The State of Design-Build In Pennsylvania

“Integration is Our Foundation"

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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.
The DBIA Philosophy

DBIA promotes the value of design-build project delivery and teaches the effective integration of design and construction services to ensure success for owners and design and construction practitioners.

Values:

- Excellence in integrated design-build project delivery, producing high value outcomes
- An environment of trust characterized by integrity and honest communication
- Mutual respect for an appreciation of diverse perspectives and ideas
- A commitment to innovation and creativity to drive quality, value and sustainability
- Professionalism, fairness and the highest level of ethical behavior.
What is Design-Build 2.0
Project Delivery Historical Perspective

- **Vitruvius – 1st Doc. Of Design & Construction**
- **Brunellesci – First modern day architect**
- **Alberti – First modern day architect**
- **Rise of Professional Societies**
- **Miller Act Separation Design & Construction**
- **Public Sector Design-Build**
- **Private Sector Design-Build**
- **Brooks Act**
- **Establishment of DBIA & MOP**
- **DBIA Designation Program**
- **AIA-CC IPD Model**
- **CURT 1st WP Calling for Wholesale Change**

- **1795 B.C.**
- **40 B.C.**
- **1412**
- **1456**
- **1850s**
- **1935**
- **1960s**
- **1972**
- **1980s**
- **1993**
- **1996**
- **2002**
- **2004**
- **2006**
- **2011**

**Master Builder**

**Separation**

**Integration**

- **Renaissance**
- **Industrial Revolution**
- **Information Age**

**Rise of Professional Societies**

**Brooks Act**

**Establishment of DBIA & MOP**

**DBIA Designation Program**

**AIA-CC IPD Model**

**CURT 1st WP Calling for Wholesale Change**

Project Delivery Historical Perspective

- ASCE – American Society of Civil Engineers
- AIA – American Institute of Architects
- ACEC – American Council of Engineering Companies
- CSI – Construction Specifications Institute
- ABC – Associated Builders & Contractors
- ASA – American Subcontractors Association
- AIC – American Institute of Constructors
- CMAA – Construction Management Assoc. of America
- USGBC – US Green Building Council
- DBIA – Design-Build Institute of America
- LCI – Lean Construction Institute
- CURT – Construction Users Roundtable

Key dates:
- 1852
- 1857
- 1909
- 1948
- 1950
- 1966
- 1971
- 1982
- 1993
- 1997
- 2000
Familiar Project Delivery Methods

• Design-Bid-Build (D-B-B)
  o Sometimes called “Traditional”
• Construction Management at Risk (CM@R)
  o Also known as CM/GC
• Design-Build (D-B)
• Multiple-Prime
The “Traditional” Way – Design-BID-Build

Emphasis on Compliance: **You are buying a Product**

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

- **Plans** + **Specs** + **Low Bid** = **Contract**
  - **Contract with Architect**
  - **Contract with Constructor**
  - **THIS IS WHERE THE COST COMPETITION TAKES PLACE**
Design-Build...
a single contract is used to accomplish
design and construction.

Emphasis on Behavior: You are buying a Service
3.0

Design-Build: A Federal Perspective
Federal Agencies using Design-Build 75%+:

- Navy Facilities Engineering Command
- Army Corps of Engineers
- State Department
- Bureau of Prisons
Pentagon Renovation
Arlington, VA

Construction Start Date: 9/14/2011
Construction End Dates: 2/7/2011
Total project cost: $1,662,000,000.00
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 designed-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.”
Other Federal Agencies Using Design-Build

- General Services Administration
- Veterans Administration
- Department of Agriculture
- Department of Interior
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.”
Advantages of Design-Build
Design-Build Meets Your Requirements

- Fully Competitive
- Fast Start-Up Schedules get met
- Lower Cost
- Higher Quality
- Greater Owner Satisfaction
- Reduces litigation, change orders and cost growth
- Meets budget constraints
- Improves America’s competitiveness
- Puts people to work faster, finishes work faster, costs less
2009 Design-Build Award Winner

I-35W (St. Anthony Falls) Bridge
Minneapolis, MN

Construction Start Date: October 2007
Construction End Dates: September 2008
Total project cost: $265,590,000
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>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Unit Cost</strong></td>
<td>6.1% lower</td>
<td>1.6% lower</td>
<td>4.5% lower</td>
</tr>
<tr>
<td><strong>Construction Speed</strong></td>
<td>12% faster</td>
<td>5.8% faster</td>
<td>7% faster</td>
</tr>
<tr>
<td><strong>Delivery Speed</strong></td>
<td>33.5% faster</td>
<td>13.3% faster</td>
<td>23.5% faster</td>
</tr>
<tr>
<td><strong>Cost Growth</strong></td>
<td>5.2% less</td>
<td>7.8% more</td>
<td>12.6% less</td>
</tr>
<tr>
<td><strong>Schedule Growth</strong></td>
<td>11.4% less</td>
<td>9.2% less</td>
<td>2.2% less</td>
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</table>

Comparison of Project Delivery Methods (CII/Penn State Study) (continued)

<table>
<thead>
<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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<tbody>
<tr>
<td>Unit Cost</td>
<td></td>
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</tr>
<tr>
<td>Delivery Speed</td>
<td></td>
<td>33% Faster</td>
<td>30% Faster</td>
</tr>
</tbody>
</table>
## Previous Studies of Design-Build Cost / Schedule Reductions
### Vertical Infrastructure – (Buildings)

<table>
<thead>
<tr>
<th>Vertical Infrastructure - Buildings</th>
<th>Number of Projects or Agencies in Sample</th>
<th>% Reduction in Contract Cost Relative to D-B-B</th>
<th>% Reduction in Contract Duration Relative to D-B-B</th>
</tr>
</thead>
<tbody>
<tr>
<td>J. Bennett, E. Pothecary &amp; G. Robinson, <em>Designing and Building a World-Class Industry</em>, University of Reading Design and Build Forum Report, Centre for Stratgeic Studies in Construction, Reading, United Kingdom, 1996.</td>
<td>330</td>
<td>13%</td>
<td>30%</td>
</tr>
<tr>
<td><em>Design-Build 101: Basics of Integrated Service Delivery</em>, DBIA</td>
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<td>3%</td>
<td>N/A</td>
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<tr>
<td><em>Design-Build 101: Basics of Integrated Service Delivery</em>, DBIA</td>
<td>NAVFAC 1</td>
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<td>15%</td>
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<td>Vet Admin</td>
<td>0%</td>
<td>28%</td>
</tr>
</tbody>
</table>
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
2009 Design-Build Award Winner

I-35W (St. Anthony Falls) Bridge
Minneapolis, MN

Construction Start Date: October 2007
Construction End Dates: September 2008
Total project cost: $265,590,000
U.S. 17 Washington Bypass
Chocowinity, NC

Construction Start Date: 2/27/2006
Construction End Dates: 3/20/2010
Total project cost: $199,000,000.00
Mineta San Jose International Airport
San Jose, CA

Construction Start Date: 1/2008
Construction Completion Date: 9/2008
Cost: $13,400,000.00
Where is the Industry Headed?
2005 Design-Build
State Public Procurement Laws

- **Design-build is permitted by all agencies for all types of design and construction**
- **Design-build is widely permitted**
- **Design-build is a limited option**
- **Design-build is not specifically authorized for public agencies** *

* Certain states allow design-build procurement by case law.
Design-Build: Pennsylvania and the Region
Design-Build in Pennsylvania

- Design-build widely used in private sector
- Penn DOT aggressively pursued innovative project delivery over the last five years.
Commonwealth agencies are authorized to use design-build.

County governments are authorized to use design-build as a delivery method.

PennDOT is authorized to use design build with limitations.
Nestle Pure Life
Breiningsville, PA

Construction Start Date: 8/15/2006
Construction End Dates: 3/31/2007
Total project cost: $46,550,000.00
Meadville Medical Center Oncology Wellness Institute  
Meadville, PA

Construction Start Date: 4/26/2007  
Construction End Dates: 2/28/2008  
Total project cost: $6,152,220.00
Vacon’s North American Headquarters
Chambersburg, PA

Construction Start Date: 11/11/2008
Construction End Dates: 11/1/2009
Total project cost: $7,716,384.00
Design-Build Legal Challenges

- Brayman Challenge
- Hawbaker Challenge
- American Infrastructure Challenge
Brayman Construction sues PennDOT on six-mile creek bridge project.

- Brayman contends PennDOT violated Commonwealth Procurement Code

- PennDOT contends that the CPC permits design-build, best-value selection and that design-build services are professional services exempt from 62 PA C.S. 905 of the code.
Brayman Challenge

- Judge Rejects PennDOT Arguments

- Design-build is permitted, but CPC requires competitive bids.

- Design-build is a “construction contract”, not a “professional service”.

- Two-step best-value violates CPC. It does not authorize short listings or evaluating proposals based on factors other than those stated in the invitation for bids.
Hawbaker Challenge

- Act 41 passed authorizing design-build for several prison projects, including the Graterford Prison

- DGS issues Graterford RFP to award on a competitive negotiation, based on price.

- DGA includes project labor agreement

- Hawbaker, ABC, and others sue, challenging the PLA and contend that DGA did not fulfill its Separations Act duties
The court ruled:

- DGS cannot shortlist for the reasons stated in the Brayman case.

- DGS failed to require the design-builder to abide by the Separations Act in violation of the law.
Current Status of Design-Build

- The Commonwealth can no longer:
  - Procure design-build projects using a two-step process that shortlists before technical and price proposals are submitted
  - Use any other method other than sealed competitive bids to procure construction
  - Cannot disregard Separations Act
Every Cloud Has a Silver Lining
Design-Build Milestones: Ohio

- Ohio passes comprehensive design-build law authorizing design-build for all state and local governments (HB 114).

- First major design-construction reform in 134 years.

- Previously only the multi-prime project delivery method was authorized on public projects.
In addition, HB 153 authorized ODOT to use design-build on up to $1 billion worth of projects annually. Previously there was a $250 million cap on design-build projects.

These design-build projects may now be procured using the “best value” method. Previously ODOT could only select bidders that had the lowest and best bid.

The bill also codifies stipends on design-build projects. Its inclusion in the bill ensures that this best practice will remain.

The final design-build provision was the inclusion of provisions authorizing P3s for transportation projects. These provisions will greatly enhance Ohio’s ability to fund new projects.
Inner Belt Bridge
Cleveland, OH

Ohio DOT's largest single infrastructure project ever constructed
design-build
In early 2011, the New York budget bill contained provisions allowing state universities to use design-build on construction and renovation projects, not to exceed 15 percent of their construction budget.

The bill also gave authorization for state universities to enter into public-private partnership (P3) agreements.

In late 2011, New York passed legislation permitting design-build on infrastructure projects for the first time in the state’s history. First major design and construction reform in 100 years. Until now, only public universities were authorized to use the delivery method.

Under the new law, the Department of Transportation, Thruway Authority, Office of Parks, Recreation and Historic Preservation, Department of Environmental Conservation, and the Bridge Authority will use design-build project delivery for the first time.
Due to flood damage to NY Route 42, Governor Cuomo signed an executive order to perform the reconstruction of Route 42 using the design-build method of project delivery.
New Meadowlands Stadium
East Rutherford, NJ

Construction Start Date: 5/7/2007
Construction End Date: 4/23/2010
Total Project Cost: $1,131,007,000.00
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.
What Lies in the Future

- Status Quo Remains
- Legislative Solutions
- SB 344/ HB 3
- Other bills
- Local Governments
7.0

Notable Design-Build Projects in the Region
Dulles Rail Project
In progress...
495 Fast Lanes
In progress...
The East Harlem School
New York, NY

Construction Start Date: 02/2007
Construction End Date: 11/2008
Total Project Cost: $9,355,000.
T.C. Williams High School
Alexandria, VA

Construction Start: November 1, 2005
Construction Completion: June 5, 2007
Total Project Cost: $94,590,951.00
Bergen Tunnel Rehabilitation Project
Jersey City, NJ

Eagle P3 - East Corridor Gold Line Commuter Rail
Denver, CO
**MD 30 Hampstead Bypass**

Hampstead, Maryland

Construction Start Date: 2/17/2006
Construction End Date: 8/7/2009
Total Project Cost: $43,058,240.00
Brentwood Shop Expansion
Washington, D.C.

Construction Start date: 8/29/2005
Construction End Date: 5/8/2008
Total project cost: $46,557,716.00
Carroll County Long Term Treatment Facility
Sykesville, MD

Construction Start Date: 08/01/2006
Construction End Date: 08/01/2007
Total Project Cost: $3,471,853.00
Rappahannock Regional Jail Expansion and Renovation
Stafford, VA

Construction start date: 2/5/2007
Construction end date: 9/30/2008
Total project cost: $51,540,987.00
Design-Build Institute of America
1331 Pennsylvania Ave., NW, 4th Floor
Washington, DC 20004
(202) 682-0110
www.dbia.org

Richard Thomas
Vice President of Advocacy and External Affairs
rthomas@dbia.org

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