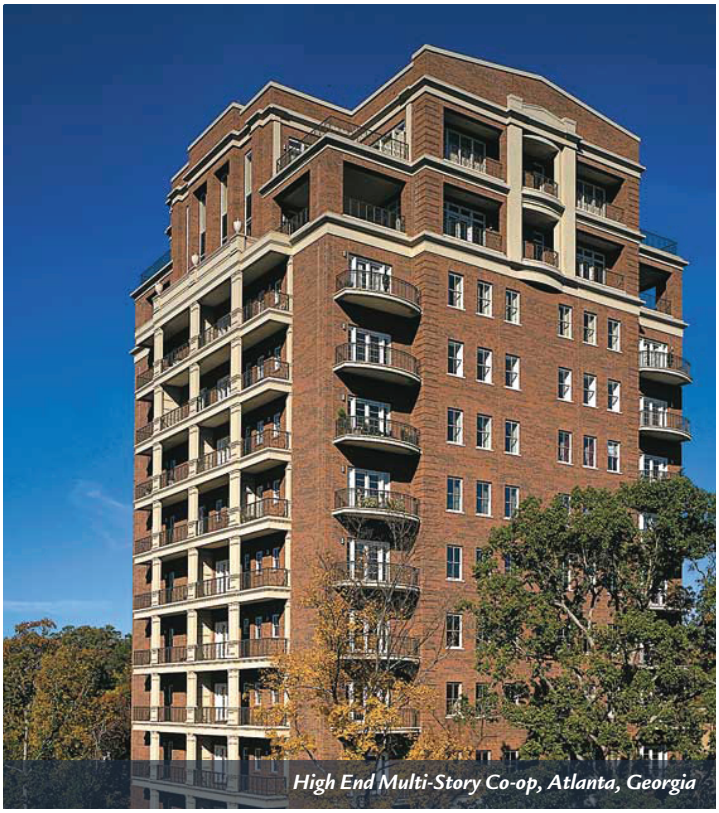
Bridging

Reducing the Owner's risks and costs in quality construction

Georgia Tech's New Campus at Savannah

Electronics Manufacturing Plant, Juarez, Mexico

Poly Canyon Village at Cal Poly, San Luis Obispo



High End Multi-Story Co-op, Atlanta, Georgia

Brookwood Group

ATLANTA / LOS ANGELES / SAN FRANCISCO

The Bridging Method

Bridging is the only project delivery method that provides the owner with a fixed, "all up" price for the construction with the Owner having only about half of typical design time and design costs at risk.

In fact, it is the only method that will provide those Owners who cannot rely upon relationships in procuring construction a dependable price based on less than 100% complete "working drawings and specifications".

The construction price under Bridging, when properly executed, is not only as dependable for the Owner as a price based on final Contract Documents under the traditional Design-Bid-Build method, it is more dependable because the Owner's exposure to unexpected change orders due to errors or omissions in the final "working drawings" and specifications is dramatically reduced. All too often, change orders amount to more than was budgeted for them. In projects carried out by Brookwood Group using Bridging, total contractor-initiated change orders have not exceeded 1% of the contract price on any project, with the average being under 0.3% of the contract price.

Bridging usually saves 4-5% or more in contract prices and dramatically reduces:

- **unexpected high Change Order costs.**
- **claims against the Owner.**
- **delays/costs/disputes for fixing the ever present post construction "bugs".**

Construction also goes faster and smoother under Bridging, and additional acceleration procedures work easily with this method.

Yet all of these advantages for the project owner are realized with Bridging without any loss of :

- **opportunity for creativity.**
- **control of design.**
- **control of design details.**
- **quality of engineering.**
- **quality of construction.**

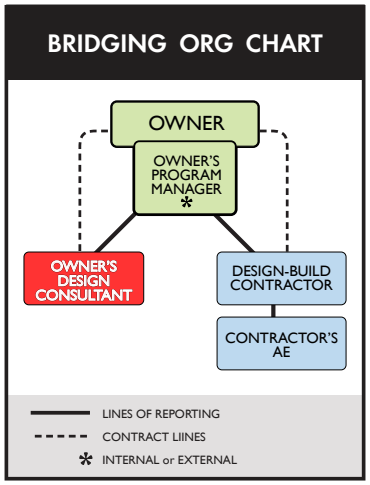


Figure 1

Details about the projects shown on the cover

Georgia Tech's New Campus at Savannah. 3 Buildings *Brookwood was both designer (Owner's Design Consultant) and the Owner's Development Manager. The original budget for construction was $21,155,860. However, the price came in at $19,643,685 with competitive bids based on the Bridging Contract Documents (BCDs). There were no Contractor initiated change orders and no claims against the Owner (The University Financing Foundation, a 501c3). The facility is leased to Georgia Tech which has the right to purchase.*

Poly Canyon Village at Cal Poly, San Luis Obispo, *Brookwood Group first provided consultation on project procurement methods and financing plus full Program Management. Project has been very successful with students as well as in all other respects. Bridging type contract was awarded in amount of the original project budget with several betterments including LEED Gold included in the price. Cal Poly exec points out that the project was completed "on spec, on budget, on schedule" with no contractor initiated change orders.*

Electronics Manufacturing Plant, Juarez, Mexico, *Brookwood provided Development Management including site procurement, design services (Owner's Design Consultant) and project management for Scientific Atlanta (now part of Cisco Systems).. The first half of the space (50K sf) was occupied 7 months after the client first discussed the project with Brookwood. Remaining 50K sf was occupied 3 months later. Original budget: $8mm. Contract award price (competitive bids on BCDs): $7,346,800. One Contractor initiated change order: $38,310. No delays or costs to the Owner for fixing several minor "bugs" discovered after occupancy.*

High End Multi-Story Co-op, Atlanta, Georgia, *The Wakefield in the Buckhead area of Atlanta. Brookwood owners were the developers. Brookwood carried out the design as the Owner's Design Consultant as well as full Development Management including site search/purchase, arranging financing, carrying out marketing, and management of construction. Project was completed in 16 months on schedule. Contract award price:$15,183,000. One Contractor initiated change order: $8,400. No claims against Owner (Developer). There were several "bugs" promptly corrected by Contractor at no cost to owners.*

How the Bridging Method Works

Step 1: A designer or design team is selected as the Owner's Design Consultant ("ODC"), sometimes referred to as the "Bridging Architect" **(Figure 1)**. The ODC goes through Schematic Design in the same way an architect would do in traditional design services, with reviews and approvals by the Owner. Typically, the project budget and schedule would also be reconfirmed at this point **(Figure 2)**.

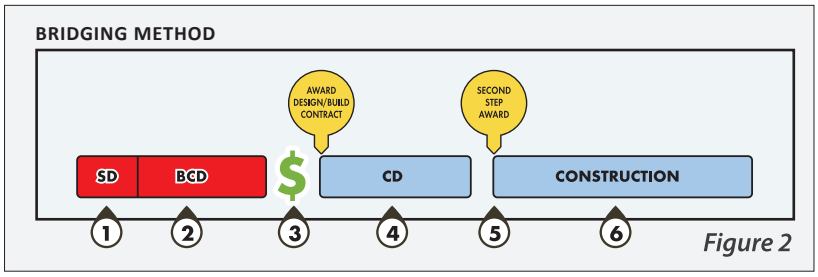


Figure 2

Step 2. In this phase the ODC with its consulting engineers as well as the Program Manager (if there is one) prepares the Bridging Contract Documents ("BCDs"). While this will typically require about the same level of effort as the preparation of "Design Development" documents required in the traditional Design-Bid-Build method, BCDs are quite different from "DD" documents. They will be much more complete in many aspects, usually the architectural, and much less complete in others, typically some elements of the engineering. However, if the BCDs are properly prepared following Bridging methodology, the contract provides highly dependable protection of the design intent and of the contract price. In Bridging this is achieved with a design-build type of contract as opposed to a traditional construction contract, though Bridging is not Design-Build in the way Design-Build is typically carried out. (Figure 3).

Step 3. The Owner can then receive competitive, fixed-price proposals based on the BCDs for the full project for a 2-step award contract. In this way the Contractor (who has its own architects/engineers by sub-contract or as employees) has the complete responsibility for both the construction and the final drawings and specifications and their being in compliance with the BCDs and for their completeness, accuracy and code compliance.

Step 4. If the Owner is now ready to proceed, the Owner would then authorize the preparation of Construction Documents ("CDs") by the Contactor and its AEs. As this work proceeds the ODC will review these documents for compliance with the BCDs.

Step 5. Upon proper completion of the CDs, the Owner may proceed with the construction or terminate the contract with the Contractor without cause by payment for the CDs. The CDs then belong to the Owner. If Owner chooses to proceed construction is authorized.

Step 6. During the construction the ODC and Program Manager (if there is one) would also represent the Owner with on-site observation of the work, seeing that construction is in compliance with both the CDs and the BCDs, authorizing the monthly progress payments and final payment to Contractor.

*These Bridging Contract Documents **(Figure 3)** must fully protect the design, the quality, and the Owner financially, while allowing the proposing contractor as much latitude as is prudent in order to get the best price.*

Bridging may also be easily combined with CM-at-Risk for better results from CM-at-Risk.

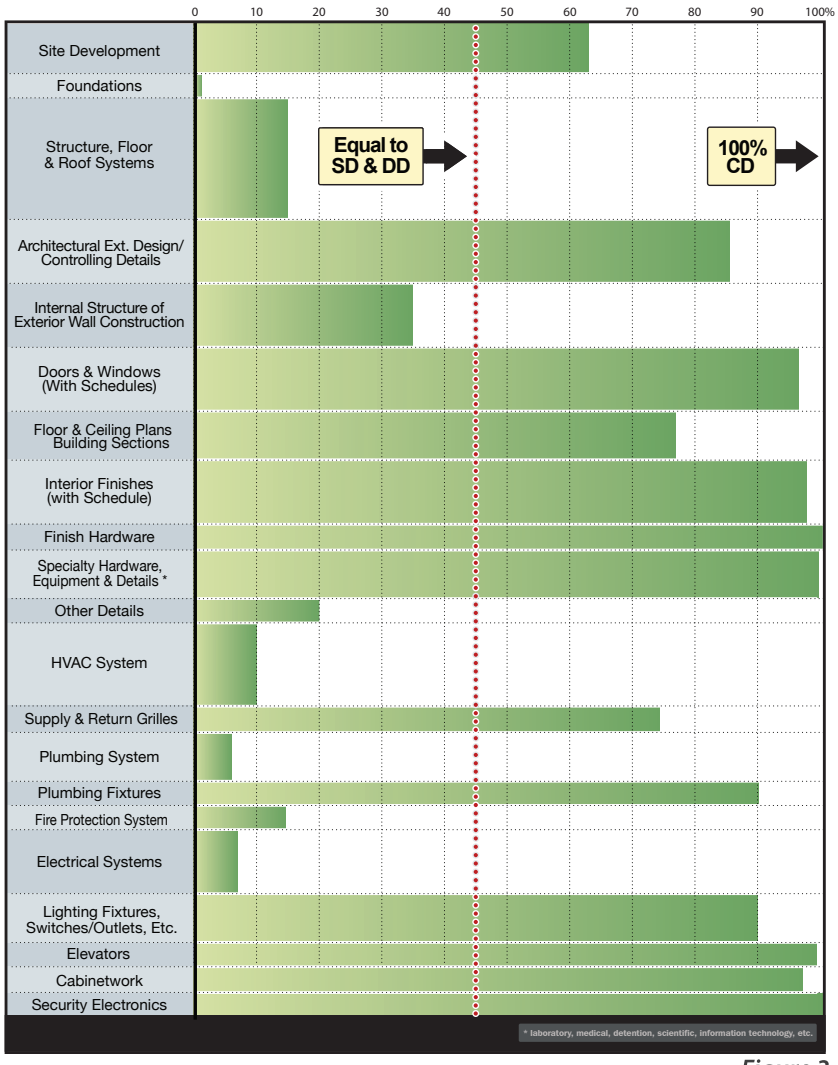
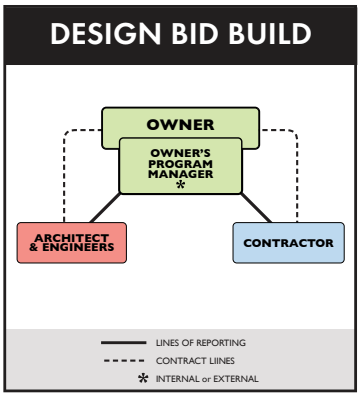


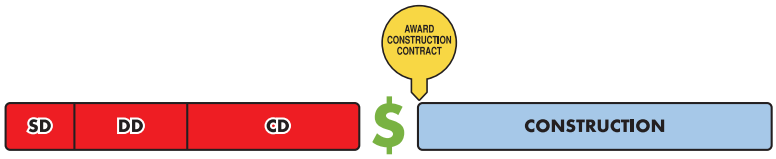
Figure 3

Bridging Protects the Owner Better Than Other Methods

Bridging solves problems that owners often encounter with the three most commonly used project delivery methods ("Design-Bid-Build", "Design-Build" and "CM-at-Risk"). While all three of these methods have advantages, they each have serious flaws in terms of protecting the best interests of the Owner (and/or User). The pros and cons of each are discussed below.

DESIGN BID BUILD

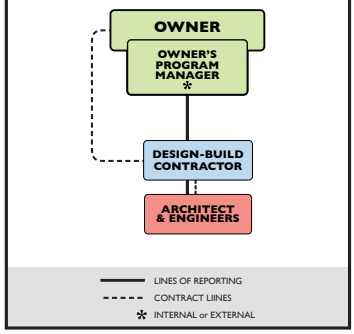


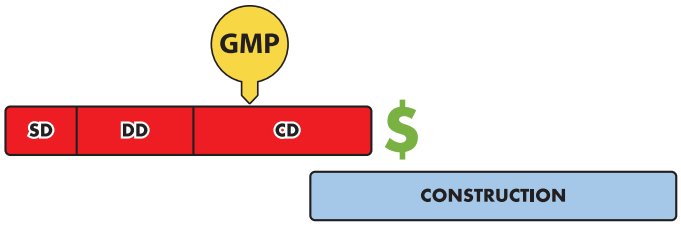


Advantages: Logical and orderly process, well understood throughout the industry. Owner has a firm price based on complete contract documents before authorizing construction. Architect and Engineers have direct professional relationship with the Owner.

Disadvantages: Takes too long and costs the Owner too much to obtain a reasonably dependable total price. Method assumes that architects and engineers have the best knowledge of construction methods and costs, which is rarely the case. Assumes that the Contract Documents (final drawings and specifications) are free of errors and omissions, which is humanly impossible.

DESIGN BUILD

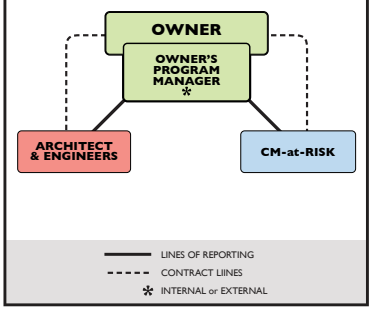


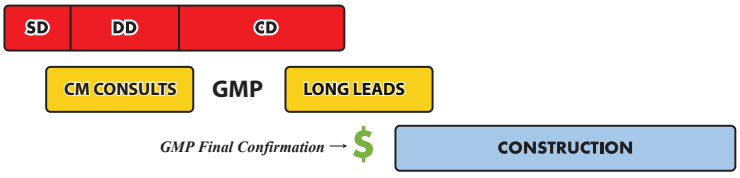


Advantages: Contractor brings construction know-how to the design process from the outset and has full responsibility for both the design and the construction

Disadvantages: There is a clear and serious conflict-of-interest between the Owner and the Architect and Engineers. A "Guaranteed Maximum Price" (GMP) issued on less than 100% complete working drawings and specifications is not contractually enforceable. Further, under this method it is often difficult for the Owner to obtain true competition on price for fully equivalent quality and details.

CM-at-RISK





Advantages: Contractor ("CM") enters the process relatively early so as to provide costing, scheduling and construction method information to the Owner's Architect and Engineers while design is still in development. Contractor is compensated by fee and obtains competitive prices from subs. Contractor provides a "Guaranteed Maximum Price" (GMP) at one or more points during the design process.

Disadvantages: A GMP based on less than 100% complete drawings and specifications is not contractually enforceable and can be misleading to the Owner. In many cases there can be a conflict due to the "CM" using the same subs on other projects concurrently with the CM serving as traditional general contractor on the other project. CM-at-Risk also has the same "finger pointing" problem often experienced in Design-Bid-Build.

The Bridging method of construction project delivery was developed primarily by George T. Heery FAIA RIBA FCMAA, Chairman of Brookwood Group. The name "Bridging" was originally coined in August of 1989 by S. Shepherd Heery, now President/CEO of Brookwood Group, who pointed out that the method "bridged" over many of the problems that Owners often encounter in design and construction programs. For more information on Bridging go to www.BridgingMethod.com where more information can also be found on Bridging/CM-at-Risk in the Downloads section.