



ENERGY STAR Residential New Construction: Proposed California Program Requirements (SFNH v3.5 & MFNC v1.5)

October 10, 2024

Agenda

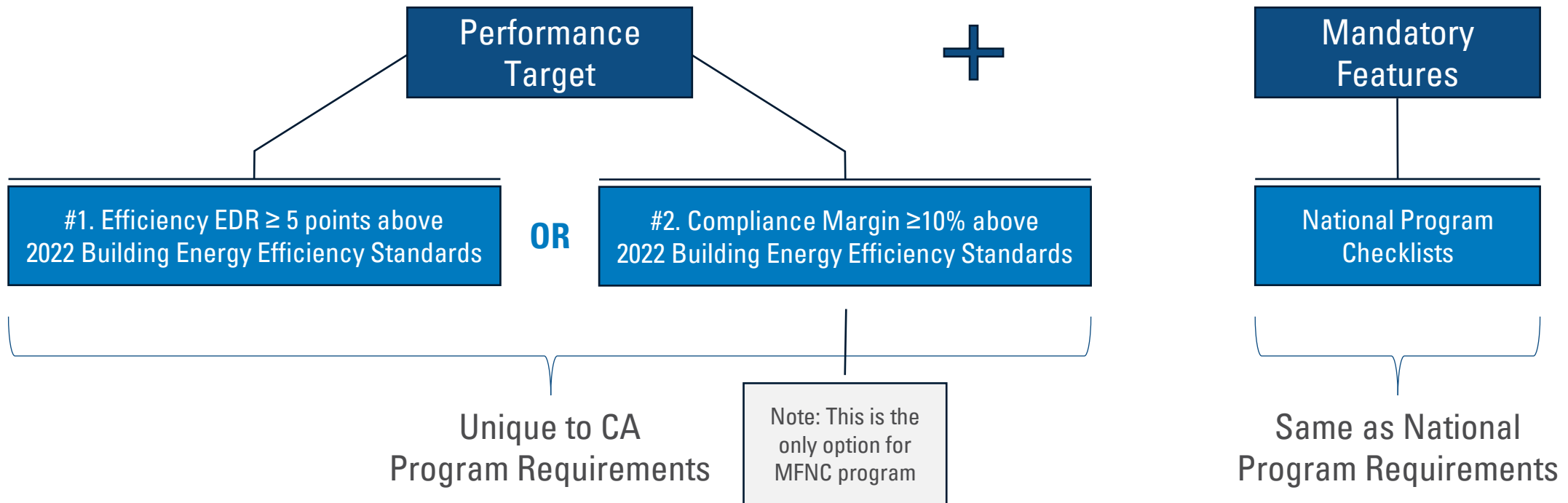
- Current program requirements in CA
- Single-Family New Homes:
 - Key CA code updates
 - Proposed next version of program requirements in CA
- Multifamily New Construction:
 - Key CA code updates
 - Proposed next version of program requirements in CA
- Stakeholder Feedback Period
- Q&A

Current ENERGY STAR Program Requirements in CA

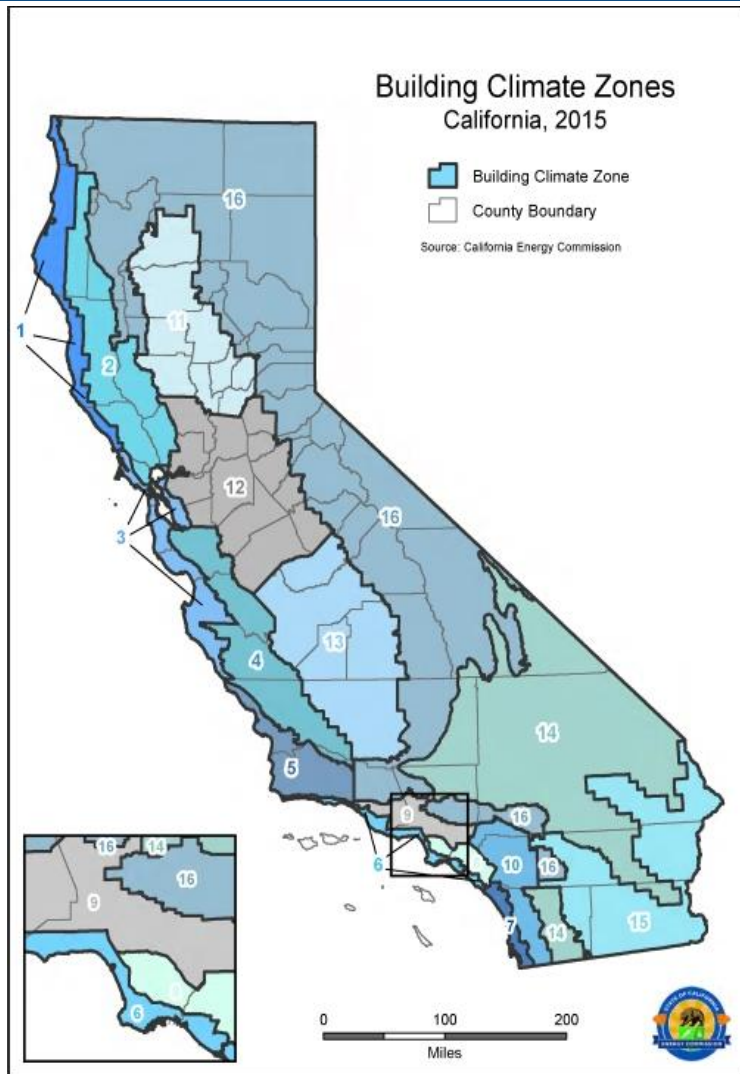


Current California program requirements

Single-Family New Homes, California Version 3.4
Multifamily New Construction, California Version 1.4



ENERGY STAR certifications over the last year



- Certifications by sector:
 - >90% were single-family
- Certification by location:
 - >80% were in four CZ's (CA CZ 10-13)
 - >90% were in seven CZ's (CA CZ 9-15)
 - <10% were in remaining nine CZ's (CA CZ 1-8 & 16)

Single-Family New Homes



Key CA Code Updates



Key CA code updates

- CA just completed its latest code, the 2025 Building Energy Efficiency Standards, with an implementation date of January 1, 2026.



Key CA code updates

- The code continues its progression towards electrification. Standard Design is always configured with:
 - A heat pump space conditioning system with minimum federal efficiency.
 - A heat pump water heater with minimum federal efficiency.



Key CA code updates

- But within the single-family Standard Design, the core efficiency requirements are identical to the last edition, except for a modest improvement to windows.

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2025 Building Energy Efficiency Standards

TABLE 150.1-A COMPONENT PACKAGE – Single-Family Standard Building Design (continued)

Building Component Walls, Floors, Doors, Fenestrations, and QII	CZ 1	CZ 2	CZ 3	CZ 4	CZ 5	CZ 6	CZ 7	CZ 8	CZ 9	CZ 10	CZ 11	CZ 12	CZ 13	CZ 14	CZ 15	CZ 16
Above Grade Framed Walls ³	U 0.048 R 13	U 0.048 R 13	U 0.048 R 13	U 0.048 R 13	U 0.048 R 13	U 0.065 R 13	U 0.065 R 13	U 0.048 R 13	U 0.048 R 13	U 0.048 R 13	U 0.048 R 13	U 0.048 R 13	U 0.048 R 13	U 0.048 R 13	U 0.048 R 13	U 0.048 R 13
Above Grade <u>Masonry</u> / Mass Wall Interior ^{4,5,8}	U 0.077 R 13	U 0.077 R 13	U 0.077 R 13	U 0.077 R 13	U 0.077 R 13	U 0.077 R 13	U 0.077 R 13	U 0.077 R 13	U 0.077 R 13	U 0.077 R 13	U 0.077 R 13	U 0.077 R 13	U 0.077 R 13	U 0.077 R 13	U 0.077 R 13	U 0.077 R 13
Above Grade <u>Masonry</u> / Mass Wall Exterior ^{4,5,8}	U 0.125 R 8.0	U 0.125 R 8.0	U 0.125 R 8.0	U 0.125 R 8.0	U 0.125 R 8.0	U 0.125 R 8.0	U 0.125 R 8.0	U 0.125 R 8.0	U 0.125 R 8.0	U 0.125 R 8.0	U 0.125 R 8.0	U 0.125 R 8.0	U 0.125 R 8.0	U 0.125 R 8.0	U 0.125 R 8.0	U 0.077 R 13
Below Grade Interior Walls ^{6,7}	U 0.077 R 13	U 0.077 R 13	U 0.077 R 13	U 0.077 R 13	U 0.077 R 13	U 0.077 R 13	U 0.077 R 13	U 0.077 R 13	U 0.077 R 13	U 0.077 R 13	U 0.077 R 13	U 0.077 R 13	U 0.077 R 13	U 0.077 R 13	U 0.077 R 13	U 0.067 R 15
Below Grade Exterior Walls ^{6,7}	U 0.200 R 5.0	U 0.200 R 5.0	U 0.200 R 5.0	U 0.200 R 5.0	U 0.200 R 5.0	U 0.200 R 5.0	U 0.200 R 5.0	U 0.200 R 5.0	U 0.200 R 5.0	U 0.200 R 5.0	U 0.200 R 5.0	U 0.200 R 5.0	U 0.200 R 5.0	U 0.100 R 10	U 0.100 R 10	U 0.053 R 19
Slab Perimeter Floors	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	U 0.58 R 7.0
Raised Floors	U 0.037 R 19	U 0.037 R 19	U 0.037 R 19	U 0.037 R 19	U 0.037 R 19	U 0.037 R 19	U 0.037 R 19	U 0.037 R 19	U 0.037 R 19	U 0.037 R 19	U 0.037 R 19	U 0.037 R 19	U 0.037 R 19	U 0.037 R 19	U 0.037 R 19	U 0.037 R 19
Concrete Raised Floors	U 0.092 R 8.0	U 0.092 R 8.0	U 0.269 R 0	U 0.269 R 0	U .269 R 0	U 0.269 R 0	U 0.269 R 0	U 0.269 R 0	U 0.269 R 0	U 0.269 R 0	U 0.269 R 0	U 0.092 R 8.0	U 0.138 R 4.0	U 0.092 R 8.0	U 0.092 R 8.0	U 0.138 R 4.0
Fenestration - Maximum U- Factor ^{4,12}	0.30 0.27	0.30 0.27	0.30 0.27	0.30 0.27	0.30 0.27	0.30	0.30	0.30	0.30	0.30	0.30	0.30 0.27	0.30 0.27	0.30 0.27	0.30 0.27	0.30 0.27
Fenestration - Maximum SHGC	NR	0.23	NR	0.23	NR	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	NR
Fenestration - Maximum Total Area	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%	20%
Fenestration - Maximum West Facing Area	NR	5%	NR	5%	NR	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	NR
Door - Maximum U-Factor	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20
Quality Insulation Installation	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes



Key CA code updates

- The performance metrics are being rebranded.
- **Old:** Energy Design Rating 1 (EDR1)
 - Based on total annual source energy.
- **New:** Rebranded as the **Source Energy** budget.
 - Determined by applying mandatory and prescriptive requirements of the Standard Design to the proposed design building.

Key CA code updates

- The performance metrics are being rebranded.
- **Old: Energy Design Rating 2 (EDR2)**
 - Based on TDV energy with two components:
 - Efficiency EDR2
 - Solar Electric Generation and Demand Flexibility EDR2
 - These sum to Total EDR2
- **New: Rebranded as Long-Term System Cost (LSC)**
 - Determined by applying mandatory and prescriptive requirements of the Standard Design to the proposed design building.
 - Two components:
 - **Efficiency LSC** – Energy for space conditioning, water heating, mechanical ventilation, and a self-utilization credit.
 - **Total LSC** – Efficiency LSC + energy from PV system, battery energy storage system, lighting, demand flexibility, and other plug loads.



Proposed Next Version of ENERGY STAR Program Requirements in CA



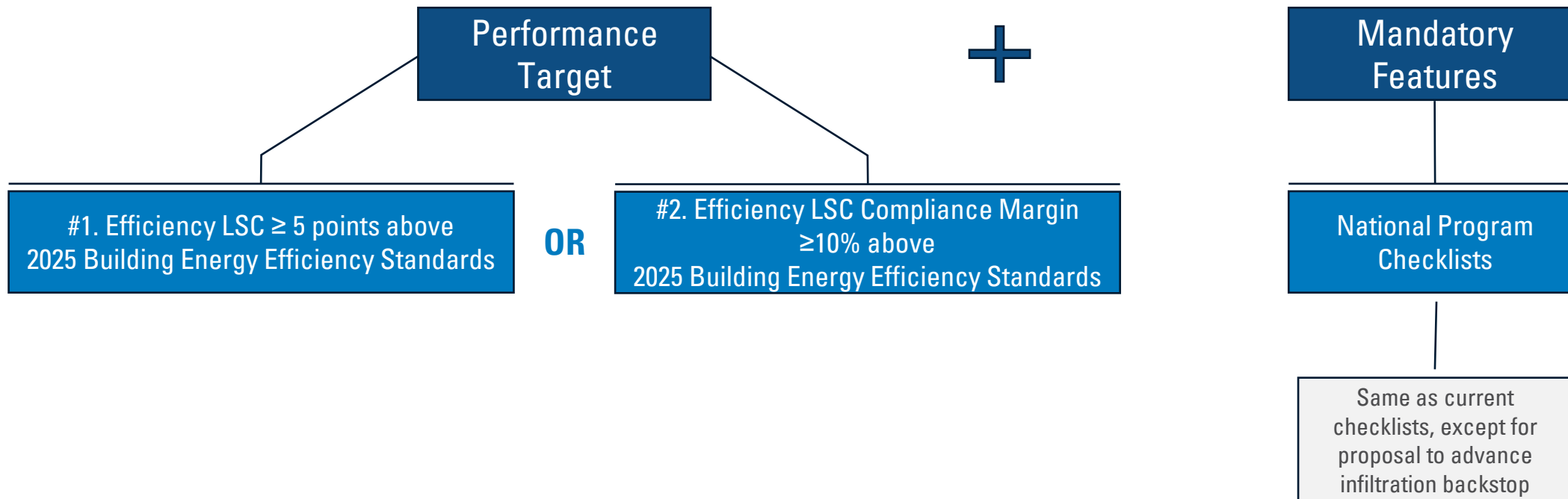
Proposed California program requirements

- The EPA needs to define and implement new ENERGY STAR Versions for California in response to the 2025 Standards.
- Given the limited changes to the efficiency requirements, the proposed performance targets will remain the same.
 - Maintains a savings target $\geq 10\%$ for consistency with national brand promise.
- To align with the latest edition of code:
 - Code references will be updated from the 2022 to 2025 edition.
 - The names of the performance metrics will be aligned with the 2025 edition.



Proposed California program requirements

Single-Family New Homes, California Version 3.5



Proposed California program requirements

- California will continue to use the national program checklists. Within those, the EPA is proposing to add an infiltration backstop in its next program revision.
- For the proposed California program requirements, the backstop would advance to 3.5 ACH50.

California Program Version	Proposed Infiltration Backstop
CA Version 3.2 and 3.3	4.5 ACH50
CA Version 3.4	4.0 ACH50
CA Version 3.5	3.5 ACH50

As an alternative, for dwellings $\leq 1,500$ sq. ft. of conditioned floor area, Townhouses, and attached Dwelling Units, air leakage is permitted to be ≤ 0.30 CFM50 per sq. ft. of Dwelling Unit enclosure area.

- Reduced infiltration improves efficiency, comfort, and indoor air quality.



Proposed California program requirements

- Overall, the stringency of the current and new version of the ENERGY STAR program requirements for CA should be comparable.
 - Most notable change is the advancing infiltration backstop.
- Expectation is that compliance with the new version will be able to be demonstrated using standard CA code compliance reports.
- Proposed implementation would begin for homes permitted on or after **01/01/27** that are required by the AHJ to use the 2025 edition of code.

Home Is Permitted:	Edition of the BEES Required by AHJ For the Home Is:	For Homes Meeting the Adjacent Criteria, These Are the Applicable Program Requirements:
On or After 01-01-2027	2019 or earlier	SFNH California v3.3
	2022	SFNH California v3.4
	2025	SFNH California v3.5



Multifamily New Construction



Key CA Code Updates



Key CA code updates

- The code continues its progression towards electrification:
 - Mandatory heat pump electric readiness if propane or gas system installed (central or individual).
 - Mandatory heat pump water heater readiness when gas or propane water heaters installed.
 - Standard design is configured with a heat pump water heater for systems serving individual dwelling units in low-rise buildings.



Key CA code updates

- But within the standard design building, the core efficiency requirements are generally the same as last edition, with additional consolidation between low-rise and high-rise:
 - Consolidation of some envelope levels across low-rise and high-rise
 - Standard design determined according to prescriptive calculation (change for low-rise)

Key CA code updates

- The performance metrics are being rebranded.
- **Old:** Energy budget for the standard design building
 - Determined by applying mandatory and prescriptive requirements to the proposed design building.
 - Expressed in TDV energy
- **New:** Rebranded as Long-Term System Cost (LSC)
 - Determined by applying mandatory and prescriptive requirements of the standard design to the proposed design building.
 - Two components:
 - **Efficiency LSC** – Energy for space conditioning, water heating, mechanical ventilation, lighting, and a self-utilization credit.
 - **Total LSC** – Efficiency LSC + energy from PV system, battery energy storage system, and demand flexibility.

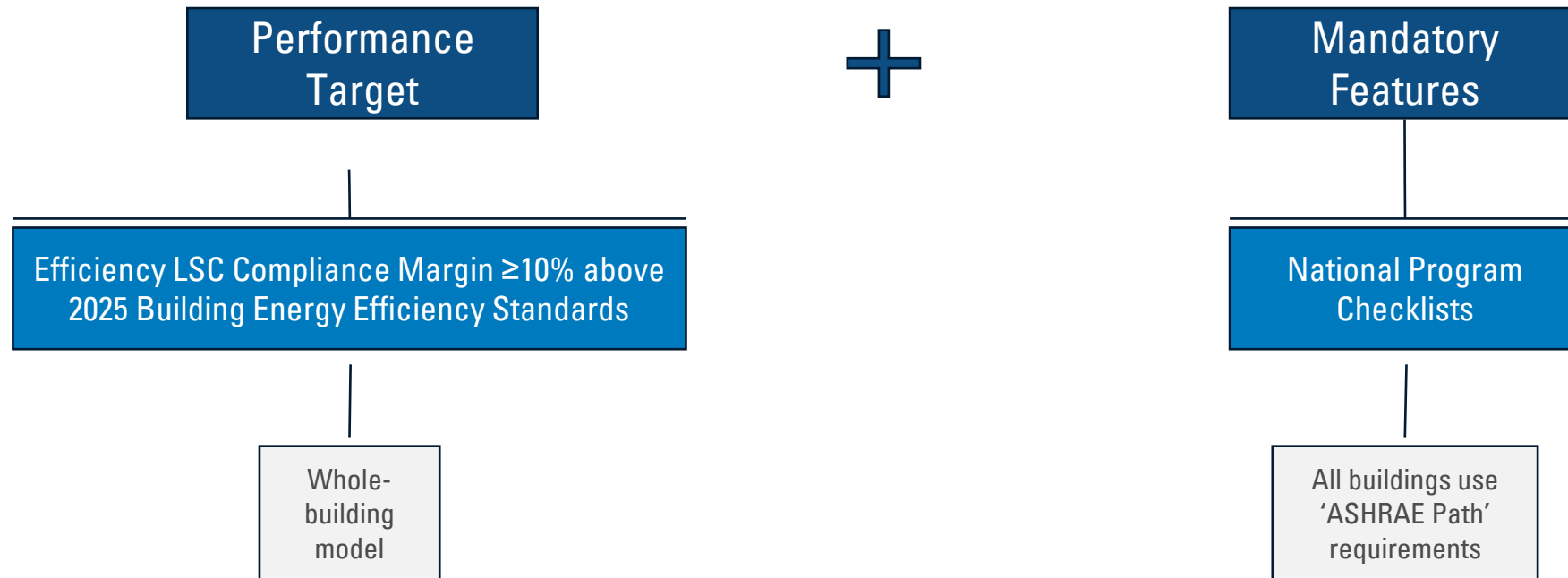


Proposed Next Version of ENERGY STAR Program Requirements in CA



Proposed California program requirements

Multifamily New Construction, California Version 1.5



Proposed California program requirements

- Overall, the stringency of the current and new version of the ENERGY STAR program requirements for CA should be comparable.
- Expectation is that compliance with the new version will be able to be demonstrated using standard CA code compliance reports.
- Proposed implementation would begin for buildings permitted on or after **01/01/28** that are required by the AHJ to use the 2025 edition of code.

Building Is Permitted:	Edition of the BEES Required by AHJ For the Building Is:	For Buildings Meeting the Adjacent Criteria, These Are the Applicable Program Requirements:
On or After 01-01-2028	2019 or earlier	MFNC California v1.3
	2022	MFNC California v1.4
	2025	MFNC California v1.5



Summary & Stakeholder Feedback Period




Key points about proposed program requirements

- A response to the recently completed 2025 edition of the California code.
- Will maintain the same performance targets as the prior version, but with:
 - Updated code references from the 2022 to 2025 edition.
 - The names of the performance metrics will be aligned with the 2025 edition.
- For the Single-Family New Homes program, a more stringent infiltration backstop of 3.5 ACH50 is proposed, with alternative metrics for small homes and attached homes.
- The proposed implementation dates are:
 - **ENERGY STAR Single-Family New Homes**: Permits on or after **01/01/2027** for homes that are required by the AHJ to use the 2025 edition of code.
 - **ENERGY STAR Multifamily New Construction**: Permits on or after **01/01/2028** for buildings that are required by the AHJ to use the 2025 edition of code.



Stakeholder feedback period

- Four-week period: **October 10 – November 07.**
- Visit www.energystar.gov/partner_resources/residential_new/stakeholder_feedback to view the draft program requirements, the stakeholder feedback form, and this webinar.
- Submit written comments using the Stakeholder Feedback Form to energystarhomes@energystar.gov.
- Barring substantial partner feedback, the final program requirements should be released in December.

 **DRAFT ENERGY STAR Single-Family New Homes California Program Requirements, Version 3.54 (Rev. 13)**

Eligibility Requirements
Site-built or modular¹ detached Dwellings² (e.g., single-family homes, duplexes) and Townhouses³ are eligible to participate in the ENERGY STAR Single-Family New Homes (SFNH) program. To determine the applicable SFNH program requirements, including the minimum Version and Revision, to which a home is eligible to be certified, visit www.energystar.gov/SFNH/versions. While primarily intended for new construction, existing homes (e.g., undergoing a gut rehabilitation) are also eligible to participate in the ENERGY STAR SFNH program, with guidance available at www.energystar.gov/GutRehabGuidance. For information about other ENERGY STAR residential new construction programs, visit www.energystar.gov/newhomesrequirements.

Note that compliance with these requirements is not intended to imply compliance with all local code requirements.⁴

Partnership, Training, and Credentialing Requirements
The following requirements must be met prior to certifying homes:

- Builders are required to sign an ENERGY STAR Partnership Agreement and complete the online Version 3 Builder Orientation, which can be found at www.energystar.gov/homesPA.
- HVAC installing contractors are required to be credentialed by an EPA-recognized HVAC Quality Installation Training and Oversight Organization (H-QUITO) for homes certified using Track B in Exhibit 1. An explanation of this process can be found at www.energystar.gov/homesPA/HQITAC.
- Energy Rating Companies (e.g., rater companies and Providers⁵) are required to sign an ENERGY STAR Partnership Agreement, which can be found at www.energystar.gov/homesPA.
- Raters⁶ are required to complete EPA-recognized training, which can be found at www.energystar.gov/newhomestraining, and be credentialed by a Home Certification Organization (HCO) prior to completing inspections. Learn more at www.energystar.gov/hco.

ENERGY STAR Certification Process

1. The certification process provides flexibility to select a custom combination of measures for each home that meets one of two performance targets, as assessed through energy modeling. Select one of the two following performance targets:
 - a. An **Efficiency Long-Term System Cost (Efficiency LSC) Efficiency Energy Design Rating (EDR2 Efficiency)**, that is a 5 points better than that of the Standard Design corresponding to the home, as defined by the 2022⁷ Building Energy Efficiency Standards and determined by a CEC-approved software program.
 - b. A **Compliance Margin (CMR) 2-10%** compared to the Compliance Total of the Standard Design **Energy Use (TDV Efficiency LSC) Energy** corresponding to the home, as defined by the 2022⁸ Building Energy Efficiency Standards and determined by a CEC-approved software program.
2. Configure the preferred set of efficiency measures for the home to be certified and verify that the resulting performance meets or exceeds the applicable performance target using the applicable software program, as determined in Step 1.
3. Construct the home using the measures selected in Step 2 and the Mandatory Requirements for All Certified Homes, Exhibit 1.
4. Using a Rater, verify that all requirements have been met in accordance with the Mandatory Requirements for All Certified Homes and with Data Input requirements and On-Site Inspection Procedures for California HERS Ratings.⁹ This will require a minimum of two inspectors: one at pre-drywall and the other at final. All items shall be verified for each certified home and sampling protocols shall not be used. For modular homes, a Rater must verify any requirement in the plant not able to be verified on-site because a feature will be concealed prior to shipment. Finally, submit the home to the HCO for final certification and follow the HCO's certification and oversight procedure (e.g., quality assurance, recordkeeping, and reporting). The Rater is required to keep electronic or hard copies of the completed and signed National Rater checklists and either an HVAC design report compliant with ANSI / RESNET / ACCA / ICC 310, and the National HVAC Design Supplement to Std. 310 for Dwellings & Units, for homes using Track A, or the National HVAC Design Report for homes using Track B.

The Rater must review all items on the National Rater checklists to verify that each inspection checklist item has been met within program-defined tolerances. In the event that a Rater determines that a program requirement has not been met, the home cannot earn the ENERGY STAR until the item is corrected. If correction of the item is not possible, the home cannot earn the ENERGY STAR. In the event that an item on a National Rater checklist cannot be inspected by the Rater, the home cannot earn the ENERGY STAR. The only exceptions to this rule are in the Thermal Enclosure System Section of the National Rater Field Checklist, where the builder may assume responsibility for verifying a maximum of eight items. This option shall only be used at the discretion of the Rater. When exercised, the builder's responsibility will be formally acknowledged by the builder signing the checklist for the item(s) they verified.

In the event that a Rater is not able to determine whether a program requirement has been met (e.g., an alternative method of meeting a checklist requirement has been proposed), then the Rater shall consult their Provider. If the Provider also cannot make this determination, then the Rater or Provider shall report the issue to EPA prior to project completion at: energystarhomes@energystar.gov and will receive an initial response within 5 business days. If EPA believes the current program requirements are sufficiently clear to determine whether the item in question has been met, then this guidance will be provided to the partner and enforced beginning with the home in question. In contrast, if EPA believes the program requirements require revisions to make the intent clear, then this guidance will be provided to the partner but only enforced for homes permitted after a specified transition period after the release of the revised program requirements, typically 60 days in length.

This will allow EPA to make formal policy decisions as partner questions arise and to disseminate these policy decisions through the [Policy Record](#) and the periodic release of revised program documents to ensure consistent application of the program requirements.

Revised 12/10/2023-2024 Page 1 of 3



Questions?



ENERGY STAR Residential New Construction

Web & Email:

Single Family: www.energystar.gov/newhomesrequirements

Multifamily: www.energystar.gov/mfnc

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