• Section 25402 of the Public Resources Code (known as the **Warren-Alquist Act**)

• The act created the Energy Commission in 1974 and gave it authority to develop and maintain Building Energy Efficiency Standards

• Requires the Energy Commission to update the Standards periodically (every 3 years)

• Requires the Standards to be cost-effective over the economic life of the structure
Implication of Future Standards

Focus on the following moving forward:

• Transitioning to a more GHG-based metric that promotes electrification

• Transitioning away from equal hourly “netting” to support grid flexibility

• Maintaining energy efficiency as a first priority

• Maintaining PV self-utilization & demand response measures
2019 Standards Goals

- Increase building energy efficiency while maintaining cost effectiveness
- Contribute to the State’s GHG reduction goals
- Substantially reduce home’s impact on grid through efficiency and PV generation
- Provide independent compliance paths for both mixed-fuel and all-electric homes
- Develop and provide tools for Part 11 reach codes and other beyond code practices
New developments have had significant impacts on the goals of the Energy Standards

- Large utility scale solar (50% RPS requirements)
- Net Energy Metering (NEM) rules and Time-of-Use (TOU) compensation for customer-owned generation
  - NEM rules currently treat grid as “virtual storage,” where over-generated kWhs can be “stored” and used later in the day, or another season
- ZNE was a goal
  - NEM and life-cycle costing are laws and we must operate within their confines
2019 Energy Standards

• Effective January 1, 2020
  ➢ For building permit applications submitted on or after effective date

• Impact on master plans for tract homes
  ➢ Must resubmit and demonstrate compliance with 2019 if permits pulled on or after 1/1/20
2019 Residential Energy Savings

- **Residential**
  - 7% more efficient than 2016 Standards
  - Energy consumption reduced by an average 53% with PV
  - Reduce GHG emissions by 700,000 metric tons over 3 years
  - Monthly life cycle cost of $40 with savings of $80 for “typical” home (statewide)
Summary of Residential Changes

- **Increased efficiency for envelope**
  - Wall and ceiling insulation
  - QII prescriptive
  - U-factor for doors

- **MERV 13 filtration**

- **IAQ updates**
  - ASHRAE 62.2-2016 applied w/ modifications
  - HERS verification for kitchen range hoods

- **Prescriptive options for heat pump water heaters**

- **PV required**
  - Prescriptive
  - Several exceptions to reduce size

- **Performance**
  - From TDV to EDR
  - PV part of the Standard Design
CALIFORNIA’S 2019 RESIDENTIAL BUILDING ENERGY EFFICIENCY STANDARDS

The state’s energy efficiency standards for new buildings and appliances have saved consumers billions in lower electricity and natural gas bills. The 2019 Building Energy Efficiency Standards for residential buildings include a first-in-the-nation requirement to install solar photovoltaic systems. Other features enable homes to reduce the electricity demand from the grid, helping to reduce energy bills and the carbon footprint.

$19,000 SAVINGS OVER A 30 YR. MORTGAGE | INITIAL COST $9,500

SOLAR PHOTOVOLTAIC SYSTEM

Provide installing solar photovoltaic systems in newly constructed residential buildings. The systems include smart inverters with optional battery storage. This will increase the self-utilization of the electricity generated to power the home’s electricity loads including plug-in appliances. California is the first state in the nation to require smart systems on homes.

DEMAND RESPONSE COMPLIANCE OPTIONS

Encourage battery storage and heat pump water heaters that shift the energy use of the home from peak periods to off-peak periods. Utility evening time-of-use pricing assists the grid to meet the state’s climate change goals and helps homes reduce energy bills.

HEALTHY INDOR AIR QUALITY

Enable using highly efficient fans that trap hazardous particulates from both indoor air and cooking and improve kitchen ventilation systems. Moving air around and in and out of the home while filtering out allergens and other particles makes the home healthier.

BUILDING ENVELOPE

Strengthen insulation in attic, walls and windows to improve comfort and energy savings. Keeping the heat out during the summer and warm air during the winter makes a home more resilient to climate change.
2019 Residential Standards Updates

• Envelope
  - High Performance Attics (HPA)
    - R-19 between rafters becomes new baseline
  - High Performance Walls (HPW)
    - Max U-Factor of 0.048
  - Increased window efficiency
    - Max U-Factor of 0.30, SHGC of 0.23
  - Quality Insulation Installation (QII) prescriptive baseline
Mandatory Wall and Floor Insulation Requirements

• Mandatory Insulation for 2x6 walls increased
  ➢ U-factor of 0.71 (R-20 in wood framed)

• Masonry wall requirements defer to prescriptive requirements
  ➢ CZ1-15
    ▪ Interior insulation – R-13 rigid
    ▪ Exterior insulation – R-8 rigid
  ➢ CZ16
    ▪ Interior insulation – R-17 rigid
    ▪ Exterior insulation – R-13 rigid
### Prescriptive Wall Insulation

<table>
<thead>
<tr>
<th>2016</th>
<th>2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>• High performance walls (HPW) requirements introduced</td>
<td>• HPW requirements updated</td>
</tr>
<tr>
<td>• Per Table 150.1-A:</td>
<td>• Per Tables 150.1-A, B:</td>
</tr>
<tr>
<td>➢ Maximum U-Factor 0.051 (R-19 cavity)</td>
<td>➢ Framed U-factor 0.048 <em>(R-21 cavity)</em>, multi family 0.051</td>
</tr>
<tr>
<td>➢ Required value more stringent</td>
<td>➢ Climate zone 6-7 framed U-factor 0.065</td>
</tr>
<tr>
<td>➢ Provides for greater design flexibility</td>
<td>➢ Mass walls above and below grade must be insulated</td>
</tr>
<tr>
<td></td>
<td>➢ All other unframed walls meet framed U-factors</td>
</tr>
</tbody>
</table>
## Prescriptive Roof and Ceiling Insulation

### 2016

- Introduction of High Performance Attics (HPA) requirements
- Three options available
- Insulation required at ceiling and roof depending on option and climate zone
- Radiant barrier, duct location and insulation requirements depend on option and climate zone

### 2019

- HPA requirements updated
- Two options available
  - Insulation required at ceiling and below roof deck
  - Only ceiling insulation when ducts in conditioned space
- Radiant barrier and insulation requirements depend on option and climate zone
Prescriptive Roof and Ceiling Insulation

Option A removed

- No longer a prescriptive option
- Only with performance method
  - Continuous insulation above roof rafters
  - Ceiling insulation
Option B - Tables 150.1-A, B

- Vented attic
- Roof assembly air space required
- Below roof deck insulation
  - R-19 single family in climate zones 4, 8-16
  - R-13 multi-family in climate zones 10, 16
- Ceiling insulation required
- Radiant barrier required in climate zones 2-3, 5-7
- Must meet §150.1(c)9A

Prescriptive Roof and Ceiling Insulation
Prescriptive Roof and Ceiling Insulation

**Option C** - Tables 150.1-A, B

- Ceiling insulation
  - R-38 in climate zones 1, 11-16
  - R-30 in climate zones 2-10
- Radiant barrier in climate zones 2-15
- Ducts located in conditioned space
  - HERS verified
- Must meet § 150.1(c)9B
Quality Insulation Installation

• Now a prescriptive HERS requirement
  - Requires 3\textsuperscript{rd} party HERS verification of installed insulation and exterior air barrier
  - Modeling without QII can be a negative 7-11% hit
  - Not mandatory, but it will be difficult to offset
## Prescriptive Fenestration Requirements

### 2016

- Meet U-factor and SHGC
- Per Table 150.1-A:
  - Maximum U-factor of 0.32
  - Maximum SHGC of 0.25 in climate zones 2, 4, 6–16
  - Total fenestration area 20% maximum
  - West-facing fenestration area 5% maximum in climate zones 2, 4, 6–16

### 2019

- Addition of glazed doors
  - 25% or more glazed
- Per Tables 150.1-A, B:
  - Maximum U-factor of 0.30
  - Maximum SHGC of 0.23
  - No SHGC requirement in climate zones 1,3,5,16
Mandatory Requirements for Exterior Doors

• Doors now must have U-Factor rating
  ➢ Must be rated by NFRC, or
  ➢ Must be rated according to default values in Table 110.6-A
    ▪ These values are intentionally conservative
    ▪ Will not meet prescriptive requirements with default values

• Must be labeled with either NFRC label, or temporary default label for ease of enforcement
  ➢ Same labeling requirements as for fenestration

Note: Doors with > 25% glazing treated as fenestration
Prescriptive Door Requirements Doors

New Requirements for Doors

• Doors separating conditioned from unconditioned space
  - Less than 25% glazed
  - Must be NFRC rated and labeled
  - Exception for fire protection doors between house and garage

• Per Tables 150.1-A, B:
  - Maximum U-factor of 0.20
# Prescriptive Envelope Requirements for Additions

<table>
<thead>
<tr>
<th>2016</th>
<th>2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Meet mandatory ceiling insulation requirements when ( \leq 700 \text{ ft}^2 )</td>
<td>• Additions ( \leq 700 \text{ ft}^2 ) ceiling insulation</td>
</tr>
<tr>
<td>• Extension of wood frame walls allowed to be same dimensions</td>
<td>➢ R-38 in climate zones 1,11-16</td>
</tr>
<tr>
<td>➢ 2x4 R-15</td>
<td>➢ R-30 in climate zones 2-10</td>
</tr>
<tr>
<td>➢ 2x6 R-19</td>
<td>➢ R-22 allowed in rafter roofs</td>
</tr>
<tr>
<td></td>
<td>• R-21 in 2x6 wood frame wall extensions, no continuous</td>
</tr>
<tr>
<td></td>
<td>• QII in additions ( &gt; 700 \text{ ft}^2 )</td>
</tr>
</tbody>
</table>
2019 Residential Standards
Updates

• HVAC

➢ Fan watt draw for gas furnaces now 0.45 watts/CFM, 0.58 for all other air handlers

➢ Air filtration
  ▪ 2” filter or 1” with minimum size requirement
  ▪ MERV 13
  ▪ Sized to accommodate for pressure drop of filter

➢ Higher mechanical ventilation rates for single family buildings to meet ASHRAE 62.2-2016

➢ Fuel switching for space heating is allowed
Mandatory HVAC Filter Requirements

- **Air Filtration**
  - MERV 13 filter efficiency now required
    - Applicable to ducted heating/cooling systems, supply-only ventilation systems, and on the supply side of balanced mechanical ventilation systems (e.g. HRV, ERV)
    - Not applicable to evaporative coolers
  - Space conditioning system air filters must be labeled with efficiency, and max pressure drop
  - Simplest option: 2 inch filters, pressure drop determined by designer
  - 1-inch (larger) filters allowed, but must meet extra requirements
Mandatory HVAC Fan Requirements

- Space Conditioning System Airflow Rate and Fan Efficacy
  - All single and multi-zone systems:
    - Must demonstrate airflow at ≥ 350 CFM/ton (no change)
    - 0.45 W/CFM minimum fan efficacy for systems with gas furnaces
      - US DOE requires fans to provide minimum efficiency equivalent to constant torque brushless permanent magnet (BPM) type motors
  - Small duct high velocity system requirements added
    - Must demonstrate airflow at ≥ 250 CFM/ton
    - 0.62 W/CFM minimum fan efficacy
  - HERS verification required
Mandatory Ventilation Requirements

• Amendments to ASHRAE 62.2
  - Higher ventilation rates for single family and multi family buildings to meet ASHRAE 62.2-2016

  2016 equation: \( Q_{\text{tot}} = 0.01 \times A_{\text{floor}} + 7.5 \times (\text{Nbr} + 1) \)
  
  2019 equation: \( Q_{\text{tot}} = 0.03 \times A_{\text{floor}} + 7.5 \times (\text{Nbr} + 1) \)

  \( Q_{\text{tot}} \) = total required ventilation rate, cfm

  \( A_{\text{floor}} \) = dwelling-unit floor area, \( \text{ft}^2 \)

  \( \text{Nbr} \) = number of bedrooms (not to be less than 1)
Multifamily Mandatory Ventilation Requirement

- Multifamily dwelling units must have either:
  - A balanced ventilation system
  - Continuously operating supply or exhaust ventilation system
    - Continuous systems require HERS verification for envelope leakage via blower door test
      - Max leakage of 0.3 CFM @ 50Pa
Mandatory Kitchen Ventilation Requirements

• **If** range hood is installed:
  - HERS verification of range hood values with HVI
    - Range hoods must have minimum airflow of 100 CFM
• **All other types of kitchen exhaust fans must have minimum airflow of 300 CFM**
• **Kitchen exhaust fans must have maximum sone rating of 3.0**
  - Fans over 400 CFM exempt from maximum sone requirement
• Water heating

- Heat pump water heaters can be installed prescriptively (CZ 1-15)

- Gas water heaters must have dedicated 125 volt, 20 amp receptacle within 3 feet, connected to panel with 3 conductor 10 AWG wire

- Electric water heater can be installed if natural gas is not available at the existing water heater location
High efficiency water heater ready requirements updated. Dwellings with gas/propane water heaters must have:

- Dedicated 125 volt, 20 amp receptacle connected to 3 conductor, 10 AWG copper branch circuit, within 3 feet of the water heater

- Allows for easier and cost-effective installation of heat pump water heaters as a replacement
For systems serving individual dwelling units, Heat pump water heaters added as prescriptive compliance option

- Must be located in garage or conditioned space, and

- Must comply with one of the following options:
  1. NEEA Advanced Water Heater Specification Tier 3 or higher
     - In (cold) climate zones 1, 16 PV system 0.3 kWdc larger than required in 150.1(c)14, or compact distribution
  2. Compact hot water distribution and drain water heat recovery
  3. CZ 2-15 - PV system capacity 0.3 kWdc larger than required in 150.1(c)14
  4. CZ 1, 16 - PV system capacity 1.1 kWdc larger than required in 150.1(c)14
DWH Prescriptive Alteration Requirements

• Heat pump can be installed in CZ 1-15. The storage tank cannot be located outdoors and:
  - Must be placed on incompressible, rigid insulated surface with minimum thermal resistance of R-10, and be equipped with demand response controls; or
  - NEEA Advanced Water Heater Specification Tier 3 or higher

• Electric water heater can be installed if natural gas is not connected to the existing water heater location
Introduction of PV in 2019

• PV systems now required on all newly constructed homes beginning January 1, 2020!
  - Requiring verification of number of panels, panel type, size, orientation/tilt, and shading
  - Remote monitoring capability required, including mobile app

• PV systems sized to displace the annual kWhs of a mixed-fuel home

• There are several exceptions, including:
  - Shading due to external barriers
  - Building plans approved prior to January 1, 2020
  - Variances allowed for multistory buildings with limited roof space
  - PV size may be reduced if battery storage system is utilized
PV Compliance Options

• Rooftop Installation
  - Outright purchase – larger initial investment by homeowner, larger monthly savings
  - Lease and PPA options – little or no initial investment, smaller monthly savings

• Community Solar
  - If and when approved and available, this will be an alternative to rooftop PVs
Community Shared Solar and Battery

- **Community shared solar and/or battery option**
  - Must be installed and available for inspection by final
  - Must provide ≤ energy performance than designed
  - Must provide energy saving benefits directly to buildings
    - Actual reduction in consumption of dedicated building
    - Utility energy reduction credits
    - Payments to the building
  - Minimum 20 year benefit
  - Must be approved by the CEC
• Average PV size is 2.8 kW

• Average PV installed in existing homes is 7.2kW!

• PV sizing varies with climate zone and house size

<table>
<thead>
<tr>
<th>CZ</th>
<th>Efficiency EDR without PV, based on 2019 Efficiency Measures</th>
<th>Total EDR with PV for Displacing kWh Electric Only</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 - Humboldt</td>
<td>48.0</td>
<td>26.5</td>
</tr>
<tr>
<td>2 - Santa Rosa</td>
<td>41.2</td>
<td>18.0</td>
</tr>
<tr>
<td>3 - San Francisco</td>
<td>46.9</td>
<td>22.7</td>
</tr>
<tr>
<td>4 - San Jose</td>
<td>43.1</td>
<td>22</td>
</tr>
<tr>
<td>5 - Santa Maria</td>
<td>42.5</td>
<td>20.2</td>
</tr>
<tr>
<td>6 - Costal LA</td>
<td>48.0</td>
<td>20.9</td>
</tr>
<tr>
<td>7 - San Diego</td>
<td>48.0</td>
<td>14.9</td>
</tr>
<tr>
<td>8 - Disneyland</td>
<td>43.0</td>
<td>14.6</td>
</tr>
<tr>
<td>9 - Burbank</td>
<td>46.2</td>
<td>23.3</td>
</tr>
<tr>
<td>10 - Riverside</td>
<td>45.2</td>
<td>23.5</td>
</tr>
<tr>
<td>11 - Redding</td>
<td>43.3</td>
<td>23.4</td>
</tr>
<tr>
<td>12 - Sacramento</td>
<td>43.1</td>
<td>24.5</td>
</tr>
<tr>
<td>13 - Fresno</td>
<td>44.8</td>
<td>22.1</td>
</tr>
<tr>
<td>14 - Palmdale</td>
<td>44.6</td>
<td>21.3</td>
</tr>
<tr>
<td>15 - Palm Springs</td>
<td>48.0</td>
<td>17.9</td>
</tr>
<tr>
<td>16 - Tahoe</td>
<td>46.3</td>
<td>27.5</td>
</tr>
</tbody>
</table>
What is EDR?

• Energy Design Rating score based on total energy use expected for the home

• Score of 100 represents a home built to 2006 IECC

• Two types of EDR (both must be met individually)
  ➢ Efficiency – Includes energy savings for space heating, cooling, ventilation and water heating measures, and limited credit for battery
  ➢ Total EDR – Includes efficiency EDR minus compliance credit for PV, battery, and other demand flexibility measures
• CalGreen and other optional reach codes may specify more aggressive performance targets than base codes

<table>
<thead>
<tr>
<th>Example CZ</th>
<th>Base Code EDR Target</th>
<th>CalGreen Tier 1 EDR Target</th>
<th>CalGreen Tier 2 EDR Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>CZ12 – Sacramento</td>
<td>24.5</td>
<td>12 - 13</td>
<td>0</td>
</tr>
</tbody>
</table>

• Tier 1 and 2 targets can be reached by:
  - Greater energy efficiency
  - Larger PV systems coupled with at least 5 kWh battery storage system

• CBECC-Res can be used to demonstrate compliance with CalGreen
2019 Nonresidential Energy Savings

• Nonresidential

- 30% more efficient than 2016 Standards
- Savings due mainly to lighting upgrades
- LED lighting first year savings of 480 GWh
Summary of Nonresidential Changes

- **Healthcare facilities included in scope**
  - Several exceptions

- **Lighting updates**
  - LPDs based on LEDs
  - New primary function areas added
  - Clarify and streamline controls requirements
  - New PAFs
  - Indoor lighting alterations simplified

- **HVAC updates**
  - MERV 13 filtration
  - ASHRAE 62.1-2016 applied
    - Including minimum exhaust rates
  - ASHRAE 62.2 applied to high-rise residential
    - Including verification for kitchen range hoods

- **Fan power and fume hood requirements for laboratories**
CALIFORNIA'S 2019 NONRESIDENTIAL BUILDING ENERGY EFFICIENCY STANDARDS

CALIFORNIA ENERGY COMMISSION

The state's energy efficiency standards for new buildings and appliances have saved consumers billions in lower electricity and natural gas bills. The 2019 Building Energy Efficiency Standards for nonresidential buildings include new lighting and ventilation. The standards also set new requirements for the first time to newly constructed healthcare facilities.

HEALTHY INDOOR AIR QUALITY

Enable using highly efficient filters that trap bacteria, particulates from both outdoor air and ventilation and improve kitchen ventilation systems. Moving air around and in and out of the home while filtering out allergens and other particles helps improve the health of a building. The standards add airflow requirements for small duct, high-velocity systems, and nets, sensor control requirements.

HEALTHCARE FACILITIES

For the first time, energy efficiency standards extend to newly constructed healthcare facilities and incorporate the appropriate application of standards...

LIGHTING

Update indoor and outdoor lighting to assume the cost of LED lighting. LED lights use less energy and save money on monthly electricity bills meaning smaller operating budgets for commercial buildings. Maintenance costs are reduced because bulbs do not need to be changed as often. The standards also add occupancy sensing requirements for restrooms.
2019 Nonresidential Standards Updates

- **Lighting**
  - Indoor and Outdoor lighting baseline shifts to LEDs
    - LEDs now cost effective and feasible
    - Likely will not affect lighting designers
    - Most impact will be on envelope design
      - Less surplus of energy savings from lighting to trade-off with envelope
  - New PAF for advanced daylighting design

- **Air filtration**
  - MERV 13 filters now mandatory
    - Should expect higher surface area 1” filters, or 2” filters
Power Adjustment Factors

• Power Adjustment Factor (PAF): additional lighting power allowance for installing controls or features beyond mandatory requirements
  ➢ New PAFs for increasing daylighting potential and tunable white lighting

![Clerestory](image1.png)

![Horizontal slats](image2.png)

![Light shelves](image3.png)
Indoor Lighting Power

• Lighting power density (LPD, W/ft$^2$) values reflect LED as the baseline for indoor lighting
  ➢ Approximately 29 to 37% reduction in lighting power allowance

• Many new function area types have been added
  ➢ TABLE 140.6-B, TABLE 140.6-C, and TABLE 140.6-G
Indoor alteration requirements apply if 10% or more of luminaires in the space are altered

- Control requirements are dependent on the proposed lighting power
  - Lighting power ≤ 80% - Area controls and shut-off controls
  - Lighting power > 80% - All mandatory controls
- One for one luminaire replacement and building or tenant space ≤ 5,000 ft²
  - If wattage of altered luminaires is at least 40% lower than existing – area controls and shut-off controls

Exceptions:
- One for one luminaire replacement of 50 luminaires per year or less.
- Enclosed spaces with one luminaire
2019 Nonresidential Standards Updates

• HVAC
  - Heat pump minimum efficiency increased
  - VRF system minimum efficiency increased
  - Cooling tower fans, pumps minimum efficiency increased

• Ventilation
  - Incorporated natural and exhaust ventilation procedures of 2016 ASHRAE 62.1
  - High-rise residential dwelling units meet ASHRAE 62.2
    - Must be a balanced system; or
    - A continuously operating supply or exhaust system
      - HERS blower door testing required
    - HERS Verification for kitchen range hoods
Ventilation and Indoor Air Quality

• Ventilation system requirements are broken out by building type:
  - §120.1(b) - high-rise residential (ASHRAE 62.2)
  - §120.1(c) - nonresidential, hotel/motel (ASHRAE 62.1)

• Filtration required for central space conditioning systems and **supply side** of ventilation systems.

• MERV 13 filter efficiency required.
• Dwelling ventilation rates and indoor air quality aligned with ASHRAE 62.2 with California amendments:
  ➢ Window operation is not allowed for providing ventilation
  ➢ Continuous operation of the central system air handlers used in central fan integrated ventilation systems is not allowed.
  ➢ Ventilation system must be one of the following:
    ▪ Balanced ventilation system, or
    ▪ Continuously operating supply or exhaust ventilation systems are allowed if the **dwelling unit envelope** leakage is verified by a HERS Rater to be ≤ 0.3 cfm.
• Ventilation rate for dwelling units:

\[ Q_{\text{tot}} = 0.03 \times A_{\text{floor}} + 7.5 \times (N_{\text{br}} + 1) \]  

\textit{(Equation 120.1-B)}

• **Central** ventilation systems serving multiple dwelling units:

  ➢ Ventilation rate in \textbf{each} dwelling unit must be equal to the rate calculated using equation 120.1-B or up to 20% higher

  ➢ System must be balanced for \textbf{each} dwelling-unit:

  ➢ Tested in accordance with Reference Nonresidential Appendix NA7.18.1 to confirm
• Minimum airflow of 100 cfm
• Maximum rated sound of 3 sones
  ❖ Exception: May be rated for sound at a static pressure determined at working speed in accordance with HVI 916
• Certified to the Home Ventilation Institute (HVI)
• Tested in accordance with Reference Nonresidential Appendix NA7.18.1 to confirm
2019 Nonresidential Standards Updates

• **Covered Processes**
  - Fan efficiency and automatic sash closure requirements for laboratory fume hoods
    - Acceptance testing required
  - Efficiency and system control requirements for adiabatic condensers
    - Applies to refrigerated warehouses and supermarkets

• **Healthcare facilities are regulated by the code**
  - I-1 and I-2 occupancy
  - There are many exceptions for these occupancies
2019 Documents

- ALL documents available electronically online
  - Energy Standards
  - Reference Appendices
  - Residential Compliance Manual
  - Nonresidential Compliance Manual

https://www.energy.ca.gov/title24/2019standards/
2019 Documents cont.

Easy Navigation Features and Updates

• Energy Standards
  - Hyperlinks for section and table references will be added
  - Updated Table 100.0-A with quick links will be posted online
  - Index coming soon

• Compliance Manuals
  - Already include Table of Contents hyperlinks for each chapter
  - Errata will be published online
2019 Residential Compliance Forms

- All forms posted online
  - CF1R
  - CF2R
  - CF3R

- Dynamic versions for “paper” forms now available
  - ALT and ADD

2019 Nonresidential Compliance Forms

• All forms posted online
  ➢ NRCC
  - Updating dynamic versions
  - Reduced from 47 to 10
  ➢ NRCI
  ➢ NRCA
  ➢ NRCV

• Sample performance Certificates of Compliance (PERF) available with beta versions of CBECC software

• Registered forms will be available after HERS provider data registries are updated and approved

• Alternative NRCA forms will be available after ATTCPs databases are updated and approved
2019 Compliance Software

- Public domain software
  - CBECC-Res and -Nonres
  - Beta versions available now
  - Approval at May Business Meeting

- Non-public domain software
  - Updates and approval will follow CBECC software
    - EnergyPro
    - Right-Energy Title 24
    - IES Virtual Environment
HERS Providers

- Currently in the process of updating:
  - Training
  - Forms/data registries

- All of the above must be approved by the Energy Commission to:
  - Train and certify HERS Raters for 2019 Energy Standards
    - Before 1/1/2020
ATTCPs

- Currently in the process of updating:
  - Training
  - Recertification
  - Alternative Forms (LTG)

- Updates must be approved by the Energy Commission to:
  - Train, certify, and recertify ATTs for 2019 Energy Standards

- Must submit by July 1st
Online Resource Center (ORC)

The Online Resource Center is provided to assist the building community and enforcement agencies with Building Energy Efficiency Standards (Energy Standards) compliance. Energy Standards apply to newly constructed buildings, as well as additions and alterations for existing buildings. Presently, the Energy Standards are updated every three years.

To assist in the compliance process, we provide compliance documents and the Public Domain Compliance Software programs for commercial and residential buildings. Training and info to the Energy Standards and compliance software are available on the Energy Commission website and at utility training centers throughout the state. To help direct you to an appropriate resource, Energy Commission and essential resource information are provided on this page.

Energy Standards Information and Training Materials

- Overview
- Commissioning
- Covered Processes

Follow

Energy Standards Questions?
- Energy Standards Hotline

Energy Standards Booth Handouts
- Handouts - 02122017 (zip file, 597 mb)
- Help with the zip file

Forms
- 2016 Residential Compliance Forms
- 2016 Nonresidential Compliance Forms

Trainings & Events
- Energy Standards Outreach & Education Schedule
- Utility Sponsored Training Schedules

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- Automated Email Notifications

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Last name: 
Email address:

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E-Mail Lists

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