

# GEW149-14

## 702.1

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**Revise as follows:**

**702.1 Fitting and fixture consumption.** Fixtures shall comply with Table 702.1 and the following:

1. For dwelling unit and guestroom shower compartments with a floor area of not greater than 2600 in<sup>2</sup> (1.7 m<sup>2</sup>), the combined flow rate from shower water outlets that are capable of operating simultaneously including rain systems, waterfalls, body sprays and jets shall not exceed 2.0 gallons per minute (gpm) (7.6 L/min). Where the floor area of such shower compartments is greater than 2600 in<sup>2</sup> (1.7 m<sup>2</sup>), the combined flow rate from simultaneously operating shower water outlets shall not exceed 2.0 gpm (7.6 L/min) for each additional 2600 in<sup>2</sup> (1.7 m<sup>2</sup>) of floor area or portion thereof.
2. In gang shower rooms, the combined flow rate from shower water outlets that are capable of operating simultaneously including rain systems, waterfalls, body sprays and jets shall not exceed 2.0 gpm (7.6 L/min) for every 1600 in<sup>2</sup> (1.01 m<sup>2</sup>) or portion thereof of room floor area.
3. In shower compartments required to comply with the requirements of Chapter 11 of the *International Building Code*, the combined flow rate from shower water outlets that are capable of operating simultaneously including rain systems, waterfalls, body sprays and jets shall not exceed 4.0 gpm (15.1 L/min) for every 2600 in<sup>2</sup> (1.7 m<sup>2</sup>) or portion thereof of room floor area.
4. Showers and tub-shower combinations shall be provided with individual control valves of the pressure balance, thermostatic, or combination pressure balance/thermostatic mixing valve type that provide scald and thermal shock protection for the rated flow rate of the installed showerhead or a flow rate of 1.5 gpm ± 0.1 gpm (5.75 L/m ± 0.35 L/m), whichever is less. Handle position stops shall be provided on such valves and shall be adjusted in accordance with the manufacturer's instructions to deliver a mixed water temperature of not greater than 120°F (49°C). Water heater thermostats shall not be utilized as a substitute for handle position stops.
5. Control valves for showers and tub-shower combinations shall be factory marked with the manufacturer's minimum rated flow and such marking shall be visible at final inspection.

**Reason:** The thermal protection afforded by shower valves can be compromised if the flow rate of the showerhead is less than the flow rate for which the protective components of the valve have been designed. As noted by Martin and Johnson (2008) (as cited in codes and Standards Enhancement Initiative (CASE), "Multi-Head Showers and Lower-Flow Shower Heads." 2013 California Building Energy Efficiency Standards, California Utilities Statewide Codes and Standards Team. September 2011), combinations of valves and shower heads were tested to determine whether pressure-compensating valves and thermostatic valves rated for 2.5 gpm would perform adequately at lower flow rates. The tests included 22 shower valves from six manufacturers, and the valves were assessed on their ability to maintain water temperature within certain bounds for a given time after a change in pressure event as described by the ASSE 1016-2005 standard for shower valves. The results indicated that a significant share of shower valves rated for 2.5 gpm failed to provide the thermal protection specified by ASSE 1016 when tested at lower flow rates, As summarized in the CASE report (p. 15): "These results indicate that shower valve temperature maintenance is strongly affected by flow rate, and that new showers with lower-flow shower heads would have to be installed with valves that are designed for 2.0 and lower flow rates."

The IgCC requires a maximum flow rate of 2.0 gpm. This code change proposal will help ensure that new buildings built to this code can safely accommodate showerheads with this flow rate. Note that this language does not require that the showerhead itself have a flow rate of 1.5 gpm, but simply that the shower valve provide the thermal protection called for under the recognized standard when tested at a flow rate as low as 1.5 gpm. The marking requirement is necessary to facilitate inspection and compliance. To the extent that the mark is permanent, it will provide a point of reference for building occupants to consider when changing showerheads in future years

**Cost Impact:** Will not increase the cost of construction.

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