

Equitable Risk in Design-Build Contracts

Steven D. DeWitt, PE

December 10, 2014



 U.S. Department of Transportation
Federal Highway Administration

Agenda

- Why use design-build delivery?
- How does risk allocation differ in design-build?
- What are common risks in a design-build contract?
- How is design-build project administration risk different from design-bid-build?
- Open discussion – what is equitable/ inequitable design-build risk allocation?

Learning Objectives

By the end of this presentation, you will be able to:

1. Describe when to use design-build project delivery
2. List the common risks that impact design-build contracts
3. Discuss the impacts of inequitable risk allocation in a design-build contract

Every Day Counts | 3

Why use design-build delivery?

Design-build offers potential for:

- Time savings
 - Overlapping of design and construction
 - Awarding contract prior to completing design
- Innovation
 - Competition in design
 - Increase in constructability
- Risk Allocation
 - Assigning risks to most appropriate team member

Every Day Counts | 4

Why use design-build delivery?

Design-build is not appropriate for every project

- Time savings not available
- Project cannot be defined through performance criteria
- Risks are too severe to price without large contingency

Every Day Counts | 5

Why use design-build delivery?

Design-build must aligns with project goals!

Schedule

- Minimize project delivery time
- Complete the project on schedule

Cost

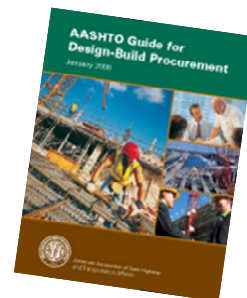
- Minimize project cost
- Maximize project budget
- Complete the project on budget

Innovation

- Provide innovative solutions
- Minimize impact on the traveling public

Quality

- Provide the highest quality project
- Select the best team

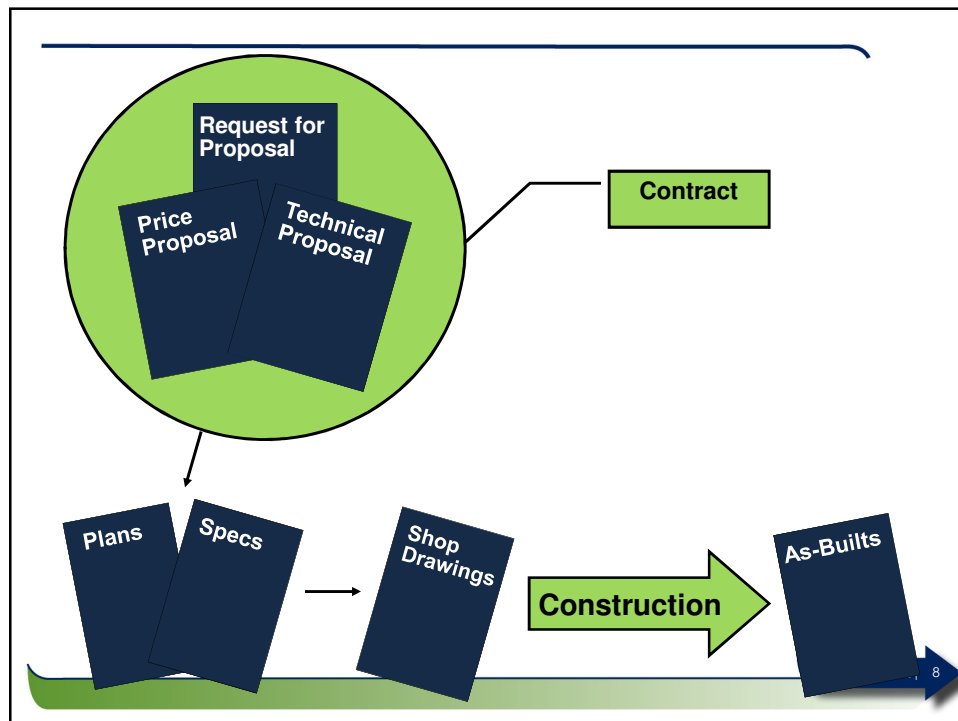


Every Day Counts | 6

How does risk allocation differ in design-build?

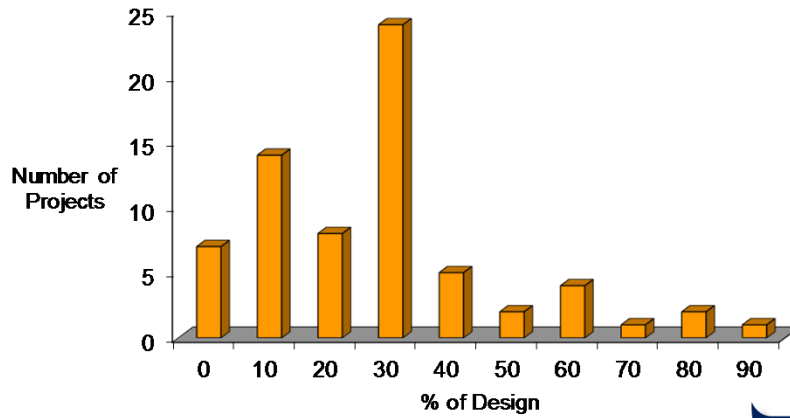
- The contract is different
 - Design-build contract is construction contract
 - Design is a deliverable of the contract
 - Risk for errors and omissions in design is borne by the design-builder
 - Risk for performance can be borne by the design-builder

Every Day Counts | 7



How does risk allocation differ in design-build?

Projects are awarded at a low level of design



Based on 69 projects in FHWA DB Effectiveness Report to Congress

Every Day Counts

How does risk allocation differ in design-build?

Agencies must balance time savings with cost of risk for scope, construction, other...

Level of Design
& Risk Allocation



Schedule
& Innovation

Every Day Counts

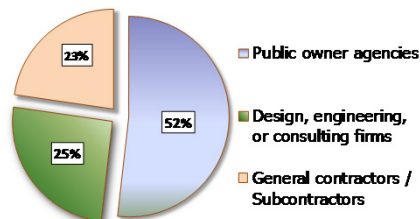
How does risk allocation differ in design-build?

CATEGORY	RISK	DBB		DB	
		Agency	Contr.	Agency	Contr.
Design Issues	Project scope definition	X		X	
	Design criteria	X		X	
Environmental	NEPA/SEPA	X		X	
Right of way	Establishing ROW limits	X		X	
	Acquire ROW	X		X	
Local Agency	Establish final/actual local agency impacts	X			X
Utility	Relocation of utilities under agreement during contract		X		X
	Modified agreement with private utility based on final design	X			X

Every Day Counts |

Common Design-Build Risks

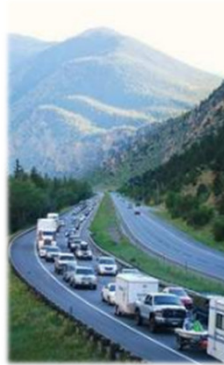
- 2014 University of Colorado Study
 - 152 Survey Response
 - 39 Generic Risks



Every Day Counts | 12

Common Design-Build Risks

- Most Significant DB Risk Categories
 - Design Risk
 - Construction Risk
 - Third Party Risk



Every Day Counts | 13

Common Design-Build Risks

- Design Risks
 - Poorly defined project goals
 - Lack of adequate project design
 - Poorly written performance criteria

Every Day Counts | 14

Common Design-Build Risks

- Construction Risks
 - Geotechnical investigation
 - Work zone traffic control
 - Environmental impacts
 - Construction quality control/quality assurance

Every Day Counts | 15

Common Design-Build Risks

- Third Party Risks
 - Delays in completing utility agreements
 - Unexpected utility delays
 - Delays in ROW process
 - Delays in obtaining RR agreements
 - Obtaining other agency approvals
 - Legal challenges and changes in law

Every Day Counts | 16

Agenda

- ✓ Why use design-build delivery?
- ✓ How does risk allocation differ in design-build?
- ✓ What are common risks in a design-build contract?
- **How is design-build project administration risk different from design-bid-build?**
- Open discussion – what is equitable/ inequitable design-build risk allocation?

Every Day Counts | 17

Design-Build Administration

What is different/where is the risk?

- Design oversight
- Management of changes
- Measurement of work complete and payments
- Quality management
 - Design quality management
 - Construction quality management

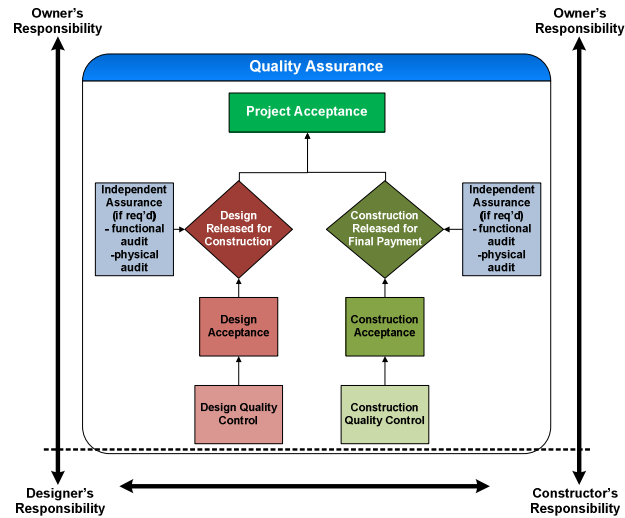
Every Day Counts | 18

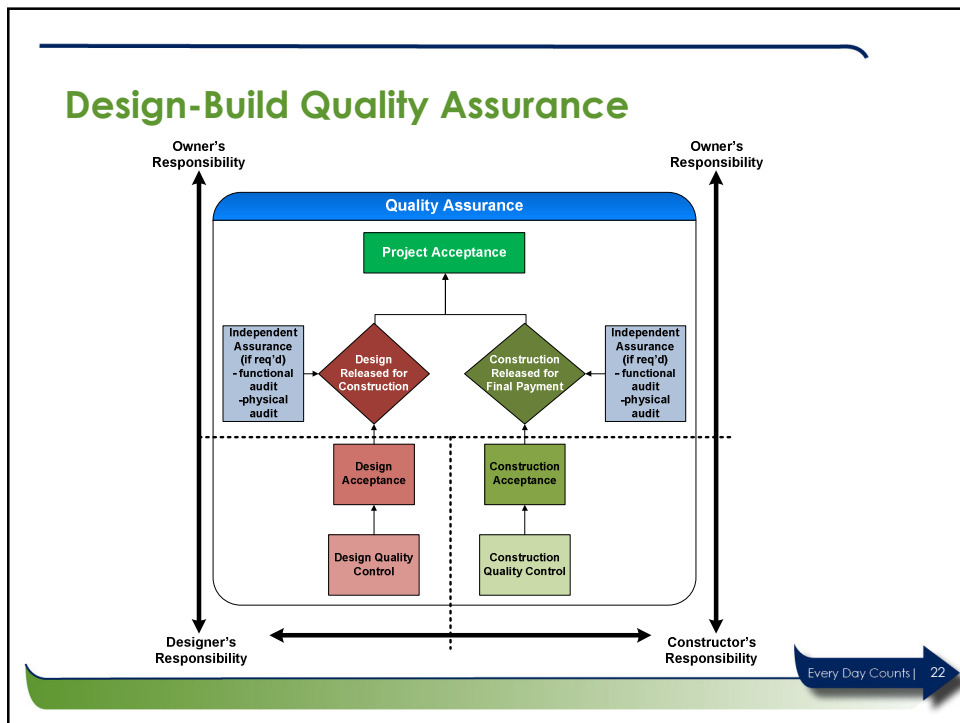
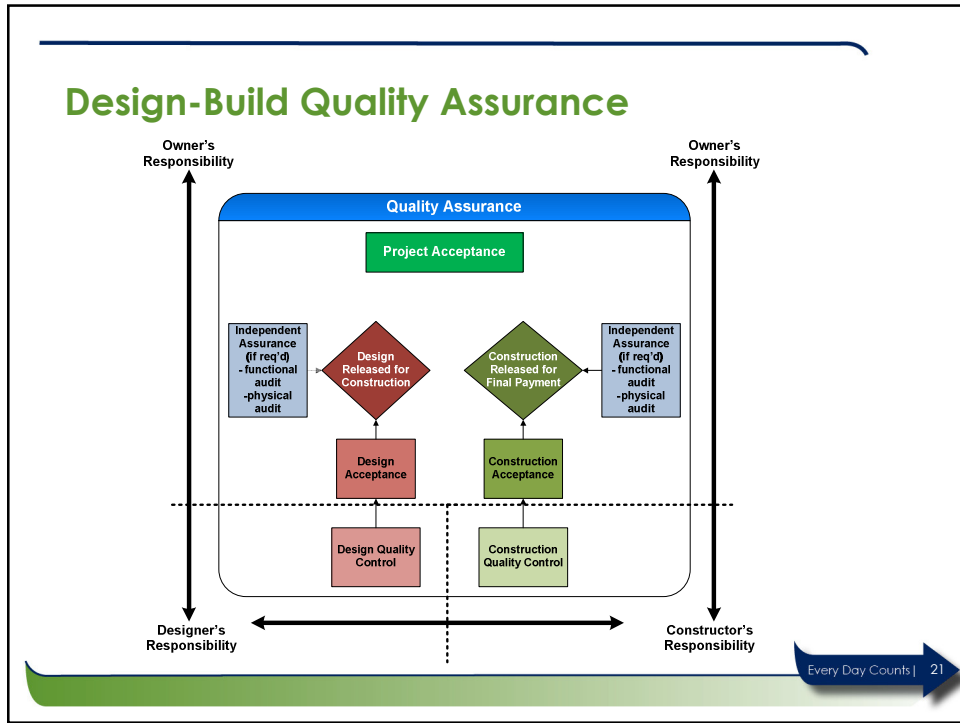
Design-Build Administration

What is different in DB quality assurance?

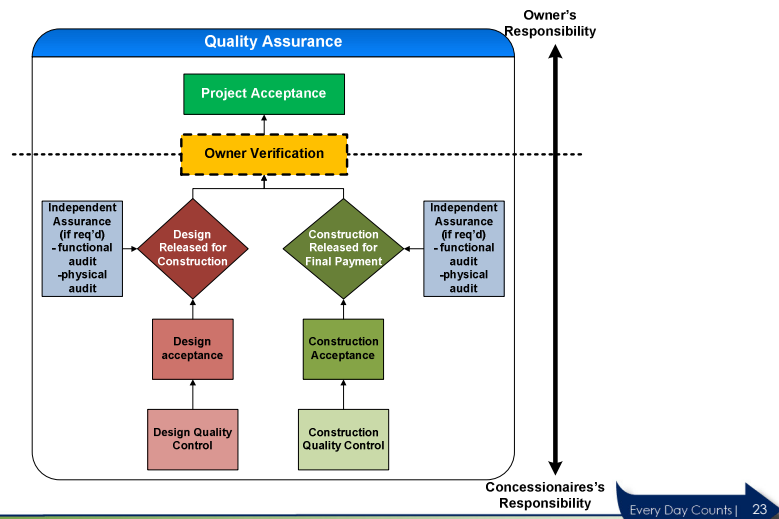
- There is no single quality assurance process for design-build
- QA process must take design quality into account
- QA process will vary depending upon
 - Use of performance criteria
 - Comfort level of agency
 - Risk allocation in contract

Design-Build Quality Assurance





PPP/Design-Build Quality Assurance



Design-Build Quality Assurance

- Design Quality Control Plan?
 - Checking of hand-generated calculations
 - Checking of computer-generated calculations
 - Checking of Drawings
 - Ongoing Reviews
 - Section/Discipline Manager Reviews
 - Independent Reviews
 - Outside Agency Reviews

Design-Build Quality Assurance

- Internal quality assurance
 - Senior project manager not working on the job
 - Specific checks on anything out of the ordinary
- External quality audits
 - Determine conformity of the system
 - Determine the effectiveness of the system
 - Provide opportunity to improve system
 - Meet regulatory requirements

Every Day Counts | 25

Agenda

- Why use design-build delivery?
- How does risk allocation differ in design-build?
- What are common risks in a design-build contract?
- How is design-build project administration risk different from design-bid-build?
- ✓ **Open discussion – what is equitable/ inequitable design-build risk allocation?**

Every Day Counts | 26

Open Discussion

- What risks can be allocated equitably to a design-builder?
- What risks should not be allocated to a design-builder?

** Time and cost savings/additions can be discussed with each question.*