



January 30, 2014

Mr. Ray Allshouse, Chair
Washington State Building Code Council
P.O. Box 41014
Olympia, WA. 98504-1014

I encourage the Council to mandate that code-required HVAC duct and building envelope testing be conducted and certified by qualified third parties, independent of installers and builders. The mandate should apply to energy testing of new single family and multi-family residential construction and new rough-in mechanical systems installed in those dwellings.

Under present code provisions:

- Building officials have discretion to require the testing be done by third parties; I know of none who do so;
- Mechanical installers are permitted to test a new residential duct system for leakage and certify the results;
- Anyone may perform for the builder the blower door test required in section R402.2.1.2; many are done by insulation contractors who have a business relationship with the builder.

Without a requirement of third-party testing, there is no reliable database to assess the incidence of building officials passing systems which fail the required tests. Anecdotally, after 10 years as a building official and 4 years as a businessman conducting energy audits in Washington, I can attest to the significance of the problem, and that it is invited by the code in its present form.

Precedence for such an independent testing mandate is found in Title 24 of California's energy code, in effect since 2005.

Insuring proper testing protocols and reliable certifications in this way will substantially enhance our achievement of the energy efficiency goals of the code.

Sincerely,

Eric Sperline

5. Proposed Code Amendment. Reproduce the section to be amended. Underline all added language, strike through all deleted language. Insert any separate new sections in the appropriate place in the code in order to continue the established numbering system of the code. If more than one section is proposed for amendment or more than one page is needed for reproducing the affected section of the code, additional pages may be attached. (Please indicate number of additional pages below)

Code Res. Energy Code Section R402.4.1.2 Page R-23

Amend section to read as follows:

R402.4.1.2 Testing. The building or dwelling unit shall be tested and verified as having an air exchange rate of not exceeding 5 air changes per hour. Testing shall be conducted with a blower door at a pressure of .02 inches w.g. (50 pascals).

~~Where required by the code official, testing shall be conducted by an approved third party.~~

Where compliance documentation indicates field verification and diagnostic testing of specific energy efficiency measures as a condition of meeting the Washington State Energy Code, an approved HERS rater or PTCS certified tester shall be used to conduct the field verification and diagnostic testing. HERS raters and PTCS testers shall be considered special inspectors by building departments, and shall demonstrate competence, to the satisfaction of the building official, for the visual inspections and diagnostic testing. The HERS rater/PTCS tester shall be independent entities from the builder or subcontractor installer of the energy efficiency improvements being tested and verified, and shall have no financial interest in the installation of the improvements. A written report of the results of the test shall be signed by the party conducting the test and provided to the code official.

Testing shall be performed at any time after creation of all penetrations of the building thermal envelope. Once visual inspection has confirmed sealing (see table R402.4.1.1) operable windows and doors manufactured by small business shall be permitted to be sealed off at the frame prior to the test.

Code Res. Energy Code Section 403.2.2 sub.2 Page RE-25

R403.2.2 sub. 2 SEALING (Mandatory)

2. Rough-in test: Total leakage shall be less than or equal to 4 cfm (113.3 L/min) per 100 square feet (9.29m²) of conditioned floor area when tested at a pressure differential of 0.1 inches w.g. (25 pascals) across the system, including the manufacturer's air handler enclosure. All registers shall be taped or otherwise sealed during the test. If the air handler is not installed at the time of the test, total leakage shall be less than or equal to 3 cfm (85 L/min) per 100 square feet (9.29m²) of conditioned floor area. Where compliance documentation indicates field verification and diagnostic testing of specific energy efficiency measures as a condition of meeting the Washington State Energy Code, an approved HERS rater or PTCS certified tester shall be used to conduct the field verification and diagnostic testing. HERS raters and PTCS testers shall be considered special inspectors by building departments, and shall demonstrate competence, to the satisfaction of the building official, for the visual inspections and diagnostic testing. The HERS rater/PTCS tester shall be independent entities from the builder or subcontractor installer of the energy efficiency improvements being tested and verified, and shall have no financial interest in the installation of the improvements. A written report of the results of the test shall be signed by the party conducting the test and provided to the code official.

Supporting Data for Statewide Amendment Proposals This information is required for all statewide amendment proposals. Attach supporting documentation, as necessary; incomplete proposals will not be accepted.

The SBCC requires supporting data on any amendment proposal to show:

- a. That it meets basic criteria – See Part I to specify how this proposal meets the criteria for code amendment.
- b. The intended effect—See Part II to describe the purpose of the proposed amendment, including the benefits and the problems addressed.
- c. The potential impacts or benefits on business—See Part III/Types of Construction, to explain how methods in construction businesses, industries and services would be affected.
- d. The potential impact on enforcement procedures, See Part III/Types of Services Required, to provide some analysis of the impacts on code enforcement in local jurisdictions.
- e. Economic costs and benefits – Use the Table in Part IV of this form to estimate the costs and benefits of the proposal on the construction industry, the user and/or public, the enforcement community, and operation and maintenance.

Part I ♦ Background information on amendment.

Code References: R402.4.1.2; R403.2.2 sub 2 Titles: TESTING, SEALING (Mandatory)

Related codes: N/A (Does this amendment change other related codes?)

Proponent: Eric Sperline Phone: 425-417-8364 Date: Jan 30, 2015

NOTE: State-wide and emergency state-wide amendments to the state building code must be based on one of the following criteria; please indicate the pertinent rationale for the proposed amendment by selecting from the list below:

- (1) The amendment is needed to address a critical life/safety need.
- (2) The amendment is needed to address a specific state policy or statute.
- (3) The amendment is needed for consistency with state or federal regulations.
- (4) The amendment is needed to address a unique character of the state.
- (5) The amendment corrects errors and omissions.

Part II ♦ Amendment Benefit:

PROBLEM(S) ADDRESSED (Describe the intended effect of the proposed code amendment):

As a technician in the field I have had the opportunity to witness firsthand the results of the state required tests for envelope and HVAC ducts. Presently our energy code allows a mechanical installer to test a system for leakage and then verify as having passed, that ducted system in a new home. In addition to that, our envelope testing requirements as stated in section R402.4.1.2 allow anyone to perform the blower door test for the builder and submit it to the building official. Many of these blower door tests are now being conducted on new homes by the insulation contractors that have business relationships with the builders. *Required third party testing would provide a more accurate data base of systems performance.*

PRIMARY REASON FOR AMENDMENT: (Describe how the amendment meets one of the criteria listed above) _____

TYPE OF BENEFITS PROJECTED:

Without required third party verification errors and omissions cannot be reliably tracked in our state with regards to blower door testing of the home envelope and new mechanical system installations. Rather than requiring these testing results without third party verification I would like to provide our testing data with improved verification support on a state level so that going forward we know we have put our best efforts in place for measurable results and to meet our energy efficiency goals for the future.

Part III ❖ Amendment Impacts or Benefits:

TYPES OF CONSTRUCTION: New Construction Residential-Single Family, Residential-Multi Family

List businesses/industries affected by amendment

Fire Protection Industry:

Specific Construction Contractors & Trades: New home builders, Mechanical HVAC installers

Construction Supply Industry:

Specialty Trades:

Types of Buildings: New construction of single family residences and multi-family dwellings

Manufacturers:

Types of Services Required:

List any reporting, record keeping or other requirements. Indicate if equipment, material or services required by this proposal are available from multiple sources. **Testing of building envelope, and mechanical systems in new construction provided by certified HERS raters and certified PTCS testers already in place through-out the state with current equipment and forms.**

Part IV ❖ Amendment Costs and Benefits

Building Type	Construction ¹			Enforcement ²			Operations & Maintenance ³		
	Costs	% im	Benefits ⁵	Costs	% impact ⁴	Benefits ⁵	Costs	% impact ⁴	Benefits ⁵
Residential									
Single family	200.00	0	thousands	0	0	Reliable data	0	thousands	Reduced operating cost
Multi-family	200.00	0	thousands	0	0	Reliable data	0	thousands	Reduced operating cost
Commercial/Retail									
Industrial									
Institutional									

¹ \$ / square foot of floor area or other cost. Attach data. Construction costs are costs prior to occupancy, and include both design and direct construction costs that impact the total cost of the construction to the owner/consumer.

² Cost per project plan. Attach data. Enforcement costs include governmental review of plans, field inspection, and other action required for enforcement.

³ Cost/benefits to building owner/tenants over the life of the project.

⁴ Cost differential over a specific size project or range of projects as determined by the proponent. Provide sufficient cost and benefit detail to clarify the impact to the Council. All data should be created and referenced to third party reputable sources for verification.

⁵ Include measurable benefit to the user and/or public from Part II.

