Back to the Alternative: When is CM/GC Delivery Right for You?

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While the most popular delivery method in the U.S. today is design-build according to the Design Build Institute of America (DBIA), other alternative delivery methods such as construction manager/general contractor (CM/GC) can better serve some owners on certain types of projects.

A BRIEF SKETCH

CM/GC has been a popular alternative delivery method in the private sector for more than 25 years. While the Project Management Institute has been forecasting the growth of this delivery method since at least 1999, the U.S. Federal Government first facilitated the use of CM/GC through the Moving Ahead for Progress in the 21st Century (MAP-21) Act in 2012. From Delaware to Washington, several states throughout the country followed suit through the 2010s, implementing legislation that allows agencies to implement CM/GC delivery on a variety of public projects.

CM/GC comprises the early procurement of a contractor to provide construction-phase expertise during design. The procurement is based on qualifications, as there has generally not been enough design development for an accurate price bid. Owners may also conduct interviews with bidders to establish rapport and determine their cultural fit.

After procurement, the contractor serves as a "construction manager," providing consultancy services for a fee. The construction management services generally include recommendations on constructability, budget, materials,

construction phasing, value engineering, critical-path scheduling, risk management, innovation, and more. Owners and designers can also benefit from early access to contractor resources, such as specialist estimators, schedulers, and risk managers. The early collaboration can result in a stronger design and a reduced risk of change, compared to design-bid-build delivery. It also deeply familiarizes the contractor with the project and can facilitate teamwork through early and frequent team engagement.

Before design is finalized, the construction manager may recommend and help put together early work packages encompassing site preparation, demolition, or other types of enabling works. The early work packages can compress the schedule and even uncover unknown conditions in the field while design is still ongoing, allowing for immediate, cost-

effective corrective action.

As design progresses, the construction manager prepares multiple opinions of probable construction costs. This process begins once the CM/GC contractor is onboard, often at the 30% design stage, to help the owner understand any gaps between the designer's cost estimate and the contractor's estimate. The contractor develops additional estimates at later stages of design development, allowing the team to identify and address discrepancies, risks, and cost gaps. The iterative process helps ensure that the owner, contractor, and designer align on the guaranteed maximum price (GMP) by the time the design is finalized. Although not the preferred outcome, if the owner and contractor are not able to agree on a cost, the owner may opt for an off-ramp and procure another contractor in the manner of a traditional design-bid-build project. Alternatively, the contractor may walk away from the project following the delivery of construction management services during design.

THREE KEY DIFFERENTIATORS

While the sketch above provides an introduction to the delivery method and its advantages, owners and their project teams may not always be familiar with some of the implications of CM/GC for their projects or its most important points of comparison with other alternative delivery methods, such as design-build and progressive design-build. Misunderstandings can lead to incorrect assumptions that negatively impact project outcomes. Below are three key differentiators owners should understand when considering CM/GC for their projects.

Contractor Leverage

CM/GC works best when a contractor is aboard for an entire project and actively engages with the designer. Early involvement allows the project team to benefit from the contractor's construction expertise during design, resulting in early work packages, more accurate critical-path schedules and estimates, a constructible design, and more. Early contractor engagement can also promote exceptional cost, schedule, and quality performance through construction, as well as strong teamwork, helping assure issue resolution and reducing claims risk.

Although there are great collaborative benefits associated with early contactor involvement, these benefits can sometimes result in increased contractor leverage. This can create schedule and cost risk for the owner. Specifically, during negotiations to develop the GMP, contractors that served in the construction management role have no contractual obligation to stay on as general contractors for construction. If the team struggles to negotiate a price or if the project seems too risky, the contractor is free to walk away after the delivery of consulting services. In this case, the owner can be left with the long process of rebidding the project, which will generally eliminate any schedule savings from early contractor involvement and may even result in delays. On government projects, this can also lead to increased public scrutiny and funding issues.

Solution: On CM/GC projects, owners should develop a risk management strategy with an experienced and proven project management/construction management (PM/CM) consultant acting as owner's representative. It is essential to conduct thorough interviews with bidders, including the designer when possible, to assess their ability to collaborate effectively. Owners should also require evidence of prior teaming experience. By ensuring the contractor and the designer have proven histories of successful collaboration, the owner can reduce risk during GMP negotiations and improve team alignment.

Owner Capacity

Compared to design-bid-build delivery, owners need more management capacity to assure CM/GC success. During procurement, owners should conduct thorough interviews to evaluate bidders. As the contractor and designer have no direct contractual relationship on CM/GC projects (unlike design-build projects), the owner must create and manage a culture of teaming and lines of communication throughout design and construction. This owner involvement and team stability are required to realize the benefits of CM/GC.

CM/GC project owners also need to remain abreast of all permitting and third-party coordination requirements. No matter what delivery method is being used or how risk is allotted, authorities having jurisdiction (AHJ) may require direct agreements with owners. This constitutes an oversized risk on alternative delivery projects because owners may assume they have limited permitting responsibilities after having allocated those responsibilities and associated risks to their contractor. Coordinating new permitting agreements with owner

involvement after a submittal has been rejected can result in costly delays through no or limited fault of the contractor.

Solution: Owners should evaluate their own in-house management and technical capacity prior to beginning a CM/GC project. A PM/CM consultant serving as owner's representative can help determine whether existing capacity is sufficient for a given project and help fill any gaps. Owners should also be aware that they will need to be directly involved with permitting, no matter who is responsible for securing permits on their CM/GC projects.

Collaboration

CM/GC thrives on early collaboration among the designer, contractor, and owner. Having been part of multiple CM/GC contracts, I've seen how open and transparent collaboration leads to the sharing of risks and opportunities, successful GMP negotiations, and on-schedule, on-budget delivery. Without this collaborative culture, a CM/GC project is not as likely to succeed.

While CM/GC facilitates contractor involvement during design development, owners should actively encourage team integration and promote partnership between the designer and the contractor. In this way, the entire team can discuss and agree upon potential changes and refinements as they emerge. For example, I formerly served as project manager on a CM/GC project to expand an equipment and maintenance facility. Per owner requirements, the project team had to maintain facility operations throughout construction, resulting in complex phasing and sequencing that added significant risks and costs. While the designer was not aware of the extent of these risks while they were putting initial designs together, through active collaboration, the team made refinements as design progressed and reduced the overall project cost and schedule.

Solution: Early collaboration starts during procurement. The owner must be able to trust that the contractor and designer are going to collaborate. Owners should require evidence of previous experiences that prove successful collaboration. By establishing key performance indicators for collaboration, owners can also provide incentives for exceptional teaming performance such as shared cost savings.

Following procurement, a project management/construction management consultant serving as owner's representative can facilitate partnering efforts between the contractor, designer, and owner. This should encompass, at minimum:

- A signed agreement to take a one-team approach to the project and always make decisions in the best interests of the project.
- Early workshops for establishing rules of engagement between all parties, including the owner, contractor, designer, major third parties, and key stakeholders.
- An early risk workshop, including all parties and emphasizing transparency. The risk workshop should help the team focus on cost drivers and risk mitigation measures.
- Establishing a common methodology for cost estimates and an open-book approach to estimating.

Additionally, as AHJs may not always have processes in place to review and approve large, complex projects, project stakeholders must actively integrate AHJs into the project team, help educate AHJs about the planned project and the team's needs, and address and alleviate AHJ concerns early on. By including AHJs in a project's collaborative culture, an owner can build trust, facilitate teamwork, and help mitigate risks associated with AHJ coordination. For example, I have worked on multiple CM/GC projects where close collaboration with AHJs resulted in the on-time completion of permitting and approvals.

WHEN CM/GC MAKES SENSE

Identifying suitable use cases for CM/GC delivery can be a challenge, as owners must weigh a project's anticipated risk profile against contractors' prevailing risk tolerances, which change with the market. CM/GC can help owners manage risk, but if a project's risk is too high, few if any contractors will be willing to take on the work at risk and costs will go up. A Goldilocks zone of risk determines CM/GC's suitability.

Very generally, CM/GC makes sense for:

- **Projects with Hard Deadlines:** Because of the ability to identify and initiate early work packages, as well as the contractor's critical-path method scheduling support during design, CM/GC can deliver outstanding schedule results on projects with hard deadlines (e.g. educational facilities that must open in time for new school years or government projects with politically backed schedule requirements).

» **Rail and Transit Facilities:** Projects involving rail and transit stations, operations and maintenance facilities, dispatching centers, office buildings, or control towers comprise complex, specialized infrastructure, coordination with multiple stakeholders, and significant community impacts. CM/GC can promote early collaboration between designers and contractors, enabling effective management of logistics, risks, schedules, and costs. Early contractor involvement can also refine staging plans and dust/vibration/noise mitigation plans, helping minimize community disruptions. Specialist contractor staff can support early operational planning, helping effect a smooth transition to operations and maintenance.

» **Public infrastructure projects** or projects with significant stakeholder involvement are also well-suited for CM/GC. The early involvement of contractors can help mitigate risks related to unforeseen conditions and contribute to better project controls.

In addition to prevailing risk tolerances, other market constraints can also shape CM/GC's suitability for a given project. To be effective, CM/GC contractors require specific experience with the type of project being undertaken. When a contractor has such experience, CM/GC can result in reliable constructability reviews, more accurate risk forecasting, and more. It also helps when owners are able to hire designers and contractors that have worked together. This promotes team stability and collaboration, crucial for CM/GC success.

DO THE DUE DILIGENCE

All owners undertake some level of analysis and targeted due diligence prior to undertaking construction projects. This almost always involves weighing the available delivery methods and engaging management consultants to assess the project's complexity, risks, and needs. Owners may also engage industry organizations like the Associated General Contractors of America or the Construction Management Association of America to gain insights on the latest trends and best practices in project delivery. However, despite this investment, owners may still select the delivery method they are most comfortable with or, alternatively, the latest and greatest thing. By considering and remaining open to the full spectrum of delivery methods throughout the selection process, owners will achieve the best possible alignment between their chosen delivery method and their project goals.

About the Author

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