

BLUEPRINT

California Energy Commission
Efficiency Division

In This Issue

- » New 2013 Home Energy Rating System Provider
- » Easy Navigation of the 2016 Energy Standards and Compliance Manuals
- » Air-to-Water Heat Pump Systems Efficiency Data
- » HVAC Labeling Requirements
- » Q&A
 - Pipe Insulation in Exterior Walls
 - Solar Ready Requirements for Single Family Homes in Subdivisions
- » Energy Code Ace Training Schedule

New 2013 Home Energy Rating System Provider

The California Energy Commission (Energy Commission) has approved ConSol Home Energy Efficiency Rating Services (CHEERS) as a Home Energy Rating System (HERS) Provider under the *2013 Building Energy Efficiency Standards* (Energy Standards).

CHEERS is authorized to train and certify HERS raters for field verification and diagnostic testing for newly constructed, additions, and alterations to residential buildings.

CHEERS may be reached at:

Phone: (800) 424-3377

Email: info@CHEERS.org

Website: www.CHEERS.org

For a complete list of approved HERS Providers, please visit: <http://www.energy.ca.gov/HERS/providers.html>.

Easy Navigation of the 2016 Energy Standards and Compliance Manuals

Navigating the electronic versions of the 2016 Energy Standards and compliance manuals just got easier.

2016 Energy Standards

Section references throughout the **2016 Energy Standards** are now linked to quickly take you to that section. These links work on both the downloaded and web based versions.

TABLE 100.0-A, which directs you to the appropriate section based on building and project type, is now available for download **separately** from the Energy Standards. To use the links in the downloaded version you must be connected to the internet.

2016 Compliance Manuals

The 2016 **Residential** and **Nonresidential** Compliance Manuals have also been updated to include links to the chapters. These links work on both the downloaded and web based versions.

Air-to-Water Heat Pump Systems Efficiency Data

Starting July 1, 2016, air-to-water heat pump systems must be listed in the **Appliance Efficiency Database**. An independent list of manufacturer certified air-to-water heat pump systems will no longer be maintained. This reduces the number of sources needed to locate efficiency data.

These systems can be used to provide space conditioning, water heating, or both. Modeling of these systems for compliance credit remains the same.

Air-to-water heat pump systems are not regulated for efficiency. Manufacturers must test and list these products in the **Appliance Efficiency Database**. To locate these systems in the database select *Appliance Search*, followed by *Appliance Type*. For *Category* select Central Heat Pumps and for *Appliance Type* select Heat Pump Water Heating Packages.

TITLE 20 CALL CENTER

Monday through Friday
HOURS 8:30 a.m. to 4:30 p.m.

Available to answer Title 20
technical, regulatory, and
compliance related questions.



888-838-1467 916-651-7100
Toll free in CA Outside CA

appliances@energy.ca.gov
www.energy.ca.gov/appliances

HVAC Labeling Requirements

To increase heating, ventilation, and air conditioning (HVAC) system efficiency, **Section 150.0(m)12D** requires manufacturers to label air filter media. Per **Section 150.0(m)12**, this labeling requirement applies to mechanical systems that supply air to an occupiable space through ductwork exceeding 10 feet in length and through a thermal conditioning component. Evaporative coolers are exempt from this requirement.

Air filter labeling was introduced in the 2013 Energy Standards and is required by Title 20 for air filters manufactured on or after July 1, 2016.

Air filter labels must now show filter efficiency and static pressure drop ratings. The filter efficiency rating tells how well a filter removes particulate from the air. The static pressure drop rating shows the filter's impact on airflow through the HVAC system.

A sample label is provided below in Figure 1. **Label information** will vary depending on the test method used.

Section 150.0(m)12Aiv requires permanent labels at all air filter locations that are legible to a person replacing the air filters. Consumers can use this information to choose the appropriate air filter for their HVAC system.

Q&A

Pipe Insulation in Exterior Walls

I'm having the hot water pipes for my new home installed within the insulation of the exterior walls. Do I have to separately insulate the hot water pipes if the pipes are surrounded by wall insulation?

Not necessarily. **Section RA4.4.1(e)** of the *2013 Reference Residential Appendices* states:

"Pipe insulation may be omitted where hot water distribution piping is buried within attic, crawlspace or wall insulation, as described below:

"In attics and crawlspaces the insulation shall completely surround the pipe with at least 1 inch of insulation and the pipe shall be completely covered with at least 4 inches of insulation further away from the conditioned space.

*"In walls, the insulation must completely surround the pipe with at least 1 inch of insulation. If burial within the insulation does not meet these specifications, then this exception does not apply, and the section of pipe not meeting the specifications must be insulated as specified in **Section 150.0(j)**."*

Figure 1 - Sample Air Filter Label

MERV	(µM)	0.30-1.0	1.0-3.0	3.0-10	Airflow Rate (CFM)	600	900	1200	1500	2000*	*Max Rated Airflow
12	PSE (%)	80	90	95	Initial Resistance (IWC)	0.05	0.10	0.17	0.21	0.24	

Additionally, hot water pipes do not have to be insulated in walls if the project meets all quality insulation installation (QII) requirements. **Exception 4** to Section 150.0(j)2 states:

*“Piping installed in interior or exterior walls shall not be required to have pipe insulation if all of the requirements are met for compliance with Quality Insulation Installation (QII) as specified in the Reference Residential Appendix **RA3.5**.”*

Hot water pipes must be insulated according to **Section 150.0(j)2** if the above conditions cannot be met.

These requirements also apply to the 2016 Energy Standards.

Solar Ready Requirements for Single Family Homes in Subdivisions

When did the solar ready requirements become effective?

July 1, 2014, the effective date of the 2013 Energy Standards.

NOTE: **Section 110.10(a)1** references the date January 1, 2014. This was the tentative effective date of the 2013 Energy Standards. The actual effective date was July 1, 2014.

Do the solar ready requirements apply to all single family homes?

No. The solar ready requirements only apply to newly constructed homes in subdivisions with ten or more single family residences. These requirements do not apply to alterations or additions to single family homes.

When are the solar ready requirements applied to subdivisions?

Tentative subdivision maps of 10 or more single family homes, which are deemed complete by the enforcement agency on or after July 1, 2014, must meet the solar ready requirements.

Why are single family homes in subdivisions required to be solar ready?

The solar ready requirements of **Section 110.10** make future installation of photovoltaic (PV) and solar water heating systems easier and less expensive.

Solar ready homes are built with a designated *solar zone* on the roof or overhang and an electrical service panel capable of accommodating PV and solar water heating systems. The *solar zone* is free of shade, penetrations, and obstructions, and is oriented for optimal solar access.

Do the solar ready requirements apply to subdivisions that are built-out in phases?

Yes, if the tentative subdivision map for 10 or more single family homes was deemed complete on or after July 1, 2014.

What if the original tentative subdivision map expired?

If a new tentative subdivision map for 10 or more single family homes is deemed complete July 1, 2014, or later, the homes included in the new map must comply with the solar ready requirements.

Homes built before the expiration of a map approved before July 1, 2014, are not required to meet the solar ready requirements.

ENERGY
STANDARDS

HOTLINE

Available to help with
Energy Standards
(Title 24, Part 6) questions.



EMAIL

title24@energy.ca.gov



CALL

800-772-3300
Toll free in CA

916-654-5106
Outside CA

HOURS

8 a.m. – 12 p.m. and
1 p.m. – 4:30 p.m.

How does the enforcement agency verify compliance with the solar ready requirements?

The enforcement agency verifies compliance by reviewing the information on the solar ready compliance documents (**CF1R-SRA-01-E** and **CF1R-SRA-02-E**). These documents, along with the building plans and permit application(s), are submitted to the enforcement agency by the builder.

Are there changes to the solar ready requirements in the 2016 Energy Standards?

The solar ready requirements for single family homes in subdivisions of 10 homes or more still applies in the 2016 Energy Standards. **Section 110.10(a)1**, however, no longer includes a specific complete map application date. The complete map application date of July 1, 2014, still applies.

In addition, some of the solar zone exceptions changed.

For More Information

Home Energy Rating System:

<http://www.energy.ca.gov/HERS/>

Acceptance Test Technician

Certification Provider Program:

<http://www.energy.ca.gov/title24/attcp/>

Approved Computer Compliance

Programs:

http://www.energy.ca.gov/title24/2013standards/2013_computer_prog_list.html

The California Energy Commission welcomes your feedback on Blueprint.

Please contact Andrea Bailey at:

Title24@energy.ca.gov

EDITOR

» Andrea Bailey

SPECIAL THANKS

- | | |
|---------------------|--------------------|
| » Alex Pineda | » Javier Perez |
| » Alexis Smith | » Kristen Driskell |
| » Bruce Helft | » Mark Alatorre |
| » Chris Olvera | » Paula David |
| » Christopher Meyer | » Payam Bozorchami |
| » Daniel Wong | » Peter Strait |
| » Danny Tam | » Simon Lee |
| » Harinder Singh | » Suzie Chan |

Edmund G. Brown Jr.
Governor

Robert B. Weisenmiller, Ph.D.
Chair

Robert P. Oglesby
Executive Director

Need Help? Energy Standards Hotline
(800) 772-3300 (toll-free in CA)
Title24@energy.ca.gov

Commissioners
Karen Douglas
David Hochschild
Andrew McAllister
Janea A. Scott

Appliances and Outreach and Education Office
1516 Ninth St, MS-25
Sacramento, CA 95814-5512
(916) 654-4064



**CALIFORNIA
ENERGY COMMISSION**

energy.ca.gov | facebook.com/CAEnergy | twitter.com/calenergy

CEC-400-2016-012

The California Statewide Codes & Standards Program

Here to help you meet the requirements of Title 24, Part 6 and Title 20

We offer FREE

- Trainings
- Tools
- Resources

All designed to improve compliance with California's building and appliance energy efficiency standards and lock in long-term energy savings.



EnergyCodeAce.com

Classes added frequently
Please check **EnergyCodeAce.com/training** for all our up-to-date offerings

Register for a scheduled FREE class or contact us at **energycodeace.com/content/training-request/** to bring a training to a location of your choice!

7/8/2016

DATE • TIME	LOCATION	INSTRUCTOR	REGISTRATION LINK
-------------	----------	------------	-------------------

Residential Standards for Plans Examiners and Building Inspectors

July 12 • 8:30 - 4:30	Long Beach	Bruce Cheney	sce.com/workshops
July 13 • 8:30 - 4:30	Hermosa Beach	Bruce Cheney	sce.com/workshops
July 26 • 8:30 - 4:30	Burbank	Bruce Cheney	sce.com/workshops
July 27 • 8:30 - 4:30	Santa Ana	Bruce Cheney	sce.com/workshops
July 29 • 8:30 - 4:30	Jackson	Gina Rodda	goo.gl/PEZusW
August 2 • 8:30 - 4:30	Beverly Hills	Bruce Cheney	sce.com/workshops
August 2 • 8:30 - 4:30	Mariposa	Brian Selby	goo.gl/PN4gPR
August 3 • 8:30 - 4:30	Rancho Cucamonga	Bruce Cheney	sce.com/workshops
August 4 • 8:30 - 4:30	Eureka	Brian Selby	goo.gl/PN4gPR
August 9 • 8:30 - 4:30	Concord	Gina Rodda	goo.gl/PHzMvF
August 9 • 8:30 - 4:30	Victorville	Bruce Cheney	sce.com/workshops
August 10 • 8:30 - 4:30	Irvine	Bruce Cheney	sce.com/workshops
August 11 • 8:30 - 4:30	Fremont	Gina Rodda	goo.gl/9mXPg7
August 11 • 8:30 - 4:30	Malibu	Bruce Cheney	sce.com/workshops
August 23 • 8:30 - 4:30	Long Beach	Bruce Cheney	sce.com/workshops
August 25 • 8:30 - 4:30	San Francisco	Gina Rodda	goo.gl/irFpq7
September 6 • 8:30 - 4:30	Fontana	Bruce Cheney	sce.com/workshops
September 6 • 8:30 - 4:30	San Jose	Gina Rodda	goo.gl/FJLwmF
September 7 • 8:30 - 4:30	Palm Desert	Bruce Cheney	sce.com/workshops
September 14 • 8:30 - 4:30	Temecula	Bruce Cheney	sce.com/workshops
September 28 • 8:30 - 4:30	Nevada City	Brian Selby	goo.gl/XWVoAQ
October 24 • 8:30 - 4:30	Folsom	Brian Selby	goo.gl/Ndd9IK
November 8 • 8:30 - 4:30	Santa Rosa	Gina Rodda	goo.gl/R6mhZ0

Nonresidential Standards for Plans Examiners and Building Inspectors

July 19 • 8:30 - 4:30	Long Beach	Bruce Cheney	sce.com/workshops
July 20 • 8:30 - 4:30	Rancho Cucamonga	Bruce Cheney	sce.com/workshops
August 16 • 8:30 - 4:30	Burbank	Bruce Cheney	sce.com/workshops
August 17 • 8:30 - 4:30	Hermosa Beach	Bruce Cheney	sce.com/workshops
August 24 • 8:30 - 4:30	Fremont	Gina Rodda	goo.gl/y2f0Bs
August 24 • 8:30 - 4:30	Santa Ana	Bruce Cheney	sce.com/workshops
August 30 • 8:30 - 4:30	Beverly Hills	Bruce Cheney	sce.com/workshops
August 30 • 8:30 - 4:30	Concord	Gina Rodda	goo.gl/bjCDeU
August 31 • 8:30 - 4:30	Irvine	Bruce Cheney	sce.com/workshops
August 31 • 8:30 - 4:30	San Francisco	Gina Rodda	goo.gl/gkGJbl
September 1 • 8:30 - 4:30	Eureka	Brian Selby	goo.gl/aXu8k2
September 13 • 8:30 - 4:30	Long Beach	Bruce Cheney	sce.com/workshops
September 20 • 8:30 - 4:30	Fontana	Bruce Cheney	sce.com/workshops
September 21 • 8:30 - 4:30	Palm Desert	Bruce Cheney	sce.com/workshops
September 27 • 8:30 - 4:30	Victorville	Bruce Cheney	sce.com/workshops
September 28 • 8:30 - 4:30	Temecula	Bruce Cheney	sce.com/workshops
September 29 • 8:30 - 4:30	San Jose	Gina Rodda	goo.gl/6rsrVZ
October 18 • 8:30 - 4:30	Santa Rosa	Gina Rodda	goo.gl/Hjs2IG
October 31 • 8:30 - 4:30	Folsom	Brian Selby	goo.gl/InY4q5

Residential Standards for Energy Consultants

August 25 • 8:30 - 4:30	Irwindale	Martyn Dodd	sce.com/workshops
-------------------------	-----------	-------------	-------------------

Standards & Technology for Residential Lighting

July 21 • 8:30 - 3:30	Irwindale	Nicole Graeber	sce.com/workshops
-----------------------	-----------	----------------	-------------------

Standards & Technology for Office Lighting

July 20 • 8:30 - 3:30	Irwindale	Nicole Graeber	sce.com/workshops
July 27 • 8:30 - 4:30	San Francisco	Nicole Graeber	goo.gl/KRqESb

Standards & Technology for Retail Lighting

July 26 • 8:30 - 4:30	San Francisco	Nicole Graeber	ggoo.gl/d2jhAP
-----------------------	---------------	----------------	----------------

Title 24: Where We're Headed with the 2016 Standards

July 28 • 8:30 - 12:30	Beverly Hills	Martyn Dodd	sce.com/workshops
August 26 • 8:30 - 12:30	Irwindale	Martyn Dodd	sce.com/workshops
September 15 • 8:30 - 12:30	Ventura	Martyn Dodd	sce.com/workshops
September 30 • 8:30 - 12:30	Irwindale	Martyn Dodd	sce.com/workshops



Delivered online in real-time by an instructor. Classes are delivered in 3 parts, 1 each day in a series.

DATE • TIME	LOCATION	INSTRUCTOR
-------------	----------	------------

Residential Standards for Energy Consultants

July 26 - 28 • 9:00 - 12:00	Online	Brian Selby
October 25 - 27 • 9:00 - 12:00	Online	
November 15 - 17 • 9:00 - 12:00	Online	

Nonresidential Standards for Energy Consultants

August 16 - 18 • 9:00 - 12:00	Online	Brian Selby
September 20 - 22 • 9:00 - 12:00	Online	
November 8 - 10 • 9:00 - 12:00	Online	

Residential Modeling

July 19 - 21 • 9:00 - 12:00	Online	Martyn Dodd & Demian Vonder Kühlen
October 4 - 6 • 9:00 - 12:00	Online	

Nonresidential Modeling

August 9 - 11 • 9:00 - 12:00	Online	Martyn Dodd & Demian Vonder Kühlen
October 18 - 20 • 9:00 - 12:00	Online	

Facilitated online discussion forums for building department personnel and other industry professionals.

Go to EnergyCodeAce.com for the upcoming topics, dates, times and to view recorded past events.



DATE • TIME	LOCATION	INSTRUCTOR	REGISTRATION LINK
-------------	----------	------------	-------------------

2016 Title 24: Where We're Headed With the Residential Standards

August 18 • 1:00 - 2:30	Online	Martyn Dodd	pge.com/energyclasses
September 13 • 1:00 - 2:30	Online		
November 7 • 1:00 - 2:30	Online		
December 9 • 1:00 - 2:30	Online		

2016 Title 24: Where We're Headed With the Nonresidential Standards

August 18 • 9:00 - 11:30	Online	Martyn Dodd	pge.com/energyclasses
September 13 • 9:00 - 11:30	Online		
November 7 • 9:00 - 11:30	Online		
December 9 • 9:00 - 11:30	Online		

Software Training

DATE • TIME	LOCATION	INSTRUCTOR	REGISTRATION LINK
-------------	----------	------------	-------------------

Beginning EnergyPro 7 Nonresidential

September 29 • 8:30 - 12:00	Irwindale	Martyn Dodd	sce.com/workshops
-----------------------------	-----------	-------------	-------------------

Beginning EnergyPro 7 Residential

September 29 • 12:30 - 4:00	Irwindale	Martyn Dodd	sce.com/workshops
-----------------------------	-----------	-------------	-------------------

Advanced EnergyPro 7 Nonresidential

July 27 • 8:30 - 12:00	Irwindale	Martyn Dodd	sce.com/workshops
------------------------	-----------	-------------	-------------------

September 14 • 8:30 - 12:00	Irwindale	Martyn Dodd	sce.com/workshops
-----------------------------	-----------	-------------	-------------------

Advanced EnergyPro 7 Residential

July 27 • 12:30 - 4:00	Irwindale	Martyn Dodd	sce.com/workshops
------------------------	-----------	-------------	-------------------

September 14 • 12:30 - 4:00	Irwindale	Martyn Dodd	sce.com/workshops
-----------------------------	-----------	-------------	-------------------

IESVE Software Training for Title 24 Compliance for Nonresidential Buildings

July 20 • 9:00 - 5:00	San Francisco	Liam Buckley	pge.com/energyclasses
-----------------------	---------------	--------------	-----------------------

August 18 • 8:30 - 4:30	Irwindale	Liam Buckley	sce.com/workshops
-------------------------	-----------	--------------	-------------------

November 1 • 9:00 - 5:00	San Francisco	Liam Buckley	pge.com/energyclasses
--------------------------	---------------	--------------	-----------------------



- Residential Standards for AC Quality Installation Contractors
- Residential Standards for Indoor Lighting
- Residential Standards for Ventilation
- Nonresidential Standards for Indoor Lighting Mandatory Measures
- Nonresidential Standards for Indoor Lighting Prescriptive Compliance

Take them whenever and wherever you like, at your own pace. Visit EnergyCodeAce.com



Our new Title 20 Appliance Efficiency curriculum focuses on the essentials industry professionals and consumers need to know to use the California Energy Commission's Modernized Appliance Efficiency Database System (MAEDBS). Access our video trainings on the following topics at:

energycodeace.com/content/title-20-ondemand

- Title 20 Essentials: Making the Most of On-Demand Video Training
- Title 20 Essentials: Why Certification Matters
- Title 20 Essentials: Using MAEDBS for Manufacturers
- Title 20 Essentials: Using MAEDBS for Third Party Certifiers
- Title 20 Essentials: Using MAEDBS for Test Laboratories
- Title 20 Essentials: California Appliance Standards for Retailers, Distributors, Contractors, and Importers



This program is funded by California utility customers under the auspices of the California Public Utilities Commission.