



AIA Best Practices:

Keeping tabs: Using document audits/peer reviews

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Summary

Document audits/peer reviews are a good way to improve the quality of documents. Firms may consider a systematic, multi-step and clearly defined program of document audits as part of their overall quality management program. Within this program, some audits should be either second party or third party; these are also referred to as peer reviews. A document quality audit program should address procedures for peer reviews, ongoing team reviews, management responsibilities, quality control, measurement and a program of continual improvement.

Terms

- **Audit** – A systematic, methodical process whereby the documents are evaluated to determine the extent to which the project requirements are met
- **First-party audit** – An audit by the project team already responsible for the project
- **Second-party audit** – An audit by an auditor with an interest in the firm but not direct responsibility for the specific project
- **Third-party audit** – An audit by an auditor independent of the firms responsible for the project
- **Peer review** – A second-party or third-party audit
- **Auditor or peer reviewer** – A person with the competence and skills to conduct an audit
- **Inattentional blindness** – Also called perceptual blindness, it is the phenomenon of not seeing the obvious right in front of one's eyes

On-going team reviews of documents

This Best Practice describes how architectural design teams can have in place a procedure addressing ongoing team reviews of the development of the documents. For larger projects where there are several architects and project interns on the team for several months, it's important to closely monitor on a weekly basis the development of the documents.

Team leaders may conduct meetings weekly with the architectural team to review progress. Each member would have clearly defined responsibilities and specific goals, which are tracked at least weekly. The agenda

for these team meetings would include a review by each member of progress made since the last session, checking this progress against the goals set at the previous gatherings, a review of current issues, and the setting of specific goals for each team member for the next week. There would also be opportunities for open discussion. Rather than focusing on a deadline that may be several weeks away, setting weekly goals for the team can be more productive and efficient. These meetings give the architectural team a chance to see the entire project develop and enable team members to interact and address coordination issues between their various project tasks. These meetings can be conducted by a senior member of the team, which allows him or her to regularly monitor the development of the project in the group.

In addition to these meetings, the senior staff on the project can touch base frequently, even daily, with the individual team members and be available to address any issues raised.

Management responsibilities in document reviews

Management takes responsibility that document audits are conducted by the project team; and second-party or third-party peer reviews are a part of the quality management process. Management can be actively engaged as auditors or the audits can be delegated. The pros and cons of the alternatives can be weighed by management. A sole proprietor or a firm with a single principal doesn't have the option of management-conducted second-party audits and can consider third-party audits. In small and medium-sized firms there may be the option of having second-party audits by a principal not directly responsible for the project. The larger the firm the more likely management will delegate the actual audits of projects.

An audit program

First-party audits can be conducted to some extent at least weekly as part of the ongoing team reviews of the documents. In fact, the project manager or project architect can be working directly with the project team and daily reviewing some aspect(s) of the development of the documents. As part of a quality management program there may be first- party audits as well, which are formal or more focused than the ongoing document reviews.

A peer review program may consist of multiple reviews and not a single one conducted toward the completion of the construction documents. Except for very small projects, an audit program may consist of at least three peer reviews, one conducted at schematic design, one at design development and one at 75 % or 90 % construction documents. The function of a peer review program needs to be more than catching errors and omissions before construction documents are issued; the reviews can play an important role in righting documents earlier in the process, which is more efficient for the project team.

One of the challenges is addressing how this process fits within demanding schedules that design teams generally face. The simple answer is not to extend project schedules to address peer reviews but to adopt the peer reviews to the project schedule. What this would mean is that each peer review begins with the scheduled issuance of the documents, and the issues raised by the peer review are addressed early in the next phase.

Hence, the last peer review is scheduled for a 75 % or 90 % construction documents issuance.

An argument for peer reviews/second-party audits or third-party audits

Daniel J. Simons, PhD, from Cornell University, a professor in the Psychology department at the University of Illinois at Urbana-Champaign in the Visual Cognition and Human Performance Division, has conducted numerous studies on visual cognition, perception, attention, and memory. Some of his studies reveal the surprising extent of inattentional blindness – the failure to notice unusual or salient events in the visual world when attention is otherwise engaged. Architectural project teams working very closely on projects often miss obvious errors and omissions. Peer reviews provide the needed fresh set of eyes.

A one-minute movie produced by Simons illustrates the point. The film featured three students in white T-shirts passing a basketball and three students in black T-shirts passing a basketball. The audience was asked to count the number of passes between the white T-shirted students with the teaser that most observers will miss one of the passes. Halfway through the movie a student in a gorilla suit very obviously walked across the screen and weaved between the two groups of students passing basket balls. With the audience focused on counting the passes, less than 20% of the audience saw the gorilla. Even after a second showing, when the audience was asked to take a more holistic view of the movie, less than half saw the gorilla. In a third showing, the gorilla was pointed out, and some audience members insisted it was a different movie. They couldn't believe that they failed to see something that obvious. The same inattentional blindness happens to project teams.

However, a good auditor does more than address inattentional blindness and is more than just a fresh set of eyes. The auditor brings a different perspective to the project and questions and tests the decisions of the design team, hence the importance of the earlier peer reviews. A prerequisite for the auditor is that he or she is a highly skilled professional with many years of real project experience who brings those skills to the project team.

Peer review criteria

This is a brief outline of a peer review. A peer review of developing construction documents, which would include schematic design and design development documents would be a review for:

- **Compliance.** This would be compliance to regulatory requirements such as for zoning and codes as well as compliance to programmatic and performance requirements.
- **Completeness.** This is an assessment of the completeness of the architectural drawings, consultant drawings, specifications, and other requirements respective to the phase.
- **Coordination.** This is a review of coordination within the architectural drawings, coordination with the structural and MEP/FP drawings, coordination between consultant drawings, and coordination with the specifications.
- **Technical Detailing.** This may focus primarily on the detailing of the exterior envelope, but can include technical detailing throughout the project

Peer review audit follow-up

Peer reviews, as second-party or third-party audits, are the opinions of the auditors. A peer review is a tool for the project team and does not shift either overall management responsibility or project team responsibility away from management or the project team. Peer reviews are also generally not an exhaustive review and may not be assumed to have identified every omission and deficiency in the documents. They do not replace, for example, the team's ongoing document review process.

However, a good peer review—factual, informed, clear, specific, technical and with a tone toward mentoring—brings a great deal of value to the project. Peer reviews may be critical but constructive and focused on the project, not on individuals.

A subset of management reads and becomes familiar with the content of the peer reviews and has some level of oversight in the follow-up process. A good peer review would include an executive summary, which widens the potential management audience to the content of the report.

The primary responsibility for follow-up resides with the project team. The project team doesn't take every comment at face value and needs to evaluate the commentary of the peer review and determine which comments require action and which do not. A comment that clearly points out a conflict or defect in the documents, albeit minor (unless the comment is trivial), needs be addressed by the project team. If an error exists, is known to the project team, and is ignored, the team is not performing efficiently. Very likely, an RFI will be issued to address that conflict. When the design team responds to the RFI, the effort spent addressing the issue is greater than if the design team addressed the issue prior to the start of construction. There is also the issue of excessive RFIs being a reflection on the architect's standard of care.

Project team management may assign a responsible party to each comment that needs to be addressed, whether by the architectural staff or a consultant. Scheduling and tracking mechanisms are needed, as is a mechanism to confirm that sufficient responses are integrated into the documents.

Continual improvement/measurement

This Best Practice concludes that document audits/peer reviews be part of a greater quality management program, which includes a program of continual improvement. A program of continual improvement could include some form of lessons learned where there is sharing between project teams and the overall staff. A team sharing of what went right and wrong and how issues were resolved is a learning experience for the team presenting, as well as for the audience.

A firm's overall quality management program might also attempt to find some means to measure or track qualitative improvements in the construction documents and determine potential improvements in the document audits/peer review process.

About the contributor

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