**Comment/Explanation\*:***Include your justification for your proposed change to the draft standard below.*
\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Reference home efficiency is based on “store gal.” The storage volume used for DOE water heater standards has changed over the years. In addition, industry must meet volume requirements laid out in the safety standards.

The EF levels correspond to the standard levels required by DOE on 1/1/2004. The storage volume used by DOE at this time was “Rated Volume” which corresponded to the “Nominal Volume” of the tank. In 2014, when DOE converted to the UEF metric the “Rated Volume” was redefined to effectively mean “Measured Volume.” For iHPWHs, the relationship between nominal and measured volume is governed by section 33.1 of UL 174 which requires the measured volume to be “no less than 90 percent” of the nominal volume. For example, an iHPWH with a 40-gallon nominal volume could have a measured volume between 36 and 40 gallons.

“Store gal” should be more accurately described as nominal volume. Further, instructions on what volume to use should be given in the table. We recommend clarifying that the nominal volume be the same as the rated home.

Finally, the daily hot water use calculation for the Reference Home states using section 4.2.2.6.1.4, but this section does not appear to exist. Section 4.2.2.7.1.4 does exist and address daily hot water use.

**Proposed Change to the Draft Standard\***
*Use “strikethrough” and “underline” formatting to indicate all proposed changes. Changes must be shown with “hard-formatting” strikethrough and underline, not “track changes”.*

*Use a color other than red to indicate proposed changes to the draft.*\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

|  |  |  |
| --- | --- | --- |
| **Building Component** | **Energy Rating Reference Home** | **Rated Home** |
| Service water heating systems p, t, u, v.1, v.2, v.3 | Fuel type: same as Rated HomeEfficiency:Electric: EF = 0.97 - (0.00132 \* ~~store gal~~ nominal volume)Fossil fuel: EF = 0.67 - (0.0019 \* ~~store gal~~ nominal volume)Nominal volume: same as Rated HomeUse (gal/day): Determined in accordance with Section 4.2.2.~~6~~7.1.4Tank temperature: 125°FLocation:IECC Climate Zones 1-3: Attached garage if present, otherwise Conditioned Space VolumeIECC Climate Zones: 4-8: Unconditioned basement if present, otherwise Conditioned Space Volume | Same as Rated HometSame as Rated HomeacSame as Rated HomeSame as Rated HomeDetermined in accordance with Section 4.2.2.6.2.11Same as Energy Rating Reference HomeSame as Rated Home |