

BayREN Codes & Standards Training

Changes for the 2013 Title 24, Part 6

Energy Codes

BayREN Codes and Standards Forum
February 24, 2015

BAY Regional
AREA Energy
Network

Residential Energy Codes

Effective Dates

- The 2013 Standards apply to any projects that **apply for permit** on or after January 1, 2014.

Residential Energy Codes

New Compliance Software

- New simulation engine CSE (California Simulation Engine)
- All software vendors will use same plug in to Compliance Manager software

Residential Energy Codes

Compliance Documents (Forms)

New Numbering (similar names)

- Certificate of Compliance CF-1R → CF1R
- Certificate of Installation CF-6R → CF2R
- Certificate of Verification CF-4R → CF3R

Residential Energy Codes

Compliance Documents (Forms)

- All forms are dynamic, like “Turbo Tax”
- When using the HERS Registry, the correct forms are determined automatically.
- The math is done automatically.
- Can’t proceed until the forms are all filled out as passing and are completely signed.
- Building departments have a special landing page (CaICERTS). “Look for all green dots.”

Residential Energy Codes

New Mandatory Envelope Requirements

- Ceiling Insulation:
 - Ceilings and Rafter (wood framed) R-30
- Vapor Retarder:
 - All CZs: Class I or II on earth floor for unvented crawlspaces.

Residential Energy Codes

New Mandatory Envelope Requirements

- Walls:
 - 2x4 R-13 (U-factor = 0.102)
 - 2x6 R-19 (U-factor = 0.074)
- Raised Floors:
 - Wood framed : R-19
- Fenestration:
 - Maximum U-factor = 0.58
 - Can be weight averaged and exclude 10 sf or 0.005xCFA

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New HVAC Requirements

Mandatory Features and Devices - Section 150.0

- The indoor design temperature for heating load calculations has been changed from 70 degrees to 68 degrees.
- Air conditioning condensers are required to be located at least 5 feet from a clothes dryer vent outlet.

Residential Energy Codes

New HVAC Requirements

Mandatory Features and Devices - Section 150.0 (continued)

- Gas furnaces must be designed and installed to meet the manufacturer's maximum temperature split in heating mode.
- There are some minor changes to the tables specifying mandatory minimum insulation on air conditioning refrigerant lines.

Residential Energy Codes

New HVAC Requirements

Mandatory Features and Devices - Section 150.0 (continued)

- There are some changes to the mandatory insulation protection for insulated pipes found outside conditioned space.
- There is a new reference to a mandatory duct construction standard (ANSI/SMACNA).

Residential Energy Codes

New HVAC Requirements

Mandatory Features and Devices - Section 150.0 (continued)

- The mandatory minimum duct insulation R-value has been raised from R- 4.2 to R-6, some exceptions
- Duct sealing and field verification is now a mandatory measure and can no longer be traded off by using the performance approach.
 - Required in all climate zones for alterations

Residential Energy Codes

New HVAC Requirements

Prescriptive and Performance Compliance Approaches
- Section 150.1

- When higher than minimum SEER ratings are specified, installation of proper equipment is now a HERS verified measure.
- There is now only one set of prescriptive measures (prescriptive package A).

Residential Energy Codes

New HVAC Requirements

Prescriptive and Performance Compliance Approaches
- Section 150.1 (continued)

- Some package units, mini-splits and variable refrigerant flow systems will be required to demonstrate proper *refrigerant charge* using a weigh-in approach and must be verified by a HERS rater.

2013 Title 24 Part 6 Energy Codes

New HVAC Requirements

Prescriptive and Performance Compliance Approaches
- Section 150.1 (continued)

- Ducts not insulated because they are deemed to be in directly conditioned space must be verified by a HERS rater utilizing the duct leakage to outside procedures.
- There is a new prescriptive requirement in climate zones 8 through 14 for whole house fans.

Residential Energy Codes

New HVAC Requirements

Prescriptive and Performance Compliance Approaches *- Section 150.1 (continued)*

- When homes utilizing the *prescriptive approach* have automatic zonal control, they are prohibited from using bypass ducts.
- Using the *performance approach*, there is an energy penalty for systems choosing to utilize bypass ducts for zonal control.

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New Mandatory Water Heating Requirements

- Gas/Propane water heaters
 - 120V outlet within 3 feet
 - Category III, IV or Type B vent to outside
 - Condensate drain without pump
 - Gas sized for 200,000 BTUH or more

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New Mandatory Water Heating Requirements

- Pipe insulation
 - First 5 feet hot and cold
 - All piping 3/4" or larger
 - Hot water recirculation piping
 - Piping between storage tanks
 - Below grade piping
 - All piping to kitchen fixtures

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New *Prescriptive* Requirements

- These affect the *Performance Approach* because these are the features that set the target energy use for the Proposed House.
- If any of the features of the Proposed House are less than the prescriptive measures, others must be *exceeded* to make up the difference.

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New Prescriptive Requirements

The following features are now more efficient in most or all climate zones:

- Ceiling/roof insulation
- Radiant barrier requirements
- Cool Roof requirements
- Wall insulation
- Thermal mass requirements
- Raised floor insulation
- Windows
- Duct R-values
- Water heating controls

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New Prescriptive Requirements

Whole House Fans

- Whole house fans are a new prescriptive requirement that may be difficult to trade off using the performance approach.

Residential Energy Codes

Solar Ready Homes

- The requirements for solar ready buildings are *mandatory measures* for:
 - newly constructed low-rise residential buildings
 - in subdivisions with 10 or more residences, and
 - do not apply to either additions or alterations.
- The intent of the solar ready requirements is to provide a penetration free and shade free portion of the roof, called the “solar zone”.

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Solar Ready Homes

- The solar zone shall be located on the roof or overhang of the building (or accessory structures).
- The solar zone shall have a total area that is no less than 250 square feet.
- There are multiple exceptions to the required total area.

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Multiple Changes to Existing HERS Test Protocols and Triggers

New HERS Tests

- Plumbing
- Whole House Ventilation (ASHRAE 62.2)
- Bypass ducts on Zonal Control
- Return duct and grille sizing
- Existing conditions (E+A+A)

Nonresidential Energy Codes

Nonresidential Energy Codes

Numerous Changes to Mandatory and Prescriptive Requirements

- Envelope
 - Increased cool roof requirements
 - Maximum air leakage
 - Increased fenestration requirements
 - Minimum wall and roof insulation

Nonresidential Energy Codes

Numerous Changes to Mandatory and Prescriptive Requirements

- Lighting
 - Lots of new control requirements
 - Reduced allowed lighting targets
 - New Acceptance Testing requirements
 - Certification required

Nonresidential Energy Codes

Numerous Changes to Mandatory and Prescriptive Requirements

- Mechanical
 - Added requirements for fan control and economizers
 - Automatic ventilation controls
 - New Acceptance Testing requirements
 - Certification to be required (not yet)

Nonresidential Energy Codes

Numerous Changes to Mandatory and Prescriptive Requirements

- Electrical Power Distribution Systems
 - Added requirements for user accessible metering
 - Disaggregation of electrical circuits
 - Maximum voltage drop requirements
 - Demand response requirements

Nonresidential Energy Codes

Numerous Changes to Mandatory and Prescriptive Requirements

- Process Loads
 - Supermarket refrigeration
 - Refrigerated warehouses
 - Commercial kitchens
 - Laboratory exhaust
 - Parking garage ventilation
 - Computer centers
 - Process boilers

Nonresidential Energy Codes

Numerous Changes to Mandatory and Prescriptive Requirements

- Solar Ready
 - Added mandatory requirements for nonresidential buildings (3 stories or less) to make provisions to more easily enable the future addition of solar electric or solar water heating systems.

Nonresidential Energy Codes

Numerous Changes to Mandatory and Prescriptive Requirements

- Commissioning
 - Moved from Green Code to Energy Code
 - Added mandatory requirements for design-phase commissioning, which includes an early review of design intent documents.
 - Requirements vary by size of building.
 - Applies only to newly constructed buildings.

End

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