

## DOCKETED

<b>Docket Number:</b>	16-HERS-01
<b>Project Title:</b>	HERS Providers' Application for the 2016 Standards
<b>TN #:</b>	212306
<b>Document Title:</b>	Exhibit G - Quality Assurance
<b>Description:</b>	Updated Quality Assurance Program and Procedures
<b>Filer:</b>	Shelby Gatlin
<b>Organization:</b>	CalCERTS, Inc.
<b>Submitter Role:</b>	Applicant
<b>Submission Date:</b>	7/14/2016 6:07:41 PM
<b>Docketed Date:</b>	7/15/2016

# CalCERTS' Quality Assurance Policy

California's Home Energy Rating System ("HERS") regulations require CalCERTS to have a Quality Assurance Program. (Title 20, California Code of Regulations §1670 *et seq* ("HERS Regulations").) CalCERTS' Quality Assurance Policy ("QA Policy") provides information about CalCERTS' Quality Assurance Program and identifies the rights and obligations of CalCERTS and CalCERTS certified Raters. The QA Policy is designed to promote the HERS Industry and consumer protection by ensuring that all CalCERTS certified Raters are complying with the HERS Regulations.

## Quality Assurance Data & Field Reviews

- CalCERTS will conduct quality assurance data and field reviews on CalCERTS certified Raters.
- Quality Assurance reviews will be conducted by CalCERTS' Quality Assurance Reviewers who are approved by the State of California Energy Resources Conservation and Development Commission ("Energy Commission"). Data and field reviews are designed to verify the completeness and accuracy of a Rater's work.
- Raters must provide a standardized written notice, provided by CalCERTS, regarding the possibility and purpose of a CalCERTS quality assurance review, to the **Homeowner** on Alterations, and the **Superintendent**, Builder (or builder's representative) or Homeowner on New Construction.
- Raters **must** provide CalCERTS with contact information that includes the name and valid phone number of the person authorized to facilitate scheduling and provide access for a Quality Assurance Reviews. This contact is usually the **Homeowner** on Alterations, and the **Superintendent**, Builder (or builder's representative) or Homeowner on New Construction. The Rater and Installer are not considered valid contacts.
- Raters will be notified of the quality assurance review results, including measures with significant discrepancies, and those with no significant discrepancies. If CalCERTS Quality Assurance personnel determine that a Rater fails a quality assurance review, the Rater will be given a written notice containing the review results and determination. The Rater will be subject to additional quality assurance reviews pursuant to section 1673(i) of the HERS Regulations and their failure will be noted on the registry.
- If a Rater encounters a problem or unusual circumstances while performing field verification and diagnostic testing, or a home energy rating, the Raters shall contact CalCERTS at [field@calcerts.com](mailto:field@calcerts.com) as soon as possible, and prior to certifying the project so that the problem can be addressed and documented and taken into account during QA review.

- Raters will be responsible for the costs of additional quality assurance reviews conducted pursuant to section 1673(i) of the HERS Regulations.
- Raters may, at any time, contact CalCERTS to ask questions about the quality assurance review process or to ask for technical support to ensure that the Rater is meeting the criteria for truth, accuracy and completeness, set forth in the HERS Regulations.

CalCERTS Quality Assurance Manager

Email: [QA@calcerts.com](mailto:QA@calcerts.com)

Office: 916-985-3400 ext. 2009

Field Support

Email: [field@calcerts.com](mailto:field@calcerts.com)

Office: 916-985-3400 ext. #

Technical Support

Email: [tech@calcerts.com](mailto:tech@calcerts.com)

Office: 916-985-3400 ext. \*

## **Complaint Response**

- Raters must provide the Homeowner on Alterations, and the Builder (or builder's representative) or Homeowner on New Construction, with a standardized written notice, provided by CalCERTS, notifying them they can file a complaint with CalCERTS related to the Rater's ratings and/or field verification and diagnostic testing services.
- CalCERTS will respond to and resolve all legitimate and/or verifiable complaints related to ratings and/or field verification and diagnostic testing services performed by a CalCERTS certified Rater.
- CalCERTS will document and retain records of all complaints received, and its response to complaints, for a minimum of five years. This information will be shared with the Energy Commission and may be used in any investigation of Rater misconduct.
- Raters will be notified of complaints issued against them only if CalCERTS determines that there is sufficient evidence to warrant an investigation into the Rater's conduct and/or performance.
- CalCERTS may protect the privacy of persons who file a complaint against a Rater by withholding the name of the complainants if CalCERTS has independently verified the information provided by the complainants.

## **Investigations**

- CalCERTS may, at its sole discretion, conduct an investigation of a Rater's conduct and/or performance whether due to complaints received from third parties, quality assurance reviews, or otherwise.
- Rater shall be given a written Notice of Investigation, within a reasonable period of its commencement, stating the basis of the investigation.
- CalCERTS may temporarily suspend a Rater's Certification during an investigation when further activity by the Rater could interfere with CalCERTS' investigation or continued ratings might jeopardize a consumer's rights to true, accurate and complete Ratings. Raters will be given a written Notice of Suspension. CalCERTS will work diligently to minimize the duration of any suspension.
- As part of its investigation, CalCERTS may conduct additional quality assurance field reviews of the Rater in addition to the minimum number otherwise required under the HERS Regulations. Investigations may also include data audits, interviews, and/or any other review of the Rater's conduct and performance that is necessary to resolve the issue being investigated.
- Rater shall be given an opportunity to ask questions about the investigation, and shall have an opportunity to submit information and documents related to the substance of the investigation before CalCERTS concludes the investigation. Rater will be encouraged to submit all questions in writing to avoid confusion and ensure accuracy.
- Raters are required to cooperate with the investigation to help ascertain facts and to gain access to important parties. If a Rater fails to cooperate with an investigation, CalCERTS may terminate the investigation and suspend or decertify the Rater.
- CalCERTS will review all information gathered in an investigation including information submitted by the Rater to determine if disciplinary action is warranted. If CalCERTS determines that disciplinary action is warranted the Rater shall receive a written notice of CalCERTS' findings and recommended disciplinary actions.
- Rater shall have 30 days to appeal the recommendation prior to final disposition. Appeals must be submitted in writing.
- All investigations are considered confidential to protect all parties involved. Release of any details is at the sole discretion of CalCERTS

## **Disciplinary Action & Decertification**

- CalCERTS may at its sole discretion impose one or more of the following types of Rater discipline:
  - A formal written warning to the Rater detailing area(s) of concern and suggesting self-directed corrective actions. For example, CalCERTS may recommend that the Rater attend additional training or receive mentoring.
  - Imposition of additional field reviews at the Rater's expense.
  - Imposition of additional education, mentoring or training at the Raters expense.
  - Suspension of the Rater's Certification for a period not to exceed two years.
  - Decertification.
- CalCERTS will document and retain records of all disciplinary action, and will provide this information to the Energy Commission as required by Title 20.
- CalCERTS may publish notifications of Rater discipline on the CalCERTS website.

### **RATER:**

By: \_\_\_\_\_

Print Name: \_\_\_\_\_

Dated: \_\_\_\_\_

### **PRE SITE VISIT** – Review project in the Registry.

1. **Review notes** from the Scheduler
  - a. Be aware of homeowner / superintendents requests such as not taping to paint for duct testing, attic/crawl accessibility, or time constraints
  - b. Location – some New Construction addresses cannot be located with GPS and require cross street on sales office information to locate.
2. **Review Rater's results** from CF3Rs for all required measures
3. **Review Rater's testing methods**
  - a. **Overview**
    - i. Is the project a New or Replacement Duct System, or New or Replacement Space Conditioning System
    - ii. Is asbestos present
  - b. **Duct Leakage** - methods and targets
    - i. Heating Method, Cooling Method, or Measured Airflow to determine target
    - ii. 5%, 10%, and 15%
    - iii. Passed with smoke and visual verification of all accessible leaks sealed.
  - c. **Fan Efficacy**
    - i. Plug-in, clamp-on, or utility revenue meter
  - d. **Airflow**
    - i. 300 cfm/ton, 350 cfm/ton
    - ii. Flow Hood (powered or traditional), Flow Grid, or Fan Flowmeter
  - e. **Refrigerant Charge**
    - i. Standard charge, weigh-in, or factory charge
    - ii. Refrigerant type
    - iii. Subcooling target
  - f. **IAQ/MV**
    - i. Exhaust, balanced, or CFI
4. **Review CF1R and CF2R-MCH-01** when necessary:
  - a. **Building Envelope**
    - i. Leakage Target
  - b. **QII**
    - i. Insulation types
    - ii. Insulation R-values
  - c. **Rated Equipment**
    - i. Required SEER and EER

**ON SITE VISIT** – Relevant interviews, visual verification, testing and photos.**1. Site Assessment**

- a. Is the project a New or Replacement Duct System, or New or Replacement Space Conditioning System
- b. Is asbestos present
- c. General condition of the HVAC system - are there any crushed ducts, excessive bends or any indications of damage to the system

**2. Relevant Interviews**

- a. Superintendent/ construction manager (New Construction):
  - i. Location of continuous ventilation if not marked.
  - ii. Location of insulation certificate if not in the attic or garage.
  - iii. Verification of rater testing for QII Framing Stage (usually not entered in the registry).
  - iv. Copy of building plans to verify duct meet approved design for VLLDCS, Surface area reduction, Buried ducts, and Return duct design.
- a. Customer/ homeowner interview (Alterations):
  - v. Who was the person present when the HERS tests were performed?
  - vi. Is that person available to help answer some questions on the testing that was done?
  - vii. What kind of work did the installer do to HVAC system?
  - viii. Has anyone done any work on or near the ducts since the testing was completed?
  - ix. Has anything been stored or removed from the duct area?
  - x. Has anyone worked on the furnace or A/C since the testing was completed?
  - xi. When was the last time the air filter was replaced?
  - xii. How long did the HERS testing take?
  - xiii. Do you recall seeing the types of equipment I'm (QA Reviewer) is using?
  - xiv. Do you recall seeing any other test equipment being used by the Rater?
  - xv. Were you given any indication of their test results?
  - xvi. When Rater passed DLT with smoke: Do you recall the Rater using theatrical fog/smoke to verify the duct system's integrity and identify leaks?
  - xvii. Where did they connect the duct tester - which grille?
  - xviii. Did they connect any gauges/equipment to the outside AC unit and run tests?
  - xix. Note anything unique that the homeowner remembered about the rater's visit - protective gear, professionalism, and cleanliness?

**3. Testing – QA Reviewer will repeat the rating** for each measure following the protocols recorded by the Rater whenever possible – If not possible, the Reviewer will perform testing using another method for reference.

**See Photo Checklist for photo requirements by measure.**

**NOTE: If Reviewer finds discrepancies during QA, he will investigate to determine if there are any apparent mitigating circumstances.**

**b. Duct Leakage**

- i. Record number of supply vents and return registers.
- ii. 5% or 15% total leakage, or 10% leakage to outside
- iii. Pass Sealing All Accessible Leaks using Smoke Test
  1. Photos of accessible leaks.

- iv. Visual Inspection of Accessible Duct Sealing
  - 1. Register boots sealed to surrounding material.
  - 2. Connections to plenums and other connections to the forced air unit sealed.
  - 3. Connections between lengths of duct, as well as connections to takeoffs, wyes, tees, and splitter boxes sealed.
  - 4. Refrigerant line and other penetrations into the forced air unit sealed.
  - 5. Air handler door panel sealed (permanent sealing material not used, metal tape acceptable).
- c. **Airflow/ Fan Efficacy**
  - i. Record "startup" airflow
  - ii. Inspect filters for cleanliness or damage.
  - iii. If there is a discrepancy:
    - 1. Test Airflow/Fan Efficacy using another method if applicable for reference
    - 2. Test Airflow/Fan Efficacy without filter installed for reference
  - iv. If unable to test with the same device as the rater, document why and attempt to use another valid way to determine if airflow and watt draw meet the standard.
  - v. Confirm/ verify zonally controlled system.
  - vi. Visually inspect using Airflow Mitigation Checklist if applicable.
  - vii. Multi or single speed condenser
  - viii. Multi or single stage blower
- d. **Refrigerant Charge**
  - i. If there is a discrepancy:
    - 1. Take additional readings after additional 5 minutes and 10 minutes
    - 2. Note if pressures are unstable
    - 3. Note if plenum is accessible for MAH or if alternate location is used
- e. **Building Envelope**
  - i. Note if continuously operating ventilation systems are present
    - 1. Are turned off and the air openings sealed, preferably at the exterior terminations.
- f. **QII**
  - i. Measure blown in insulation or SPF depths in six different locations.
  - ii. Note presence of insulation certificate
- g. **IAQ/MV**
  - i. MV fan location
  - ii. Continuous, intermittent, Central Fan Integrated ventilation
  - iii. Supply or Exhaust

**POST SITE VISIT****1. Upload Results**

- a. Enter test results into the Registry - according to a structured reporting method with common terminology used by all QA Field Reviewers.
- b. Upload photos to the Registry

- 2. **Research-** for information to verify extenuating circumstances.

- a. **Rated Equipment**- research AHRI, DOJ, or CEC registries for verification of high SEER and EER as required on the CF-1R, based on the installed equipment.
  - b. **Airflow** – if airflow does not meet target, determine possible extenuating circumstances, which may include research to determine if variable speed A/H fan, or A/H fans with multiple manual settings under cooling mode as mitigating circumstances.
    - i. Research manufacturer’s data for
      - 1. Multi or single speed condenser
      - 2. Multi or single stage blower
  - c. **Refrigerant Charge**- research installation manuals for Subcooling/ Superheat targets if not available on-site.
3. **Dispositions**- A determination of a “significant discrepancy” or “no significant discrepancy” on each measure tested according to many factors including, but not limited to, targeted results, resolution/ accuracy variances of the testing equipment, calibration standards, and mitigating circumstances. The results are again reviewed for accuracy with the use of photos, research, clarification from the QA reviewers, and feedback from supervisors. The dispositions are sent to the raters for their review and feedback. The raters are encouraged to contact us to discuss the dispositions, thus helping all parties to understand and improve the HERS process

**PHOTO CHECKLIST****General**

- ☐ Front of house w/ address
- ☐ Condenser + Specifications tag
- ☐ Furnace + Specifications tag
- ☐ Indoor coil + Specifications tag

**Duct Leakage Test**

- ☐ Duct tester setup with ring configuration
- ☐ Manometer reading
- ☐ Ducts
- ☐ Air Handler and Plenums
- ☐ Examples of duct taping / joints
- ☐ Supply boot (typical)
- ☐ Supply grill (typical)
- ☐ Return Grill
- ☐ Inside Return
- ☐ Filter
- ☐ Accessible Leaks

**Fan Efficacy**

- ☐ Watt Draw reading
- ☐ Hardwired connection
- ☐ Utility Meter

**Airflow**

- ☐ "Startup" Airflow reading
- ☐ Tested Airflow reading
- ☐ HSPPs
- ☐ Supply Plenum
- ☐ Return Plenum
- ☐ Return Grill
- ☐ Inside Return
- ☐ Filter

**Refrigerant Charge**

- ☐ Supply Plenum
- ☐ Return Plenum
- ☐ MAHs
- ☐ Gauge & Digital Thermometer setup
- ☐ Gauge Readings
- ☐ Tsuction / Tliquid
- ☐ Tcond - DB
- ☐ Treturn - DB
- ☐ Tsupply
- ☐ Subcooling Target from Cond. Label
- ☐ Subcooling Target from inside panel
- ☐ Superheat Target

**Rated Equipment - SEER, EER**

- ☐ Condenser + Specifications tag
- ☐ Furnace + Specifications tag
- ☐ Indoor coil + Specifications tag
- ☐ Thermostat

**QII**

- ☐ ENV-21 All Framing Stage Failures
- ☐ ENV-22 All Insulation Stage Failures
- ☐ Insulation Certificate
- ☐ Attic Ruler Depth
- ☐ Tape Measure Depth
- ☐ Cookie Cutter
- ☐ Scale Insulation Weight

**Blower Door Test**

- ☐ Blower Door setup
- ☐ Manometer Reading