Design-Build Concepts

Presented to EGSA

Gregory Fischer
VP Western Operations Manager

CH2M HILL Water Business Group
North America Design-Build
How Design-Build Delivery Provides the Opportunity to Sell the Value of Your Solutions

Overview of Design-Build Delivery Methods

Opportunities for Collaboration and Solution Development During the Design Build Process

Case Studies
Overview of Design-Build Delivery Methods

Design-Build Delivery Varies Greatly

– By State laws
– By local practice and Owner comfort
– By industry and type of project
Overview of Design-Build Delivery Methods

- **Design-Bid-Build (DBB)**
  - Owner
  - Designer
  - Builder

- **Construction Management at Risk (CM@Risk)**
  - Owner
  - CM
  - Local Subconsultants/Subcontractors

- **“Progressive” Design-Build (GMP)**
  - Owner
  - Design/Builder
  - Local Subconsultants/Subcontractors

- **Lump Sum Design-Build (LS)**
  - Owner
  - Design/Builder

- **Design-Build-Operate/Finance, etc.**
  - Owner
  - Design Builder Operator
  - Operator

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Traditional Delivery  Alternative Delivery
Traditional Design-Bid Build Delivery

- Defined, proven process
- Distinct milestones
- Traditional “cast” of participants
- But: *does not always meet Owners’ needs for collaboration, innovation, and accountability*
Construction Management At Risk

- Design-Build “Lite”
- Promotes early collaboration between designer and constructor
- Allows selection of a Contractor based on qualifications and fee (but not a full bid)
- But: still relies on separate contracts, resulting in a “forced marriage”
True Design-Build Delivery Options

- True single contract design-build models
- Offers Owners a wide variety of evaluation options, ranging from almost all qualifications-focused to “best value” with a lump sum price

Progressive Design-Build: Maximum flexibility for Owners

“Progressive” Design-Build (GMP)

Lump Sum Design-Build (LS)

Design-Build-Operate/Finance, etc.

Lump Sum Design-Build: “Performance-based” or “Prescriptive”
Progressive Design-Build

- “Progressive” model complies with procurement rules as long as some form of “price/cost-related” criteria is included in selection
- Offers owners maximum flexibility/opportunity to collaborate on permitting/design
- Owners have an “off-ramp” in case of permitting issues or if GMP can’t be negotiated
- Very successful evolving model

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<th>Plan Project</th>
<th>RFQ</th>
<th>RFP</th>
<th>Permits/Design Input</th>
<th>Verify DB Performance</th>
<th>(Verify) O&amp;M</th>
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<td>Define Performance Criteria</td>
<td>Tech Support</td>
<td>Verify GMP</td>
<td>Design/Develop GMP</td>
<td>Inspection</td>
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</table>

RFQ - defines qualifications criteria; short lists qualified firms

Select from qualified firms - selection based on qualifications; may include “rates” or “conceptual/target price” in evaluation

Agree on GMP - based on collaborative scope and design; pricing may be verified by third party
Lump Sum Design-Build

- Can be Performance-Based or Prescriptive
- Many “flavors” available to you - two-phase selection is typical
- Variable milestones depending on the project
- Manages to unknown challenges through risk allocation

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<th>Review Quals</th>
<th>Proposal Period</th>
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Solicit qualified teams -short list qualifications based on capability, capacity, experience, references

Select short list and Issue RFP - defines performance criteria

Select from short-listed teams - selection based on “best value” (technical + price)
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Opportunity to Collaborate and Develop Solutions

• Design-Build solutions go “beyond the spec”
  – Focus on the “best value” solution
  – Take exceptions when justified
  – Emphasis on innovation, lifecycle cost

• Each type of procurement has specific opportunities to develop innovative solutions
  – Progressive: with the design-builder and the Owner together
  – Lump Sum: with the design-builder first

• Requires a new mind set:
  – Focus on low cost via the best solution
Opportunity to Collaborate and Develop Solutions

Design- Builders Invite Vendor Input to Develop Winning Solutions

- Significant amount of proposal development time
- Often many iterations of solutions before arriving at “best”
- Pricing is still critical, but it evolves with an understanding of the solution and desired end project...
  ...inclusive of all scope

**Progressive DB (GMP)**

- Plan Project
- Define Performance Criteria
- RFQ
- Propose Concept
- RFP
- Tech Support
- Design/Develop GMP
- Permits/Design Input
- Verify GMP
- Verify DB Performance
- O&M
- Inspection
- Construction, Startup
- Warranty
- Complete Design

**Lump Sum DB (LS)**

- Plan Project
- Performance Criteria
- RFQ
- Propose Concept
- Vpermits/Technical
- RFP
- Tech Support
- Verify Design
- Verify DB Performance
- O&M
- Inspection
- Construction, Startup
- Warranty
- Complete Design
Opportunity to Collaborate and Develop Solutions

Design-Build Procurement Process Requires Changes to The “Hard Bid” Thinking
- Multiple solutions = multiple pricing exercises
- Procurement duration = long term commitment to pricing
- Solutions during procurement = proprietary information
- Design-build expectation = don’t leave anything out

Typical Progressive Design-Build Procurement
- RFQ: 30 days
- Shortlist: 30 days
- RFP: 60 days
- Evaluate: 30 days
- Contract: 30+ days

Fast-Track Progressive Design-Build Procurement
- RFQ: 15 days
- Shortlist: 15 days
- RFP: 30 days
- Evaluate: 15 days
- Contract: 30+ days

NTP
- 6 Months

RFQ Response Period
- Evaluate Qualifications
- RFP Response Period
- Evaluate Proposals
- Contract

Months
- RFQ: 30 days
- Shortlist: 30 days
- RFP: 60 days
- Evaluate: 30 days
- Contract: 30+ days
- RFQ: 15 days
- Shortlist: 15 days
- RFP: 30 days
- Evaluate: 15 days
- Contract: 30+ days
- RFQ Response Period
- Evaluate Qualifications
- RFP Response Period
- Evaluate Proposals
- Contract

3-4 Months
Opportunity to Collaborate and Develop Solutions

Design-Build Procurement Process Requires Changes to The “Hard Bid” Thinking

- Large projects = significant investment
- And price always matters!

Lump Sum Design-Build Procurements

1+ Years
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Case Studies

Innovation leads to success
  – Lifecycle cost analysis results in unexpected solutions in Clovis, CA

Multiple design iteration pays off
  – Re-working design options over a year+ procurement results in a best value solution for the San Diego County Water Authority
City of Clovis, CA 
Sewage Treatment/ Water Reuse Facility DBO

- Single-entity design-build-operate (DBO) of a new $37-million 2.8-mgd Sewage Treatment Water Reuse Facility (ST/WRF)
- Scope includes design, and construction, and a 10-year operations and maintenance period with minimal impact to the local community
- Process design includes the combination of membrane bioreactor technology and Siemens’ Cannibal™ solids reduction technology
City of Clovis, CA
Sewage Treatment/Water Reuse Facility DBO
San Diego County Water Authority Twin Oaks Valley WTP DBO

- Single-entity design-build-operate (DBO) delivery of the world’s largest submerged membrane filtration water treatment plant (WTP)
- Scope includes design, permitting, and construction of 100-mgd WTP and related flow control facilities, including 15 MG clearwell storage.
- $159 million to design and build the treatment plant and a base operation and maintenance fee of $6 million per year (approximately $262 million total lifecycle cost on a net-present-value basis).
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Additional Resources and Information:

www.DBIA.org
www.TexasDB.com
www.CH2M.com
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VP Western Operations Manager
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