Residential Performance Flowchart

DESIGN TEAM

Use certified compliance software to generate the CF1R-PRF-01-E form.

DESIGN TEAM

Upload the CF1R-PRF-01-E form to the HERS Registry *Exceptions may apply.

DESIGN TEAM

Incorporate registered CF1R forms in construction documents for compliance verification.

DESIGN TEAM

Submit construction documents, including CF1R forms, to the building department for plan check.

PLANS EXAMINER

Issue approval to commence construction after compliance is verified.

DESIGN TEAM

Pick up plan check comments, make revisions if necessary and resubmit to the building department.

PLANS EXAMINER

Review the the CF1R-PRF-01-E form and construction documents for compliance during the plan check.



CONTRACTOR

Obtain a copy of the CF1R-PRF-01-E form with the construction documents.

CONTRACTOR

Determine if HERS verification is needed and include its costs in the bid and related time in the schedule.

CONTRACTOR

Determine which CF2R and CF3R forms will be needed when the inspector arrives.

INSTALLER/ATT/ RATER

Complete and register the CF2R and CF3R forms, as applicable.



Give the document package to the building owner.

INSPECTOR

In the field, verify that the CF1R, CF2R and CF3R forms comply and issue a certificate of occupancy.

CONTRACTOR

As applicable, have the registered CF2R and CF3R forms complete and ready for the building inspector.









This program is funded by California utility customers and administered by Pacific Gas and Electric Company (PG&E), San Diego Gas & Electric Company (SDG&E®), Southern California Edison Company (SCE), and Southern California Gas Company (SoCalGas®) under the auspices of the California Public Utilities Commission.





Step 1 of 14



DESIGN TEAM:

Use compliance software to generate the CF1R-PRF-01E form.

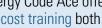
Obtain compliance software approved by the California Energy Commission (Energy Commission). Options include CBECC-Res (which was developed by the Energy Commission and is available free of charge), and other software developed by third-party vendors and available for purchase.

A list of approved compliance software is found on the Energy Commission's website.

Check the column labeled "Approved versions usable for permit" in the table at the link above to confirm that you are using approved software.

- 2. Verify compliance using the software to coordinate closely with project team members including the:
 - Architect
 - **Energy consultant**

 - Mechanical, electrical and plumbing engineers (MEP)
 - Lighting designer



Tips & Tricks

Energy Code Ace offers no-cost training both tailored to industry professionals involved in the compliance process. Courses for plans examiners, building inspectors, energy consultants, architects, contractors and others are provided in a variety of in-person and online formats to match your learning needs and schedule. Create an account on the site to receive email notifications about classes.

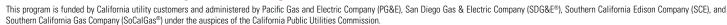
You can find modeling assumptions and protocols in the 2019 Energy Code Residential Alternative Calculation Manual (ACM), which is available via the Reference AceTM.















Step 2 of 14



DESIGN TEAM:

Upload the CF1R-PRF-01-E form to the HERS Registry.

 Before applying for a building permit, the CF1R-PRF-01-E form must be registered with a HERS Rater if the project requires HERS verification per the Energy Code (Mandatory for all newly constructed buildings and some Alterations).

Once you register your CF1R, the watermark will disappear and a registration number appears in the footer of the document that you download to include on the plan set.

Your project may require a HERS Rater. New Construction projects using the Performance Approach definitely will. Find out if it other types will by using the Energy Code Ace fact sheet, *Just the Basics: Nonresidential and Residential HERS Measures*, or the Forms AceTM.

If your project is an Addition or Alteration that does not require a HERS verification, include a CF1R form without a watermark in the construction documents. You will find more detail on this in the next step of this process.

- 2. If your project is required to be registered, you can find a HERS Rater on the Energy Commission's HERS Provider web page. A fee may apply when registering the CF1R form.
- 3. If your project is a minor Alteration that does not require building plans to be submitted, you may consider pursuing the Prescriptive Approach instead of the Performance Approach.
- 4. Early collaboration with the owner, HERS Rater and contractor is necessary to ensure that schedule and budget impacts are considered in the project bid.

Energy Code Ace Note Blocks address HERS requirements in the construction documents to help subcontractors include time for HERS verifications in their bids.

Tips & Tricks

Confused by form names? The Finding Compliance Forms fact sheet includes a key to them as well as information on how to locate the forms you need.









This program is funded by California utility customers and administered by Pacific Gas and Electric Company (PG&E), San Diego Gas & Electric Company (SDG&E®), Southern California Edison Company (SCE), and Southern California Gas Company (SoCalGas®) under the auspices of the California Public Utilities Commission.





Step 3 of 14



DESIGN TEAM:

Incorporate registered CF1R forms in the construction documents for compliance verification.

- Make sure that all relevant documents are included in the permit application package. Each building department has different requirements for application; to apply. If you are unsure of these requirements, contact the building department before submitting your permit application.
 - Building department permit fees vary, and many departments publish a fee schedule on their websites. Some jurisdictions may offer online permit options, which can reduce permit fees.
- 2. You can incorporate the CF1R forms in the documents in a variety of ways. You can insert a PDF or JPEG file into the drawing set, but make sure it is readable and that you follow all related building department rules. Many building departments state that 12 point is the smallest font size allowed.
- 3. Registered Home Energy Rating System (HERS) documents should be "unlocked" for easier incorporation into CAD programs. Many free software services are available to convert a locked PDF to a JPEG.
- 4. Building departments have access to all forms that have been uploaded to the HERS Registry. To find project information, look on the footer of the forms.

Tips & Tricks

Maintain a good relationship with your plans examiners!
Let them know that you are willing to answer any questions or concerns to help the process go smoothly. It is helpful to include a cover letter with Title 24, Part 6 documents about modeling issues, work-arounds, notes of concern or other important details and your contact information. The plans examiner may be able resolve questions in a phone call rather than requiring a resubmittal, saving everyone time and money.









This program is funded by California utility customers and administered by Pacific Gas and Electric Company (PG&E), San Diego Gas & Electric Company (SDG&E®), Southern California Edison Company (SCE), and Southern California Gas Company (SoCalGas®) under the auspices of the California Public Utilities Commission.





Step 4 of 14



DESIGN TEAM:

Submit the construction documents, including CF1R forms, to the building department for plan check.

1. To ensure your permit application is complete before submitting it to the building department, review the Energy Code Ace checklist for plans examiners.

Energy Code Ace offers a number of other resources to assist the design team in proper preparation of documents.

- Quick access to the Energy Code is available through the Reference Ace™
- Energy Code Ace trigger sheets, fact sheets and application guides help "decode" Title 24, Part 6 requirements for a wide array of measures

Tips & Tricks

Turnaround times for plan checks vary widely among jurisdictions, anywhere from weeks to months. Inquire ahead of time in order to include sufficient time in the project schedule.









This program is funded by California utility customers and administered by Pacific Gas and Electric Company (PG&E), San Diego Gas & Electric Company (SDG&E®), Southern California Edison Company (SCE), and Southern California Gas Company (SoCalGas®) under the auspices of the California Public Utilities Commission.





Step 5 of 14



PLANS EXAMINER:

Review the CF1R-PRF-01-E form and construction documents for compliance during plan check.

1. The plans examiner reviews the construction documents and the CF1R forms for Energy Code compliance.

Many resources are available to guide the design team in proper preparation of documents and assist plans examiners as they review them.

- Checklists for plans examiners help ensure Energy Code requirements are met
- Quick access to the Energy Code is available through the Reference Ace™
- Energy Code Ace fact sheets, trigger sheets and application guides help "decode" Title 24, Part 6 requirements for a wide array of measures

Tips & Tricks

Energy Code Ace provides no-cost training tailored to industry professionals involved in the compliance process. Courses for plans examiners, building inspectors, energy consultants, architects, contractors and others are provided in a variety of in-person and online formats to match your learning needs and schedule.









This program is funded by California utility customers and administered by Pacific Gas and Electric Company (PG&E), San Diego Gas & Electric Company (SDG&E®), Southern California Edison Company (SCE), and Southern California Gas Company (SoCalGas®) under the auspices of the California Public Utilities Commission.





Step 6 of 14



DESIGN TEAM:

Pick up plan check comments, make revisions if necessary and resubmit to the building department.

- Plans examiners often have questions or comments about verification which require a response and/or resubmittal of documents. Ask your local building department if fees apply.
 - If you need help finding Energy Code requirements or understanding common applications to respond to the plans examiner's comments, the Energy Code Ace Reference AceTM and application guides may be helpful.
- If revisions to the energy model are required based on plan check comments, documents may need to be resubmitted to the HERS Registry as well.

Tips & Tricks

Experience matters! The first few times going through this process may be a learning experience, but establishing a positive relationship with your local building department and taking note of lessons learned eases the process over time.









This program is funded by California utility customers and administered by Pacific Gas and Electric Company (PG&E), San Diego Gas & Electric Company (SDG&E®), Southern California Edison Company (SCE), and Southern California Gas Company (SoCalGas®) under the auspices of the California Public Utilities Commission.



2019 ENERGY CODE



Residential **Performance Compliance Path**

Step 7 of 14



PLANS EXAMINER:

Issue approval to commence construction after compliance is verified.

1. After compliance is verified, the building department issues a stamped set of approved plans to the design team that documents jurisdictional consent to begin construction.

Tips & TricksThe Energy Code Ace

Residential Plans Examiner checklist can help to confirm compliance. It is a dynamic form including specific questions that a plans examiner typically asks when determining if a project complies with the Energy Code, a summary of the relevant forms and references to the relevant code sections.









This program is funded by California utility customers and administered by Pacific Gas and Electric Company (PG&E), San Diego Gas & Electric Company (SDG&E®), Southern California Edison Company (SCE), and Southern California Gas Company (SoCalGas®) under the auspices of the California Public Utilities Commission.





Step 8 of 14



CONTRACTOR:

Obtain a copy of the CF1R-PRF-01-E form along with construction documents.

1. The general contractor should confirm that all information on the compliance forms is incorporated into the schedule and cost estimates.

Tips & Tricks

The CF2R forms are considered "Installation" forms and document what was installed. The installer of a feature completes the applicable form. For instance, an insulation installer would complete the CF-2R-ENV-03-E, Insulation Certificate of Installation.

The CF3R forms are considered "Verification" forms and document what was verified in the field.
A HERS Rater completes these forms through the HERS Registry.

Z. Team Coordination:

- Contact the documentation author (found on the last page of the CF1R form) if there are questions about how the design complies
- The documentation author is noted on the last page of the CF1R form
- The Forms Ace™ can help you determine which Title 24, Part 6 forms are applicable to your specific project
- 3. The building permit and other relevant documents should remain posted onsite for the duration of the project. Posting requirements can vary among departments, so check with your jurisdiction to confirm its posting requirements.









This program is funded by California utility customers and administered by Pacific Gas and Electric Company (PG&E), San Diego Gas & Electric Company (SDG&E®), Southern California Edison Company (SCE), and Southern California Gas Company (SoCalGas®) under the auspices of the California Public Utilities Commission.





Step 9 of 14



CONTRACTOR:

Determine if HERS verification is needed and include its costs in the bid and related time in the schedule.

- Identify whether Home Energy Rating System (HERS) verification is needed by checking the CF1R-PRF-01-E form to see if any include a HERS registration number. The registration number can be found in the footer of the completed form, which is included in the construction document package from the designer.
- 2. If HERS verification is required, coordinate with a HERS Rater as early as possible to understand fees and schedule impacts, and build these into the project bid. Ask the designer if a HERS Rater was engaged during the design process. If not, contact one of the California Energy Commission-approved HERS Providers to find a HERS Rater.
- Carefully review HERS verification requirements with the HERS Rater to ensure that all impacts to the project schedule and costs are considered, including:
 - Sequencing installation to coincide with access required for testing
 - Scheduling site visits well in advance
 - Understanding general contractor, installer and HERS Rater roles and responsibilities
 - For more information about HERS, see the Energy Code Ace fact sheet HERS: Just the Basics 2019

Tips & Tricks

It is important to note that when any subcontractor or installer changes during the project, forms must be registered to the HERS Registry. This includes members of the design team and even installers or contractors who have finished their scope of work. Anticipate continued participation in the Registry for the duration of the project and incorporate it in the budget and schedule.









This program is funded by California utility customers and administered by Pacific Gas and Electric Company (PG&E), San Diego Gas & Electric Company (SDG&E®), Southern California Edison Company (SCE), and Southern California Gas Company (SoCalGas®) under the auspices of the California Public Utilities Commission.





Step 10 of 14



CONTRACTOR:

Determine which CF2R/ CF3R forms will be needed when the building inspector arrives.

The general contractor and all subcontractors on the construction team must join the project on the Home Energy Rating System (HERS) Registry if HERS verification is required.

Changes to the project can trigger resubmittal of the CF2R and CF3R forms on the HERS Registry, and may require signatures from various members of the team. It is the general contractor's responsibility to ensure that forms are accurate and signatures are current for form resubmittal.

Triggers may include:.

- Installed equipment changes from specification
- Installer or subcontractor changes from the original signatory
- Applicable CF2R and CF3R forms may be required to be posted onsite during construction and inspections. The HERS Registry can provide a list of necessary HERS-related forms, and the Forms Ace™ can provide a complete list of all applicable Energy Code forms.
- Inspection requirements vary by jurisdiction. Check with your local building department to find out what needs to be inspected and when, as well as whether additional forms are required to be posted onsite.

Tips & Tricks

Maintaining a good relationship with local building inspectors eases the inspection process. Becoming familiar with a jurisdiction's scheduling availability, access requirements for specific building details and which documents to have available will help inspections to go smoothly the first time.









This program is funded by California utility customers and administered by Pacific Gas and Electric Company (PG&E), San Diego Gas & Electric Company (SDG&E®), Southern California Edison Company (SCE), and Southern California Gas Company (SoCalGas®) under the auspices of the California Public Utilities Commission.





Step 11 of 14



INSTALLER AND/OR HERS RATER:

Complete and register the CF2R and CF3R forms, as applicable.

- Coordination with the general contractor is necessary to access the project in the Home Energy Rating System (HERS) Registry if HERS verification is required. The installer completes the applicable CF2R forms in the Registry and keeps hard copies onsite. If HERS verification is not required, CF2R forms may be filled out by hand and kept onsite. You can access the non-HERS CF2R forms on EnergyCodeAce.com.
- The HERS Rater completes the applicable CF3R forms in the HERS Registry. Check with your local jurisdiction to find out if hard copies are required onsite for the inspector.
- Building inspectors have access to all projects on the HERS Registry and can locate a project by finding the registration number in the footer of the completed forms.
- The Image Ace™ includes pictures of Energy Code-compliant (and sometimes non-compliant) installations.









This program is funded by California utility customers and administered by Pacific Gas and Electric Company (PG&E), San Diego Gas & Electric Company (SDG&E®), Southern California Edison Company (SCE), and Southern California Gas Company (SoCalGas®) under the auspices of the California Public Utilities Commission.





Step 12 of 14



CONTRACTOR:

As applicable, have the registered CF2R and CF3R forms complete and ready for the building inspector.

- 1. Keep a hard copy of the completed CF2R and CF3R forms posted onsite for the duration of the project.
- The inspector should verify the compliance forms onsite. Not having these forms available may require rescheduling the inspection. Often the inspector will visit the site multiple times per project.

Coordinate with the local building department to confirm when specific forms should be posted.

3 Although jurisdictions are not required to collect forms, some may take them.









This program is funded by California utility customers and administered by Pacific Gas and Electric Company (PG&E), San Diego Gas & Electric Company (SDG&E®), Southern California Edison Company (SCE), and Southern California Gas Company (SoCalGas®) under the auspices of the California Public Utilities Commission.





Step 13 of 14



INSPECTOR:

In the field, verify that the CF1R, CF2R and CF3R forms comply and issue a certificate of occupancy.

- The building inspector verifies that registered CF1R, CF2R and CF3R forms are current with what is installed.
- Although jurisdictions are not required to collect forms, some may take them.
- Building inspectors have access to all projects on the Home Energy Rating System (HERS) Registry, and can locate a project by finding the registration number in the footer of the completed forms.
- 4. The Image Ace™ includes pictures of Energy Code-compliant (and sometimes non-compliant) installations.
- Inspectors can use the Energy Code Ace Residential Building Inspector Checklist to focus on high priority inspection items. Notes from the plans examiner can also be used to prioritize field verification.









This program is funded by California utility customers and administered by Pacific Gas and Electric Company (PG&E), San Diego Gas & Electric Company (SDG&E®), Southern California Edison Company (SCE), and Southern California Gas Company (SoCalGas®) under the auspices of the California Public Utilities Commission.



2019 ENERGY CODE



Residential Performance Compliance Path

Step 14 of 14



CONTRACTOR:

Give the document package to the building owner.

1. Upon project completion, the general contractor or design team is required to leave Certificates of Compliance, Installation and Verification with the building owner. For more information on documentation required to demonstrate compliance, review the Title 24, Part 1 (Section 10-103(a)) administrative regulation requirements in the Reference AceTM.









This program is funded by California utility customers and administered by Pacific Gas and Electric Company (PG&E), San Diego Gas & Electric Company (SDG&E®), Southern California Edison Company (SCE), and Southern California Gas Company (SoCalGas®) under the auspices of the California Public Utilities Commission.

