
RA2.6.3 HERS Procedures – Group Sample Field Verification and Diagnostic Testing

Descriptions for HERS verification compliance using group sampling, and details describing procedures for sampling of a "closed" group of up to seven dwellings, and for sampling of an "open" group of up to five dwellings are described in Section RA2.6.3.

RA2.6.3.1 Designation of Groups

After the initial model field verification and diagnostic testing is completed as specified in RA2.6.2, the builder, or the builder's authorized representative shall determine a sampling procedure to be used, and shall designate the dwelling units to include in the group of dwellings that require HERS verification. The maximum number of dwelling units allowed in a sample group may range from five, to seven, to thirty as described in Sections RA2.6.3.3, RA2.6.3.4, and RA2.7 respectively.

If multiple measures requiring HERS verification are installed, each dwelling unit in a designated group shall have the same measures requiring HERS verification as the other dwelling units in the designated group. If some dwelling units have installed a different set of measures requiring HERS verification, those dwelling units shall be in a separate group.

If the dwelling units in a designated group have multiple measures that require HERS verification, sample testing for individual measures may be conducted in any of the dwelling units in the group - it is not required that all of the sample tests for all of the individual measures be completed in the same dwelling unit. Individual measures shall be allowed to be included in a group regardless of whether compliance requires one sample test, or if compliance requires more than one sample test (up to 100% sample test rate) be reported for such individual measures.

Dwelling units in a designated group shall all be located within the same enforcement agency jurisdiction and subdivision or multifamily housing development. Refer also to Section RA2.8 for requirements for sample groups applicable to alterations.

If dwelling units have central forced-air space conditioning equipment that introduces outside air into the conditioned space utilizing means that connect outside air ventilation ducts directly to the dwelling unit's central forced air duct system (Central Fan-Integrated Ventilation System or CFI Ventilation System), the CFI ventilation technology shall be considered a separate measure for HERS verification sampling purposes, and dwellings with CFI ventilation systems shall be placed in separate groups from other dwelling units that do not utilize CFI ventilation technology.

RA2.6.3.2 Group Status - "Open" Groups and "Closed" Groups

Submittal of the Certificate of Installation information, for at least one dwelling, to the HERS Provider data registry, is required in order to "open" a new group. Additional dwellings may be entered into the registry, and included in an "open" group over a period of time subject to submittal of the Certificate of Installation information to the registry for each additional dwelling. However the group shall not remain "open" to receive additional dwellings for a period longer than six months from the earliest date shown on any Certificate of Installation for a dwelling included in a group. A group may be "closed" at any time after the group has been "opened" at the option of the builder or builder's authorized representative, thus the size of a "closed" group may range from a minimum of one dwelling to a maximum of seven dwellings. When a group becomes classified as "closed", no additional dwellings shall be added to the group.

RA2.6.3.3 Sampling of a "Closed" Group of Up to Seven Dwellings

The following criteria shall be met as prerequisite to attaining HERS verification compliance for the group:

- (a) All of the dwelling units contained in the sample group have been identified. A maximum of seven dwellings are allowed to be included in a "closed" sample group for HERS compliance.
- (b) Installation of all the measures that require HERS verification has been completed in all the dwellings that are entered in the group, and registration of the Certificates of Installation for all the dwellings entered in the group has been completed.
- (c) The group has been classified as a "closed" group in the Provider data registry

- (d) At the request of the builder or the builder's authorized representative, a HERS Rater shall randomly select one dwelling unit from the "closed" sample group for field verification and diagnostic testing. If the dwelling unit meets the compliance requirements, this "tested" dwelling and also each of the other "not-tested" dwellings in the group shall receive a registered Certificate of Verification.

RA2.6.3.4 **Sampling of an "Open" Group of Up to Five Dwellings**

The following criteria shall be met as prerequisite to attaining HERS verification compliance for the group:

- (a) At least one dwelling unit from the sample group has been identified. A maximum of five dwellings are allowed to be included in an "open" sample group for HERS compliance.
- (b) Installation of all the measures that require HERS verification shall be completed in all the dwellings that are entered in the group, and registration of the Certificates of Installation for all the dwellings entered in the group has been completed.
- (c) At the request of the builder, or the builder's authorized representative, a HERS Rater shall randomly select one dwelling unit from those currently entered into the "open" sample group for field verification and diagnostic testing. If the dwelling unit meets the compliance requirements, the "tested" dwelling and also each of the other "not tested" dwellings currently entered into the group shall receive a registered Certificate of Verification. If less than five dwelling units have been entered into the group, the group shall be allowed to remain "open" and eligible to receive additional dwelling units. Dwelling units entered into the "open" group subsequent to the compliant HERS verification of the "tested" dwelling shall also receive a registered Certificate of Verification as a "not tested" dwelling subject to receipt of the registered Certificate of Installation by the HERS Provider data registry for the dwelling. The group shall be "closed" when it reaches the limit of five dwellings or when the six month limit for "open" groups has been exceeded, or when the builder requests that the group be closed.

RA2.6.3.5 **Additional Requirements Applicable to Group Sampling Procedures**

The builder or the HERS Rater may request removal of untested dwelling units from a group by notifying the HERS Provider prior to selection of the dwelling sample that will be tested from an "open" or "closed" group and shall provide justification for the change. Removed dwelling units shall be field verified and diagnostically tested individually or shall be included in a subsequent group for sampling.

There are exceptions to the requirement to have completed Certificate of Installation data entered into the HERS Provider data registry prior to selection of the dwelling unit to be tested in a group. Some HERS measures require multiple verifications during the construction process. A sample group is not required to be closed before HERS field verification and diagnostic testing can begin for the following measures. For these measures the HERS Rater is allowed to randomly select the dwelling unit to be field verified from those that are at the proper stage of construction to enable the first of the multiple verifications to be completed.

- (a) **Quality Installation of Insulation** measure requires inspection of the air barrier and inspection of the insulation behind tubs and showers at framing rough-in. Verification of the wall, floor and ceiling insulation must be completed prior to drywall installation. Attic insulation installation may require follow-up verification.
- (b) **Buried Ducts** measure requires verification of the duct design prior to verification of the attic insulation.
- (c) **Duct Surface Area** requires verification of the duct design prior to installation of the attic insulation.

The HERS Rater, with no direction from the installer or builder, shall randomly select one dwelling unit from a "closed" sample group for field verification and diagnostic testing upon receiving the builder's or builder representative's request for HERS verification of that group. Alternatively, the HERS Rater shall randomly select one dwelling unit from the dwellings currently entered into an "open" sample group upon receiving the builder's or builder representative's request for HERS verification of that group. The HERS Rater shall diagnostically test and field verify the selected dwelling unit. The HERS Rater shall enter the test and/or

RA2.6.4.1 Re-sampling procedures for a "closed" group of up to seven dwellings:

The HERS Rater shall randomly select for re-sampling one of the remaining untested dwelling units in the group for retesting of the feature that failed. If the failed dwelling was entered in a "closed" group, and the testing of the second randomly selected dwelling unit in the group confirms that the requirements for compliance credit are met on that unit, then the dwelling unit with the initial failure shall not be considered an indication of failure in the remaining untested dwelling units in the group. The HERS Rater shall transmit the re-sample test results to the HERS Provider registry, whereupon the Provider shall make available to the HERS Rater, the builder, the enforcement agency, and other authorized users of the HERS Provider data registry, a registered copy of the Certificate of Verification for the remaining dwelling units in the group including the dwelling unit in the re-sample.

If field verification and diagnostic testing of the second sample results in a failure, the HERS Rater shall report the second failure to the HERS Provider, the builder, and the enforcement agency. All dwelling units in the group must thereafter be individually field verified and diagnostically tested to confirm compliance for the feature that failed to comply with re-sampling. In cases where corrective action would require destruction of building components, the builder may choose to reanalyze compliance and choose different measures that will achieve compliance. In this case a new Certificate of Compliance shall be completed and submitted to the HERS Provider, the HERS Rater, and the enforcement agency. Even with a new Certificate of Compliance, the dwelling unit must be individually field verified and diagnostically tested. Upon verification of compliance, the HERS Rater shall enter the test results into the HERS Provider data registry. Whereupon the Provider shall make available to the HERS Rater, the builder, the enforcement agency, and other authorized users of the HERS Provider data registry, a registered copy of the Certificate of Verification for each individual dwelling in the group.

RA2.6.4.2 Re-sampling procedures for an "open" group of up to five dwellings:

The HERS Rater shall randomly select for re-sampling one of the remaining untested dwelling units in the group for retesting of the feature that failed. If the failed dwelling was entered in an "open" group, and there are no other untested dwellings entered in the "open" group at the time of the failed HERS verification, subsequent dwellings entered into the "open" group shall not receive a Certificate of Verification until a second dwelling in the "open" group is tested and successfully complies. If the subsequent testing of the second dwelling unit in the group confirms that the requirements for compliance credit are met on that unit, then the dwelling unit with the initial failure shall not be considered an indication of failure in the untested dwelling units in the group. The HERS Rater shall transmit the compliant re-sample test results to the HERS Provider data registry, whereupon the Provider shall make available to the HERS Rater, the builder, the enforcement agency, and other authorized users of the HERS Provider data registry, a registered copy of the Certificate of Verification, for the re-sampled dwelling, and the remaining not yet tested dwelling units entered in the "open" group at the time of the re-sample test, and the group shall be allowed to remain open and eligible to receive additional dwelling units. Dwelling units entered into the "open" group of up to 5 dwellings following the successful HERS verification of the re-sampled dwelling shall receive a Certificate of Verification as a "not tested" dwelling subject to registration of the Certificate of Installation by the HERS Provider data registry for the dwelling.

If field verification and diagnostic testing of the second sample results in a failure, the HERS Rater shall report the second failure to the HERS Provider, the builder, and the enforcement agency, and the Provider shall require the "open" group to be "closed". All remaining untested dwelling units entered in the group at the time of the re-sample must thereafter be individually field verified and diagnostically tested. In cases where corrective action would require destruction of building components, the builder may choose to reanalyze compliance and choose different measures that will achieve compliance. In this case, a new Certificate of Compliance shall be completed and submitted to the HERS Provider, the HERS Rater, and the enforcement agency. Even with a new Certificate of Compliance, the dwelling unit must be individually field verified and diagnostically tested. Upon verification of compliance, the HERS Rater shall enter the test results into the HERS Provider data registry. Whereupon the Provider shall make available to the HERS Rater, the builder, the enforcement agency, and other authorized users of the HERS Provider data registry, a registered copy of the Certificate of Verification for each individual dwelling in the group.

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RA2.6.4.3 Corrective Action

Builders shall offer to provide the necessary field verification and diagnostic testing services and any necessary corrective action at no charge to building owners (for a definition of "building owner" and of other terms used, see Reference Joint Appendix JA1) in occupied dwelling units in the group. Builders shall report to the HERS Provider the identifying location of any dwelling unit in which the building owner or occupant declines field verification and diagnostic testing and corrective action. The HERS Provider shall verify that the builder has made this offer. If a building owner of a dwelling unit declines this offer, field verification, diagnostic testing, and corrective action will not be required for that dwelling unit and the dwelling unit will no longer be considered a part of the group. If a building owner accepts this offer, the builder shall take corrective action, and the HERS Rater shall conduct field verification and diagnostic testing to verify that problems have been corrected. Upon verification of compliance, the HERS Rater shall transmit the test results to the HERS Provider data registry. Whereupon the Provider shall make available to the HERS Rater, the builder, the enforcement agency, and other authorized users of the HERS Provider data registry, a registered copy of the Certificate of Verification for the dwelling unit.

The HERS Provider shall file a report with the enforcement agency explaining all actions taken (including field verification, diagnostic testing, corrective action, offers to building owners for testing and corrective action, and/or building owner declines of such offers) to bring into compliance dwelling units for which full testing has been required. If corrective action requires work not specifically exempted by the CMC or the CBC, the builder shall obtain a permit from the enforcement agency prior to commencement of any of the work.

Corrections to avoid reporting a failure to the HERS Provider data registry shall not be made to a sampled dwelling unit after the HERS Rater selects the sample dwelling unit. If it is evident that such corrections have been made to a sampled dwelling unit to avoid reporting a failure, field verification and diagnostic testing shall be required for 100 percent of the dwelling units in the group.

RA2.7 Third Party Quality Control Programs

The Commission may approve Third Party Quality Control Programs that serve some of the functions of HERS Raters for field verification purposes but do not have the authority to sign compliance documentation as a HERS Rater. Third Party Quality Control Programs shall provide training to installers regarding compliance requirements for measures for which diagnostic testing and field verification is required. Third Party Quality Control Programs shall collect data from participating installers for each installation completed for compliance credit, provide data checking analysis to evaluate the validity and accuracy of the data to independently determine whether compliance has been achieved, provide direction to the installer to retest and correct problems when data checking determines that compliance has not been achieved, require resubmission of data when retesting and correction is directed, and maintain a database of all data submitted by installers and shall provide functionality that allows Energy Commission staff to query retained data or documents. The data that is collected by the Third Party Quality Control Program shall be more detailed than the data required for showing compliance with the Standards, shall provide an independent check on the validity and accuracy of the installer's claim that compliance has been achieved, and shall not be alterable by the installer to indicate that compliance has been achieved when in fact compliance has not been achieved.

The HERS Provider shall arrange for the services of a HERS Rater to conduct independent field verification of the installation work performed by the participating Third Party Quality Control Program installing contractor. The HERS Rater shall complete all of the responsibilities of a HERS Rater as specified in Appendix RA2, with the exception that sampling procedures utilized shall be limited to sampling of a "closed" group as described in Section RA2.6.3. However, the sample tested shall be selected and field verified from within a group of up to thirty dwelling units. The HERS Rater shall be an independent entity from the Third Party Quality Control Program. If re-sampling is required, full testing and corrective action shall be completed as specified in Section RA2.6.4 with the exception that re-sampling shall be completed for a minimum of one out of every thirty dwelling units from the group. The Third Party Quality Control Program shall not impose restrictions on the HERS Rater or the HERS Provider that limit their independence, or the ability of the HERS Rater or the HERS Provider to properly perform their functions. For example, the Third Party Quality Control Program shall not impose restrictions on the HERS Rater's use of equipment beyond those required by the Commission.