



STATE OF WASHINGTON  
**STATE BUILDING CODE COUNCIL**  
Washington State Energy Code Development  
**Standard Energy Code Proposal Form**

May 2018

Log No. 19-WSEC-R13

Code being amended:  Commercial Provisions       Residential Provisions

Code Section # R401.3 Certificate (mandatory)

Brief Description: This proposal seeks to:

- Improve on “build tight” documentation of important envelope leakage and duct testing on the certificate. The proposal adds a new certificate requirement to also document “ventilate right”, based on an assumption that MVE will require measurement of ventilation system at commissioning.
- Extends those requirements by adding to the certificate the important “ventilate right” information.
- Empowers AHJ to request additional time stamp and geo location information to document when and where the test was conducted. (\*) The proposal seeks to improve realized energy savings by reducing the frequency of falsified affidavits. WSU has heard from the hotline that testing QA is an area requiring improvement.

Proposed code change test:

R401.3 Certificate (Mandatory). A permanent certificate shall be completed by the builder or registered design professional and posted on a wall in the space where the furnace is located, a utility room, or an approved location inside the building. When located on an electrical panel, the certificate shall not cover or obstruct the visibility of the circuit directory label, service disconnect label, or other required labels. The certificate shall list the predominant R-values of insulation installed in or on ceiling/roof, walls, foundation (slab, below-grade wall, and/or floor) and ducts outside conditioned spaces; U-factors for fenestration the solar heat gain coefficient (SHGC) of fenestration, and the results from any required duct system and building envelope air leakage testing done on the building. Where there is more than one value for each component, the certificate shall list the value covering the largest area. The certificate shall list the types and efficiencies of heating, cooling, whole house ventilation and service water heating equipment.

The certificate(s) shall provide the results from any required duct system, building envelope air leakage testing and whole house ventilation system flow rates. The AHJ may require that documentation of these test results include an electronic record of the time/date and location of test. A date-stamped smart phone photo or air leakage testing software may be used to satisfy this requirement.

Purpose of the code change: The proposal seeks to improve the design, installation, operation and maintenance of whole house mechanical ventilation systems. The proposal is based on 35 years of research findings related to the challenges to improve; design, installation operation and maintenance. Based on this research the proposal will result in improved indoor air quality (IAQ) as compared to current practice. The proposal seeks to clarify and improve the whole house mechanical ventilation system commissioning process that provides greater “building tight and ventilating right” documentation at design and final inspection. This proposal is crucial given the direction in the WSEC for tighter homes mechanically ventilated with more complex ventilation system than typical whole house continuously operating exhaust ventilation. Improve on “build tight” documentation of important envelope leakage and duct testing on the certificate.

An example of the “Build Tight Ventilate Right” Certificate is as follows:

**2019 WSEC Residential Energy Compliance Certificate**

Property Address: \_\_\_\_\_

Builder/Registered Design Professional Name: \_\_\_\_\_

Builder/Reg. Design Pro. Signature: \_\_\_\_\_

Conditioned Floor Area: \_\_\_\_\_ ft<sup>2</sup> (per building permit)

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

**HVAC System “duct” Leakage Testing**

All ductwork & Air Handler in conditioned space: Y or N (circle one)

All ductwork & Air Handler outside conditioned space insulated to minimum R8? Y or N (circle one)

Air Handler Present at duct leakage test? Y or N (circle one)

HVAC System Leakage Test Calculated Design Target: \_\_\_\_\_ cfm @ 25PA

HVAC System Leakage Test Measured Results: \_\_\_\_\_ cfm @ 25PA

Do HVAC Leakage Tests include GPS & Time Stamp Verification? Y or N (circle one)

**Building Leakage Testing**

Building Leakage Test Calculated Design Target: \_\_\_\_\_ cfm @ 50PA

Do Building Leakage Tests include GPS & Time Stamp Verification? Y or N (circle one)

**Whole House Ventilation (WHV) System Measured Flow Rates**

The WHV system operation and maintenance (O&M) instructions were provided to the building owner? Y or N (circle one)

Provided to: \_\_\_\_\_ on \_\_\_\_\_ (date)

Are the system controls correctly labelled? Y or N (circle one)

WHV System Type: (circle one)

(1) Whole House Exhaust Fan Operating Continuous

(2) Whole House Exhaust Fan Operating Intermittently  
Specify run-time: \_\_\_\_\_ hours/day

(3) Balance Heat Recovery Ventilator Operating Continuous

(4) Balance Heat Recovery Ventilator Operating Intermittently  
Specify run-time: \_\_\_\_\_ hours/day

(5) Supply or HRV WHV integral to the air handler. Describe system control sequence of operations: \_\_\_\_\_

\_\_\_\_\_

WHV Calculated Design Minimum Flow Rate: \_\_\_\_\_ cfm

WHV Measured Minimum Flow Rate: \_\_\_\_\_ cfm

WHV Measured High Speed Flow Rate: \_\_\_\_\_ cfm

Do Measured Flow Rate Test Results include GPS & Time Stamp Verification? Y or N (circle one)

Your amendment must meet one of the following criteria. Select at least one:

- Addresses a critical life/safety need.
- Consistency with state or federal regulations.
- The amendment clarifies the intent or application of the code.
- Addresses a unique character of the state.
- Corrects errors and omissions.
- Addresses a specific state policy or statute.  
(Note that energy conservation is a state policy)

Check the building types that would be impacted by your code change:

- Single family/duplex/townhome
- Multi-family 4 + stories
- Institutional
- Multi-family 1 – 3 stories
- Commercial / Retail
- Industrial

Your name Michael Lubliner

Your organization WSU Energy Program