Equitable Risk in Design-Build Contracts

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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

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
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

Why use design-build delivery?

Design-build must align 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
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
How does risk allocation differ in design-build?

Projects are awarded at a low level of design

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
### How does risk allocation differ in design-build?

<table>
<thead>
<tr>
<th>CATEGORY</th>
<th>RISK</th>
<th>DBB Agency</th>
<th>DBB Contr.</th>
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<th>DB Contr.</th>
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<td>Design criteria</td>
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<td>Right of way</td>
<td>Establishing ROW limits</td>
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<td>Acquire ROW</td>
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<tr>
<td>Local Agency</td>
<td>Establish final/actual local agency impacts</td>
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<td>Relocation of utilities under agreement during contract</td>
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<td>Modified agreement with private utility based on final design</td>
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### Common Design-Build Risks

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

• Most Significant DB Risk Categories
  – Design Risk
  – Construction Risk
  – Third Party Risk

Common Design-Build Risks

• Design Risks
  – Poorly defined project goals
  – Lack of adequate project design
  – Poorly written performance criteria
Common Design-Build Risks

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

• 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
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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
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
Design-Build Quality Assurance

Quality Assurance

Project Acceptance

Owner's Responsibility

Designer's Responsibility

Constructor's Responsibility

Construction Released for Final Payment

Design Acceptance

Design Quality Control

Construction Acceptance

Construction Quality Control

Independent Assurance (if req'd)
- Functional audit
- Physical audit

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Every Day Counts
PPP/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

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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.