

California's Building Energy Efficiency Standards (Energy Code or Title 24, Part 6) enables homeowners to save on their electricity and natural gas bills - and by reducing greenhouse gas emissions, helps the environment. If your home needs to be repaired or rebuilt, you may need to comply with the Energy Code. This fact sheet includes basic information on the Energy Code, but please contact us at info@energycodeace.com if you would like additional assistance.

When is the Energy Code Triggered?

Alteration: The home is damaged and part(s) of the home require reconstruction (e.g., new roof being installed to replace a damaged roof).

Addition: The home is being added onto, and the habitable floor area increases (e.g., adding a new family room to the back of an existing house).

New Home: The home must be completely rebuilt.

What Doesn't Trigger the Energy Code?

A **Repair** does **not** trigger the Energy Code. This is the reconstruction of a building component that does not increase the preexisting energy consumption of that repaired feature. For example, replacing glass in a window is a Repair, but replacing the glass and framing of a window is considered an Alteration.



Alterations

Envelope (Sections 150.0(a)-(d)): All walls, floors and roofs must be insulated (even if not previously installed) when opened up (made accessible), or rebuilt in the same exact location, to the minimum insulation requirements of the Energy Code. New roofing may need to be a Cool Roof Rating Council (CRRC)-certified cool roof product depending on where the home is located (Climate Zones 10-15).

Windows/Glass Doors/Skylights (Fenestration) (Sections 150.0(o) and 150.2(b)1A-B,G): Replaced fenestration totaling 75 ft² or more, must meet the same requirements of a new home, but if less than 75 ft² is being replaced, there are some exceptions.

Heating/AC/Ventilation (HVAC)/Water Heater (Sections 150.0(h)-(j), (m)-(o) and 150.2(b)1C-H): Replaced mechanical system type(s) can match what was there before. New or replaced heating and/or cooling systems require a third-party HERS Rater to test and verify that certain components were installed properly.

Lighting (Section 150.0(k)): Replaced or new lighting must be "high efficacy," which is essentially fluorescent technology or LED that meets quality control requirements (see Energy Code [Joint Reference Appendix JA8](#)) No screw-based recessed can lights are allowed. In addition, there are simple lighting control requirements. The lighting requirements apply equally to Alterations, Additions and New Construction.



Addition

Envelope (Sections 150.2(a)1 and 2): All new walls, floors and roofs must meet similar requirements of a new home, but with some exceptions dependent on the square footage of the Addition or if considered an "extended" wall.

Windows/Glass Doors/Skylights (Fenestration) (Section 150.2(a)): There are performance requirements for fenestration products, such as U-Factor (resistance to heat transfer) and SHGC (Solar Heat Gain Coefficient, the ability to limit heat gain into the home from the sun). In addition, there are limitations to the amount of fenestration being used, dependent on the square footage of the Addition.

HVAC/Water Heater (Sections 150.0(h)-(j), (m)-(o) and 150.2(a)-(b)): New HVAC system(s) have the same requirements as those being installed in a new home. A new tankless gas water heater (minimum efficiency) or other options per [Section 150.1\(c\)8](#) may be added as part of an Addition (exceptions may apply).

Lighting (Section 150.0(k)): New lighting has the same requirements for all project types.



New Home

Envelope (Section 150.1(c)): New roof, wall and floor requirements will most likely exceed those used to build the existing home

Attics (Section 150.1(c)1A): Most areas in California have “high performance” attic requirements which typically means insulation placed on the ceiling AND another layer of insulation at the roof.

Walls (Section 150.1(c)1B): Most areas in California have “high performance” wall requirements which typically means 2”x 6” wood framing using R-21 insulation and an additional 1” of R-5 rigid insulation outside the framing.

Fenestration (Section 150.1(c)3-4): New fenestration requirements dictate using National Fenestration Rating Council (NFRC)-rated dual-paned vinyl/wood/fiberglass products using Low-E³ glazing. In addition, there are limitations on the amount used in home.

HVAC/Water Heater (Sections 150.1(c)6-10, 12-13): HVAC system(s) will require third-party testing by a HERS Rater to verify certain components of the system(s).

Lighting (Section 150.0(k)): New lighting has the same requirements for all project types.



What methods can be used to show compliance with the Energy Code?

In addition to Mandatory measures (which must always be met), there are two methods:

1. Prescriptive Method: All code requirements can be met or exceeded. Forms used:
 - Alterations: [CF1R-ALT-01-E](#) and [CF1R-ALT-02-E](#) (or the [CF1R-ALT-05-E](#) if no HERS measures)
 - Additions: [CF1R-ADD-01-E](#) (or the [CF1R-ADD-02-E](#) if no HERS measures)
 - New Home: [CF1R-NCB-01-E](#)
2. Performance Method: Flexibility is desired in place of the Prescriptive code requirements. Form used:
 - Alterations, Additions and New Home: [CF1R-PRF-01-E](#)

Tip

Incentive Programs: Be sure to check with your city, county and local utility for building energy-efficiency incentives that may apply to your project.

For More Information

California Energy Commission Information & Services

- Energy Standards Hotline: 1-800-772-3300 (Free) or Title24@energy.ca.gov
- Online Resource Center:
energy.ca.gov/programs-and-topics/programs/building-energy-efficiency-standards/online-resource-center
 - The Energy Commission’s main web portal for the Energy Code, including information, documents and historical information
- Home Energy Rating System (HERS) Program Sub-site:
energy.ca.gov/HERS/
- California Building Climate Zone Map:
energy.ca.gov/programs-and-topics/programs/building-energy-efficiency-standards/climate-zone-tool-maps-and/

Additional Resources

- National Fenestration Rating Council (NFRC):
nfr.org/
 - NFRC offerings can help facility managers, specifiers, designers and others make informed purchasing and design decisions about fenestration products
- CRRC-Rated Products Directory:
coolroofs.org/products/results
 - Search for rated roofing products
- Energy Code Ace:
EnergyCodeAce.com
 - An online “one-stop-shop” providing free resources and training to help appliance and building industry professionals decode and comply with Title 24, Part 6 and Title 20. The site is administered by California’s investor-owned utilities.

Energy Code Ace – Of special interest:

Application Guides

- Residential Envelope, Solar Ready and PV 2019
 - Residential HVAC and Plumbing 2019
 - Residential Lighting 2019
- energycodeace.com/content/resources-ace/file_type=application-guide

Fact Sheets

- Nonresidential & Residential Permit Process 2019
 - Just the Basics: HERS for Residential and Nonresidential Projects 2019
 - Quick Reference Sheet: Residential Accessory Dwelling Units 2019
 - Quick Reference Sheets for Climate Zone Compliance Baselines
 - Residential Cool Roofs 2019
 - Residential Domestic Hot Water (DHW) 2019
 - Residential Fenestration 2019
 - Residential High-Efficacy Lighting - Title 20 and Title 24, Part 6 JAB: Key Differences and Overlap
 - Residential HVAC Alterations 2019
 - Residential Lighting 2019
 - Residential Opaque Envelopes 2019
 - Title 20 Residential Pool Pump Motors 2019
- energycodeace.com/content/resources-fact-sheets/
- #### Trigger Sheets
- Residential HVAC Alterations 2019
- energycodeace.com/content/resources-ace/file_type=trigger-sheet

Please register with the site and select an industry role for your profile in order to receive messages about all our free offerings!



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