

2019 Q2 *Codes and Standards Quarterly Newsletter*

Codes Update

National Model Development: The Committee Action Hearing for the 2021 International Energy Conservation Code (IECC) took place in Albuquerque over 11 days in late April through early May. A total of 550 proposals for both the commercial and residential provisions were presented and debated for a total of 110 hours of testimony. Among the reviewed commercial proposals, 130 were approved to proceed, 120 were disapproved and 14 proposals were withdrawn at the Hearing. Among the reviewed residential proposals, 99 were approved to proceed, 173 were disapproved and 5 proposals were withdrawn.

NEEA staff and the Northwest Energy Codes Group (supported by NEEA) attended the Hearing and brought forward 10 proposals. NEEA and the NW codes group also provided technical support for proposals submitted by others that either save energy in buildings or prevent roll backs in energy efficiency. One of NEEA's proposals (C406 Option Package) was based on the Washington State commercial code and then adopted to the IECC national code. This proposal brought a significant structural change in the commercial code and converted the current C406 Option Packages to a point-based format. The point-based code requires the designer to select efficiency measures totaling 10 points, with points assigned based on occupancy type and climate zone. This change recognizes that savings from efficiency measures vary based on climate zone and occupancy type and assigns points accordingly to ensure that all buildings achieve at least 2.5 percent additional overall energy savings.

Washington

Commercial Code: Following up on the 2018 Commercial Washington State Energy Code (WSEC) development started in 2018, the State Building Code Council (SBCC) staff compiled the legislative draft of the 2018 WSCEC in May. NEEA staff and contractors reviewed the entire draft code for consistency of intent and correctness of language to prevent unintended consequences. A list of over 100 issues were developed and submitted for public comment. SBCC scheduled a series of public hearings in July to resolve identified issues due to the complexity of commercial energy code work. It is anticipated that a final vote by the SBCC members on the new commercial energy code will be held on July 26th, 2019.



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Residential Code: Washington State initiated the process of developing the integration of Residential Washington State Energy Code and 2018 IECC residential provision in Q1. A total of 34 proposals were submitted to the State Building Code Council (SBCC) on April 15th, 2019. NEEA staff and contractors worked on several code change proposals and participated in three Technical Advisory Group (TAG) meetings held in Q2. The Washington State Mechanical, Ventilation and Energy Codes (MVE) Committee met on June 13th, 2019 to provide final recommendations to the SBCC. SBCC met on June 14th, 2019 to review the MVE Committee report and modified the recommendations to address the legislative mandate to modify policies and procedures for considering statewide and local amendments. NEEA participated in all of the council meetings to support the code change proposals, and is serving as an alternate TAG member. It is anticipated that SBCC will vote on the new residential energy code on September 27th, 2019. The anticipated effective date of the 2018 WSEC is July 1st, 2020.

Education and Training: NEEA continued to provide technical assistance and trainings on the current WA commercial and residential energy codes (2015 WSEC). The training attendees include design and construction professionals, building officials, plan examiners, home builders, contractors, field inspectors and fire marshals. For the commercial code, NEEA provided a full day training about building envelope design and building enclosure (air barrier) testing in March. A training series will be offered this fall including an overview-level summary of the most substantive changes in the upcoming 2018 WSEC.

The residential energy code trainings delivered in Q2 are listed in the table below.

Course	Length of Course	Attendees	Location	Date
WSEC*	3 hours	12	Spokane	4/10/19
WSEC	3 hours	8	Spokane	4/11/19
WSEC	3 hours	14	Pullman	4/12/19
Ducts	3 hours	15	Olympia	4/18/19
WSEC	3 hours	14	Dayton	5/30/19
WSEC	3 hours	3	Olympia	6/21/19
Ducts	3 hours	3	Olympia	6/25/19

*WSEC: 2015 Washing State Energy Code (residential code)

Code Compliance Tool: NEEA continued to develop the new web-based WA commercial code [compliance documentation portal](#). The technical support features of this website were publicly launched in February. As of the end of Q2, there were over 980 users registered for this new tool. Beta testing of the compliance documentation features (compliance console) were initiated in



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early April and continued through Q2. Public launch of envelope and lighting compliance consoles are scheduled in July 2019.

Commercial Code Evaluation: The Washington Commercial Code Evaluation study is in the field. The contractor will visit approximately 100 new commercial building sites throughout the state. This field study is focused on understanding how commercial new construction is being affected by current commercial code across the state. It will provide NEEA and its stakeholders information that will assist with code development and implementation efforts (education and training) by looking at which building systems are present, which compliance paths are being selected, and which code requirements are/are not being met. The data collection will be completed in Q2 of 2019 and the project will be completed in Q3 of 2020.

Residential Code Evaluation: NEEA has selected the contractor to conduct the Washington Residential Code Evaluation study in Q2. The purpose of this study is to provide NEEA and its stakeholders information to better understand how the 2015 Residential Washington Energy Code has affected new home construction. The information will be used to support NEEA's ongoing code development efforts and assist NEEA's efforts to update savings model assumptions and estimation accuracy. The project will be kicked off in July and will be completed in Q1 of 2020.

Oregon

Code Update: Oregon Building Codes Division (BCD) continues work toward adoption of ASHRAE Standard 90.1-2016 as the new Oregon commercial energy code, effective on October 1, 2019. This code will also include estimation of building energy consumption and the number of renewables that would be needed to offset site energy use, using the Architecture 2030 Zero Code Calculator.

Oregon's Construction Industry Energy Board (CIEB) held an additional meeting on June 5, 2019 to evaluate a proposal from BCD to use the 2018 IECC with amendments as a Statewide Alternate Method (SAM) for the 2019 Oregon Code. The 2019 Oregon Code will be ASHRAE 90.1-2016, and BCD asked the board to review the 2018 IECC as a SAM to help provide a transition for one year as Oregon moves from I-codes to ASHRAE. The main issue discussed by the CIEB regarding the SAM was the proposed building commissioning language. The CIEB provided some clarification and recommendations for code language and asked BCD to provide more clear explanations and descriptions to the board in the future around commissioning and its ability for inclusion in the code. The CIEB approved the recommendation of the 2018 IECC with amendments and broad fixes to the commissioning language as a SAM.

Education and Training: NEEA continued to provide technical assistance and trainings on the current Oregon commercial and residential energy codes. NEEA also provided funding for an energy code hotline to assist the design and construction community with general residential and commercial energy code questions. In Q2, NEEA and Oregon partners began planning for training that will be necessary to educate the industry on the requirements of ASHRAE Standard 90.1-2016 as the next commercial energy code.



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Course	Length of Course	Attendees	Location
Designing for the Future	1 hour	33	Home Builder University
Building Science Fundamentals	1 hour	36	Home Builder University
Durability and Water Management	1 hour	36	Home Builder University
Thermodynamics	1 hour	34	Home Builder University
Moisture Management	1 hour	27	Home Builder University
Building Exterior Shell Training	1 hour	11	Home Builder University
Solving Energy Code Problems	1 hour	38	Home Builder University
HVAC and the Energy Code	1 hour	65	Home Builder University
Energy Code Compliance	1 hour	5	Home Builder University
Home Energy Performance Scores	1 hour	4	Home Builder University
Making Sense of the Energy Code	2 hours	19	Home Builder University
2017 Oregon Energy Code	1 hour	123	Home Builder University
Energy Code Option 6	1 hour	5	Home Builder University
	Total	436	

Commercial Code Evaluation: The Oregon Commercial Evaluation Code study final report has been completed. Topline findings include: overall, buildings comply with code requirements to a high degree in each of the major systems (envelope, lighting, mechanical, and service water); by building type examined, schools were found to be most compliant and multifamily the least compliant; current EUIs are trending lower than those recorded in previous studies. The report can be used to provide guidance to future program and code development efforts. The complete study will be posted for public access by July 31, 2019.

Idaho

Code Development: NEEA and the Idaho Energy Code Collaborative held a bi-monthly meeting in April in Boise ID. The Collaborative submitted the draft language for 2018 IECC code adoption to the Idaho Building Code Board (BCB) on June 11th for 2018 IECC code adoption. A Final Public Hearing to discuss and review possible adoption of the 2018 IECC is scheduled on August 13th. If approved, effective date of both the new residential and commercial code would be January 1, 2021 with residential air sealing testing requirement effective on July 1, 2021.

Education and Training: The Idaho Energy Code Collaborative has offered over 60 code related trainings to over 630 participants in Q1 and Q2. The code trainings delivered in Q2 are listed in the table below.



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Course	Length of Course	Attendees	Location	Date
Conditioned Crawlspace	1 hour	1	Salmon, ID	4/23/2019
Effective Air Sealing	1 hour	8	Hailey, ID	4/24/2019
Attic Ventilation	1 hour	9	Hailey, ID	4/24/2019
Conditioned Crawlspace	1 hour	9	Hailey, ID	4/24/2019
Attic Ventilation	1 hour	6	Twin Falls, ID	4/25/2019
Conditioned Crawlspace	1 hour	6	Twin Falls, ID	4/25/2019
2015 IECC	4 hours	3	Twin Falls, ID	4/25/2019
DET/Air Balance	1 hour	19	Meridian, ID	5/8/2019
IECC Overview	4 hours	25	Jerome, ID	5/20/2019
IECC/IRC Remodels and Additions	1 hour	11	Meridian, ID	5/21/2019
Strategic Electrification	1 hour	11	Meridian, ID	5/21/2019
Heat Pump Water Heaters	1 hour	11	Meridian, ID	5/21/2019
Performance Compliance	1 hour	14	Meridian, ID	6/4/2019
Advanced Framing	1 hour	22	Meridian, ID	6/4/2019
Clean Tech: Design and Materials	1 hour	12	Meridian, ID	6/4/2019
Effective Air Sealing	1 hour	6	Sandpoint, ID	6/5/2019
Attic Ventilation	1 hour	6	Sandpoint, ID	6/5/2019
Conditioned Crawlspace	1 hour	6	Sandpoint, ID	6/5/2019
2015 IECC Commercial	3 hours	2	Sandpoint, ID	6/5/2019
Remodels and Additions	1 hour	2	Priest River, ID	6/6/2019
Attic Ventilation	1 hour	2	Priest River, ID	6/6/2019
Conditioned Crawlspace	1 hour	2	Priest River, ID	6/6/2019
2015 IECC Commercial	3 hours	1	Priest River, ID	6/6/2019
Emerging Technologies: Ductless HVAC	1 hour	16	Meridian, ID	6/11/2019



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Residential Ventilation	1 hour	18	Meridian, ID	6/11/2019
Manual J, D, and S	1 hour	3	Meridian, ID	6/12/2019
Effective Air Sealing	1 hour	7	Meridian, ID	6/19/2019

Montana

Code Development: The Montana Building Codes Bureau plans to hold a listening session on the adoption of the 2018 IECC energy code in August. The specific date is to be announced.

Education and Training: Along with Northwestern Energy, NEEA helped support the Building Codes Education Conference in April by providing two energy code sessions. One session focused on the overview of ASHRAE Standard 90.1-2016 and the other session presented findings and results from the recently completed residential [energy code field study](#). The code trainings delivered in Q2 are listed in the table below.

Course	Length of Course	Attendees	Location	Date
Overview of ASHRAE 90.1-2016 (Commercial)	4 hours	31	Montana Energy Code Conference, Bozeman MT	4/25/2019
Residential Energy Code Reality Check	4 hours	24	Montana Energy Code Conference, Bozeman MT	4/25/2019

New Construction Update

Commercial Code Enhancement Program

- Conference calls were held with Seattle City Light, Puget Sound Energy, and Tacoma Power in April and June to discuss the potential of using the HVAC Total System Performance Ratio (TSPR) in a utility pilot program. Individual follow-up calls in July will focus on identifying commercial new construction projects utilities are already working with that could be good candidates for TSPR. TSPR pilot projects will test the TSPR tool in real world projects prior to its code implementation in July 2020. The pilots will also help shape how TSPR can influence projects to exceed code requirements and report energy savings which utilities can claim through incentive payments.
- A Request for Proposals (RFP) was drafted to develop a Washington State Commercial Energy Code Technical Roadmap. The roadmap will outline how upcoming code cycles can progress to help



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Washington State achieve the 2031 energy reduction goal. The RFP will be posted in July, with development anticipated to start in early September.

- A training plan was created to coordinate the code trainings with the Energy Trust New Buildings program for the remainder of 2019. The code trainings will focus on Oregon's recent adoption of ASHRAE 90.1-2016 as the new commercial energy code. The Plan will be finalized and implemented in Q3 and Q4.
- NEEA staff provided an overview of the Commercial Code Enhancement (CCE) program on April 25th at the Building Codes Education Conference in Bozeman MT, including an effort to identify advanced technologies and strategies in Montana's new commercial buildings as potential ideas for future code and to raise greater awareness in the design community.
- Three commercial new construction building technology briefs were completed in collaboration with the Montana Energy Code Collaborative. The technology briefs recognize commercial new construction projects in local Montana markets and the advanced technologies and strategies used to achieve above code performance. The technology briefs are intended to raise greater awareness for how these technologies and strategies can be used, and provide examples of real world application. The technology briefs can be found online at the links below and will also be distributed at new construction/code related events and trainings in Montana.
 - [Ground source heat pump](#)
 - [Luminaire level lighting controls](#)
 - [Dedicated outdoor air systems](#)

Next Step Homes Program

- Home certifications collected in AXIS database for utility energy efficiency programs and voluntary home certification programs continue to grow in 2019. Through Q2 2019, 211 homes have been certified in AXIS through the Performance Path (i.e., approved for utility incentive) with an additional 288 in progress. These homes not only provide savings to utilities but also provide valuable insight into above-code homes in the region. When combined with other, voluntary home certification data collected this year, the number of certifications grew to over 2,400 through the first half of 2019 with over 1,800 more in progress.
- The Standard Modeling Protocol (SMP) used for the Performance Path is scheduled to sunset as a Regional Technical Forum (RTF) active protocol measure at the end of 2019, following its current two-year initial approval period. The SMP is the unifying approach to energy modeling that results in utility-grade energy savings for the region and allows utilities to incent residential new construction activity based on the results determined through AXIS using the SMP. Next Step Homes program staff have been working with the RTF on providing the information and data required to analyze the current protocol and provide the insight necessary to authorize an extension to the sunset for the SMP. Re-approval of the SMP is anticipated for continued use in the region.



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- NEEA staff hosted a webinar for the utility residential new construction Work Group presenting the updated *HVAC Sizing Tool* (previously *SpePro*). The *HVAC Sizing Tool* (HVAC ST) is a free online resource used to improve HVAC system performance, technology confidence and homeowner satisfaction. The HVAC ST helps residential HVAC contractors meet energy and building codes quickly and easily without excessive data entry required by other sizing and design tools on the market. This unique online tool does the job of much more expensive industry software programs in far less time, allowing users to accurately size load and demand to print out design specifications in about 30 minutes - much less than the average two hours per home needed when using other software tools. During the webinar, Christopher Dymond (NEEA) and Bruce Manclark (CLEAResult) presented the HVAC Sizing Tool, described its functionality and demonstrated how to use the tool. Attendees to the webinar also received a sample home and login credentials to the HVAC Sizing Tool so they can practice entering a home themselves to see if they get the same response as in the webinar. Full release of the HVAC ST will take place at the [Home Efficiency Forum \(HEF\) October 17-18](#) in Portland, OR.
- NEEA staff facilitated two home site visits and high-performance building training to 32 attendees in Coeur d'Alene on May 23. Attendees were comprised of 8 government representatives and/or building officials (from city, county & state offices), 7 builders, 5 utility representatives, 4 architects, 3 raters, 2 realtors, 1 HVAC contractor, 1 HVAC supplier, and 1 solar contractor. The primary goal of the training program was to generate awareness for *BetterBuiltNW* and interest in future trainings among northern Idaho and eastern Washington building industry professionals. Training evaluation responses confirm these goals were effectively achieved and provide excellent participant testimonials. A secondary goal of the training program was to demonstrate substantial interest in above code residential building performance among the local utilities. All three local utilities (Avista, Inland Power & Light, and Kootenai Electric) were in attendance and briefly spoke to attendees about their residential energy efficiency programs.

Manufactured Homes Program

- The NEEM+ online campaign achieved the following results in Q2:
 - 11,981 Campaign landing page views
 - 5.16% conversation rate vs target of 2.85% (visitors who visit the campaign landing page and click to a retailer URL)

The campaign is aimed at increasing consumer awareness and demand for NEEM+, through targeted online digital ads. The campaign kicked off in February and will run through the end of 2019.
- 10 NEEM+ homes were completed and certified during Q2: 8 from Kit Homes and 2 from Palm Harbor Homes. Palm Harbor's NEEM+ certifications are their first of 2019. NEEA will continue working with both manufacturers and their top retailers in Q3 and Q4 to solidify commitments to NEEM+ and increase their efforts in promoting the specification to homebuyers.



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Standards Update

Federal

DOE initiated several activities on Process Rule, test procedure waivers or roll back of efficiency levels on equipment standards. NEEA's participation in DOE's rulemaking activities in Q2 are summarized below.

Process Rule: DOE published a proposed rulemaking for procedures for use in new or revised energy conservation standards and test procedures for consumer products and commercial/industrial equipment (the "Process Rule"). NEEA attended the public meeting and the webinar that followed. NEEA submitted public comments along with other efficiency organizations laying out several high-level concerns with the proposed Process Rule, including:

- Making the Process Rule binding would take away important flexibility that benefits all stakeholders and increase the potential for litigation.
- DOE's proposals in the Notice of Proposed Rulemaking (NOPR) regarding rulemaking steps and timelines would unnecessarily delay rulemakings, making it more difficult for the Department to meet its statutory deadlines.
- The proposals regarding both the ASHRAE products and "significant" energy savings could sacrifice very large potential savings for consumers and businesses.
- Putting undue emphasis on adopting industry test procedures could harm both consumers and manufacturers since industry test procedures may not be representative nor repeatable and reproducible.
- The proposals regarding direct final rules (DFRs) and negotiated rulemakings could take away important flexibility that can facilitate good outcomes for all stakeholders.

Test Procedure Waiver: DOE proposes to streamline its test procedure waiver decision-making process to require the Department to notify, in writing, an applicant for an interim waiver of the disposition of the request within 30 business days of receipt of the application. Should DOE fail to satisfy this requirement, the request for interim waiver would be deemed granted based on the criteria in DOE regulations. NEEA and others required DOE to host a public meeting to discuss the proposed modification but only a webinar was offered. NEEA will continue to work with other efficiency organizations and submit public comments in Q3.

GSL Standards: NEEA submitted public comments in response to DOE's Notice of Proposed Rulemaking (NOPR) for General Service Lamps (GSLs) issued in February 2019. In this NOPR DOE proposes to rescind the revised definitions of general service lamps (GSLs) and general service incandescent lamps (GSILs) established in its Final Rules published by DOE in January 2017. NEEA recommended that DOE withdraw this NOPR and NEEA supports the January 2017 Final Rules with the revised definitions for GSLs and GSILs.

Small Motor Standards: DOE issued a request for information to solicit information from the public to help DOE determine whether amending the standards for small electric motors would



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result in significant energy savings and whether such standards would be technologically feasible and economically justified. NEEA submitted public comments along with other efficiency organizations supporting higher standards for motors.

Air Compressor: A compressor manufacturer (Atlas-Copco) submitted a petition to DOE to amend the language of its rotary air compressor efficiency test procedure rule to make clear to state regulators and to the wider public that manufacturers can also satisfy federal test procedure rulemaking by using the consensus industry test method for rotary air compressor energy efficiency. NEEA is working with efficiency organizations to recommend that DOE deny this petition.

Direct Gas-Fired Heating Equipment: DOE issued a RFI (Request for Information) to consider whether to amend DOE's test procedure for direct heating equipment. NEEA submitted public comments on both test procedure and standard efficiency level.

Consumer Product Average Use Cycles: DOE requested information to better understand whether there are provisions in the Department's test procedures for consumer appliances and industrial equipment that could be improved to produce results that are more representative of average use cycles or periods of use. NEEA signed on to joint public comments in response to this RFI.

Automatic Commercial Ice Makers: DOE issued a notice of proposed rulemaking to amend the test procedure for automatic commercial ice makers. NEEA signed on to joint public comments in response to this RFI.

VRF: The VRF Working Group continued to meet and negotiate aspects of the AHRI 1230 testing and additional operational testing to confirm controls capability of VRF equipment. There were two 2-day meetings in Houston and one 2-day meeting in Arlington Virginia to develop and discuss CVT testing and plan testing by manufacturers. NEEA and PG&E have been the key contributors as members of the working group and provided technical support on the proposed new test procedure.

Washington

- Appliance Efficiency Standards Bill ([HB 1444](#)) was signed by the Governor. This appliance standards bill covers 16 products that are not regulated by Federal Standards. NEEA provided requested technical data on Hi-CRI lamps and grid-connected water heaters.
- Building Energy Efficiency Bill ([HB 1257](#)) was signed by the Governor. This bill increases energy efficiency and the use of renewable fuels that reduce the amount of greenhouse gas emissions in the state and provides a public utility tax credit against the taxes owing by utilities for the incentives provided for implementation by eligible building owners of energy efficiency and renewable energy measures. The bill requires the Department of Commerce to: 1) establish by rule a state energy performance standard for covered commercial buildings; and 2) establish a state energy performance standard early adoption incentive program.



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California

- The air compressors test procedure was petitioned by a manufacturer and is pending for DOE's review. This petition would allow the test results from industry test procedure to be used in place of DOE's test procedure, which contains a little more testing rigor. The outcome of the petition will affect California Title 20 requirements for Air Compressors.

Others

- The CSA modulating gas test procedure (P.8) has been under development for the last year. The CSA P.8 Technical Committee and NEEA have been working closely to modify and improve the CSA P.8 Standard to better account for shell losses, heat recovery, electrical consumption, and damper controls and to better represent the installed energy efficiency of the unit over the entire heating season in cold climates. The test procedure development is nearing completion and the new standard is planned to be voted out for public review in Q3.



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