December 2, 2025

Mr. Joshua Loucks
U.S. Department of Energy
1000 Independence Avenue SW, Washington, DC 20585

Re: **Public Input on Energy Conservation Standards for Manufactured Housing Docket No. EERE-2009-BT-BC-0021**

The American Lung Association ("the Lung Association") appreciates the opportunity to provide comments in response to the Department of Energy's request for public input regarding Energy Conservation Standards for Manufactured Housing.[1] The Lung Association is the nation's oldest voluntary public health organization, dedicated for more than a century to improving lung health and preventing lung disease through research, advocacy, education, and public health engagement. Because energy-inefficient and poorly ventilated homes directly contribute to respiratory and cardiovascular illness, the Lung Association strongly supports strengthening federal standards that reduce indoor and outdoor air pollution exposures for residents of manufactured housing.

Manufactured homes are disproportionately occupied by lower-income households, older adults, and individuals with chronic health conditions—populations already at higher risk from air pollution and extreme temperatures. Strengthening energy conservation standards offers an important opportunity to improve indoor air quality, reduce exposure to harmful pollutants, decrease energy burdens, and ultimately help ensure everyone has the opportunity for a healthy future. The Lung Association urges DOE to adopt a final standard consistent with the agency's statutory obligations under the Energy Independence and Security Act of 2007 (EISA), which expressly requires DOE to "establish standards for energy efficiency in manufactured housing" and must be "based on the most recent version of the [IECC]" and achieve the "maximum improvement in energy efficiency" that is technologically feasible and economically justified.[2] [3]

Manufactured Housing, Indoor Environments and Lung Health

Energy conservation standards for manufactured housing play a critical role in protecting public health. Inefficient homes are more susceptible to temperature extremes, infiltration of outdoor pollution, and buildup of indoor pollutants, including nitrogen dioxide, particulate matter, volatile organic compounds and mold—each of which is linked in

[1] Public Input on Energy Conservation Standards for Manufactured Housing, 90 Fed. Reg. 42,544 (Dep't of Energy Sept. 3, 2025) (to be codified at 10 C.F.R. pt. 460)
[2] *Id*
[3] *See* 42 U.S.C. § 17071(b)(1)

scientific literature to asthma attacks, COPD exacerbations, cardiovascular events and premature mortality.[4] Energy-efficient building envelopes and effective ventilation systems reduce these exposures by limiting infiltration and improving airflow management.

These benefits are particularly consequential for manufactured home residents, who often face higher energy burdens and greater environmental risk factors than residents of site-built homes.[5] Strengthened standards reduce the need for combustion-based heating, minimize moisture accumulation that fosters mold growth, and improve resilience to extreme heat and cold—all of which are essential for individuals with lung disease.[6] By reducing energy consumption and associated emissions, these standards also contribute to regional improvements in ozone and particulate pollution, further supporting public health goals.

Indoor air quality (IAQ) is directly influenced by the structure of the manufactured home and the performance of its HVAC and ventilation systems.[7] Research compiled in the DOE's own "Home Rx: The Health Benefits of Home Performance" illustrates that home energy upgrades, when paired with ventilation and moisture controls, can reduce asthma symptoms, limit exposure to mold and allergens and improve overall respiratory health.[8] As identified in the previously mentioned study conducted in Virginia, manufactured homes often exhibit high levels of uncontrolled air infiltration, which allows outdoor pollutants, particulate matter, wildfire smoke and allergens to enter the home.[9]

Disproportionate Impacts on Low-Income and Medically Vulnerable Populations

Manufactured homes make up roughly 10% of new housing and are a vital source of affordable housing in the U.S.[10] While the average manufactured home costs $108,000 – far less than the $392,000 needed to build the average site-built single-family home – these

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[4] Karl A. Holden, Alice R. Lee, Daniel B. Hawcutt & Ian P. Sinha, The impact of poor housing and indoor air quality on respiratory health in children, 19 Breathe (Sheff.) 230058 (2023). https://publications.ersnet.org/content/breathe/19/2/230058

[5] American Council for an Energy-Efficient Economy (ACEEE), Mobilizing Energy Efficiency in the Manufactured Housing Sector at 7 (Research Report A124, July 31, 2012). https://www.aceee.org/sites/default/files/publications/researchreports/a124.pdf

[6] Health in Partnership, Home Sick: Uncovering the Health Harms in Homes of America's Manufactured Housing Communities (July 25, 2025), https://cdn.prod.website-files.com/67cafbff6880dabe1f2342b0/686eb5bea0f3e6bf90310212_HOME%20SICK%20final%20july%2025.pdf

[7] *Id*

[8] *U.S. Department of Energy, Home Rx: The Health Benefits of Home Performance – A Review of the Current Evidence (Dec. 2016), https://www.energy.gov/sites/prod/files/2016/12/f34/Home%20Rx%20The%20Health%20Benefits%20of%20Home%20Performance%20-%20A%20Review%20of%20the%20Current%20Evidence.pdf*

[9] See *supra* note 6

[10] National Low Income Housing Coalition, Manufactured Housing (June 2025), https://nlihc.org/sites/default/files/AG-2025/6-24_Manufactured-Housing.pdf

homes use more energy per square foot for heating and cooling, raising both carbon emissions and utility bills.[11] Residents of manufactured homes have a median household income of $35,000 and nearly half face energy insecurity. Stronger energy efficiency standards are critical to reducing costs, lowering emissions and supporting the health and economic well-being of these residents. These socioeconomic challenges also affect access to healthcare, leaving residents particularly vulnerable to respiratory conditions such as asthma and COPD.[12]

Recent research from a manufactured housing development in Virginia further demonstrates how improved efficiency standards can directly reduce household energy burden. Existing units showed substantial air leakage and elevated energy use, resulting in energy burdens exceeding 6% annual income for households at 30% Area Median Income.[13] By contrast, new factory-built, enhanced and zero-energy-ready homes had significantly lower air leakage and energy consumption, with energy burdens falling to 6% or less—and in some cases as low as 0.2%—highlighting the meaningful impact that stronger efficiency requirements can deliver for low-income residents.[14]

The elevated energy burdens stem in part from weaker efficiency measures in many existing units, underscoring the need for stronger efficiency standards in manufactured housing. More robust energy efficiency requirements would immediately improve affordability by reducing monthly utility bills and lowering long-term housing costs.[15]

Strengthening energy efficiency standards for manufactured housing can reduce utility costs, lower emissions and improve both health and economic outcomes, supporting the well-being of a population at heightened risk for lung health issues.

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[11] Agatha Kazdan, Mazen Daher & Maggie Sheng; Joy Liao & Jorden Dentz, The design, advancement, prototyping and field testing of scalable technologies and strategies for manufactured homes to decarbonize (ACEEE Summer Study 2024), https://www.aceee.org/sites/default/files/proceedings/ssb24/pdfs/The%20design%2C%20advancement%2C%20prototyping%20and%20field%20testing%20of%20scalable%20technologies%20and%20strategies%20for%20manufactured%20homes%20to%20decarbonize.pdf

[12] A.L. Fitzpatrick et al., Barriers to Health Care Access Among the Elderly and Who Perceives Them, 94 Am. J. Pub. Health 1788 (2004), https://doi.org/10.2105/AJPH.94.10.1788; T. Yamada et al., Access Disparity and Health Inequality of the Elderly: Unmet Needs and Delayed Healthcare, 12 Int'l J. Envtl. Res. & Pub. Health 1745 (2015), https://doi.org/10.3390/ijerph120201745

[13] P. Agee, L. Nikdel, A. McCoy & S. Kianpour Rad, Manufactured Housing: Energy Burden Outcomes from Measured and Simulated Building Performance Data, 186 Energy Pol'y 113985 (2024), https://doi.org/10.1016/j.enpol.2024.113985; Ariel Drehobl, Lauren Ross & Roxana Ayala, How High Are Household Energy Burdens? An Assessment of National and Metropolitan Energy Burden across the United States (Amer. Council for an Energy-Efficient Econ. Sept. 2020), https://www.aceee.org/sites/default/files/pdfs/u2006.pdf

[14] *Id*.

[15] See *supra* note 4

Recommendations

The Lung Association urges DOE to adopt a strengthened energy conservation standard for manufactured housing that maximizes environmental and health protections and fulfills its statutory obligations under EISA. A strengthened standard consistent with these statutory directives is essential to delivering health benefits for manufactured housing residents.

Strengthened standards will yield measurable reductions in respiratory and cardiovascular harms, aligning federal efficiency policy with well-established public health evidence. The Lung Association further recommends that DOE fully account for the disproportionate health and energy burdens experienced by low-income households, older adults, individuals with chronic disease and communities located in areas with higher baseline pollution. Strengthened energy standards will reduce energy cost burdens while improving indoor air quality and mitigating climate-driven hazards, all of which are consistent with standards that are economically justified and technologically feasible.

Conclusion

The American Lung Association strongly urges DOE to adopt strengthened energy conservation standards for manufactured housing that advance lung health, reduce differences in health outcomes and protect medically vulnerable populations. Robust standards will improve indoor air quality, reduce exposure to extreme temperatures, lower energy burdens and enhance resilience in the face of climate-driven challenges. These benefits directly support DOE's statutory obligations under EISA and advance the broader federal commitment to public health, the environment and consumer protection.

Respectfully submitted,

American Lung Association