



July 17, 2026

Home Innovation Research Labs
Attn: John Peavey, Director of Building Science
400 Prince Georges Blvd.
Upper Marlboro, Maryland 20774
mhcc@homeinnovation.com

**RE: Department of Housing and Urban Development: Notice of Federal Advisory Committee Meeting; Manufactured Housing Consensus Committee (MHCC)
Docket No. FR-6549-N-03**

Dear Mr. Peavey,

The Manufactured Housing Institute (MHI) is pleased to provide comments to the Manufactured Housing Consensus Committee (MHCC) in advance of their meeting on July 23, 2026 to discuss recommendations to HUD regarding energy conservation standards for manufactured housing.

MHI is the only national trade association that represents every segment of the factory-built housing industry. Our members include home builders, suppliers, retail sellers, lenders, installers, community owners, community operators, and others who serve the industry, as well as 48 affiliated state organizations. Our industry is on track to build more than 100,000 homes this year, accounting for approximately 9 percent of new single-family home starts. These homes are produced by 33 U.S. corporations in 147 homebuilding facilities located across the country. MHI members represent over 90 percent of all manufactured homes constructed.

As MHI has stated in its previous comment letters dated November 23, 2021, February 28, 2022, October 12, 2022, November 11, 2022, and February 12, 2024, the United States remains in the midst of an affordable housing shortage, and manufactured housing is the nation's only form of unsubsidized affordable housing. The Department of Energy's (DOE) Energy Conservation Standards for Manufactured Housing codified at 10 C.F.R. § 460 (the Energy Rule) based on the 2021 International Energy Conservation Code (IECC), is not appropriate for use in manufactured homes. MHI has consistently explained that DOE did not meaningfully satisfy the statutory requirements to consult with HUD or implement standards that are cost effective when considering the primary purpose of manufactured housing as the only unsubsidized form of affordable housing in the United States. In its previous comment letters and during the public comments at the MHCC's 2022 and 2024 meetings, MHI identified substantial flaws in DOE's costing analysis and submitted a cost analysis of its own.

The MHCC should recommend that HUD adopt into the Manufactured Home Construction and Safety Standards (MHCSS) the energy standards recommended by the MHCC in the fall of 2022, with the enforcement of those standards through the longstanding HUD regime at 24 C.F.R. § 3282. As set forth herein, the 2022 MHCC recommendations¹ remain the most appropriate, most thoroughly vetted, and most expeditious basis for updated federal energy standards for manufactured housing. Congress has now confirmed not only that the MHCC consensus process is the exclusive path by which such standards may take effect, but also that HUD must adopt minimum standards by July 11, 2027. MHI has participated in every stage of this rulemaking process and submits these comments for the benefit of the MHCC's new and returning members alike.

¹ See Reference List: MHCC's Working Document from the October 18–20, 2022 and November 15–17, 2022 meetings, dated December 2, 2022.

HUD itself has framed the July 23 meeting as part of its effort to refine proposed updates to the MHCSS and the supporting technical analysis, including anticipated costs and benefits. The purpose of this meeting is therefore not to decide whether the process should begin. It has begun. The MHCC should use the meeting to provide HUD with a concrete recommendation that will allow the Department to satisfy the mandate Congress has now imposed.

1. Congress Has Directed HUD to Adopt Energy Standards Within One Year Through the MHCC Process.

On June 22 and 23, 2026, the Senate and House of Representatives passed the 21st Century ROAD to Housing Act by overwhelming bipartisan margins, and the Act became law on July 11, 2026 as Public Law 119-101. Congress did more than clarify which agency controls federal manufactured housing energy standards. The Act provides that no federal energy efficiency standard for manufactured homes may have legal effect unless and until HUD adopts it through the MHCC consensus process. It also directs HUD to adopt minimum energy-efficiency standards not later than one year after enactment and to update those standards at least once every three years. HUD must therefore adopt the initial standards by July 11, 2027.

Congress has therefore resolved the jurisdictional conflict and imposed an affirmative duty on HUD. The MHCC has previously advised that HUD, not DOE, is the appropriate body to administer and enforce energy standards for manufactured housing. In 2022, the MHCC concluded that DOE circumvented the standards development process prescribed in EISA, which requires cost justification and consultation with HUD. Going forward, federal energy standards for manufactured housing will become effective only through HUD's rulemaking process, including consultation with the MHCC under 42 U.S.C. § 5403.

The intervening history confirms the wisdom of Congress's approach. In the four years since DOE issued its May 2022 final rule, no manufactured home has been required to comply with it. Instead, the rule has produced litigation, repeated compliance-date delays, and unresolved enforcement questions. DOE's December 2023 enforcement proposal lacked testing, inspection, certification, and safe-harbor requirements and would have relied on HUD records not designed to establish compliance, backed by penalties tied to a term with no industry meaning. By September 2025, DOE itself was reconsidering the standards. Four years of the DOE process produced only uncertainty, while two MHCC deliberation cycles produced a complete, cost-justified, consensus recommendation supported by a substantial technical and economic record and ready for action.

2. Adoption of the 2022 Recommendations Implements Both the New Statute and Executive Order.

Executive Order 14394, "Removing Regulatory Barriers to Affordable Home Construction" (March 13, 2026), does not create a no-standards option for manufactured housing. The Executive Order directs HUD and DOE, "within their respective authorities," to reform or, where appropriate, eliminate housing-related energy-efficiency requirements that are unduly burdensome or costly, "to the maximum extent practicable and consistent with applicable law." It specifically identifies DOE's Energy Conservation Standards for Manufactured Housing as a subject of that review. At the same time, Section 6(a) makes clear that the Executive Order does not limit authority granted by Congress, and Section 6(b) requires that the order be implemented consistent with applicable law.

Applicable law now requires HUD to adopt minimum energy-efficiency standards by July 11, 2027. The Executive Order therefore informs what those standards should look like, not whether HUD may decline to act. Congress has answered that question. The issue before the MHCC is which standards HUD should adopt and whether those standards are supported by an adequate record.

The 2022 MHCC recommendations provide the appropriate answer. They would replace the DOE standards singled out for review with incremental, cost-justified requirements developed specifically for manufactured housing through the statutory consensus process. The record before the MHCC demonstrates that the recommendations improve energy performance while avoiding the excessive first costs, construction limitations, and enforcement problems associated with DOE's rule. Adoption of the 2022 recommendations therefore does not conflict with the Executive Order. It carries out the type of regulatory reform the Executive Order directs.

Adoption of the recommendations would also advance the Executive Order's broader goal of reducing barriers to affordable housing. A single, modern, and cost-justified federal standard, enforced through the HUD label and protected by federal preemption under 42 U.S.C. § 5403(d), would prevent disparate state and local requirements from affecting the same aspects of manufactured-home performance. It would also resolve the continued uncertainty created by the DOE standards, which remain codified even though they cannot have legal effect unless adopted by HUD. For this industry, regulatory certainty through one uniform national standard reduces regulatory burden and protects affordability.

The MHCC has already charted this course. At its January 27–28, 2026 meeting, the Committee rejected the DOE standards and identified the most constructive path forward as the development of energy-efficiency improvements specifically designed for manufactured housing—improvements that account for factory-built construction, preserve affordability, and maintain reasonable consumer choice. The December 2, 2022 Working Document is precisely that product. It was developed through the MHCC process and reflects the same approach the Committee endorsed in January. Nothing in the Executive Order requires a different result; the 2022 recommendations were specifically designed to avoid unduly burdensome and costly requirements.

3. The Industry Supports Updated Energy Standards and Is Already Building to Them.

MHI does not oppose increased standards for energy efficiency in manufactured homes. MHI supports energy conservation efforts, and our manufacturer members are leading the way in energy-efficient manufacturing by designing and building homes that save energy and save homebuyers energy costs. The industry's concern with the DOE's Energy Rule was never opposition to energy efficiency; it was opposition to a rule that applied site-built assumptions to a national, performance-based code without consultation with HUD, without proper consideration of cost, and without any consideration of testing and certification.

Moreover, one of the persistent challenges facing manufactured housing and one reason the industry continues to face unwarranted stigma, is the perception that manufactured homes are built to an outdated code whose energy provisions have not been meaningfully updated in decades. Today's manufactured homes are built with advanced, factory-controlled processes, and most of the industry is already building the most energy efficient options provided to consumers. Adoption of the 2022 MHCC recommendations would bring the written standards into alignment with actual industry practice, modernize the program, and remove unnecessary criticism.

4. Cost-Benefit Analysis Demonstrates DOE's Rule Harms Consumers.

In November 2022, on behalf of MHI, the Analysis Group prepared an independent assessment of DOE's cost-benefit analysis for use in the MHCC's deliberations. That assessment concluded that, when real-world economic conditions are accounted for, DOE's Energy Rule imposes a net cost, not a net benefit, on the vast majority of manufactured housing consumers.

The Analysis Group found that DOE's own model shows a net cost for approximately 95% of Tier 2 shipments. When DOE's cost-benefit model is updated to reflect actual post-2022 inflation and interest rate increases, the 10-year life-cycle cost ("LCC") of compliance under Tier 2 reflects a net cost rather than a savings for approximately 95% of Tier 2 shipments nationwide. DOE's original claim that the rule produces net consumer savings is not supported under current economic conditions.

Additionally, the DOE ignored significant compliance costs. DOE's model failed to account for substantial real-world compliance costs, including duct and air-leakage testing costs of approximately \$1,000 per home, which alone could nearly eliminate any claimed life-cycle savings across all tiers and time periods. Additionally, DOE's model failed to consider the additional transportation costs of approximately \$400–\$500 per multi-section home due to increased insulation weight, and persistent insulation supply-chain constraints.

The DOE Energy Rule disproportionately harms low-income and minority buyers. Manufactured housing serves as a critical path to homeownership for low-income and minority households, and these buyers disproportionately rely on higher-cost personal property loans (chattel financing) rather than conventional mortgages. For example, Black or African American households finance manufactured home purchases via personal property loans at a rate 22.3 percentage points higher than the overall household average, and because these consumers face higher interest rates and lower credit scores, the increased home costs imposed by DOE's rule compound into even greater negative life-cycle impacts for this population.

5. The 2022 MHCC Recommendations Are Cost-Justified, Consensus-Based, and Technically Sound.

The MHCC's 2022 recommendations, not DOE's Energy Rule, provide the appropriate cost-effective standards Congress has now directed HUD to adopt. After a section-by-section review of DOE's rule during its October and November 2022 meetings, the MHCC retained workable provisions, revised those that were not, and documented the basis for each change. The resulting December 2, 2022 Working Document would improve energy efficiency by approximately 22 percent on average while preserving affordability, consumer choice, and practical constructability.

Several points are key. First, the recommendations provide meaningful but achievable improvements to thermal envelope requirements, air sealing, duct leakage, ventilation, controls, and hot water provisions using available materials and standard 2x4 wall construction in all climate zones. This avoids the framing changes, shipping-height issues, egress and ventilation conflicts, and design limitations that DOE's rule would impose, particularly for Tier 2 homes in Climate Zone 3.

Second, the recommendations reflect the MHCC's statutory obligation to consider cost and affordability. By contrast, the analyses presented to the MHCC showed that, when actual construction-cost inflation and interest rates were considered, DOE's rule produced a negative ten-year life-cycle cost for approximately 95% of Tier 2 shipments, with the average Tier 2 purchaser needing approximately 12.6 years to recover the increased purchase price through energy savings. DOE's own sensitivity analysis acknowledged that more than 5,000 families per year could be priced out of manufactured housing, with industry data suggesting the actual impact could be higher.

Third, the MHCC recommendations fit within HUD's existing enforcement framework, including DAPIA design approval, IPIA in-plant inspection, HUD certification labels, and a practical monthly witnessed duct-leakage testing protocol. That approach gives manufacturers objective compliance certainty and consumers quality assurance, while avoiding costly site-by-site field testing that could eliminate projected energy savings.

Finally, the recommendations reflect sound technical judgment and consensus legitimacy. The MHCC rejected DOE's retail-price-based tier structure as unworkable and inequitable, instead recommending uniform climate-zone-based standards by construction type. Two differently constituted Committees reached the same core conclusion: manufactured housing energy standards should be updated, but incrementally and through HUD's proven framework.

4. Summary of the 2022 MHCC Recommendations.

For the convenience of members who have joined the MHCC since 2022, the table below summarizes the principal recommendations contained in the December 2, 2022 Working Document. The Working Document, and the principal supporting minutes and economic analysis are linked in the References and attached as Exhibit A.

Area of the MHCSS	MHCC's 2022 Recommendation
Climate zones (§ 3280.506)	Replaces the outdated "Uo Value Zone" terminology with three modern Climate Zones, with a state-by-state table for clarity, aligning the MHCSS's structure with contemporary energy codes.
Thermal envelope – performance path (§ 3280.506)	Establishes updated maximum Uo values in two tiers (Tier 1 single-section; Tier 2 multi-section) — a meaningful improvement over the existing standard (e.g., Zone 1 improves from 0.116 to 0.110 for Tier 1 and 0.090 for Tier 2), while remaining achievable with standard construction.
Thermal envelope – prescriptive path (§ 3280.507)	Sets minimum insulation R-values, window/skylight/door U-factors, and SHGC limits by climate zone and tier, calibrated so homes can continue to be built with 2x4 walls in all climate zones — preserving consumer options (cathedral ceilings, natural lighting), material availability, and standard transportation heights. U-factor alternatives to R-values are provided for design flexibility.
Air sealing and air barriers (§§ 3280.502, .503, .505)	Adopts modern air-barrier definitions and component-by-component installation criteria (ceilings, ducts, floors, mating lines, recessed lighting, rim joists, windows and doors), with sealing requirements adapted to factory construction.
Duct leakage testing (§ 3280.715)	Sets duct air-leakage limits of 4 cfm/100 sq. ft. (ducts outside the thermal envelope) and 8 cfm/100 sq. ft. (ducts entirely inside the envelope), verified through at least one IPIA-witnessed factory test per month — a practical, in-plant protocol in lieu of impractical site-by-site field testing.
Mechanical ventilation (§ 3280.103)	Adds minimum fan-efficacy requirements for whole-house mechanical ventilation systems.
Thermostats and controls (§ 3280.704)	Adds requirements for thermostat placement and programmable-thermostat capability, with recommended set points communicated through the homeowner's manual.
Hot water systems (§ 3280.609)	Adds requirements for heated-water circulation systems (when installed) and R-3 insulation for hot water piping outside conditioned space.

Cooling equipment (§ 3280.714)	Updates efficiency terminology to SEER2, consistent with current federal test procedures.
Equipment sizing (§ 3280.716)	Declines to adopt ACCA Manual J/S site-specific sizing calculations, which cannot be applied to homes built to a national, performance-based code without a known installation site; retains the MHCSS's existing, adequate sizing methodology.

6. Adoption of the 2022 Recommendations Is the Most Expeditious Path to Effective, Enforceable Standards.

MHI recognizes that some members may ask whether the MHCC should reopen these issues and develop entirely new recommendations. MHI respectfully urges the MHCC not to take that path. The 2022 recommendations remain technically current. They were built upon the structure of the Energy Rule and the provisions of the 2021 International Energy Conservation Code underlying it, adapted to the design, construction, and transportation realities of manufactured housing. Nothing in the intervening period has undermined their technical foundation; to the contrary, the industry's continued progress has confirmed their achievability.

Congress has already supplied the mechanism for addressing later technical developments. HUD must update the standards at least once every three years. The possibility that provision from the 2024 IECC or later model codes may warrant future considerations is therefore not a reason to delay the initial standards. HUD should adopt the record-ready 2022 recommendations now and address later developments through recurring review process Congress has required.

Without adoption of updated energy standards, it would leave the HUD Code's energy provisions outdated, prolong the uncertainty created by DOE standards that remain codified but cannot have legal effect unless adopted by HUD, and compress time available for public comment, final action, and an orderly transition before July 11, 2027. It would also leave manufacturers and consumers more exposed to disparate state and local requirements addressing the same aspects of manufactured home performance. Congress preserved the broad scope of federal preemption under 42 U.S.C. § 5403(d), confirming the value of one comprehensive national standards administered through HUD's existing program.

The 2022 recommendations are drafted in regulatory text, annotated, and supported by a complete administrative record. HUD can advance them directly into notice-and-comment rulemaking under 42 U.S.C. § 5403. Beginning anew would add years to the process, jeopardize HUD's ability to satisfy the new statutory deadline, and provide no corresponding benefit to consumers or energy efficiency.

The industry is prepared to implement these standards. Manufacturers have planned for these levels, supply chains have adjusted, and most production already meets or exceeds them. Nor is this request new. MHI made the same recommendation to the MHCC in its February 12, 2024 comment letter, that the MHCC request that HUD adopt into the MHCSS the standards recommended by the MHCC in the fall of 2022, with enforcement through the longstanding HUD regime at 24 C.F.R. § 3282. Congress's action has now removed the principal jurisdictional obstacle, confirmed HUD's authority, and imposed a deadline for action.

7. Conclusion

For the foregoing reasons, MHI respectfully requests that the Manufactured Housing Consensus Committee vote to formally re-adopt and reaffirm the MHCC's 2022 Working Document recommendations at or following the July 23, 2026 meeting, transmit those recommendations to the HUD Secretary with a request that HUD promptly initiate notice-and-comment rulemaking to incorporate the recommended modifications into the MHCSS, and decline to reopen or re-litigate the technical analysis underlying the 2022 recommendations, which were the product of thorough deliberation and overwhelming consensus.

Congress has determined that HUD must adopt minimum energy-efficiency standards and periodically update them. Executive Order 14394 requires those standards to be practical, affordable, and no more burdensome than necessary. The 2022 MHCC recommendations satisfy both directives and provide the only fully developed, consensus-based path capable of meeting Congress's deadline without sacrificing affordability or consumer choice. The time for further jurisdictional debate has passed. HUD and the MHCC should now complete the work Congress has directed them to perform. MHI stands ready to provide any additional information, technical support, or testimony the Committee may require. We appreciate the Committee's service and look forward to working together to advance affordable, energy-efficient manufactured housing for all Americans. In support of these comments, MHI shares the references and exhibit identified at the end of this letter, which document the technical, procedural, and economic record underlying the MHCC's 2022 recommendations.

We appreciate the opportunity to submit these comments and stand ready to assist HUD and the MHCC as this important work moves forward.

Sincerely,

Lesli Gooch, Ph.D.
Chief Executive Officer

Exhibit

Exhibit A - Analysis Group's Analysis of DOE's Energy Conservation Standards for Manufactured Housing, dated November 11, 2022.

References

[MHCC's Working Document from the October 18–20, 2022 and November 15–17, 2022 meetings, dated December 2, 2022.](#)

[October and November 2022 MHCC Minutes.](#)

[MHI's Previous Letter from October 12, 2022.](#)

[MHI's Previous Letter from November 11, 2022.](#)

[MHI's Previous Letter from February 12, 2024.](#)

Exhibit A

Analysis Group's Analysis of DOE's Energy Conservation Standards for Manufactured Housing, dated November 11, 2022

Analysis of DOE's Energy Conservation Standards for Manufactured Housing

Identification of Potential Issues and Sensitivity Analyses

November 11, 2022

Executive Summary

■ Assignment

- DOE relied upon a cost-benefit analysis for consumers of manufactured homes
- Analysis Group assessed this cost-benefit analysis with particular focus on **important inputs that have changed** since DOE's original analysis

■ Summary of Preliminary Conclusions

1. Adjusting DOE's assumptions for recent inflation and interest rate increases invalidates DOE's conclusion that its proposed rule is cost-effective for consumers
2. DOE's rule will have particularly negative impacts on minority and low-income homebuyers, who tend to face higher borrowing costs
3. DOE has underestimated the number of households that will no longer be able to afford a manufactured home as a result of the rule
4. DOE has failed to consider additional costs of compliance, such as duct testing and transportation costs, which could further negate any anticipated savings for consumers

Qualifications

Pavel Darling, Vice President *(MBA, MIT Sloan School of Management; B.A. in Economics, Middlebury College)*

Mr. Darling is an expert on energy matters, and often consults to utilities, state and regional organizations, and global companies in his work. He focuses on projects related to cost/benefit analyses of new construction and resource retirements; environmental effects of emissions and pollution controls; economic impacts of energy projects, mergers and policies; and natural gas, biomass, and other market studies. Mr. Darling also has extensive experience working on various climate change projects, including assessments of decarbonization policy proposals and quantification of greenhouse gas emissions impacts.

He has also submitted and supported expert testimony across different venues, including state utility commissions, siting boards, the Federal Energy Regulatory Commission and the Environmental Protection Agency. Mr. Darling's prior experience working at a utility involved preparing annual filings and working with stakeholders to assess bill impacts of proposed energy efficiency changes. He has also coauthored a number of published reports and journal articles.

About Analysis Group

Analysis Group is one of the largest international economics consulting firms, with more than 1,000 professionals across 14 offices in North America, Europe, and Asia. Since 1981, we have provided expertise in economics, finance, health care analytics, and strategy to top law firms, Fortune Global 500 companies, and government agencies worldwide. Our internal experts, together with our network of affiliated experts from academia, industry, and government, offer our clients exceptional breadth and depth of expertise.

Analysis Group's Energy & Environment practice is distinguished by our deep expertise in economics, finance, regulatory issues, and public policy, as well as significant experience in environmental economics and energy infrastructure development. We have worked on energy issues for a wide variety of clients, including energy producers, energy customers, regulatory commissions and government agencies, system operators, foundations, and nongovernmental institutions.

Background on DOE's Energy Efficiency Standards for Manufactured Housing

- Key Dates:

- Aug. 26, 2021 DOE issued Supplemental Notice of Proposed Rulemaking (SNOPR)
- May 31, 2022 Final rule and cost-benefit analyses released, relying on data from 2021 and earlier
- May 31, 2023 Expected compliance date

- By statute, DOE must consider cost effectiveness (42 U.S.C 17071(b)(1))

- "The energy conservation standards established under this section shall be based on the most recent version of the International Energy Conservation Code (including supplements), **except in cases in which the Secretary finds that the code is not cost-effective**, or a more stringent standard would be more cost-effective, based on the impact of the code on the purchase price of manufactured housing and on total life-cycle construction and operating costs."

Summary of Preliminary Conclusions

DOE's conclusions on cost effectiveness disregard or do not sufficiently consider variation in key cost inputs over time and across groups for buyers and suppliers

1 **Inflation and Cost Increases**

DOE has failed to consider the impacts of considerable cost increases and supply chain constraints. Taking these into account, DOE's conclusion is invalid and the rule has a net cost to consumers rather than a benefit.

2 **Negative and Inequitable Impacts**

DOE has failed to consider negative impacts on low-income and minority homebuyers.

3 **Affordability and Credit Access**

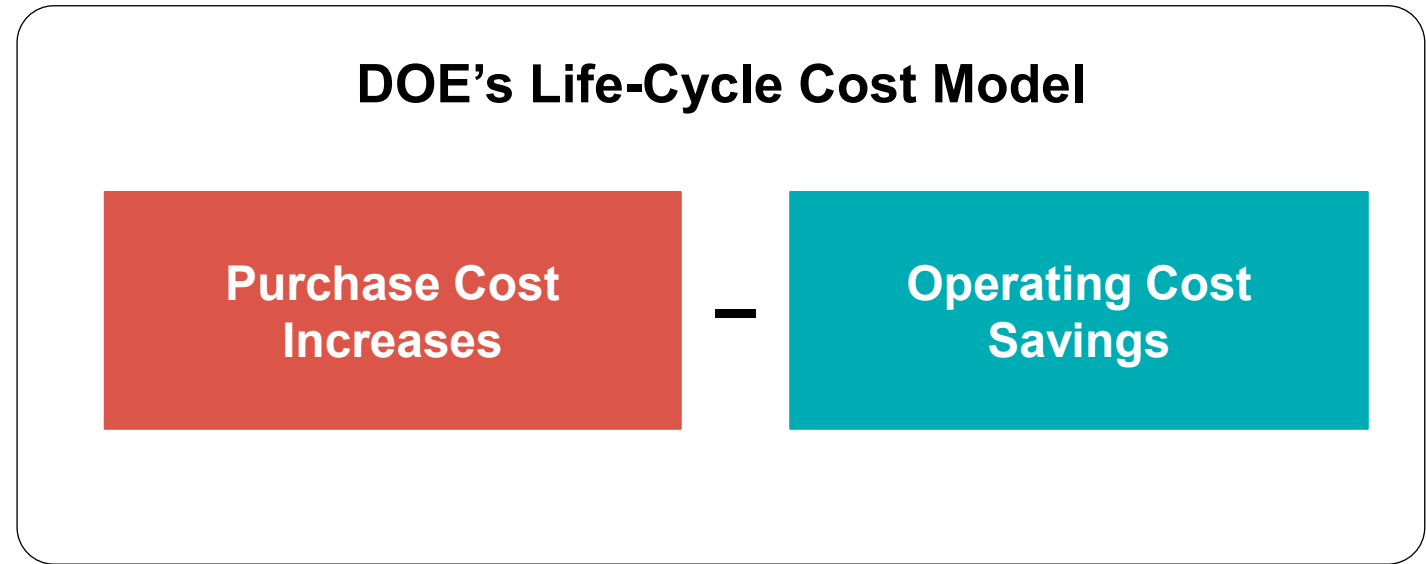
DOE has underestimated potential impacts on credit access and lost sales.

4 **Additional Costs**

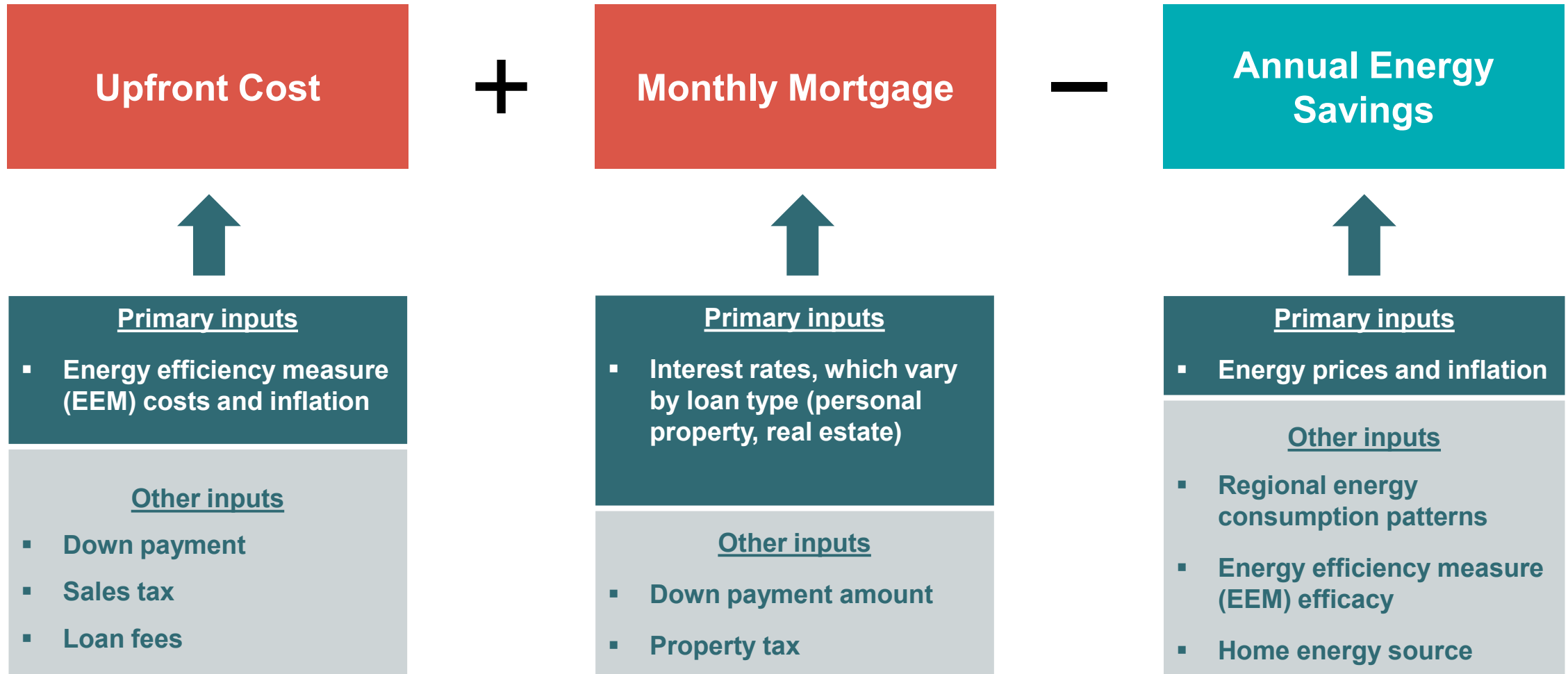
DOE has failed to consider potential costs of testing and compliance, transportation, and supply chain constraints.

Background: DOE's Life-Cycle Cost (LCC) Model

- DOE estimated the **total customer cost** over the life of the manufactured home via the Life-Cycle Cost model, including:
 - **Purchase costs** (e.g., the price of additional energy efficiency measures), and
 - **Operating costs** (e.g., energy bill savings)
- Future costs and savings are discounted to their value in the present year
- Analysis occurs over both 10- and 30-year periods
- DOE also calculates a payback period, equal to the increase in upfront cost divided by the energy savings in first year



Our Focus: Evaluating DOE's Cost-Benefit Analysis by Updating Key Inputs



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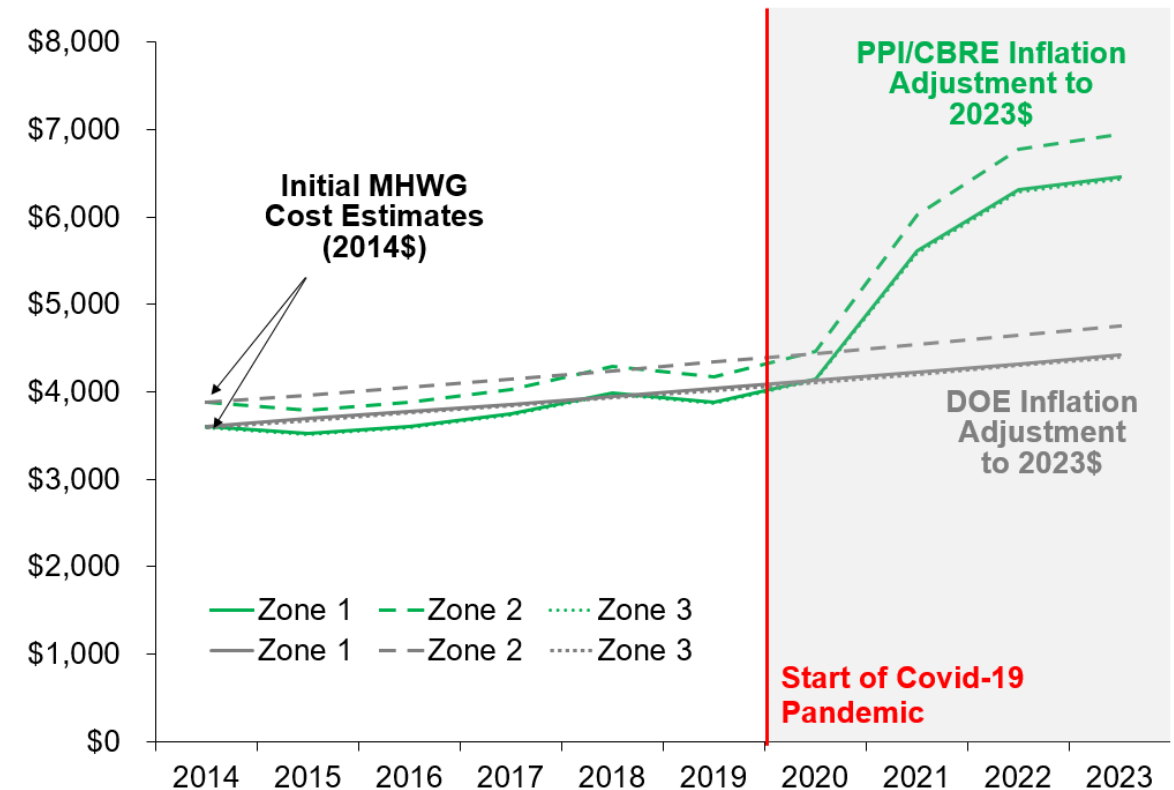
4 Additional Costs

DOE has failed to consider potential costs of testing and compliance, transportation, and supply chain constraints.

DOE Has Inadequately Adjusted EEM Cost Estimates for Inflation

- DOE calculated the costs of energy efficiency measures using cost estimates provided by the Manufactured Housing Working Group in **2014**
- To adjust for inflation, DOE assumes an annual nominal cost increase of **2.3 percent** between 2014-2023 (See gray lines)
- However, costs have increased substantially since the start of the Covid-19 pandemic. According to the BLS Producer Price Index for construction costs, materials costs have grown at an average annual rate of **6.5 percent** between 2014-2021, driven mostly by cost increases of **35.1 percent** from 2020-2021 (See green lines)
- Industry interviews suggest even higher recent increases beyond PPI, with costs at a new floor and unlikely to regress

Estimated Costs of Energy Efficiency Measures, by Inflation Adjustment Approach and Climate Zone



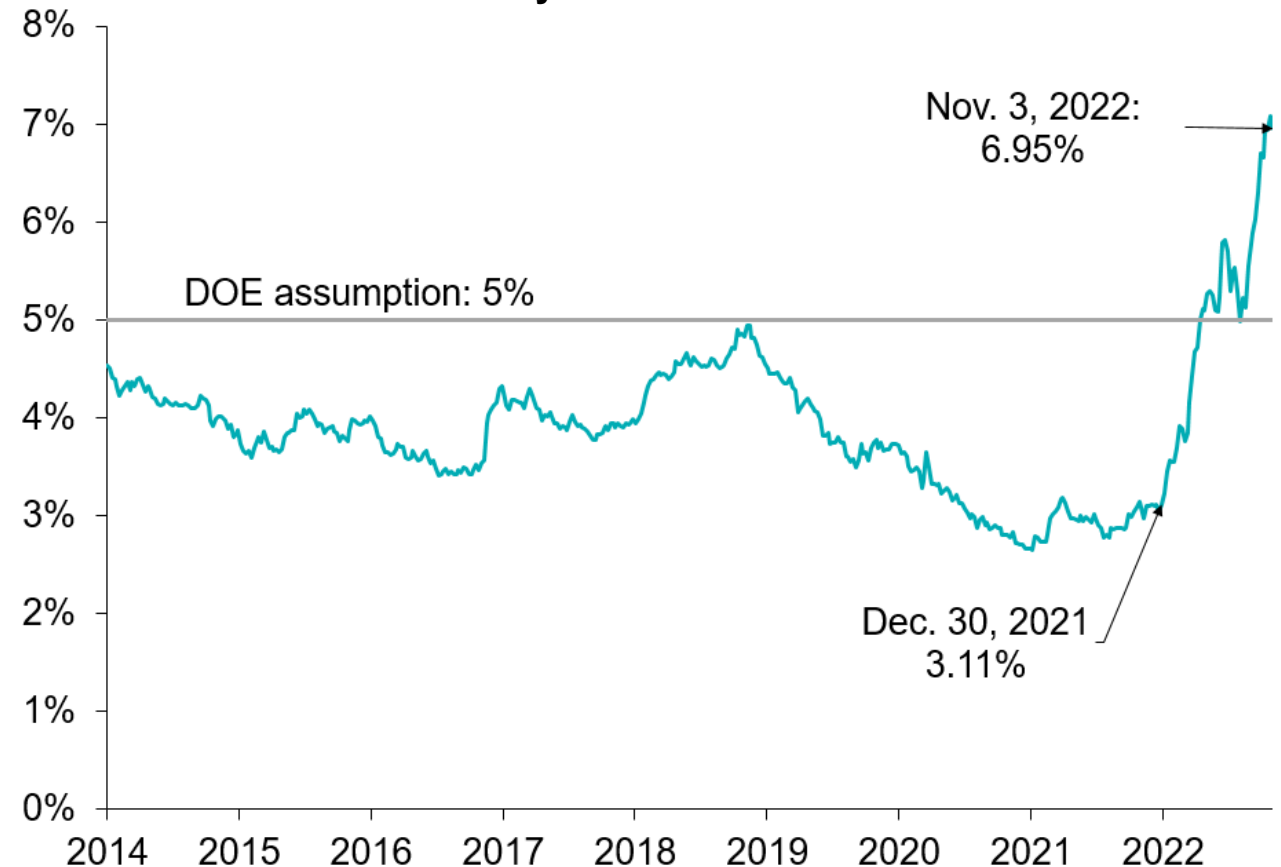
Note: Inflation estimates for PPI/CBRE series for 2022 and 2023 are from the "decreased demand" scenario of the CBRE's Construction Costs Index Forecast.

Sources: U.S. Bureau of Labor Statistics, Producer Price Index by Commodity: Special Indexes: Construction Materials [WPUSI012011], retrieved from FRED on October 30, 2022, Federal Reserve Bank of St. Louis, available at <https://fred.stlouisfed.org/series/WPUSI012011>; CBRE Research, "2022 U.S. Construction Cost Trends," July 2022, available at <https://www.cbre.com/insights/books/2022-us-construction-cost-trends>; U.S. Department of Energy, Manufactured Housing Life-Cycle Cost Analysis (LCC) Spreadsheet, May 18, 2022, available at <https://www.regulations.gov/document/EERE-2009-BT-BC-0021-1996>.

Mortgage Interest Rates Have Increased Above DOE's Assumptions

- DOE assumed interest rates of **5 percent** for mortgage loans and **9 percent** for personal property loans
- These assumptions were arguably conservative at the time, but mortgage rates have increased from approximately 3 to **7 percent**
- Industry interviews have suggested that personal property loan interest rates may be as high as **11.5 percent** for some borrowers
 - Moreover, DOE's own review of available evidence suggests that personal property loan interest rates are typically between 0.5 percentage points and 5 percentage points higher than real estate loan interest rates

**30-Year Fixed Rate Mortgage Average in the United States
January 2014 – November 2022**



Sources: Freddie Mac, 30-Year Fixed Rate Mortgage Average in the United States [MORTGAGE30US], retrieved from FRED, Federal Reserve Bank of St. Louis; <https://fred.stlouisfed.org/series/MORTGAGE30US>, November 3, 2022; U.S. Department of Energy, "2022-05 Technical Support Document: Final Rule Energy Conservation Standards for Manufactured Housing, May 18, 2022, available at <https://www.regulations.gov/document/EERE-2009-BT-BC-0021-1999>, p. 8-4.

Energy Costs Have Increased As Well, Increasing Anticipated Savings

- Over the past year, energy costs have increased due to geopolitical and pandemic related disruptions
- The U.S. Energy Information Administration has increased its forecasted energy prices for 2023 and beyond based on its *Annual Energy Outlook* (AEO)
- The DOE LCC analysis relies on energy price forecasts from 2021

U.S. Energy Information Administration's Forecasted Energy Prices, by Forecast Year

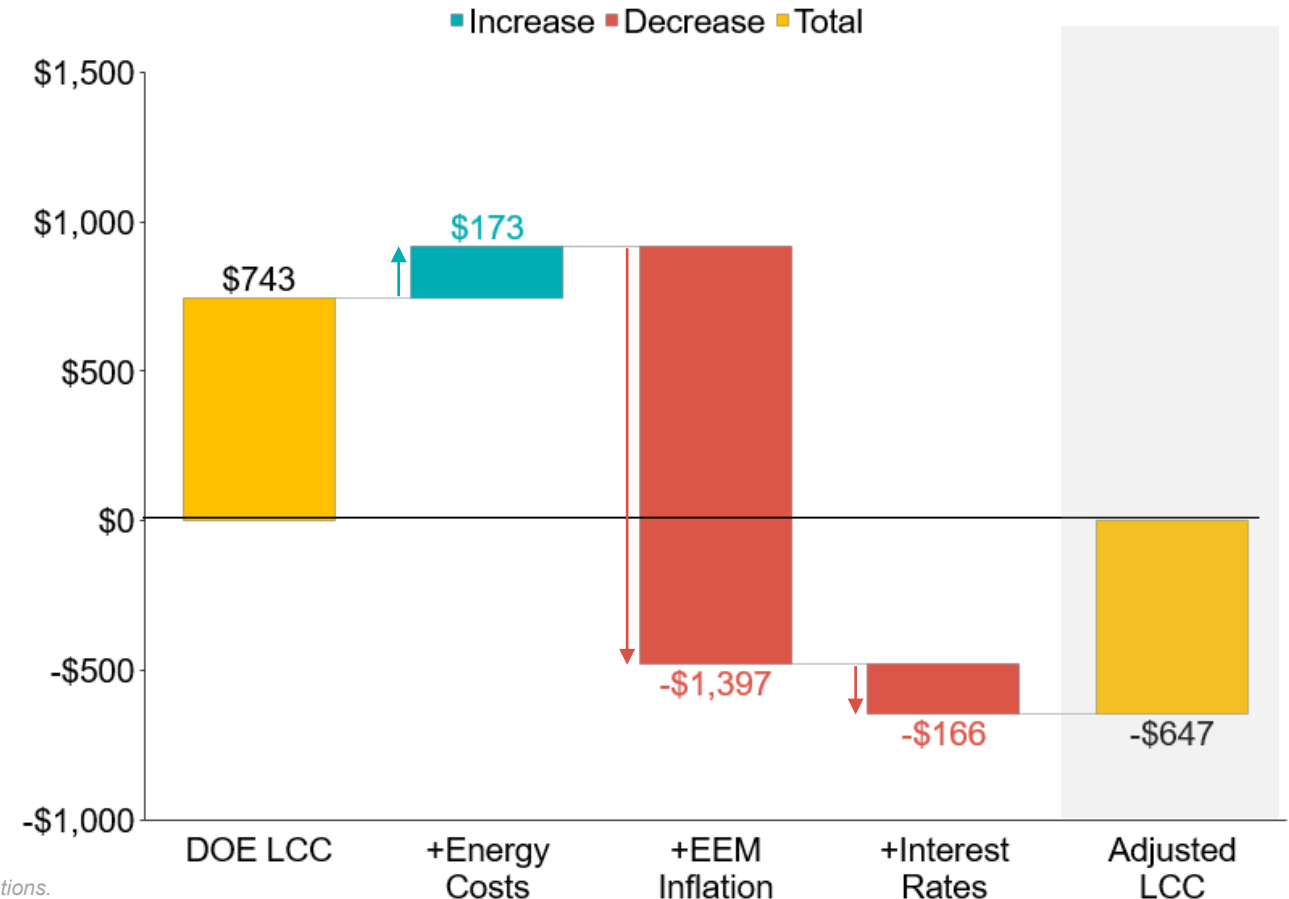
	Nominal Energy Prices			
	AEO 2021	AEO 2022	Units	% Change
	Assumptions	Assumptions		
Natural Gas	\$10.14	\$11.70	\$/Mbtu	+7.1%
Propane	\$17.30	\$21.49	\$/Mbtu	+10.8%
Elec Heat	\$0.13	\$0.14	\$/kWh	+1.9%
Elec Cool	\$0.13	\$0.14	\$/kWh	+1.5%
Elec Other	\$0.13	\$0.14	\$/kWh	+1.9%
Oil	\$17.75	\$21.71	\$/Mbtu	+10.0%

Sources: Annual Energy Outlook 2022, Table: Table 3. Energy Prices by Sector and Source, retrieved from U.S. Energy Information ; Short-Term Energy Outlook Data Browser, 2. Energy Prices, retrieved from U.S. Energy Information Administration on November 03, 2022, available at <https://www.eia.gov/outlooks/steo/data/browser/#/?v=8>.

On Net, Changes in the Recent Economic Environment Have Reversed Expected Cost Savings from the DOE Rule

- While increased energy cost forecasts have increased expected savings from the rule, the large increase in construction material costs since 2022 far outweighs these gains
- Additionally, adjusting for higher interest rates adds to expected increased costs
 - Real estate loan interest rates have been adjusted from 5 percent to **7 percent**
 - Personal property loan interest rates have conservatively been left at DOE's assumption of **9 percent**

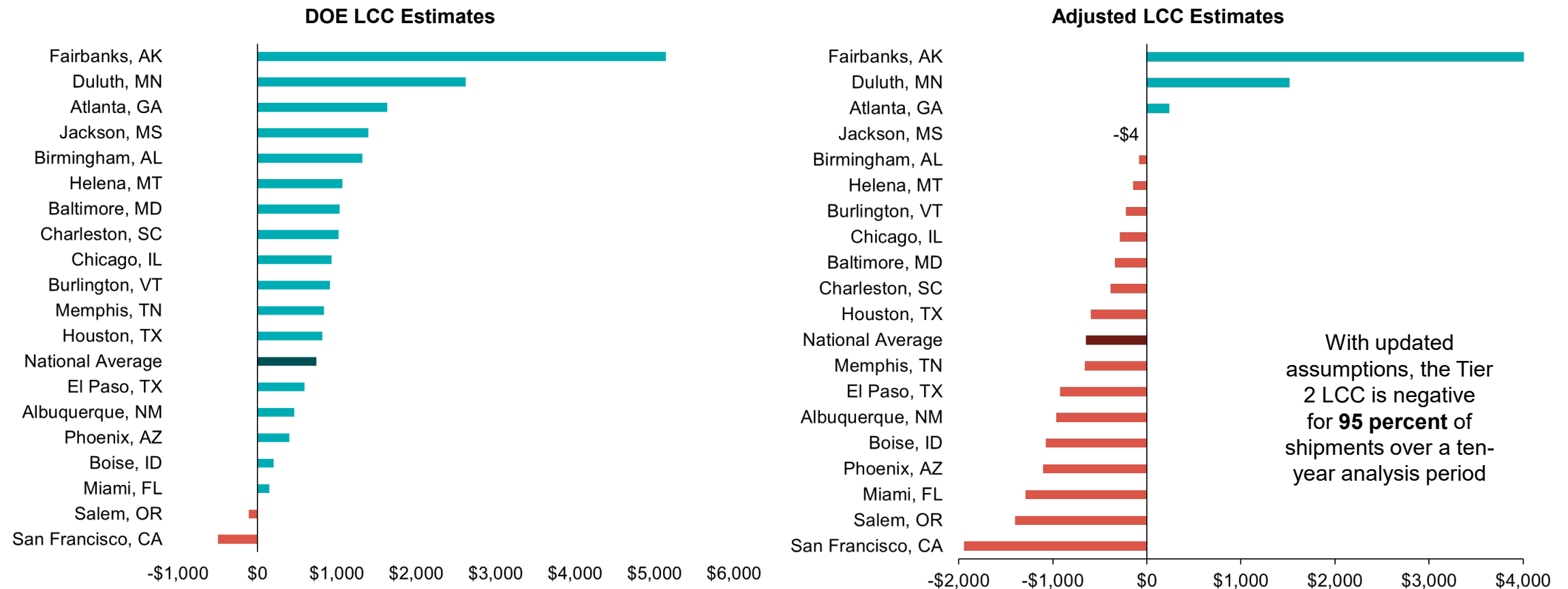
Tier 2 LCC Adjustments - 10-Year Analysis Period



Sources: U.S. Bureau of Labor Statistics, CBRE Research, Department of Energy, Freddie Mac, AG Calculations.

With Updated Costs, 10-Year Tier 2 LCC Negative For Most of the Country

Tier 2 LCC Adjustments, by City (10-Year Analysis Period)



Sources: U.S. Bureau of Labor Statistics, CBRE Research, Department of Energy, Freddie Mac, AG Calculations.

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DOE's conclusions on cost effectiveness disregard or do not sufficiently consider variation in key cost inputs over time and across groups for buyers and suppliers

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DOE has failed to consider negative impacts on low-income and minority homebuyers.

3 Affordability and Credit Access

DOE has underestimated potential impacts on credit access and lost sales.

4 Additional Costs

DOE has failed to consider potential costs of testing and compliance, transportation, and supply chain constraints.

DOE's Average Buyer Analysis Masks Negative Outcomes for a Number of Subgroups

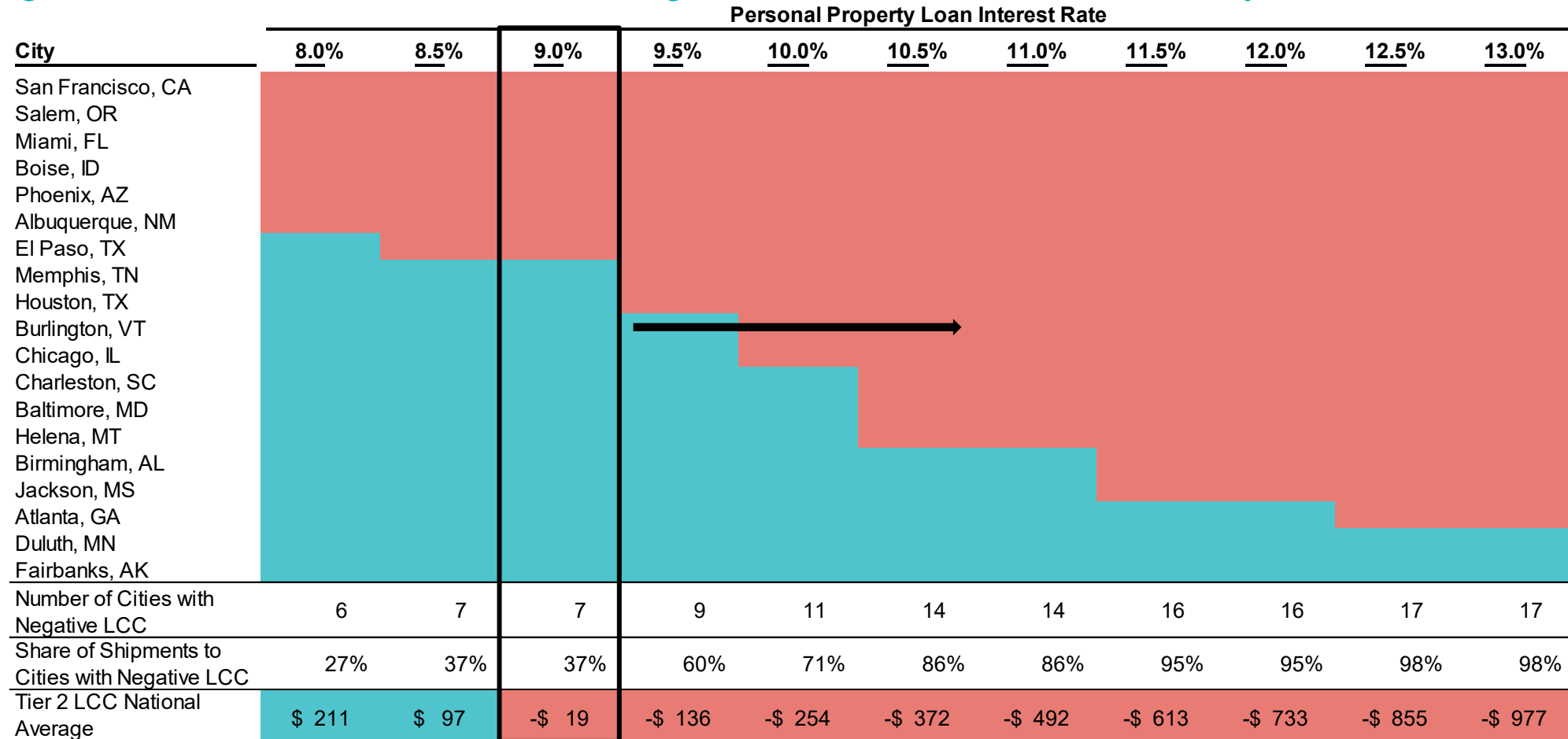
- DOE LCC calculation is an average of the LCCs for many types of buyers
- LCC estimates vary along many dimensions, including:
 - Loan type (personal property, real estate, cash)
 - Credit score
 - Home heating fuel type (e.g., natural gas, electric resistance, heat pump)
 - Climate zone/geography
- Ultimately, low-income and minority buyers are more likely to be negatively impacted by the rule
 - The Biden Administration has prioritized housing affordability and racial equity:

“The Federal Government has a critical role to play in overcoming and redressing... [its role in declining to invest in communities of color and in failing to provide equitable access,] and in protecting against other forms of discrimination by applying and enforcing Federal civil rights and fair housing laws. It can help ensure that fair and equal access to housing opportunity exists for all throughout the United States.”

Source: “Memorandum on Redressing Our Nation’s and the Federal Government’s History of Discriminatory Housing Practices and Policies,” *The White House*, January 26, 2021, available at <https://www.whitehouse.gov/briefing-room/presidential-actions/2021/01/26/memorandum-on-redressing-our-nations-and-the-federal-governments-history-of-discriminatory-housing-practices-and-policies/>.

Under DOE's Original Assumptions, 10-Year LCC for Tier 2 Personal Property Loans is Negative

With Higher Interest Rates, LCC Becomes Negative for More Parts of the Country



Note: Red indicates negative LCCs and blue indicates positive LCCs. Darker colors correspond with higher absolute values. **Source:** DOE LCC Model.

Minority Buyers Are Relatively More Likely to Rely on Higher-Cost Personal Property Loans to Finance Purchases

- Many borrowers such as those with low credit scores or residents of Manufactured Housing communities face interest rates as high as 11.5 percent
- Minority buyers finance MH purchases with personal property loans at especially high rates compared to non-minority buyers

Share of Manufactured Home Purchases Financed by Personal Property Loans (vs. Real Estate Only), by Demographic Cohort

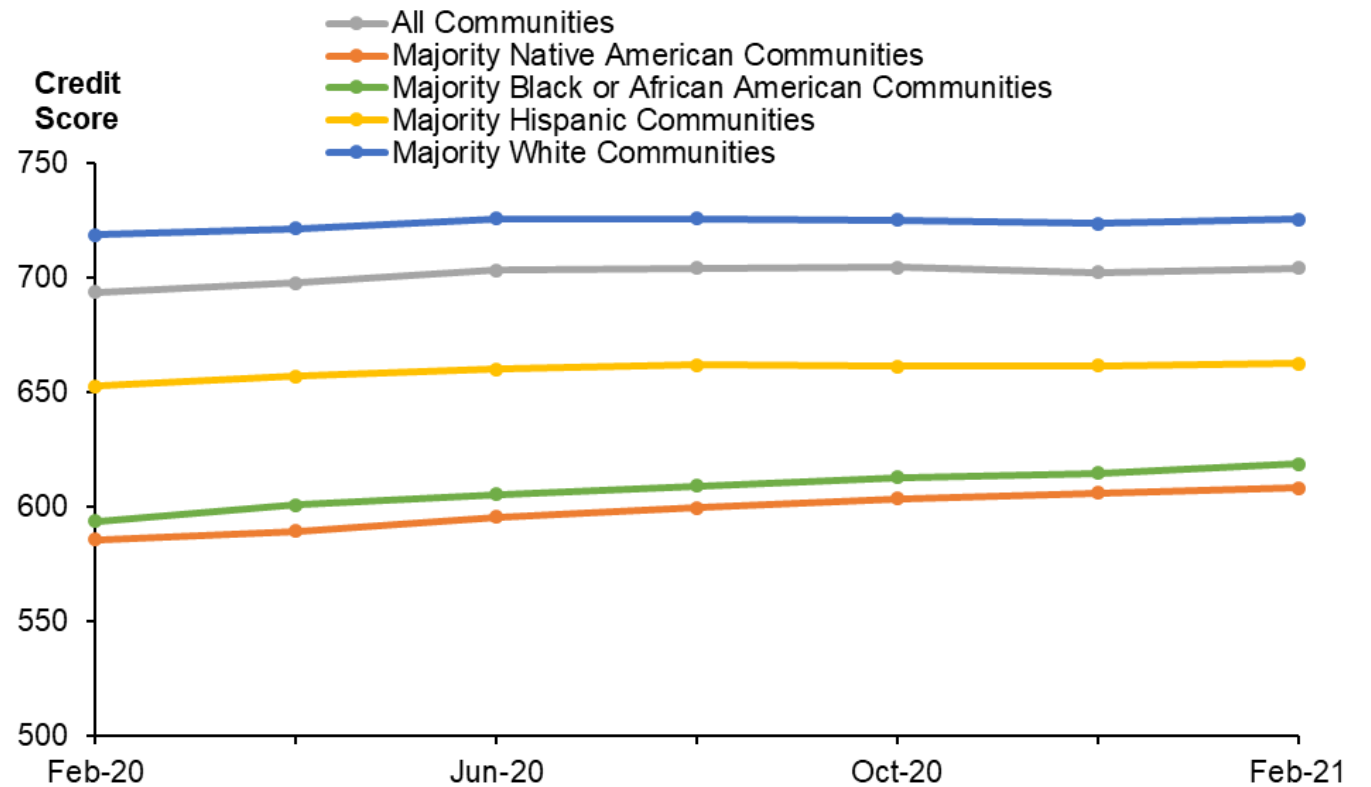
	Share of Personal Property Loans (vs Real Estate only)	Compared to All Households	Total Loans in Cohort (Personal Property and Real Estate)
All Households	42.8%	-	130,570
Low-Income Households	45.4%	+2.6%	65,583
Very Low-Income Households	45.1%	+2.3%	19,786
Hispanic	53.8%	+11.0%	16,224
Low-Income Hispanic Households	55.1%	+12.3%	8,406
Black or African American	65.1%	+22.3%	8,998
Low-Income Black or African American Households	66.7%	+24.0%	5,841
American Indian or Alaskan Native	54.7%	+11.9%	1,551
Low-Income American Indian or Alaskan Native Households	56.2%	+13.4%	840
Asian	48.6%	+5.9%	1,220

Sources: 2021 Home Mortgage Disclosure Act, United States Census Bureau.

Low-Income and Minority Households Face Higher Borrowing Costs than the Median Household

- Residents of majority-minority communities tend to have lower credit scores than compared to white communities and the national average
- Low-income and minority buyers tend to face higher interest rates

Credit Scores of Residents in Majority-Minority Communities



Sources: Urban Institute Credit Bureau Data; 2021 Home Mortgage Disclosure Act.

The Negative Impact of DOE's Proposed Rule Can Be Illustrated With a Few Representative Borrowers

Quoted Rates from 21st Mortgage's Payment Estimator Help to Approximate Current Loan Terms

- The following slides illustrate several groups of representative borrowers, which differ according to the following characteristics:
 - City [E.g., Memphis, TN (Climate Zone 2)]
 - Credit Score [E.g., 650-680]
 - Home Cost [E.g., \$100,000]
 - Down Payment [E.g., 10%]
 - Loan Type [E.g., Home-only (Private Land)]
- 21st Mortgage's "Payment Estimator" tool estimates interest rates and loan terms, given these characteristics, which we then use to calculate LCC values
 - 21st Mortgage is the largest manufactured-home lender in the country, so rates give a general sense of terms facing a current prospective manufactured homebuyer
- Credit score and energy consumption patterns by geography are key drivers of differences in anticipated savings for prospective multi-section home buyers

Geographic Energy Consumption Patterns Drive Considerable Differences Across Cities for Prospective Tier 2 Borrowers

Buyers with Good Credit Would Have Significantly Negative LCC in Most Cities

Profile	Memphis	Miami	El Paso	Houston	Phoenix	Baltimore
City	Memphis (Climate Zone 2)	Miami (Climate Zone 1)	El Paso (Climate Zone 2)	Houston (Climate Zone 1)	Phoenix (Climate Zone 2)	Baltimore (Climate Zone 3)
Credit score	650-680	650-680	650-680	650-680	650-680	650-680
Home cost	\$110,000	\$110,000	\$110,000	\$110,000	\$110,000	\$110,000
Down payment	10%	10%	10%	10%	10%	10%
Loan type	Home only (Private Land)	Home only (Private Land)	Home only (Private Land)	Home only (Private Land)	Home only (Private Land)	Home only (Private Land)
Quoted rates (21st Mortgage)						
Interest rate	9.35%	9.35%	9.35%	9.35%	9.35%	8.60%
Term	25 years	25 years	25 years	25 years	25 years	25 years
10-year LCC						
Given DOE Assumptions	-\$ 66	-\$ 612	-\$ 280	-\$ 29	-\$ 448	\$ 366
Updated EEM Costs, Energy Prices	-\$1,586	-\$2,077	-\$1,821	-\$1,462	-\$1,985	-\$ 988
30-year LCC*						
Given DOE Assumptions	\$1,712	\$ 605	\$1,323	\$1,638	\$1,052	\$2,452
Updated EEM Costs, Energy Prices	-\$ 143	-\$1,206	-\$ 565	-\$ 119	-\$ 837	\$ 773

Notes: Asterisk (*) indicates that estimates are from DOE's original model, i.e., without a correction for an error where loan payments after Year 15 are not included in the LCC calculation for personal property loans. Quoted rates are for a single applicant. From HMDA, roughly 58% of applications are from single applicants. Source: 21st Mortgage Corporation, Payment Estimator, accessed November 7, 2022, available at <https://www.21stmortgage.com/web/payment-estimator.nsf/q1.html>; U.S. Department of Energy, Manufactured Housing Life-Cycle Cost Analysis (LCC) Spreadsheet, May 18, 2022, available at <https://www.regulations.gov/document/EERE-2009-BT-BC-0021-1996>.

Excellent-Credit-Score Borrowers are the Only Credit Score Group with Positive Tier 2 10-Year LCCs (e.g., Memphis)

Based on Industry Interviews, Only 1/3 of MH Buyers Have Credit Scores Over 675

Profile	Poor Credit	Average Credit	Good Credit	Good Credit	Excellent Credit	Excellent Credit
City	Memphis	Memphis	Memphis	Memphis	Memphis	Memphis
Credit score	Under 600	600-650	650-680	680-700	700-750	750+
Home cost	\$110,000	\$110,000	\$110,000	\$110,000	\$110,000	\$110,000
Down payment	10%	10%	10%	10%	10%	10%
Loan type	Home only (Private Land)	Home only (Private Land)	Home only (Private Land)	Home only (Private Land)	Home only (Private Land)	Home only (Private Land)
Quoted rates (21st Mortgage)						
Interest rate	11.45%	10.10%	9.35%	9.35%	8.35%	8.35%
Term	25 years	25 years	25 years	25 years	25 years	25 years
10-year LCC						
Given DOE Assumptions	-\$ 578	-\$ 259	-\$ 66	-\$ 66	\$ 209	\$ 209
Updated EEM Costs, Energy Prices	-\$2,202	-\$1,818	-\$1,586	-\$1,586	-\$1,252	-\$1,252
30-year LCC*						
Given DOE Assumptions	\$ 630	\$1,288	\$1,712	\$1,712	\$2,355	\$2,355
Updated EEM Costs, Energy Prices	-\$1,255	-\$ 578	-\$ 143	-\$ 143	\$ 516	\$ 516

Notes: Asterisk (*) indicates that estimates are from DOE's original model, i.e., without a correction for an error where loan payments after Year 15 are not included in the LCC calculation for personal property loans. Quoted rates are for a single applicant. From HMDA, roughly 58% of applications are from single applicants. **Source:** 21st Mortgage Corporation, Payment Estimator, accessed November 7, 2022, available at <https://www.21stmortgage.com/web/payment-estimator.nsf/q1.html>; U.S. Department of Energy, Manufactured Housing Life-Cycle Cost Analysis (LCC) Spreadsheet, May 18, 2022, available at <https://www.regulations.gov/document/EERE-2009-BT-BC-0021-1996>.

Summary of Preliminary Conclusions

DOE's conclusions on cost effectiveness disregard or do not sufficiently consider variation in key cost inputs over time and across groups for buyers and suppliers

1 Inflation and Cost Increases

DOE has failed to consider the impacts of considerable cost increases and supply chain constraints. Taking these into account, DOE's conclusion is invalid and the rule has a net cost to consumers rather than a benefit.

2 Negative and Inequitable Impacts

DOE has failed to consider negative impacts on low-income and minority homebuyers.

3 Affordability and Credit Access

DOE has underestimated potential impacts on credit access and lost sales.

4 Additional Costs

DOE has failed to consider potential costs of testing and compliance, transportation, and supply chain constraints.

Increased Costs Will Likely Impact Ability to Qualify for Financing

- Debt-to-income ratio is one of the top reasons why potential buyers of manufactured homes are denied loans
 - In 2021, **42 percent** of denied loans for MH purchases listed the applicant's debt-to-income ratio as a reason for denial
- The cost of owning a new manufactured home has increased by over 40 percent since 2020, according to an industry source
 - Additionally, the cost of construction materials has increased by at least 35 percent since 2020, increasing the cost of compliance
 - Together, these two factors are likely to increase the debt-to-income ratio for potential applicants for manufactured home loans, increasing the likelihood of loan denial
- Minority buyers tend to have lower incomes, and therefore the impacts of the rule have the potential to fall disproportionately on historically marginalized communities
 - Low-income buyers are likely to be disproportionately impacted for similar reasons

Sources: 2021 Home Mortgage Disclosure Act, Industry Interviews.

DOE's Reliance on Elasticity of Demand Estimates Understates Likely Impact on Affordability & Housing Access

- DOE has likely underestimated the affordability impact by assuming **relatively low price-sensitivity**
 - For example, AG's updated EEM cost estimates suggest that the cost of Tier 2 homes will increase by **6.1 percent**
 - Under DOE's assumption, a 6.1 percent increase in price leads to **2.9 percent fewer sales annually**
 - However, according to 2021 estimates of price sensitivity by the National Association of Home builders, the same 6.1 percent increase in price would lead to **6.4 percent fewer sales annually**
 - DOE's own sensitivity analysis, based on a study HUD has cited in prior rulemakings, suggests that this 6.1 percent price increase would lead to **14.6 percent fewer sales annually**
- Additionally, DOE has likely underestimated impacts on affordability due to:
 - DOE has arguably **underestimated compliance costs** and the expected increases in MH prices due to the rule
 - The **recent increase in retail prices** of MHs may have made ownership unaffordable for many consumers already
 - Consumers may be increasingly sensitive to price increases at higher baseline prices
- DOE's assumption understates the decreased demand by *thousands* of potential manufactured home buyers per year, all of whom would have to choose from worse alternatives

Sources: DOE Technical Support Document, pp. 8-3, 10-7 – 10-9; NAHB (2021); EERE-2009-BT-BC-0021-1997_content, Sheet "Price Elasticity," Cells E3:E4; AG Calculations.

Summary of Preliminary Conclusions

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DOE Has Not Accounted for Costs of Testing and Compliance, Which Could Entirely Offset Anticipated Life-Cycle Cost Savings

- DOE has not specified requirements for duct system testing and air leakage testing, which are required by the IECC
- The costs of these possible testing requirements were also not included in DOE's LCC analyses
- Industry interviews have suggested that the costs of compliance may range up to and possibly **over \$1,000/house** for in-field testing of homes in more remote locations
- A \$1,000 testing cost could nearly wipe out anticipated savings across all tiers and analysis periods

DOE and Adjusted LCC Values, by Tier and Analysis Period

	10-Year LCC		30-Year LCC*	
	Tier 1	Tier 2	Tier 1	Tier 2
DOE LCC	\$720	\$743	\$1,594	\$3,573
Adjusted LCC	\$549	-\$647	\$1,395	\$1,361
Adjusted LCC, with \$1,000 Testing Cost	-\$194	-\$1,330	\$426	\$338

Note: Asterisk (*) indicates that the 30-year LCC estimates rely on DOE's original model, which erroneously excludes mortgage payments after the 15th year of personal property loans and therefore overestimates anticipated savings.

Transportation Costs May Further Reduce or Negate Anticipated Savings

- Interviews with industry experts, as well as public comments submitted to DOE, have suggested that DOE has underestimated additional transportation costs due to additional height and weight required to comply with the rule
 - Additional insulation and framing requirements may increase the weight of manufactured homes, requiring an additional axle, which may cost **at least \$400 to \$500/multi-section house**
 - The rule may require homes in CZ2 and CZ3 to use 2' x 6' studs instead of standard 2' x 4' studs, which increases package height. Height increases may require re-routing deliveries around areas with height restrictions, such as in the Northeast
- Additionally, transportation costs have increased in general during the pandemic, e.g., as fuel and labor costs have increased
- Incremental transportation costs were not included in DOE's LCC estimates

Pandemic-Related Supply Chain Shortages May Persist into 2023

- Industry interviews have predicted that pandemic-related supply chain shortages are likely to persist into 2023
 - For example, one interview noted that there were already insulation shortages, with additional cost increases coming in January 2023
 - New fiberglass insulation plants are capital-intensive and take time to build, and therefore insulation shortages are likely to persist in the medium term
 - Therefore, increased demand from the manufactured housing sector due to the DOE rule may further exacerbate existing insulation shortages
 - Without sufficient fiberglass insulation, manufacturers may be forced to substitute to spray foam insulation for parts of the production process, increasing costs significantly and reducing the total number of homes that can be produced per day
- Additionally, CBRE has predicted that pandemic-related delays and labor shortages will continue in the short term



July 23, 2026

Home Innovation Research Labs
Attn: John Peavey, Director of Building Science
400 Prince Georges Blvd.
Upper Marlboro, Maryland 20774
mhcc@homeinnovation.com

RE: Notice of Federal Advisory Committee Meeting; Manufactured Housing Consensus Committee (MHCC) Docket No. FR-6549-N-03

Dear MHCC Members:

We, the undersigned manufactured home builders, write to express our strong support for the energy-efficiency standards recommended by the MHCC in 2022 and to urge the Committee to again recommend their adoption by HUD.

Today's manufactured housing industry is already building homes that significantly exceed the energy-efficiency requirements contained in the current HUD Code. The fact that the Code's energy provisions have not been meaningfully updated in decades does not reflect current industry practice and contributes to the inaccurate perception that manufactured housing is built to outdated standards. The reality is that modern manufactured homes are among the most energy-efficient housing options available to American homebuyers.

The MHCC's 2022 recommendations provide a practical, cost-effective, and carefully vetted path to modernizing the HUD Code. Developed through the consensus process established by Congress, the recommendations improve energy performance while preserving affordability and consumer choice. They reflect years of technical review and remain the most appropriate framework for updating the federal standards.

Most manufacturers already construct homes that meet or exceed the performance levels reflected in the 2022 recommendations. HUD should move forward with modernizing the Code so that the written standards align with the homes being built today.

We respectfully urge the MHCC to reaffirm its 2022 recommendations and transmit them to HUD with a recommendation that they be adopted as the updated energy-efficiency standards for manufactured housing.

Sincerely,
Adventure Homes
Cavco Industries
Champion Homes
Clayton Homes
Deer Valley Homebuilders
Jessup Housing
Kabco Builders, Inc.
Live Oak Homes
Timber Creek Housing



MANUFACTURED HOUSING CONSENSUS COMMITTEE

1.888.602.4663 | MHCC@HUD.GOV | MHCC@HOMEINNOVATION.COM

APPENDIX C

2022 MHCC Comments on the DOE Public Input on Energy Conservation Standards for Manufactured Housing with Modifications

July 23, 2026



MHCC Working Document from October 18-20, 2022 and November 15-17, 2022 MHCC Meetings with Approved Modifications from July 23, 2026

Showing changes made to HUD Code based on Department of Energy's (DOE) Energy Conservation Program:
Energy Conservation Standards for Manufactured Housing

Changes shown in **red** indicate MHCC recommended changes to the HUD Code.

Text/changes shown in **purple** indicate MHCC approved changes made to text originating in Department of Energy's (DOE) Energy Conservation Program: Energy Conservation Standards for Manufactured Housing. Notes are included with each purple change indicating the reason for the modification.

MHCC General Comments:

- The MHCC agrees that the energy efficiency requirements need to be updated but believes the updates should be done incrementally. The recommended changes shown in this document accomplish this incremental approach.
- HUD, by statute, is the body responsible for the development and enforcement of manufactured housing standards.
- The MHCC has reviewed the DOE Final Rule and has determined DOE circumvented the standards development process prescribed in EISA which requires cost justification and consultation with HUD.
- DOE provided an energy conservation standard which was based on site-built construction and applied it to a performance-based national code. If adopted as written, the final rule would adversely impact the entire Manufactured Housing program and cost increases associated with compliance would reduce

prospective purchasers (especially minorities and low-income consumers) from durable, safe, high quality and affordable housing.

- The MHCC reviewed the DOE Final Rule and is recommending modifications to the MHCSS based largely on the final rule. The recommended changes increase energy efficiency while maintaining affordability and consumer options.
- The MHCC previously recommended that DOE include the substantial cost of testing, enforcement, and regulatory compliance in its costing analysis. The final rule did not consider these costs. The recommended changes implemented into the MHCSS allow for testing, enforcement, and regulatory compliance within HUD's existing framework which helps minimize costs to manufacturers and ultimately consumers. However, there still may be a gap in enforcement between HUD's final standards and DOE's final rule, which may need to be resolved.
- The MHCC has a statutory obligation to consider the cost impacts of all recommended changes to the MHCSS and preserve affordability to increase American home ownership and this obligation is reflected in the recommended changes.
- The MHCC expects, in accordance with normal practice, the recommendations contained in this document will be subject, as required in 42 USC 5403, to publication as a proposed rule and full notice and comment rulemaking in accordance with the 1974 Act as amended.
- See [Appendix A](#) for information and data supporting recommended changes.
- The MHCC's recommendations (1) seek to align the HUD code with the DOE Energy Rule which is based on certain IECC sections, and (2) does not include certain sections as they were either not pertinent to manufactured housing or appropriate for these recommendations. The MHCC acknowledges that the International Energy Conservation Code (IECC) is a copyright protected document, published and owned by the International Code Council (ICC), and that reproduction or copying of the IECC requires written permission or license from the ICC. Copies of the IECC are available for purchase at www.iccsafe.org. They may also be viewed for free on ICC's public access website at: <https://codes.iccsafe.org/public/collections/I-Codes>.

**ICC has requested that this or a similar statement be included in the preamble of the Proposed Rule.*

General Changes:

- 3280: Replace term "U_o Value Zone" with "Climate Zone"

Subpart A - General

§ 3280.1 Scope.

This standard covers all equipment and installations in the design, construction, transportation, fire safety, plumbing, heat-producing, [cooling](#), and electrical systems of manufactured homes which are designed to be used as dwelling units. This standard seeks to the maximum extent possible to establish performance requirements.

In certain instances, however, the use of specific requirements is necessary.

§ 3280.2 Definitions.

Equipment includes materials, appliances, devices, fixtures, fittings or accessories both in the construction of, and in the fire safety, plumbing, heat-producing, cooling, and electrical systems of manufactured homes.

Subpart B - Planning Considerations

§ 3280.103 Light and ventilation.

(e) Mechanical ventilation fan efficacy

1. Whole-house mechanical ventilation system fans must meet the minimum efficacy requirements set forth in the following table except as provided in paragraph (2) of this section.
2. Mechanical ventilation fans that are integral to heating, ventilating, and air conditioning equipment, including furnace fans are not subject to the efficiency requirements in paragraph (1) of this section.

MECHANICAL VENTILATION SYSTEM FAN EFFICACY

<u>Fan type description</u>	<u>Airflow rate minimum (cfm)</u>	<u>Minimum efficacy (cfm/watt)</u>
<u>Heat recovery ventilator or energy recovery Ventilator.</u>	<u>Any</u>	<u>1.2</u>
<u>In-line supply or exhaust fans.</u>	<u>Any</u>	<u>3.8</u>
<u>Other exhaust fan.</u>	<u><90</u>	<u>2.8</u>
<u>Other exhaust fan.</u>	<u>³90</u>	<u>3.5</u>

SUBPART F – THERMAL PROTECTION

§ 3280.501 Scope.

This subpart sets forth the requirements for energy conservation, condensation control, air infiltration, thermal insulation and certification for heating and cooling.

§ 3280.502 Definitions.

~~(1) — Pressure envelope means that primary air barrier surrounding the living space which serves to limit air leakage. In construction using ventilated cavities, the pressure envelope is the interior skin.~~

Note: Replace all instances of Pressure envelope with Air Barrier

~~(2) — Thermal envelope area means the sum of the surface areas of outside walls, ceiling and floor, including all openings. The wall area is measured by multiplying outside wall lengths by the inside wall height from floor to ceiling. The floor and ceiling areas are considered as horizontal surfaces using exterior width and length.~~

Access (to) means that which enables a device, appliance or equipment to be reached by ready access or by a means that first requires the removal or movement of a panel or similar obstruction.

Air barrier means one or more materials joined together in a continuous manner to restrict or prevent the passage of air through the building thermal envelope and its assemblies.

Automatic means self-acting or operating by its own mechanism when actuated by some impersonal influence.

Building thermal envelope means exterior walls, exterior floors, exterior ceiling, or roofs, and any other building element assemblies that enclose conditioned space or provide a boundary between conditioned space and unconditioned space.

Ceiling means an assembly that supports and forms the overhead interior surface of a building or room that covers its upper limit and is horizontal or tilted at an angle less than 60 degrees (1.05 rad) from horizontal.

Climate zone means a geographical region identified in § 3280.506.

Conditioned space means an area, room, or space that is enclosed within the building thermal envelope and that is directly or indirectly heated or cooled. Spaces are indirectly heated or cooled where they communicate through openings with conditioned space, where they are separated from conditioned spaces by uninsulated walls, floors or ceilings, or where they contain uninsulated ducts, piping, or other sources of heating or cooling.

Door means an operable barrier used to block or allow access to an entrance of a manufactured home.

Dropped ceiling means a secondary nonstructural ceiling, hung below the exterior ceiling.

Dropped soffit means a secondary nonstructural ceiling that is hung below the exterior ceiling and that covers only a portion of the ceiling.

Duct means a tube or conduit, except an air passage within a self-contained system, utilized for conveying air to or from heating, cooling, or ventilating equipment.

Duct system means a continuous passageway for the transmission of air that, in addition to ducts, includes duct fittings, dampers, plenums, fans, and accessory air-handling equipment and appliances.

Eave means the edge of the roof that overhangs the face of an exterior wall and normally projects beyond the side of the manufactured home.

Exterior ceiling means a ceiling that separates conditioned space from unconditioned space.

Exterior floor means a floor that separates conditioned space from unconditioned space.

Exterior wall means a wall, including a skylight well, that separates conditioned space from unconditioned space.

Fenestration means vertical fenestration and skylights.

Floor means a horizontal assembly that supports and forms the lower interior surface of a building or room upon which occupants can walk.

Glazed or glazing means an infill material, including glass, plastic, or other transparent or translucent material used in fenestration.

Note: MHCC only included a portion of the definition in 16 cfr 460.2 because that definition was specific to House insulation.

Insulation means any material mainly used to slow heat flow. It may be mineral or organic, fibrous, cellular, or reflective. It may be in rigid, semirigid, flexible, or loose-fill form.

Manual means capable of being operated by personal intervention.

Opaque door means a door that is not less than 50 percent opaque in surface area.

R-value (thermal resistance) means the inverse of the time rate of heat flow through a body from one of its bounding surfaces to the other surface for a unit temperature difference between the two surfaces, under steady state conditions, per unit area ($h \times ft^2 \times ^\circ F/Btu$).

Rough opening means an opening in the exterior wall or roof, sized for installation of fenestration.

Skylight means glass or other transparent or translucent glazing material, including framing materials, installed at an angle less than 60 degrees (1.05 rad) from horizontal, including unit skylights, tubular daylighting devices, and glazing materials in solariums, sunrooms, roofs and sloped walls.

Skylight well means the exterior walls underneath a skylight that extend from the interior finished surface of the exterior ceiling to the exterior surface of the location to which the skylight is attached.

Solar heat gain coefficient (SHGC) means the ratio of the solar heat gain entering a space through a fenestration assembly to the incident solar radiation. Solar heat gain includes directly transmitted solar heat and absorbed solar radiation that is then reradiated, conducted, or convected into the space.

Thermostat means an automatic control device used to maintain temperature at a fixed or adjustable set point.

U-factor (thermal transmittance) means the coefficient of heat transmission (air to air) through a building component or assembly, equal to the time rate of heat flow per unit area and unit temperature difference between the warm side and cold side air films (Btu/h × ft² × °F).

U_o (overall thermal transmittance) means the coefficient of heat transmission (air to air) through the building thermal envelope, equal to the time rate of heat flow per unit area and unit temperature difference between the warm side and cold side air films (Btu/ h × ft² × °F).

Ventilation means the natural or mechanical process of supplying conditioned or unconditioned air to, or removing such air from, any space.

Vertical fenestration means windows (fixed or moveable), opaque doors, glazed doors, glazed block and combination opaque and glazed doors composed of glass or other transparent or translucent glazing materials and installed at a slope of greater than or equal to 60 degrees (1.05 rad) from horizontal.

Wall means an assembly that is vertical or tilted at an angle equal to greater than 60 degrees (1.05 rad) from horizontal that encloses or divides an area of a building or room.

Whole-house mechanical ventilation system means an exhaust system, supply system, or combination thereof that is designed to mechanically exchange indoor air with outdoor air when operating continuously or through a programmed intermittent schedule to satisfy the whole house ventilation rates.

Window means glass or other transparent or translucent glazing material, including framing materials, installed at an angle greater than 60 degrees (1.05 rad) from horizontal.

Note: MHCC did not include definition for “Zone” from DOE Rule.

MHCC Reason: Zone is a commonly used term in the industry, and only appears in this context once in the standard. The definition provided is typically used for HVAC zones. The term zone is used in many different places in the standard, typically referring to climate zone.

~~Zone means a space or group of spaces within a manufactured home with heating or cooling requirements that are sufficiently similar so that desired conditions can be maintained using a single controlling device.~~

§ 3280.503 Materials.

- (a) Installation of Insulation - Insulating materials must be installed according to the insulation manufacturer’s installation instructions and the requirements set forth in table below

INSTALLATION OF INSULATION

<u>Component</u>	<u>Installation requirements</u>
------------------	----------------------------------

<u>General</u>	<u>Air-permeable insulation must not be used as a material to establish the air barrier.</u>
<u>Access hatches, panels, and doors</u>	<u>Access hatches, panels, and doors between conditioned space and unconditioned space, such as attics and crawlspaces, must be insulated to a level equivalent to the insulation of the surrounding surface, must provide access to all equipment that prevents damaging or compressing the insulation, and must provide a wood framed or equivalent baffle or retainer when loose fill insulation is installed within an exterior ceiling assembly to retain the insulation both on the access hatch, panel, or door and within the building thermal envelope.</u>
<u>Baffles</u>	<u>For air-permeable insulations in vented attics, a baffle must be installed adjacent to soffit and eave vents, when needed in order to maintain 1 inch minimum air space between insulation and roof decking. Baffles, when used in conjunction with eave venting, must be constructed using a solid material, maintain an opening equal or greater than the size of the vents, and extend over the top of the attic insulation</u>
<u>Ceiling or attic</u>	<u>The insulation in any dropped ceiling or dropped soffit must be aligned with the air barrier.</u>
<u>Narrow cavities</u>	<u>Batts to be installed in narrow cavities must be cut to fit or narrow cavities must be filled with insulation that upon installation readily conforms to the available cavity space.</u>
<u>Rim joists</u>	<u>Rim joists must be insulated such that the insulation maintains permanent contact with the exterior rim board.</u>
<u>Shower or tub adjacent to exterior wall</u>	<u>Exterior walls adjacent to showers and tubs must be insulated.</u>
<u>Walls</u>	<u>Air permeable exterior building thermal envelope insulation for framed exterior walls must completely fill the cavity, including within stud bays caused by blocking lay flats or headers.</u>

§ 3280.505 Air infiltration.

(a) Envelope air infiltration. The opaque envelope shall be designed and constructed to limit air infiltration to the living area of the home. Any design, material, method or combination thereof which accomplishes this goal may be used. The goal of the infiltration control criteria is to reduce heat

loss/heat gain due to infiltration as much as possible without impinging on health and comfort and within the limits of reasonable economics.

~~(1) — Envelope penetrations. Plumbing, mechanical and electrical penetrations of the pressure envelope not exempted by this part, and installations of window and door frames shall be constructed or treated to limit air infiltration. Penetrations of the pressure envelope made by electrical equipment, other than distribution panel boards and cable and conduit penetrations, are exempt from this requirement.~~

~~Cable penetrations through outlet boxes are considered exempt.~~

~~(2) — Joints between major envelope elements. Joints not designed to limit air infiltration between wall to wall, wall to ceiling and wall to floor connections shall be caulked or otherwise sealed. When walls are constructed to form a pressure envelope on the outside of the wall cavity, they are deemed to meet this requirement.~~

(1) Manufactured homes must be sealed against air leakage at all joints, seams, and penetrations associated with the building thermal envelope in accordance with the component manufacturer's installation instructions and the requirements set forth in the table below. Sealing methods between dissimilar materials must allow for differential expansion, contraction, and mechanical vibration, and must establish a continuous air barrier upon installation of all opaque components of the building thermal envelope. All gaps and penetrations in the exterior ceiling, exterior floor, and exterior walls, including ducts, flue shafts, plumbing, piping, electrical wiring, utility penetrations, bathroom and kitchen exhaust fans, recessed lighting fixtures adjacent to unconditioned space, and light tubes adjacent to unconditioned space, must be sealed with caulk, foam, gasket or other suitable material.

<u>AIR BARRIER INSTALLATION CRITERIA</u>	
<u>Component</u>	<u>Air barrier criteria</u>
<u>Ceiling or attic</u>	<u>The air barrier in any dropped ceiling or dropped soffit must be aligned with the insulation and any gaps in the air barrier must be sealed with caulk, foam, gasket, or other suitable material. Access hatches, panels, and doors, drop-down stairs, or knee wall doors to unconditioned attic spaces must be weather- stripped or equipped with a gasket to produce a continuous air barrier.</u>
Note: MHCC changed the title of “Duct system register boots” from the DOE rule. MHCC Reason: Change terminology to be consistent with terms used in the MH industry. Not changing the intent of the practice.	
<u>Supply and return ducts</u>	<u>Supply and return ducts that penetrate the building thermal envelope or the air barrier must be sealed to the subfloor, wall covering or ceiling penetrated by the duct, air barrier, or the interior finish materials with caulk, foam, gasket, or other suitable material.</u>
<u>Electrical box or phone box on exterior walls</u>	<u>The air barrier must be installed behind electrical and communication boxes or the air barrier must be sealed around the box penetration with caulk, foam, gasket, or other suitable material.</u>
<u>Floors</u>	<u>The air barrier must be installed at any exposed edge of insulation. The bottom board may serve as the air barrier.</u>
<u>Mating line surfaces</u>	<u>Mating line surfaces must be equipped with a continuous and durable gasket.</u>
<u>Recessed lighting</u>	<u>Recessed light fixtures installed in the building thermal envelope must be sealed to the drywall with caulk, foam, gasket, or other suitable material.</u>

<u>Rim joists</u>	<u>The air barrier must enclose the rim joist to subfloor interface.</u> Note: The MHCC replaced “The air barrier must enclose the rim joists. The junctions of the rim board and the subfloor must be air sealed.” From the DOE Rule with the language above.
	MHCC reason: Proposed language provides more clarity.
<u>Shower or tub adjacent to exterior wall</u>	<u>The air barrier must separate showers and tubs from exterior walls when interior wall surface is used as an air barrier</u> Note: MHCC added additional language to clarify placement, location, and proper use of air barrier.
<u>Walls</u>	<u>The junction of the top plate and the exterior ceiling, and the junction of the bottom plate and the exterior floor, along exterior walls must be sealed with caulk, foam, gasket, or other suitable material.</u>
<u>Windows, skylights, and exterior doors</u>	<u>The rough openings around windows, exterior doors and skylights must be sealed with caulk or foam, or other suitable material.</u> Note: MHCC added “, or other suitable material to provide more flexibility in methods used to seal rough openings.

§ 3280.506 ~~Heat loss/heat gain~~ Building Thermal Envelope and Climate Zones.

(a) Compliance options. The building thermal envelope must meet either the performance requirements of this section or the prescriptive requirements of section 3280.507. The climate zone shall be determined from the map in figure 1 and table XX.

Note: Rename title of Figure 1 U/o Value Zone Map to Climate Zone Map and remove U values from map. Add table “US states and territories per climate zone” below climate zone map.

U.S. STATES AND TERRITORIES PER CLIMATE ZONE

<u>Zone 1</u>	<u>Zone 2</u>	<u>Zone 3</u>
<u>Alabama</u>	<u>Arkansas</u>	<u>Alaska</u>
<u>American Samoa</u>	<u>Arizona</u>	<u>Colorado</u>

<u>Florida</u>	<u>California</u>	<u>Connecticut</u>
<u>Georgia</u>	<u>Kansas</u>	<u>Delaware</u>
<u>Guam</u>	<u>Kentucky</u>	<u>District of Columbia</u>
<u>Hawaii</u>	<u>Missouri</u>	<u>Idaho</u>
<u>Louisiana</u>	<u>New Mexico</u>	<u>Illinois</u>
<u>Mississippi</u>	<u>North Carolina</u>	<u>Indiana</u>
<u>South Carolina</u>	<u>Oklahoma</u>	<u>Iowa</u>
<u>Texas</u>	<u>Tennessee</u>	<u>Maine</u>
<u>The Commonwealth of</u>		<u>Maryland</u>
<u>Puerto Rico</u>		<u>Massachusetts</u>
<u>U.S. Virgin Islands</u>		<u>Michigan</u>
		<u>Minnesota</u>
		<u>Montana</u>
		<u>Nebraska</u>
		<u>Nevada</u>
		<u>New Hampshire</u>
		<u>New Jersey</u>
		<u>New York</u>
		<u>North Dakota</u>
		<u>Ohio</u>
		<u>Oregon</u>
		<u>Pennsylvania</u>
		<u>Rhode Island</u>
		<u>South Dakota</u>
		<u>Utah</u>
		<u>Vermont</u>
		<u>Virginia</u>
		<u>Washington</u>
		<u>West Virginia</u>
		<u>Wisconsin</u>
		<u>Wyoming</u>

(b) The manufactured home heat loss/heat gain shall be determined by methods outlined in §§ 3280.508 and 3280.509. The ~~Uo (Coefficient of heat transmission) value~~ climate zone for which the manufactured home is acceptable and the lowest outdoor temperature to which the installed

heating equipment will maintain a temperature of 70 F shall be certified as specified in § 3280.510.

~~The U_o value zone shall be determined from the map in figure 1.~~

- (c) The overall coefficient of heat transmission (U_o) of the manufactured home for the respective zones and an indoor design temperature of 70 F, including internal and external ducts, and excluding infiltration, ventilation, and condensation control, shall not exceed the Btu/(hr.) (sq. ft.) (F) of the manufactured home envelope are as tabulated in the table to this paragraph (b):

<u>TIER 1 BUILDING THERMAL ENVELOPE PERFORMANCE REQUIREMENTS</u>	
<u>Climate zone</u>	<u>Single Section U_o</u>
<u>1</u>	<u>0.110</u>
<u>2</u>	<u>0.091</u>
<u>3</u>	<u>0.074</u>

<u>TIER 2 BUILDING THERMAL ENVELOPE PERFORMANCE REQUIREMENTS</u>	
<u>Climate zone</u>	<u>Multi-Section U_o</u>
<u>1</u>	0.082 <u>0.090</u>
<u>2</u>	0.066 <u>0.076</u>
<u>3</u>	0.055 <u>0.061</u>

MHCC Reason: Consistent with Table 2 Tier 2 Building Thermal Envelope Prescriptive Requirements.

(2) Area-weighted average vertical fenestration U-factor must not exceed 0.48 in Climate Zone 2 or 0.40 in Climate Zone 3.

(3) Area-weighted average skylight U-factor must not exceed 0.75 in Climate Zone 2 and Climate Zone 3. Windows, skylights and doors containing more than 50 percent glazing by area must satisfy the SHGC requirements established in Section XX on the basis of an area-weighted average.

~~Table 1 to Paragraph (b)~~

Uo-value zone	Maximum coefficient of heat transmission
1	0.116 Btu/(hr.) (sq. ft.) (F).
2	0.096 Btu/(hr.) (sq. ft.) (F).
3	0.079 Btu/(hr.) (sq. ft.) (F).

~~d) Manufactured homes designed for Uo Value Zone 3 shall be factory equipped with storm windows or insulating glass.~~

~~§ 3280.507 Comfort heat gain.~~ Prescriptive Compliance Path

~~Information necessary to calculate the home cooling load shall be provided as specified in this part.~~

~~Transmission heat gains. Homes complying with this section shall meet the minimum heat loss transmission coefficients specified in § 3280.506(a).~~

~~(a) The building thermal envelope must meet the applicable minimum R-value (nominal value of insulation), and the glazing maximum U-factor and SHGC, requirements set forth in table 1 and table 2 or component U-values set forth in table 3 and table 4~~

TABLE 1 TIER 1 (single section) BUILDING THERMAL ENVELOPE PRESCRIPTIVE REQUIREMENTS

<u>Climate zone</u>	<u>Exterior wall insulation R-value</u>	<u>Exterior ceiling insulation R-value</u>	<u>Exterior floor insulation R-value</u>	<u>Window U-factor</u>	<u>Skylight U-factor</u>	<u>Door U-Factor</u>	<u>Glazed fenestration SHGC</u>
<u>1</u>	<u>13</u>	<u>22</u>	<u>19</u>	<u>1.08</u> <u>0.55</u>	<u>0.75</u>	<u>0.40</u>	<u>0.6</u>
<u>2</u>	<u>13</u>	<u>22</u>	<u>22</u>	<u>0.5</u>	<u>0.55</u>	<u>0.40</u>	<u>0.7</u>
<u>3</u>	<u>19</u>	<u>22</u>	<u>22</u>	<u>0.35</u>	<u>0.55</u>	<u>0.40</u>	<u>Not Applicable</u>

Note: Technical Correction: Exterior Floor Insulation R value and Glazed fenestration SHGC for climate zones 1 and 2.

TABLE 2 TIER 2 (multi-section) BUILDING THERMAL ENVELOPE PRESCRIPTIVE REQUIREMENTS

<u>Climate zone</u>	<u>Exterior wall insulation R-value</u>	<u>Exterior ceiling insulation R-value</u>	<u>Exterior floor insulation R-value</u>	<u>Window U-factor</u>	<u>Skylight U-factor</u>	<u>Door U-Factor</u>	<u>Glazed fenestration SHGC</u>

<u>1</u>		<u>30</u>	<u>13</u>	<u>0.320.50</u>	<u>0.75</u>	<u>0.40</u>	<u>0.330.60</u>
<u>2</u>	<u>13</u> <u>2113</u>	<u>30</u>	<u>19</u>	<u>0.300.35</u>	<u>0.55</u>	<u>0.40</u>	<u>0.250.33</u>
<u>3</u>	<u>2115</u>	<u>38</u>	<u>3025</u>	<u>0.300.32</u>	<u>0.55</u>	<u>0.40</u>	<u>Not</u> <u>Applicable</u>

MHCC Reason: Reduction in insulation requirements in walls leads to being able to continue building homes with 2x4 walls in all Climate Zones. Maintains more consumer options and amenities such as: cathedral ceilings, natural lighting, and material availability. Maintains transportation height for most industry designs. Additional transportation height leads to extra costs for additional transportation vehicles. These values are much more consistent with our statutory requirements to maintain affordability while improving energy efficiency. The values shown in the table would lead to an average increase in energy efficiency of 22%. The DOE values did not provide any payback to the consumer based on additional construction costs.

MHCC Reason: Additional language added for clarification of how to apply R-value requirements.

- 1) For the purpose of compliance with the exterior ceiling insulation R-value requirement of paragraph of this section, the R-value corresponds to the unrestricted insulation depth and the truss heel height must be a minimum of 5.5 inches at the outside face of each exterior wall.
- 2) A combination of R-~~21~~ 19 batt insulation and R-~~14~~ 11 blanket insulation may be used for the purpose of compliance with the floor insulation R-value requirement of table 2 Climate Zone 3. Climate zones 1 and 2 may use blanket insulation with a minimum R 5 increase above tabulated values. Compression of the insulation in the cantilevered portion of the floor is acceptable.

Note: MHCC added additional language to allow use of blanket insulation in all climate zones. Consistent with Table 2 Tier 2 Building Thermal Envelope Prescriptive Requirements.

- 3) An individual skylight that has an SHGC that is less than or equal to 0.30 is not subject to the glazed fenestration SHGC requirements established in this section.
- 4) U-factor alternatives to R-value requirements. Compliance with the applicable requirements of this section may be determined using the applicable maximum U-factor values set forth in table 3-and table 4 which reflect the thermal transmittance of the component, excluding fenestration, and not just the insulation of that component, as an alternative to the minimum nominal R-value requirements set forth in table 1 and table 2 respectively.

TABLE 3 U-FACTOR ALTERNATIVES TO TIER 1 R-VALUE REQUIREMENTS

<u>Climate Zone</u>	<u>Exterior ceiling U-factor</u>	<u>Exterior wall U-factor</u>	<u>Exterior floor U-factor</u>
<u>1</u>	<u>0.061</u>	<u>0.094</u>	<u>0.056</u>
<u>2</u>	<u>0.061</u> _____	<u>0.094</u> _____	<u>0.049</u> _____

<u>3</u>	<u>0.061</u>	<u>0.068</u>	<u>0.049</u>
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Note: MHCC corrected climate zone locations (1 And 2) for Exterior floor U factor.

TABLE 4 U-FACTOR ALTERNATIVES TO TIER 2 R-VALUE REQUIREMENTS

<u>Climate Zone</u>	<u>Exterior ceiling U-factor</u>	<u>Exterior wall U-factor</u>	<u>Exterior floor U-factor</u>
<u>1</u>	<u>0.043</u>	<u>0.094</u>	<u>0.078</u>
<u>2</u>	0.043_____	0.063 <u>0.094</u>	0.056 0.036
<u>3</u>	<u>0.037</u>	0.063 <u>0.076</u>	0.032 _____

MHCC Reason: Consistent with Table 2 Tier 2 Building Thermal Envelope Prescriptive Requirements.

Subpart G - Plumbing Systems

§ 3280.602 Definitions.

Distribution Manifold means a manufactured device that serves as a central control hub for a water distribution system.

Note: Additional definition based on requirements in 460.203d

Heated water circulation system means a water distribution system in which one or more pumps are operated in the ~~service hot water supply system~~ piping to circulate heated water from the water heating equipment to fixtures and back to the water heating equipment.

Service hot water supply means supply of hot water for purposes other than comfort heating.

Note: MHCC wishes to keep current terminology to avoid confusion. § 3280.609 Water distribution systems.

§ 3280.609(a)(2) Hot water supply. Each manufactured home equipped with a kitchen sink, and bathtub and/or shower shall be provided with a hot water supply system including a listed water heater.

~~(a) Service hot water systems installed by the manufacturer must be installed according to the service hot water manufacturer's installation instructions. Where service hot water systems are installed by the manufacturer, the manufacturer must ensure that any maintenance instructions received from the service hot water system manufacturer are provided with the manufactured home. The service hot water requirements are adapted from R403 of the 2021 IECC.~~

Note: 3280.709(a) requires that all appliances are installed by product manufacturers' listing and installation instructions. This would be a redundant requirement.

~~(b) Any automatic and manual controls, temperature sensors, pumps associated with service hot water systems must provide access.~~

Note: 3280.709(a) and 3280.713 require that all appliances are installed by product manufacturers' listing and installation instructions and requires access. This would be a redundant requirement.

(i) When installed, a heated water circulation systems must—

Note: Clarifying that heated water circulation systems are not mandatory.

- (1) Be provided with a circulation pump;
- (2) Ensure that the system return pipe is a dedicated return pipe or a cold water supply pipe;
- (3) Not include any gravity or thermosyphon circulation systems;
- (4) Ensure that controls for circulating heated water circulation pumps start the pump based on the identification of a demand for hot water within the occupancy; and
- (5) Ensure that the controls automatically turn off the pump when the water in the circulation loop is at the desired temperature and when there is no demand for hot water.

(ii) All hot water pipes—

- (1) Outside conditioned space must be insulated to a minimum R-value of R-3; and
- (2) From a service hot water supply to a distribution manifold must be insulated to a minimum R-value of R-3.

Note: Uniform terminology.

Subpart H - Heating, Cooling and Fuel Burning Systems

§ 3280.702 Definitions.

~~Air duct means conduits or passageways for conveying air to or from heating, cooling, air conditioning or ventilation equipment, but not including the plenum.~~

Duct means a tube or conduit, except an air passage within a self-contained system, utilized for conveying air to or from heating, cooling, or ventilating equipment.

Duct system means a continuous passageway for the transmission of air that, in addition to ducts, includes duct fittings, dampers, plenums, fans, and accessory air-handling equipment and appliances.

§ 3280.704 ~~[Reserved]~~ Thermostats and Controls

- (a) At least one thermostat must be provided for each separate heating and cooling system installed by the manufacturer and shall be placed a minimum of 3 feet from the vertical edge of the appliance compartment door. Thermostats shall not be located on an exterior wall or on a wall separating the appliance compartment from a habitable room. **Note:**

Additional language was moved from 3280.707(e).

- (b) Any programmable thermostat installed by the manufacturer that controls the heating or cooling system must—

- (1) Be capable of controlling the heating and cooling system on a daily schedule to maintain different temperature set points at different times of the day and different days of the week;
- (2) Include the capability to set back or temporarily operate the system to maintain zone temperatures down to 55F (13C) or up to 85F (29C)

~~(c) (3) Initially be programmed with a heating temperature set point no higher than 70F (21C) and a cooling temperature set point no lower than 78F (26C).~~ Homeowner manual must include recommendation that homeowners set or program thermostat with a heating temperature set point no higher than 70F (21C) and a cooling temperature set point no lower than 78F (26C).

Note: *MHCC is modifying language of (3) because a programable thermostat is optional, so one preprogrammed from the factory is unnecessary and the MHCC believes adding the language to the homeowner's manual is a more effective method to influence homeowner behavior. Typically, power is not continuously connected to unit once its constructed and preprogrammed settings may be lost without power.*

~~(c) Heat pumps with supplementary electric resistance heat must be provided with controls that, except during defrost, prevent supplemental heat operation when the heat pump compressor can meet the heating load.~~

Note: 3280.709(a) requires that all appliances are installed by product manufacturers' listing and installation instructions. This would include controls.

§ 3280.707 Heat producing appliances.

- 5) ~~Each space heating, cooling or combination heating and cooling system shall be provided with at least one readily adjustable automatic control for regulation of living space temperature. The control shall be placed a minimum of 3 feet from the vertical edge of the appliance compartment door. It shall not be located on an exterior wall or on a wall separating the appliance compartment from a habitable room.~~

§ 3280.714 Appliances, Cooling.

§3280.714(a)(1) (i) Electric motor-driven unitary air-cooled air conditioners and heat pumps in the cooling mode with rated capacity less than 65,000 BTU/hour (19,045 watts), when rated at ARI standard rating conditions in ARI Standard 210/240-89, Unitary Air-Conditioning and Air-Source Heat Pump Equipment, must have seasonal energy efficiency ratio (SEER₂) values not less than as specified in 10 C.F.R. Part 430, Energy Conservation Program for Consumer Products: Central Air Conditioners and Heat Pumps Energy Conservation Standards.

Note: Term updated from SEER to SEER₂ to reflect EPA Final Rule 87 FR 18290 (10 CFR Part 430 Appendix M(1) Uniform Test Method for Testing for Measuring the Energy Consumption of Central Air Conditioners and Heat Pumps).

§ 3280.715 Circulating air systems.

- (a) Supply system.

(4)

- (a) Factory installed supply ducts located partially or completely outside the building thermal envelope, with or without air handlers installed in the factory, shall demonstrate air leakage to the outside or total air leakage of less than or equal to 4 cfm per 100 ft² of conditioned floor area when tested at a difference pressure of 0.1 inch w.g., (25pa).
- (b) Factory installed supply ducts located completely inside the building thermal envelope, with or without air handlers installed in the factory, shall demonstrate air leakage to the outside or total air leakage of less than or equal to 8 cfm per 100 ft² of conditioned floor area when tested at a difference pressure of 0.1 inch w.g., (25pa).
- (c) Manufacturers must perform an IPIA witnessed duct leakage test at least once per month.

Note: Original language from DOE rule was modified to fit with previously approved language.

"Each manufactured home equipped with a duct system, which may include air handlers and filter boxes, must be sealed to limit total air leakage to less than or equal

to four (4) cubic feet per minute per 100 square feet of conditioned floor area at a pressure differential of 0.1 inch w.g. (25 Pascals) across the system. Building framing cavities must not be used as ducts or plenums when directly connected to mechanical systems. The duct total air leakage requirements are adapted from section R403 of the 2021 IECC.”

MHCC Reason: *The suggested DOE testing method is not practical for a factory-built home. This recommendation considered previously approved MHCC language for this section. The 8 cfm testing point in section (b) was added as this is an option for ducts entirely within the thermal envelope in IECC, which DOE failed to include. The MHCC believes that a minimum of 1 IPIA witnessed test a month would be sufficient due to the controlled environment of the manufacturing process in a factory compared to a site-built home. The MHCC has no reason to disagree with the DOE estimated cost of testing per 5.3.7 of the TSD.*

§ 3280.716 Equipment Sizing.

Note: MHCC does not recommend adopting the language shown in 10 C.F.R. § 460.205.

MHCC Reason:

- 1) *Manufactured housing is transportable and typically not built for a site-specific location. The ACCA Manual J and ACCA Manual S calculations are intended for site specific code and cannot be applied to a national performance-based code. The manufacturer cannot properly complete the ACCA Manual J and ACCA Manual S calculations without the specific geographical location and design criteria. The calculations should be completed by the local AC company who selects and installs the cooling system based on the location and information on the homes' heating and cooling certificate.*
- 2) *The current language in the MHCSS has an adequate process, based on reference standards similar to Manual J, to calculate building loads and sizing of equipment.*

~~10 C.F.R. § 460.205~~

~~Sizing of heating and cooling equipment installed by the manufacturer must be determined in accordance with ACCA Manual S incorporated by reference; see § 460.3) based on building loads calculated in accordance with ACCA Manual J (incorporated by reference; see § 460.3). The equipment sizing criteria are adapted from section R403 of the 2021 IECC.~~



MANUFACTURED HOUSING CONSENSUS COMMITTEE

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Appendix A: MHI Written Public Comments November 11, 2022



November 11, 2022

The Honorable Marcia Fudge
Secretary
U.S. Department of Housing and Urban Development 451
7th Street, S.W.
Washington, DC 20410

RE: Notice of Federal Advisory Committee Meetings: Manufactured Housing Consensus Committee (FR-6348-N-01)

Dear Secretary Fudge,

As promised in its previous correspondence, the Manufactured Housing Institute (MHI) committed to providing supporting documentation to its proposal to the Manufactured Housing Consensus Committee (MHCC). As a supplement to its November 9th, 2022 Comment Letter, MHI is pleased to submit the following presentations to the MHCC for consideration ahead of the MHCC's meeting scheduled for November 15-17, 2022. The three presentations, attached as exhibits to this supplemental correspondence, further demonstrate the benefits of adopting MHI's proposal versus a wholesale adoption the DOE's Energy Rule. Such materials also provide supporting analysis behind MHI's proposal. Below, you will find a brief summary of the contents of each presentation:

1. Economic Impact Analysis chart based on the Energy Rule and updated data regarding MHP's proposed thermal requirements (Attached hereto as Exhibit A): The first presentation is the Economic Impact Analysis which is based upon the Energy Rule and supporting data regarding MHI's proposed thermal requirements. This analysis demonstrates the advantages and the cost savings that will benefit the consumer under MHI's proposal as compared to the greater economic impact on the consumer under the Energy Rule. The Economic Impact Analysis, which compares the current HUD standard with the proposals of MHI and DOE, establishes the following:

- DOE's Technical Support Document provided incremental cost increases for step-ups in energy efficiency measures using the HUD Code as a baseline. For example, the incremental cost increase of going from R11 to R13 to R21 insulation in the walls. Using the DOE's own data, this analysis calculates the incremental cost increase for the Energy Rule and MHI's proposal.
- Using validated energy simulation software, this analysis calculates the marginal energy savings achieved from the Energy Rule and MHI's proposal – that is– how much a consumer will save in energy costs on a monthly basis.
- This analysis further demonstrates that for all three Zones with Tier 2 homes, **MHI's proposal results in better 10-year outcomes for all consumers than the Energy Rule.** On average, consumers will experience a net cost that is less under MHI's proposal than under the Energy Rule.

2. Analysis of DOE's Energy Conservation Standards for Manufactured Housing (Attached hereto as Exhibit B): The second presentation demonstrates the DOE's failure to consider key cost inputs which will negatively impact both consumers and suppliers. As provided in greater detail in the attached presentation, this analysis demonstrates the DOE's failure to sufficiently consider the following factors in

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formulating its conclusions and the cumulative effect of such factors:

- Inflation and Cost Increases: DOE failed to consider the impact of considerable cost increases and supply chain constraints because of the pandemic and related economic disruptions.
 - DOE's cost/benefit or life-cycle cost ("LCC") model took cost estimates from 2014 and applied a nominal cost increase of **2.3% annually** from 2014-2023. However, beginning with the Covid-19 pandemic, actual costs for construction materials have grown substantially, and the actual cost increase for construction materials from 2014-2021 is **6.5% annually**. Manufactured housing construction costs may be even higher.
 - DOE assumed a 5% interest rate for land-home deals and a 9% interest rate for home-only deals. The current 30-year fixed mortgage rate is now approximately 7%.
 - Fixing only these two inputs to reflect actual cost inflation and actual interest rates for land/home loans, **based on DOE's own LCC model for Tier 2 homes, approximately 95% of shipments will have a negative 10-year LCC**. In geographic terms, of the 19 "representative" cities chosen by the DOE, 16 of those representative cities will have a negative 10-year LCC for Tier 2 homes. This data accounts for the increased energy savings that result from inflation as well.
 - Assuming Tier 2 homes represent 55% of the industry producing approximately 120,000 homes annually, this means that approximately **63,000 homes would have a negative 10-year LCC based on the Energy Rule**.
- Negative Impact: DOE failed to consider negative impacts on low-income and minority homebuyers.
 - The Energy Rule will disparately impact minority communities even without accounting for actual cost increases. Black or African American manufactured home purchasers are approximately 22.5% more likely to finance their purchase with a home-only loan as compared with a land-home loan. Likewise, Hispanic manufactured home purchases are 11% more likely to finance their purchase with a home-only loan.
 - At a 9.5% home-only interest rate, 37% of Tier 2 shipments will have a negative 10year LCC based on DOE's own model. Using a 11% home-only interest rate, 86% of Tier 2 shipments will have a negative 10-year LLC based on DOE's own model.

- The Biden Administration has prioritized housing affordability and racial equity: *“The Federal Government has a critical role to play in overcoming and redressing... [its role in declining to invest in communities of color and in failing to provide equitable access,] and in protecting against other forms of discrimination by applying and enforcing Federal civil rights and fair housing laws. It can help ensure that fair and equal access to housing opportunity exists for all throughout the United States.”*
- Additional Costs. DOE failed to consider potential costs of testing and compliance, transportation, and supply chain constraints.

- The Energy Rule failed to account for significant compliance costs. Without limitation, in rural areas, it is estimated that in-field duct testing could cost over \$1,000 per home. Many Tier 2, Zone 2 & Zone 3 homes will need 2x6 walls rather than 2x4 which will increase lumber and transportation costs (due to weight). Exclusive of lumber costs, an additional axle may be needed for weight which is another \$200 to \$250 per floor, \$400 to \$500 per multisection homes. Transportation costs such as fuel have increased dramatically over the past year. And the industry is experiencing significant supply chain difficulties, especially for fiberglass insulation— a commodity for which supply must increase to comply with the DOE's Final Rule.
 - Before supply chains normalize, the cost for fiberglass insulation will increase drastically and home starts may be limited if there is not enough fiberglass insulation or if plants must use alternatives such as blown insulation. Many in the industry do not believe that there will be enough fiberglass insulation to meet the demand. As such, manufacturers will be forced to pivot to spray foam insulation, which is more costly and labor-intensive. Additionally, the process for the installation of spray foam insulation requires a cooling off period, which will increase the amount of time of the home on the line, decreasing the thru-put, and will inevitably cause fewer home to be built. All of this will inevitably increase the overall cost of the homes to the consumer, none of which has been calculated by DOE.
 - **These unaccounted-for costs will easily subsume the DOE's projected 10-year LCC savings for all manufactured homes.** For Tier 1 homes, DOE projected a national average of \$720 10-year LCC savings and for Tier 2 homes, DOE projected a national average of \$743 10-year LCC savings. If, for example, in-field duct testing is required which costs approximately \$1,000 per home, then all 10-year LCC savings are eliminated.
- **Affordability and Credit Access.** DOE underestimated potential impacts on credit access and lost sales.
 - These additional costs will make home ownership unaffordable for thousands of Americans. To estimate the impact on affordability, the DOE relied upon a 2007 economic study. This study predated the Great Recession, predated the Covid-19 pandemic and the following inflation period, predated the current rise in interest rates, and predated the recent increases in retail prices for manufactured homes which may make potential customers even more price sensitive.
 - **DOE's Final Rule conceded with its sensitivity analysis that over 5,000 families annually will not be able to afford a manufactured home,** and this number is almost certainly understated for the reasons described above. Based on industry information, it is likely that the realistic impact of the implementation of the Energy Rule could actually affect twice as many families.

3. Architectural and Design Analysis of how the Energy Rule will generally impact the design of manufactured homes as opposed to the design elements of manufactured homes based on current standards (Attached hereto as Exhibit C): DOE's standards will negatively impact the aesthetic appearance and the design of manufactured homes. As demonstrated in the attached presentation, significant architectural modifications will be required for manufacturers to stay in compliance with the Energy Rule which will result in less aesthetically pleasing homes. Most notably, multisection homes will face substantial architectural modifications. To meet the DOE standards, the industry will have to consider a variety of tradeoffs, including, a reduction of windows and/or significant changes in home architecture to accommodate additional insulation. Consequently, such modifications will be either be more difficult to implement and less appealing, or even prohibitive.

- To meet the U-value performance requirements for Tier 2, Zone 3 homes, assuming the home has additional insulation added without altering the framing, the windows had to be eliminated completely. As a result of the reduced windows, the requirements for egress, light and ventilation are no longer met. **Therefore, it would not be possible to manufacture this home to be in compliance with code regulations and the Energy Rule.**
 - Additionally, even if this home could be constructed in a manner to comply with code regulations and the Energy Rule, there are not enough windows in the market today to meet the demand if a lower U-value is required.
- If a manufacturer were to construct a home that met the required Tier 2, Zone 3 U-value with an insulation package that met the value under the prescriptive section of the code, which would require substantial framing changes, it would still be very difficult to construct this home using materials currently available on the market. Specifically:
 - Most manufacturers do not currently use the floor insulation technique that would be required to construct this home to meet DOE requirements.
 - There is not enough supply of R-21 insulation in the market to meet the amount necessary to comply with DOE requirements to keep up with the current demand.
 - It will be problematic to get the required insulation (R-38) in the roof cavity due to the required thickness and available attic space.
 - **To have almost the same amount of windows in the home as is allowed under current regulations, manufacturers would have to install windows that have a U-value equal to 0.30, which are not currently available on the market.**
- To construct a multi-section home in Zone 3, the shipping height will be increased due to the 5.5" heel height and the increased floor joist depth. **Because of the required insulation thickness under the Energy Rule, optional vaulted ceilings will no longer be available to the consumers.**

MHI supports energy conservation efforts, and our manufacturer members are committed to continue leading the way in energy efficient manufacturing. The analysis and presentations provided herein further demonstrate this commitment while providing a clear and conscientious basis for MHI's proposed changes to the Energy Rule. MHI remains committed to working with the MHCC, HUD and DOE to realistically improve

Page 6

Submission by the Manufactured Housing Institute

November 11, 2022

energy efficiency that not only encourages innovation and conservation but also eliminates regulatory barriers that impede consumer access to safe, affordable manufactured housing.

November 11, 2022

Sincerely,

A handwritten signature in black ink that reads "Lesli Gooch". The signature is written in a cursive, flowing style with a prominent "L" and a long, sweeping "G".

Lesli Gooch, Ph.D.
Chief Executive Officer

Enclosures

Exhibit A

Economic Impact Analysis

Table 1. Net Benefit (Cost) of DOE Proposal for Multi-section Homes based on DOE Costs and SBRA Energy Savings Estimates

Multi-section Home													
HUD Standards Climate Zone	Locations (heating equipment type)	Efficiency level	Level of efficiency (Uo-value)	Base average home cost (DOE TSD p. 6-2)	Marginal increase in home cost (DOE TSD)	Percent increase in cost	Marginal increase in down payment	Marginal increase in mortgage	Marginal increase in monthly mort. pay.	Marginal energy savings (\$/mth)	Net Mthly. Savings (Cost)	Principal repayment	Net benefit (cost)
1	Miami (Electric)	HUD standard	0.116	\$108,500	\$0	0.0%	\$0	\$0	\$0	\$0	\$0	\$0	\$0
		MHI proposal	0.090	\$108,500	\$3,077	2.8%	\$308	\$2,770	\$25	\$10	(\$15)	\$1,967	(\$4,045)
		DOE proposal	0.082	\$108,500	\$4,018	3.7%	\$402	\$3,616	\$33	\$19	(\$14)	\$2,568	(\$4,644)
	Houston (Natural gas)	HUD standard	0.116	\$108,500	\$0	0.0%	\$0	\$0	\$0	\$0	\$0	\$0	\$0
		MHI proposal	0.090	\$108,500	\$3,077	2.8%	\$308	\$2,770	\$25	\$12	(\$13)	\$1,967	(\$3,845)
		DOE proposal	0.082	\$108,500	\$4,018	3.7%	\$402	\$3,616	\$33	\$18	(\$14)	\$2,568	(\$4,664)
	Atlanta (Electric)	HUD standard	0.116	\$108,500	\$0	0.0%	\$0	\$0	\$0	\$0	\$0	\$0	\$0
		MHI proposal	0.090	\$108,500	\$3,077	2.8%	\$308	\$2,770	\$25	\$34	\$9	\$1,967	(\$1,135)
		DOE proposal	0.082	\$108,500	\$4,018	3.7%	\$402	\$3,616	\$33	\$39	\$7	\$2,568	(\$2,184)
	Charleston (Electric)	HUD standard	0.116	\$108,500	\$0	0.0%	\$0	\$0	\$0	\$0	\$0	\$0	\$0
		MHI proposal	0.090	\$108,500	\$3,077	2.8%	\$308	\$2,770	\$25	\$26	\$1	\$1,967	(\$2,115)
		DOE proposal	0.082	\$108,500	\$4,018	3.7%	\$402	\$3,616	\$33	\$31	(\$1)	\$2,568	(\$3,114)
	Jackson (Electric)	HUD standard	0.116	\$108,500	\$0	0.0%	\$0	\$0	\$0	\$0	\$0	\$0	\$0
		MHI proposal	0.090	\$108,500	\$3,077	2.8%	\$308	\$2,770	\$25	\$31	\$6	\$1,967	(\$1,505)

		DOE proposal	0.082	\$108,500	\$4,018	3.7%	\$402	\$3,616	\$33	\$38	\$5	\$2,568	(\$2,344)
	Birmingham (Electric)	HUD standard	0.116	\$108,500	\$0	0.0%	\$0	\$0	\$0	\$0	\$0	\$0	\$0
		MHI proposal	0.090	\$108,500	\$3,077	2.8%	\$308	\$2,770	\$25	\$32	\$7	\$1,967	(\$1,395)

		DOE proposal	0.082	\$108,500	\$4,018	3.7%	\$402	\$3,616	\$33	\$37	\$5	\$1,967	(\$1,783)
2	Phoenix (Natural gas)	HUD standard	0.096	\$108,500	\$0	0.0%	\$0	\$0	\$0	\$0	\$0	\$0	\$0
		MHI proposal	0.076	\$108,500	\$2,404	2.2%	\$240	\$2,163	\$19	\$15	(\$4)	\$1,537	(\$2,303)
		DOE proposal	0.066	\$108,500	\$4,317	4.0%	\$432	\$3,885	\$35	\$22	(\$13)	\$2,759	(\$4,796)
	Memphis (Electric)	HUD standard	0.096	\$108,500	\$0	0.0%	\$0	\$0	\$0	\$0	\$0	\$0	\$0
		MHI proposal	0.076	\$108,500	\$2,404	2.2%	\$240	\$2,163	\$19	\$23	\$3	\$1,537	(\$1,413)
		DOE proposal	0.066	\$108,500	\$4,317	4.0%	\$432	\$3,885	\$35	\$32	(\$3)	\$2,759	(\$3,536)
	El Paso (Natural Gas)	HUD standard	0.096	\$108,500	\$0	0.0%	\$0	\$0	\$0	\$0	\$0	\$0	\$0
		MHI proposal	0.076	\$108,500	\$2,404	2.2%	\$240	\$2,163	\$19	\$10	(\$9)	\$1,537	(\$2,903)
		DOE proposal	0.066	\$108,500	\$4,317	4.0%	\$432	\$3,885	\$35	\$14	(\$21)	\$2,759	(\$5,656)
	San Francisco (Natural Gas)	HUD standard	0.096	\$108,500	\$0	0.0%	\$0	\$0	\$0	\$0	\$0	\$0	\$0
		MHI proposal	0.076	\$108,500	\$2,404	2.2%	\$240	\$2,163	\$19	\$4	(\$15)	\$1,537	(\$3,583)
		DOE proposal	0.066	\$108,500	\$4,317	4.0%	\$432	\$3,885	\$35	\$7	(\$28)	\$2,759	(\$6,606)
		HUD standard	0.096	\$108,500	\$0	0.0%	\$0	\$0	\$0	\$0	\$0	\$0	\$0

	Albuquerque (Electric)	MHI proposal	0.076	\$108,500	\$2,404	2.2%	\$240	\$2,163	\$19	\$21	\$2	\$1,537	(\$1,593)
		DOE proposal	0.066	\$108,500	\$4,317	4.0%	\$432	\$3,885	\$35	\$31	(\$4)	\$2,759	(\$3,656)
	Baltimore (Natural Gas)	HUD standard	0.079	\$108,500	\$0	0.0%	\$0	\$0	\$0	\$0	\$0	\$0	\$0
		MHI proposal	0.061	\$108,500	\$2,557	2.4%	\$256	\$2,302	\$21	\$13	(\$7)	\$1,635	(\$2,765)
		DOE proposal	0.055	\$108,500	\$3,997	3.7%	\$400	\$3,598	\$32	\$16	(\$16)	\$2,555	(\$4,899)
	Salem (Electric)	HUD standard	0.079	\$108,500	\$0	0.0%	\$0	\$0	\$0	\$0	\$0	\$0	\$0
		MHI proposal	0.061	\$108,500	\$2,557	2.4%	\$256	\$2,302	\$21	\$51	\$30	\$1,635	\$1,765

3

		DOE proposal	0.055	\$108,500	\$3,997	3.7%	\$400	\$3,598	\$32	\$59	\$27	\$2,555	\$231
Chicago (Natural Gas)	HUD standard	0.079	\$108,500	\$0	0.0%	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
	MHI proposal	0.061	\$108,500	\$2,557	2.4%	\$256	\$2,302	\$21	\$19	(\$2)	\$1,635	(\$2,105)	
	DOE proposal	0.055	\$108,500	\$3,997	3.7%	\$400	\$3,598	\$32	\$22	(\$10)	\$2,555	(\$4,149)	
Boise (Electric)	HUD standard	0.079	\$108,500	\$0	0.0%	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
	MHI proposal	0.061	\$108,500	\$2,557	2.4%	\$256	\$2,302	\$21	\$38	\$17	\$1,635	\$135	
	DOE proposal	0.055	\$108,500	\$3,997	3.7%	\$400	\$3,598	\$32	\$44	\$12	\$2,555	(\$1,549)	
Burlington (Natural gas)	HUD standard	0.079	\$108,500	\$0	0.0%	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
	MHI proposal	0.061	\$108,500	\$2,557	2.4%	\$256	\$2,302	\$21	\$21	\$1	\$1,635	(\$1,815)	
	DOE proposal	0.055	\$108,500	\$3,997	3.7%	\$400	\$3,598	\$32	\$25	(\$7)	\$2,555	(\$3,849)	

	Helena (Electric)	HUD standard	0.079	\$108,500	\$0	0.0%	\$0	\$0	\$0	\$0	\$0	\$0	\$0
		MHI proposal	0.061	\$108,500	\$2,557	2.4%	\$256	\$2,302	\$21	\$53	\$32	\$1,635	\$1,945
		DOE proposal	0.055	\$108,500	\$3,997	3.7%	\$400	\$3,598	\$32	\$62	\$29	\$2,555	\$551
	Duluth (Natural Gas)	HUD standard	0.079	\$108,500	\$0	0.0%	\$0	\$0	\$0	\$0	\$0	\$0	\$0
		MHI proposal	0.061	\$108,500	\$2,557	2.4%	\$256	\$2,302	\$21	\$29	\$9	\$1,635	(\$865)
		DOE proposal	0.055	\$108,500	\$3,997	3.7%	\$400	\$3,598	\$32	\$34	\$1	\$2,555	(\$2,789)
	Fairbanks (Natural Gas)	HUD standard	0.079	\$108,500	\$0	0.0%	\$0	\$0	\$0	\$0	\$0	\$0	\$0
		MHI proposal	0.061	\$108,500	\$2,557	2.4%	\$256	\$2,302	\$21	\$39	\$19	\$1,635	\$335
		DOE proposal	0.055	\$108,500	\$3,997	3.7%	\$400	\$3,598	\$32	\$46	\$14	\$2,555	(\$1,279)

Assumptions	
Down	
payment	10%
Principal	90%
Mort.	
interest rate	9%
Loan term (yrs)	20
Occupancy term (yrs)	10
Principal	
recapture rate	0%

Average Benefit (Cost)		MHI	DOE
Zone	1	(\$2,340.08)	(\$3,122.03)
	2	(\$2,358.84)	(\$4,849.82)
	3	(\$421.72)	(\$2,216.82)

Ref.: TECHNICAL SUPPORT DOCUMENT: SUPPLEMENTAL NOTICE OF PROPOSED RULEMAKING PROPOSING ENERGY CONSERVATION STANDARDS FOR MANUFACTURED HOUSING
 Estimates of energy savings provided by Ekotrope software.

Exhibit B

Analysis of DOE's Energy Conservation Standards

Analysis of DOE's Energy Conservation Standards for Manufactured Housing

Identification of Potential Issues and Sensitivity Analyses

November 11, 2022

Executive Summary

■ Assignment

DOE relied upon a cost-benefit analysis for consumers of manufactured homes

Analysis Group assessed this cost-benefit analysis with particular focus on **important inputs that have changed** since DOE's original analysis

■ Summary of Preliminary Conclusions

1. Adjusting DOE's assumptions for recent inflation and interest rate increases invalidates DOE's conclusion that its proposed rule is cost-effective for consumers
2. DOE's rule will have particularly negative impacts on minority and low-income homebuyers, who tend to face higher borrowing costs
3. DOE has underestimated the number of households that will no longer be able to afford a manufactured home as a result of the rule
4. DOE has failed to consider additional costs of compliance, such as duct testing and transportation costs, which could further negate any anticipated savings for consumers

Qualifications

Pavel Darling, Vice President (*MBA, MIT Sloan School of Management; B.A. in Economics, Middlebury College*)

Mr. Darling is an expert on energy matters, and often consults to utilities, state and regional organizations, and global companies in his work. He focuses on projects related to cost/benefit analyses of new construction and resource retirements; environmental effects of emissions and pollution controls; economic impacts of energy projects, mergers and policies; and natural gas, biomass, and other market studies. Mr. Darling also has extensive experience working on various climate change projects, including assessments of decarbonization policy proposals and quantification of greenhouse gas emissions impacts.

He has also submitted and supported expert testimony across different venues, including state utility commissions, siting boards, the Federal Energy Regulatory Commission and the Environmental Protection Agency. Mr. Darling's prior experience working at a utility involved preparing annual filings and working with stakeholders to assess bill impacts of proposed energy efficiency changes. He has also coauthored a number of published reports and journal articles.

About Analysis Group

Analysis Group is one of the largest international economics consulting firms, with more than 1,000 professionals across 14 offices in North America, Europe, and Asia. Since 1981, we have provided expertise in economics, finance, health care analytics, and strategy to top law firms, Fortune Global 500 companies, and government agencies worldwide. Our internal experts, together with our network of affiliated experts from academia, industry, and government, offer our clients exceptional breadth and depth of expertise.

Analysis Group's Energy & Environment practice is distinguished by our deep expertise in economics, finance, regulatory issues, and public policy, as well as significant experience in environmental economics and energy infrastructure development. We have worked on

energy issues for a wide variety of clients, including energy producers, energy customers, regulatory commissions and government agencies, system operators, foundations, and nongovernmental institutions.

Background on DOE's Energy Efficiency Standards for Manufactured Housing

- Key Dates:

Aug. 26, 2021	DOE issued Supplemental Notice of Proposed Rulemaking (SNOPR)
May 31, 2022	Final rule and cost-benefit analyses released, relying on data from 2021 and earlier
May 31, 2023	Expected compliance date

- By statute, DOE must consider cost effectiveness (42 U.S.C 17071(b)(1))

“The energy conservation standards established under this section shall be based on the most recent version of the International Energy Conservation Code (including supplements), **except in cases in which the Secretary finds that the code is not cost-effective**, or a more stringent standard would be more cost-effective, based on the impact of the code on the purchase price of manufactured housing and on total life-cycle construction and operating costs.”

Summary of Preliminary Conclusions

DOE's conclusions on cost effectiveness disregard or do not sufficiently consider variation in key cost inputs over time and across groups for buyers and suppliers

1

Inflation and Cost Increases

DOE has failed to consider the impacts of considerable cost increases and supply chain constraints. Taking these into account, DOE's conclusion is invalid and the rule has a net cost to consumers rather than a benefit.

2

Negative and Inequitable Impacts

DOE has failed to consider negative impacts on low-income and minority homebuyers.

3

Affordability and Credit Access

DOE has underestimated potential impacts on credit access and lost sales.

4

Additional Costs

DOE has failed to consider potential costs of testing and compliance, transportation, and supply chain constraints.

Background: DOE's Life-Cycle Cost (LCC) Model

- DOE estimated the **total customer cost** over the life of the manufactured home via the Life-Cycle Cost model, including:
 - **Purchase costs** (e.g., the price of additional energy efficiency measures), and
 - **Operating costs** (e.g., energy bill savings)
- Future costs and savings are discounted to their value in the present year
- Analysis occurs over both 10- and 30-year periods
- DOE also calculates a payback period, equal to the increase in upfront cost divided by the energy savings in first year

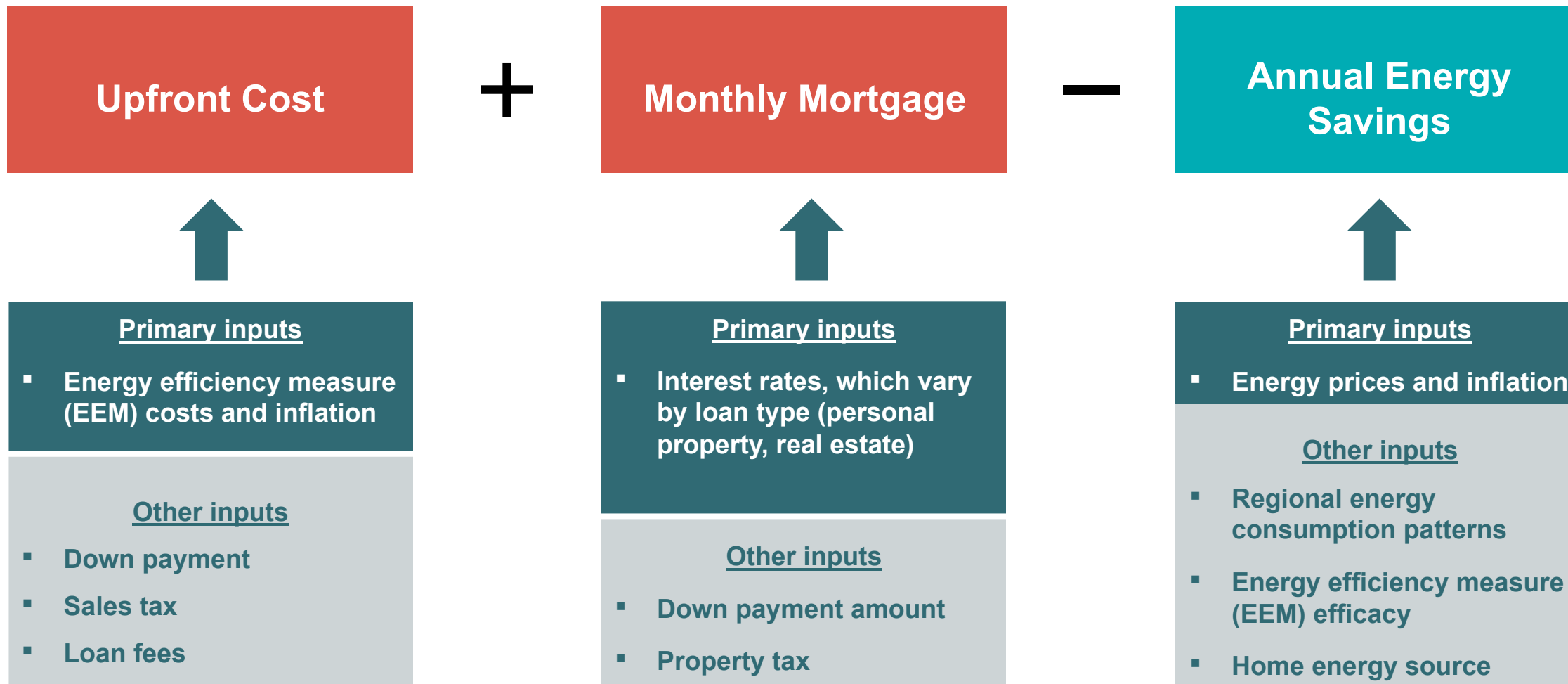
DOE's Life-Cycle Cost Model

Purchase Cost
Increases

–

Operating Cost
Savings

Our Focus: Evaluating DOE's Cost-Benefit Analysis by Updating Key Inputs



Summary of Preliminary Conclusions

DOE's conclusions on cost effectiveness disregard or do not sufficiently consider variation in key cost inputs over time and across groups for buyers and suppliers

1

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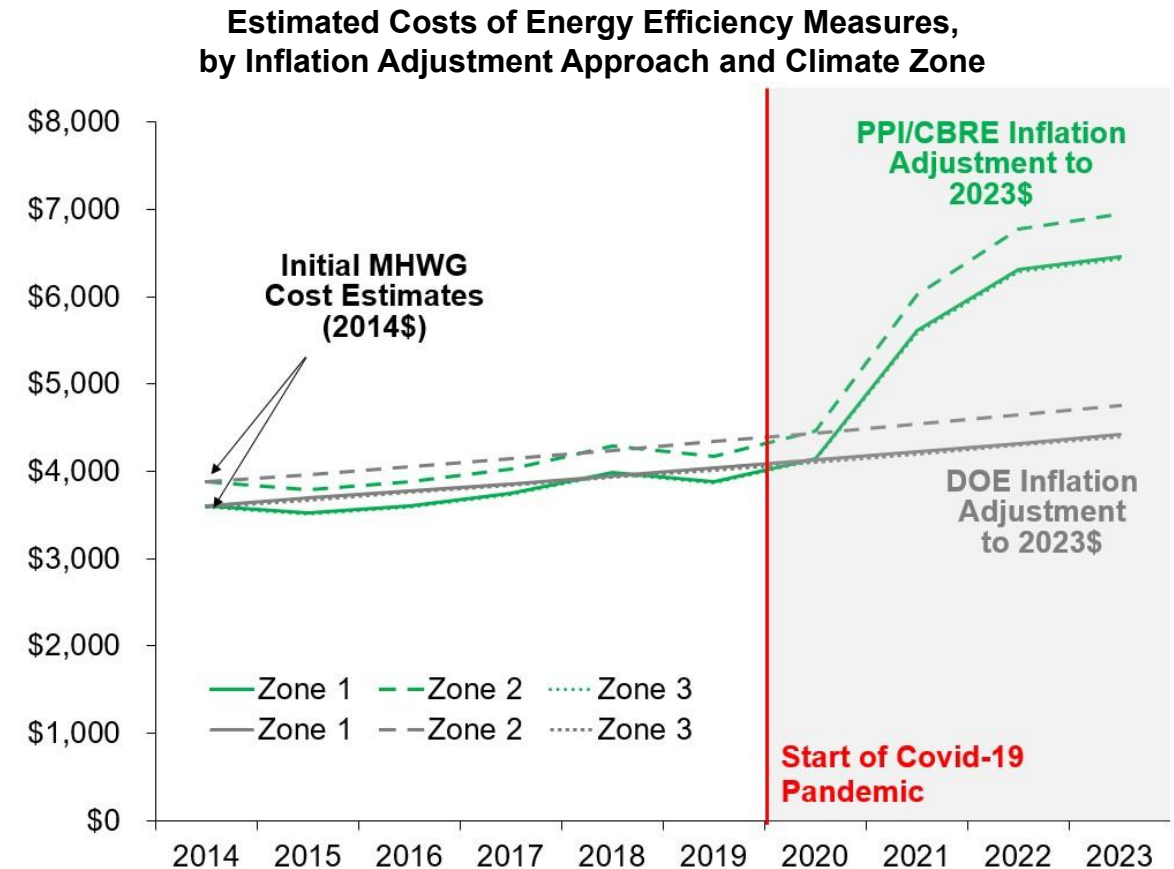
4

Additional Costs

DOE has failed to consider potential costs of testing and compliance, transportation, and supply chain constraints.

DOE Has Inadequately Adjusted EEM Cost Estimates for Inflation

- DOE calculated the costs of energy efficiency measures using cost estimates provided by the Manufactured Housing Working Group in **2014**
- To adjust for inflation, DOE assumes an annual nominal cost increase of **2.3 percent** between 2014-2023 (See gray lines)
- However, costs have increased substantially since the start of the Covid-19 pandemic. According to the BLS Producer Price Index for construction costs, materials costs have grown at an average annual rate of **6.5 percent** between 2014-2021, driven mostly by cost increases of **35.1 percent** from 2020-2021 (See green lines)
- Industry interviews suggest even higher recent increases beyond PPI, with costs at a new floor and unlikely to regress



Note: Inflation estimates for PPI/CBRE series for 2022 and 2023 are from the "decreased demand" scenario of the CBRE's Construction Costs Index Forecast.

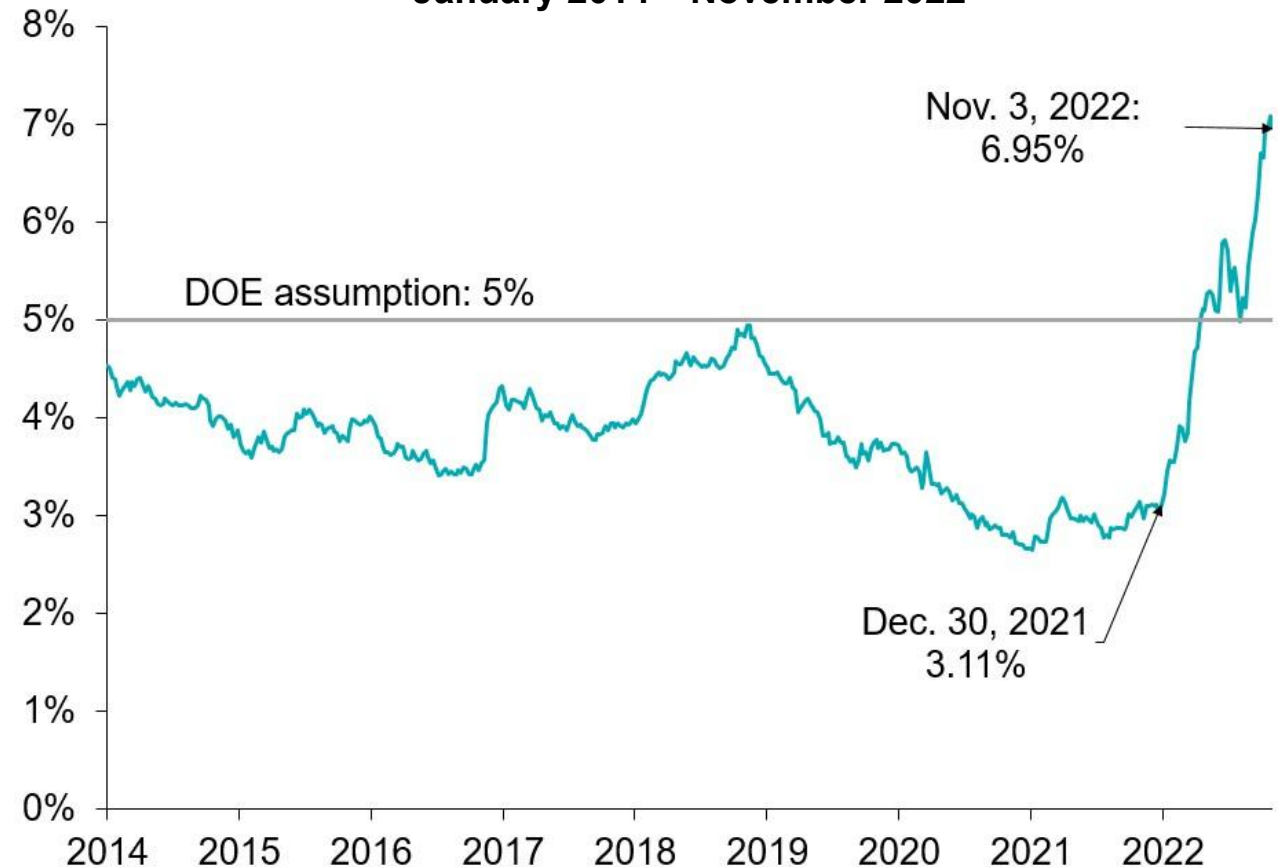
Sources: U.S. Bureau of Labor Statistics, Producer Price Index by Commodity: Special Indexes: Construction Materials [WPUSI012011], retrieved from FRED on October 30, 2022, Federal Reserve Bank of St. Louis, available at <https://fred.stlouisfed.org/series/WPUSI012011>; CBRE Research, "2022 U.S. Construction Cost Trends," July 2022, available at <https://www.cbre.com/insights/books/2022-us-construction-cost-trends>; U.S. Department of Energy, Manufactured Housing Life-Cycle Cost Analysis (LCC) Spreadsheet, May 18, 2022, available at <https://www.regulations.gov/document/EERE-2009-BT-BC-0021-1996>.

Mortgage Interest Rates Have Increased Above DOE's Assumptions

- DOE assumed interest rates of **5 percent** for mortgage loans and **9 percent** for personal property loans
- These assumptions were arguably conservative at the time, but mortgage rates have increased from approximately 3 to **7 percent**
- Industry interviews have suggested that personal property loan interest rates may be as high as **11.5 percent** for some borrowers

Moreover, DOE's own review of available evidence suggests that personal property loan interest rates are typically between 0.5 percentage points and 5 percentage points higher than real estate loan interest rates

**30-Year Fixed Rate Mortgage Average in the United States
January 2014 – November 2022**



Energy Costs Have Increased As Well, Increasing Anticipated Savings

- Over the past year, energy costs have increased due to geopolitical and pandemic related disruptions
- The U.S. Energy Information Administration has increased its forecasted energy prices for 2023 and beyond based on its *Annual Energy Outlook* (AEO)
- The DOE LCC analysis relies on energy price forecasts from 2021

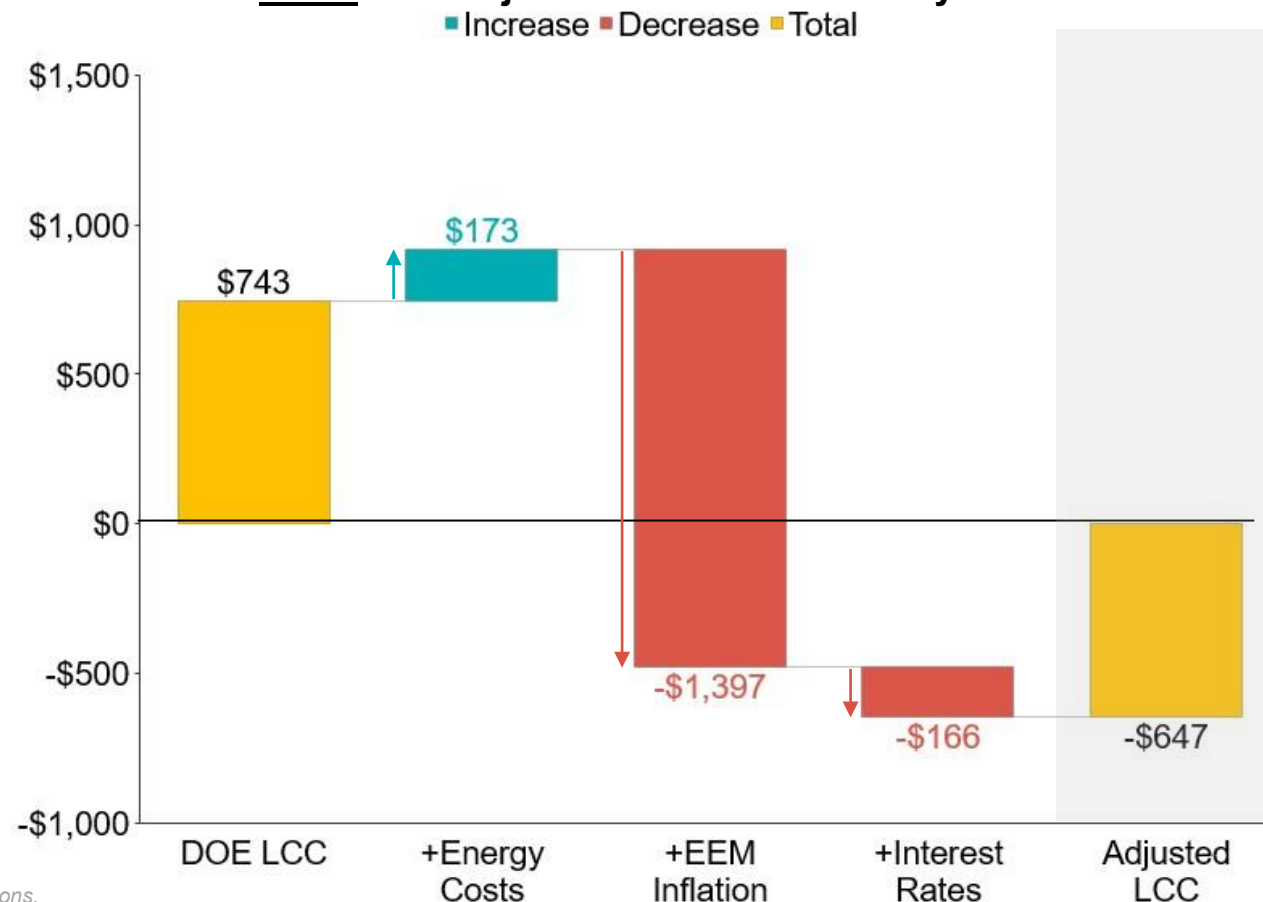
U.S. Energy Information Administration's Forecasted Energy Prices, by Forecast Year

<u>Nominal Energy Prices</u>				
	AEO 2021	AEO 2022		
	<u>Assumptions</u>	<u>Assumptions</u>	<u>Units</u>	<u>% Change</u>
Natural Gas	\$10.14	\$11.70	\$/Mbtu	+7.1%
Propane	\$17.30	\$21.49	\$/Mbtu	+10.8%
Elec Heat	\$0.13	\$0.14	\$/kWh	+1.9%
Elec Cool	\$0.13	\$0.14	\$/kWh	+1.5%
Elec Other	\$0.13	\$0.14	\$/kWh	+1.9%
<u>Oil</u>	<u>\$17.75</u>	<u>\$21.71</u>	<u>\$/Mbtu</u>	<u>+10.0%</u>

On Net, Changes in the Recent Economic Environment Have Reversed Expected Cost Savings from the DOE Rule

- While increased energy cost forecasts have increased expected savings from the rule, the large increase in construction material costs since 2022 far outweighs these gains
- Additionally, adjusting for higher interest rates adds to expected increased costs
 - Real estate loan interest rates have been adjusted from 5 percent to **7 percent**
 - Personal property loan interest rates have conservatively been left at DOE's assumption of **9 percent**

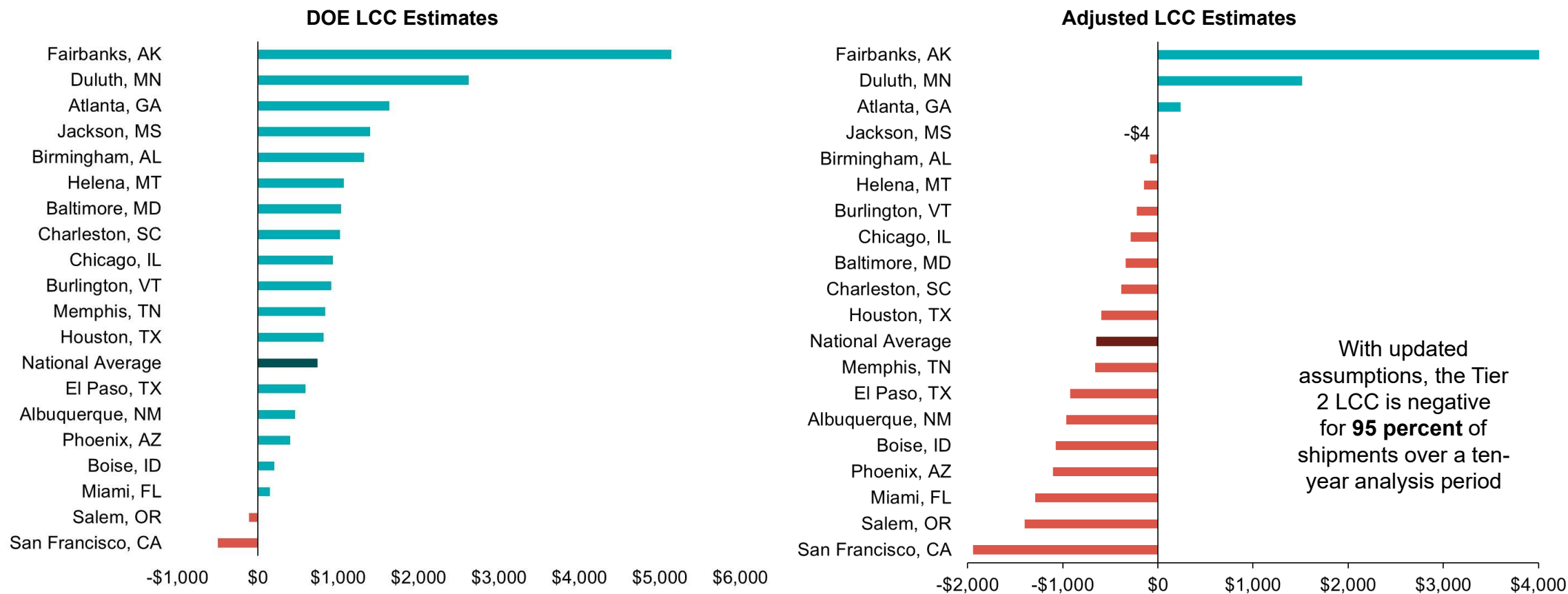
Tier 2 LCC Adjustments - 10-Year Analysis Period



Sources: U.S. Bureau of Labor Statistics, CBRE Research, Department of Energy, Freddie Mac, AG Calculations.

With Updated Costs, 10-Year Tier 2 LCC Negative For Most of the Country

Tier 2 LCC Adjustments, by City (10-Year Analysis Period)



Sources: U.S. Bureau of Labor Statistics, CBRE Research, Department of Energy, Freddie Mac, AG Calculations.

Summary of Preliminary Conclusions

DOE's conclusions on cost effectiveness disregard or do not sufficiently consider variation in key cost inputs over time and across groups for buyers and suppliers

1

DOE has failed to consider the impacts of considerable cost increases and supply chain constraints. Taking these into account, DOE's conclusion is invalid and the rule has a net cost to consumers rather than a benefit.

2

Negative and Inequitable Impacts

DOE has failed to consider negative impacts on low-income and minority homebuyers.

3

Affordability and Credit Access

DOE has underestimated potential impacts on credit access and lost sales.

4

Additional Costs

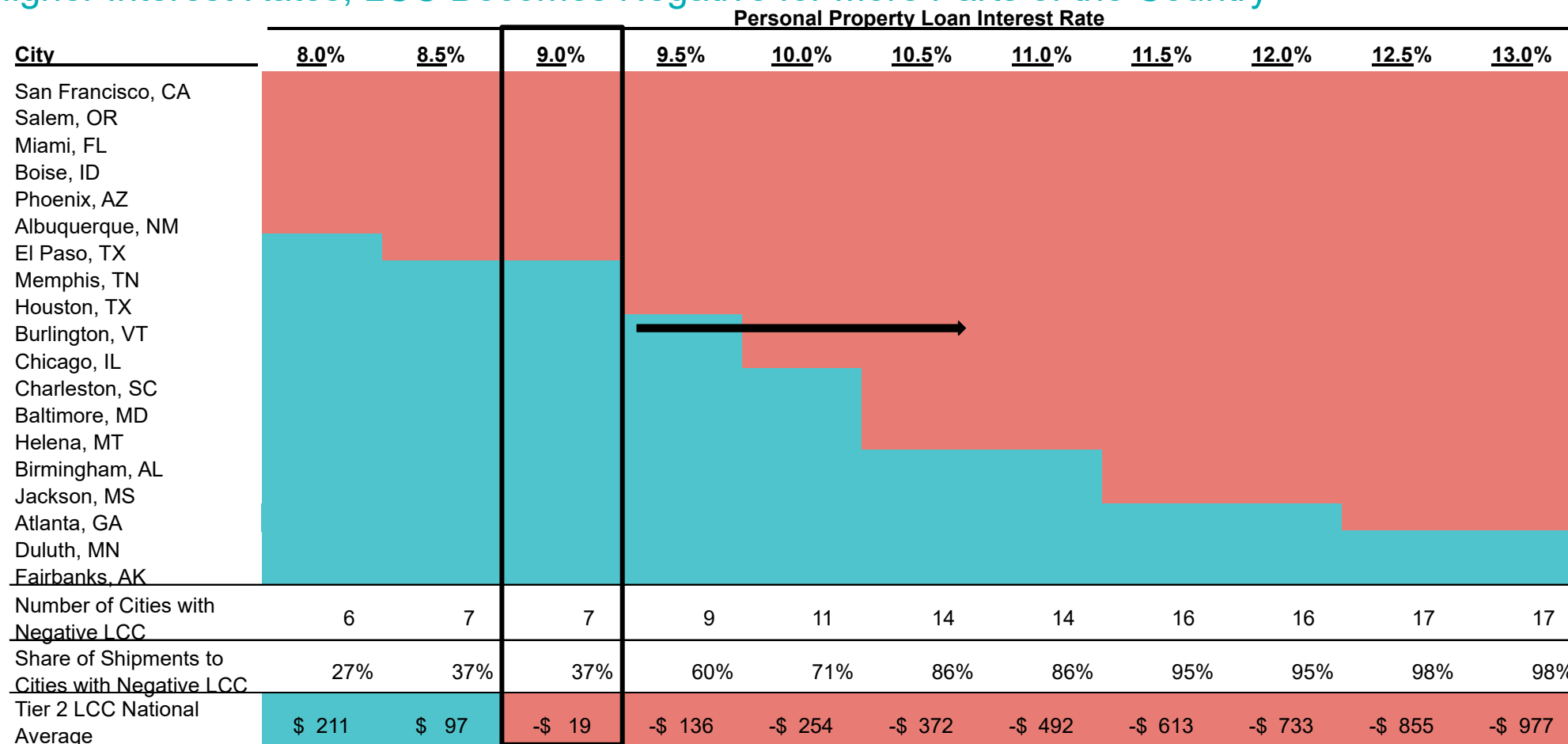
DOE has failed to consider potential costs of testing and compliance, transportation, and supply chain constraints.

DOE's Average Buyer Analysis Masks Negative Outcomes for a Number of Subgroups

- DOE LCC calculation is an average of the LCCs for many types of buyers
- LCC estimates vary along many dimensions, including:
 - Loan type (personal property, real estate, cash)
 - Credit score
 - Home heating fuel type (e.g., natural gas, electric resistance, heat pump)
 - Climate zone/geography
- Ultimately, low-income and minority buyers are more likely to be negatively impacted by the rule
 - The Biden Administration has prioritized housing affordability and racial equity:
“The Federal Government has a critical role to play in overcoming and redressing... [its role in declining to invest in communities of color and in failing to provide equitable access,] and in protecting against other forms of discrimination by applying and enforcing Federal civil rights and fair housing laws. It can help ensure that fair and equal access to housing opportunity exists for all throughout the United States.”

Under DOE's Original Assumptions, 10-Year LCC for Tier 2 Personal Property Loans is Negative

With Higher Interest Rates, LCC Becomes Negative for More Parts of the Country



Minority Buyers Are Relatively More Likely to Rely on Higher-Cost Personal Property Loans to Finance Purchases

- Many borrowers such as those with low credit scores or residents of Manufactured Housing communities face interest rates as high as 11.5 percent
- Minority buyers finance MH purchases with personal property loans at especially high rates compared to non-minority buyers

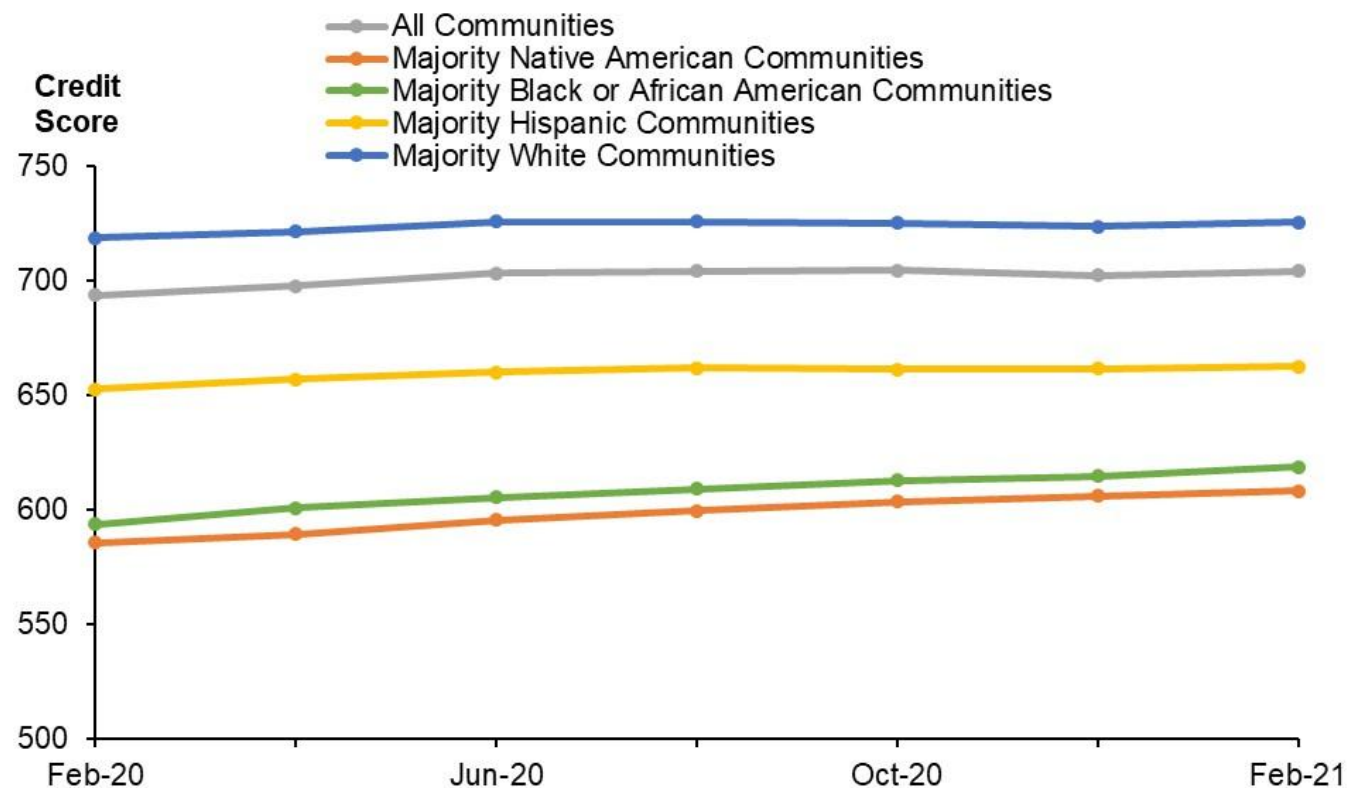
Share of Manufactured Home Purchases Financed by Personal Property Loans (vs. Real Estate Only), by Demographic Cohort

	Share of Personal Property Loans (vs Real Estate only)	Compared to All Households	Total Loans in Cohort (Personal Property and Real Estate)
All Households	42.8%	-	130,570
Low-Income Households	45.4%	+2.6%	65,583
Very Low-Income Households	45.1%	+2.3%	19,786
Hispanic	53.8%	+11.0%	16,224
Low-Income Hispanic Households	55.1%	+12.3%	8,406
Black or African American	65.1%	+22.3%	8,998
Low-Income Black or African American Households	66.7%	+24.0%	5,841
American Indian or Alaskan Native	54.7%	+11.9%	1,551
Low-Income American Indian or Alaskan Native Households	56.2%	+13.4%	840
Asian	48.6%	+5.9%	1,220

Low-Income and Minority Households Face Higher Borrowing Costs than the Median Household

- Residents of majority-minority communities tend to have lower credit scores than compared to white communities and the national average
- Low-income and minority buyers tend to face higher interest rates

Credit Scores of Residents in Majority-Minority Communities



The Negative Impact of DOE's Proposed Rule Can Be Illustrated With a Few Representative Borrowers

Quoted Rates from 21st Mortgage's Payment Estimator Help to Approximate Current Loan Terms

- The following slides illustrate several groups of representative borrowers, which differ according to the following characteristics:
 - City [E.g., Memphis, TN (Climate Zone 2)]
 - Credit Score [E.g., 650-680]
 - Home Cost [E.g., \$100,000]
 - Down Payment [E.g., 10%]
 - Loan Type [E.g., Home-only (Private Land)]
- 21st Mortgage's "Payment Estimator" tool estimates interest rates and loan terms, given these characteristics, which we then use to calculate LCC values
 - 21st Mortgage is the largest manufactured-home lender in the country, so rates give a general sense of terms facing a current prospective manufactured homebuyer
- Credit score and energy consumption patterns by geography are key drivers of differences in anticipated savings for prospective multi-section home buyers

Geographic Energy Consumption Patterns Drive Considerable Differences Across Cities for Prospective Tier 2 Borrowers

Buyers with Good Credit Would Have Significantly Negative LCC in Most Cities

Profile	Memphis	Miami	El Paso	Houston	Phoenix	Baltimore
City	Memphis (Climate Zone 2)	Miami (Climate Zone 1)	El Paso (Climate Zone 2)	Houston (Climate Zone 1)	Phoenix (Climate Zone 2)	Baltimore (Climate Zone 3)
Credit score	650-680	650-680	650-680	650-680	650-680	650-680
Home cost	\$110,000	\$110,000	\$110,000	\$110,000	\$110,000	\$110,000
Down payment	10%	10%	10%	10%	10%	10%
Loan type	Home only (Private Land)	Home only (Private Land)	Home only (Private Land)	Home only (Private Land)	Home only (Private Land)	Home only (Private Land)
Quoted rates (21st Mortgage)						
Interest rate	9.35%	9.35%	9.35%	9.35%	9.35%	8.60%
Term	25 years	25 years	25 years	25 years	25 years	25 years
10-year LCC						
Given DOE Assumptions	-\$ 66	-\$ 612	-\$ 280	-\$ 29	-\$ 448	\$ 366
Updated EEM Costs, Energy Prices	-\$1,586	-\$2,077	-\$1,821	-\$1,462	-\$1,985	-\$ 988
30-year LCC*						
Given DOE Assumptions	\$1,712	\$ 605	\$1,323	\$1,638	\$1,052	\$2,452
Updated EEM Costs, Energy Prices	-\$ 143	-\$1,206	-\$ 565	-\$ 119	-\$ 837	\$ 773

Notes: Asterisk (*) indicates that estimates are from DOE's original model, i.e., without a correction for an error where loan payments after Year 15 are not included in the LCC calculation for personal property loans. Quoted rates are for a single applicant. From HMDA, roughly 58% of applications are from single applicants. Source: 21st Mortgage Corporation, Payment Estimator, accessed November 7, 2022, available at <https://www.21stmortgage.com/web/payment-estimator.nsf/q1.html>; U.S. Department of Energy, Manufactured Housing Life-Cycle Cost Analysis (LCC) Spreadsheet, May 18, 2022, available at <https://www.regulations.gov/document/EERE-2009-BT-BC-0021-1996>.

Excellent-Credit-Score Borrowers are the Only Credit Score Group with Positive Tier 2 10-Year LCCs (e.g., Memphis)

Based on Industry Interviews, Only 1/3 of MH Buyers Have Credit Scores Over 675

<u>Profile</u>	<u>Poor Credit</u>	<u>Average Credit</u>	<u>Good Credit</u>	<u>Good Credit</u>	<u>Excellent Credit</u>	<u>Excellent Credit</u>
City	Memphis	Memphis	Memphis	Memphis	Memphis	Memphis
Credit score	Under 600	600-650	650-680	680-700	700-750	750+
Home cost	\$110,000	\$110,000	\$110,000	\$110,000	\$110,000	\$110,000
Down payment	10%	10%	10%	10%	10%	10%
Loan type	Home only (Private Land)	Home only (Private Land)	Home only (Private Land)	Home only (Private Land)	Home only (Private Land)	Home only (Private Land)
<u>Quoted rates (21st Mortgage)</u>						
Interest rate	11.45%	10.10%	9.35%	9.35%	8.35%	8.35%
Term	25 years	25 years	25 years	25 years	25 years	25 years
<u>10-year LCC</u>						
Given DOE Assumptions	-\$ 578	-\$ 259	-\$ 66	-\$ 66	\$ 209	\$ 209
Updated EEM Costs, Energy Prices	-\$2,202	-\$1,818	-\$1,586	-\$1,586	-\$1,252	-\$1,252
<u>30-year LCC*</u>						
Given DOE Assumptions	\$ 630	\$1,288	\$1,712	\$1,712	\$2,355	\$2,355
Updated EEM Costs, Energy Prices	-\$1,255	-\$ 578	-\$ 143	-\$ 143	\$ 516	\$ 516

Notes: Asterisk (*) indicates that estimates are from DOE's original model, i.e., without a correction for an error where loan payments after Year 15 are not included in the LCC calculation for personal property loans. Quoted rates are for a single applicant. From HMDA, roughly 58% of applications are from single applicants. Source: 21st Mortgage Corporation, Payment Estimator, accessed November 7, 2022, available at <https://www.21stmortgage.com/web/payment-estimator.nsf/q1.html>; U.S. Department of Energy, Manufactured Housing Life-Cycle Cost Analysis (LCC) Spreadsheet, May 18, 2022, available at <https://www.regulations.gov/document/EERE-2009-BT-BC-0021-1996>.

Summary of Preliminary Conclusions

DOE's conclusions on cost effectiveness disregard or do not sufficiently consider variation in key cost inputs over time and across groups for buyers and suppliers

1 **Inflation and Cost Increases**

DOE has failed to consider the impacts of considerable cost increases and supply chain constraints. Taking these into account, DOE's conclusion is invalid and the rule has a net cost to consumers rather than a benefit.

2 **Negative and Inequitable Impacts**

DOE has failed to consider negative impacts on low-income and minority homebuyers.

3 **Affordability and Credit Access**

DOE has underestimated potential impacts on credit access and lost sales.

4 **Additional Costs**

DOE has failed to consider potential costs of testing and compliance, transportation, and supply chain constraints.

Increased Costs Will Likely Impact Ability to Qualify for Financing

- Debt-to-income ratio is one of the top reasons why potential buyers of manufactured homes are denied loans
In 2021, **42 percent** of denied loans for MH purchases listed the applicant's debt-to-income ratio as a reason for denial
- The cost of owning a new manufactured home has increased by over 40 percent since 2020, according to an industry source
Additionally, the cost of construction materials has increased by at least 35 percent since 2020, increasing the cost of compliance
Together, these two factors are likely to increase the debt-to-income ratio for potential applicants for manufactured home loans, increasing the likelihood of loan denial
- Minority buyers tend to have lower incomes, and therefore the impacts of the rule have the potential to fall disproportionately on historically marginalized communities
Low-income buyers are likely to be disproportionately impacted for similar reasons

DOE's Reliance on Elasticity of Demand Estimates Understates Likely Impact on Affordability & Housing Access

- DOE has likely underestimated the affordability impact by assuming **relatively low price-sensitivity**
 - For example, AG's updated EEM cost estimates suggest that the cost of Tier 2 homes will increase by **6.1 percent**
 - Under DOE's assumption, a 6.1 percent increase in price leads to **2.9 percent fewer sales annually**
 - However, according to 2021 estimates of price sensitivity by the National Association of Home builders, the same 6.1 percent increase in price would lead to **6.4 percent fewer sales annually**
 - DOE's own sensitivity analysis, based on a study HUD has cited in prior rulemakings, suggests that this 6.1 percent price increase would lead to **14.6 percent fewer sales annually**
- Additionally, DOE has likely underestimated impacts on affordability due to:
 - DOE has arguably **underestimated compliance costs** and the expected increases in MH prices due to the rule
 - The **recent increase in retail prices** of MHs may have made ownership unaffordable for many consumers already
 - Consumers may be increasingly sensitive to price increases at higher baseline prices

- DOE's assumption understates the decreased demand by *thousands* of potential manufactured home buyers per year, all of whom would have to choose from worse alternatives

Sources: DOE Technical Support Document, pp. 8-3, 10-7 – 10-9; NAHB (2021); EERE-2009-BT-BC-0021-1997_content, Sheet "Price Elasticity," Cells E3:E4; AG Calculations.

Summary of Preliminary Conclusions

DOE's conclusions on cost effectiveness disregard or do not sufficiently consider variation in key cost inputs over time and across groups for buyers and suppliers

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Inflation and Cost Increases

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2

Negative and Inequitable Impacts

DOE has failed to consider negative impacts on low-income and minority homebuyers.

3

Affordability and Credit Access

DOE has underestimated potential impacts on credit access and lost sales.

4

Additional Costs

DOE has failed to consider potential costs of testing and compliance, transportation, and supply chain constraints.

DOE Has Not Accounted for Costs of Testing and Compliance, Which Could Entirely Offset Anticipated Life-Cycle Cost Savings

- DOE has not specified requirements for duct system testing and air leakage testing, which are required by the IECC
- The costs of these possible testing requirements were also not included in DOE's LCC analyses
- Industry interviews have suggested that the costs of compliance may range up to and possibly **over \$1,000/house** for in-field testing of homes in more remote locations
- A \$1,000 testing cost could nearly wipe out anticipated savings across all tiers and analysis periods

DOE and Adjusted LCC Values, by Tier and Analysis Period

	<u>10-Year LCC</u>		<u>30-Year LCC*</u>	
	<u>Tier 1</u>	<u>Tier 2</u>	<u>Tier 1</u>	<u>Tier 2</u>
DOE LCC	\$720	\$743	\$1,594	\$3,573
Adjusted LCC	\$549	-\$647	\$1,395	\$1,361
Adjusted LCC, with \$1,000 Testing Cost	-\$194	-\$1,330	\$426	\$338

Note: Asterisk (*) indicates that the 30-year LCC estimates rely on DOE's original model, which erroneously excludes mortgage payments after the 15th year of personal property loans and therefore overestimates anticipated savings.

Transportation Costs May Further Reduce or Negate Anticipated Savings

- Interviews with industry experts, as well as public comments submitted to DOE, have suggested that DOE has underestimated additional transportation costs due to additional height and weight required to comply with the rule
Additional insulation and framing requirements may increase the weight of manufactured homes, requiring an additional axle, which may cost **at least \$400 to \$500/multi-section house**
The rule may require homes in CZ2 and CZ3 to use 2' x 6' studs instead of standard 2' x 4' studs, which increases package height. Height increases may require re-routing deliveries around areas with height restrictions, such as in the Northeast
- Additionally, transportation costs have increased in general during the pandemic, e.g., as fuel and labor costs have increased
- Incremental transportation costs were not included in DOE's LCC estimates

Pandemic-Related Supply Chain Shortages May Persist into 2023

- Industry interviews have predicted that pandemic-related supply chain shortages are likely to persist into 2023
 - For example, one interview noted that there were already insulation shortages, with additional cost increases coming in January 2023
 - New fiberglass insulation plants are capital-intensive and take time to build, and therefore insulation shortages are likely to persist in the medium term
 - Therefore, increased demand from the manufactured housing sector due to the DOE rule may further exacerbate existing insulation shortages
 - Without sufficient fiberglass insulation, manufacturers may be forced to substitute to spray foam insulation for parts of the production process, increasing costs significantly and reducing the total number of homes that can be produced per day
- Additionally, CBRE has predicted that pandemic-related delays and labor shortages will continue in the short term

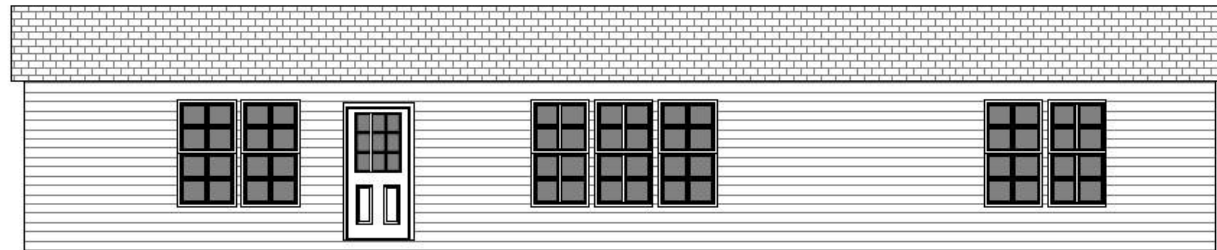
Exhibit C

Architectural Drawings

CURRENTLY BUILT MULTI WIDE – BOX SIZE 27x56

HEATED AREA – 1457 SQUARE FEET

TYPICAL ZONE 3 CONSTRUCTION



INSULATION – 22 FLOOR / 11 WALL / 28 CLG

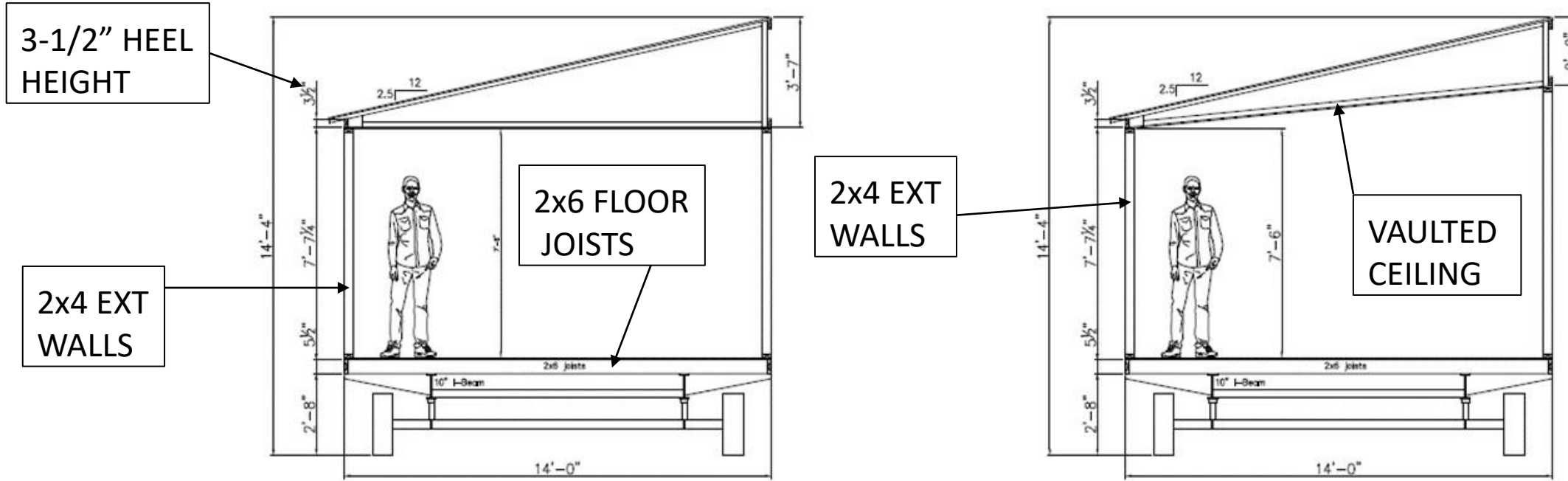
142 SQUARE FEET OF WINDOWS

WINDOW U-VALUE = 0.34

2x4 WALLS

2x6 FLOOR JOISTS

CURRENT TYPICAL CROSS SECTIONS



TYPICAL ZONE 3 CONSTRUCTION:

- SHIPPING HEIGHT 14'-4"
- OPTIONAL VAULT CEILING
- 7'-6" SIDEWALL HEIGHT
- 3-1/2" TRUSS HEEL HEIGHT

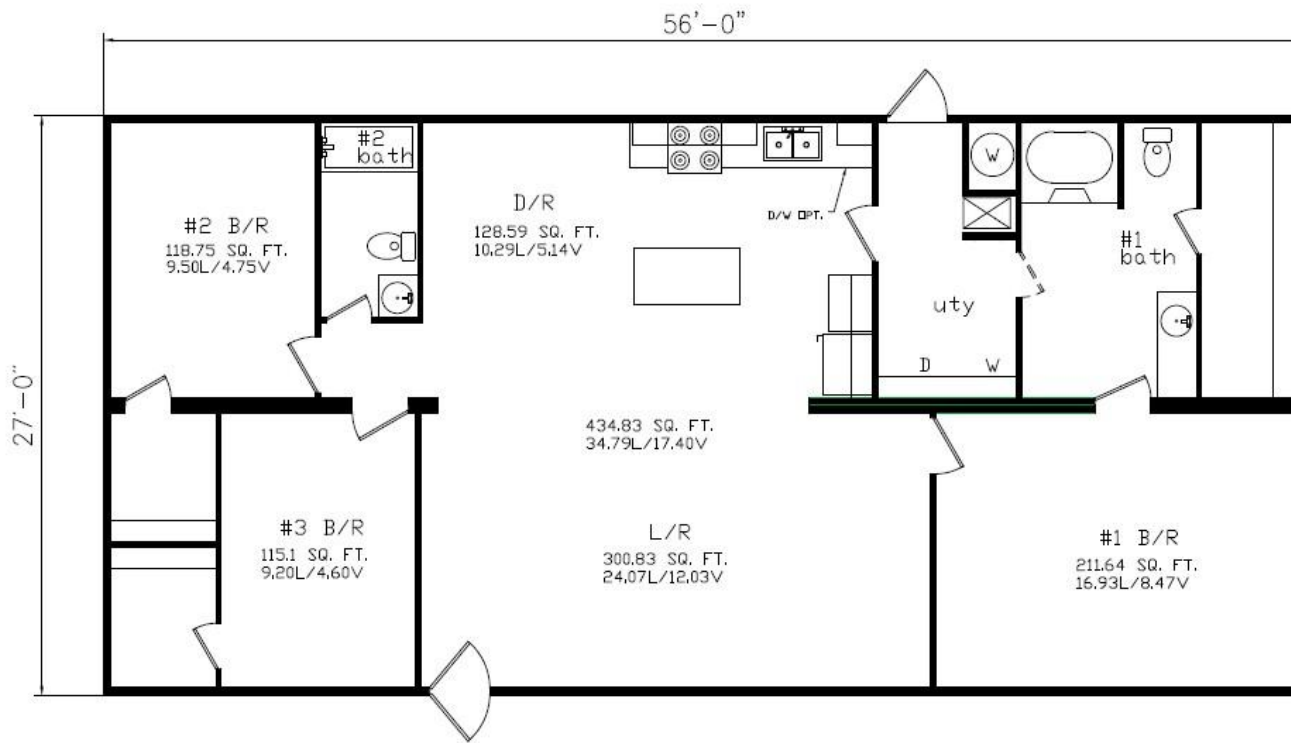
IMPACT DUE TO DOE PROPOSED MULTI WIDE – BOX SIZE 27x56

HEATED AREA – 1457 SQUARE FEET

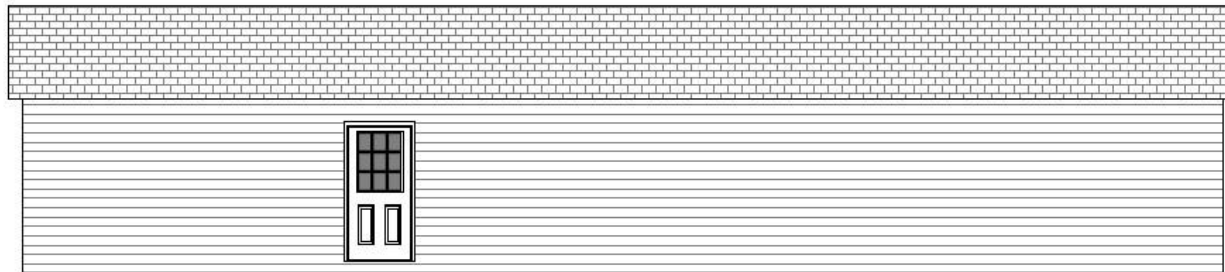
NOTES:

- THIS SLIDE SHOWS THE CHANGES REQUIRED IN ORDER TO REACH THE REQUIRED U-VALUE (0.055) WITHOUT CHANGING THE HOME CONSTRUCTION .
- FLOOR INSULATION WAS CHANGED TO R-33, WALL INSULATION WAS CHANGED TO R-15, AND CEILING INSULATION REMAINED R-28. THESE INSULATION VALUES ARE THE MAXIMUM POSSIBLE VALUES THAT CAN BE INSTALLED WITHOUT CHANGING THE HOME CONSTRUCTION FRAMING.
- WITH THIS CONSTRUCTION, I WAS ONLY ABLE TO GET THE OVERALL U-VALUE DOWN TO 0.055 IF ALL WINDOWS WERE REMOVED.

- PLEASE NOTE THAT IT IS NOT POSSIBLE TO CONSTRUCT A HOME WITHOUT WINDOWS DUE TO LIGHT, VENTILATION, and EGRESS REQUIREMENTS.



PROPOSED ZONE 3 CONSTRUCTION



INSULATION – 33 FLOOR / 15 WALL / 28 CEILING

2x4 WALLS

2x6 FLOOR JOISTS

ZERO WINDOWS

WINDOW U-VALUE = 0.32

IMPACT DUE TO DOE PROPOSED MULTI WIDE – BOX SIZE 27x56

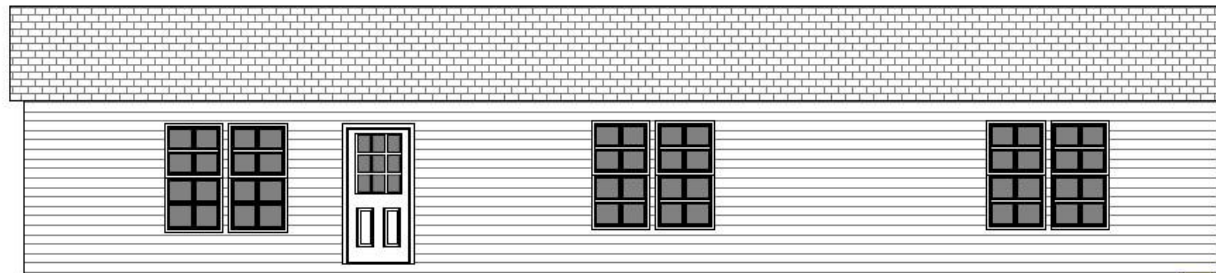
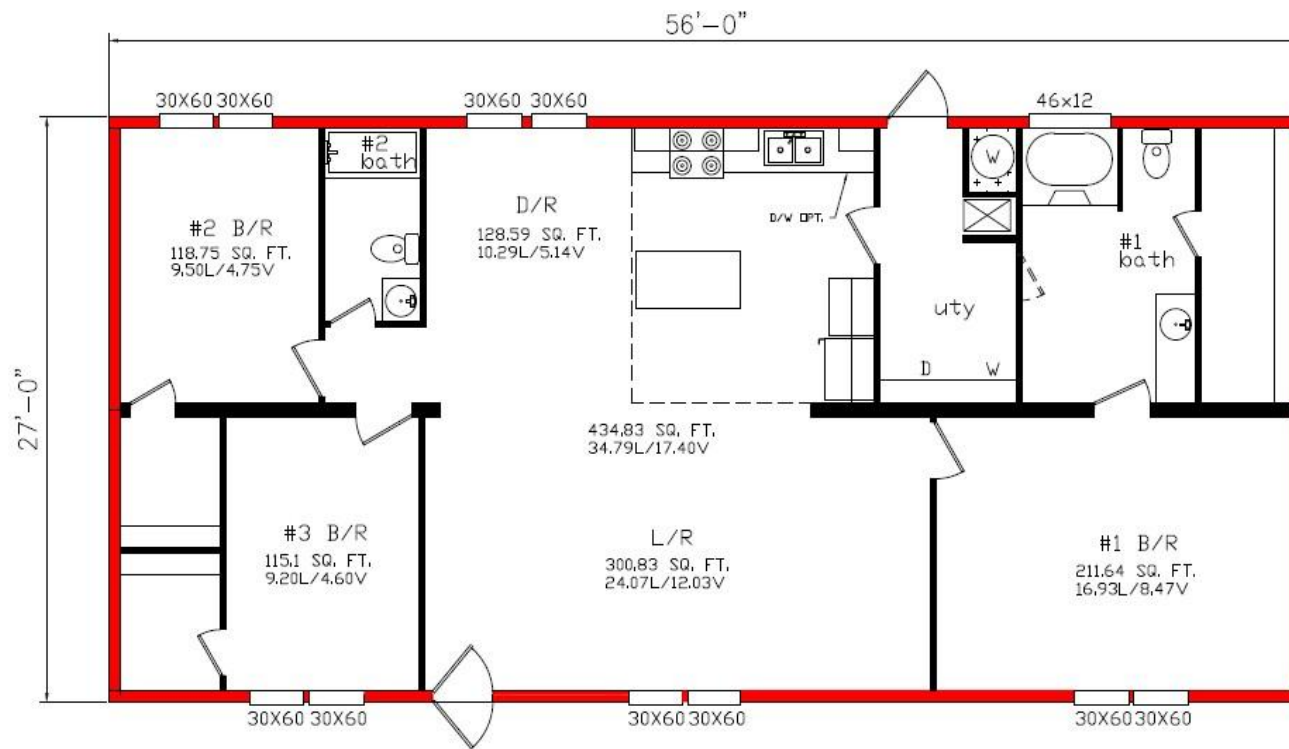
HEATED AREA – 1430 SQUARE FEET

NOTES:

- IN ORDER TO REACH THE REQUIRED U-VALUE (0.055) THE FLOORS WERE CHANGED TO 2x8 , THE WALLS WERE CHANGED TO 2x6 AND THE INSULATION PACKAGE WAS CHANGED TO THE VALUES LISTED IN THE PRESCRIPTIVE SECTION OF THE PROPOSED CODE. HOWEVER, IT WILL BE VERY DIFFICULT TO BUILD THE HOME WITH THIS INSULATION PACKAGE USING CURRENTLY AVAILABLE MATERIALS.
- HEATED AND COOLED INTERIOR SPACE REDUCED BY 27 SQUARE FEET DUE TO THE INCREASED WALL THICKNESS.
- R-30 IN THE FLOOR WILL REQUIRE BATT INSULATION TO BE INSTALLED BETWEEN THE FLOOR JOISTS COMBINED WITH A BLANKET BELOW THE JOISTS. CURRENTLY, MOST MANUFACTURER'S DO NOT USE THIS FLOOR INSULATION TECHNIQUE.
- R-21 IS AVAILABLE, BUT IN SMALL QUANTITIES
- R-38 WILL BE PROBLEMATIC TO GET INTO THE ROOF CAVITY DUE TO THE REQUIRED THICKNESS AND AVAILABLE SPACE IN THE ATTIC.

- ADDED BACK 11 OF THE PREVIOUSLY REMOVED 12 WINDOWS. UPGRADED THE WINDOWS TO U-VALUE EQUAL TO 0.30. HOWEVER, IT SHOULD BE NOTED THAT THESE UPGRADED WINDOWS ARE NOT AVAILABLE IN THE MARKET TODAY.
- SHIPPING HEIGHTS WILL BE INCREASED DUE TO TALLER FLOORS AND TALLER HEEL HEIGHT TRUSS.
- THE OPTION FOR A VAULTED CEILING WILL NOT BE POSSIBLE DUE TO THE INCREASED INSULATION THICKNESS IN THE ATTIC.
- OPTIONS FOR 8 FEET OR 9 FEET WALL HEIGHTS AND TRANSOM WINDOW WILL ALSO BE IMPACTED.

PROPOSED ZONE 3 CONSTRUCTION



129 SQUARE FEET OF WINDOWS
WINDOW U-VALUE = 0.30

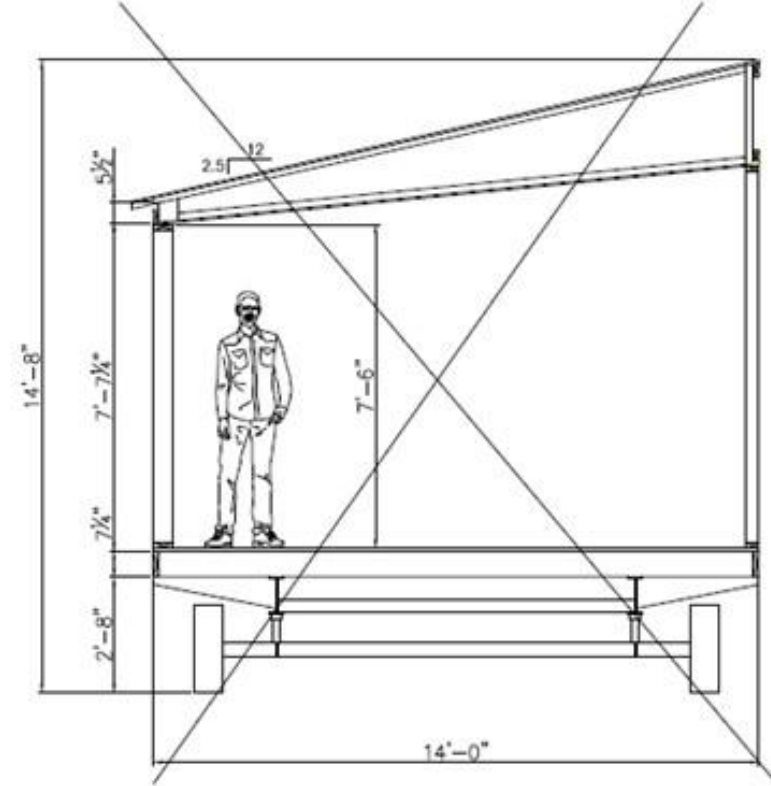
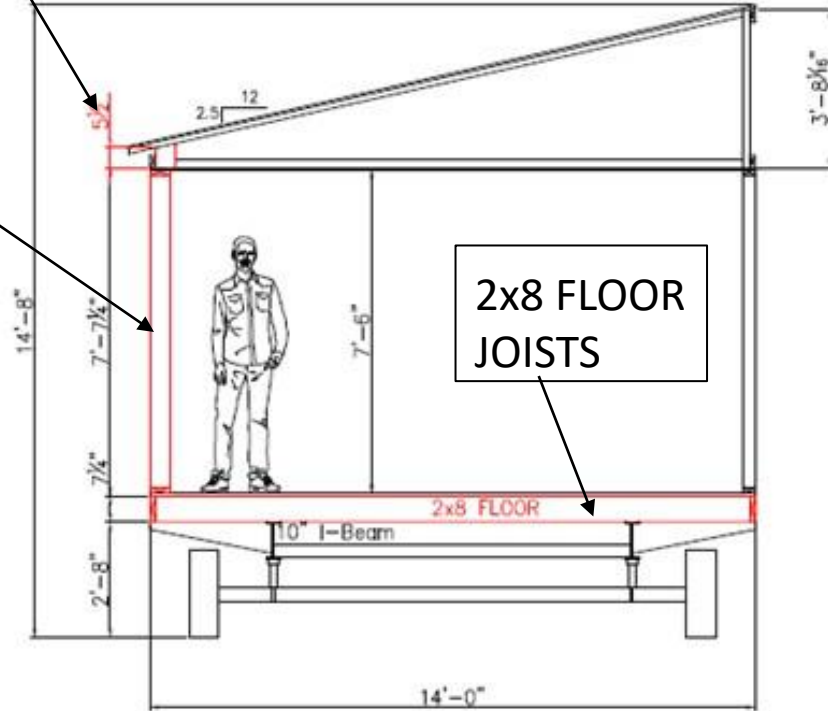
INSULATION – 30 FLOOR / 21 WALL / 38 CEILING
2x6 WALLS
2x8 FLOOR JOISTS

HEEL HEIGHT CHANGED TO 5.5 inches

5-1/2" HEEL
HEIGHT

2x6 EXT
WALLS

PROPOSED TYPICAL CROSS SECTIONS



ZONE 3 CONSTRUCTION:

SHIPPING HEIGHT INCREASED TO 14'-8"

OPTIONAL VAULT CEILING IS NO LONGER AVAILABE DUE TO INSULATION THICKNESS

7'-6" SIDEWALL HEIGHT

5-1/2" TRUSS HEEL HEIGHT

2x8 FLOORS

ADDITIONAL PROPOSED CHANGES

- PROPOSES USING ACCA MANUAL S AND ACCA MANUAL J FOR HEATING AND COOLING EQUIPMENT. HOWEVER, USING ACCA MANUAL J AND ACCA MANUAL S FOR THE DESIGN OF HEATING AND COOLING EQUIPMENT WILL BE PROBLEMATIC, ESPECIALLY IN THERMAL ZONE 3. ACCA MANUAL J REQUIRES KNOWLEDGE OF THE ORIENTATION OF THE HOME WITH RESPECT TO THE SUN FOR COOLING LOAD ANALYSIS. BECAUSE THE ORIENTATION OF THE HOME IS OFTEN UNKNOWN UNTIL INSTALLED, THE PROPOSED RULE MUST ESTABLISH A DEFAULT ORIENTATION. ACCA MANUAL S ESTABLISHES SIZING LIMITS FOR HEATING AND COOLING EQUIPMENT, THESE LIMITS PRESUME THAT THERMAL LOADS ARE ESTABLISHED FOR A SPECIFIC LOCATION AND SPECIFIC BUILDING ORIENTATION. THE VARIATION IN DESIGN PARAMETERS WITHIN A SINGLE THERMAL ZONE EXCEEDS THE SIZING LIMITS OF ACCA MANUAL S. ADDITIONAL GUIDANCE WILL BE REQUIRED TO PROPERLY USE ACCA MANUAL S AND ACCA MANUAL J.



MANUFACTURED HOUSING CONSENSUS COMMITTEE

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APPENDIX D

HUD Comparative Matrix of Energy Standards

July 23, 2026



Office of Manufactured Housing Programs

COMPARATIVE MATRIX OF ENERGY STANDARDS

	Concept	Current HUD Code (24 CFR 3280)	DOE Energy Standards (10 CFR 460)	2022 MHCC Recommendations (PDF)	2026 MHCC Analysis
1	Nomenclature	24 CFR 3280 UNIVERSAL (various code sections) The HUD code currently refers to thermal performance requirements by categorizing standards in geographic areas called “Uo Value Zones.” These areas are defined by state boundaries.	10 CFR 460 The DOE standard uses the same geographic (state) boundaries but uses the term “Climate Zone” instead of Uo Value Zone.	2022 MHCC Recommendation (General Changes) The revised HUD standard would change terminology from “Uo Value Zone” to “Climate Zone” throughout the HUD standards.	Maintain
2	Scope	3280.1 This section is an introductory paragraph that provides a general scope statement of the HUD standards. The scope includes design, construction, transportation, fire safety, plumbing, heat producing, and electrical systems. The current statement does not specifically include “cooling” which is a core part of energy standards.	No relevant text.	2022 MHCC Recommendation (3280.1 Scope) The revised HUD standard would include “cooling” in the scope of HUD’s standards in addition to heat producing. Even though the current HUD code does include standards for cooling, the term was absent from the scope statement and would now be included.	Maintain
3	Cooling	3280.2 This section provides terms and definitions that apply to all Subparts of the HUD code. The term “equipment” does not include “cooling” as part of the definition. Cooling systems are among the equipment types covered for the purposes of energy standards, but are not clearly defined in the current HUD Code definitions.	460.2 The DOE standards include “cooling” in the definition of equipment.	2022 MHCC Recommendation (3280.2 Definitions) The revised HUD standard would include “cooling” in the definition of the term “equipment.”	Maintain

	Concept	Current HUD Code (24 CFR 3280)	DOE Energy Standards (10 CFR 460)	2022 MHCC Recommendations (PDF)	2026 MHCC Analysis
4	Ventilation- Fans	3280.103 This section of the standards includes requirements for natural light and ventilation requirements for occupant health. This includes whole house and specific area requirements. This standard does not contain requirements on the efficacy of mechanical ventilation fans, which is a measure of how efficiently a fan moves air relative to the energy it consumes.	460.204 The DOE standard includes minimum mechanical ventilation fan efficacy requirements for systems providing whole house ventilation.	2022 MHCC Recommendation (3280.103 Light and ventilation) The revised HUD standard would add prescriptive efficacy requirements for mechanical fan ventilation systems which would require testing to verify compliance or other data to meet minimum airflow rates and how well it converts energy to actual air movement. The standard varies by fan type.	Maintain
5	Scope of Thermal Protection Standards	3280.501 This section provides a general statement for the scope of the Thermal Protection standards, which cover condensation control, air infiltration, thermal insulation and certification for heating and comfort cooling, but do not expressly focus on energy conservation.	460.1 The DOE standard includes “energy conservation” with the scope statement for its standards.	2022 MHCC Recommendation (3280.501 Scope) The revised HUD code text would add the term “energy conservation” to the scope statement to provide clarity of the included standards. This would be consistent with overall intent of the standards.	Maintain
6	Definitions for Thermal Protection Standards	3280.502 This standard provides and defines 2 terms; “pressure envelope” and “thermal envelope area.” The pressure envelope is the area where air leakage standards apply and the thermal envelope is the area where standards for heat loss and heat gain apply.	460.2 The DOE standards use the term “air barrier” instead of “pressure envelope but they mean the same thing. The DOE standard also uses the term “building thermal envelope” instead of “thermal envelope area.” In addition, the DOE standards include terms and definitions not included in the HUD code. The terms are: access, air barrier, automatic, building thermal envelope, ceiling, climate zone, conditioned space, door, dropped ceiling, dropped soffit, duct, duct system, eave, exterior ceiling, exterior floor, exterior wall, fenestration, floor, glazed or glazing, insulation, manual, opaque, R-value, rough opening, skylight, skylight well, solar heat gain coefficient, thermostat, u-factor, Uo, ventilation, vertical fenestration, wall,	2022 MHCC Recommendation (3280.502 Definitions) The revised HUD code text would eliminate the term and definition for “thermal envelope area” and replace the term “pressure envelope” with “air barrier.” The revised HUD code would also include the terms and definitions included in the DOE standards except that the definition of insulation would be revised to contain only aspects relevant to house insulation and the term “zone” would not be included because of potential confusion and conflict.	Maintain

	Concept	Current HUD Code (24 CFR 3280)	DOE Energy Standards (10 CFR 460)	2022 MHCC Recommendations (PDF)	2026 MHCC Analysis
			whole house mechanical ventilation system, window, and zone.		
7	Installation Materials	3280.503 The current standard is general and requires materials used for insulation to be of proven effectiveness and have adequate durability to ensure that required performance-based design conditions concerning thermal transmission are attained.	460.103 The DOE standard includes specific insulation installation requirements for various components. These components include access hatches, panels, and doors, baffles, ceiling/attic, narrow cavities, rim joists, exterior shower/tub walls, and walls. The DOE standards include prescriptive requirements to ensure that the building thermal envelope achieves its intended thermal performance and energy efficiency by minimizing gaps, voids, compression, and air leakage pathways	2022 MHCC Recommendation (3280.503 Materials) The revised HUD code text would replace the current general language with prescriptive component installation requirements included in the DOE rule with minor modification to the requirements for baffles that better align with industry construction. These would be all new requirements within the HUD code.	Maintain
8	Air Infiltration	3280.505 The current standards contain performance-based requirements to generally limit air infiltration and prescriptive methods for limiting air infiltration around penetrations such as plumbing and electrical penetrations and between major components; wall-to-wall, wall-to-ceiling and wall-to-floor connections.	460.104 The DOE standard includes prescriptive requirements for sealing against air leakage and air barrier installation criteria for ceilings/attics, supply and return ducts, electrical/phone boxes on exterior walls, floors, mating surfaces, recessed lighting, rim joists, exterior shower/tub walls, walls, and windows, skylights and exterior doors.	2022 MHCC Recommendation (3280.505 Air infiltration) The revised HUD code text would add prescriptive requirements for air barrier installation criteria for: all areas addressed by DOE standards and the revised HUD code would use same language except for four provisions for 1) Supply and return ducts; 2) Rim Joists; 3) Shower or tub adjacent to exterior wall; and 4) Windows, skylights, and exterior doors. The changes to those 4 would be to align with industry terminology and provide clarity of requirements. These would be new requirements that do not currently exist in the HUD code.	Maintain
9	Uo Value Zones to Climate Zones	3280.506 The current standards are performance-based requirements that set forth three "Uo value zones," defined by state boundaries (paragraph a) and	460.101 The DOE standard includes the same boundaries but defines the areas as Climate Zones rather than Uo Value Zones.	2022 MHCC Recommendation (3280.506 Building Thermal Envelope and Climate Zones) The revised HUD code would revise the terminology of zones to Climate Zones instead of Uo Value Zones in paragraph a.	Maintain

	Concept	Current HUD Code (24 CFR 3280)	DOE Energy Standards (10 CFR 460)	2022 MHCC Recommendations (PDF)	2026 MHCC Analysis
		provides the maximum heat loss performance requirements for each zone (paragraph b). Current zone-based performance standards: Uo Zone 1: 0.116 Uo Zone 2: 0.096 Uo Zone 3: 0.079 Paragraph c sets forth requirements specific to the separating wall between attached homes. This section (paragraph d) also contains a requirement for Uo Zone 3 homes to include storm windows or insulating glass.	The DOE standard separated the zone boundaries and thresholds into different code sections.	The Climate Zone performance requirements in paragraph b would be moved to 3280.507 and include a prescriptive pathway and requirements. Requirements in paragraph c would remain and redesignated paragraph b. Requirements in paragraph d would be eliminated in favor of u factor requirements for windows to be established in 3280.507.	
10	Comfort Heat Gain	3280.507 The current HUD code provides performance-based requirements for determining comfort heat gain (how to analyze for cooling loads)	460.102 The DOE standard provides two compliance pathways for determining whether design/construction conforms to: 1) A set of prescriptive requirements that include specific insulation values for walls, floors, and ceilings, and specific thermal transmittance limits for windows, skylights, and doors. 2) A performance pathway that provides an overall thermal performance value for each of the 3 climate zones with additional requirements for glazed area consideration. The DOE standard provided requirements in tiers, Tier 1 being single section homes and Tier 2 being multi-section homes.	2022 MHCC Recommendation (3280.507 Prescriptive Compliance Path) The revised HUD code text would eliminate the current language on heat gain because it would no longer be needed. The section would be revised to contain requirements for the prescriptive and performance pathways that would apply Tier 1 requirements (with some modifications to prescriptive requirements) to single section homes and Tier 2 requirements (with some modifications to prescriptive and performance requirements) to multi-section homes. This would result in an increase in efficiency by a minimum of 5% above current code requirements for single section homes to about 25% above current requirements for multi-section homes. Tier 1 Prescriptive Pathway: Tier 1 Climate Zone 1 Walls – R13 Ceiling – R22 Floor – R-19	Update Typo fix : « Multi-Section » replaces Single-Section on page 13 of 22

	Concept	Current HUD Code (24 CFR 3280)	DOE Energy Standards (10 CFR 460)	2022 MHCC Recommendations (PDF)	2026 MHCC Analysis
				Window: 0.55 Skylight: 0.75 Door: 0.40 Glazing SHGC: 0.6 Tier 1, Climate Zone 2 Walls – R13 Ceiling – R22 Floor – R-22 Window: 0.50 Skylight: 0.55 Door: 0.40 Glazing SHGC: 0.7 Tier 1, Climate Zone 3 Walls – R19 Ceiling – R22 Floor – R-22 Window: 0.35 Skylight: 0.55 Door: 0.40 Glazing SHGC: NA Tier 2 Prescriptive Pathway: Tier 2 Climate Zone 1 Walls – R13 Ceiling – R30 Floor – R-13 Window: 0.50 Skylight: 0.75 Door: 0.40 Glazing SHGC: 0.6 Tier 2, Climate Zone 2 Walls – R13 Ceiling – R30 Floor – R-19 Window: 0.35	

	Concept	Current HUD Code (24 CFR 3280)	DOE Energy Standards (10 CFR 460)	2022 MHCC Recommendations (PDF)	2026 MHCC Analysis
				Skylight: 0.55 Door: 0.40 Glazing SHGC: 0.33 Tier 2, Climate Zone 3 Walls – R15 Ceiling – R38 Floor – R-25 Window: 0.32 Skylight: 0.55 Door: 0.40 Glazing SHGC: NA Tier 1 Performance Pathway: Climate Zone 1: 0.110 Climate Zone 2: 0.091 Climate Zone 3 :0.074 Tier 2 Performance Pathway : Climate Zone 1: 0.090 Climate Zone 2: 0.076 Climate Zone 3 :0.061	
11	Heat Loss, Heat Gain and Cooling Load Calculations	3280.508 The current HUD code contains performance-based requirements for calculating heat loss, heat gain, and cooling load calculations. The requirements are based on the following reference standard: Overall U-values and Heating/Cooling Loads—Manufactured Homes—February 1992-PNL 8006, HUD User No. 0005945. See also 3280.511	460.205 The DOE rule includes reference to independent third-party standards maintained by the Air Conditioning Contractor’s Association (ACCA). These standards include ACC Manual J for calculating heating and cooling loads and ACCA Manual S for heating and cooling equipment selection.	2022 MHCC Recommendation (3280.716 Equipment Sizing) The HUD code text in 3280.508 would not be revised as ACCA manuals are not appropriate for manufactured housing where location and placement details are not known at the design stage.	Maintain

	Concept	Current HUD Code (24 CFR 3280)	DOE Energy Standards (10 CFR 460)	2022 MHCC Recommendations (PDF)	2026 MHCC Analysis
12	Heating/ Comfort Cooling Certificates	3280.510 and 3280.511 The HUD code requires manufacturers to provide a Comfort Heating Certificate and a Comfort Cooling Certificate with each home. Based on the manufacturers heating and cooling load calculations and equipment selections, the certificates provide information on heating and cooling system design.	The DOE rule does not contain any certificate requirements.	The revised HUD code text would generally contain the same requirements that currently exist but would be updated to reflect terminology changes (Uo Value Zone vs Climate Zone) and to simplify some of the language.	Maintain
13	Water/ Plumbing Terms	3280.602 The current HUD code provides numerous terms and definitions applicable to plumbing requirements in this Subpart but does not include several definitions related to heated water supply systems that are needed to build out energy conservation standards for hot water systems.	460.2 The DOE standard includes the terms and definitions for: “distribution manifold” and “heated water circulation system” and “service hot water.”	2022 MHCC Recommendation (3280.602 Definitions) The revised HUD standard would include modified versions of the definitions for “distribution manifold” and “heated water circulation system” as they are not contained in the current code, and would add the term for “hot water supply” (instead of using DOE’s term of “service hot water,” as the latter is not typical to the manufactured housing industry).	Maintain
14	Water Distribution Systems	3280.609 The current HUD code provides requirements for water distribution systems to be installed according to manufacturer instructions, including hot water supply systems, but does not establish energy standards or requirements for such systems.	460.203 The DOE standard includes prescriptive energy efficiency requirements for service hot water supply, heated water circulation systems, and insulation of hot water pipes outside conditioned spaces.	2022 MHCC Recommendation (3280.609 Water distribution systems) The revised HUD standard would include requirements for the installation of heated water circulation systems and establish new insulation requirements for hot water supply pipes outside of conditioned spaces.	Maintain
15	Definitions for Heating, Cooling and Fuel Burning Systems	3280.702 The current HUD code provides numerous terms and definitions applicable to heating and fuel burning equipment in this Subpart. This includes a term and definition for “air duct.”	460.2 The DOE rule includes two terms and definitions; duct and duct system.	2022 MHCC Recommendation (3280.702 Definitions) The HUD standard would be revised to include both definitions in the DOE standard and would eliminate the existing standard for air duct since it would be duplicative.	Maintain

	Concept	Current HUD Code (24 CFR 3280)	DOE Energy Standards (10 CFR 460)	2022 MHCC Recommendations (PDF)	2026 MHCC Analysis
16	Thermostats	3280.704 The HUD code currently reserves this section and as such contains no requirements. 3280.707(e) The HUD code includes requirements for installation of at least one thermostat and provides limitations on placement of the thermostat but does not address temperature control or energy efficiency of the thermostat conditions.	460.202 The DOE rule includes requirements for thermostat location, installation, and programming. The standards include a requirement that home manufacturer's pre-program heat and cool set points, prior to shipment.	2022 MHCC Recommendation (3280.704 Thermostats and Controls) 2022 MHCC Recommendation (3280.707 Heat Producing Appliances) The revised HUD standard would eliminate the existing standard at 3280.707(e) and instead utilize the reserved section to 3280.704 to merge the existing requirement at 707(e) with the DOE standards for location and placement. The HUD code revision would also integrate DOE rule requirements for any programmable thermostat installed but would not require the home manufacturer to pre-program thermostats but instead provide recommended set points in consumer-facing literature.	Maintain
17	Appliances/ Cooling	3280.714 The HUD code currently references SEER rating for heat pumps, which measures the cooling efficiency of the unit over an entire cooling season.	Not addressed in the DOE rule.	2022 MHCC Recommendation (3280.714 Appliances, Cooling) The revised HUD code text would refer to SEER2 ratings aligning with more recent EPA requirements. As of January 2023, the industry has transitioned from SEER to SEER2, which uses a more rigorous testing procedure.	Maintain
18	Circulating Air Systems	3280.715 The HUD code currently requires duct systems to undergo static duct pressure testing to ensure the methods of construction result in airtight systems. HUD requires ducts and joints to be "substantially airtight" and provides a static pressure test, but does not establish a specific leakage rate limit. Duct leakage is directly tied to energy performance and without a specific leakage rate limit, the standard may allow energy loss through duct leakage to go unaddressed.	460.201 The DOE rule requires duct systems to be tested to determine compliance with duct leakage limits. The DOE standard does not factor whether duct systems are inside or outside of the thermal envelope. Further, the DOE rule does not contain any test protocol requirements.	2022 MHCC Recommendation (3280.715 Circulating air systems) The revised HUD standard would incorporate duct leakage requirements that depend on whether the duct system is completely inside the thermal envelope or not. A more stringent requirement for duct leakage limit would apply to duct systems installed outside of the thermal envelope. The HUD code text would also be revised to include minimum test frequency.	Update Remove 4 c) – reason, the redundant inspection is a financial burden for smaller manufacturers. The prescriptive method can cover 4 c) Pg 19 of 22