



PROJECT DELIVERY

KNOWLEDGE COMMUNITY



Project Delivery

an **AIA** Knowledge Community

Meet the AIA PDKC Leadership



[Grace Lin, AIA / 2019 Chair](#)
CBRE Healthcare
New York, NY



[Greg Gidez, AIA](#)
Hensel Phelps Construction
Greeley, CO



[Robert Bostwick, FAIA / 2017-18 Chair](#)
Bostwick Design Partnership
Cleveland, OH



[Laura Wake-Ramos, AIA](#)
M.A. Mortenson Construction
Washington, DC



[Lisa Lamkin, FAIA](#)
Brown Reynolds Watford Architect, Inc.
Dallas, TX



[Laura Stagner, AIA](#)
US General Services Administration
Washington, DC



[James Yankopoulos, Assoc. AIA](#)
NYC Housing Development Corp.
Woodside, NY



[Heath May, AIA](#)
HKS, Inc.
Dallas, TX



[Mark Dietrick, Assoc. AIA](#)
Case Technologies, Inc.
Carnegie, PA



[Brian Skripac, Assoc. AIA](#)
CannonDesign
Pittsburgh, PA

New Members

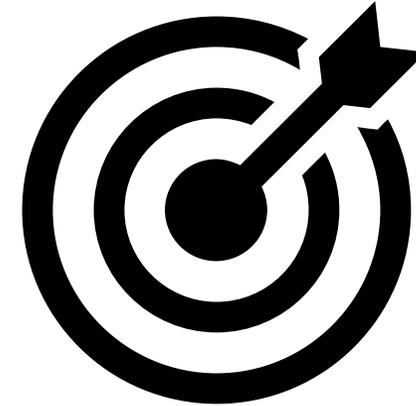
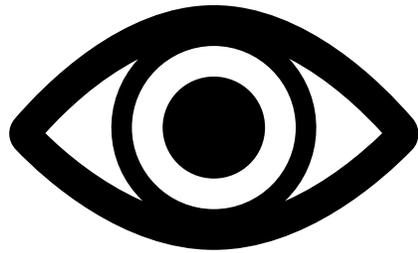


[Arlen Solochek, FAIA](#)
Maricopa Community Colleges
Tempe, AZ



[David Cook, AIA](#)
Grimshaw
New York, NY

Project Delivery Knowledge Community



Vision

Mission

Goals

PDKC Goals

- Promote the architect's leadership role in all project delivery methods.
- Expand awareness of trending delivery methods around the country.
- Provide resources for advocating towards expanding delivery models regionally.
- Promote case studies of successes and lessons learned from projects built through alternative delivery methods.



2019 PROJECT DELIVERY SYMPOSIUM

Delivering the Future

Panel 1 – Federal: Looking into the Future

Panel 2 – Project Delivery Strategies, Part 1

Panel 3 – Project Delivery Strategies, Part 2

Panel 4 – VDC, Research, and Technology

Panel 5 – Surveys, Trends, Data Analytics

“Metrics that Matter”

March 11 & 12, 2019
AIA National, Washington DC
2nd Annual Symposium



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2019 PROJECT DELIVERY SYMPOSIUM

Keynote Moments...

"The discipline and profession of architecture are being reshaped in a moment where information, insight and predictions are generated during the design process moves into construction no longer essentially via drawings. More profound digital techniques yield fundamentally different workflows, responsibilities and business models for architects."

~ Phillip Bernstein, FAIA

"If you can measure it, you can manage it, and you can automate it."

~ David Zach

"Robotics will be involved in 50% of all construction projects in the US."

~ James Timberlake, FAIA

Bill Hercules, FAIA, spoke about high-volume owners that are driving delivery, innovation.



2019 PROJECT DELIVERY SYMPOSIUM

Some Highlights...

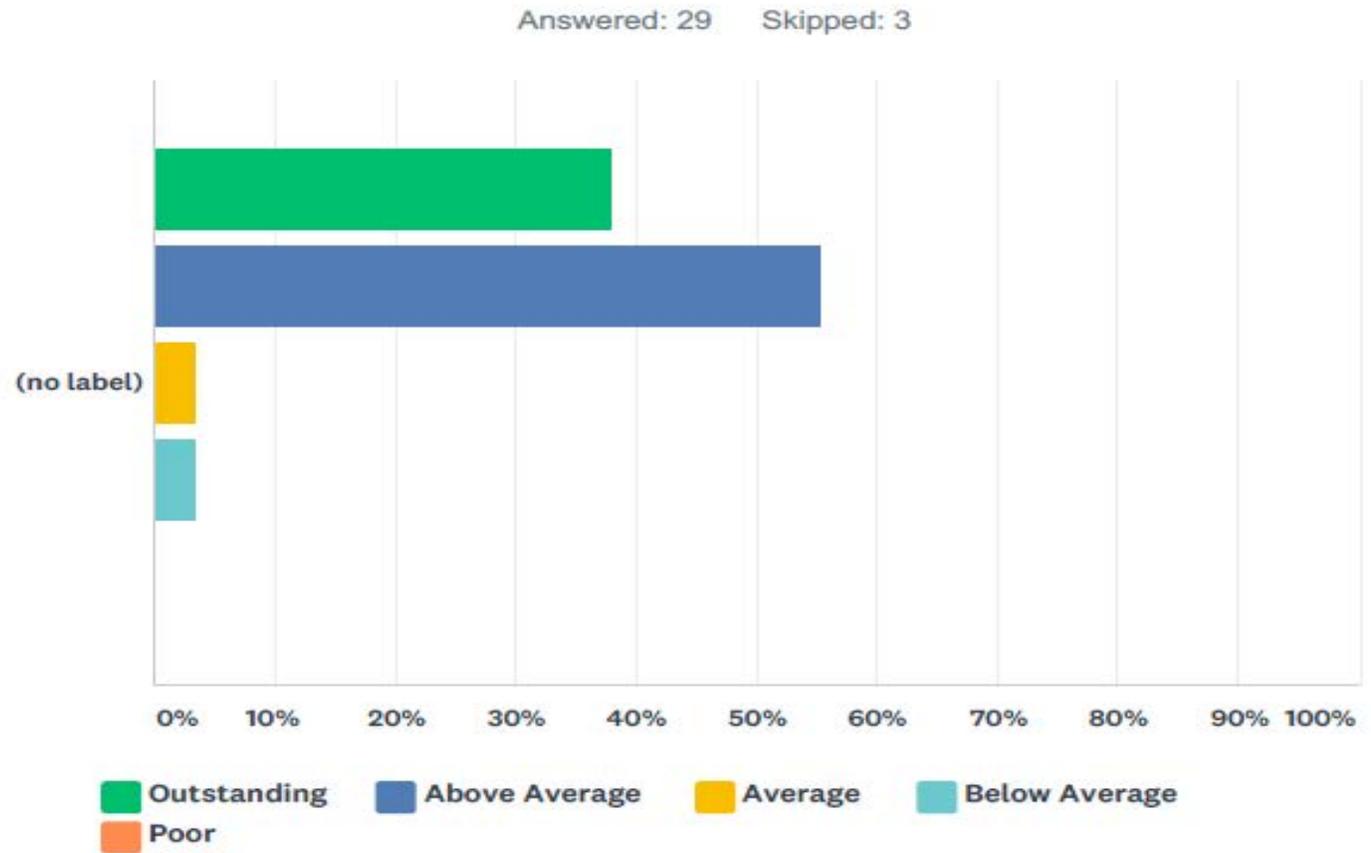
- Significantly shift the value proposition to leapfrog client needs.
- The “Problem Seeking” scope must include the client’s business.
- Know the client’s business better than the clients do.
- Aggressive clients will commandeer the process.
- To remain relevant, lead the clients.
- Consider well-designed, mass-produced products.
- Consider multi-parallel process along the entire value stream.
- Invest beyond the scope of individual projects.

2019 PROJECT DELIVERY SYMPOSIUM

Feedback...

Surveyed by: American Institute of Architects

Quality & Effectiveness of the Speakers



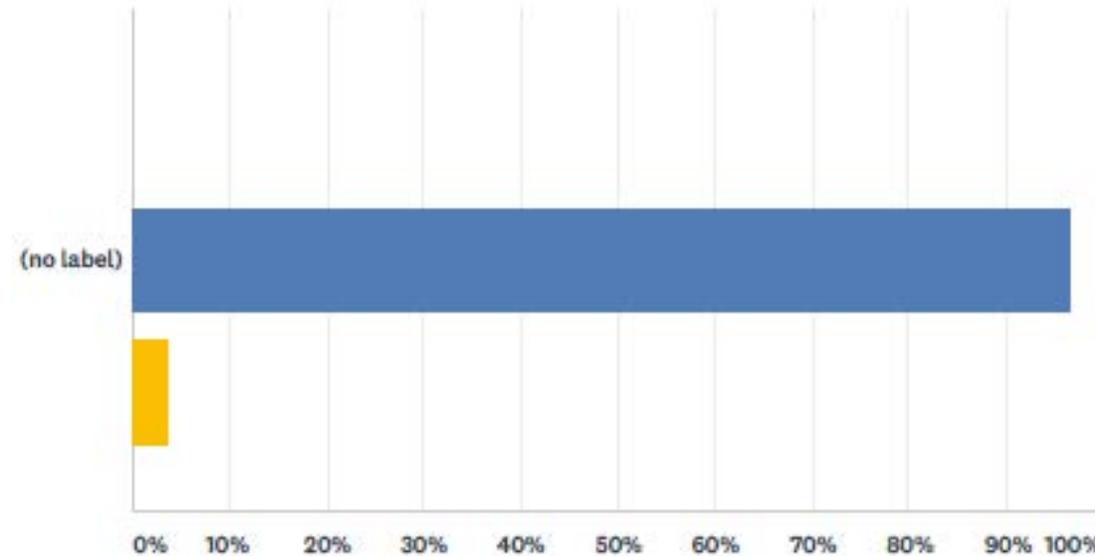
2019 PROJECT DELIVERY SYMPOSIUM

Feedback...

Surveyed by: American Institute of Architects

Answered: 28 Skipped: 4

Project Delivery Symposium Content



Too Advanced Appropriate Too Basic

TOO ADVANCED	APPROPRIATE	TOO BASIC	TOTAL	WEIGHTED AVERAGE
0.00%	96.43%	3.57%	28	1.96
0	27	1		



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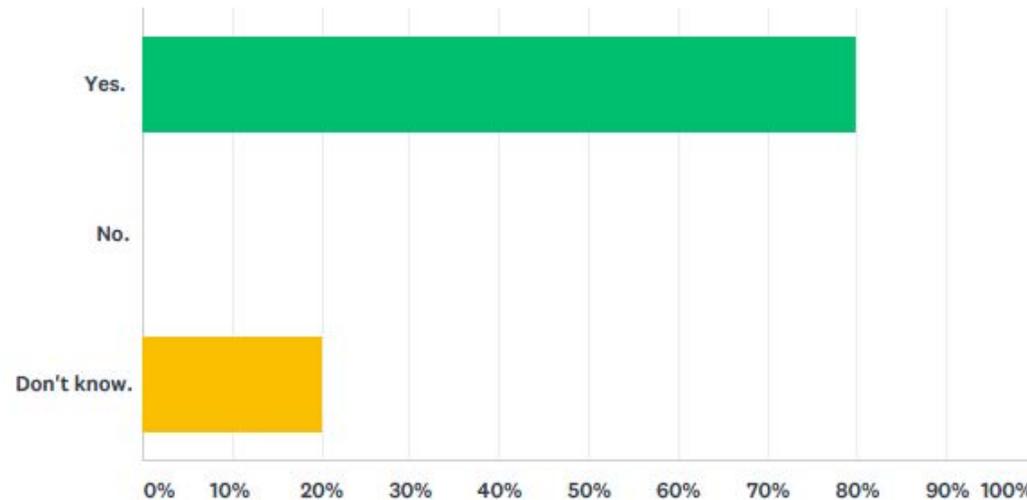
2019 PROJECT DELIVERY SYMPOSIUM

Feedback...

Surveyed by: American Institute of Architects

Answered: 30 Skipped: 2

Interest in the Next Symposium



ANSWER CHOICES	RESPONSES	
Yes.	80.00%	24
No.	0.00%	0
Don't know.	20.00%	6
TOTAL		30

2020 PROJECT DELIVERY SYMPOSIUM

Be part of the discussion next year!

March 9-10

AIA National, Washington DC



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Alternate Project Delivery Method (APDM)

2019 PROJECT DELIVERY OPEN FORUM

What's your passion?



Virtual Architecture Practice Model



Delegated Design



Project Risks

IPD



Progressive Design-Build



VDC

BIM

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Delivering the Future



- BIM as a deliverable. When is it appropriate? When is it indemnified? Contract/insurance issues.
- Navigate the legal and insurance requirements for employees and independent contractors, licensing differences, and how to implement cloud server technology and the like.
- Explore the forms of VAP model, the benefits, risks, and requirements of an entirely virtual practice.
- Understand some of the risks associated with technology and learn about policies and procedures to manage them.



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Delivering the Future



More and more of the design is moving out to the contractor and subcontractors through a performance specification, requiring completion of the design and then fabrication provided by the contractor.

- What is the impact of increased delegated design on project delivery?
- What are the benefits of increased delegated design?
- What are the risks of increased delegated design?
- How does the design professional manage more and more the design being done by someone else?

2019 PROJECT DELIVERY OPEN FORUM

Delivering the Future



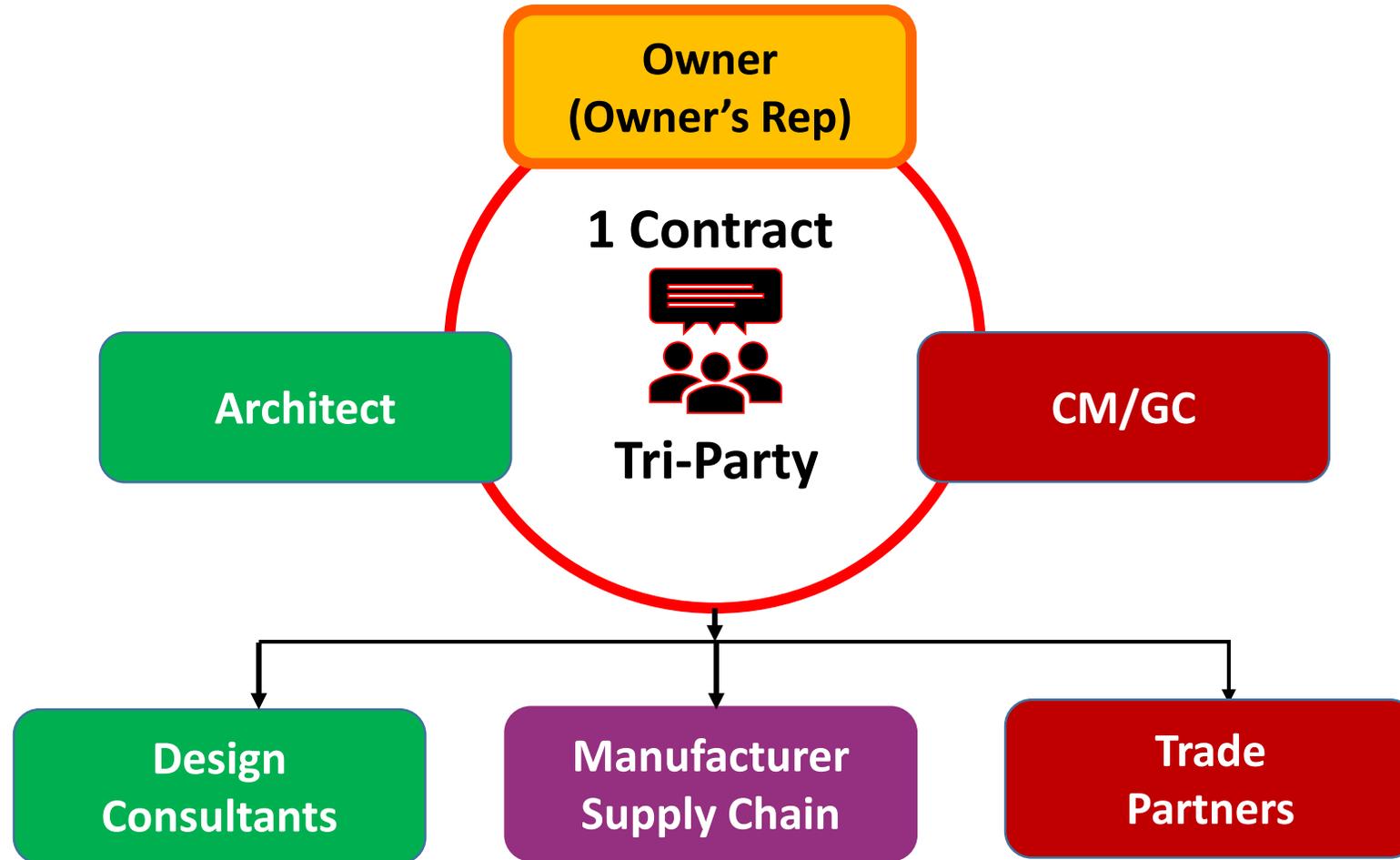
- Project Risk: How do participants take into account risk on their projects? What risks do they consider? (e.g. schedule risk, weather risk, etc. this can get pretty sophisticated). How has your project team done risk analysis and what changes in the project or project approach resulted from that analysis?
- IPD: Much spoken about, rarely used. Why is this? Are there things that would increase the use of IPD? Would that necessarily be good or is IPD really a small market niche delivery method?

IPD

Project Risks

2019 PROJECT DELIVERY OPEN FORUM

Delivering the Future



Integrated Project Delivery (IPD)

2019 PROJECT DELIVERY OPEN FORUM

Delivering the Future



Market trends indicate that an increasing number of projects are using alternative delivery methods, including PDB.

- Why would an owner choose PDB? What are the inherent benefits to the owner?
- What are the benefits to the design-builder (design professional and contractor) compared to traditional design build?
- In what ways can PDB bolster design excellence compared to traditional design build?
- What are the risks of PDB?

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Delivering the Future



VDC

- VDC (virtual design and construction) and AR (augmented reality). What have you seen in application of VDC and AR in current construction. What's the next steps? What's the benefit and efficiency?
- BIM is advancing quickly. At some point, a BIM model will go to the contractor and he/she will construct directly from a model. How will this impact project delivery?

BIM

PDKC Resources

Website update...

AIA KnowledgeNet Sign in

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Project Delivery

Community Home Discussion **550** Library **36** Blogs **17** Events **2** Members **12.6K** View Only

Quick Links

- [Leadership](#)
- [Delivering the Future Symposium](#)
- [Helpful links](#)
- [Integrated Practice](#)
- [Webinar resources](#)
- [Sponsorship opportunities](#)

Who we are

The AIA **Project Delivery** Knowledge Community (PD) promotes the architect's leadership role in all project delivery methods by assembling and distributing knowledge and best practices for a variety of project delivery methods, e.g. design-build (DB), integrated project deliveries (IPD), and public-private partnerships (P3).

Upcoming Events

- 29 May** **2019 LCI Lean in Design Forum**
May 29 - 30, (CT)
Chicago, IL, United States
- 7 Jun** **A'19: Project Delivery Knowledge Community Open Forum**
Jun 7, 11:45 AM - 1:00 PM (PT)
Las Vegas, NV, United States

[See All Events](#) →



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<https://network.aia.org/projectdelivery>

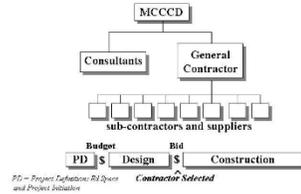


Getting the Best Value for Our Construction Dollars A Primer of Construction Delivery Methods for Owners (from an Owner's Biased Viewpoint)

COMPETITIVE BID (TRADITIONAL DESIGN/BID/BUILD)

Often referred to as Design/Bid/Build, this method is the one with which most Owners are familiar. It is a linear process where one task follows completion of another with no overlap possible. Plans and specifications are completed by the architect and then bids are issued. Contractors bid the project exactly as it is designed with the lowest responsible, responsive bidder awarded the work. The design consultant team is selected separately and reports directly to the owner.

STRUCTURE and SCHEDULE



Advantages

- Familiar delivery method
- Simpler process to manage
- Fully defined project scope for both design and construction
- Both design team and contractor accountable to Owner
- Lowest price proposed and accepted; pricing, including contractor fee and overhead, developed competitively: "best price"
- Creates most the bidding opportunities for general contractors and subcontractors

Disadvantages

- Linear process means longer schedule duration than other methods
- Price not established until bids are received; may require redesign and rebid if bids exceed budget
- Quality of contractors and subcontractors not assured
- Cost estimates change during design process
- Fosters adversarial relationships between all parties increases probability of disputes
- No design phase input from contractor on project planning, budget or estimates
- Not optimal for projects that are sequential, schedule or change sensitive
- Change orders and claims may increase final project cost

Best Suited For

Less complicated projects that are budget sensitive, but are not schedule sensitive nor subject to significant change once construction begins. The owner completely controls the design and consultant team.

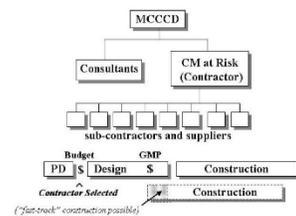
Basic information for this comparison is derived from a guideline developed by the American Institute of Architects.

This version, prepared by Maricopa Community Colleges, is posted at: https://business.maricopa.edu/sites/default/files/delivery_methods.pdf

CONSTRUCTION MANAGER AT RISK (CMAR)

CM at Risk allows the Owner to interview and select a fee-based firm, based upon qualifications and experience, before the design and bidding documents are fully completed. The construction manager and design team work together to develop and estimate the design. A guaranteed maximum price (GMP) is provided by the CM, who then receives proposals from and awards subcontracts to subcontractors. The final construction price is the sum of the CM's fee, overhead, and contingencies and the subcontractors' proposals. Any unused contingency at the end of the project reverts to the Owner. The design consultant team is selected separately and reports directly to the owner.

STRUCTURE and SCHEDULE



Advantages

- Selection of contractor based upon qualifications, experience and team
- Contractor provides design phase assistance in budget and planning
- Faster project delivery than traditional bid, slightly faster than CMAR; fast track construction possible
- Guaranteed price possible early in process
- Price tends to match quality (also a disadvantage!)
- No change orders written for this consultant errors and omissions- covered through an contractor allowance. Owner still responsible for other types of changes.
- Screening of subcontractors allows Owner and contractor quality screening
- Faster schedule than traditional bid; fast track construction possible
- Ability to obtain GMP earlier in process; earlier than traditional bid, later than D/B
- Theoretically, more teamwork between design firm and contractor
- Provides more ability to handle change in design and scope
- Theoretically, reduced changes and claims once in construction

Disadvantages

- Difficult for Owner to evaluate the GMP or determine whether the best price has been achieved for the work
- Costs more than traditional bid due to reduced competition in pricing of contractor overhead, fee and sub-contract costs
- Costs often increase due to "details" not in the GMP
- CM may expand budget to create future savings

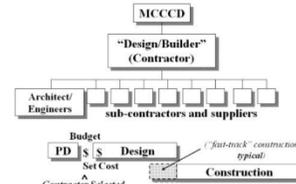
Best Suited For

Large new or renovation projects that are schedule sensitive, difficult to define or subject to potential changes; for projects with difficult or unusual site constraints; also for projects requiring a high level of construction management due to multiple phases, technical complexity or multi-disciplinary coordination.

DESIGN/BUILD (D/B)

The contractor and architect are one entity hired by the Owner to deliver a complete project. A guaranteed total price is provided by the D/B early in the project, based upon design criteria prepared by the school. The pricing also can wait until a moderately developed design is developed. The contractor/architect then develops drawings that fulfill the criteria and complete the design, while staying below the furnished price. The contractor then receives proposals from and awards subcontracts to subcontractors.

STRUCTURE and SCHEDULE



Advantages

- Single point of responsibility for design and construction
- Selection of contractor based upon qualifications, experience and team
- Contractor provides design phase assistance in budget and planning
- Faster project delivery than traditional bid, slightly faster than CMAR; fast track construction possible
- Guaranteed price possible early in process
- Price tends to match quality (also a disadvantage!)
- No change orders written for this consultant errors and omissions- covered through an contractor allowance. Owner still responsible for other types of changes.

Disadvantages

- No check and balance between contractor and architect; Owner left to fend for himself versus the contractor, creating potential for reduced quality and increased potential for conflict between Owner and D/B team
- Difficult for Owner to determine whether the best price has been achieved for the work
- Initial costs likely higher than traditional bid due to increased contractor risk, reduced competition in pricing of contractor overhead, fee and sub-contract costs
- Changes difficult and expensive to make once construction begins, due to phased construction and cost driven, inflexible budget
- Considered "sophisticated": Owner must have a clear idea of scope and concept before selection
- Owner has no input on selection of proposed design team
- Over-emphasis on price may compromise quality
- Increased speed and fewer reviews increase potential for mistakes, missed items, etc.
- Staff and users required to make quick decisions and have reduced time for reviews and input

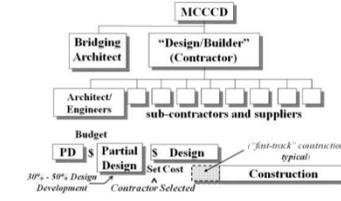
Best Suited For

New construction projects that are highly time sensitive, projects with smaller user groups or reduced need for user reviews and mid-course design changes.

DESIGN/BUILD with BRIDGING (BRIDGING)

Bridging combines the first portion of the traditional design process with the design/build delivery process. The Owner selects an architect that develops the project to 30% - 50% design documents stage. The Owner then selects a design/build team to complete the design and then construct the project while staying below the furnished price. The contractor then receives proposals from and awards subcontracts to subcontractors.

STRUCTURE and SCHEDULE



Bridging shares many of the advantages and disadvantages with traditional D-B, along with the following:

Advantages

- Owner more thoroughly defines the scope and gains better understanding of design before awarding D/B contract, while still passing the risk for design deficiencies to the D/B
- Bridging architect continues as owner's representative during the balance of design and construction; owner no longer left to fend for itself
- Design documents can be used to select the D/B
- Greater development of design documents at time of D/B selection and pricing may result in overall cost savings
- Improves the final product through less guesswork about owner expectations or criteria
- Owner and bridging architect can increase degree of design and construction quality control

Disadvantages

- Potential conflicts between owner's bridging architect and D/B architect
- Owner retains more design liability risk
- Early design work and system selection creates additional later liability for D/B, leading to greater potential for disputes and claims
- Somewhat slower than traditional D/B
- Reduced ability to procure long lead items very early in design
- Even *more* complicated delivery method than D/B
- May limit D/B design or construction creativity and innovation because basic decisions and solutions are determined before the D/B is selected
- Some original design intent may be lost or misinterpreted at transition between bridging consultant and D/B designer

Best Suited For

Larger, new or renovation projects that schedule sensitive, difficult to define or where the initial design must be developed and tightly controlled by the Owner and users. Not suitable for small projects or those subject to changes.

JOB ORDER CONTRACTING (JOC)

Job Order Contracting uses a pre-qualified, pre-selected contractor to perform small new construction, remodeling or maintenance work. The "on-call" procurement agreement is a renewable multiple year, indefinite delivery, indefinite quantity (IDIQ) contract for construction using fixed price delivery purchase orders based upon pre-established unit prices or competitively obtained subcontractor proposals, applied adjustment factors and previously established mark up rates for overhead and profit. Individual work order amounts generally are capped by statute or institutional preference. Total annual cumulative amounts also may be capped.

STRUCTURE and SCHEDULE



Advantages

- Fast and timely delivery of projects; not necessary to bid and write separate contracts for each job
- Low overhead cost of construction procurement and delivery
- Reduced number of change orders and claims
- Standard pricing structure, mark-ups and profit established ahead of time
- Long-term relationship with contractor creates efficient communication and familiarity with owner needs and expectations
- Work can be done from complete drawings to napkin sketches to simple written descriptions
- JOC contracts can be established for general construction or specific sub-trades/types of work
- Owner can access other institutions' procurements and contracts for JOC

Disadvantages

- Caps on the value of individual work orders
- Can be very difficult to evaluate and manage pricing if based upon unit cost basis. **Ronald Reagan's rule applies: "trust but verify"***
- Initial JOC selection and qualifications process can be long, daunting and difficult
- Owner and contractor must have skills to manage, evaluate and negotiate the work

Best Suited For

Schedule sensitive, small, repetitive or simpler work tasks that will arise, but where the specific timing, type, and quantity of work are unknown in advance. Projects will have a limited number of trades involved, minimal design requirements and are not especially price sensitive.

*Shown in an 11/07 presentation by Mary K. Crites, AIA



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THANK YOU

We hope to see you at the 2020 Project Delivery Symposium!
March 9-10 / AIA National, Washington, DC



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