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## USE OF PREDETERMINED CONSTRUCTION TOLERANCE GUIDELINES FOR ACCESSIBILITY

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# IR 11B-8

References:

2007 California Building Code, Section 1101B.5

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Discipline: Access Compliance

This Interpretation of Regulations (IR) is intended for use by the Division of the State Architect (DSA) staff, and as a resource for design professionals, to promote more uniform statewide criteria for plan review and construction inspection of projects within the jurisdiction of DSA which includes State of California public elementary and secondary schools (grade K-12, community colleges and state-owned or state-leased essential services buildings. This IR indicates an acceptable method for achieving compliance with applicable codes and regulations, although other methods proposed by design professionals may be considered by DSA.

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**Purpose:** This Interpretation of Regulation clarifies DSA's position regarding the use of construction tolerance guidelines related to accessibility provisions contained in the California Building Code.

**Background:** Often, the subject of construction tolerance arises with regard to provisions for accessibility as indicated in California Building Code Section 1101B.5. Requests have been received for DSA to predetermine guidelines for what is considered an acceptable construction tolerance for various architectural components.

**1. LEGAL ISSUES:** According to the California Attorney General's office, developing guidelines for construction tolerances *"....unnecessarily encourages contractors and others to deviate from the access regulations found in the California Building Code...."*<sup>1</sup>

The California Attorney General's office also indicated *"we are concerned that local building officials and members of the general public, when they consult Construction Tolerance Guidelines,....may assume that they have been adopted by a state agency and therefore, have the force of state law, which they do not. Such reliance, in our view, may result in violations of the California Building Code and, possibly, litigation against local building officials and/or property owners."*<sup>1</sup>

Separately, a United States District Court case discussed the term "conventional building industry tolerances" as follows:

*"What is an acceptable 'dimensional tolerance' obviously will vary, depending in part upon the purpose for the standard and the technological capacity to closely adhere to the target dimensions."*<sup>2</sup>

**2. REGULATORY BUILT-IN TOLERANCES:** California Building Code Section 1101B.5 indicates 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 California Building Code requirement states a specified range, such as in Section 1133B.4.2.1 where handrails must be installed between 34 inches and 38 inches above the nosing, the regulation itself already provides an adequate tolerance and therefore no further tolerance outside of the range at either limit is permitted. In such cases, the technological capacity to achieve literal compliance with the dimensional requirements is quite easy to accomplish.

**3. MINIMUMS, MAXIMUMS AND SPECIFYING AT THE LIMIT:** Where an element is to be installed at the minimum or maximum permitted dimension, such as "48 inches maximum", it is not good practice to specify 48 inches, although it is allowed. Rather, it would be good practice 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 and not to state any tolerance in conjunction with the specified dimension.

In other words, dimensions noted in accessibility provisions as "maximum" or "minimum" should not be considered dimensions for design, because they represent the absolute limits of a requirement. To be sure that field tolerances result in usable construction, notes and dimensions in construction documents should identify and incorporate *expected* tolerances so that a required dimensional range is not exceeded by the addition of a finish material or a variation in construction practice, to the maximum extent feasible.

Specifying dimensions for design in the manner described above will better ensure that facilities and elements accomplish the level of accessibility intended by the requirements. It will also more often produce an end result of strict and literal compliance with the stated requirements and eliminate enforcement difficulties and issues that might otherwise arise.

On the other hand, by voluntarily choosing to specify the exact maximum limit or the exact minimum limit of a requirement for design, field construction based on such specification may unnecessarily fail to achieve the compliance that is required. In such cases the failure is not necessarily a consequence of field tolerance, but rather it is a result of the decision to design at the very edge of the prescribed limit.

**4. ABSOLUTE DIMENSIONS:** In the few cases where absolute dimensions are indicated, the application of construction tolerances is most likely to be influenced. In construction, the technological capacity to achieve an exact and precise placement of an architectural element in some cases can be quite difficult. In addition, the technological capacity to place one particular architectural element at a specific distance may not be the same for a different architectural element. For instance, consider the requirement that water closets (toilets) be an absolute 18" from the adjacent wall to the centerline. Variations in wall finish thicknesses or structural members could easily influence the final constructed condition, especially in concrete slab construction.

In such water closet installations, it would not be unusual to see minor ½" deviations (17½" to 18½") based on these field conditions. Therefore, it is reasonable to assume that at least some minor deviation from absolute dimensions could be expected for water closets.

In recent projects however, water closet centerline dimensions in newly constructed toilet rooms for adults measured as much as 21" and as little as 15" from the adjacent wall. In both cases the amount of variation equaled or even exceeded the entire thickness of the combined wall finishes. Under analysis, it was clear that the lack of care and coordination exercised in the planned placement of the wall, the rough plumbing, and the wall finish was the cause of the deviation, rather than any field condition or manufacturing variant.

While acceptance of a ½" water closet centerline variance may be allowed as a DSA jurisdictional building code approval, it should be noted that such acceptance may not necessarily have effect or provide immunity under a judicial review.

**5. ESTABLISHING TOLERANCE GUIDELINES:** In conclusion, establishing predetermined construction tolerances guidelines related to the requirements for accessibility contained in the California Building Code is inappropriate.

As previously stated, the California Attorney General's office has indicated that construction tolerance guidelines *"may wrongfully be viewed by some to have the effect of law"*<sup>1</sup> and *"unnecessarily encourages contractors and others to deviate from the access regulations contained in the California Building Code."*<sup>1</sup>

The use of predetermined construction tolerance guidelines allows a blanket acceptance of departures from the building code requirements with no analysis as to the reason the use of a tolerance is either justified or warranted. As a result, the guidelines are then arbitrarily substituted for building code requirements, without taking into account the specific facts of each circumstance.

It is preferred that construction tolerance acceptance be on a case-by-case basis, with the degree of departure from the literal requirements coupled with the specific reason that the requirement was unable to be achieved as the basis to be utilized for analysis. Many times when questions arise regarding tolerances, it is often found after analysis that neither field conditions nor manufacturing variables contributed to the deviation, but rather there was simply a lack of proper planning or coordination. Inadequate planning and coordination are not justifications for the use of construction tolerances.

## **6. MORE INFORMATION:**

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## Endnotes

<sup>1</sup> Letter from the State of California Department of Justice to the Orange Empire Chapter of the International Conference of Building Officials dated August 22, 2002.

<sup>2</sup> Independent Living Resources v. Oregon Arena Corporation