WAC 51-11C-40706 Section C407.6—Calculation software tool.

C407.6 Calculation software tools. Calculation procedures used to comply with this section shall be software tools capable of calculating the annual energy consumption of all building elements that differ between the *standard reference design* and the *proposed design* and shall include the following capabilities.

1. Building operation for a full calendar year (8,760 hours).

2. Climate data for a full calendar year (8,760 hours) and shall reflect *approved* coincident hourly data for temperature, solar radiation, humidity and wind speed for the building location.

3. Ten or more thermal zones.

4. Thermal mass effects.

5. Hourly variations in occupancy, illumination, receptacle loads, thermostat settings, mechanical ventilation, HVAC equipment availability, service hot water usage and any process loads.

6. Part-load performance curves for mechanical equipment.

7. Capacity and efficiency correction curves for mechanical heating and cooling equipment.

8. Printed *code official* inspection checklist listing each of the *proposed design* component characteristics from Table C407.5.1(1) determined by the analysis to provide compliance, along with their respective performance ratings (e.g., *R*-value, *U*-factor, SHGC, HSPF, AFUE, SEER, EF, etc.).

9. Air-side economizers with integrated control.

10. *Standard reference design* characteristics specified in Table C407.5.1(1).

C407.6.1 Specific approval. Performance analysis tools meeting the applicable subsections of Section C407 and tested according to ASHRAE Standard 140 shall be permitted to be *approved*. Tools are permitted to be *approved* based on meeting a specified threshold for a jurisdiction. The *code official* shall be permitted to approve tools for a specified application or limited scope.

C407.6.2 Input values. Where calculations require input values not specified by Sections C402, C403, C404 and C405, those input values shall be taken from an *approved* source.

C407.6.3 Exceptional calculation methods. Where the *simulation program* does not model a design, material, or device of the *proposed design*, an Exceptional Calculation Method shall be used where approved by the *code official*. Where there are multiple designs, materials, or devices that the *simulation program* does not model, each shall be calculated separately and Exceptional Savings determined for each. The total Exceptional Savings shall not constitute more than half of the difference between the *baseline building performance* and the *proposed building performance*. Applications for approval of an exceptional method shall include:

1. Step-by-step documentation of the Exceptional Calculation Method performed detailed enough to reproduce the results.

2. Copies of all spreadsheets used to perform the calculations.

3. A sensitivity analysis of *energy* consumption when each of the input parameters is varied from half to double the value assumed.

4. The calculations shall be performed on a time step basis consistent with the *simulation program* used.

5. The *Performance Rating* calculated with and without the Exceptional Calculation Method.

(Effective July 1, 2020)

WAC 51-11C-40706 Section C407.6—Reserved.