

PRO Focuses on Concrete Construction Productivity

Design professionals play a pivotal role in shaping project outcomes. When drawings are incomplete or poorly coordinated, the downstream effects can ripple through the construction process, resulting in inaccurate bids, excessive requests for information (RFIs), delays, added costs, and dissatisfaction with the finished project.

Having a coordinated and complete set of documents before construction begins is essential for achieving productivity. The 2023 FMI Labor Productivity Study¹ found that “4 of 5 Contractors said low-quality design/construction documents (plans and specs) are a top external factor stunting productivity.” This statistic underscores the influence of design quality on project efficiency.

While contractors focus on cost and schedule, structural designers translate architectural concepts into constructable elements. The design process often involves evaluating multiple solutions; however, incomplete or conflicting documents during construction undermine productivity and erode trust between teams.

The 2020 American Society of Concrete Contractors (ASCC) Constructability Survey² revealed that the top barriers to constructability were:

- Lack of drawing completeness;
- Poor coordination of drawings; and
- Conflicts between drawings and specifications.

For designers, this means that details—such as embedded items from specialty engineers—must be coordinated by the structural engineer of record (SER) early in the process. Standard details, if added without careful review, can conflict with project-specific requirements and create ambiguity.

Structural designers also face significant pressures that impact document quality, including:

- Increased competition and lower fees;
- Accelerated design schedules;
- Greater architectural complexity;
- Owner decision delays and changes;
- Delegation of coordination responsibilities;
- Accelerated project delivery methods;
- Challenges in retraining experienced staff and mentoring new staff; and
- Growing reliance on design technology.

Industry organizations, including the Coalition of American Structural Engineers (CASE), Construction Specifications Institute (CSI), American Society of Civil Engineers (ASCE), International Code Council (ICC), ACI, and ASTM International, have published requirements and guides to support designers in producing coordinated, constructable documents. These requirements are often cited

by reference in design and construction contracts.

ACI CODE-318-25,³ Chapter 26, establishes the minimum requirement for information that must be included in the construction documents. Section 26.1.1 addresses items the design professional must specify in the construction documents, if applicable. These include:

- Design information: The information shall be project-specific and developed during the structural design. It describes the basis of the design or provides information regarding the construction of the work;
- Compliance requirements: These are general provisions that provide a minimum acceptable level of quality for the construction of the work. It is not the intent of the Code to require the licensed design professional to incorporate, verbatim, the compliance requirements into the construction documents; and
- Inspection requirements: Section 26.13 provides inspection requirements to be used in the absence of general building code inspection provisions. These inspection requirements are intended to verify that the work complies with the construction documents.

Project owners should recognize that insufficient design fees, compressed schedules, and unchecked complexity ultimately increase project costs and delays. When designers are not given the resources to complete coordination, the burden shifts unfairly to contractors.

Some construction agreements now include language that exonerates designers while increasing contractor risk—suggesting contractors should anticipate “design intent” beyond what is documented. Such clauses raise serious questions and can erode collaboration and productivity.

At PRO, an industry task group seeks to address incomplete and poorly coordinated construction documents and contractual practices that undermine project collaboration and productivity. By empowering designers to deliver coordinated, constructable documents, we can reduce disputes, improve efficiency, and elevate project outcomes.

References

1. Keller, M.; Paré, T.; and Howlett, J., “2023 FMI Labor Productivity Study,” FMI, Raleigh, NC, 2023, 23 pp., <https://fmicorp.com/insights/thought-leadership/construction-labor-productivity-the-20-billion-opportunity>.
2. Diekemper, P., “PRO Focuses on Concrete Construction Productivity,” ASCC Newsletter, July 31, 2025, <https://asconline.org/Home/News/articleType/ArticleView/articleId/554/PRO-Focuses-on-Concrete-Construction-Productivity>.
3. ACI Committee 318, “Building Code for Structural Concrete—Code Requirements and Commentary (ACI CODE-318-25),” American Concrete Institute, Farmington Hills, MI, 2025, 702 pp.