



# Oregon

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***Oregon Commercial Energy Conservation Advisory Committee>  
Tuesday, June 30, 2009  
Minutes***

**\*\*NOTE:** *The following is a summary of the committee's discussion.*

*To review the meeting in its entirety, the archived video of the meeting is available on the committee's Web page at the following link: <http://www.bcd.oregon.gov/committees/10cec.html>*

- Members Present:** Martin Brown, City of Wilsonville, Building Official (*left at 2:45 p.m.*)  
Mark Firestone, PAE Consulting Engineers - for Skai Dancey, Oregon Health and Sciences University (OHSU)  
Andy Dykeman, Lease Crutcher Lewis  
Jeff Harris, NW Energy Efficiency Alliance (NEEA)  
Jim Klopfenstein, Mechanical Board Member  
Tim Nicol, International Brotherhood of Electrical Workers (IBEW)  
Ron Lowen, Best Heating  
Nathan Philips, National Electrical Contractors Association (NECA)  
Marci Wichman, United Association of Plumbers and Steamfitters (UA290)- (*arrived at 2:00 p.m.*)
- Members Absent:** Samir Mokashi, American Institute of Architects (AIA)  
Bruce Soihl, Building Owners and Managers Association (BOMA)  
Jim Edelson, Governor's Energy Efficiency Work Group (EEWG)
- Guests Present:** David Cohan, Northwest Energy Efficiency Alliance (NEEA)  
Michael Rosenberg, Pacific Northwest National Laboratory (PNNL)  
Reid Hart, Portland Energy Conservation, Inc. (PECI)  
Christopher Rogers, Peci
- Staff Present:** Andrea Simmons, interim deputy administrator  
Wendy Beard, northwest regional coordinator  
Gabrielle Schiffer, sustainability coordinator  
Shane Sumption, fire and life safety code specialist  
Richard Rogers, structural program chief  
Mark Campion, inspector  
Brady Peeks, Department of Energy  
Alan Seymour, Department of Energy  
Debi Barnes-Woods, boards coordinator  
Shauna Parker, rules coordinator

Wendy Beard, northwest regional coordinator, called the meeting to order at 1:32 p.m. She reviewed the committee process and provided some general reminders to both committee and audience members.

Shane Sumption, fire and life safety code specialist, reviewed the agenda with the committee and discussed the materials they would be reviewing at the meeting. These items include continuing the review of the [mechanical provisions](#) in Chapter 13 of the OSSC as well as discussing the materials submitted by Reid Hart ([Mechanical Amendments from PECEI](#), [Mechanical Proposal Summary](#), [Document #1](#), [Document #2](#), [Document #3](#)) for consideration by the committee.

Andrea Simmons, deputy administrator, described the next steps in the code adoption process. First the committee's recommendations will be compiled into a code document which will be sent to committee members for review and comment via email. Because the committee focused on the policy aspects of the proposed code change proposals during their meetings, the email review process will provide committee members the opportunity to see how their policy recommendations translated into code language. She went on to discuss the code adoption process including timelines and opportunities for public input. Before its final adoption the proposed code amendments must be approved by the Building Codes Structures Board; then, a public rulemaking hearing will be held. Ms. Simmons explained that while Chapter 13 of the OSSC will be based on national model code, IECC 2009, with Oregon amendments.

Ms. Simmons also discussed SB 79, which was approved by the 2009 Legislature. SB 79 directs the division to develop and adopt a reach code and to amend existing building codes to improve the energy efficiency of buildings by 15-25% by the year 2012. The division intends to use this committee's work to achieve the new energy efficiency requirements for commercial buildings set for 2012. She noted the division will soon be involved in adopting other codes, such as the ORSC, which will also have to meet these same energy efficiency requirements.

## **SECTION 1317- HEATING, VENTILATING, AND AIR CONDITIONING (HVAC) – OTHER BUILDINGS**

### **1317.8, Duct sealing and testing**

Reid Hart, Portland Energy Conservation, Inc. (PECEI), reviewed the suggested changes to this section, explaining this requires a residential low pressure duct test that will apply in very limited situations where ductwork is outside the building envelope.

The committee discussed the low pressure testing standards, noting that the requirements differ between the residential and commercial application. They discussed the 1985 SMACNA Duct Leakage testing requirements to see if that would better align the residential and commercial requirements. They considered clarifying that the testing requirements applied to 6 percent of the fan flow *operating conditions*, but decided the SMACNA standard addressed this and provided acceptable testing criteria.

### **1317.9, Simple HVAC systems**

Mr. Hart explained that the definition of a HVAC system is narrower in the proposed code amendment, allowing those systems that have active humidification and simultaneous heating and cooling to be considered complex systems.

### **1317.10.3.1, Variable speed drives**

Mr. Hart discussed the proposal relating to variable speed drives, which lowers the horsepower requirements from 10 to 5. It also expands the scope to include constant volume fans and ventilation control standard requirements.

Nathan Philips asked why the requirements for pool/service water pumping and domestic water pressure boosting systems are included under a section covering complex systems; noting there may be other code sections that are more appropriate to address the pool requirement.

Mr. Hart agreed the language should be moved to a more appropriate section.

The committee discussed the differences between simple and complex systems, then brainstormed how the code section would apply to current projects and code requirements. They discussed the change in horsepower requirements and the availability of frequency variable speed drive equipment. The committee also considered whether the requirements were too rigid for packaged equipment.

Mike Rosenberg, Pacific Northwest National Lab, noted this section requires variable speed drives for package equipment is an issue that was addressed nationally by ASHRAE and has now been approved for publication in the upcoming ASHRAE 90.1 standard. He noted this requirement has a delayed effective date of January 1, 2012 in order to allow industry and manufacturers time to comply.

*Marci Wichman arrived at 2:00 p.m.*

The committee discussed the addition of humidification provisions to the complex systems section. They also discussed economizer systems, as well as whether variable flow requirements apply to refrigeration systems. The committee considered the most appropriate location in the code for some of the proposed requirements and agreed that the requirements relating to pool or water systems should be removed and added to a different section, such as 1316. Committee members voiced concerns over including a provision in the code that require equipment that is not yet readily available. As a result, the committee agreed to add a specific effective date of January 1, 2012 to this requirement, aligning with the ASHRAE 90.1 standard.

### **1317.10.4, Limited use of air-cooled chillers**

Mr. Hart explained the proposal, noting it creates a restriction on air-cooled chillers by limiting their use to those chillers that do not provide more than 100 tons of the total capacity of the cooler.

### **1317.10.3.2, Large volume fan systems**

Mr. Hart explained the language in this proposal was recommended by the DOE Mechanical Code Development Work Group (“expert committee”) and addresses multiple unit fan systems in large box stores.

The committee recommended this provision should also be relocated to a more appropriate place in the code, such as 1317.9, and the effective date should also be delayed to 2012.

### **1317.11, Kitchen hoods**

Mr. Reid referenced the proposal in section 1317.12 in the [supplemental document](#) he submitted, that show some additional changes to the language.

Ron Lowen used examples and described how kitchen ventilation systems work.

The committee discussed the provisions, demand ventilation system product availability, the cost impact of the proposed changes, and how it all relates to existing requirements. They used examples to discuss proprietary ventilation systems, automatic controls, and manual overrides and how the proposed changes compare to current practice. They also discussed the enforceability of the section and how building officials would interpret this section.

Jeff Harris suggested striking the last part of the proposal in 1317.12.2 after “in response to cooking appliance operation” to allow for more flexibility based on the committee’s discussion and concerns.

Mr. Rosenberg noted he does not have a problem with removing the language, but explained the section was taken from the model code and added to the proposal for the sake of consistency.

Mr. Philips stated that the marketplace is already installing things to deal with the kitchen ventilation issue. He voiced his concern with putting requirements in code before the market has a chance to catch up to industry. He explained doing so makes the code requirement difficult to meet.

Mark Firestone suggested adding language that specifies and allows for the use of an optical sensor or manual override in order to address the committee’s concern.

Mr. Hart then suggested striking the last sentence altogether and adding a comment box to address the committee’s concerns and clarify the expectations of the code section without making the provisions a code requirement.

The committee continued to discuss the proposal and current code requirements.

*Martin Brown left at the break.*

***Break.***

Mr. Hart suggested continuing in the supplemental document which has two new sections, 1317.14 and 1317.15.

### **1317.14, Vestibule and air curtain conditioning**

Mr. Hart explained that many vestibules have separate heating or cooling systems in addition to the main building’s HVAC system. This proposal, recommended by the expert committee, suggests pressurizing the vestibule and transferring the air by using the main building’s heating and cooling system to accommodate that area as well.

The committee discussed the use of the term “transfer air,” noting that the term is undefined in the code and members of industry may not understand the meaning or intent of the requirements of the code section. They noted their concern that the outside air calculation in the HVAC system would be impacted by the addition of this code section and the vestibule requirements. They also pointed out that many times space heaters or fans are used in the vestibule area in addition to the HVAC system, commenting that they felt the use of such portable devices would increase with the addition of this code requirement. The committee noted that if this requirement encourages the use of the portable devices, than the energy efficiency benefits are lost.

Mr. Rosenberg suggested that since “transfer air” is an undefined term, using the language “air transferred from” would avoid the need to define a specific term.

Mr. Hart suggested moving the information pertaining to the transfer air provisions into a comment box, effectively deleting everything after the first sentence section 1317.14.

The committee continued to discuss the use of heating devices in vestibule areas and the problem of keeping the temperature in a vestibule area without losing the conditioning to the outside. They discussed the characteristics of a vestibule and keeping the HVAC system functional.

### **1317.15, Pipe sizing**

Mr. Hart discussed the piping system requirements for energy use, explaining this provision establishes the *maximum* flow requirements for the piping. He noted that while the calculations are based on the national ASHRAE methods, Oregon factors were applied to the proposal to determine the appropriate numbers for pipe size and energy flow. He explained all pipe sizes in the table below 2 inches were added because the national code did not include them.

Jim Klopfenstein suggested adding a  $\frac{3}{8}$  measurement to the table because it is a frequently used pipe size.

The committee discussed the affects of this provision on industry and the design of such piping systems, including feet per second velocity and pipe size as it relates to distance. They voiced their concern that contractors would begin to use this as a minimum piping reference chart and in doing so any energy efficiency intended would be lost because the chart is a maximum requirement.

Mr. Hart suggested adding language to the footnote in this section to make it clear the values listed in the table are not required as a minimum, but rather are included as maximum requirements for energy cost effectiveness in piping design systems.

Mr. Sumption asked Mr. Hart to clarify how they reached the conclusion on the values included in the chart that are smaller than 2 inches since the national code did not include those measurements.

Mr. Hart clarified that the rates were calculated by using the same spreadsheet calculations and methodology used by the national code.

### **1317.13, Additions and alterations**

Mr. Sumption returned the committee to the main document for the mechanical changes to OSSC Chapter 13 and asked Mr. Hart to explain the proposal in this section.

Mr. Hart explained this proposal is intended to bring together the different items that are difficult to do during a remodel or alteration, which allows some leniency in meeting the new code requirements.

The committee had no comments or concerns with regards to this code section.

## **SECTION 1318, GENERAL**

### **PART II, DIVISION I – COMPLEX SYSTEMS DESIGN REQUIREMENTS**

#### **1318.2.1, Simultaneous heating and cooling**

Mr. Hart explained the proposal expands the definition of cooling to include outside, economized air. He noted the other changes to the section simply clarify the VAV system requirements in order to address past issues with poor compliance in industry. He clarified that the minimum and maximum controls for peak supply volume have been changed, noting that research has shown that the change is controllable. Mr. Hart stated the intent of this section is to have good continuous control of the heating and cooling in a ventilation system.

Mr. Rosenberg explained that the 20% minimum and 50% maximum dead band peak supply rate changes are based off the maximum allowable rates in the ASHRAE standard. He noted this change was shown to result in a net positive energy savings.

Mr. Firestone discussed his concern that the change may lessen the code requirements instead of increasing energy efficiency standards. He discussed the national practice used for these systems and discussed its applicability in Oregon. He suggested changing the requirement in exception 1.2 back to the 30% of the peak heating.

The committee agreed with the suggested change to exception 1.2 to revert to the 30% requirement.

Mr. Hart pointed out the language in exception 1.4 is new and requires systems to be properly interlocked in order to avoid accidentally inducing simultaneous heating and cooling.

Mr. Rosenberg explained exception 1.1.3 which allows higher and lower levels of reheat or peak supply volume in those buildings required to meet certain accreditation standards. He described accreditation standards and why adding this provision was important.

Mr. Hart went on to discuss exception 2.6 which adds requirement for three deck multizone systems.

#### **1318.2.2, Humidity control**

Mr. Hart noted that most of the changes proposed for this section are clean up, except for a new provision in section 1318.2.2.2 that requires a dead band be included in the humidity controls. He briefly reviewed section 1318.2.2.3 which addresses coordinating multiple humidity zones.

#### **1318.2.3, Variable air volume system static pressure reset controls**

Mr. Hart explained this requirement comes from California Title 24, which gives you a set point limit that will be no more than one-third of the total pressure. He explained this has been in the California code for the past two code cycles. He noted exceptions and strategies are included in this requirement.

The committee discussed strategies and used examples to evaluate how this would change current practice, describing what would and would not be allowed under this code provision. They noted that because it is a set point requirement, the provision is unenforceable.

#### **1318.2.4, Chilled and hot water temperature reset controls.**

Mr. Hart discussed this section, noting they felt this was a suitable approach in some instances.

The committee briefly discussed the elimination of the language “comfort conditioning systems.”

#### **1318.2.5, Supply-air temperature reset controls**

Mr. Hart explained the section which adds a requirement that the interior zones should be designed to allow a significant reset in temperature. He pointed out the new exception for dedicated outdoor air systems less than 5,000cfm.

The committee briefly discussed the dedicated outdoor air provision, brainstorming its applicability.

#### **1318.2.9, Hydronic variable flow systems**

Mr. Hart described the new requirements for variable flow requirement in hydronic systems. He pointed out the new sections that came from California’s Title 24 energy efficiency standards and deal with chiller isolation (1318.2.9.1) and boiler isolation (1318.2.9.2). He also reviewed the variable flow control requirements listed in section 1318.2.9.3 that relates to those systems exceeding 5 horsepower. He stated these requirements are primarily standard practice in industry already.

#### **1318.2.11, Digital Control System Capabilities**

Mr. Hart noted the expert committee suggested the addition of a couple requirements in this section relating to the capability of the system, including a minimal requirement for trending. He explained the goal was to add minimum requirements to the code to serve as a guide for industry.

The committee discussed the 780,000 btu requirement in this section, noting that it only applies to buildings that are non-complex and can be controlled in a packaged system. They discussed what DDC systems are and how they work, asking if there is a definition of a DDC in code. The committee also talked about the trending package included in this section and suggested striking the words “and programmed” to avoid confusion that everything must be simultaneously trended.

#### **1318.4.2, Fan system power limitation**

Mr. Rosenberg explained the significant changes to this section, noting the proposal changed the requirements to be consistent and align with the requirements in ASHRAE 90.1.

The committee discussed the differences in the calculations listed in the tables, noting the change from brake horsepower to nameplate horsepower.

#### **1318.4.3, Series fan-powered terminal unit fan motors**

Mr. Hart explained this section requires electronically-commutated motors to be in series fan. He further explained this is a Title 24 requirement, noting Seattle also has a similar requirement.

Mr. Sumption described the process for the final committee meeting. He explained staff will compile a list of items to review at the last meeting, including the following: the 40% glazing tradeoff; exterior continuous insulation relating to structural connections; commissioning provisions; and frozen storage places.

Ms. Beard reminded the committee will meet next Wednesday, July 8, 2009 at 1:30 p.m.

*The committee meeting adjourned at 4:15 p.m.*