

Concrete Industry Tolerances for ADA / ABA Work

ASCC Position Statement #43

Standards issued under the Americans with Disabilities Act (ADA) and the Architectural Barriers Act (ABA) address access walkways and ramps to buildings and sites in new construction and alterations. The running slopes and cross slopes of walkways and ramps are being measured for compliance with these standards months or even years after completion. These evaluations typically do not include consideration of tolerances on slab surface finish—tolerances that the concrete industry has had in place for decades. Also, the measurements include changes in surface profiles caused by factors outside of the control of the concrete contractor, such as movements associated with concrete shrinkage and curling, temperature changes, and soil settlement or heave.

Section 5.8—Surface accessibility, of ACI 117.1R-14, “Guide for Tolerance Compatibility in Concrete Construction,” provides this discussion: “Americans with Disabilities Act and Architectural Barriers Act Accessibility Guidelines’ (ADA/ABA-AG) states that all dimensions are subject to conventional industry tolerances except where the requirement is stated as a range with specific minimum and maximum end points. Where a requirement is a minimum or a maximum dimension that does not have two specific minimum and maximum end points, tolerances may apply.”

Other “conventional industry tolerances” for slab finishes are discussed in the following resources:

- ACI 117-10 (Reapproved 2015), “Standard Specification for Tolerances for Concrete Materials and Construction”;
- ACI 302.1R-15, “Guide to Concrete Floor and Slab Construction”;
- ACI 301-16, “Specifications for Structural Concrete”;
- and
- “Movements that Affect Tolerance Measurements,” *Concrete International*, ACI, July 2016.

ACI 117-10 requires that if an unlevelled straightedge placed on the slab surface is used to measure surface tolerances to evaluate the concrete contractor’s workmanship, such measurements must take place within 72 hours after slab placement. ACI 117-10 and ACI 302.1R-15 present the rationale for this requirement—slab surfaces change or move with time. ACI 117 has included a time limit on the measurement of surface quality for over 25 years. However, walkways and ramps are typically measured for conformance with the ADA/ABA guidelines months or even years after completion of the work. This

would be in violation of standard concrete industry practice for acceptance of the concrete contractor’s workmanship.

Industry-established tolerances include a plus and minus variation. Specifying a slope at a maximum provides only a minus tolerance and thus eliminates half of the tolerance available to the concrete contractor in conventional industry tolerances. Additionally, designing slopes at the maximum or minimum limitations can also eliminate or restrict elevation and location tolerances of adjoining concrete elements.

While many publications discourage designing at the maximum or minimum, some specifiers ignore this recommendation. To mitigate this practice, ACI 117.1R-14 recommends specified slopes that allow for tolerances on the ramps and sidewalks and for adjoining elements. This document states the design strategy as: “The general practice is to specify a dimension less than the required maximum (or more than the required minimum) by the amount of the expected field or manufacturing tolerance. Where ADA/ ABA-AG requirements give a dimensional range, it is good practice to specify a dimension between the range.” ACI 117.1R-14 recommends a maximum overall design running slope of 1:25 (4%) for walks and other nonramp exterior pedestrian surfaces; a maximum overall design running slope of 7.5% for exterior accessible ramps; and a maximum design cross slope for walks, accessible exterior ramps, and other pedestrian paving of 1.5%.

ASCC concrete contractors will work with Owners, Design Team Members, and Construction Managers to comply with ADA/ABA requirements. However, as stated in the ADA/ABA-AG guidelines, ASCC concrete contractors are entitled to the application of conventional industry tolerances. Concrete contractors will correct nonconforming work that is designed in accordance with ACI 117.1R-14 recommendations and measured within 72 hours after installation. If you have any questions, contact your ASCC concrete contractor or the ASCC Technical Hotline at 800-331-0668.



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