Third Party Quality Control (TPQC)

- Must be approved by CEC
 - Requires oversight of a Provider
 - Provides for the same relationship as Provider to Rater already in the Standards
- Intended to function like a rater
 - Program Overall Requirements
 - Must meet all requirements of Title 20 HERS regulations
- Has more stringent data handling requirements
 Data Requirements
- Requires an Independent 3rd Party HERS Rater
- Allows a larger sample group

TPQC Functioning as a Rater

- Chapter 7.6-7.8 of 2005 ACM
 - "TPQC Program acts as a Rater"
 - Includes Title 20 requirements for a Rater:
 - Independent from Builder
 - Independent from HERS Rater that provides verifications
 - Independent from subcontractor installer

TPQC Program Requirements

- TPQC Program *Must*:

- Train *installers* for compliance requirements for HERS measures
- Collect data for each house
 - Analyze the collected data to "evaluate validity and accuracy to *independently* determine if compliance has been met."
 - "Provide direction to installer to retest and correct problems identified"
 - "Require *resubmission* of data when retesting and correction is completed"
 - Maintain a database of all info

Data Requirements

- Data collected Must:
 - "Be more detailed than data required to show compliance with the Standards"
 - "Provide an *independent* check on the validity and accuracy of the installer's claim that compliance has been achieved"

Sampling Protocols (ACM 7.5.1 – 7.5.3)

- Normal HERS Sampling Protocols
 - Group must be selected
 - Group must have 100% subcontractor verifications
 - One house randomly selected by rater for inspection
 - Group is Maximum of 7 houses
 - First selected house passes = Group passes
 - First house fails = Fix & retest failed house AND test a second from SAME group
 - Second house passes AND first house is corrected, passes retest = Group passes
 - Second house fails = all houses must be tested and passed individually

Deviations from Normal Sampling for TPQC Programs

• Group size

 Independent HERS rater must inspect at least 1 out of every 30 sequentially completed dwelling units

Philosophy and Background

- TPQC installer training would raise the quality level
 - Training provided to the HVAC installer
 - Must be submitted to and approved by CEC, administered by the TPQC, and overseen by the Provider
 - Better quality + better data collected + data analysis = group size of 30
 - Alterations market anticipated in 2005 = need for more rater capacity

Logistics Problems

- Building Departments have difficulties
 - Group of 30 may span multiple jurisdictions
 - Lack of confidence that the group was tested at all
 - Unknown if failure or dual failures occurred in a different jurisdiction
 - Single failure in each of two different jurisdictions does not give communication of group failure
 - ACM 7.8.4: Certificate of Occupancy
 - "building department shall not approve...for occupancy until they have received a Certificate of Field Verification and Diagnostic Testing that has been signed and dated by a HERS Rater."
 - Notification of jurisdiction that (up to 29) previously closed permits have houses that failed

Building Department Reactions

- Some are not allowing 1 in 30 sampling
 - Due to logistics issues discussed
 - Disconnect between quality they see in the field and lack of failed groups/dwelling units
- Some are confused and think that now the installers can *self-test*
 - Erodes the HERS concept in the jurisdiction's mind
 - Causes confusion
 - Exacerbates a confusing and complex system
 - Leads to lack of motivation to enforce
- How to deal with 29 closed permits that have failure notices maybe days, or weeks later
 - Who gets notified, and how do they get notified, and how do they proceed

Historical Failure Rates in Alterations/Changeouts

- Small sample of a total of 4,000 recorded HERS tests in the market since October 2005 implementation of Standards
 - First house failure rates of 7%-18%
 - Same installer crews
 - 1 in 30 will only catch one fourth of these
 - Installer employee turnover makes training difficult and costly

Conceptual Problems

- New Construction
 - There is no differentiation between new construction sampling and alteration/changeout sampling
 - 12 tests versus 4 tests required
 - Not possible to comply with "more detailed data requirement of ACM 7.6 on most of the possible tests, (e.g. QII, TXV, EER, Airflow, etc.)
- Some houses could require 1:7 grouping combined with 1:30 grouping simultaneously
- Alterations
 - Not all Alterations/changeouts tests can meet the "detailed data requirement" either
 - TXV, EER
 - "Improve by 60% PLUS Smoke Test verification"
 - "Did the best I could, PLUS smoke test"
 - 1:30 sampling is more appropriate to a controlled factory environment, not the subdivision or homeowner environment
 - The whole HERS industry is valued precisely because it is the watchdog over the installing trades, but only when the threat of inspection is real and has consequences.

Impact to HERS Rater's Business

- Less Revenue = less incentive to be a HERS Rater
- Reduced total profits = rater has less revenue to expand his business
- Fewer people employed = weaker HERS industry

Industry-wide Consequences

- Weaker HERS businesses = Weaker HERS industry
- Weaker industry
 - Step backward in credibility and enforceability HERS tests and protocols
 - Allows builders/contractors to slip back into the practices that gave birth to HERS
 - Loss of energy savings that should be coming from better quality of energy feature installations
- Loss of HERS credibility could lead to loss of confidence that the California Energy Initiatives can be achieved through the use of HERS verifications

Benefits vs. Drawbacks

- Benefits
 - Installers may get better training than they currently receive
 - Impact of a failed group of 30 should provide some impetus to not fail
 - 29 x \$150/HERS test = \$4,350
 - 6 x \$150/HERS test = \$900

Benefits vs. Drawbacks

- Drawbacks
 - Logistics problems get in the way of confidence that TPQC can be implemented as well as existing system
 - Conceptual problems indicate there is work to do to make a TPQC program "function like a rater"
 - There is not an established need for this program
 - TPQC does not solve any specific problem
 - Has already fostered misconceptions about self-testing
 - Has potential to undermine an industry that is trying to gain credibility and presence in other areas (Solar Homes, Tax Credits, Green Building, etc.)

Solutions

- Review the current system
 - Is it necessary
 - Is it solving/causing any problems
 - Do TPQC Programs demonstrate an improvement in energy savings
 - Do TPQC programs really "function as a rater"
- Building Department enforcement
 - Historically difficult with code change
- Increased pressure to contractors to pull permit
 - Estimates based on data acquired indicate that only 5% 15% of permits are being pulled in the Alterations market