



2015 Washington State Energy Code (WSEC) Significant Changes to the Commercial Provisions

We want to make everyone aware of some very significant changes in the 2015 Washington State Energy Code (WSEC) regarding non-residential buildings as well as residential buildings four or more stories in height. This notification is not intended to address every change so we encourage you to download a copy of the commercial energy code at:

http://www.energy.wsu.edu/Documents/ga_2015WSEC_C_final.pdf

Below is a list of changes we feel you need to be aware of for your upcoming projects.

1. WSEC Section C403.2.1. Calculation of heating and cooling loads. This section requires that all HVAC systems be designed by calculating heating and cooling loads in accordance with ANSI/ASHRAE/ACCA Standard 183 or an approved alternate computational procedure using design parameters detailed in WSEC Chapter 3. These calculations are required by the WSEC to accompany all HVAC permit applications where there is any change in heating or cooling loads. Like for like equipment changes are not required to be calculated.
2. Minimum HVAC efficiency requirements have changed and are shown in WSEC Tables C403.2.3 (1-9).
3. Demand Controlled Ventilation (DCV) is now required for spaces larger than 500 sq. ft. and with an occupant load of one person per 40 square feet. There are some exceptions.
4. When the aggregate rate of kitchen exhaust airflow exceeds 2,000 cfm, a factory built exhaust hood listed with UL 710 is required.
5. Dedicated outdoor air systems (DOAS) guidelines are introduced in this edition of the code. They are currently optional, but will be mandatory as of 7/1/17.
6. Flow rates of hot water pipe is now restricted in WSEC Section C404.3.
7. Maximum length of hot water pipe is severely restricted in WSEC Section 404.3.1 and 404.3.2. This will result in significant changes to the plumbing fixture layout in buildings. As example, the maximum length of hot water pipe between the water heater and public lavatory sinks is 24". Another example would be that a ¾" hot water pipe has a maximum length of about 21'. It appears as though a single water heater in non-residential occupancies with hot water using plumbing fixtures not grouped together will become a rarity. Anyone responsible for building design or plumbing installation should become familiar with these limitations.
8. All hot water pipe within any building now must be fully insulated in accordance with WSEC Table C403.2.9. For most pipe the insulation will need to be 1" in thickness. The pipe insulation may be omitted where the pipe passes through wall studs and plates. On tank style water heaters, both the hot and cold pipes must be insulated to the now required heat trap. A heat trap must be installed on the hot and cold side of the tank unless it serves a circulating system.
9. Circulating hot water systems must now be "on demand" type where the circulating pump shuts down once the circulation pipe is at desired temperature and hot water demand has ceased.
10. Most interior building spaces are now required to have lights controlled by occupancy sensors. There are exceptions so please become familiar with WSEC Section C405.2.

11. Lighting reduction controls are required in areas other than "Daylight zones." Daylight zones are detailed in WSEC Sections C405.2.4.2 and C405.2.4.3. There are some exceptions to daylight zone requirements such as dwelling units or patient care health facilities.
12. Daylight zones must have lighting responsive to sunlight. Such lighting will dim or turn off when there is adequate sunlight available.
13. Exit access (corridors, enclosed stairways, etc.) lighting must be turned off when the system detects that there are no occupants in the area served by the exit access.
14. There are several new requirements regarding exterior building lighting such as a requirement that other than safety lighting, exterior lights use 30% less power after business hours or between midnight and 6 AM. There are other allowances for time as well.
15. Lighting budget provisions have changed significantly. Please become familiar with WSEC Section C405.4.
16. There are now "Additional Efficiency Package Options" similar to the list of options residential buildings have had for the last several years. Buildings and tenant spaces must select at least two of the eight options presented.
17. Total Building Performance found in WSEC Section C407 has been significantly rewritten. Verification of the performance standards are mandatory, mostly through System Commissioning found in WSEC Section C408.
18. System Commissioning is not new however it is significantly changed including a requirement that the commissioning be performed by a *Certified commissioning professional*. The credentials for the certified commissioning professional are detailed in WSEC Chapter 2.
19. WSEC Figure C408.1.4.2 is a required Commissioning Compliance Checklist which be completed and returned to the Permit Center prior to final building inspection or may be given to the building inspector at time of final building inspection.
20. WSEC Chapter 5 was added to address the provisions of the energy code that apply to Existing Buildings. This chapter is a compilation of the various requirements throughout the code applicable to alterations, repairs, and additions, as well as change of occupancy. For example, when mechanical cooling capabilities are installed in a space that did not previously have cooling, either an economizer or dedicated outdoor air supply (DOAS) is required to be installed.

As stated earlier, this is not a comprehensive list of changes in the WSEC. These are merely items that we have identified which may have a significant impact to your projects. Designers, Architects, Engineers as well as electric, plumbing and HVAC personnel should all take time to absorb the dramatic changes in the 2015 Washington State Energy Code.

When preparing an application that includes systems affected by the energy code, review Section C103 for information to include on the construction documents. Proving a complete application is the best way to help make the plan review process more efficient.

The Northwest Energy Efficiency Council (NEEC) provides technical assistance for the WSEC Commercial Provisions. Visit their website at www.neec.net for contact information, compliance forms, and additional resources.