



2018 Code Update

The State Building Code Council is accepting written comment until Sept. 27 on proposed amendments to the 2018 building codes. There is also a public comment meeting in Olympia on the same day from 10 a.m. to 2 p.m. If you're planning to submit written testimony, it is important to emphasize the following:

- The economic impacts to your specific business. How much business will be lost if these proposals get adopted? What does this mean in terms of jobs?
- The impact on your customers.

To testify, you will need to sign in when you get to the hearing. Even though the hearing goes until 2 p.m., we suggest getting to the room to get signed in before 10 a.m. Make sure you sign in that you want to testify.

At the start of your testimony, be sure to state your name, your company, where you are located, and (if applicable) how many jobs you support and how much business you do in Washington state. Below are some talking points on a few of the changes being proposed.

Energy Code—The Council received 36 proposals to the residential Washington state energy code. The energy code technical advisory group (TAG) recommended approval of 25 amendments as submitted or as modified. Despite having several members from 3 different local associations participating in the TAG process, 19 proposed amendments were identified by the TAG as having a significant cost.

The most significant costs will come via the residential energy code, particularly sections R406.2 and R406.3 Additional energy efficiency requirements. Each dwelling unit in a residential building shall comply with options from Table R406.2 so as to achieve the following minimum number of credits:

1. Small Dwelling Unit: Increase to 4.5 credits from 1.5 credits affecting dwelling units less than 1500 square feet in conditioned floor area with less than 300 square feet of fenestration area. **Additions to existing buildings greater than 500 square feet of heated floor area but less than 1500 square feet are also included.**

2. Medium Dwelling Unit: Increase to 6.0 credits from 3.5 credits affecting all dwelling units that are not included in #1 or #3. ~~((Exception: Dwelling units serving R-2 occupancies shall require 2.5 credits.))~~

3. Large Dwelling Unit: Increase to 7.0 credits from 4.5 credits affecting dwelling units exceeding 5000 square feet of conditioned floor area.

4. Dwelling units serving R-2 occupancies: 4.5 credits (from Group R-2 Credit column in Table R406.2)

5. Additions less than or equal to 500 square feet: increase from 0.5 credits to 1.5 credits.

The credit cost modeling is on pages 4-5 of the PDF.

Section R406 Additional energy efficiency requirements: This section has been significantly revised. The number of points has increased for all residences, and an additional equalization factor has been added based on the carbon emissions of the installed heating (New Table R406.2). Table R406.3 (previously R406.2) has been reformatted, moving the footnotes into the body of the table and revising the numbering of the options. The options and credits have been revised to base them on energy savings—each half point is roughly equivalent to 600 kWh. New options have been added for triple pane windows

(1.2), a 49% UA reduction (1.6), advanced framing with 0.28 windows (1.7) tighter envelopes with ERV (2.4), various heat pump systems (3.5, 3.6), ducts buried in ceiling insulation (4.1), drain water heat recovery systems (5.1), heat pump water heating systems (5.4, 5.5, 5.6), and high efficiency appliances (7.1). HVAC efficiency requirements were modified based on federal minimums. The option for low flow fixtures has been removed since this is now a base requirement. The proposal eliminates oil fired appliances as options, mandates that certain appliances must be Energy Star rated, added reference to Section 403.8 of the International Mechanical Code in the ventilation options and in some cases increased the efficiency requirement while lowering the credit value. R2 occupancies were also added to the credit requirements.

R405.3 Performance-based compliances: Site energy use has been replaced with carbon emissions as a measuring metric for this compliance method. The emissions thresholds were adjusted to correlate with the requirements of Section R406 for other compliance methods. The software required for this compliance method has not been produced as of yet.

Compliance based on simulated energy performance requires that a proposed residence (proposed design) be shown to have an annual energy consumption based on-site energy expressed in Btu and Btu per square foot of conditioned floor area as follows:

1. **For structures less than 1,500** square feet of conditioned floor area, the annual carbon emissions shall be less than or equal to ~~80~~ 67% of the annual carbon emissions of the standard reference design.
2. **For structures 1,500 to 5,000** square feet of conditioned floor area, the annual carbon emissions shall be no more than ~~72~~ 56% of the standard reference design.
3. **For structures over 5,000** square feet of conditioned floor area, the annual carbon emissions shall be no more than ~~66~~ 50% of the standard reference design.
4. For structures serving Group R-2 occupancies, the annual carbon emissions shall be less than or equal to 70% of the annual energy consumption of the standard reference design.

Two proposals related to gas fireplaces are getting some attention at the Council as well. The first proposal establishes a minimum efficiency performance threshold for fireplaces based on the Canadian FE Standard which includes decorative gas fireplaces. The proposal would mandate all gas fireplaces be listed and labeled with a fireplace efficiency rating of 65% or greater. The only exception would be gas fireplaces that have a rated output of < 9,000 btu/h.

The second seeks to prohibit the use of standing, or continuous pilot lights on select gas fired appliances. It states that fan type central furnaces, household cooking appliances, pool heaters, spa heaters and fireplaces would not be permitted to be equipped with continuously burning pilot lights. The gas industry has pushed back hard on these proposals and we have supported their efforts based upon our belief that the Council would be changing manufacturing processes through the code which is not the appropriate venue. The Province of British Columbia, and Canada have all developed appliance efficiency standards through regulation. The state of California is currently working on a regulation. Multiple workshops and meetings were held with industry to develop and refine proposals that will work for consumers and avoid economic devastation in the industry. A similar process in Washington state would ensure consistency for manufacturers.

International Residential Code: BIAW worked to maintain status quo related to a mandate for statewide fire sprinklers in all new single family homes. Local jurisdictions will continue to have the option to require them on their own. A proposal requiring fire sprinklers in new townhouses composed of five or more townhouse units has been progressing through the process. It started out to include all

townhouses however, after opposition from the building industry, the proponents offered some building practice trade-offs along with allowing 13D systems which can be installed by any plumber (with certain L&I paperwork being filed), to encourage the Council to approve the proposal.

Heat detectors or heat alarms in garages could be a new requirement. Section R314 Smoke alarms and heat detection: Addresses heat detectors in garages. An interconnected heat detector or heat alarm will increase the cost of construction by about \$100, which includes installation. If a new garage is attached to an existing dwelling that has only battery powered smoke alarms installed, the heat detector or heat alarm will require the installation of an interconnected alarm or smoke alarm to be installed in the dwelling for the purposes of providing occupant notification. Under this scenario, the total cost will increase to about \$200.

Appendix Q relating to tiny houses could be heading to the body of the code. This would require certain energy code, fire code and appliance efficiency standards that were not dealt with previously. We have heard from members that the ability for tiny houses to leave out lofts as part of the total floor area calculation creates inconsistency in the code. The allowable ceiling height in a tiny home is lowered to 6'-4", not consistent with residential building codes. They are concerned about an erosion of the basic building codes. If these exceptions can be made for tiny homes, they should also be allowed in conventionally framed single family residences.

Plumbing code- Sections 407.2, 408.2, 411.2, 412, 420, 423, 501.1.3, 501.1.3. These changes are in response to Second Substitute House Bill 1444 from the 2019 legislative session. The changes update appliance standards. The change will increase construction costs but reduce energy consumption. Overall the plumbing code had few changes.

There are many changes coming to the building codes, this highlights just a few. When the September meetings complete, the Council will file the CR103 to the Code Reviser and the document will sit through the 2020 Legislative Session. This allows legislators to review and make changes to the code if they wish. The rules would then go into effect July 1 of 2020. If you have questions, want more information on proposals or how to participate, please contact Al Audette at BIAW by email ala@biaw.com or phone 360-352-7800 x 105.

Here are links to all of the proposed changes to the building codes and also where to submit written comments before 5 p.m. on Sept. 27: <https://apps.des.wa.gov/SBCC/Page.aspx?cid=3119>

Table 1: Total Measure Costs by Single Family Prototypes

			Prototypes Weight % by Floor Area			
			1344	2200	2688	5000
Option-Description	Credit Value	Weighted Measure Cost	15%	72%	11%	2%
1a - 5% UA reduc	0.5	\$ 1,102	\$ 767	\$ 1,097	\$ 1,667	\$ 676
1b - 15% UA reduc	1	\$ 4,311	\$ 2,649	\$ 4,565	\$ 4,582	\$ 6,127
1c - 30% UA reduc	2	\$ 7,947	\$ 4,869	\$ 8,537	\$ 7,609	\$ 11,659
1d - U-.24 Glaze	0.5	\$ 1,583	\$ 907	\$ 1,638	\$ 1,818	\$ 3,375
1e - 40% UA reduc	3	\$ 11,889	\$ 7,641	\$ 12,925	\$ 10,191	\$ 15,828
1f - U-.20 Glaze	1	\$ 3,166	\$ 1,814	\$ 3,276	\$ 3,636	\$ 6,750
2a - 3ACH , fan eff	0.5	\$ 517	\$ 349	\$ 521	\$ 618	\$ 1,081
2b - 2 ACH, HRV	1	\$ 2,727	\$ 1,680	\$ 2,750	\$ 3,360	\$ 6,250
2c - 1.5 ACH, HRV	1.5	\$ 6,108	\$ 3,763	\$ 6,160	\$ 7,526	\$ 14,000
2d - 0.6 ACH, HRV	2	\$ 8,725	\$ 5,376	\$ 8,800	\$ 10,752	\$ 20,000
3a - Furnace	1	\$ 230	\$ 230	\$ 230	\$ 230	\$ 230
3b - 9.5 HSPF HP	0.5	\$ 1,270	\$ 1,270	\$ 1,270	\$ 1,270	\$ 1,270
3c - GSHP	1.5	\$ 11,034	\$ 10,900	\$ 10,900	\$ 10,900	\$ 17,600
3d - DHP	1	\$ 1,400	\$ 1,400	\$ 1,400	\$ 1,400	\$ 1,400
3e - 11.0 HSPF HP	1	\$ 5,400	\$ 5,400	\$ 5,400	\$ 5,400	\$ 5,400
3f - DHP (15% elec)	1.5	\$ 5,400	\$ 5,400	\$ 5,400	\$ 5,400	\$ 5,400
4 - HVAC inside	1	\$ 300	\$ 300	\$ 300	---	---
5a - DWR	0.5	\$ 400	\$ 400	\$ 400	\$ 400	\$ 400
5b - 0.80 gas DHW	0.5	\$ 586	\$ 586	\$ 586	\$ 586	\$ 586
5c - 0.91 gas DHW, GSHP	1	\$ 923	\$ 923	\$ 923	\$ 923	\$ 923
5d - Tier I HPWH	1.5	\$ 874	\$ 874	\$ 874	\$ 874	\$ 874
5e - Tier III HPWH	2	\$ 874	\$ 874	\$ 874	\$ 874	\$ 874
5f - Tier III HPWH Split	2.5	\$ 3,500	\$ 3,500	\$ 3,500	\$ 3,500	\$ 3,500
6 - Solar pV	0.5	\$ 5,040	\$ 5,040	\$ 5,040	\$ 5,040	\$ 5,040
7 - ES Appl+ventless Dryer	0.5	\$ 462	\$ 462	\$ 462	\$ 462	\$ 462

All questions must be answered to be considered complete. Incomplete proposals will not be accepted.

Table 2: Total Measure Costs for Multifamily prototype

Option-Description	Credit Value	Measure Cost
1a - 5% UA reduc	---	---
1b - 15% UA reduc	1	\$ 1,359
1c - 30% UA reduc	1.5	\$ 2,615
1d - U-.24 Glaze	0.5	\$ 554
1e - 40% UA reduc	2	\$ 3,773
1f - U-.20 Glaze	1	\$ 1,107
2a - 3ACH, fan eff	1	\$ 245
2b - 2 ACH, HRV	1.5	\$ 1,025
2c - 1.5 ACH, HRV	2	\$ 2,296
2d - 0.6 ACH, HRV	2.5	\$ 3,280
3a - Furnace	1	---
3b - 9.5 HSPF HP	---	---
3c - GSHP	1	---
3d - DHP	2	\$ 2,800
3e - 11.0 HSPF HP	0.5	---
3f - DHP (15% elec)	2.5	\$ 4,800
4 - HVAC inside	---	---
5a - DWR	0.5	\$ 133
5b - 0.80 gas DHW	0.5	---
5c - 0.91 gas DHW, GSHP	1	---
5d - Tier I HPWH	2	\$ 291
5e - Tier III HPWH	2.5	\$ 291
5f - Tier III HPWH Split	3	\$ 1,167
6 - Solar pV	0.5	\$ 5,040
7 - HP dryers, ES Appl	1	\$ 462

Energy Savings Estimates

The energy savings estimates below have been developed using 6 single family and one multi-family prototype. For each building prototype, each predominant HVAC system (gas furnace, gas furnace with AC, central heat pump and Ductless heat pumps with zonal electric) was modeled and located in various weather climates within the state. The energy savings attributed to each option listed in Table 406.2 were then weighted to consolidate energy savings estimates for the 4 primary categories of homes in Section R406.2 (small, medium, large, and R-2 dwelling units). As shown in Table 1, large homes (greater than 5000sf) only compromise 2% of the total building stock – therefore energy savings estimates used for the Life Cycle Cost Analysis have been omitted from this economic analysis.

All questions must be answered to be considered complete. Incomplete proposals will not be accepted.