

DOCKETED

Docket Number:	17-BSTD-02
Project Title:	2019 Title 24, Part 6, Building Energy Efficiency Standards Rulemaking
TN #:	222461
Document Title:	2-5-18 Presentation on Proposed 2019 Energy Code Residential Appendix
Description:	Presentation given by Jeff Miller and Danny Tam at the 2-5-18 Commissioner Hearing on the proposed 2019 Energy Code.
Filer:	Adrian Ownby
Organization:	California Energy Commission
Submitter Role:	Commission Staff
Submission Date:	2/7/2018 4:06:45 PM
Docketed Date:	2/7/2018

2019 Building Energy Efficiency Standards Lead Commissioner Hearing For 45-Day Language

California Energy Commission
Hearing Room A
(Arthur Rosenfeld Room)

February 5, 2018

Jeff Miller, P.E.
Danny Tam

Residential Appendix (RA)
RA-1 Through RA-4



RA – Residential Appendix

RA1 – Alternative Residential Field Verification and Diagnostic Test Protocols

RA2 – Residential HERS Verification, Testing, and Documentation Procedures

RA3 – Residential Field Verification and Diagnostic Test Protocols

RA4 – Eligibility Criteria for Energy Efficiency Measures



Table RA2-1– Summary of Measures Requiring Field Verification and Diagnostic Testing

- Updated table to reflect changes and additions to the list of HERS verifications.
 - RA3.4.4.2 - Rated Heat Pump Capacity Verification is added.
 - Maximum Rated Total Cooling Capacity compliance credit verification is removed.
 - RA3.9 - Whole House Fan verification is added.
 - RA3.3.4 - Central Fan Ventilation Cooling System verification is added.
 - RA3.5 - QII is now a prescriptive requirement (was compliance credit).
 - Verified Point of Use verification for DHW systems is removed.
 - RA3.6.9 - Drain water heat recovery installation criteria added.



RA 2 – Residential HERS Verification, Verification, Testing, and Documentation Procedures

RA2.4.3 – Third Party Quality Control Program

RA2.7 – Third Party Quality Control Program

Third Party Quality Control Program (TPQCP)

- Update and Clarify Specifications and Procedures
- New requirement to confirm the location of the system undergoing testing using an electronic tracking means such as Global Positioning Satellite (GPS) technology



RA 3 – Residential Field Verification and Diagnostic Test Protocols

RA 3.3.4 – Verification of Central Fan Ventilation Cooling Systems (CFVCS)

Determines the system airflow rate and fan efficacy at two operating speeds:

- At high fan speed as required by Section 150.0(m)13.
- At the speed used for ventilation cooling as specified on the Certificate of Compliance for the CFVCS.

The measured fan efficacy (Watt/cfm) must comply at both the high fan speed, and at the ventilation fan speed proposed by the user.



RA 3 – Residential Field Verification and Diagnostic Test Protocols

RA3.5 – Quality Insulation Installation Procedures

- **Updated and Added definitions:**
 - Compression, Delaminated, Friction Fit, Inset Stapling
- **Added definitions:**
 - Non-standard Framing
- **Changes made to provide clarity, reduce redundancy and improve readability:**
 - Incorporated proper terminology (flame spread index, smoke spread index)
 - Separated gable ends from knee walls and skylight shafts
 - Addressed single member headers the same width as the wall
- **Inserted new language for verification of insulation installed below the roof deck:**
 - RA3.5.3.3.4
 - RA3.5.4.3.4



RA 3 – Residential Field Verification and Diagnostic Test Protocols

RA3.6–Field Verification of Water Heating Systems

RA3.6.5 HERS-Verified Compact Hot Water Distribution System Expanded Credit

- Section updated to reflect changes to the HERS verified requirement

RA3.6.9 HERS-Verified Drain Water Heat Recovery Systems

- New section describe the requirements for Drain Water Heat Recovery Systems



RA 3 – Residential Field Verification and Diagnostic Test Protocols

RA 3.4.4.2– Rated Heat Pump Capacity Verification Procedure

Procedure consists of visual verification of:

- The manufacturer name and model number.
- Rated performance specifications for the installed equipment manufacturer model numbers.
- Rated heating capacity at 47°F and 17°F must be greater than or equal to the proposed values on the performance Certificate of Compliance.



RA 3 – Residential Field Verification and Diagnostic Test Protocols

RA 3.7.4.3 – Kitchen Range Hood Verification

Procedure confirms:

- The manufacturer name and model number.
- The model is listed in the HVI Directory.
- The rated airflow and sound performance listed in the HVI directory complies with the airflow requirements specified in Standards Section 150.0(o)2B
 - 100 cfm minimum
 - ≤ 3 sone at 0.1 inch water static pressure



RA 3 – Residential Field Verification and Diagnostic Test Protocols

RA3.8 – Field Verification And Diagnostic Testing Of Air Leakage of Building Enclosures and Dwelling Unit Enclosures

Update the enclosure leakage measurement protocol in RA3.8:

- Reference new version of the RESNET Standard (ANSI/RESNET/ICC 380-2016)
- Change the protocol to limit the options for measurement to use of only the One-Point (Single-Point) test.
- Report results as ACH_{50} or CFM_{50}/ft^2 of dwelling unit enclosure area depending on compliance requirements.



RA 3 – Residential Field Verification and Diagnostic Test Protocols

RA3.9 – Field Verification And Diagnostic Testing Of Whole House Fans (WHF)

Airflow Rate and Fan Efficacy Verification

- Applicable only to the performance compliance approach.
- Airflow rate measurement using one of the following:
 - Pressure matching and fan flowmeter (blower door)
 - Powered flow capture hood
 - Traditional flow capture hood
- Watt draw measurement and determination of WHF fan efficacy (W/cfm)
- 15-day language adjustment to house setup for blower door pressure matching: windows setup the same for both pressure measurements; WHF off and dampers closed or covered for blower door measurement.



RA 4 – Eligibility Criteria for Energy Efficiency Measures

RA4.4 – Water Heating Measures

RA4.4.3 Pipe Insulation Credit

- Section deleted due to mandatory pipe insulation requirement in the California Plumbing Code

RA4.4.6 Compact Hot Water Distribution System

- New section describe the requirements for the basic credit of Compact Hot Water Distribution System

RA4.4.16 HERS-Verified Compact Hot Water Distribution System Expanded Credit

- Section updated to reflect changes to the HERS verified requirements



RA 4 – Eligibility Criteria for Energy Efficiency Measures

RA4.4 – Water Heating Measures

RA4.4.20 Solar Water Heating Systems

- Added International Association of Plumbing and Mechanical Officials, Research and Testing (IAPMO R&T) as a listing agency

RA4.4.21 HERS-Verified Drain Water Heat Recovery Systems

- New section describe the requirements for Drain Water Heat Recovery Systems



How to submit written comments

- **We strongly encourage submitting written comments via e-file.** Comments on the proposed 2019 Energy Code can be submitted to: <https://efiling.energy.ca.gov/EComment/EComment.aspx?docketnumber=17-BSTD-02>.
- Comments on the proposed 2019 CALGreen can be submitted to: <https://efiling.energy.ca.gov/EComment/EComment.aspx?docketnumber=17-BSTD-03>.
- Comments can also be submitted physically or by e-mail, here:

California Energy Commission
Dockets Office, MS-4

Re: Docket No. 17-BSTD-02 (for CALGreen, 03)

1516 Ninth Street

Sacramento, CA 95814-5512

Docket@energy.ca.gov

