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Construction Delivery Methods

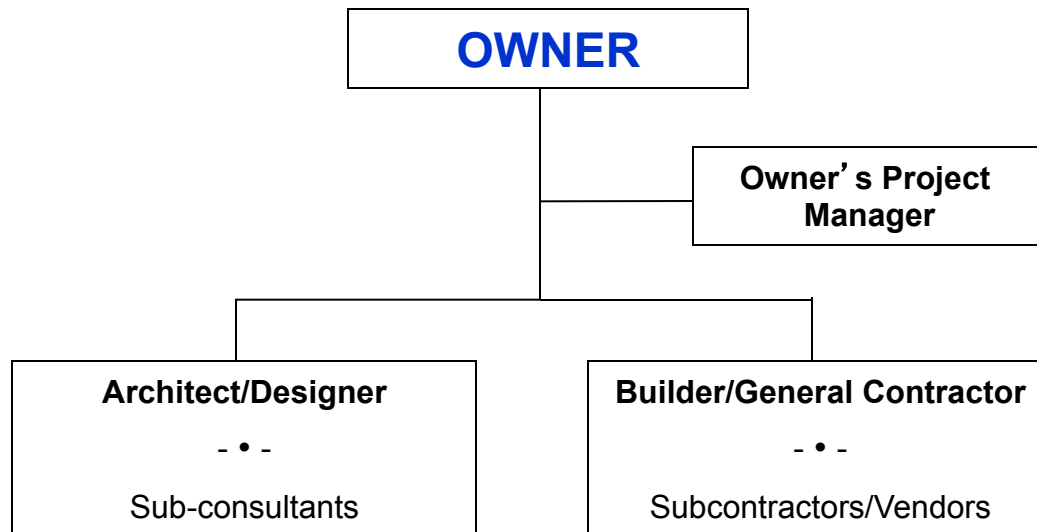
Although there are many variations, there are four basic construction delivery methods practiced in the United States.

- **Design – Bid – Build**
- **Design – Build**
- **Agency CM**
- **CM At – Risk**

In this presentation, we will present Design – Bid – Build, Design – Build, and CM At – Risk delivery methods.

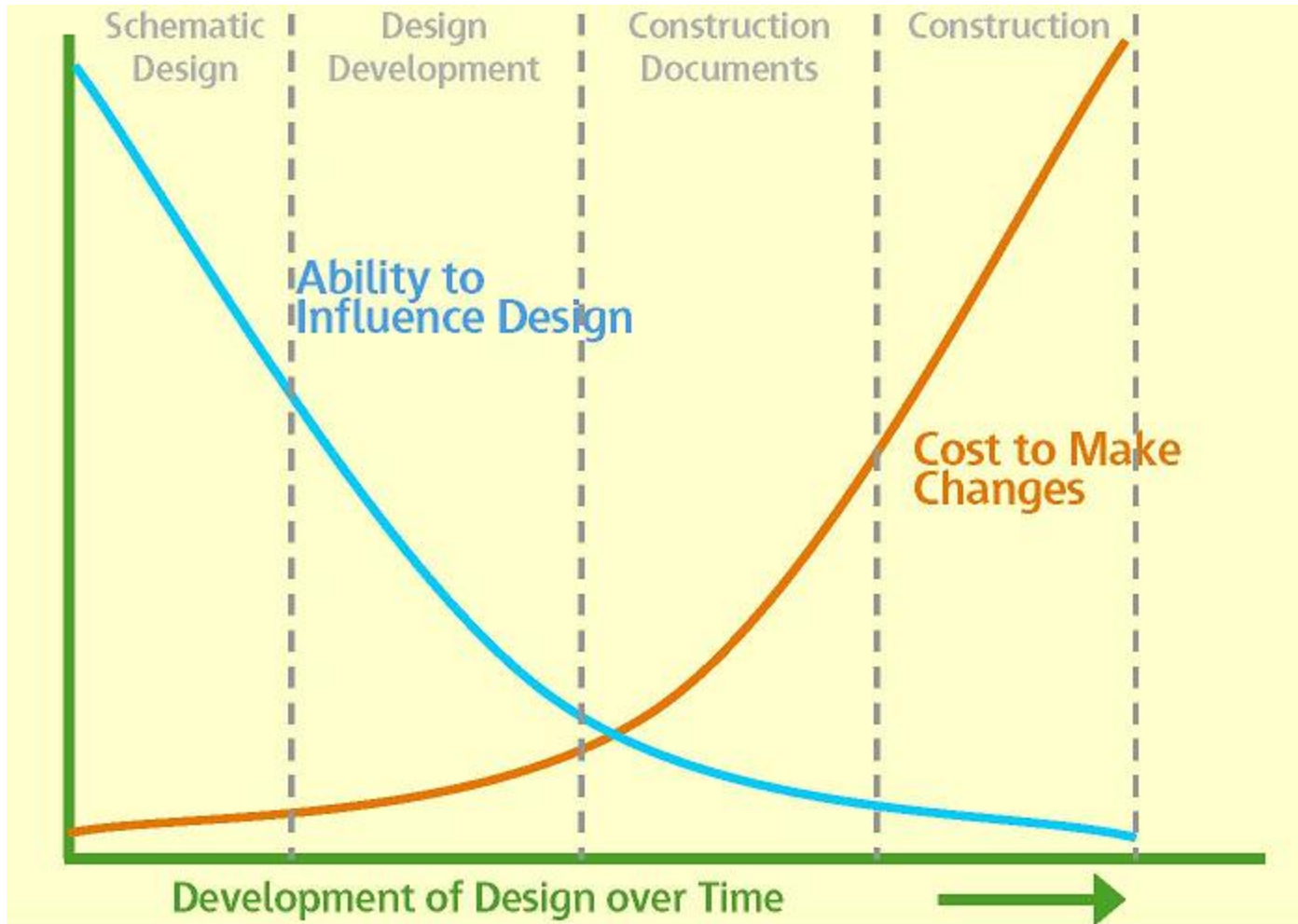
Design-Bid-Build

The “traditional” approach



Sequence of Tasks





Overview

Design-Bid-Build is a project delivery method in which an Owner, with the assistance of an Owner's Project Manager ("OPM"), contracts with separate entities for the design and construction of a project.

Design-Bid-Build is the traditional method for project delivery and differs in several substantial aspects from Design-Build as well as the Construction Manager/Builder at Risk ("CM/Builder at Risk") project delivery method.

There are four main sequential phases to the design-bid-build delivery method:

- The design phase
- The bidding phase
- The construction phase
- The closeout phase



Potential Benefits of Design-Bid-Build arrangement

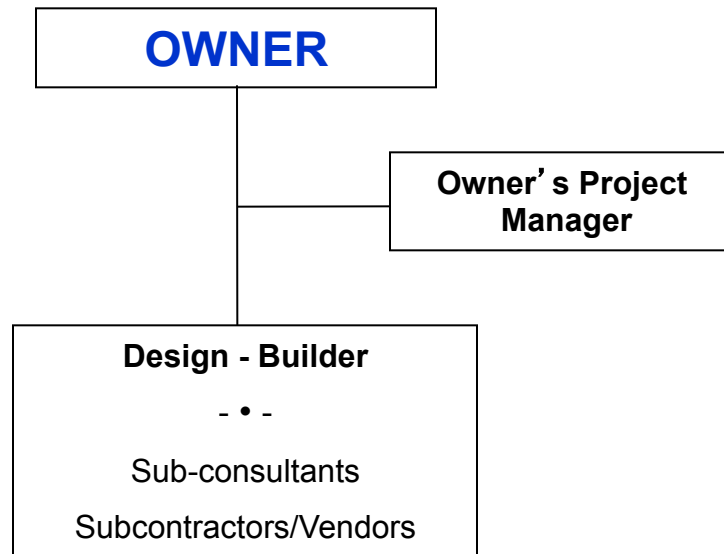
- The design team prepares “complete” documents on which all builders/general contractors place bids. Incomplete, incorrect or missed items may be discovered and addressed during the bid meeting, written questions, and evaluation or the bid process.
- Assists the Owner in obtaining actual market pricing for the project at the time of bidding.
- Uses builder/general contractor competition to potentially improve the initial project contract amount for Owners.
- May be less effort on the Application for Payment process as it is performed on a percent completed basis.
- Best suited for non-complex, non-phased construction, or totally new construction where design documents have been fully coordinated.

Potential Disadvantages of Design-Bid-Build arrangement

- “Roulette wheel” project pricing possibility as related to design documents vs. received bid prices vs. Owner’s project budget. Owner is not assured of lowest responsible final cost.
- Failure of the Design Team and sub-consultants to be current with construction costs. Potential cost increases during the design and bidding phases could cause project delays if the construction documents must be redone to reduce costs to meet the Owner’s budget.
- Less opportunity for a positive working relationship among the Owner, OPM, Architect/Designer and the Builder/General Contractor, due to members strongly acting to protect their individual goals.
- Additional pressures may be exerted on the Architect/Designer and Builder/General Contractor firms, which may lead to disputes between the Architect/Designer and the Builder/General Contractor. Possibility of increases in change orders, claims, and potential litigation.

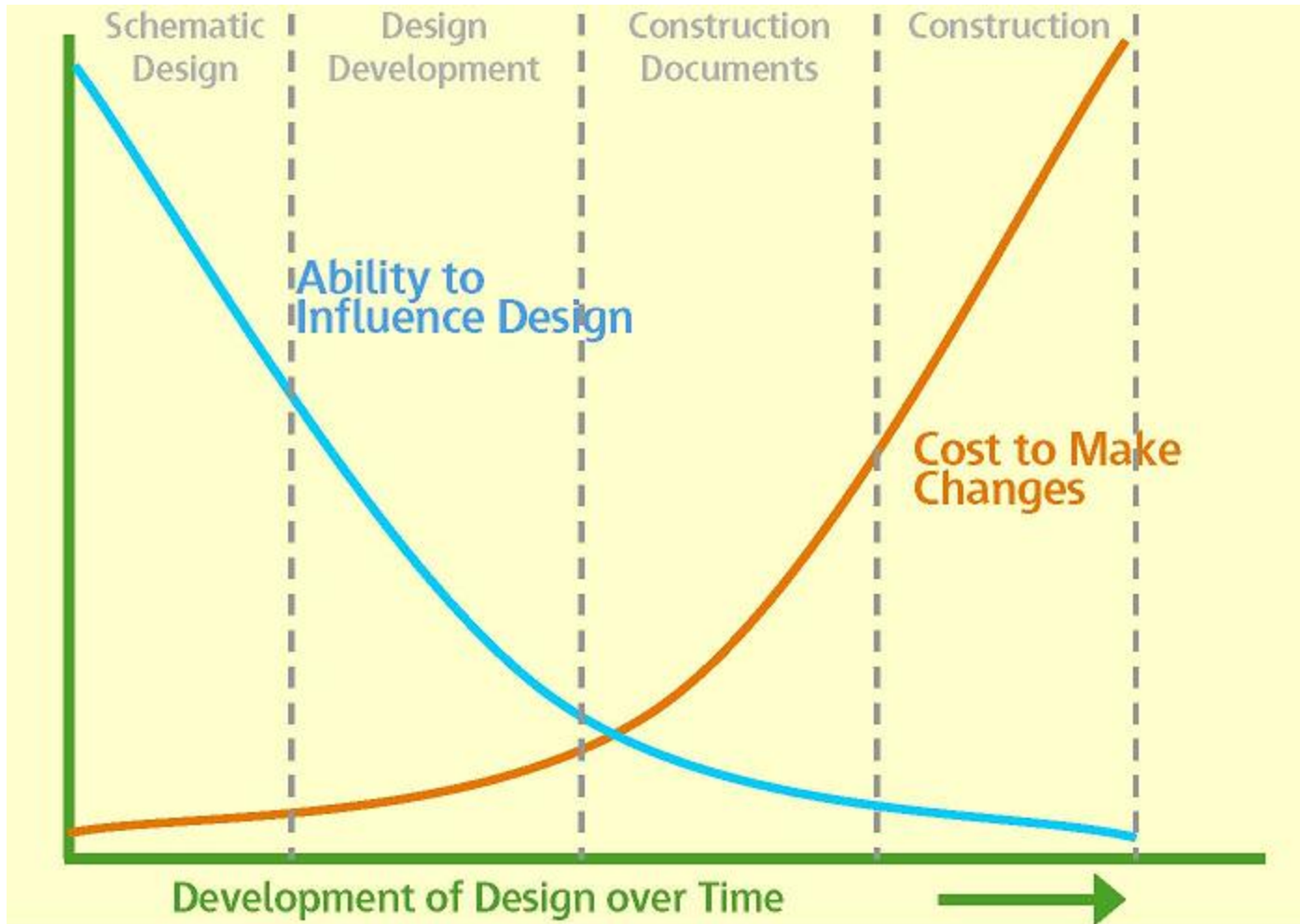
- Redesign expense can be disputed should the Architect/Designer's contract not specifically address the issue of revisions required to reduce costs or meet the Owner's budget.
- Development of a "cheaper is better" mentality amongst the Builders/General Contractors bidding the project so there is the tendency to seek out the lowest cost subcontractors in a given market. This usually results in increased risk (for the Builder/General Contractor) but can also compromise the quality of construction. In the extreme, it may lead to serious disputes involving design omissions, quality of the final product, rework, and adherence to schedule.
- As the Builder/General Contractor is brought to the team post design completion, there is little opportunity for bona-fide input on schedule or cost effective alternates being presented that can be easily incorporated into the project. It, therefore, is more difficult/expensive to incorporate changes.
- In summary, this method tends towards adversarial positions and processes to be taken.

Design-Build



Sequence of Tasks





Overview

Design-Build focuses on combining the responsibilities of design and construction tasks to one firm/team in order to streamline the traditional Design-Bid-Build environment. This approach has the potential to shorten the duration to complete the individual tasks of creating construction documents (working drawings and specifications), acquiring building and other permits, and/or actually constructing the project. The Design-Build firm/team will be responsible to assemble design and construction professionals in a collaborative environment to complete these tasks under a one point responsibility basis to the Owner.

Potential Benefits of Design-Build arrangement

- **Claims avoidance**: Rather than a compartmentalized level of responsibility of the classic Design-Bid-Build, Design-Build provides an integrated solution for the Owner. This moves projects away from the “finger-pointing” between the architect and the builder that can be commonplace in traditional construction projects, and allows the Owner to look to one entity with any questions or concerns or to give direction that should not have the possibility of differing responses when two separate entities are involved.
- **Single source**: Instead of having several contractors and design consultants, an Owner has just one major entity to deal with. Design revisions, project feedback, budgeting, permitting, construction issues, change orders, and billing can all be directed to the Design-Build firm. This single point of contact allows a certain degree of flexibility for the Owner. With proper OPM oversight, most Design-Builders will leverage that flexibility for the Owner’s benefit by continually refining the construction program to maximize the Owner’s value at the completion of the project.

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- Value-based project feedback: Typically, in order for a contractor to bid on a project, very specific details relating to the methods and materials must be given to avoid any ambiguity and to make an “apples to apples” comparison of bids. In a Design-Build context, the Owner, the Owner’s Project Manager, and the Design-Builder can work together to determine what Design-Builder recommended methods and materials will maximize the Owner’s value. In instances where marginally more expensive materials, designs, or construction methods might yield a higher return on investment for the Owner than those of lower cost or provide greater market/financing appeal such as “Green” building alternative, the Owner is free to adjust the project’s program or budget without having to re-bid the entire project.
 - Phasing validation: In complex projects or where construction is undertaken while an existing facility must remain operational, phasing of the work must be proposed, thoroughly discussed as to “non-impact” construction, and then agreed upon as costs due to phasing must be minimized. Again, this single point of contact allows a certain degree of flexibility for the Owner to discuss all available opportunities to maximize safety, security and usability of the facility, minimizing impacts to construction methods and schedule and, ultimately, costs to the Owner.

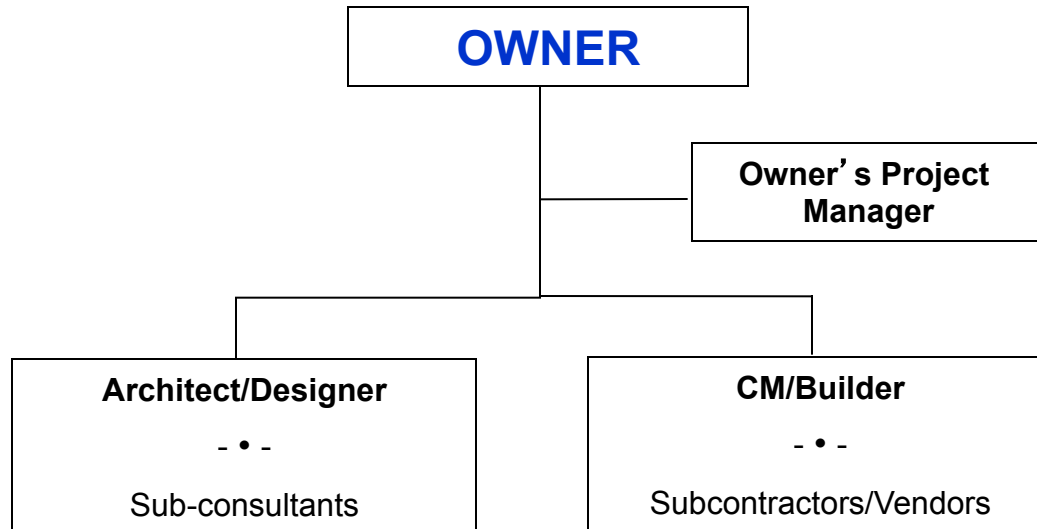
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- Financing cost reduction: It is important to note that the Design-Build method, while not solely focused on saving the Owner construction costs, nonetheless often saves the Owner money on the overall project. The combined effects of carrying a construction financing instrument (which typically carries a higher interest rate than permanent financing) and an earlier completion date usually yields considerable overall profitability or less cost to the project and may move seemingly unfeasible projects into genuine opportunities realistic.

Potential Disadvantages of Design-Build arrangement

- More effort is required in evaluation of submissions to ensure all respondents are providing proposals on similar experience, expertise, scope of work and Design-Build services.
- Reduction in establishing hard competitive pricing for the initial project contract amount for Owners.
- As the normal checks-and-balances that exist under the traditional separate architect and builder delivery method do not exist, the Design-Build method requires the Owner to rely a great deal on the integrity, acumen, and competence of the Design-Builder. The opinion of the construction professionals of the Design-Build firm must be trustworthy, accurate, and reasonably verifiable in order to minimize risk. Utilization of an Owner's Project Manager can provide the required oversight and checks-and-balances, allowing the maximum advantages of this method for the benefit of the Owner.
- At this time, there are fewer qualified self-contained Design-Build firms in New England than there are separately qualified Architects and Construction Manager / Builders / General Contractors.

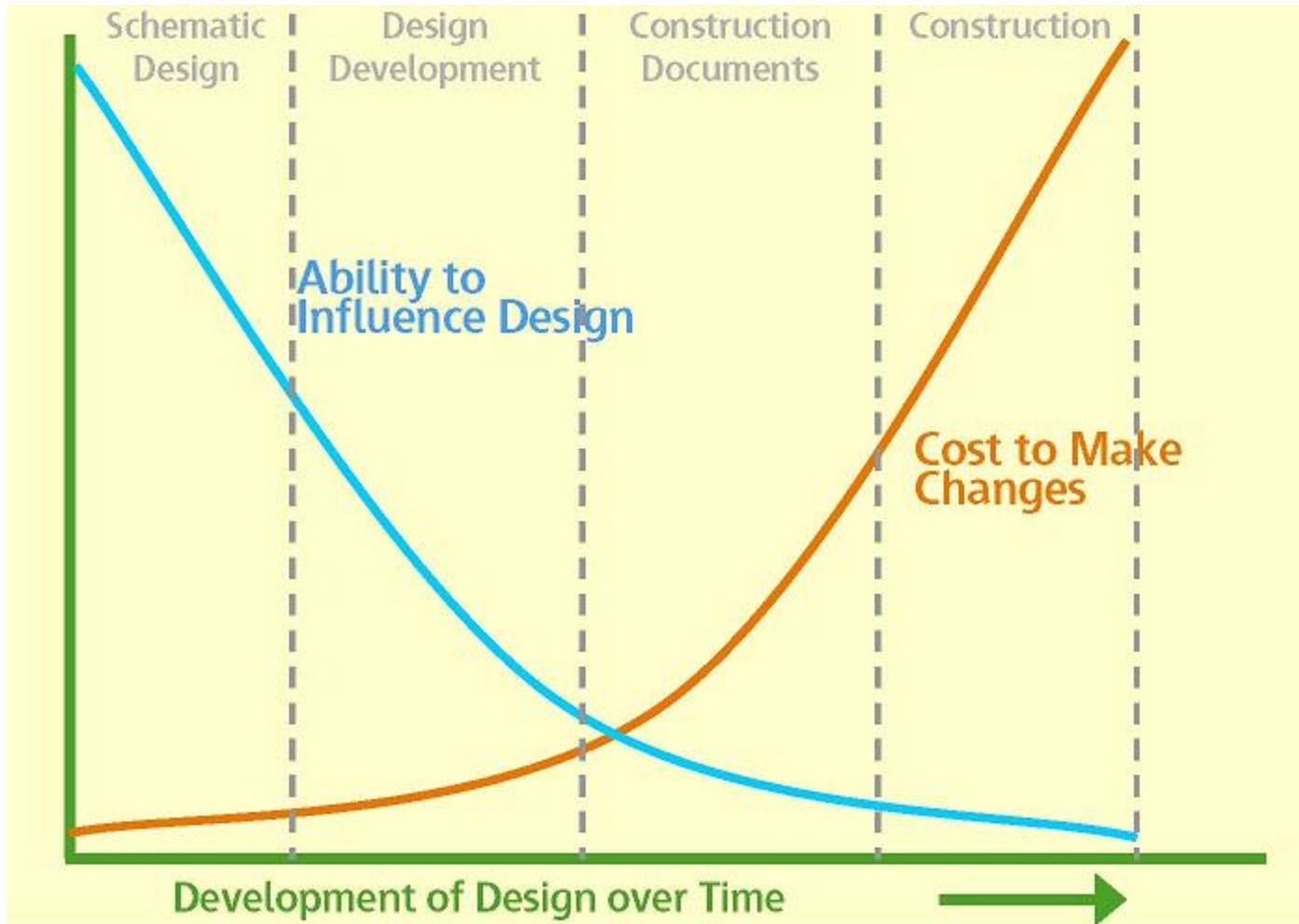
Construction Manager/Builder

Negotiated CM At-Risk Basis



Sequence of Tasks





Negotiated CM At-Risk

CM “At Risk” is a global term referring to a business relationship of Construction Manager/Builder, Owner, Owner’s Project Manager (“OPM”), and Architect / Designer. Typically, CM At Risk arrangement eliminates a “Low Bid” mentality on a construction project.

Negotiated CM At-Risk is a delivery method which entails a commitment by the Construction Manager/Builder (“CM/Builder”) to deliver the project within a Guaranteed Maximum Price (GMP), in most cases. The CM/Builder effectively acts as a project consultant team member in the development and design phases, (often referred to as “Preconstruction Services”), but as the CM/Builder during the construction phase.

A GMP agreement is a typical part of the CM/Builder and Owner’s contractual arrangement, somewhat comparable to a “traditional” contract, but with a number of adjustments in responsibilities required of the CM/Builder. When a CM/Builder is bound to a GMP, in particular when preconstruction services are included, the most fundamental character of the relationship is changed. In addition to more interest in acting in the Owner’s interest, the CM/Builder has more ability and responsibility to manage and control construction costs and project schedule for the benefit of the Owner.

Potential Benefits of a CM At-Risk arrangement

- Owner's ability to factor experience, "chemistry", and capacity into CM selection.
- "Open Book" process: From subcontractor/vendor bidding and selection, to monthly Applications for Payment and everything in between, the Owner has access to requested or required detailed information from the CM/Builder on the project. By availing itself to the open book process, the Owner is offered the opportunity to actively participate in decisions for the benefit of the Owner in this open book approach.
- Project team building: Maximizes the awareness among the Owner, Owner's Project Manager, Architect/Designer and the CM/Builder of the Owner's requirements/goals and each parties' needs, expectations, and recommendations to execute their part of the project in the most efficient manner for the benefit of the Owner.
- Project cooperation/claims reduction: Allowance for a positive working relationship among the Owner, Owner's Project Manager, Architect/Designer and the CM/Builder. Possibility of reduction in change orders, claims, and litigation.

Ability to Act vs. React

- **Budget management**: Before design of a project is completed, the CM/Builder is involved early-on with estimating cost of constructing a project based on schematic design phase and/or design development phase documents from the Architect/Designer of what is programmed / desired to be built, including required phasing, if any. If some aspect of the desired design raises the cost estimate over the Owner's budget, a decision can be made to modify the design concept instead of having to spend a considerable amount of time, effort and money re-designing and/or modifying completed construction documents, OR, the Owner may decide to spend more money or obtain higher financial support for the project.
- **Overall project schedule reduction**: By allowing the project team to be brought together early-on in the project, several opportunities avail themselves to reduce the overall project schedule. Early buys/bid packages can be agreed to allowing for early start of selected construction tasks or procurement of long-lead items or equipment. Full construction documents are not needed to arrive at a GMP or to start construction as the team members have been involved early-on, have developed their working relationships, have executed agreements in place, and have a strong basis on which to make financial and time commitments.

- Phasing validation: In complex project or where construction must be undertaken while an existing facility must remain operational, phasing of the work must be proposed, thoroughly discussed as to “minimal impact” construction, and then agreed upon as costs due to phasing must be understood. Again, early-on engagement of a CM/Builder allows a certain degree of flexibility for the Owner to discuss all available opportunities to maximize usability of the facility, minimizing impacts to construction methods and schedule, and ultimately costs to the Owner.
- Scope verification: Incomplete, incorrect or missed items may be discovered and addressed during the RFQ/P process, and especially during the preconstruction phase as the CM/Builder is part of the project team early-on in the design effort and evaluation process.
- Financing cost reduction: The potential compression of time is only one important aspect of the implementation of this approach. Financially, the combined effects of carrying a construction financing instrument (which typically carries a higher interest rate than permanent financing) and an earlier useful on-line/completion date, usually yields considerable overall benefit to the Owner.

Potential Disadvantages of a CM At-Risk arrangement

- Project design documents are not complete when construction managers/builders respond with their proposals. Total project pricing and / or schedule may be incomplete or not on an “apples-to-apples” basis.
- More effort is required in evaluation of submissions to ensure all respondents are providing proposals on similar experience, expertise, scope of work and associated CM services.
- Reduction in establishing hard competitive pricing for the initial project contract amount for Owners. Lack of firm contract amount until later in project and, if much later, lack of risk to CM.
- Owner’s “investment” in the CM/Builder in time and money during the early-on engagement may be eroded if the CM/Builder can not deliver on the Owner’s project costs and schedule requirements, thus requiring another bid or RFQ/P process.
- More effort to review and process monthly Applications for Payments as these are typically submitted with all invoice back-up as a requirement.

◆ Questions ◆

“Trident has been a wonderful partner to the school district through the planning and preparation stages and throughout the completion phases. I cannot commend the company highly enough for keeping the district's interests first and foremost and ensuring that others understood that attention would be paid to every detail.”

Dr. Michael Delahanty, Superintendent, SAU 57

“Without question, the services that Trident provided played a significant role in this project going as well as it did. The professionalism and personal attention makes the difference between success and failure.”

Dr. Henry LeBranche, Superintendent, SAU 21