

WSDOT Design-Build

Guidance Statement

Title – Design Quality Control, Quality Assurance, and Quality Verification on Design-Build Projects

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Introduction

The roles and responsibilities are significantly different on a Design-Build project from traditional delivery methods. This guidance is intended to be applied from a statewide perspective. This statement discusses quality definitions, roles, responsibilities, and performance expectations for design work.

Guidance Statement

Overall Responsibilities

Design-Builder – is responsible for the quality of the design work including the products of subcontractors and suppliers.

WSDOT – is responsible to ensure that the Design-Builders design quality processes are performed in accordance with the contract documents and design work meets the required standards.

Definitions for Design Quality Control, Design Quality Assurance, and Design Quality Verification

Quality functions are not exclusive to a Design-Build project's design work. The quality process includes all elements of a project's work to ensure the end result is what was desired. The following definitions are intended to convey how quality processes are applied to the design portion of the work.

Design Quality Control (DQC) – The total of all activities performed by the Design-Builder to assess design so as to control the level of quality being produced in the end product. Components may include design reviews and checks, establishing procedures, shop drawing review, document control, production process control, and inspection done for these purposes.

Design Quality Assurance (DQA) - All those planned and systematic actions performed by the Design-Builder to demonstrate to WSDOT that the design work complies with the Contract and that all elements of the design work will perform satisfactorily for the purpose(s) intended.

Design Quality Verification (DQV) - A combination of audits, task force reviews and checks performed by WSDOT staff (includes WSDOT consultants or contracted staff) on a random basis to validate that the Design-Builder is following the approved quality procedures and that such procedures are effectively assuring quality.

Design-Build DQC/DQA/DQV Principles

Design quality requirements are based on the following principles:

- The Design-Builder is responsible for managing and scheduling all design work to meet its construction schedule;

- The Design-Builder is responsible for the adequacy of the design solutions and the design documents;
- The Design-Builder is responsible to ensure that any design solutions meet the requirements of the contract documents;
- The Design-Builder is responsible for the quality of the design documents it develops;
- All design services furnished by the Design-Builder will be performed under the direction of a Professional Engineer licensed in the State of Washington;
- Design documents may be developed and released for construction in stages allowing the Design-Builder to start construction at its own risk prior to completion of final design documents;
- The Design-Builder's Design Quality Manager is responsible for arranging reviews of all design documents and other plans as defined in the contract documents (such as, shop drawings and fabrication drawings);
- WSDOT staff will provide design verification throughout the project as defined in the contract documents;
- The Design-Builder's Designer and Design Quality Manager continue to have responsibilities during construction; and
- Design will not be considered complete until all as-built plans have been reviewed and accepted by WSDOT.

Design Quality Control and Assurance (Design-Builder Responsibility)

The Design-Builder, through its Designer, is responsible for managing the design process, Design Quality Control, and the final design. The Design-Builder is responsible for the accuracy, adequacy and timeliness of the final design. The Design-Builder is responsible for the following:

- Detailed design checks by the Designer and the Design Quality Manager;
- Constructibility of the Project;
- Managing the Design Review process, including scheduling Design Reviews and notifying/inviting WSDOT and other Stakeholders (Local Agencies, Utilities, etc) to participate in Design Reviews per the contract requirements. E.g. 30%, 60%, and 90% reviews;
- Providing documentation of the design process and DQC per the contract requirements;
- Reviewing and approving Ready for Construction Plans and related documents to assure that they meet the intent and requirements of the Design Documents and Project Specifications;
- The Designer and Design Quality Manager review and approve all design changes during the course of the Project, regardless of which party initiates the change; and
- All Ready for Construction Plans and Final Design Plans must be stamped and signed by the appropriate parties.

In using the Design Build method for project delivery design documents may/will be released for construction in stages or phases such that construction will start prior to completion of final design. If any component will require completion of final design prior to its release for construction, such requirement must be clearly identified in the contract documents to be understood by all parties.

Design Quality Verification (WSDOT Responsibility)

The WSDOT project staff verification role during design and design reviews consists of monitoring and auditing design progress, reviewing contract requirements, and verifying that the design work is in compliance with the contract documents. In performing this role, WSDOT staff should comply with the following guidelines:

- WSDOT staff needs to be available to provide interpretation and answers regarding contract requirements on a daily basis. These are considered “over-the-shoulder” reviews. By having continuous contact during the design process, the WSDOT staff will be fully aware of all information and potential issues prior to design reviews. This will help streamline the review process;
- WSDOT input and participation in the review process should be limited to the time frames set forth in the contract documents;
- WSDOT’s role is to verify that the design meets the contract requirements.
- WSDOT’s participation in design reviews should not require detailed checks of plans and calculations, except in unusual cases;
- WSDOT’s project staff will verify through audits of DQC records and processes that the Design-Builder’s Design Quality Manager is fulfilling his/her responsibilities and that the design quality procedures contained in the Quality Management Plan are being followed;
- WSDOT’s project staff will be responsible for verifying design progress for payment purposes; and
- WSDOT’s Project Manager will provide correspondence indicating whether the design deliverables meet the contract requirements at successful completion of design reviews at various stages. This is not acceptance or approval of the design.

Design Reviews

Design reviews should be conducted at the following points:

- Design development, 30%, 60%, and 90%;
- Ready for Construction Plans;
- Design Changes that occur through task force meetings and during construction; and
- As-built Plans*.

*As-built Plans review is done by WSDOT and FHWA with Design-Builder participation. As noted above in the Design-Build DQC/DQA/DQV Principles section as-built plans are used as a basis of project acceptance which will require a higher level of review and verification.

If participation from WSDOT support organizations, FHWA, local agencies or other stakeholders is required for a review, WSDOT project staff needs to ensure they are invited to participate in the review. If documents or other items need to be sent to a support group at another location WSDOT project staff must closely work with the support organization to ensure the time frames required by the contract are not exceeded.

WSDOT's Project Manager must provide correspondence when a design review is considered complete. This correspondence does not give acceptance of the design. Acceptance of the design is not given until the end of the project after all as-built plans have been reviewed and accepted.

What are the Benefits?

Gives guidance to project teams on what design quality principles, roles, and responsibilities are for a Design-Build Contract.

Concurrence

October 5, 2006

Was the WSDOT DB Guidebook Updated with this information?

When Guidebook is updated - enter date and section here.