March 21, 2009

RESOURCE INFORMATION: ALTERNATE PROJECT DELIVERY

The following are resources about alternate project delivery for public projects; they are presented here to illuminate the issue but neither promote nor oppose the concept.

- AIA Issue Brief http://www.aia.org/aiaucmp/groups/aia/documents/pdf/aias078884.pdf: AIA supports the **design-build** approach to project design and construction. The AIA stresses that the leader of a design-build team should be a licensed architect or professional engineer**. [Dikis note: the leader typically is required to be able provide a performance bond.]**

- AIA Issue Brief http://www.aia.org/aiaucmp/groups/aia/documents/pdf/aias078881.pdf. AIA supports the alternative project delivery method of **construction management at-risk.** The AIA believes that alternatives to traditional project delivery offer licensed architects expanded opportunity.

- AIA Issue Brief http://www.aia.org/aiaucmp/groups/aia/documents/pdf/aias078887.pdf. AIA supports **Qualifications Based Selection** (QBS) for procuring professional design services for public projects.

- AIA Design Build State Statute Compendium (2008, 362 pages) includes specific text of laws. http://www.aia.org/aiaucmp/groups/aia/documents/pdf/aias078886.pdf.
  Introduction: *Elected officials, policy makers, and the private sector are looking for innovative, cost effective methods to procure and deliver public services such as capital improvements and new construction. More and more, design-build is seen as a solution to this problem. As a result, many states have passed statutes which authorize its usage. While many states are utilizing design-build, the approach has not been uniform.* ***Some states have authorized specific "demonstration projects" and, as such, have not yet decided to authorize widespread use. Other states have eagerly embraced design-build and have enacted statutes which authorize its use as an acceptable form of project delivery for many diverse projects****. Statutes throughout the country can differ widely in scope, dependent on a broad range of issues.*
  Advantages of Design-Build: *"Design/build" is a method of project delivery in which one entity signs a single contract accepting full responsibility for both design and construction services of the building facility. This entity is any party that meets the requirements within the public owners' jurisdiction with respect to offering and performing such services. Design/build is defined as the selection of the qualified design/build entity through a competitive process which may require evaluation of the concept design and project cost, along with other criteria.* ***[Dikis note: D-B/QBS would not require design and cost until after selection of the design-builder.]***
  Proponents have cited many advantages to design-build over traditional methods of procurement. These advantages are:
  - *The owner does not have to coordinate the activities of the designer and builder since one party is responsible for both functions.*
  - *The single contract approach reduces administration costs as it requires the monitoring of one contract rather than the multiple contracts which are required in traditional procurement methods.*
  - *Design and construction phases of a project can be overlapped. This not only allows for construction to begin before the design is fully completed, it allows the designer to incorporate design changes in a more efficient and timely manner.*
  - *Potential litigation between the contractor and designer may be reduced since the designer and contractor are jointly responsible for the quality of the final product.*

- NCARB Legislative Guidelines and Model Law:
  B. A partnership or corporation offering a combination of architectural services together with construction services may offer to render architectural services only if (1) an architect registered in this state or otherwise

permitted to offer architectural services participates substantially in all material aspects of the offering; (2) there is written disclosure at the time of the offering that such architect is engaged by and contractually responsible to such partnership or corporation; (3) such partnership or corporation agrees that such architect will have responsible control of the architectural work and that such architect's services will not be terminated prior to the completion of the project without the consent of the person engaging the partnership or corporation; and (4) the rendering of architectural services by such architect will conform to the provisions of the architectural registration law and the rules adopted thereunder.

COMMENTARY

Paragraph B allows design/build firms to offer to perform architectural services only under the condition that an architect is involved during the design and construction of the project. The requirement under Clause (2) of the written disclosure is to avoid any misapprehension by the client that the architect is in a fiduciary relationship to the client.

- AIA Best Practices:
  - 10.01.01 Briefing on Alternative Service Delivery Methods: http://www.aia.org/aiaucmp/groups/ek_members/documents/pdf/aiap016557.pdf
  - 10.01.03 Bridging Documents: Project Delivery for Today's Marketplace: http://www.aia.org/aiaucmp/groups/ek_members/documents/pdf/aiap016558.pdf
  - 10.01.04 A Primer on Project Delivery Terms: http://www.aia.org/aiaucmp/groups/ek_members/documents/pdf/aiap016559.pdf
  - 18.10.01 Design-Build Teaming Checklist http://www.aia.org/aiaucmp/groups/ek_members/documents/pdf/aiap016384.pdf
  - 18.10.02 How Roles Change in Design-Build http://www.aia.org/aiaucmp/groups/ek_members/documents/pdf/aiap016666.pdf
  - 18.10.03 Roles for the Architect in Design-Build http://www.aia.org/aiaucmp/groups/ek_members/documents/pdf/aiap016385.pdf
  - 18.10.05 Partnering and Teaming Improve Design-Build Success http://www.aia.org/aiaucmp/groups/ek_members/documents/pdf/aiap016387.pdf
  - 18.10.06 Making the Transition from Designer to Design-Builder http://www.aia.org/aiaucmp/groups/ek_members/documents/pdf/aiap027037.pdf
  - 18.10.07 Design-Build: An Owner's Perspective http://www.aia.org/aiaucmp/groups/ek_members/documents/pdf/aiap029454.pdf

- **Dikis cautions:**
  - **Benefits of design-build touted for horizontal infrastructure examples may or may not be properly applied to vertical infrastructure; for example, what works well for road construction may or may not suggest how well the process works for a building.**
  - **The map of D-B states in the following promotional paper circulated by Iowa APD advocates was generated by the AIA. It is not dated, and thus accuracy is uncertain. The important thing to recognize is that, while advocates state that Iowa is one of only 2 (or 3, or 4, or 5) states that do not allow Design-Build, the nature of what is permitted varies considerably:**
    1. **Only 15 state permit D-B on all types of public construction.**
    2. **Another 12 states "widely" permit D-B for public construction.**
    3. **19 states allow a limited option for D-B public construction.**

AIArchitect July 2001

Practice

Design Risk in Design/Build

by Robert J. Erikson, AIA

There are two ways an architect can be involved in design/build. One is to lead the design/build team. The other is to be part of such a team led by a nonarchitect.

With a love for taking risk, a solid source of capital, and a high level of construction knowledge, any architecture firm can be a design/builder. Indeed, the AIA encourages a designer-led design/build process, whereby the architect hires the contractor. If an architect has chosen to be a design/builder, though, he or she is probably aware of the many risks involved with design/build. Thus, this article is not aimed at such a firm. It is aimed instead at the architect who is working as a consultant for a design/build contractor. Not intended as an exhaustive legal discussion, this article is meant mainly to alert the reader to some important issues he or she will encounter when working for a design/build contractor.

Get your loyalties straight

When working for a contractor, the first thing the architect realizes is that his or her loyalties may become divided between the owner and the contractor. In the more traditional design/bid/build delivery approach, the architect's loyalty is to the owner. When working for the design/builder, however, the architect's legal responsibility (beyond the necessity of adhering to codes and regulations) is to the contractor. Nevertheless, the owner might pull the architect aside and say, "Surely you realize that we wanted very nice wall fabrics for our president." The wise architect in this situation immediately consults with the contractor. It is very likely that the contractor didn't allow for such fabrics in its guaranteed maximum price. The fun begins when the architect mistakenly believes his or her role is to satisfy the owner, despite the fact that the architect has neither the contractual authority nor the obligation to do so. Such authority lies solely with the contractor.

The issue becomes even more complicated when it involves the functionality of the space. "We have to get from this office to that conference room and lock off the research area," says the owner. "Hmm," thinks the architect. "Another corridor, more space and over-allowance hardware." So, the architect answers, "I'm afraid we can't do that," knowing that the design/builder's guaranteed maximum price cannot be

Reference

Robert Erikson, AIA, is an associate principal with CSO Architects Engineers & Interiors in Indianapolis, and is currently chair of the AIA Risk Management Committee. His thanks go to members of the Risk Management Committees of the AIA, NSPE, and PEPP for their review of this article.

This article is not intended as legal advice. As always, when considering a risk-management strategy, consult your legal and insurance counsel.

increased to allow the additional square feet of construction that would be necessary to accomplish this goal. The owner might answer indignantly, "But you [your team] promised!" Indeed! Do you know all of the promises that were made by the contractor in soliciting the project?

Define your expectations

The conscientious contractor will be present at all meetings with the owner. But suppose he or she is busy one day and asks the architect to fill in and work out details with the client. Sensing an opportunity, the client lobbies for more scope. Once again, the architect is in the middle of an uncomfortable situation. To put one's self beyond such problems, it is best to make sure up front that the architect's role is documented and understood by all parties.

So that the architect's eyes are wide open when working for a design/build contractor there are three points in particular to consider before agreeing to work with a design/build contractor: project selection, agreement review, and role awareness.

1. Project selection

The first risk management tool architects have is the selection of projects. Since the early 1900s, design/build has been used successfully with simple, noncustom project types such as storage buildings. The beauty of design/build is that the owner can know early on in the process what its exact (guaranteed) financial obligation will be. "I want something like that," the owner might say, pointing to the design/builder's last spec office building. At a preliminary stage, with subsequent control over decisions relating to cost, the design/build contractor can promise a not-to-exceed price. So promises with regard to cost can be made before the design is complete. This can be quite a benefit to an owner who carefully plans cash flow.

However, such is both the beauty and the problem with the design/build process. While solid assumptions can certainly be made about simple projects, more complex projects tend to be less predictable. What if the owner is a client with complex needs and there are many variables? Can all such variables be known at the time the owner prepares a request for proposal so they can be explained in the design criteria? Often they cannot. Often such variables can be discovered only after the design phase is well along and feedback from a variety of users has been received. As an example, what if the owner is upgrading a hospital, and only after interviews with the staff from a variety of departments can the design team develop major options or subsequent suboptions for presentation to the decision makers? The ability for the owner to provide input and to have that input incorporated into the design is limited in the design/build process. After all, to use the process to its advantage, the contractor has already promised to deliver *something* (presumably a *known thing*) for a maximum guaranteed price. Unless the quality is reduced, the scope has already been set.

2. Agreement review

The second key risk-management tool for the architect is the careful review of the agreement with the design/builder. Risk is inherent in any

business endeavor. It should be shared equitably, however. So it behooves the architect to have counsel look through the agreement for potential landmines, such as guarantees, warranties, and certifications that are likely not to be covered by the architect's professional liability insurance. (Such guarantees, for instance, include designing a project that "meets the budget," without recognition of future instructions or variations in the marketplace.) Some design/builder-architect agreements even include language that would enhance the architect's normal standard of care. An experienced lawyer will be able to explain the full implications of the architect-design/builder contract, where-unlike design/bid/build-there is a guaranteed maximum price the design/builder must adhere to and the architect is responsible directly to the design/builder.

3. Role awareness

The architect's third key risk-management consideration has to do with an awareness of roles. How and by whom will engineering consultants be hired? Will the architect's responsibilities include coordinating the engineers' efforts? As the prime designer, the architect is often requested to prepare performance specs for mechanical and electrical design/builders to use in bidding on a project. Where do the architect's responsibilities leave off and the subcontract design/builder's responsibilities begin?

Finally, the architect may have fewer responsibilities during the construction of design/build projects than he or she would like. What becomes of the architecture firm's ability to control its own risk—the risk of minor errors or omissions becoming large and costly problems—if the contractor says, "Don't call me, I'll call you," upon starting construction?

The architect must also recognize potential conflicts of interest if it is reviewing requests for substitution submitted by the contractor. The contractor may believe it is in his or her best interest (and therefore the architect's interest) to make the least demanding, least expensive interpretation of a code clause, ADA provision, or promise of quality. But such an interpretation may not be in the best interest of the owner or public, or even in the best long-term interest of the contractor. What then?

AIA standard-form agreements

Design/build is a useful delivery method for today's fast paced world, but every architect who works for a design/build contractor should be mindful of the strengths and weaknesses of the process. Architects should, with the assistance of legal counsel, insist on agreements that allocate risks to them only in those areas for which they control and influence the decisions and outcomes. They should talk with their professional liability insurance brokers to ascertain whether additional coverage should be considered for a specific project. In this manner, risk may be assumed and compensated in an informed way, with clear communication among all the parties involved in the process.

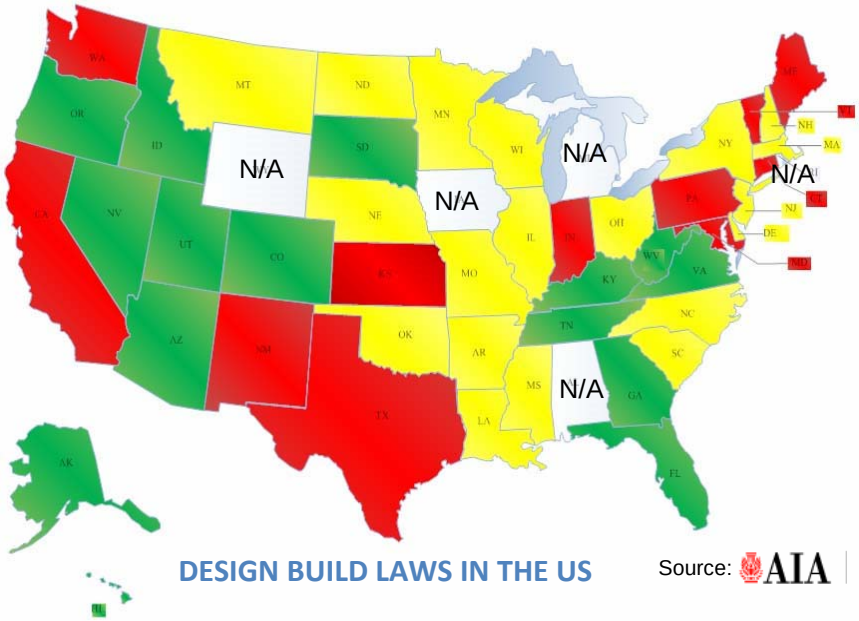
Some excellent tools for giving structure to the considerations outlined above are the AIA contract documents, even when the design/build contractor is going to be using his or her own document. B901, Standard Form of Agreements Between Design/Builder and Architect is a handy guideline for what the industry consensus is on basic services as opposed

to additional services, the design/builder's responsibilities, ownership of documents, scheduling, payments, reimbursables, and dispute resolution.

The AIA contract documents are written to work with one another, incidentally. The documents that relate to B901 are A191, Standard Form of Agreements Between Owner and Design Builder; A201, General Conditions of the Contract for Construction; A491, Standard Form of Agreements Between Design/Builder and Contractor; and B352, Duties, Responsibilities, and Limitations of Authority of the Architect's Project Representative.

ALTERNATE PROJECT DELIVERY (APD)

If it's good for private industry, federal government and 45 states…why not Iowa?



Green	Design Build permitted on all types of public construction.
Red	Design Build is widely permitted on public construction.
Yellow	Design Build used as a limited option on public construction.
White	Design Build not allowed on public construction.

What others are saying……

AIA Position Statement 26

"The AIA believes that every project delivery process must address the quality, cost-effectiveness, and sustainability of our built environment. *This can best be affected through industry-wide adoption of an integrated approach to project delivery* methodologies…"

AGC of America Policy Statement

"AGCA maintains that *alternative delivery systems are appropriate for the public sector* if the selection process is as open, fair, objective, cost-effective and free of political influence as the competitive bid system."

House Study Bill 203

What would HSB203 do for Iowa?

- Allows public owners options of delivery systems to meet specific project needs.
- **Does not replace traditional design-bid-build, rather provides options for delivering construction projects.**
- Protect owners from budget surprises and overruns.
- Faster project delivery, offering more cost and quality options.
- Constructor has input during the design process.
- Allows for collaborative sustainable designs.
- Allows multiple experts to have input in design process.
- Allows faster project implementation to respond to government stimulus spending.

Fact vs. Fiction

Fiction: HSB203 avoids public disclosure requirements.
Fact: HSB203 is subject to all public disclosure requirements.

Fiction: Public owners can no longer use the current design-bid-build system.
Fact: HSB203 provides for very restrictive application of APD, primarily through pilot programs. Public owners can still use the current design-bid-build system.

Fiction: APD is not a competitive process.
Fact: APD and HSB203 provide for transparent, competitive processes.

Fiction: HSB203 will put small contractors out of business.
Fact: 2006 Federal Highway Administration study states that "..small businesses are not disadvantaged.." (See link below)

Fiction: APD is more expensive.
Fact: 2006 Federal Highway Administration study cites APD as being an average of **3% cheaper**, taking **14% less time**.
http://www.fhwa.dot.gov:80/reports/designbuild/designbuild4.htm

Prepared by the Mechanical Contractors Association of Iowa

Numerous studies have been completed comparing the relative performance of design-bid-build (DBB) construction with design-build (DB) approach to project delivery. This summary lists what the preparer considers significant comparative studies between the two delivery systems. The summary is not intended to be comprehensive nor fully detail the findings of the referenced studies. This summary lists the referenced studies and provides direction to the completed study so that interested parties can reach their independent conclusions.

Experiences of Federal Agencies with the Design-Build Approach to Construction

(1993) Technical Report No. 122, prepared by the Consulting Committee on Cost Engineering of the Federal Construction Council. [1] This study detailed information submitted by seven federal agencies on 27 projects. Comparisons were made in terms of functionally, quality of design, quality of workmanship, and cost. [2] The committee concluded that the design-build approach was particularly favorable in terms of cost and of the time required to complete the project. The design-build approach also received good marks on factors related to user satisfaction.

In the study, the term "design-build" was used as a general term to identify any project which was completed by a single entity for both design and construction. [3] Other terms used are design-construct, turnkey construction, integrated project delivery, and alternative delivery procurement. The full text of the study can be found online at The National Academies Press (books.nap.edu).

Designing and Building a World-Class Industry

(1996) Report prepared by J. Bennett, E. Pothecary, and G. Robinson for the University of Reading Design and Build Forum Report, Centre for Strategic Studies in Construction. Researchers studied a cross-section of 330 projects in the United Kingdom to compare performance measures between design-build projects and projects procured traditionally. [4] Conclusatins of the study supported the perception that design-build can deliver projects faster and at a lower cost than traditional procurement.

A Comparison of United States Project Delivery Systems

(1997) Technical Report No. 38, prepared by Mark Konchar of the Computer Integrated Construction Research Project in the Department of Architectural Engineering at The Pennsylvania State University. [5] Known as the Penn State Study, this analysis of 351 projects in 37 states concluded that design-build was at least 12% faster, 6% less costly and resulted in a higher quality finished product when compared to design-bid-build. Public sector projects accounted for 43% of the total analyzed.

The complete study can be found on the Penn State College of Engineering website or downloaded from the American Society of Civil Engineers website (cedb.asce.org).

What was considered significant is that both the Reading Research Project and the Penn State Study concluded that design-build could yield better performance related to schedule and cost.

Measuring the Impacts of the Delivery System on Project Performance: Design-Build and Design-Bid-Build

(2002) The National Institute of Technology (NIST) study was designed to meet two objectives: 1) to produce a comprehensive information set that documents the impacts of the project delivery system on project outcomes, and 2) to provide the construction industry a means by which it may measure and evaluate the economic value of the design-build and the design-bid-build project delivery systems.

[6] Table ES.1 Summary of Overall Performance and Practice Use Outcomes

	Cost		**Schedule**		**Safety**	
	Owner	Contractor	Owner	Contractor	Owner	Contractor
Overall	DB[1]	--	**DB**	**DBB**	--	--
	Changes		**Rework**		**Practice Use**	
	Owner	Contractor	Owner	Contractor	Owner	Contractor
Overall	**DB**	**DB**	**DB**	DB[1]	**DB**	DB[1]

[1] Observed difference, not statistically significant
-- No difference in performance
Bold indicates significant difference, p≤0.05

Design-Build Effectiveness Study

(2006) Final report prepared for USDOT - Federal Highway Administration. This study summarized results from multiple reports. [1] Overall, the design-build approach has proven to have significant savings in both cost and time in comparison to design-bid-build projects.

Exhibit II.5: Performance Results from Studies of Alternative Project Delivery Approaches

Vertical Infrastructure - Buildings	Number of Projects or Agencies in Sample	% Reduction in Contract Cost Relative to D-B-B	% Reduction in Contract Duration Relative to D-B-B
J. Bennett, E. Pothecary & G. Robinson, *Designing and Building a World-Class Industry*, University of Reading Design and Build Forum Report, Centre for Strategic Studies in Construction, Reading, United Kingdom, 1996.	330	13%	30%
Victor Sanvido & Mark Konchar, *Selecting Project Delivery Systems: Comparing Design-Bid-Build, Design-Build, and Construction Management at Risk*, The Project Delivery Institute, State College, PA., 1999.	351	6%	33%
Design-Build 101: Basics of Integrated Service Delivery, Design-Build Institute of America/American Institute of Architects Professional Design-Build Conference, Chicago, Illinois, October 14, 1998.	DOD	14%	18%
Design-Build 101: Basics of Integrated Service Delivery, DBIA	GSA	3%	N/A
Design-Build 101: Basics of Integrated Service Delivery, DBIA	NAVFAC 1	12%	15%
Design-Build 101: Basics of Integrated Service Delivery, DBIA	Vet Admin	0%	28%
Linda N. Allen, *Comparison of Design-Build to Design-Bid-Build as a Project Delivery Method*, Master's thesis, Naval Postgraduate School, Monterey, CA., December 2001.	NAVFAC 2	18%	60%
Horizontal Infrastructure - Highways	**Number of Projects or Agencies in Sample**	**% Reduction in Contract Cost Relative to D-B-B**	**% Reduction in Contract Duration Relative to D-B-B**
Illinois DOT Study by SAIC, 2002	11 states	3 of 11 states reported lower cost	10 of 11 states reported shorter duration
New York State DOT Design-Build Practice Report, 2002	9 agencies	5 of 9 agencies reported lower cost	9 of 9 agencies reported shorter duration
Arizona DOT Study: Design-Build vs. Design-Bid-Build - Comparing Cost and Schedule. Jim Ernzen, Ron Williams, and Debra Brisk, TRB Paper 2004.	13	4%	22%
Ralph Ellis, Zahar Herbsman, & Ashish Kumar, *Evaluation of the Florida Department of Transportation's Pilot Design/Build Program*, University of Florida, College of Engineering, Gainesville, FL., August 1991.	11	11%	36%
Washington State DOT Study. Design-Build Pilot Project Evaluation: A Measurement of Performance for the Process, Cost, Time, and Quality - SR500 Thurston Way Interchange. Dr. Keith Molenaar, University of Colorado, Boulder, CO, January 2003.	1	-23%	16%
Jim Ernzen and Tom Feeney, *Contractor Led Quality Control and Quality Assurance Plus Design - Build: Who is Watching the Quality?* Transportation Research Board Paper, 2000 Annual Meeting, Washington, D.C., January 2000.	1	N/A	30%
Bulk of Ambitious $1.6 Billion Design-Build Job Complete, Engineering News Record, May 14, 2001, Page 13. (Utah I-15 Design-Build Project)	1	0%	9%
ODOT Experience on Six Design-Build Projects, Ohio Department of Transportation, Columbus, OH., 1999.	6	Lower administrative costs; little/no change orders or claims	Significant time savings

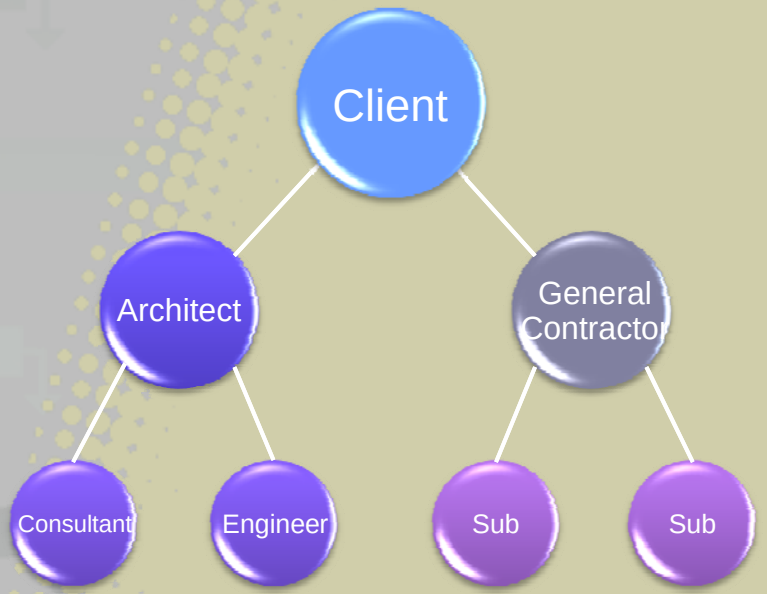
The study can be found on the Federal Highway Administration section of the U.S. Department of Transportation website (www.fhwa.dot.gov).

An Analysis of the Design-Build Delivery Approach in Air Force Military Construction

(2008) James Rosner published his Master's thesis in conjunction with the Air Force Institute of Technology, Wright-Patterson AFB School of Engineering and Management. [2] Rosner studied data for 835 (278 design-build & 557 design-bid-build) MILCON (military construction) projects from 1996-2006. The design-build method had better performance for six of eight metrics with highly significant results for cost growth and number of modifications per million dollars. The traditional method experienced a highly significant advantage for the metrics of construction timeline and total project time. The historical analysis revealed that design-build MILCON has improved significantly for cost growth, modifications per million dollars, construction timeline, and total project time. The traditional method also improved for the cost growth and modifications per million dollars metrics. [3] Finally, the facility type analysis revealed that the design-build method was best suited for seven of the nine facility types. This study provides empirical evidence of where the design-build delivery method provides an advantage to the traditional method for AF MILCON execution.

This thesis is available as Accession Number ADA489495 on the Defense Technical Information Center website (www.dtic.mil/dtic).

Currently in Iowa:

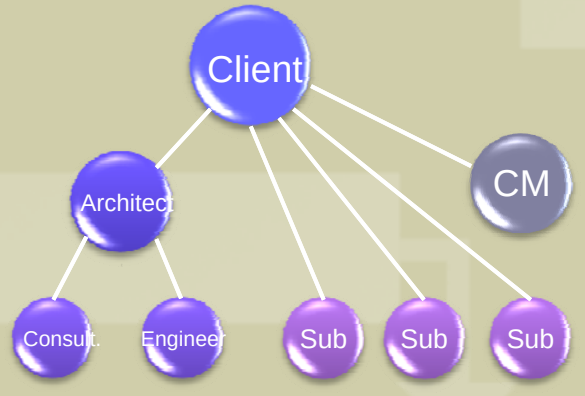


DESIGN-BID-BUILD:

- Still a viable option for projects, but not well suited for *all* projects
- Independent Contracts
- Linear process
- Most common method
- Potentially combative environment
- Change orders and delays more common
- Harder to control budgets & schedule
- Can be easier to administer

CONSTRUCTION MANAGER AS AGENT

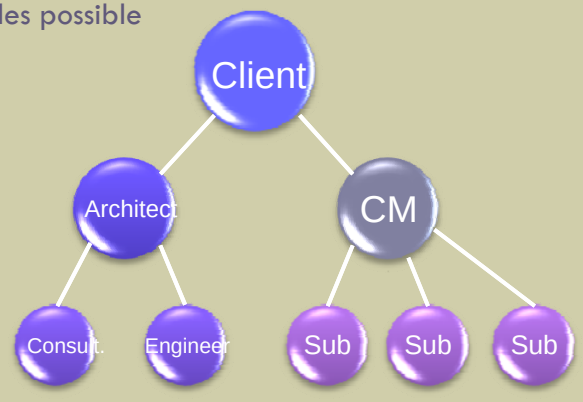
- Contractor is brought on board early to manage cost and schedule
- Communication channels are established early
- Designer and constructor work collaboratively to meet owner's goals
- No contractual risk on the Construction Manager
- Faster construction schedules possible
- Requires knowledgeable owner to hold multiple contracts



Alternative Project Delivery

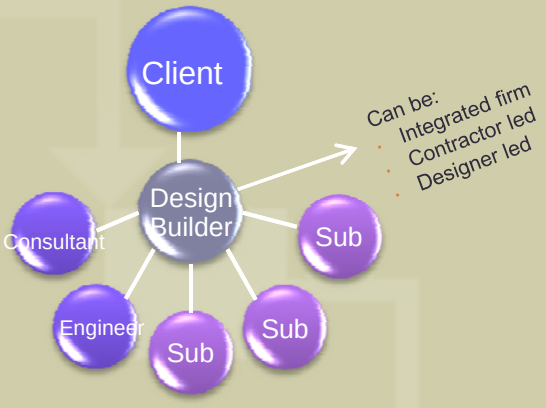
CONSTRUCTION MANAGER AT RISK

- All parties have a clear understanding of the owner's goals
- Communication channels are established early
- Designer and constructor work collaboratively to meet owner's goals
- Reduces owner risk and knowledge requirement
- Faster construction schedules possible



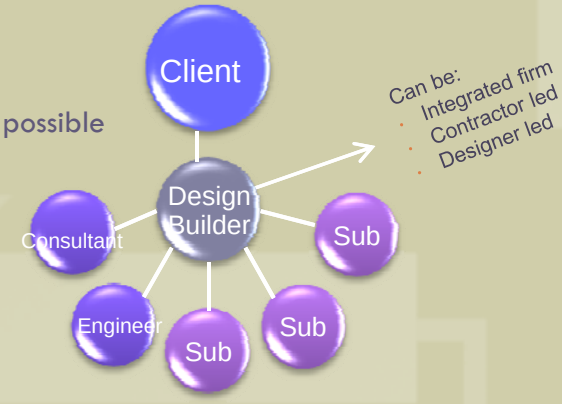
DESIGN-BUILD BEST VALUE

- Open communication
- Less owner risk
- Unified contractor/architect interest
- Reduced overall project duration



DESIGN-BUILD QUALIFICATIONS BASED

- Open communication, high level of integration possible
- Limited client risk
- Unified contractor/architect interest
- High level of owner control



OWNER, BUILDER & DESIGNER HAVE A COMMON GOALS AND COMMON INTEREST THAT IS ABSENT IN DESIGN-BID-BUILD!

What's the difference?

	D-B-B	CMAR	D-B Best Value	D-B QBS
Procurement Philosophy	All contractors are the same, except price	Professional service provider	Professional service provider / buying a product	Professional service provider
Selection Process	Lowest Price	Qualifications & fees	Best value	Qualifications & fees
Constructor Involvement	After construction docs are complete	Early in design process	Beginning of design process	Beginning of design process
Design Responsibility	Little or none	Little or none	Total	Total
Contractual Structure	Two contracts	Two contracts	One contract	One contract

Time Impact: