



Local Governments Empowering Our Communities

Innovative Approaches to Improving Energy Code Compliance

Leveraging the HERS Registry

BayREN Codes & Standards

Today's Focus

Compliance Documentation

*Making the
Most of it by
leveraging the
HERS Registry*

1. What is needed for compliance?
2. What is the least effective method for managing compliance documents?
3. How can you leverage the HERS Registry to minimize the compliance process?

First, let's get a perspective
on compliance
documentation...

**How many printed pages of
compliance forms are
needed for a typical single
family residential home?**

Can you guess?



Single Family Newly Constructed Home

- 2,000 SF
- 2-Story
- 3 Bedroom
- 2 HVAC Systems – 1st and 2nd Floors
- Wood-framed, ventilated attic, slab floor
- Quality Insulation Installation (QII)
- Solar PV installed

Which Forms are needed?

CERTIFICATES OF COMPLIANCE

- CF1R-PRF -01 3 SETS
- CF1R-SRA-01

CERTIFICATES OF INSTALLATION

- CF2R-ENV-01
- CF2R-ENV-03
- CF2R-ENV-04
- CF2R-LTG-01
- CF2R-MCH-01

CERTIFICATES OF INSTALL (CONT'D)

- CF2R-MCH-02
- CF2R-MCH-20
- CF2R-MCH-21 2 SETS
- CF2R-MCH-22 2 SETS
- CF2R-MCH-23 2 SETS
- CF2R-MCH-25 2 SETS
- CF2R-MCH-26 2 SETS
- CF2R-MCH-27
- CF2R-PLB-02
- CF2R-SPV-02

CERTIFICATES OF VERIFICATION

- CF3R-MCH-20 2 SETS
- CF3R-MCH-21 2 SETS
- CF3R-MCH-22 2 SETS
- CF3R-MCH-23 2 SETS
- CF3R-MCH-25 2 SETS
- CF3R-MCH-26 2 SETS
- CF3R-MCH-27
- CF3R-ENV-21
- CF3R-ENV-22
- CF3R-ENV-23



How many printed pages for this project?

176 printed pages per set

How many sets?

Building Dept.

Homeowner

Builder, Installers, Designers

How many did you say??

- 1 set = 176 pages
- 2 sets = 352 pages
- 3 sets = 528 pages

At this rate,

1,000 new homes would need 528,000 pages of printing!

The point is that printing compliance forms has become unreasonable and unmanageable.

The HERS Registry can eliminate printing.

What is the
“least effective”
method for
managing
compliance
documents?

Building Department Steps

- Require printed documents from the builder/installers/rater
- Determine if all the correct documents are present
- Determine if all documents are complete and signed
- Return the documents to the department for processing
- Scan and record the documents for digital file
- File the hard copy documents
- Flag the hard copies for scheduled shredding
- Pull the documents when ready to shred
- Pay to have the documents shredded

Do you know which documents are needed?

- It is next to impossible to determine which forms are needed, even for the experienced.
- The number of compliance forms can be overwhelming.
- Residential forms include 63 different forms, but if you count the sub-forms it's well over 100.
- And each form has multiple pages.

Appendix A Compliance Documents Page 1

NOTE: For Documents and User Instructions, please visit our website at: <http://energy.ca.gov/title24/2016standards>

#	Doc Type	Doc Category	Category Description	Document Description
CF1R's - Certificate of Compliance				
1	CF1R-	NCB-01-E	Newly Constructed Buildings	Prescriptive New Additions Equal
2	CF1R-	ADD-01-E	Additions	Prescriptive Add
3	CF1R-	ADD-02-E	Additions	Prescriptive Add (paper version)
4	CF1R-	ALT-01-E	Alterations	Prescriptive Alter
5	CF1R-	ALT-02-E	Alterations	Prescriptive Alter
6	CF1R-	ALT-03-E	Alterations-HVAC	Alterations HVAC
7	CF1R-	ALT-04-E	Alterations-HVAC	Alterations HVAC
8	CF1R-	ALT-05-E	Alterations	Prescriptive Alter (paper version)
9	CF1R-	ENV-02-E	Envelope	Area Weighted A
10	CF1R-	ENV-03-E	Envelope	Solar Heat Gain C
11	CF1R-	ENV-04-E	Envelope	Solar Reflective I
12	CF1R-	PLB-01-E	Plumbing (DHW)	Hydronic Heating
13	CF1R-	SRA-01-E	Solar Ready	Solar Ready Bui
14	CF1R-	SRA-02-E	Solar Ready	Minimum Solar 2 New Constructio
15	CF1R-	STH-01-E	Solar Thermal	OG 300 Solar Wa
16	CF1R-	STH-02-E	Solar Thermal	OG 100 Solar Wa
CF2R's - Certificate of Installation				
17	CF2R-	ADD-02-E	Additions	Prescriptive Add (paper version)
18	CF2R-	ALT-05-E	Alterations	Prescriptive Alter (paper version)
19	CF2R-	ENV-01-E	Envelope-NonHERS	Fenestration Inst
20	CF2R-	ENV-03-E	Envelope-NonHERS	Insulation Install
21	CF2R-	ENV-04-E	Envelope-NonHERS	Roofing - Radian
22	CF2R-	ENV-20-H	Envelope-HERS	Building Leakage
23	CF2R-	LTG-01-E	Lighting-NonHERS	Lighting - Single

2016 Residential Compliance Documents

Appendix A Compliance Documents Page 2

#	Doc Type	Doc Category	Category Description	Document Description
24	CF2R-	LTG-02-E	Lighting-NonHERS	Lighting - Multifamily Dwellings
25	CF2R-	MCH-01-E	Mechanical-NonHERS	Space Conditioning Sys
26	CF2R-	MCH-02-E	Mechanical-NonHERS	Whole House Fan
27	CF2R-	MCH-04-E	Mechanical-NonHERS	Evaporative Coolers
28	CF2R-	MCH-20-H	Mechanical-HERS	Duct Leakage Diagnost
29	CF2R-	MCH-21-H	Mechanical-HERS	Duct Location Verifia
30	CF2R-	MCH-22-H	Mechanical-HERS	Fan Efficacy
31	CF2R-	MCH-23-H	Mechanical-HERS	Airflow Rate
32	CF2R-	MCH-24-H	Envelope-HERS	Building Envelope Air L
33	CF2R-	MCH-25-H	Mechanical-HERS	Refrigerant Charge Ver
34	CF2R-	MCH-26-H	Mechanical-HERS	Rated Space Conditioni Verification
35	CF2R-	MCH-27-H	Mechanical-HERS	Mechanical Ventilation
36	CF2R-	MCH-28-H	Mechanical-HERS	Return Duct Design and According to Tables 15
37	CF2R-	MCH-29-H	Mechanical-HERS	Duct Surface Area Redu Compliance Credit
38	CF2R-	MCH-30-E	Mechanical-HERS	Ventilation cooling con
39	CF2R-	PLB-01-E	Plumbing-DHW-NonHERS	Multifamily Central Ho
40	CF2R-	PLB-02-E	Plumbing (DHW)-NonHERS	Single Dwelling Unit Ho
41	CF2R-	PLB-03-E	Plumbing (DHW)-NonHERS	Pool and Spa Heating S
42	CF2R-	PLB-21-H	Plumbing (DHW)-HERS	HERS Verified Multifam Distribution
43	CF2R-	PLB-22-H	Plumbing (DHW)-HERS	HERS Verified Single Di Distribution
44	CF2R-	SPV-01-E	Photovoltaics-NonHERS	Photovoltaic Systems
45	CF2R-	STH-01-E	Solar Thermal	Solar Water Heating Sy
CF3R's - Certificate of Installation				
46	CF3R-	ENV-20-H	Envelope-HERS	Building Leakage Diagn
47	CF3R-	ENV-21-H	Envelope-HERS	Quality Insulation Installation (QII) - Air Infiltration Sealing - Framing Stage - Batt, Loose Fill, and SPF
48	CF3R-	ENV-22-H	Envelope-HERS	Quality Insulation Installation (QII) - Air Infiltration Sealing - Ceiling/Roof Deck
49	CF3R-	ENV-23-H	Envelope-HERS	Quality Insulation Installation (QII) - Insulation Stage

2016 Residential Compliance Documents

January 2017

Appendix A Compliance Documents Page 3

#	Doc Type	Doc Category	Category Description	Document Description
50	CF3R-	ENV-24-H	Envelope-HERS	Quality Insulation Installation (QII) - Air Infiltration Sealing - Framing Stage - SIP and ICF
51	CF3R-	EXC-20-H	Existing Conditions	HERS Verification of Existing Conditions for Residential Alterations
52	CF3R-	MCH-20-H	Mechanical-HERS	Duct Leakage Diagnostic Test
53	CF3R-	MCH-21-H	Mechanical-HERS	Duct Location Verification
54	CF3R-	MCH-22-H	Mechanical-HERS	Fan Efficacy
55	CF3R-	MCH-23-H	Mechanical-HERS	Airflow Rate
56	CF3R-	MCH-24-H	Envelope-HERS	Building Envelope Air Leakage Worksheet
57	CF3R-	MCH-25-H	Mechanical-HERS	Refrigerant Charge Verification
58	CF3R-	MCH-26-H	Mechanical-HERS	Rated Space Conditioning System Equipment Verification
59	CF3R-	MCH-27-H	Mechanical-HERS	Mechanical Ventilation
60	CF3R-	MCH-28-H	Mechanical-HERS	Return Duct Design and Air Filter Device Sizing According to Tables 150.0-B or C
61	CF3R-	MCH-29-H	Mechanical-HERS	Duct Surface Area Reduction; R-value; Buried Ducts Compliance Credit
62	CF3R-	PLB-21-H	Plumbing (DHW)-HERS	HERS Verified Multifamily Central Hot Water System Distribution
63	CF3R-	PLB-22-H	Plumbing (DHW)-HERS	HERS Verified High Rise Residential/Hotel/Motel Single Dwelling Unit Hot Water System Distribution
64	NRCV-	MCH-04-H	Mechanical-HERS	Duct Leakage Diagnostic Test
65	NRCV-	PLB-21-H	Plumbing (DHW)-HERS	HERS Verified Multifamily Central Hot Water System Distribution
66	NRCV-	PLB-22-H	Plumbing (DHW)-HERS	HERS Verified High Rise Residential/Hotel/Motel Single Dwelling Unit Hot Water System Distribution



How many touches for each project?

Each touch of a document:

- Takes valuable time
- Studying the documents takes even more time
- Filing and managing takes time and floor space
- The quality of compliance enforcement actually decreases, and overall compliance suffers

How can you leverage the **HERS Registry** to minimize the compliance process?

- The **HERS Registry** will trigger the needed forms to avoid the guesswork.
- Electronic tracking provides an instant report of what is complete, or not.
- Building departments no longer need to think of the compliance documents as “forms”.

Think of it as steps in a compliance process.

Generate Forms Automatically



Compliance can be as simple as 1-2-3

Just three basic steps:



CF1R – Certificate of Compliance
What is required?

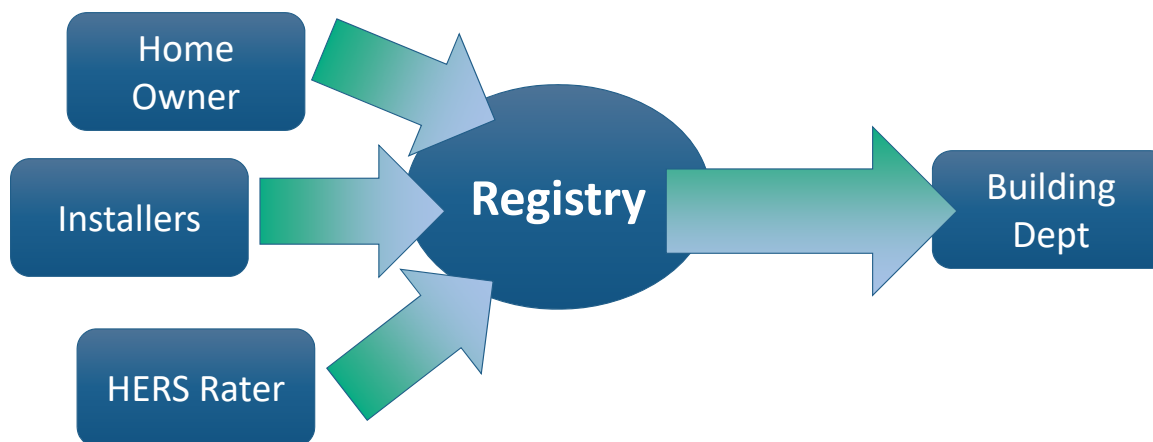
CF2R – Certificate of Installation
What was installed?

CF3R - Certificate of HERS Verification
What was HERS verified?


Track the Status of Projects

Once a project is in the HERS Registry, it can be tracked from start to finish by anyone involved with the project, including the building department.

- ✓ If changes occur along the way, the registry tracks these changes.



Are All Forms Complete?

Project Status Report		CalCERTS, Inc	
Effective: 06/26/2018 15:16		1 of 2	
GENERAL INFORMATION			
Energy Standards Code Year:	2013	 <p>Easy to Verify @ calcerts.com</p>	
Project Name:	██████████		
Project Type:	New Construction SFR		
Address:	██████████ Camino Parocela		
City / State / Zip:	Palm Springs / CA / 92264		
Enforcement Agency:	City of Palm Springs		
Permit Number:	2016-1108		
HERS VERIFIABLE MEASURES:	COMPLETE		
OVERALL STATUS:	NOT COMPLETE		
CF1R INFORMATION - Certificate of Compliance (Lists Required Energy Features)			
Certificate Type:	Compliance		
Registered Form:	CF1R-PRF-01		
Registered Date:	11/23/2015 00:14		
Registration Number:	215-N6383619A-000000000-0000		
CF2R INFORMATION - Certificates of Installation (Documents the proper installation of required energy features)			
System	Form	Registered Date	Registration Number
	CF2R-ENV-01-E (Fenestration Installation)		215-N6383619A-E0100001A-0000
	CF2R-ENV-02-E (Envelope Air Sealing)		215-N6383619A-E0200001A-0000
	CF2R-ENV-03-E (Insulation Installation)		215-N6383619A-E0300001A-0000
	CF2R-ENV-04-E (Roofing-Radiant Barrier)		215-N6383619A-E0400001A-0000
	CF2R-MCH-01-E (Space Conditioning Systems, Ducts and Fans)	05/01/2018 13:05	215-N6383619A-M0100001B-0000 MIGUEL MUNOZ (PRIMAVERA HEATING & AIR CONDITIONING)
System 1	CF2R-MCH-20-H (Duct Leakage)	05/01/2018 13:24	215-N6383619A-M2000002A-0000 MIGUEL MUNOZ (PRIMAVERA HEATING & AIR CONDITIONING)
			215-N6383619A-M2300002A-0000

- The HERS Registry will tell you at one quick glance whether or not the project is complete.
- The Project Status Report (PSR) provides this.




Go Paperless


- A project can be viewed in the office or **in the field** using a smart phone or tablet with internet access.
- No more paper (unless you prefer hard copies).
- Anyone can be given access to view the status of the project electronically.
- No filing

MATCH FOUND

BACK New Search MODIFY SEARCH

 PROJECT STATUS REPORT [Send Message to Responsible Company](#)

GENERAL INFORMATION	
Energy Standards Code Year:	2016
Project Name:	_SFR Acres - 2016
Project Type:	New Construction SFR
Address:	3 Main St
City / State / Zip:	Folsom / CA / 95630
Enforcement Agency:	City of Folsom
Permit Number:	3



Easy to Verify @ calcerts.com

HERS VERIFIABLE MEASURES:	NOT COMPLETE
OVERALL STATUS:	NOT COMPLETE

CF1R INFORMATION - Certificate of Compliance (Lists Required Energy Features)		✓
Certificate Type:	Compliance	
Registered Form:	CF1R-PRF-01	
Registered Date:	01/19/2017 14:19	

You can send an email to responsible person.

You can scan this QR code with your phone/tablet to access the files.

Summary of Benefits

HERS Registry

- Fully Automated
- Saves time
- Triggers which forms are needed
- Tracks the forms as complete or not complete
- Communicate with the contractor via email message
- Paperless
- Access from the field or in the office
- 1-page quick summary shows project document status– the PSR report





Login Register I Forgot

Welcome to CalCERTS

HOME SECURE HOME ABOUT TRAINING MEMBERSHIP BENEFITS EVENTS FIND A RATER RESOURCES FORMS CONTACT US



California's Premier HOME ENERGY RATING Provider
to fill the growing need in the Energy Efficiency industry for a technically superior, yet customer-oriented HERS Provider

HERS Rater Information

Training with CalCERTS, inc.

Homeowner Information

RECENT NEWS

Building Department Information

Contractor

T-24 Consultants

Get Certified as a HERS Rater
We have on-going training for HERS Raters for all levels of certification.



Instructional Videos
Check out our instructional videos to help answer your day-to-day questions.



Tips for Energy Savings
As a Homeowner, there is always something to change in your home for energy savings.

CalCERTS, Inc continues to enhance the Registry!
This week we have another new feature to introduce in the Registry to improve the user experience and increase efficiency. The new feature is Mass Printing. With this feature you will be able to merge

HERS Registry

Home Page
www.calcerts.com
Log In here...





HOME ABOUT TRAINING MEMBERSHIP BENEFITS EVENTS FIND A RATER RESOURCES FORMS CONTACT US



Russell King, P.E. logged in [\[Logout\]](#)
[\[My Info\]](#)

Welcome to the CalCERTS Compliance Lookup Registry.

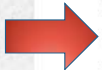
You can use this tool to search our registry for CEC Registered Compliance Status.

Please select a Building Department from the list below and a Search Type.

Building Department: Redwood City (City) ▾

Search Type:

- CEC Registration Number
- CalCERTS Certificate #
- Street Address
- HERS Rater (Name)
- HERS Rater (CalCERTS, ID #)
- Building Department Permit #




Building Dept. Access

Building Department
Landing Page

Select a “Search”
criteria...

BAYREN

Search

 CalCERTS, Inc.
HERS PROVIDER

HOME SECURE HOME ABOUT TRAINING TRAINING CENTER FIND A RATER RESOURCES CONTACT US

Roy Eads logged in [[Logout](#)]
[\[My User Profile\]](#)

Building Department: County of Marin
Search by: Street Address

Enter all or part of any of these fields:

Street NUMBER: Street NAME: ZIP CODE:

(Do not include Way, Street, Pl, etc)

Input a few details...

BAYREN



- HOME
- SECURE HOME
- ABOUT
- TRAINING
- TRAINING CENTER
- FIND A RATER
- RESOURCES
- CONTACT US

Roy Eads logged in [[Logout](#)]
[\[My User Profile\]](#)

Building Department: County of Marin
Search by: Street Address: **(60 94920)**

[NEW SEARCH](#) [MODIFY SEARCH](#)

***** ALERT *****
2 records match your search criteria in your jurisdiction. Please select the address you are interested in from the list below.

Address	City / Zip	Project Type	Permit Number	Energy Standards Code Year	HERS Rater
60 Eden Lane	Belvedere / 94920	Alterations SFR	149109	2013	Bagnasco, Stacie (CC2006315)
60 Eden Lane	Belvedere / 94920	Alterations SFR	149109	2013	Bagnasco, Stacie (CC2006315)


***** ALERT *****
7 records match your search criteria OUTSIDE your jurisdiction.

[Click HERE To View Matching Records OUTSIDE your jurisdiction](#) 

Locate Your Project

Click on the Address Link...



GENERAL INFORMATION				
Energy Standards Code Year:	2013			
Project Name:	[REDACTED]			
Project Type:	New Construction SFR			
Address:	[REDACTED] Camino Parcela			
City / State / Zip:	Palm Springs / CA / 92264			
Enforcement Agency:	City of Palm Springs			
Permit Number:	2016-1108			
				
<i>Easy to Verify @ calcerts.com</i>				
HERS VERIFIABLE MEASURES:	COMPLETE			
OVERALL STATUS:	NOT COMPLETE			
CF1R INFORMATION - Certificate of Compliance (Lists Required Energy Features)				
Certificate Type:	Compliance			
Registered Form:	CF1R-PRF-01			
Registered Date:	11/23/2015 00:14			
Registration Number:	215-N6383619A-000000000-0000			
CF2R INFORMATION - Certificates of Installation (Documents the proper installation of required energy features)				
System	Form	Registered Date	Registration Number	
	CF2R-ENV-01-E (Fenestration Installation)		215-N6383619A-E0100001A-0000	✘
	CF2R-ENV-02-E (Envelope Air Sealing)		215-N6383619A-E0200001A-0000	✘
	CF2R-ENV-03-E (Insulation Installation)		215-N6383619A-E0300001A-0000	✘
	CF2R-ENV-04-E (Roofing-Radiant Barrier)		215-N6383619A-E0400001A-0000	✘
	CF2R-MCH-01-E (Space Conditioning Systems, Ducts and Fans)	05/01/2018 13:05	215-N6383619A-M0100001B-0000 MIGUEL MUNOZ (PRIMAVERA HEATING & AIR CONDITIONING)	✔
System 1	CF2R-MCH-20-H (Duct Leakage)	05/01/2018 13:24	215-N6383619A-M2000002A-0000 MIGUEL MUNOZ (PRIMAVERA HEATING & AIR CONDITIONING)	✔
			215-N6383619A-M2300002A-0000	

Project Status Report (PSR)

If any dots are red, then the required documents are not complete.

Project is Complete When All Dots are Green!



Today's speaker...

Roy Eads

Senior Technical Manager

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916.985.3400 Ext 2008



Roy Eads is currently serving as Senior Technical Manager at CalCERTS, Inc. in Folsom, CA. He assists HERS Raters, homeowners, contractors, installers, designers, and Building Department staff with energy code compliance documentation.

Serving as an independent Certified Energy Analyst, HERS Rater, and Residential HVAC System Designer since 2006, he has developed a passion for energy efficiency and the move toward Zero Net Energy building. He has a foundation of knowledge through more than 30 years of general construction and restoration contracting, possesses A.S. Degrees in HVAC and Project Management, holds a Certificate of Building Inspection Technology, and maintains a constant and extensive regimen of energy-related training and architectural technology.

Mr. Eads assisted with the development of the Building Energy Systems Professional (BESP) A.S. degree program at the community college level and is currently teaching an online California Energy Code course as an adjunct professor at College of the Desert in Palm Desert, CA.

Roy works with BayREN to deliver energy code compliance training to building department staff and remains fully involved in the process of energy code development.

BayREN Codes & Standards Trainings

- BayREN Codes & Standards is a joint effort of Bay Area cities and counties to achieve full compliance with provisions of the California Energy Code.
- BayREN trainings seek to provide building department staff and private sector building professionals with tools and strategies for improving energy code compliance.



Contact BayREN for Training

BayREN Codes & Standards Program

- Website: www.bayrencodes.org
- Email: codes@bayren.org

