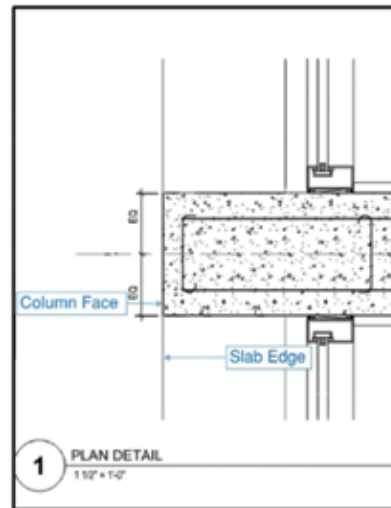


## Do Details in the Structural or Architectural Sheets Eliminate Tolerances?

**Q.** *We are trying to close out a recently completed concrete construction project, but the general contractor (GC) is withholding payment. At issue is the detail in Fig. 1, which shows the column face in perfect alignment with the suspended slab edge. We believe ACI 117-10(15), Section 4.2.1, tolerances for horizontal deviations for edge-of-slab location and column location of  $\pm 1$  in. pertain to this detail.<sup>1</sup> This is also consistent with the Concrete Q&A in the May 2018 issue of Concrete International.<sup>2</sup> However, the GC insists this is a zero-tolerance condition, stating that the contracted ACI 117 tolerances do not absolve the subcontractor from being required to produce the dimensions and alignments shown on other contract documents such as drawing plan view and detail pages, even though ACI 117-10(15) is referenced in the drawings as well. The GC contends that the detail shown in Fig. 1 requires exact alignment of the concrete slab edge and vertical columns.*

*Our position is that ACI 117-10(15) tolerances apply to all concrete work when referenced in the specifications, drawings, and/or contract unless specific exception is taken to these tolerances, regardless if a specific dimension or drawing section shows otherwise. Is the GC's interpretation correct?*

**A.** In one word, no. This is an example of an end-of-project dispute as discussed in an ACI University on-demand course, "Constructability Series: Coordination and Completeness of Structural Construction Documents."<sup>3</sup> The GC's interpretation is incorrect in several aspects. Section 1.1.2 of ACI 117-10(15) states that it applies to typical concrete construction, exposed concrete, and architectural concrete. The Mandatory Requirements



**Fig. 1: Concrete column and edge-of-slab detail**

Checklist in ACI 117-10(15), Notes to Specifier, states:

“Tolerance values affect construction cost. Specific use of a tolerance item may warrant less or more stringent tolerances than contained in the specification. Identify in the Contract Documents any tolerances the Contractor is required to achieve but are not addressed in ACI 117. Designate Exposed Concrete and Architectural Concrete in the Contract Documents. Coordinate tolerances for concrete construction and those of any materials that interface with, or attach to, the concrete structure. Specify concrete tolerances that are more or less stringent than those contained in this specification. Specification of more restrictive tolerances for specialized constructions, such as architectural concrete, often results in an increase in material cost and time of construction. The Specifier should specify dimensional tolerances considered essential to successful execution of the design. Success may require one or more of the individual tolerances to be more restrictive than those contained in ACI 117.”

Questions in this column were asked by users of ACI documents and have been answered by ACI staff or by a member or members of ACI technical committees. The answers do not represent the official position of an ACI committee. Comments should be sent to [keith.tosolt@concrete.org](mailto:keith.tosolt@concrete.org).

# Concrete Q&A

CASE 962-D: A Guideline Addressing Coordination and Completeness of Structural Construction Documents addresses the idealized drawing interpretation by stating in Section 5: “Construction materials will always deviate from the ‘ideal’ conditions shown on the drawings for a variety of factors such as fabricating and erection practices, material properties, or quality of workmanship.”<sup>24</sup> Thus, the interpretation that the drawings show a “zero-tolerance” is not correct.

In addition, ACI 117-10(15) states in the Commentary Introduction Section: “No structure is exactly level, plumb, straight, and true. Tolerances are a means to establish permissible variation in dimension and location, giving both the designer and the contractor limits within which the work is to be performed.” Therefore, a “zero-tolerance” interpretation makes the structure impossible to build.

It should also be noted that for future projects, similar disputes can be avoided by ensuring that the GC complies with the mandatory preconstruction tolerance meeting requirements specified in ACI 117-10(15), Section 1.1.3:

“A series of preconstruction tolerance coordination meetings shall be scheduled and held prior to the commencement of the Work. The Contractor, subcontractors, material suppliers, and other key parties shall attend. All

parties shall be given the opportunity to identify any tolerance questions and conflicts that are applicable to the work with materials, prefabricated elements, and Work assembled/ installed in the field by the Contractor.”

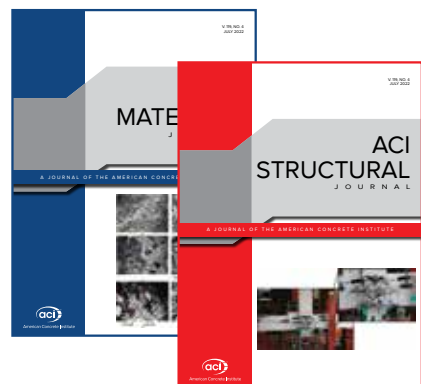
## References

1. ACI Committee 117, “Specification for Tolerances for Concrete Construction and Materials (ACI 117-10) and Commentary (ACI 117R-10) (Reapproved 2015),” American Concrete Institute, Farmington Hills, MI, 2010, 76 pp.
2. “Concrete Q&A: Allowable Tolerances for Suspended Slab Edge,” *Concrete International*, V. 40, No. 5, May 2018, p. 56.
3. “Constructability Series: Coordination and Completeness of Structural Construction Documents,” ACI On-Demand Course, [www.concrete.org/store/productdetail.aspx?ItemID=WCEU2212&Format=ONLINE\\_LEARNING&Language=English&Units=US\\_Units](http://www.concrete.org/store/productdetail.aspx?ItemID=WCEU2212&Format=ONLINE_LEARNING&Language=English&Units=US_Units).
4. CASE Guideline 962-D: “A Guideline Addressing Coordination and Completeness of Structural Construction Documents,” Coalition of American Structural Engineers, Washington, DC, 2020, 70 pp.

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