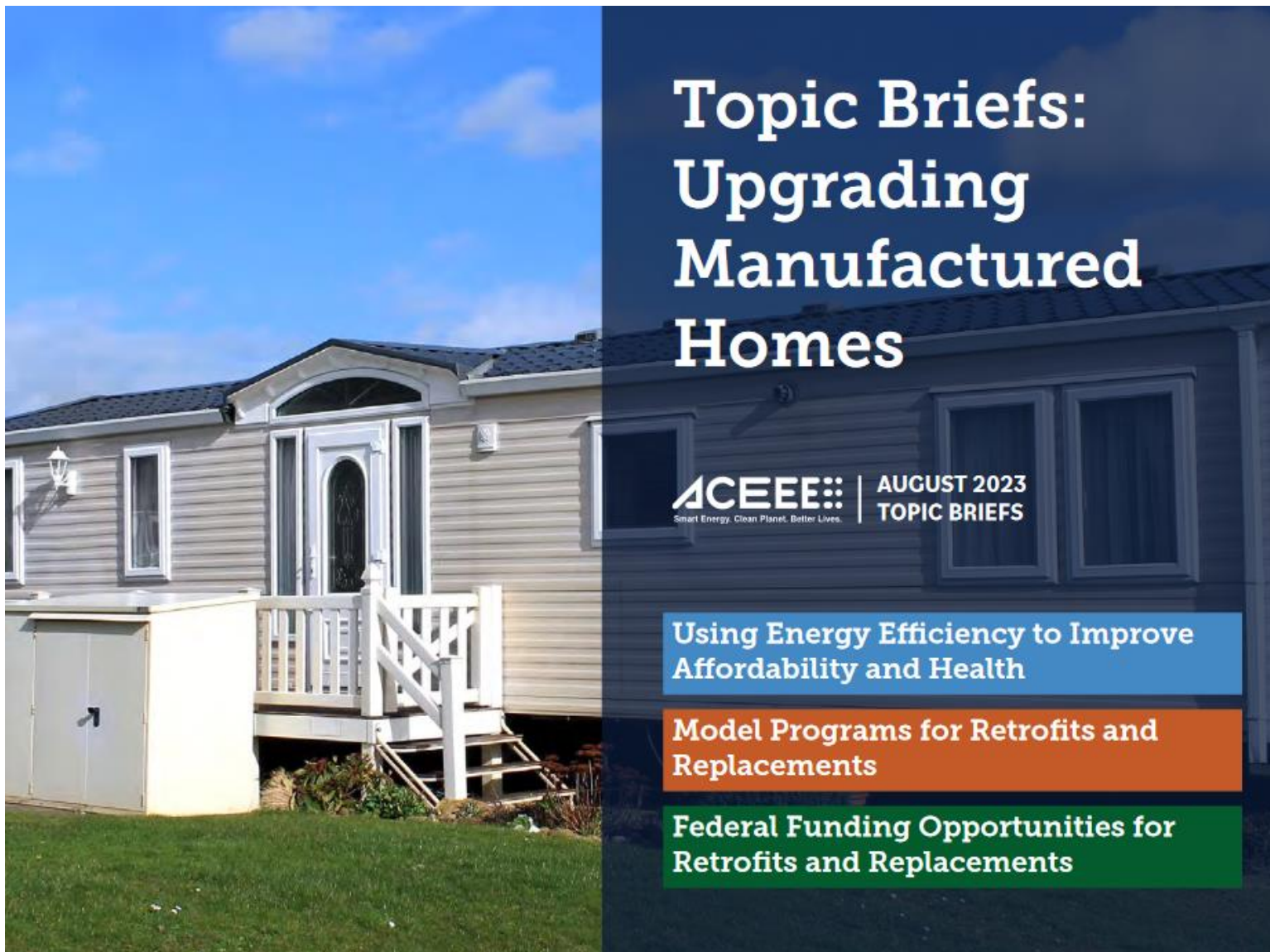


Federal Funding Opportunities for State Energy Offices: Manufactured Housing Retrofit & Replacement Programs

October 27th, 2023



American Council for an Energy-Efficient Economy



Topic Briefs: Upgrading Manufactured Homes

ACEEE | AUGUST 2023
Smart Energy. Clean Planet. Better Lives. | TOPIC BRIEFS

Using Energy Efficiency to Improve
Affordability and Health

Model Programs for Retrofits and
Replacements

Federal Funding Opportunities for
Retrofits and Replacements

- You can find the briefs [here](#).
- And our blog post on the topic [here](#).

A Note on Replacement Programs

- Benefits vs. costs of retrofits quickly fall off for older homes or homes beyond repair
- Replacement programs have considerable impacts on energy affordability, thermal control, and even peak load management for local utilities
 - ***But*** value derived from replacements is not primarily energy savings, so state energy offices may not be the typical administrators
- SEOs could play a role in running complementary programs (such as incentive programs for above code new homes)

Today's focus: Federal Funding Opportunities Brief

Upgrading Manufactured Homes: Federal Funding Opportunities for Retrofits and Replacements



AUGUST 2023
TOPIC BRIEF

Table 1. Overview of federal funding opportunities described in this resource. Opportunities include funding from the U.S. Department of Housing and Urban Development (HUD), U.S. Department of Agriculture (USDA), U.S. Department of Energy (DOE), Environmental Protection Agency (EPA), Centers for Disease Control and Prevention (CDC), and Centers for Medicare & Medicaid Services (CMS).

Energy, housing, or health	Program	Agency	Eligible applicants	Eligible uses (retrofits and/or replacement)	Funding
Featured Programs					
Housing	(New) Preservation and Reinvestment Initiative for Community Enhancement (PRICE)	HUD	States, local governments, resident-owned manufactured housing communities, nonprofits, and more	Both energy retrofits and replacement programs	Competitive grant funding of \$225 million through FY2023.
Energy	Rural Energy Savings Program (RESP)	USDA	Rural utilities and other energy efficiency providers	Both energy retrofits and replacement programs	Competitive grant funding of \$350 million in FY2023.
Energy	(New - Inflation Reduction Act) Home Efficiency Rebates (previously "HOMES")	DOE	State energy offices (for consumer rebates)	Energy retrofits	Formula. \$4.3 billion through FY2023.
Energy	(New - Inflation Reduction Act) Home Electrification and Appliance Rebates (previously "HEEHRA")	DOE	State energy offices (for consumer rebates)	New electric equipment, insulation, and air sealing in existing or new home	Formula. \$4.5 billion through FY2023.
Energy	(New - Infrastructure and Jobs Act) Energy Efficiency Revolving Loan Fund Capitalization Grant Program (RLF)	DOE	State energy offices (for direct loans and grants to homeowners)	Likely just energy retrofits	Formula grant of \$100 million in FY2023 expended.
Energy	(New - Inflation Reduction Act) Greenhouse Gas Reduction Fund (GGRF)	EPA	States, local governments, nonprofits with financing abilities for financial and technical assistance	Potentially both (if focused on GHG emissions)	Competitive grant funding of \$27 billion through FY2024.
Energy	Weatherization Assistance Program (WAP)	DOE	States for grants to community action agencies	Energy retrofits	Formula grant of \$1 billion plus an appropriation of \$1 billion.
Energy	Energy Efficiency and Conservation Block Grants (EECBG)	DOE	States, local governments	Energy retrofits and potentially replacement programs	Primarily formula funding. \$441 million in FY2023 until expended.

****New** Preservation and Reinvestment Initiative for Community Enhancement (PRICE), HUD**

- \$225 million
- First federal program exclusively available for manufactured housing
- Broad eligibility, BUT states are best positioned to apply/lead applications

New Home Energy Rebates, DOE

- IRA/DOE not mention of MH, but should be eligible
 - **Efficiency Rebates: Retrofits only.**
 - **Electrification Rebates: Retrofits and New Construction (TBD how this might look for new MH homes).**
- Consider including MH in program design

Detour: CDBG Section 108 Loans, HUD

- CDBG as critical source of funds for MH home preservation & enabling weatherization (including pre-weatherization and health/safety repairs)
- Low-cost Section 108 loans (the “CDBG maximizer”) are currently undersubscribed

Other Relevant Federal Funds

- 1) ****new** Energy Efficiency Revolving Loan Fund Capitalization Grant Program (RLF), DOE**
 - Exclusively available to SEOs (likely just MH retrofits)
- 2) ****new** Greenhouse Gas Reduction Fund (GGRF), EPA**
 - SFA + financing with broad eligibility
- 3) **Medicaid 1115 Waiver**
 - NYSERDA “Healthy Homes” pilot program
- 4) Weatherization Assistance Funds (WAP), DOE (+\$3.5 billion)
- 5) Energy Efficiency and Conservation Block Grants (EECBG)

Thank you!

Contact: abellpasht@aceee.org

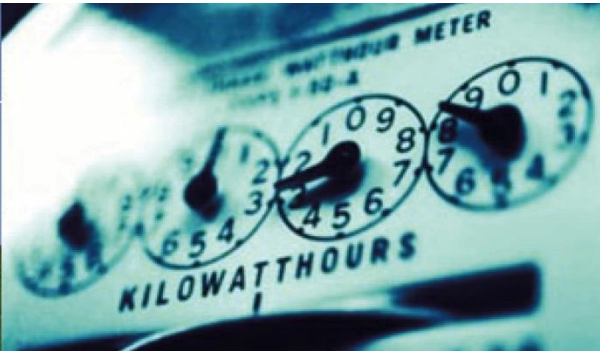
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U.S. DEPARTMENT OF
ENERGY

Office of
ENERGY EFFICIENCY &
RENEWABLE ENERGY

DOE Zero Energy Ready Home: Manufactured Homes V1 ENERGY STAR Manufactured Homes V3 45L Tax Credits 10/27/23



45L Program Version Eligibility Dates

Program Version	Required for 45L	Available for Optional Use	Tax Credit Amount	Notes
ENERGY STAR Manufactured Homes Version 2	1/1/2023	N/A	\$2,500 per Home	Existing Program since 2019
ENERGY STAR Manufactured Homes Version 3	1/1/2026	1/1/2023	\$2,500 per Home	Mandatory Compliance Date Delayed
DOE Zero Energy Ready Home Manufactured Homes Version 1 Pilot	1/1/2023	N/A	\$5,000 per Home (Total, not additional to the \$2,500)	Requires ENERGY STAR Manufactured Homes Version 3 as “Co-requisite”

45L Tax Credits Extended for 10 Years

Manufactured Home Eligible Contractor

Eligible Contractor

Manufactured Home Builder

Receives 45L Tax Credit

Intermediary

Retailer

Not always used

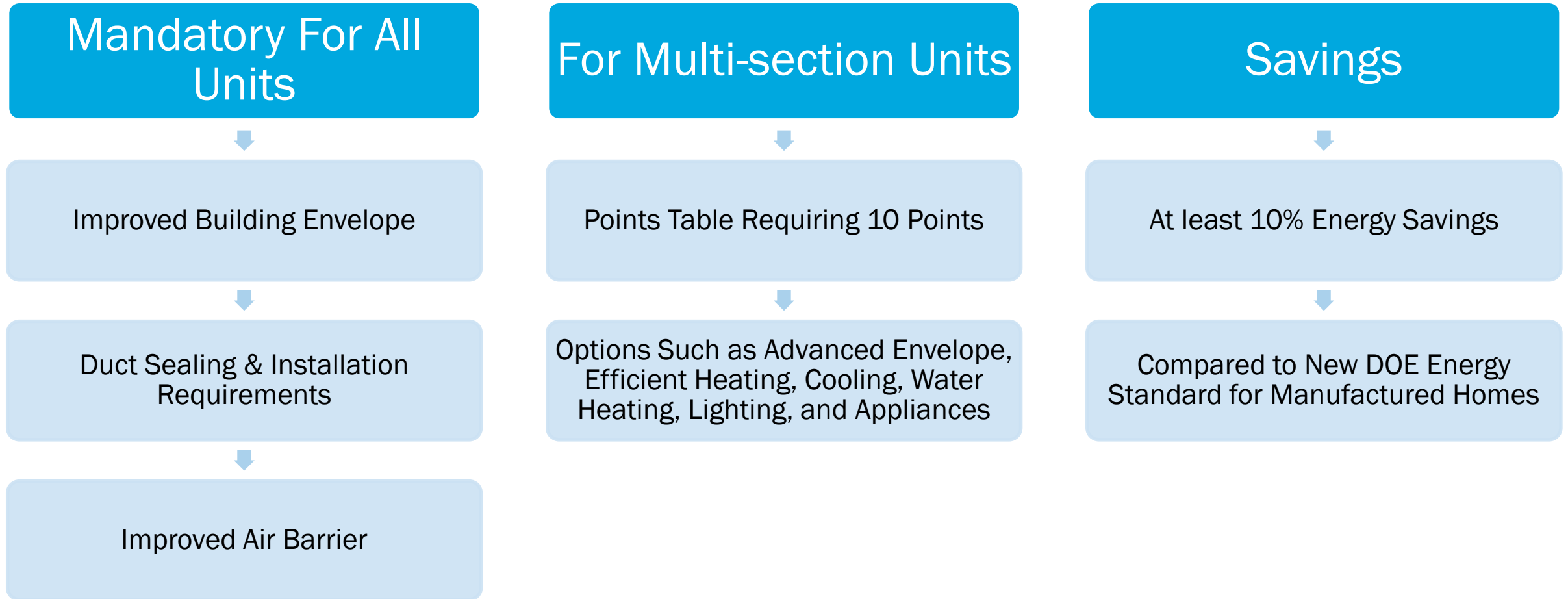
Buyer

Homeowner

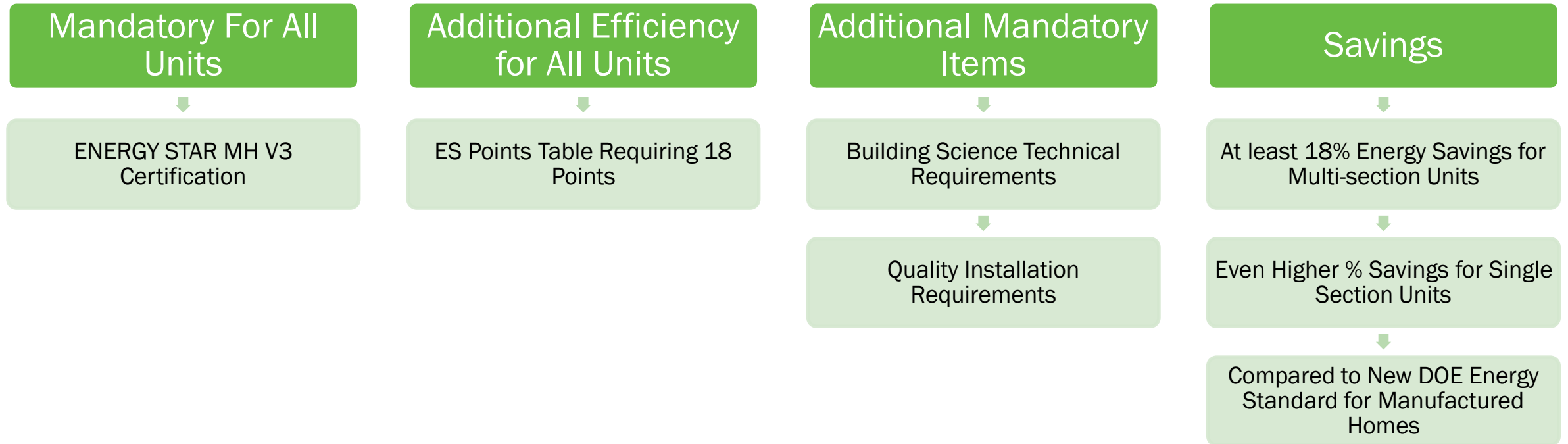
Community Investor

Other Organizations

ENERGY STAR MH V3 Requirements



DOE ZERH MH V1 Requirements



Certification Process

Plant Certification

Designs Approved

3 Units Produced

3rd-party Plant Certifier



Inspections

Design Inspections by DAPIAs

Plant Inspections by IPIAs

Field Inspection Audits



Quality Assurance

Quality Assurance Providers Oversee
Inspectors and Certification

Document Certifications and Audit Inspections

Industry Impact

Clayton Homes

Largest MH
Builder

50%+ Market
Share

Goal of 100%
ZERH

Plant Certifications

Underway

Began in
Spring 2023

Homes Built

Over 400

At Dealer
Lots

Cost Impact

Same or
Reduced
Cost to
Homebuyer
According to
Clayton

Common Questions

- **Can a Modular Home use the Manufactured Home Program Certification?**
 - No, Modular and Site Built Homes must meet DOE Zero Energy Ready Home Single Family Home requirements
- **Can a Manufactured Home use the DOE ZERH Single Family Home Requirements**
 - No, Manufactured Homes are not eligible to be certified under the Single Family Home requirements of DOE ZERH
- **If a Manufactured Home is certified DOE ZERH, can it skip ENERGY STAR certification?**
 - No. ENERGY STAR is a co-requisite Certification for DOE ZERH
- **Can homes “meet the requirements of” without being certified?**
 - No, certification is required
- **When is the tax credit claimed?**
 - When the certified home is installed

Appendix

Technical Information

ENERGY STAR MH V3 Requirements

Mandatory Energy Efficiency Measures

Envelope, Windows, & Doors

- Insulation and glazing U-factor levels shall comply with one of the following options:
 - Meet or exceed the following performance levels:

Climate Zone: ⁵

Wall Insulation:

Floor Insulation:

Ceiling Insulation:

Door U-factor:

Window U-factor:

	CZ 1	CZ 2	CZ 3
Wall Insulation:	R-13	R-21	R-21
Floor Insulation:	R-22	R-22	R-33
Ceiling Insulation:	R-33	R-33	R-38
Door U-factor:	0.40	0.40	0.30
Window U-factor:	0.30	0.30	0.30

- OR achieve an overall coefficient of heat transmission ⁶ (U_o) that does not exceed:

Single-section U_o:

Multi-section U_o:

Single-section U _o :	0.076	0.065	0.057
Multi-section U _o :	0.070	0.063	0.054

- The solar heat gain coefficient of fenestration shall not exceed: ⁷

SHGC:

SHGC:	0.25	0.25	N/A
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ENERGY STAR MH V3 Requirements

Thermostat & Ductwork

- Programmable thermostat shall be installed.
- Ducts in floor cavities shall be enclosed by floor insulation.
- Crossover ducts, ducts in unconditioned attics, and other ducts in unconditioned space shall have at least R-8 duct insulation. ⁸

Mandatory Setup Requirements

- **Marriage line seal:** For multi-section homes only, the marriage line areas must be filled with a continuous, non-porous insulating gasket creating a permanent air barrier in the ceiling, walls, and floor. Acceptable gaskets can be one- or two-part systems, including proprietary gaskets, foams, insulation wrapped in poly and insulation covered by butyl or other long-life tape on one side. There should be no visible gaps or tears. The marriage line seal shall be installed at the plant and be protected against damage during shipping.
- **Duct Installation:** For multi-section homes only, the crossover ducts must be installed such that all seams and joints are tightly sealed against leakage and the ducts do not rest on the ground.

ENERGY STAR MH V3 Requirements

Energy Efficiency Measure		Point Value		
		CZ 1	CZ 2	CZ 3
Mandatory Requirements				
All requirements in Exhibit 1.		7.5	2.5	2.0
Optional Envelope Improvements				
Coefficient of heat transmission (U_o) \leq 0.049. ⁶		12.0	9.5	4.5
Optional Heating and Cooling Equipment				
Heat pump \geq 7.5 HSPF2 / 14.3 SEER2. ⁹		9.0	13.5	17.0
Gas / propane Furnace \geq 90 AFUE.		2.0	2.5	5.5
Gas / propane Furnace \geq 95 AFUE.		2.5	3.5	7.5
Gas / Propane Furnace \geq 96 AFUE.		3.0	4.0	8.5
Optional Water Heater Equipment				
Gas / Propane Water Heater \geq 0.93 UEF.		4.5	3.5	0.5
Heat pump water heater \geq 2.20 UEF.	With electric furnace, electric strip, or electric baseboard primary space heating.	6.0	5.5	1.5
Heat pump water heater \geq 3.30 UEF.		7.5	7.0	1.5
Heat pump water heater \geq 2.20 UEF.	With all other primary space heating systems.	9.0	10.0	7.5
Heat pump water heater \geq 3.30 UEF.		11.5	13.0	9.0
Optional Lighting, Appliances, & Water Fixtures				
LED lighting installed in all permanently installed fixtures. ¹⁰		0.5	0.5	0.5
Bathroom faucets \leq 1.5 gallons per minute (gpm) and showerheads \leq 2.0 gpm.		0.5	0.5	0.5
ENERGY STAR certified refrigerator and dishwasher. ¹¹		0.5	0.5	0.5
ENERGY STAR certified clothes washer. ¹¹		0.5	0.5	0.5

DOE ZERH MH V1 Requirements

Mandatory Energy Efficiency Measures

Envelope, Windows, & Doors

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Climate Zone: ⁵

Wall Insulation:

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Mandatory Building Science and QA Requirements Overview

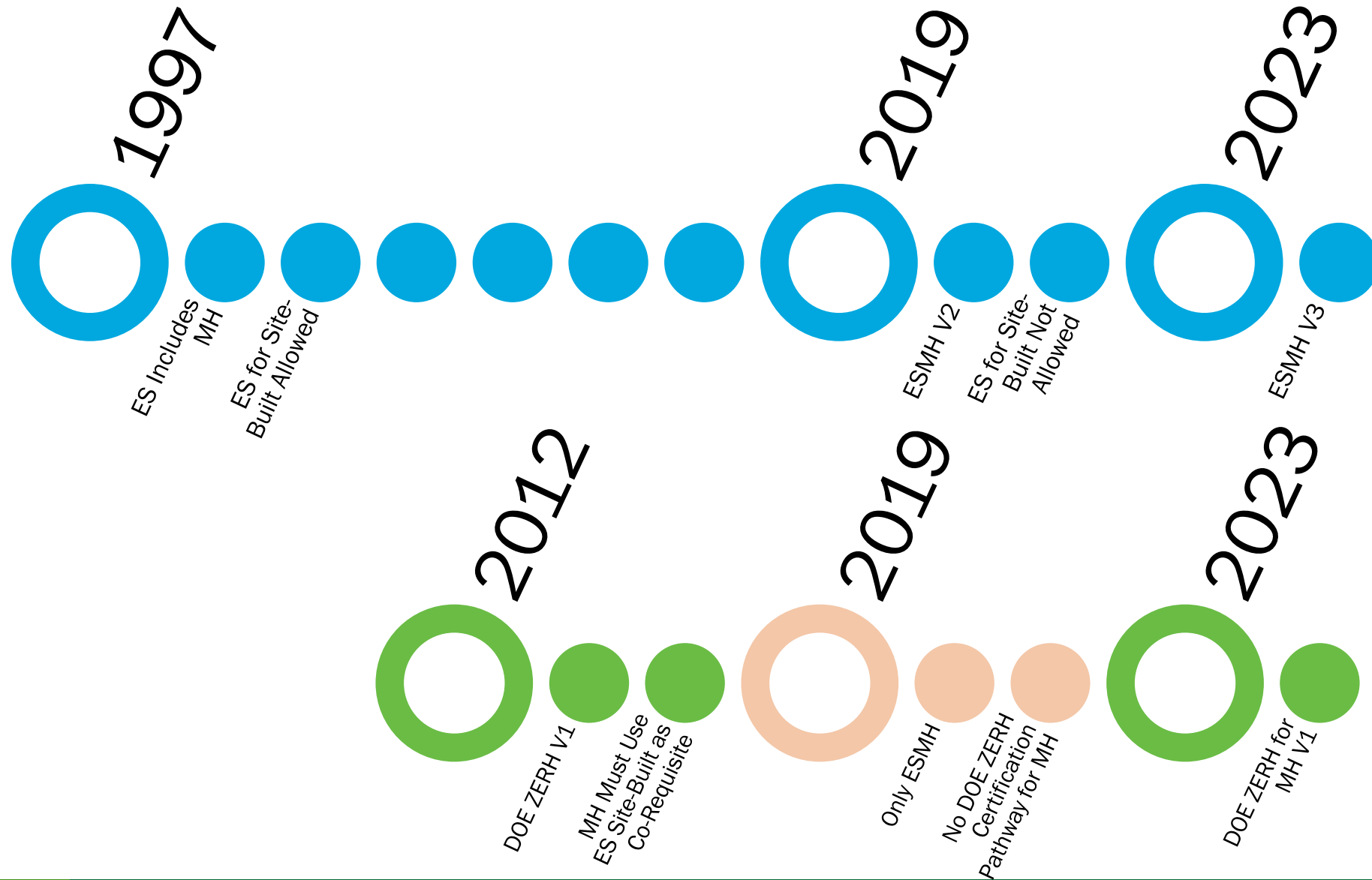
Moisture	Indoor Air Quality	Efficiency and Generation	Quality Control
Window and Door Flashing	Comprehensive Ventilation through ASHRAE 62.2 Compliance	Improved Efficiency Targets Beyond Energy Standard and ENERGY STAR	Design Details, Training, QC Processes for All Requirements
Step and Kickout Flashing	Local Exhaust in Bathrooms and Kitchens	Additional Above-Code Air Sealing Measures	QC inspection of Air Barrier Installation
Dehumidification-Ready Details	Combustion Safety	Advanced Framing Techniques	QC and Plant Sampling of Duct Tightness
Roof Water Protection Membrane	Low Emission Composite Wood	Energy Star Fans	Installation Manual Details for Site Issues
Foundation Moisture Details in Installation Manual	Low Emission Paints/Finishes	Duct and HVAC Quality Installation Requirements	
Site Drainage Detail in Installation Manual	Low Emission Carpets	Water Distribution Efficiency	
Hard Surfaces in Bathrooms	Advanced Filtration	PV-Ready Features	

Comparison to DOE Energy Standard

DOE ZERH-MH V1 vs. DOE Rule and ENERGY STAR MH V 2.1: Uo (Btu/hr-ft²-F)

CZ	DOE Rule 2022		ENERGY STAR V2.1 and ZERH MH V1	
	Single-Section	Multi-Section	Single-Section	Multi-Section
1	0.110	0.082	0.076	0.070
2	0.091	0.066	0.065	0.063
3	0.074	0.055	0.056	0.053

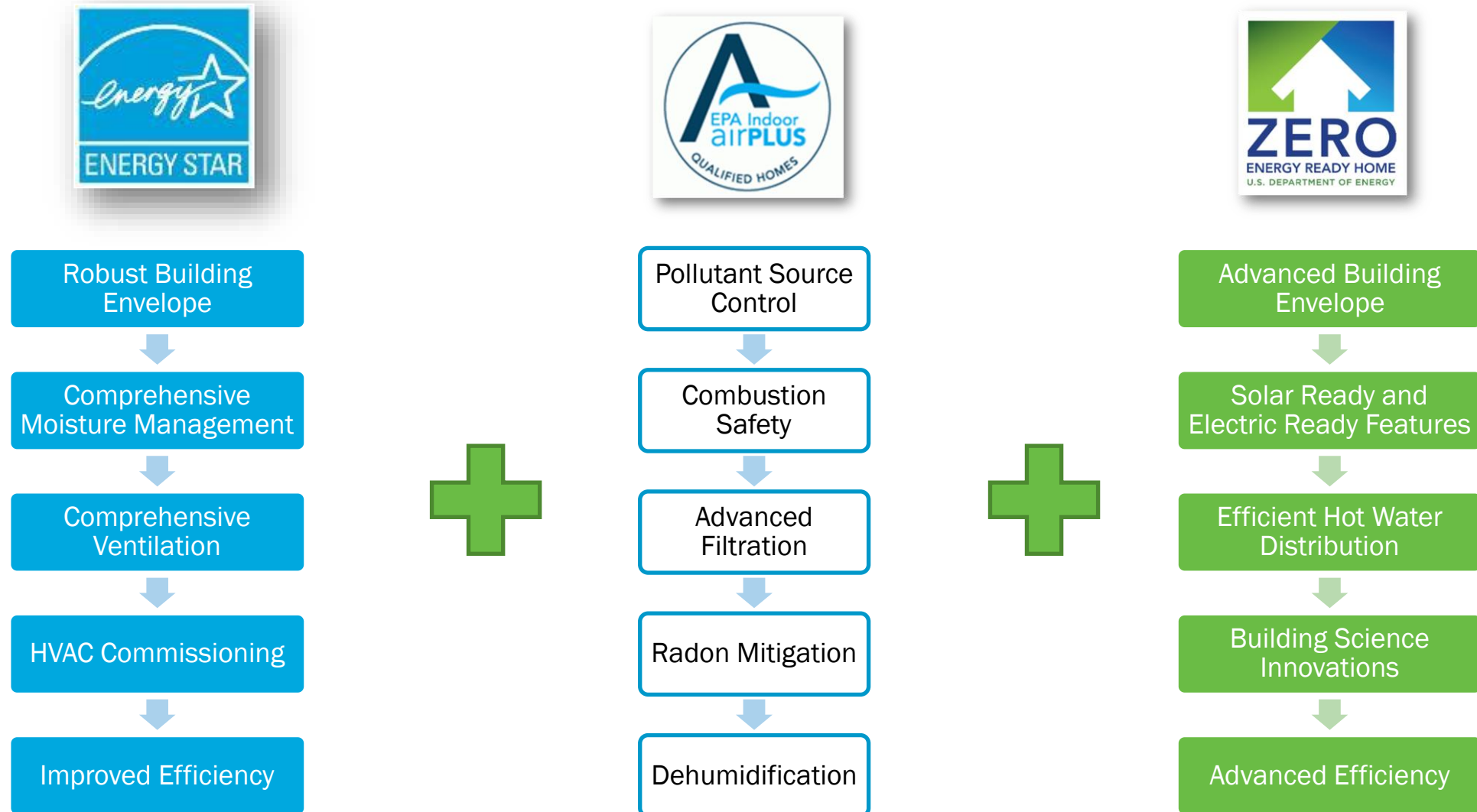
History of ENERGY STAR and DOE ZERH for MH



Pilot Implementation & Future Research

- **V1 Launch Viewed as Program Pilot**
- **Solicitation of Stakeholder Feedback**
- **Ongoing DOE-Funded Research Partnering with Industry**
 - Identifying cost-efficient methods for meeting certification
 - Exploring ways to implement field testing more broadly
 - Adding points options (e.g., envelope improvements or other advanced equipment) in coordination with ENERGY STAR
 - Helping industry explore innovative options (e.g., continuous insulation and ducts in conditioned space) for inclusion in DOE ZERH for MH V2

DOE Zero Energy Ready Home National Program Structure



DOE ZERH MH Value Message

Efficiency

18%+ Energy Savings Compared to Standard

Other Savings through Mandatory Checklists

Reduced Envelope Degradation

Improved Air Sealing

Bulk Moisture Control through Low-Cost Building Basics

Improved IAQ

Comprehensive Ventilation

Pollutant Source Control

Improved Quality

Increased Inspections

More Details Audited