

RESNET Rating Sampling Standard

Implementation Opportunities and Challenges

Presented by

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RESNET
Residential Energy Services Network

*Setting the STANDARD
for QUALITY*

Presentation Outline

- High-lights of Sampling Standard (Chapter 6)
 - 601 – General Provisions
 - 602 – Definitions
 - 603 – Technical Requirements for Sampling
 - 604 – Sampling Provider Accreditation

- RESNET QA of Sampling Providers

- What's Working and What's Not?

- Proposed Changes To Standard

High-lights of New Standard

□ 601 – General Provisions

■ 601.1 – Purpose

- Certification via the Sampling Standard does not constitute a “confirmed” rating
- HERS Index can be assigned, but must be the same for each home plan and equal to the threshold specification determined from plans
- Sampling Providers assume all warranties and liabilities with the sampling of homes

High-lights of New Standard

□ 602 – Definitions

- ***Sample Set*** - A specific group of homes from which one or more individual homes are randomly selected for sampling controls.
- ***Sampling Controls*** - A collection or set of required tests and inspections performed for a sample set of homes in order to confirm that the threshold specifications have been met. “Sampling controls” may refer to the entire set of tests and inspections, or to a particular phase that constitutes a defined subset of those tests and inspections (e.g. pre-drywall, final, HVAC, windows and orientation, etc).

High-lights of New Standard

□ 602 – Definitions

- ***Threshold Specifications*** - A set of qualification criteria, which are established for a sample set, based on worst-case Projected Ratings with consideration of all options, and in worst-case orientation, or a set of prescriptive specifications such as the ENERGY STAR prescriptive path adopted by the U.S. Environmental Protection Agency.
- ***Failed Item*** – A “failed item” constitutes a category of failure, such as insulation installation, duct leakage, prescriptive air sealing requirements, insulation enclosure, eave baffles, mechanical system efficiency, window specifications, etc. For the purpose of follow-up inspections, a “failed item” is not limited to the specific instance in a home but to that category of the minimum rated features as it applies to that home design.

High-lights of New Standard

□ 602 – Definitions

- ***Failure*** - When one or more of the threshold specifications is not met during the testing and inspection process.
- ***Initial Failure*** - When one or more failure(s) are first identified in a home during the sampling process.
- ***Additional Failure*** – When additional instances of initial failure(s) are identified in one or more of the other homes in the sample set being tested or inspected.

High-lights of New Standard

- 603 – Technical Requirements For Sampling
 - 603.2 – Homes eligible to be sampled
 - Homes of “same construction type using the same envelope systems”
 - 603.3 – Analysis of Homes
 - Worst-case analysis of floor plans: worst-case orientation, all known option packages, and applicable site location(s).

High-lights of New Standard

- 603 – Technical Requirements (cont'd)
 - 603.4 – Labeling of Homes
 - “This home has been certified using a sampling protocol in accordance with Chapter 6 of the RESNET Standards (see <http://resnet.usstandards>).”
 - Label to be located on the electrical panel, minimum of 10 pt font

High-lights of New Standard

- 603 – Technical Requirements (cont'd)
 - 603.5 - Creating a “Sample Set” (i.e. “batch”)
 - Homes to be sampled can be selected within the same subdivision or metropolitan area and climate zone
 - All “sampling controls” (i.e. tests and inspections) for a sample set at a particular stage of construction, must be completed within 30 days
 - Sample sets do not have to consist of the same 7 homes through out all the stages of construction
 - Participating subdivisions must be subject to “sampling controls” at least once every 90 days and have a minimum of 1 home start every 90 days

High-lights of New Standard

- 603 – Technical Requirements (cont'd)
 - 603.7 – Sampling Controls
 - Sample controls must be completed at a minimum ratio of one (1) test or inspection per seven (7) homes
 - A certified rater must oversee the sampling process
 - Sampling controls can be completed on a single home or several homes within a given sample set
 - Builders qualify for sampling by first completing seven (7) consecutive homes without failure

High-lights of New Standard

- 603 – Technical Requirements (cont'd)
 - 603.7 – Sampling Controls (cont'd)
 - New subdivisions require three (3) consecutive homes to pass without failure before starting sampling
 - “When a failure occurs, the failed item(s) shall be tested or inspected in two (2) additional homes”
 - “When an additional failure occurs, in one or more of the two (2) additional homes, the failed item(s) shall be tested or inspected in the remaining four (4) homes” in the sample set
 - “Until the failure is corrected in all identified (failed) homes in the sample set, none of the homes shall be deemed to meet the threshold or labeling criteria”

High-lights of New Standard

- 603 – Technical Requirements (cont'd)
 - 603.8 – Multiple “Additional Failures”
 - If three (3) “additional failures” occur within a ninety (90) day period on the same item, the failed item must pass in seven (7) consecutive homes before it can be sampled again

 - If three (3) “additional failures” occur within a ninety (90) day period on several different items, the builder must re-qualify to sample by completing seven (7) consecutive homes without failure,

or

Builder can do a “root cause analysis”

High-lights of New Standard

- 603 – Technical Requirements (cont'd)
 - 603.9 – QA of Sampling Process
 - QA monitoring shall be conducted on a percentage of all the homes certified or qualified under sampling, rather than the percentage of tested and inspected homes
 - QA monitoring may be conducted on any of the qualified or certified homes within the sample sets, and shall not be limited to the tested and inspected homes
 - The provider's QA Designee shall be responsible for monitoring compliance with the sampling process

High-lights of New Standard

- 604 – Sampling Provider Accreditation
 - 604.4.5 – Responsibilities of Accredited Sampling Providers
 - Ensure that the specifications for the minimum rated features for the sampled homes are communicated to the personnel or trades responsible for completing the work
 - Sampling Provider's written Operation Policies and Procedures shall include:
 - How to keep track of homes that are part of the sampling process (including failures and re-inspections)
 - How to track blower door testing
 - How to track duct testing
 - Sampling Inspector discipline procedures

RESNET QA of Sampling Providers

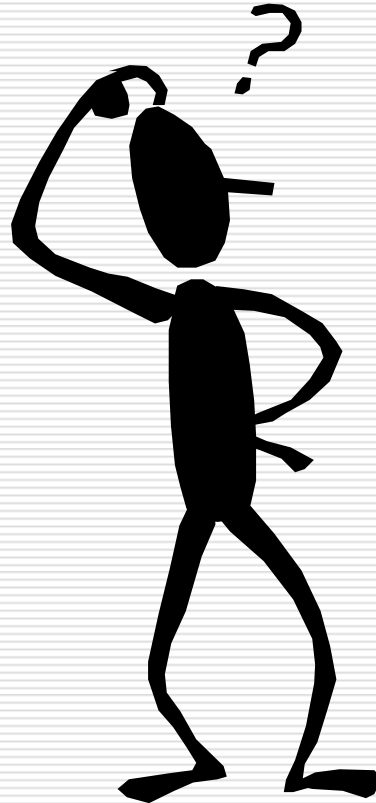
- Answer the following questions:
 1. Did you test/inspect the first seven homes for each new sampling builder and get seven of each sample control in a row correct without a failure before allowing the builder to start sampling a sample control?
 2. Did you test/inspect the first three homes for each new subdivision and get three of each sample control in a row correct without a failure before allowing the builder to start sampling a sample control in the new subdivision?
 3. Did you close sample sets within 30 days?
 4. Did you test/inspect at least one home in all sampled subdivisions every 90 days?
 5. Once sampling started (if not already started for a builder) when there was a failure, did you test/inspect the failed sample control(s) in two more homes? If one of the two additional test homes had a failure of the tested/inspected sample control(s), did you test for the failed sample control in four more homes?

What's Working and What's Not?

- Sampling is actually of “sample controls”, not “homes”!
- Tracking individual tests and inspections, especially in a multiple phase/visit scenario, is extremely difficult
- Creating sample sets within 30 days is too short (particularly in slower build cycle)
 - Creating challenges to proper implementation (driven by economics, i.e. builders not willing/able to pay for more testing and raters are forced to accept “diluted” fees or no client at all)
- Must pass a complete set of sample controls on seven (7) consecutive homes for builder to start sampling
 - Have to wait until all seven homes completed before starting sampling, which means 100% testing all homes until first seven all pass. Jeopardy is very high, e.g. if one sample control fails in seventh home in final phase of tests/inspections, must start all over again.

What's Working and What's Not?

- Others?



Proposed Changes to Standard

- 604.5.2 – 90 in lieu of 30 days to create sample sets
 - Time frame is meaningless when production rates are high, not longer time frame under typical circumstances is not a problem
 - Creates a time frame that is more workable in slower times of production

- 603.7.3 – Builder must pass 6 of 7 “sample controls” (not “homes”) without failure to start sampling
 - Provides consistency when focusing on controls and not homes
 - No longer problem of waiting until end of construction
 - Reduces the jeopardy issue

- 603.7.3.2 – New subdivisions must pass 3 consecutive “sample controls” without failure to start sampling
 - Same explanation as above (except jeopardy already low)

Proposed Changes to Standard

- Others?

