

Memorandum

January 23, 2018



TO: Internal NEEA

FROM: Bing Liu, Neil Grigsby, Louis Starr and Charlie Stephens

SUBJECT: 2018 Q4 Codes and Standards Update

Codes Update

National/Regional Level

IECC Code Development

NEEA is participating in the 2021 IECC code development process. NEEA completed the technical analysis and developed several code proposals. The Northwest Code Group (NWCG) submitted 15 proposals on January 14th, 2019. NEEA will participate in upcoming code hearings in April and October of 2019. The submitted proposals are summarized below.

Commercial code proposals include:

- Require envelope verification to meet the continuous air barrier requirement
- Expand the envelope air leakage testing
- Change the definition of above-grade walls to include exposed floor edges
- Remove greenhouse as low-energy buildings
- Add optimum stop for DDC system with zone level controls
- Require demand control ventilation for all single-zone systems
- Require high wattage limits to meet high efficacy exterior lights
- Add additional efficiency options in Section C406

Residential code proposals include:

- Require Grade 1 Insulation installation
- Require a minimum FE level for gas hearths over a certain input size
- Prohibit standing pilot lights on gas-fired appliances
- Introduce flex points table of additional efficiency options

State Level

Washington

- **Commercial Code Update.** During Q4 the State Building Code Council (SBCC) held two public hearings concerning the commercial energy Code. The first hearing was on September 30th in Spokane and the second was on November 30th in Olympia. NEEA code proposals were supported by the Energy Technical Advisory Group (TAG) and the SBCC members. An element of NEEA's HVAC TSPR (Total System Performance Ratio) proposal was discussed at both hearings involving the value of carbon for fuel sources and the potential to affect different HVAC systems that would pass code requirements. The SBCC received input from the TAG and the gas industry and appeared to settle on a compromise of 0.70 lbs of carbon per kWh. Other items of discussion included two other alternate Light Power Density (LPD) tables that achieve more savings than the current TAG adopted

LPD table. As of the end of Q4 there were 3 LPD tables that could be adopted based upon public comment. The last meeting of the SBCC is scheduled in mid-March in 2019. The final decision of the LPD table and acceptance of entirety of the code will be made at this meeting.

- **Residential Code Update.** Washington State has begun the process of developing the integration of the Washington State Residential Code and 2018 IECC residential provision. NEEA held a meeting with interested stakeholders in Q4 preparing for the residential code proposal development. The first meeting of the TAG is scheduled on January 4th, 2019. NEEA staff serves as an alternate TAG member and will participate in the code development process and the TAG meetings.
- **Education and Training.** NEEA's contractors continued to provide technical assistance and trainings on the current WA commercial and residential energy codes. The training attendees include design and construction professionals, building officials, plans examiners, home builders, contractors, field inspectors and fire marshals. In 2018 there were over 500 attendees participating in NEEA funded classroom energy code trainings.
- **Code Compliance Tool.** NEEA continued to develop the new web-based WA commercial code compliance documentation portal. The portal will be conducted for beta test in Q1 2019 and be launched in Q2 2019.
- **Commercial Code Enhancement.** NEEA held a CCE Washington Q4 meeting in early December with utility and code stakeholder participants. Topics included: an update on the current WA code cycle, a Total System Performance Ratio (TSPR) demonstration and conversation about using TSPR in utility programs, and a WA long term code road map to meet the 2031 goals. A Q1 2019 follow-up meeting will be scheduled to continuing exploring the possibility of using TSPR in utility programs.

Oregon

- **Commercial Code Update.** The commercial code process in Oregon has taken a few turns with a variety of meetings. In early June the code process in developing the 2019 Oregon Structural Specialty Code (OSSC) based upon amendments to the 2018 IECC was completed. NEEA participated in the code process and several NEEA's proposals were passed. In Q3 the Oregon BCD (Building Code Division) proposed ASHRAE Standard 90.1-2016 as an alternative path to the current Oregon Energy Code. This proposal was approved by the Oregon Building Code Structures Board. In Q4 it appeared that BCD proposed adopting ASHRAE Standard 90.1-2016 instead of the Oregon Energy Code. There are positives and negatives to adopting the current version and future versions of ASHRAE 90.1 as Oregon Energy Code now and in the future. On the positive side ASHRAE as an organization consists of engineers and are likely to develop code that is cogent, cost effective and able to be applied into practice. On the other side the IECC code has code mechanisms such as additional efficiency packages that circumvent equipment standards preemption, DOAS requirements such as WA state, and substantial Commissioning requirements. The key is to ensure the ability to amend ASHRAE 90.1 with state code proposals to reflect the state specific design and construction practices. The next meeting of the Oregon Building Code Structures Board is scheduled on February 6, 2019. The board will review different options in advancing Oregon commercial code.
- **Education and Training.** NEEA's contractors continued to provide technical assistance and trainings on the current Oregon commercial and residential energy codes. In 2018 there were over 280 attendees participating in NEEA funded classroom energy code trainings.
- **Commercial Code Enhancement.** CCE met with the Energy Trust in mid-December. Topics included: current OR energy code updates, Energy Trust program updates, and 2019 OR training coordination. CCE will meet with the Energy Trust in Q1 2019 to continuing developing training coordination and a data plan.

Idaho

- **Education and Training.** The Idaho Energy Code Collaborative hosted a one-day energy code conference on October 2 in Boise. The conference focused on energy code training geared to code officials, designers and builders. The conference was organized by the Idaho Association of Building Officials.

- **Residential Code Evaluation.** Pacific Northwest National Laboratory (PNNL) completed the report of the Idaho Residential Energy Code Field Study. The report was reviewed by NEEA and the Idaho Energy Code Collaborative. PNNL is in process to finalize the report by incorporating the review comments and publish the final report in Q1 2019.
- **Commercial Code Enhancement.** CCE coordinated with the Idaho Code Collaborative to streamline communications in 2019 and integrate CCE with the Idaho Code Collaborative. This will allow CCE to stay informed on current code challenges and opportunities and reduce overlap in topics and meeting times for Idaho stakeholders.

Montana

- **Energy Code Update.** The status of the energy code update process in Montana remains unchanged. The adoption process is stalled because the Governor has not established the current membership of the Building Codes Advisory Council. The Building Codes Bureau plans to wait until the non-energy codes are adopted before holding listening sessions for the energy code. The best guess is that the 2018 non-energy codes will be adopted by mid-2019 with the energy code adopted by the end of 2019.
- **Education and Training.** In lieu of in-person trainings, NCAT developed online educational material about the current Montana residential energy code. The twenty articles have been loaded onto NCAT's website. A [link](#) to the web site where the articles may be downloaded was sent to Local homebuilder associations, the State Building Codes Bureau, the State Department of Environmental Quality, and local building code departments.
- **Residential Code Evaluation.** The project team completed the field data collection and Pacific Northwest National Laboratory (PNNL) completed the data analysis. The preliminary data was presented to the Montana Energy Code Collaborative on December 10th. PNNL is drafting the report on the Montana Residential Energy Code Field Study. The report will be reviewed by NEEA and NCAT before it is finalized and published in Q1 2019.
- **Commercial Code Enhancement.** CCE held the second meeting of 2018 with Montana stakeholders at the end of October. The Montana State Integrated Design Lab presented findings from their Scanning Report, highlighting high performance design and technologies found in recently completed commercial new construction projects in Montana. CCE will follow-up in Q1 2019 to continue exploring market best practices, ideas for utility programs, and integration with the Montana Energy Code Collaborative.

Standards Update

Federal Level

- AHRI submitted a petition to DOE on their proposal to introduce a new residential furnace metric called AFUE2. It would combine the AFUE fuel performance with the FER fan performance and the standby energy consumption into a single AFUE2 metric. If a rulemaking enacted such a proposal, it would have the effect of wiping out the significant furnace energy savings that will otherwise begin to accrue when the standards take effect in July 2019. It would be very challenging for furnace purchasers to know the combination of efficiencies from which the AFUE2 rating was derived. Standby energy would all but disappear. NEEA submitted a public comment to DOE on January 14, 2019 to address the issues of this petition.
- Natural gas industry submitted a petition to make condensing and non-condensing furnaces separate classes of covered products, based on an assertion of consumer utility of condensing technology. If DOE agreed with the gas industry's position, it would likely result in no further furnace efficiency rulemakings. NEEA, as a member of a stakeholder group, has commissioned a market research study to address some of the issues regarding condensing gas technology raised by industry in the past. The goal of the study was to provide data that has not been readily available to date and to inform the conversation regarding condensing gas technology. The study will address

the prevailing belief in industry that requiring condensing technology for residential furnaces and commercial water heaters is cost prohibitive, due to some “difficult” installation scenarios driven by venting modification and condensate management requirements, especially in constrained spaces. Industry has not offered any data regarding the frequency or specific cost of these “difficult” installations.

- VRF System Test Procedure Rulemaking. As a member of the VRF working group, NEEA staff attended three 2-day DOE meetings in Q4. NEEA and PG&E collaborated on data collection to support the shared desire for a load-based test procedure for VRF, which will more accurately reflect the energy consumptions of VRF. Based upon NEEA’s data collection protocol, PG&E conducted lab testing and collected field data from a building. The resulting presentation instigated a request for manufacturers and DOE consultants to view the test set up, walk through the testing building and review the data in place of the next schedule ASRAC meeting. The test set up was found to be credible and results were found to be reasonable. An AHRI Standard 1230 test on the VRF system at PG&E’s lab was requested to assure calibration of test procedure and verification of system performance. The following meeting resulted in PG&E securing lab time for December and January for testing several VRF systems with load-based testing and AHRI 1230 testing. At this same meeting, knowledgeable industry staff provided testimony doubting the rigor of the AHRI 1230 test procedure. The result of the last meeting is a substantial extension of DOE test procedure development schedule with the next meeting scheduled in February 2019. This extension allows for the possibility of meaningful change to allow accurate representation of energy use in the DOE test procedure. NEEA continues to collaborate with PG&E to ensure the lab data collected will find innovative solutions to issues found during testing. NEEA and the region is appreciative of partnership with PG&E and other California IOUs to leverage real change and financial resources in making the DOE test procedure accurate and meaningful in saving energy in the NW and the rest of the nation.

State Level

California

- Parts of the California Energy Commission’s (CEC’s) 2018 agenda moved forward this quarter, with 45-day language comments being submitted for Spray Sprinkler Bodies, Portable Air Conditioners, and Commercial and Industrial Compressors. Two other rulemakings – pool pump and spa labeling and improving HVAC system performance also collected many comments, especially the latter. The other product categories are working their way through the process, with hearth products and an expanded scope for general service lamps getting started to align with federal rule. Hearth products is at the information and data-gathering stage. Comments on the proposed Commercial and Industrial Fans and Blowers rules are being assessed by Commission staff and will be responded to in the next round.
- NEEA signed on joint comments for Commercial and Industrial Fans for California Title 20 standards with other energy efficiency organizations and AMCA (fan trade association) on standalone fan requirements. NEEA submitted its own comments on embedded fan requirements. NEEA attended an informal discussion and factory tour in Sacramento, CA with Greenheck Fans, California Energy Commission (CEC) and others to review how embedded fan are purchased and installed into air handling products. The information exchange and discussion facilitated future industry participation and real energy savings from CEC fan regulations. It appears the CEC will opt for a split rulemaking on embedded fans and standalone rulemaking. NEEA is working on characterizing the fan market in the NW for a potential expansion of the XMP initiative around fans. It should be noted that work with fan standards in California will help inform NEEA’s Initiative and likely will result in enhanced energy savings for the NW region.
- NEEA provided comments on 45-day language on title 20 standards for Industrial and Commercial Air Compressors. NEEA participated in discussion with manufacturers and CEC in mid-December to use legacy test data and provided testimony in early January to the commission supporting test

procedures and standards. NEEA's work with air compressor standards in California will help inform the potential for further expansion of the XMP initiative and likely will result in enhanced savings for the NW region. California will likely have an Air Compressor standard effective in 2022.

Oregon

- The 2019 Oregon legislative session starts in Q1 2019. It isn't clear yet whether there will be an appliance standard bill this session. ODOE will likely watch how the session goes, and if the timing is right afterward, decide whether to conduct an administrative process to update and/or propose new standards. This likely wouldn't happen until Q3 2019.

Washington

- An Appliance Standards [Bill](#) (SB 5115) is being assembled for the 2019 legislative session. The list of products covers a wide range of products for which standards are now timely.

Other Non-Federal Level

- NEEA continued to participate in the monthly call with the Pacific Coast Collaborative (PCC) and coordinate the standards activities in British Columbia, Washington, Oregon, and California. Some of the group's work is focused on harmonizing standards, and a growing body of work is in developing needed test and rating procedures.
- CSA Group (Canadian Standards Association) Task Group completed the final editing on the technical draft of new load-based HVAC test procedures this quarter after some very helpful test lab input commissioned by NEEA. Publication of this new standard is expected early in Q1 2019. Test labs have already begun using the new procedures to test and rate various types of systems, from multiple manufacturers, to begin assembling a new performance database. Project partners now include NRCan, NEEA, NEEP, Canadian utilities, CA utilities, and others. The group's goal is to test and rate approximately 30 systems, while gathering technical feedback on the test procedures themselves. After receiving feedback from labs through mid-2019, CSA intends to upgrade the standard, as needed, and publish it as a voluntary Annex to C656 (the Canadian equivalent to DOE's Part 430, Appendix M/M1 test procedures for these products). Programs administrators and others can use the standard and its resulting ratings to much more reliably identify which systems perform best in which climate zones. The standard provides seasonal COP ratings for heating and cooling in 8 climate zones, including sub-Arctic.
- NEEA staff and CSA continued working on new test and rating procedures for split system air-to-water heat pumps used for the domestic hot water end use. The first draft of this set of procedures is planned to be finished in Q2 2019.
- NEEA is also working with CSA on a test procedure for modular commercial gas furnaces. The first draft test procedure will be available in Q1 2019 for public review. NEEA has provided building modeling, test procedure development, and rooftop equipment heat transfer analysis for the project committee.

Please contact Bing Liu (BLiu@neea.org) if you have questions about the Codes and Standards Program.