Design-Build: Revolutionizing Project Delivery

“Integration is Our Foundation”
1.0 About DBIA
DBIA is the only organization that defines, teaches and promotes best practices in design-build.

Design-build is an integrated approach that delivers design and construction services under one contract with a single point of responsibility.

Owners select design-build to achieve best value while meeting schedule, cost and quality goals.
About DBIA & Design-Build


- Membership includes over 4,000 organizations and individuals who are leaders in the design and construction industry including:
  - Architects
  - Engineers
  - Public and private owners
  - General and specialty contractors
  - Manufacturers and suppliers
  - College and university faculty and students
  - Legal and financial professionals

- Members are committed to utilizing design-build and integrated project delivery methods to achieve high performance projects.
North Dakota’s Infrastructure is at the breaking point
North Dakota’s Unique Conditions Require Innovative Solutions

- Short Construction Seasons
- Historic Floods
North Dakota’s Unique Conditions Require Innovative Solutions

The Energy Boom In North Dakota presents both opportunities and challenges.
The Energy Boom Has Presented Opportunities

• Increased Oil Production (500% since 2006)
• Nation’s 2\textsuperscript{nd} largest Energy Producer
• Increased Tax revenues
• Increased Wages
• Low Unemployment
And Challenges

Increased Pressure On Infrastructure

- Roads
- Bridges
- Schools
- Water
- Waste Water
- Housing
- Jails
Transportation Infrastructure Challenges

- Traffic has increased by 300% in some counties
- 50% of the traffic in these areas are heavy trucks
- Roads and bridges are deteriorating faster
- Some counties face severe capacity challenges
The Cost of a Booming Economy - Williston

- $150 Million – Regional Water System
- $150 Million – Upgrading Airport
- $100 Million – Four Lane Truck Route
- $90 Million – Waste Water Treatment

- Typical Design-Build Cost Savings $30-50 Million
• Construction Costs Increased 12% 2001-2010

• Construction Costs Increased 23% in 2011
North Dakota Construction Costs

Design-Build Savings of $3-7 Million
An Infrastructure Perfect Storm
3.0

What is Design-Build
The “Traditional” Way – Design-Bid-Build

Design-Bid-Build
Two contracts are used to accomplish design and construction.

Emphasis on Compliance:
Design-Build…
a single contract is used to accomplish design and construction.

Emphasis on Behavior: You are buying a Service
Advantages of Design-Build
Design-Build Meets Your Requirements

- Significantly Faster Completion Time
- Lower Cost
- Higher Quality
- Greater Owner Satisfaction
- Reduces litigation, change orders and cost growth
- Meets budget constraints
- Puts people to work faster, finishes work faster, costs less
Design-Build Performance
(Comparison of Design-Build vs. CM-at-Risk vs. Design-Bid-Build)

- 6% Lower Cost
- 12% Faster Construction Time
- 33% Faster Project Completion
- Higher quality in all measured categories

SOURCE: Construction Industry Institute (CII)/Penn State Research comparing 351 projects ranging from 5K to 2.5M square feet. Projects were of various types and from various industries.
## Comparison of Project Delivery Methods (CII/Penn State Study)

<table>
<thead>
<tr>
<th>Metric</th>
<th>DB vs. DBB</th>
<th>CM@R vs. DBB</th>
<th>DB vs. CM@R</th>
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</thead>
<tbody>
<tr>
<td>Unit Cost</td>
<td>6.1% lower</td>
<td>1.6% lower</td>
<td>4.5% lower</td>
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<tr>
<td>Construction Speed</td>
<td>12% faster</td>
<td>5.8% faster</td>
<td>7% faster</td>
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<tr>
<td>Delivery Speed</td>
<td>33.5% faster</td>
<td>13.3% faster</td>
<td>23.5% faster</td>
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<tr>
<td>Cost Growth</td>
<td>5.2% less</td>
<td>7.8% more</td>
<td>12.6% less</td>
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<td>Schedule Growth</td>
<td>11.4% less</td>
<td>9.2% less</td>
<td>2.2% less</td>
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<tr>
<th>Parameter</th>
<th>Research Study</th>
<th>CII Penn State (US) DB vs. DBB</th>
<th>Reading DB Forum (UK) DB vs. DBB</th>
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Federal Agencies using Design-Build 75%+: 

- Navy Facilities Engineering Command
- Army Corps of Engineers
- State Department
- Bureau of Prisons
US Census Bureau Headquarters
Suitland, MD

Construction Start Date: 9/15/2003
Construction End Dates: 12/15/2006
Total project cost: $315,000,000.00
Jag R. Bhargava, Deputy Director, GSA

“With only four years between groundbreaking and full occupancy, we had to find a way of doing it. The only method I could think of was design-build.” On the new Census building.

Pete Swift, Deputy Chief, Design and Construction Branch

“We at the Federal Bureau of Prison have been doing design-build since the FAR regulations changed. Our primary reasons back then were that we would eliminate a lot of the claims we were getting and we had a large workload. Over the years we have not had a claim on any design-build project we have done.”
Pentagon Renovation
Arlington, VA

Construction Start Date: 9/14/2011
Construction End Dates: 2/7/2011
Total project cost: $1,662,000,000.00
What are Federal Officials Saying about Design-Build?

- **Joseph Gott, Chief Engineer and Director of Capital Improvements, NAVFAC**
  
  “At NAVFAC, we do about 75 percent of new construction design-build. The largest reason we select a project for the design-build delivery vehicle is the single point of accountability and responsibility. We have an A/E and a design-build constructor on the same team and have a contract with one company.”

- **Paul Parsoneault, Construction Management Team Leader, Military Programs Branch, USACE**
  
  “There was no way possible to execute an historically large mission using the traditional delivery system. We determined that, in terms of the Army, the default delivery system is design-build…Primarily because we can deliver more quickly, we can leverage the innovation of industry to provide us with the most cost effective solutions to our requirements.”
4.0 Design-Build at the State Level
Making the Design-Build Decision

Relative Importance of Factors Considered in Deciding Whether to Use Design-Build

- Federal Program Initiatives: 3
- Lack of In-House Resources: 3.6
- State Program Initiatives: 3.9
- Quality: 3.9
- Cost of Project: 4
- Opportunity for Risk Transfer: 4.2
- Opportunity for Innovation: 4.6
- Urgency of Project: 5.6

DB Program Survey: Q #1, 29 responses
Urgency of Project

Harrison County/US Highway 90 Bridge Replacement
Harrison County, MS

St. Bernard Parish Pump Station Rehabilitation
New Orleans, LA
Lincoln Road/I-15 Interchange Safety Improvement Project
Lewis and Clark County, MT
Construction Started: March 15, 2005
Construction Completed: September 8, 2005
Opportunity for Innovation

U.S. 17 Washington Bypass
Chocowinity, NC

Inter-County Connector (ICC)
Montgomery County/Prince George’s County, MD
Upper Blackfoot Mining Complex Water Treatment System
Lincoln, MT

Construction Start Date: 04/01/2008
Completion Date: 01/15/2009
Total Project Cost: $4,444,000.00
Opportunity for Cost and Time Savings

Sea-to-Sky Highway
W. Vancouver to Whistler, BC

US Hwy 52 (ROC 52)
Rochester, MN
Opportunity for Cost and Time savings

I-229 Corridor
Sioux Falls, SD
Quality on a Tight Budget

Mineta San Jose International Airport
San Jose, CA

Cost: $13,400,000.00
Quality on a Tight Budget

The Ramsey County Maplewood Library
Maplewood, MN
Quality

Jackson Hall, University of Minnesota
Minneapolis, MN
Final proposals for **Tappan Zee Bridge** will create more than 45,000 jobs. The state is using the design-build process to speed the construction timeline approved by New York state lawmakers last December.
5.0 Where is the Industry Headed?
All state agencies, counties, cities, Metropolitan Sports Commission, and are authorized to use design-build. (MSA §§ 383B.158 - 383B.1585)
Design-build is authorized for all public agencies. (SDCLA § 15-18b-20)
Design-Build in Montana

- Alternative project delivery contracts (design-build, construction management and contractor management) are authorized for state, county, municipal construction projects, airports, counties, and sewer districts. (MCA § 18-2-501-503)

- Design-build is authorized for DOT contracts. (MCA § 60-2-111-112; 60-2-137)
All state, city, county, and local governments are authorized to use design and construction management delivery methods. (Wyo. Stat. § 6.6.101-107)
The Design-Build Advantage

• Significantly Faster Completion Time
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7.0

North Dakota at a Crossroads
Design-Build in North Dakota

- The DOT is authorized to use design-build on one signal light and one box culvert project. (NDCC 24-02-47)
- The state water Commission is authorized to use design-build for construction of the Devils Lake Outlet. (NDCC 61-02-23.2)
- Municipalities and political subdivisions are authorized to combine price and technical evaluation selection process. They must choose the lowest and best bid. NDCC 44-08-01.1
- North Dakota has virtually no authorization for the use of design-build
Changes to Bidding Laws Will be Challenged

- Powerful, entrenched interests will oppose any changes to the status quo, they muddy the water with “urban myths”
- Design-build doesn’t fit their business plan
- Work will go “out of town” contractors and design-firms
- Small firms cannot compete
The Road to Design-Build

- Changing the current bidding laws
  - Build a Design-Build Coalition
  - Find the Right Model

- Industry & Owners making the transition
  - Identify a Point Person within DOT Now
  - Technical Support
  - Training Contractors and Consultants
  - Training For Key DOT Personnel
Questions ?
Does North Dakota Need Design-Build?

If you have infinite supply of time, money and attorneys you probably don’t need design-build...
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