

Whose Design Is It Anyway?

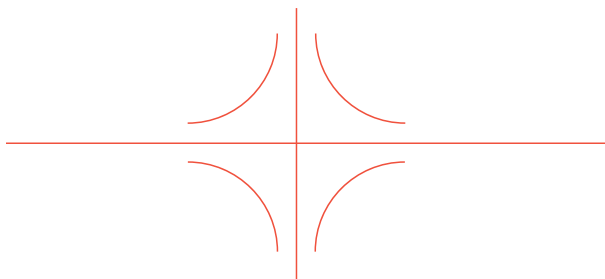
The Role of the Owner's Engineer on Design-Build Projects

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Based on the project delivery method, the Owner's Engineer (OE) will have different roles and responsibilities, as well as oversee various deliverables throughout the project's lifecycle, from as early as the feasibility study phase through to commissioning and handover.



The OE's Role under Different Project Delivery Methods

Design-Bid-Build Projects

On design-bid-build projects, the OE typically acts as the Engineer of Record (EOR) and eventually as the Owner's contract administrator. The EOR's role is to prepare a compliant design for the Owner's procurement process. Although the Owner may lack the expertise to challenge the detailed design aspects of the issued for tender (IFT) design, it needs to ensure that its general requirements are met and that it is satisfied with the OE's design solutions. These are core Owner responsibilities, as Owner changes made at a later stage can have major adverse cost implications.

After contract award, the OE is responsible for preparing final issued for construction (IFC) drawings and specifications. The successful bidder then prepares technical submittals such as shop drawings, datasheets, etc. to demonstrate the work's compliance with the contract requirements and specifications.

As the EOR, the OE typically reviews and approves the contractor's technical submittals for compliance, prior to allowing construction to start.

In cases where design responsibility for a specific component or system is delegated to the contractor, as is the case for earth-retaining structures, temporary works, or contractor-designed components of the permanent works (delegated design), the OE's review focuses on ensuring performance and contract compliance.

Design-Build Projects

Design-build projects, including public private partnerships (PPP) and engineering, procurement and construction (EPC) projects, differ from design-bid-build projects in that the Design-Builder, not the OE, is responsible for the detailed design of the project.

In order to invite tenders for the project, the OE prepares performance specifications that define the required project outcomes. The successful Design-Builder must interpret and adhere to these while developing its detailed design.

In design-build projects, the OE's only design role is to review the Design-Builder's design, including verifying that it complies with the contract's performance specifications. The OE's review usually does not constitute a formal acceptance of the Design-Builder's design, but rather is intended to provide comments or raise concerns as the design evolves.

Bringing Clarity to the Design Review Process

On design-bid-build projects, the roles, responsibilities and expectations of the parties are, in theory, relatively clear-cut, particularly as they relate to design.

Conversely, since detailed design development on a design-build project starts only after contract award and progresses gradually during the project, we are increasingly seeing tension between the Design-Builder and the OE during the iterative design development process.

Design-build contracts often fail to clearly define the limits of the expected involvement of the Owner and/or the OE in reviewing design. While increased involvement can provide reassurance to the Owner, if excessive, it may interfere with the Design-Builder's ability to maintain quality, adhere to the schedule, and manage costs. It can also blur the apportionment of contractual design responsibility between the Design-Builder and the OE.¹

To help avoid potential disputes, delays, and cost overruns stemming from the Owner/OE's review of the Design-Builder's design, the contract should clearly address the following considerations regarding the design review process:

- What will be reviewed?
- How will the design be reviewed?
- When will reviews start and finish?
- What resources are required for the review?
- How will changes be managed?

While these are important considerations for every project and all types of project delivery methods, they are especially crucial for design-build projects.

What will be reviewed?

The volume of design review documentation can vary significantly from project to project. Thousands of documents may be exchanged for review among the parties. Each document can undergo multiple iterations of development, submittal, and commentary before reaching a satisfactory level of completeness.

The review process should limit the review of the Design-Builder's design documents to those necessary for the Owner/OE's assessment, and avoid duplicating the work performed by the Design-Builder as part of its internal quality review.

A clear and concise review scope outlined in the contract between the Owner and the Design-Builder, specifying the types of documents to be reviewed and their format, can help ensure that the review process aligns with what the Design-Builder planned and budgeted for at the tender stage.

How will the design be reviewed?

Parties must have a shared understanding of how they will collaborate and communicate during the design review process. This clarity helps prevent inadvertent or unnecessary interference from the Owner or the OE.

The contract should specifically outline the OE's role and responsibilities in the design review process. Additional parties, including other project stakeholders and independent certifiers, may also need to review the various submittals. If so, these parties should be clearly identified, and their roles and responsibilities defined.

The contract should define mandatory terms to be used by the OE in its review and what they represent. Some examples of the terminology used in various design-build, PPP or EPC contracts include "Reviewed," "Reviewed with Comments" or "Rejected," or the provision of a "Notice of No-objection" or "Notice of failure to comply with the Contract." It should also specify whether the OE's review of the Design-Builder's submittals is a prerequisite for starting subsequent design, procurement, fabrication or construction phases. Design-build contracts often allow the Design-Builder to proceed at risk because usually, none of the OE's review comments supersede the Design-Builder's obligation to be fully responsible for a compliant design.

When will reviews start and finish?

Depending on the project's complexity, the OE will require a reasonable amount of time to review the Design-Builder's deliverables. Generally, at least one submittal is needed at various stages of design completion.

The contract should have review timelines established by the Owner and agreed upon by the Design-Builder. Additionally, consideration could be given to developing design narratives² and holding pre-planned design review meetings. These items help highlight the progression of design development throughout the project, ultimately expediting the design review process and providing a forum for the OE to ask questions.

What resources are required for the review?

Based on the Design-Builder's schedule, the OE can anticipate the necessary resources to dedicate to the design review. Delayed submittals can disrupt the OE's resource forecast. Similarly, unplanned resubmission of design packages can quickly disrupt the Design-Builder's resource forecasts. As such, the OE should avoid unnecessary requests for Design-Builder resubmissions.

A streamlined, gated submittal process can ensure a quicker turnaround and fewer resubmissions of deliverables, while meeting the contract requirements. This curated approach can save significant time, effort and cost for all project stakeholders.

How will changes be managed?

Robust change management processes are essential for the administration and documentation of changes that may arise during the project. They ensure that all changes are properly evaluated, approved, and implemented, thereby maintaining the integrity of the original design and contractual agreements. As such, the contract should outline detailed change management procedures.

If not managed correctly, changes introduced during the design review process risk causing scope creep and can disrupt the project schedule or budget. The design review process should therefore not be used to request changes to the Design-Builder's design for anything other than non-conformance with the contract.

Conclusion

Relative to design-bid-build projects, the relationships between the parties on design-build projects can be very complex and intertwined, particularly concerning the design development and design review process. As such, there is a particularly high potential for disputes in this area.

A clear definition of the role, responsibilities and expectations of the OE, as well as a clearly outlined design review process in the contract documents can go a long way in reducing the risk of project disputes, schedule delays and cost overruns.

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- 1 Michael C. Loulakis, "Unique Design-Build Contracting Issues," in R. F. Cushman and M. C. Loulakis (Ed.), *Design-Build Contracting Handbook*, Second edition, New York (NY), Aspen Law & Business, 2001, Section 1.07[B], p. 20-21. (Construction Law Library)
 - 2 A design narrative is a tool that assists the reviewer in understanding the design inputs and outputs of the specific design package, as well as its interface with other technical components and disciplines within the project.

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